MEETING RECORD

NAME OF GROUP:	PLANNING COMMISSION
DATE, TIME AND PLACE OF MEETING:	Wednesday, August 1, 2018, 1:00 p.m., Hearing Room 112 on the first floor of the County-City Building, 555 S. 10th Street, Lincoln, Nebraska
MEMBERS IN ATTENDANCE:	Tom Beckius, Tracy Corr, Tracy Edgerton, Deane Finnegan, Chris Hove, Cristy Joy and Dennis Scheer; (Maja Harris and Sändra Washington absent).
OTHERS IN ATTENDANCE:	David Cary, Steve Henrichsen, Ed Zimmer, Brian Will, Tom Cajka, Rachel Jones, George Wesselhoft, Geri Rorabaugh and Teresa McKinstry of the Planning Department; Chris Schroeder from the Health Dept.; Jenifer Holloway from the County's Attorney's office; media and other interested citizens.
STATED PURPOSE OF MEETING:	Regular Planning Commission Hearing

Chair Scheer called the meeting to order and acknowledged the posting of the Open Meetings Act in the room.

Scheer requested a motion approving the minutes of the regular Planning Commission hearing held July 18, 2018. Motion for approval made by Hove, seconded by Beckius and carried 7-0: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer voting 'yes'; Harris and Washington absent.

CONSENT AGENDA
PUBLIC HEARING & ADMINISTRATIVE ACTION
BEFORE PLANNING COMMISSION: **August 1, 2018**

Members present: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer; Harris and Washington absent.

The Consent Agenda consisted of the following items: **CHANGE OF ZONE NO. 18020, CHANGE OF ZONE NO. 18021 AND WAIVER NO. 18003.**

Rorabaugh called for any ex parte communications.

Edgerton stated that she contacted Rachel Jones of Planning staff this morning with a question.

An audience member requested removal of Waiver No. 18003.

Corr moved approval of the remaining Consent Agenda, seconded by Edgerton and carried 7-0: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer voting 'yes'; Harris and Washington absent.

Note: This is a recommendation to the City Council on **CHANGE OF ZONE NO. 18020 and CHANGE OF ZONE NO. 18021**.

Scheer called for Requests for Deferral.

CHANGE OF ZONE NO. 18013
FROM AGR (AGRICULTURAL RESIDENTIAL) TO O-3 (OFFICE PARK DISTRICT) AND R-3 (RESIDENTIAL), ON PROPERTY GENERALLY LOCATION AT 8435 FIRETHORN LANE
and
USE PERMIT NO. 18005
FOR AN APPROXIMATELY 2.74 ACRE USE PERMIT FOR UP TO 26,400 SQUARE FEET OF COMMERCIAL FLOOR AREA, WITH WAIVERS TO SETBACKS, LIGHTING DESIGN STANDARDS AND ACCESS OFF THE END OF A PRIVATE ROADWAY, ON PROPERTY GENERALLY LOCATED AT 8435 FIRETHORN LANE
PUBLIC HEARING: **August 1, 2018**

Members present: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer; Harris and Washington absent.

Staff recommendation: Approval of Change of Zone No. 18013 and
Conditional Approval of Use Permit No. 18005

There were no ex parte communications disclosed on this item.

A written request was received on behalf of the applicant to defer these items for two weeks to the regular Planning Commission hearing on August 15, 2018.

Beckius moved for a two week deferral to have Public Hearing and Action at the regular Planning Commission meeting of August 15, 2018, seconded by Edgerton and carried 7-0: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer voting 'yes'; Harris and Washington absent.

WAIVER NO. 18003
TO WAIVE THE 90-FOOT MINIMUM LOT-DEPTH REQUIREMENT PER SECTION 26.23.140(a) OF THE SUBDIVISION ORDINANCE, ON PROPERTY GENERALLY LOCATED AT 2036 N. 63RD STREET
PUBLIC HEARING: **August 1, 2018**

Members present: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer; Harris and Washington absent.

Staff Recommendation: Conditional Approval.

There were no ex parte communications disclosed on this item.

Staff Presentation: Rachel Jones of the Planning Department stated that this proposal would allow for a waiver of the 90 foot minimum lot depth requirement. This is located on N. 63rd Street and Colby Street. The house would be located on the south lot. This subdivision pattern exists in several locations throughout the Bethany Neighborhood. She showed a map of similar lot layouts. Staff has said that this exists throughout the neighborhood and maintains the existing character.

Applicant:

Aaron Impens feels that this is an appropriate use and is here to answer questions.

Corr inquired how long Impens has owned this property. Impens replied less than one year. Corr questioned if the tenants were already there. Impens replied no. Corr stated that several letter were received that noted concern about the condition of the property. She questioned what policies the applicant will have in place to prevent tires, overgrowth and other issues that may arise. Impens responded that as soon as he became aware of any issues, he remedied the situation. We acted upon this as soon as we became aware. Corr asked if the applicant lives in Lincoln and routinely checks on his properties. Impens responded that he visits properties when they are being rehabbed, then they are transferred to the property manager.

Edgerton wanted to address neighbor concerns. She respect that neighbors saw this as an opportunity to note this was a concern. She appreciates it was cleaned up and hopes the applicant hopes to remain a good neighbor in the future. Impens understands and wants to be a good neighbor as well.

There was no testimony in support or opposition.

WAIVER NO. 18003
ACTION BY PLANNING COMMISSION: **August 1, 2018**

Hove moved Conditional Approval, seconded by Edgerton.

Corr pointed out that there are places on the City website to report any issues the neighbors may be having.

Motion for Conditional approval carried 7-0: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer voting 'yes'; Harris and Washington absent.

Note: This is final action unless appealed to the City Council.

COUNTY SPECIAL PERMIT NO. 18025
FOR CONSTRUCTION OF A COMMERCIAL FEEDLOT, ON PROPERTY GENERALLY LOCATED AT 13350 WEST WITTSTRUCK ROAD
PUBLIC HEARING: **August 1, 2018**

Members present: Beckius, Corr, Edgerton, Finnegan, Hove, Joy and Scheer; Harris and Washington absent.

Staff Recommendation: Conditional Approval.

Rorabaugh called for any ex parte communications.

Corr stated that she received a phone call from a gentleman named Don. She doesn't know his last name. She notified him how to write a letter stating his concerns and then it could be shared with the entire Commission.

Hove received a phone message from a Mr. Berry. He called him back but he didn't answer. He also briefly talked about this item at the Chamber of Commerce.

Finnegan received a comment from Graham Christensen, as well as a question from a friend. She informed them how to submit a letter or to attend the hearing and testify.

Staff Presentation: Tom Cajka of the Planning Department presented some revised conditions being proposed by staff:

Site Specific Conditions:

1. Before receiving building permits, the permittee shall cause to be prepared and submitted to the Planning Department a revised and reproducible final plot plan including **3** copies with all required revisions and documents as listed below:

   1.1 Add the title "Randy Essink Commercial Feedlot. Special Permit #18025 to the site plan.

   1.2 Add a legal description to the site plan.

   1.3 Identify on the site plan a quarter mile (1,320 feet) setback from the nearest point of any new building to the nearest existing house at the time of application.

   1.4 Identify the compost shed on the site plan

   1.5 Add a note to the site plan that any chicken barn and compost shed shall be located a minimum of a quarter mile (1,320 feet) from any existing house.

2.1 Before receiving building permits provide the following documents to the Planning Department:

   2.1.1 Verification from the Register of Deeds that the letter of acceptance as required by the approval of the special permit has been recorded.

2.2 As part of occupying the buildings, the permittee shall:

   2.2.1 Maintain an approved Nutrient Management Plan by the Nebraska Department of Environmental Quality.

   2.2.2 Keep all animal waste and litter inside all buildings. No outside storage of these items is allowed.

Cajka stated that representatives are available from the Nebraska Dept. of Environmental Quality (NDEQ) to discuss the process and procedures regarding feedlots. Also, a representative is here from the Nebraska Dept. of Agriculture (NDA) to discuss LB106.

Corr inquired if the revised conditions were developed in conjunction with the applicant. Cajka responded they were discussed with the applicant.

Shelley Schneider of NDEQ appeared with **Ben Miller**, who is a Supervisor in the AG section. She is water permits administrator. One of the sections in her division is the AG section. They monitor the National Pollutant Discharge Elimination System (NPDES) program. She handed out packets of information that they prepare for the poultry industry (Attachment 1). The department has not received an application for this operation yet.

Someone must submit a Form A and request an initial inspection. The purpose is to talk with the producer about their plans and make sure the location will meet their needs. After the inspection, a letter is sent as to whether a permit is required. In this case, permits have not typically been required because wastewater permits are not required. In conversations with Costco, they have indicated their desire to have their facilities permitted. Once we receive the Form B application, this shows how they plan to handle the litter, how they handle mortalities and best practices for minimizing odors. As soon as the application is received, we send copies of these applications to the County Board and local resources board. This is a requirement under statute. We have several people that review these applications to determine if there are any issues that need to be addressed. The engineer reviews the management plan. Agronomy reviews the land plan. Lastly, a groundwater specialist reviews any potential impacts and determines if any groundwater monitoring is necessary. Once we are prepared to make a decision, we advertise public notice of our intent and gather any comments. The producer must notify us when construction is complete. We will then inspect the facility. We plan to approach inspection the way we do all other livestock facilities in the state. After the initial opening, we inspect in the first year. If there are no issues, we inspect every three to five years. If there are issues, we would inspect sooner than that. We work with the producer to address and correct any issues.

Corr questioned what kind of problems that would entail, that need enforced. Is there a point where someone would have an egregious violation where a permit would be pulled? Ben Miller stated we will always work with someone to see about addressing their violations.

Corr wondered since the NDEQ oversees the whole state, how many poultry farms are in Nebraska. Schneider replied that there are 129 large poultry operations in the state. This would be considered a large operation. Corr questioned how often a complaint is received. Miller responded that we rarely receive a complaint on the poultry side. Corr asked if all poultry operations are inside. Schneider responded that all dry process is contained.

Hove wondered about the largest poultry operation. Schneider responded that the largest has 5 million birds.

Finnegan asked if there have been any complaints on Costco barns. Schneider stated that she doesn't believe any have completed construction yet.

Edgerton questioned why a permit not required for wastewater. Schneider replied it is because they don't have a lagoon. Edgerton inquired if anyone else has a lagoon. Miller replied one, it is an egg production not associated with livestock. This is intended to be a dry operation. He noted that we have not received an application yet, just a preliminary inspection request.

Edgerton asked if any of the larger operations are in Lancaster, Sarpy or Douglas counties. Schneider replied that Firth would be the closest location.

Steve Martin, Nebraska Dept. of Agriculture wants to discuss Legislative Bill 106 (LB106) and composting. LB106 came about as a discussion in looking at how counties in Nebraska have local control. There are 93 different counties and 93 different ways of regulating. We wanted to have consistency in the process. We wanted to try and take some emotion out of the decision making process. First, you recognize the DEQ status. Second is setback distances. These are county established. Then, there are ten other categories; manure disposal, preparedness plans, etc. As this is scored and is turned in with the application, you can see what the applicant is planning to do. There are composting plans. At the end of the matrix, the committee that developed these decided that 75 and above is a passing score. We have three counties that have officially adopted this as part of their process. It is a voluntary program. Hall County uses the matrix, but changed some of the language. They have a more robust process.

Edgerton asked if the producer fills out the matrix. Martin replied yes. We get calls every now and then on how a section works. We don't do the scoring.

Hove asked if there is any consistency in the setback distances. Martin replied the short answer is, no. Every county is free to create their setback distances. There is some consistency in actual distances, the number of animals compared to distance.

Beckius sees that Hall County made some changes. Does Martin know the process they went through? Martin replied yes. It took about a year. They went to a regional planning and zoning group over several months and took testimony. It was then taken to the County Board for approval.

Edgerton asked if they are using this as part of a permitting process. Martin stated it is used as part of the County process. This is a part of knowing that going through the NDEQ process is pretty expensive. A lot of producers go to the County first before the NDEQ permit. The County recognizes that without a NDEQ permit, this won't happen.

Hove wondered if this covers hogs and cattle as well. Martin responded it covers all livestock.

Martin stated that Title 23, Chapter 23 speaks to livestock composting. Composting is one of the best management practices for mortality. Incineration, burial or rendering and landfill disposal are other options. The biggest issue with rendering is security. You increase the odds of disease being passed. Incineration can speak to air quality issues. Burial has its own issues. From a standpoint of best management issues, composting is the best method of dealing with mortality issues. As long as you have a good carbon source, you have a good quality. There are regulations from the Dept. of Agriculture.

Edgerton would like to hear Martin's thought on why only three counties have adopted the matrix so far. Martin believes in part, because it is new. He was glad to see Hall County adopt it. He believes the way they took it on can be modeled in other counties going forward.

Applicant:

Randy Essink, 355 West 1st Street, Cortland, NE appeared as applicant. He is proposing four poultry barns on this property. We intend to live here and work closer to home. He wants to address a few items from the last meeting. He was criticized for not knowing a lot about poultry. The reality is that a lot of farmers in Nebraska don't know a lot about this type of poultry farming. He is willing to learn the best way to do this. He was criticized for not talking to the neighbors first. He apologized for not speaking with them. They applied for a permit right away. He didn't foresee this as an issue. It is an AG use on AG land. It is his goal to develop good communication with his neighbors.

Jessica Kolterman of Lincoln Premium Poultry wanted to address any concerns. She submitted a letter of support from the Nebraska Dept. of Economic Development (Attachment 2). She wanted to address truck traffic. Two propane trucks will come out when this is getting set up. The chicks are delivered in two trucks and taken away in about ten trucks. All trucks are covered. This is a full cover that is Canadian technology and is new to the United States. A lot of people have addressed concerns about truck safety. The people who will do the trucking are local trucking companies who will be familiar with the roads. One company will be from outside the area, but carry a good reputation. All will work with the Nebraska Dept. of Transportation (NDOT).

The birds will be raised antibiotic free. We will have a veterinarian on staff for any illness that might arise. We will utilize two 80 gallon per minute wells, one for use and one for backup. The average water use for consumption is 4.63 gallons per minute throughout the flock cycle. Additional water is used for cooling during very hot days. In order to build the barns, the owner must prove that water is available. The grower will work with the local NRD (Natural Resources District) to obtain a well permit.

There were a lot of questions about windrowing last meeting. Litter is broken down inside the barns through inside composting. There were also questions about the tunnel ventilation. Panels are opened up to the building and wind is drawn through the building. The mortality shed has a cement floor and is composted with litter to break down the birds.

Grower training programs are very important. Workshops are already provided by Dr. Jim Donald of Auburn University National Poultry Technology Center. We have ongoing conversations with the University of Nebraska. We have fulltime staff assisting growers and a full time veterinarian as well. We have worked with many agencies, NDED, Dept. of AG, NDEQ, NDOT, Game and Parks, Dept. of Revenue, Dept. of Labor, the local NRD, local utilities and the health dept., U.S. Fish and Wildlife, NRCS, U.S. Corp. of Engineers and the USDA. We have had over 100 public hearings to date.

Katie Spohn with Bruning Law Group wanted to share a little of the legal framework that the applicant is operating on. We wanted to make sure we are operating under the correct assumptions. Planning Commission has the authority to approve the Comprehensive Plan and grant special permits. This land is zoned for AG. A commercial feedlot is an approved use. Lancaster County has made clear that looking in the AG section, the Comprehensive Plan speaks to preventing urban sprawl and maintaining AG land. Lancaster County regulations say that a commercial feed lot shall be allowed by special permit, subject to special consideration of special pollution requirements. We believe the concerns have been addressed and the zoning regulations are clear that this shall be allowed.

Hove wondered if Spohn is telling the Commission that we don't have a choice. Spohn is just pointing out that County regulation 13.035 states a commercial feedlot for livestock and poultry shall be allowed. That is what the regulations say. She believes you can impose conditions. Edgerton noted that regulation 13.001 and 13.002 speak to the Planning Commission considering the effects on the neighborhood. Spohn agrees, it speaks to the general welfare. Edgerton agrees, the public health and general welfare need to be taken into consideration.

Finnegan asked how long it takes to get this up and running if approval here is received. Schneider stated that they have a statutory requirement for decision within 110 days.

Proponents:

1. Allen Kampschnieder, Nutrient Advisors in West Point, NE is doing nutrient management work for the applicant. We have a new drawing from the engineer (Attachment 3). We also have a draft nutrient management plan. We would incorporate any conditions the Planning Commission might impose. He won't submit this because it will probably change.

2. Kristen Hassebrook 2192 West Mill Rd., Raymond, NE is the executive director for Alliance For The Future. She submitted a letter in support (Attachment 4). We looked at actual property values surrounding feed lots. They generally went up in value. We also looked at the odor impact. Within a ¼ mile, it should be 95 percent odor free. This is from a University of Nebraska tool. She would hope this commission continues to encourage small business and AG growers.

Hove noted the letter submitted states the property is surrounded by trees. Hassebrook noted that is true. It is surrounded by trees.

Edgerton wondered about the odor footprint tool. Hassebrook stated it was created by the University of Nebraska.

3. Doug Oertwich, 83810 572nd Ave., Pilger, NE is going to be a grower for Costco Lincoln Poultry as well. They are doing an excellent job. These will be state of the art barns run very professionally.

4. Jeff Shaner, 225 N. 7th St., Ft. Calhoun, NE will also be a grower with Lincoln Poultry. We have also seen high concentrations of this type of facility. There are a lot of facilities that live in conjunction with these. They are comingled and everyone lives together. He believes it is overlooked that the goal as a grower is to provide a stress free environment for these birds. You want to make the birds comfortable and have good air quality. There will be ventilation in the facilities. He believes this is a good opportunity for our rural communities to have increased economic opportunity.

Edgerton understands that Shaner will be grower. She inquired what stage he is at of the process. Shaner replied that one side is under construction at this time.

5. Tim Mueller, 8684 E. 14th Ave., Columbus, NE will also be a grower. He believes this will be a great opportunity. This will help the state and local school districts. He is in favor of this.

Finnegan asked if he has had good support. Mueller believes he has had good support from the state. It has been a positive experience.

Corr questioned if he has any experience with birds. Mueller responded just experience from when he was a kid. They want to teach new growers how to do it their way and the right way.

Hove asked who will be doing the construction. Mueller replied QC supply from Schuyler, Nebraska.

6. Adam Hladky, 4180 Old Mill Rd., Utica, NE is a fourth generation farmer. AG is the number one driver of economics in this state. We must keep AG strong and growing. Everyone complains about the manure. It is organic fertilizer. He is all in favor of acreage people, but not at the risk of destroying farming. Rough roads are part of living in the country.

7. Emily Skillett, 543 W. Jennifer Dr., Lincoln, NE is an employee of Lincoln Premium Poultry. We do not pick sites. We partner with our farmers. They come forward with options. We don't always take every option on the land. We have turned down sites if they don't work. This is not something we dictate. This is a partnership.

8. Al Stephens, 21904 Rustic Ridge Rd., Elkhorn, NE is with QC Supply from Schuyler, Nebraska. He lives in Elkhorn. Has been in the poultry and swine industry for close to 40 years. This is the highest quality approach that he has seen. Designing the barns, environmental control, they will look good when they are built, they will look good in the future. These are first class looking facilities. They have exceeded the rules and regulations. This is grower friendly. There is no downside to the economic formulas. This is breaking ground in the industry in relation to the way that they approach the contracts. When this is up and running, there will be 350 to 400 complexes up in the area.

9. Dave Nielsen, 7100 Raymond Rd., Lincoln, NE has served on AG committees and seen the impact of what livestock can do to a community. Livestock is the key to agriculture in this state. A young guy can't afford to go out and buy hundreds of acres and farm soybeans. This is modern agriculture. This is the way we are raising livestock today. He has traveled to Taiwan. There was a hog operation right next door to the house they visited. You couldn't even smell it. He agrees with all the economic benefits touted. It will have a financial impact to the state. He strongly supports this. It is what is good for the state.

10. Willow Holoubek, 3531 M Road, David City, NE is proud to be an employee of Lincoln Premium Poultry. She wants to talk about how the poultry industry has been Nebraskanized. These poultry facilities have been designed for Nebraska. They can take the snow load and the wind. These are wind tight and will stand up to our winters. All of our growers will have an NDEQ discharge permit even though they don't have to. We will be able to prove we aren't contaminating the waters of our state. We need to feed our corn to protein animals. We have a contract like no other in the industry. We don't have an arbitration clause. We have a 15 year contract to make sure these farmers can remain viable. Our breeder contracts people who grow for eggs. We guarantee the number of birds to our breeder houses. We guarantee six flocks a year. Poultry and humans can coexist. We are asking for at least ¼ mile setback. The contracts we have with our growers are guaranteed. We will be environmentally friendly. This will bring a $1.2 billion dollars activity to the rural community.

Opponents:

1. Jim Luers, 6021 Rosebud Circle, Lincoln, NE owns a farm on SW. 98th Street. He understands there are about three different permits this property is going to get. He wondered why they can't get the permits before this is approved. He heard a woman say there are situations where these aren't approved, in the vicinity of a lake or wildlife preserve. He finds it interesting that they will have 200,000 chickens inside living on top of their own feces. There will be an increase in rodents and odors. The compost shed shown didn't have any sides. He wondered how odor will be contained. Truck traffic posed a danger to drivers and young drivers. This facility could potentially cause surface water problems, COPD and health related issues. Until last week, this virtually had no oversight. This will be operated by a gentlemen who has no experience in this.

Corr reminded everyone this needs to be new testimony.

2. Mary Pipher is a founding member of the Guardians of the Aquifer. She would request denial of this application. Both our quality and quantity of water is at risk. Any additional loads will cause problems. Holmes Lake was closed for blue green algae. Many other lakes in the county have had problems. There are many other health issues to consider. Polluted waters means southeast Nebraska is the Parkinson's center of Nebraska. The area around this site is beautiful. There are many attractions that surround this. A large chicken operation is inappropriate for this area. A large chicken operation in this area won't be a selling point to businesses. We have inadequate consultation from our scientists. We might ask what is the benefit. Corporations have a goal to make money. The management is inadequate. Randy Essink has no experience. This will be inspected every three to five years. We risk domino effects. If we allow this, how will we stop others? This permit does not deal with the issue of scale. Southeast Nebraska will not be dealing with a population of 22 million chickens. Please help us protect our citizens.

Finnegan wondered what she would say if a farmer bought this and placed about 50 hogs on the land. Pipher is questioning the lack of science. We don't' have the science on this yet.

3. Andrew Knight, 5225 S. Windlesham Court, Lincoln, NE stands behind the assessment he made at the last meeting. He showed a matrix. There are no requirements for setbacks. The state has minimum standards. For this operation in the 1,001 to 2,500 animals, the setback is 1,650 feet. The bigger picture is that Costco feedlots are trying to figure out what the regulations will be in Lancaster County. There is a neighborhood here. They want to set a precedent. What is interesting is the state standard. We have had to pry this information out of Costco. He is not against Costco, but this is not the right location for this type of operation. He also found two similar operations. One is near Waverly (Attachment 5). There has been a lack of nuisance and odor complaints. It was an expansion of an existing

facility. There was another application that had clear language demonstrating how the applicant reached out to the community. That has not happened in this case. There are a lot of backyards that were here first that deserve to be protected. Why don't we have higher standards?

Hove questioned where Knight obtained his setback standards from. Knight replied the Nebraska Dept. of Agriculture. They were developed for LB 106.

4. Don Goebel, Route, #4, Fairbury, NE wants to maintain local control so we don't get overrun. A while back, he talked to Walt Schaefer at Wahoo and asked why Walt didn't grow chickens on his own farm. He believes it is a fair question to ask what the growers get out of this. Lincoln Premium Poultry (LPP) owns the feed and the chicks. The growers own the barn and the land. They have all the liability. This is a one sided deal. That means there is no market reward to the grower. It is going to take 15 years to pay this off. What is needed is an independent project suitability request. LPP should like this as well so they don't join the other chicken processors that have unfair contracts. This is a bad idea. We want to make sure the county doesn't end up with a downside as well, in the case of bankruptcy.

5. Carol Dicks 3715 Everest St., Lincoln NE has been studying this. She urges the commission to take her concerns seriously. She wants everyone to understand the air quality. She submitted a Final Report on Iowa Concentrated Animal Feeding Operations Air Quality Study (Attachment 6a) and Understanding Concentrated Animal Feeding Operations and Their Impact on Communities (Attachment 6b). She turns off her air when goes through Iowa and past a livestock facility. The smell is horrible. She has been camping next to a livestock facility and it smells. The odor is worse than what is associated with a smaller livestock farm. The transport of composted material to farms hasn't been addressed yet. More truck traffic contributes to more air pollution. Odors can be smelled five or more miles away. Mental health deterioration can impair balance and memory, greenhouse gases and methane. She read Dave Domina's report from 2010 (Attachment 6c) which talked about Costco and LPP, a shell company where consequences are shifted to the citizens.

6. Ed Hubbs, Spring Creek Prairie Audubon Center, 11700 SW. 100th Street, Denton, NE. He is only going to highlight a few major points that weren't discussed two weeks ago. We are located just a few miles to the east. We expect to see thousands of visitors. This is one of the most imperiled ecosystems in all of the country. Light pollution issues are caused by 24/7 lighting. Spring Creek Prairie has a lot of tourists. Firefly picnics draw a lot of families. There is also the visual impact.

7. Pam Wakeman, 15751 Bobwhite Trail, Crete, NE opposes this special permit. She has a friend who serves on a Planning Commission in another county. The charge is to protect the existing people and allow for orderly growth. We are talking about Lancaster County, not

other counties who have these in place. There is a strong need for regulations to be put in place. She called the County Board to see who put the regulations in place. She was told it is the job of Planning Commission to have new regulations. Just because one operation has been granted in this county, doesn't mean others have to follow. Conditions have been added to the permit, but they are the same regulations that Costco requires. This is an industrial use, not an AG use. The grower takes on the huge financial risk. This is a large scale monopoly referred to as a vertical integration. Planning Commission will take into consideration the welfare of the citizens.

8. Robert Mueting, 11659 W. Yankee Hill Rd., Denton, NE is south of this site. In looking at the staff report, this is a conditional use for a commercial feedlot. This is a chicken factory. He put together a report on confinement facts (Attachment 7). There was a dispute about the initial Costco contract. States in the south have had a huge increase in chicken factories over the years. Environmental groups are concerned. Conclusion was drawn that a very powerful industry has control over regulations. Such chicken operations emit an unbearable stench of death. People who live nearby frequently complain about strong odors. There has been a debate about EPA policy. The role of federal government is to set guidelines, state planning laws and local zoning ordinance represents the main process for regulation. Right to farm statutes were enacted at a time when modern confinement operations did not exist. These buildings can cause serious respiratory issues. He hopes a little more research is done. These places smell. He requested denial of this special permit.

9. Peter Dowben, 12251 Bobwhite Trail, Crete, NE stated that Walt Schafer testified last time about the amount of feed and dry waste and how much manure it all creates. There is a Clemson report on chicken confined animal feeding operations (CAFO). He created an odor map based on testimony. If this is 3,000 tons of waste, he is assuming they are willing to truck in constantly, it would take eight days to ship this. Everyone in this area will be in anguish for more than a week. The applicant has also said they would sprinkle some magic stuff on the ground. There are only three ways to get rid of ammonia, burn it, let it go into the air or it turns into methyl nitrate.

10. Randy Ruppert, 2108 County Road O, Fremont, NE fought Costco last year from coming into Nickerson, Nebraska. Someone said they were going to put manure on the ground and save the cost of fossil fuel fertilizers. Iowa has far more CAFOs than we do. The use of fossil fuels in Iowa dropped ten percent. NDEQ says they will monitor this. Anyone want to ask what the standards are? Doesn't this beg the question we need new standards? We are listening to a lot of other outsiders. We spend $2 billion on food a year. One thing that wasn't mentioned about the trucks, someone skipped over the fact that these will come during the night. We do not feed the world. Sixty percent of the world is in food insecurity. Sixteen million children woke up this morning and didn't know where their food was coming from.

11. Bruce Barrett, 12501 W. Wittstruck, Crete, NE requests the removal of the condition that would allow them to increase manure storage. This would change the footprint.

12. Craig Watts, Fairmont, North Carolina is a guest of Nebraska Communities United. He is a former poultry producer. He wishes nothing but the best for this applicant, but getting into a contract for poultry has a reputation of causing some problems. He has people he trusted that showed this would make money. Various studies regarding chicken operations are conflicting. He regrets signing on to this. These companies are always pushing for upgrades and more expenses. They never bring any sort of cost benefit analysis to you. It took a lot more than a few hours a day to manage this. The rules kept changing the first four or five years he did this. There are many guidelines at the University of Georgia that state you will need additional income to make this work.

Corr asked if Watts was a grower for a Costco chicken farm. Watts replied no, it was a different company.

12. Jonathon Leo, 2321 Devonshire Drive, Lincoln, NE is an environmental lawyer and lobbyist. Has not testified on this item before. He has not dealt with poultry farms before. He has issues with the process. There is not a systematic and comprehensive process in place for Planning Commission to use in the deliberations as to whether or not the special permit application for this kind of a chicken barn is in the public interest. He realizes the primary jurisdiction is over zoning. Public health, safety and general welfare must be considered also. He would suggest that any application that has a negative effect must be considered also. The fact that there is not a consistent set of guidelines as to how you consider chicken CAFO operations is problematic. There should be a new pamphlet which includes guidelines of some kind for all chicken operators. This is something that should be made available to all members of the public for review. Because of the control that Costco has set up through a limited liability company, the position that the barn operators are in, it is unclear to him who the recipient will be of the nuisance lawsuits. He believes a veterinarian or avian specialist should be on call within 24 hours to address any issues. LPP should be required to provide that kind of assistance.

13. Jeremiach Picard, 3211 NW. 39th St., Lincoln, NE believes that the decision makers need to take into account that a lot of waste composting will create issues. This will create a lot of waste. You will need a lot of carbon to offset the nitrogen. Where does the carbon come from and who will transport it? Big Red Worms started out composting. This will be 190,000 birds at 6 lbs. per bird. When Iowa has the bird kill-off, there are significant costs. He doesn't see Costco providing locally and providing local money. He opposes this special permit. He feels this should be considered an industrial agricultural operation.

14. Curt McConnell, 13031 W. Bennet Rd., Denton, NE lives ¼ mile north of the proposed barn location. The Planning Commission can impose conditions. He would like to see some conditions implemented. He would like to see some paving of W. Wittstruck Rd. He would like to see guaranteed repairs in Saline County. He wants to see unimpeded operation of school buses allowed. No truck traffic should be allowed within 30 minutes of the school bus. He has a wind generator. He wants to see barns constructed to withstand 100 mph winds. He also wants fire sprinklers in the barns. Railroad fires are a reality. If things go south and Randy Essink is no longer operating, he thinks this should come back for a new special permit. He would like to see a plan created to fine the applicant if he is not living on the site and post a bond to pay for decommissioning the barns and site.

15. Betty Doty, 15000 Redwing Drive, Crete, NE is within one mile of the proposed chicken factory. She is a certified occupational nurse health manager. She reached out to neighbors for a nonscientific poll about their health conditions. Five have asthma or COPD. Some have chronic Lyme disease. There is a child with heart disease and on the transplant list. One neighbor has a newborns that is susceptible to airborne pathogens. These are just some of the responses she received. She thinks this is a grave concern and research needs to be done. She has referenced an article that talks about dust and feces, Fact Sheet, Air Pollution From Factory Farms (Attachment 8a). She also submitted an article from The Guardian regarding bacteria and chicken farms (Attachment 8b). It is listed as hazardous to your health. It is estimated that fifteen percent of poultry workers suffer from chronic respiratory problems. Adults are highly susceptible, children are at extreme risk. Nebraska doesn't have a law to protect residents from these types of operations. She was raised on a farm. One of her chores was taking care of the chickens. She agrees you should be able to do what you want with your land, but it shouldn't be something that will harm your neighbors.

16. Greg Hollman 15064 SW. 128th St., Crete, NE stated that the applicant said he didn't have time to talk to all the neighbors. He is the closest neighbor and he wasn't contacted. He is mostly concerned with water and the wells. He has various neighbors who have gone through numerous wells. A few miles to the west of this is someone with two pivots who can't run at the same time. Others have had to dig deeper wells. The State of Nebraska digs test wells. The closest one is in Denton. There are no irrigation wells in that area, you can't find it. Water is everything to him. He thinks they are putting in more than what is in the ground. Normal is to drill four test wells and that hasn't been done.

10 minute break – Scheer left

17. Nancy Packard 3737 Sewell St., Lincoln, NE is concerned with industrial things like this. Someone said they deal with the safety and comfort of the birds. That is 37,800 square feet and they are putting in 4.75 square feet per bird. This isn't proper. She doesn't want to see someone slip something in under the guise of agricultural. She is not sure how you could

compost all this without drawing millions of flies. She heard they will check this once every five years. She has her teeth checked twice a year,

18. Donna Roller, 2000 Twin Ridge Rd., Lincoln NE has heard the NDEQ say that there are requirements. She believes you should have a well before you start the operation. It seems like the State is doing things after the fact. She thinks it is also clear that Lancaster County is not prepared for this type of permit. She asks for a moratorium on this type of permit. Poultry barns being done in eastern states are contaminating the rural areas. Iowa is a model and they are in water crisis. The Des Moines Register has said that Iowa rivers and lakes are contaminated with high nitrate levels. This has nearly tripled the nitrate contamination in the state. Elevated nitrates are a consistent problem in Iowa. The estimated cost is $1.2 billion over the next five decades. Iowa has a clear water crisis. Nebraska is heading down this path. This is already happening in Waverly. We aren't prepared to act on this today.

19. Dusty Sumpter, 980 W. CR60, Fort Collins, CO has property that directly adjoins this property. It has been a family farm since 1933. Whatever happens today, this will affect everyone. She doesn't think there are enough facts yet. She wishes the best for Randy and his family, but saying yes today, opens this up to saying yes to other people down the road. She urged the Commissioners to consider the general welfare of the area and the health and safety.

20. Ken Tesar, 22401 SW. 114th St., Crete, NE stated that earlier it was testified that these buildings wouldn't be any different than common machine sheds. These will be a lot larger. He showed a picture taken from the property line. You can see many neighbors from this property. He will take anyone out to see the property.

Sumpter added that he also farms 80 acres next to this property. The property in question is 1,450 in elevation. Lincoln is 1,176 ft. His property next door is 1,470. You will be able to see this.

21. Jana Fulton, 15701 Lakeside Estate Dr., Crete, NE is within one to one and a half mile of this. She can read the LMC. It talks about considering the effect that the proposed use has upon the surrounding neighborhood, safety, community as a whole and other matters relating to public health. She doesn't understand why Commissioners would give such precedence to one individual versus numerous people who have lived in the area for many years.

22. Rev. Penny Greer, 1716 Trelawney Dr., Lincoln, NE is a retired Pastor of United Church of Christ. She believes the entire operation is a moral issue. Regardless of ones' faith, there are always different kinds of issues. This is a moral decision. There are people who will be affected no matter what you decide. She believes you need to go back to the heart of the issue. She believes you need to conserve the land and make future choices. This is a hard decision.

23. Edison McDonald 3921 Eagle Ridge Rd. #85, Lincoln, NE finds it concerning that the NDEQ has failed to acknowledge the research from John Hopkins on this project. This study shows that this is a potential danger to our health. Another piece he is concerned with, we keep trying to look at this as a one or two barn system, instead of considering the massive scale of this and how we do agriculture. This isn't family farming. LPP/Costco is saying they want to create a whole vertical monopoly in order to produce the product they want. He is concerned that the larger part of the conversation is being missed. You probably feel trapped about your ability to research this. He believes there is plenty of time to look into that and not vote today. You need to focus on protecting our community's unique resources. He doesn't feel that this project makes sense at this time.

Finnegan asked about the John Hopkins report that was referenced. McDonald stated that John Hopkins Center did a report for Fremont, NE. It talks about some of the larger implications. We are all connected.

Staff Questions:

Edgerton stated that someone was concerned about the last revised condition. Cajka responded that the proposed amendment would state no outside storage of animal waste.

Finnegan wanted to know if she is correct in thinking this would have an increase in chickens over time. Cajka stated this would limits the permit to 190,000 chickens and four barns.

Joy questioned if this permit is tied to this owner. Cajka responded that special permits run with the land.

Hove stated that LB106 was referenced with a setback of 1,600 feet. Martin stated that if Lancaster County were to adopt the matrix as written, if there was a dwelling within the setback distance, the only way for the project to move forward was if that property would sign an easement waiver. This is only if the County adopted the matrix. There is a formula that asks how many dwellings are within ½, and one and ½ times that distance. This all goes into a score. Hove inquired if the reference to 1,600 feet is accurate. Martin replied only if the county were to adopt the matrix. Finnegan asked if this applies to all animals or just chickens. Martin responded it applies to all animals.

Beckius questioned what effects these types of facilities have on air quality. **Chris Schroeder of the Health Dept.** stated that generally speaking, the pollutants wound be ammonia and hydrogen sulfide, along with particulate matter, meaning dust. Beckius asked about the potential health impacts of those items. Schroeder responded that there are studies out there that suggest people living near these facilities can encounter negative effects, primarily respiratory. Beckius asked if that is vastly different than what one might experience with row crop production nearby or other animals. Schroeder stated he can't answer that.

Corr noted that one person talked about Holmes Lake being closed due to algae growth and there has been talk about nitrates and phosphates that contribute to that growth. Can you speak to what causes those nitrates and phosphates to occur in Holmes Lake? Schroeder answered that is the cause of home fertilizer runoff and animal waste. Corr stated it is her understanding that the applicant would have to follow a pretty particular plan with the litter. From testimony at the last meeting, it was her impression that fertilizer on crops aren't regulated as much as this animal waste would be. Miller responded she was correct. Inorganic fertilizer is covered under a Federal AG exemption. Corr believes there would be more risk from a farmer applying pesticide. Miller noted there is not as much oversight in that area.

Beckius inquired about air quality standards for Lancaster County. Schroeder replied that these would be at levels below our permit levels. We have adopted City/County air pollution regulations. The particulate matter he talked about, these would be below when they require an air quality permit.

Corr noted that sometimes property owners or developers choose to purchase the land before they pursue permitting and sometimes it is the opposite. Cajka stated that we see applications both ways. Sometimes the property owner is not the applicant, the applicant is buying the property conditioned on a change of zone. Sometimes the applicant and owner are the same. Corr stated there was some talk about light pollution. Does staff have any concern about lighting? Cajka responded that the County does not have lighting regulations or standards.

Finnegan asked if there are any requirements for fire sprinklers. Cajka doesn't know, that would be a building permit question. It would have to happen at time of construction and be part of the building permit.

Corr inquired who can request a deferral. Cajka believes staff or the applicant.

Beckius would like NDEQ to discuss air quality monitoring relating to these types of facilities. Schneider stated there are ambient air quality issues that exist across the state. The state has a hydrogen sulfide standard. It is not a national standard. It is one we have not had issues with facilities such as this, but we have not had a lot of monitoring around. We did a study a few years ago around a feedlot and monitored there for both particulates and hydrogen sulfide and didn't find any levels above the standards we have in place.

Finnegan wondered how big the largest chicken farm is. Schneider replied 5 million birds. There are three facilities in the state that have over one million birds.

Applicant Rebuttal:

Essink has thought a lot about this and done some research. He presented some satellite photos of various sites and noted that they are not all recent (Attachment 9). We counted ten homes in a one mile radius. In a 1.5 mile radius, there are approximately 15 homes. He got information off the Lincoln Journal Star website from an article last year that spoke to a plan to raise up to 90,000 chickens in the southeastern part of the county. This allowed Nick Heetdirks to raise broiler chickens for organic meat. His plans called for four barns, roughly 500 feet by 50 feet. Each would contain about 22,500 chicks that would be raised from infancy to six weeks before being sent off for processing. Opposition was voiced from a small number of neighbors. Commissioners at the time of the Heetdirks decision felt that the applicant had met the necessary requirements and conditions. He showed the poultry barns by Waverly. There is a brand new home being built to the north of the facility. They store their manure outside. Salt Creek is fairly close to this. There are four barns about 1.2 miles south of Waverly. They are chicken and turkey farms. These six barns were permitted in 2015. The closest acreage is about 900 feet away. He showed facilities in the area that have been approved. He believes if Waverly was concerned, they would never have allowed it to be surrounded by commercial feedlots. There are 18 poultry barns between the north and south of Waverly. On the Waverly website, their proposed future expansion comes even closer to the north and south barns. Regarding water, his property is not ideal for farming. There is some tillable property, but it is mostly rough ground, pasture ground. It is not ideal for center pivots or irrigation. They will be living on the property. There is a residential well on the property. In spite of the fact that those plants were right outside of Waverly, he understands that no complaints have been filed.

Kolterman stated that we have seen the John Hopkins study referenced at every hearing. She noted that the study states "The opinions expressed are our own and do not necessarily express the view of Johns Hopkins University". We have a lot of equipment in our facilities that hasn't been implemented in the U.S. yet. She doesn't believe the traffic patterns would cause a notable rise in emissions. Prior to being removed from the farms, all chickens are tested for diseases. We have talked about what we will do to safeguard wastewater

discharge. Our growers aren't required to go through NDEQ, but we are requiring our growers to do this. Nebraska doesn't have setbacks. They picked ¼ mile. We tried to be respectful of expectations in this area. We have not been recruiting in Lancaster County. If a grower approaches them and wants their facility considered, that is our intention to consider them. She has heard a lot of people asking to delay a vote on this. We have been working on this project for two and a half years. There was a claim this would be the largest facility in the U.S. That is not true. Our plant is considered very common sized in the industry. One speaker talked about pits for litter, we don't have any pits. Someone asked about light pollution. Our facilities don't have a lot of lights. These are downlit at the entrance. We acknowledge that farming has changed, but this will be a family farm run by Randy and Starla. There was reference to Wakefield, Nebraska. Those are layer facilities that have very different processes from ours. Previously, we provided University data regarding waste. There were questions about trucks. They will be contracted. PLT (poultry litter treatment) binds the ammonia so it doesn't leave. Mr. Watts didn't grow for our company, we are unique. Costco mandated to always do the right thing and set a really high standards. We have sought out every piece of modernized equipment we can find. We are always striving and looking for new ways. There was a question about a vet. We have one on staff. Someone talked about the density of the birds. True, our poultry has less than one foot. This is a step above the industry standards. Randy didn't go out looking for land that is not agriculturally zoned. He looked at an AG area. She appreciates the position the Planning Commission is in. That is why the special permit exists. We appreciate working with staff. They have done a lot of work to help Commissioners understand this. We do not require sprinklers. There have been a lot of calls for a pause. We have been here since June 20, 2018. Randy just wants to farm. She would ask for a more expedited decision.

Edgerton questioned if the company is locating in any area with more stringent requirements. Kolterman stated that Seward, NE facilities require a ½ mile setback. Breeder units have a lesser setback. Every county is different and unique and have a different set of setbacks. We have internal setbacks as well.

Finnegan inquired if there will be 190,000 chickens all at once. Kolterman responded there will be 44,000 approximately in each barn at any given time.

Corr asked how the applicant feels about the proposed staff revisions to conditions. Kolterman responded that we are just trying to follow NDEQ and Dept. of Agriculture rules. In the mortality shed, while they don't consider that animal waste because it has already been composted, she is not sure that 20 years down the road someone might call it animal waste. Their intention is to have the litter composed in the chicken barns. In a catastrophic event, this would all be up to the Dept. of Agriculture and NDEQ how this is taken care of. State DEQ guidelines say this can be outside. We wanted to have this covered. We just don't want our hands tied. She would be opposed to the reworking of condition 2.2.2.

Corr is a little confused with the proposed revision to Condition 2.2.2. She believes the intent was that at the last hearing, there were neighbors who were concerned about having the litter outside. Cajka stated that we compromised that the litter was in the mortality shed. It is three sided and covered. Animal waste is chicken poop. Dead animals aren't animal waste, they are animal waste.

Beckius asked why staff felt the need to revise Condition 2.2.2. Cajka noted that some of these conditions are already under the purview of other agencies. We felt if they were tied to the special permit, it would have an extra layer of protection. He felt it would address some of the neighbor's concerns.

David Cary stated that the point is some of the litter is used purposely in the composting in the mortality shed. It would limit the operation if we spoke to language that contradicted what the NDEQ and Dept. of Agriculture would dictate.

Corr wants this to be clear. Perhaps we could add that animal waste is manure and not dead animals or litter must be stored inside. Beckius added that dead animals are not animal waste.

Joy questioned if a building has to have four sides to be considered a building. A shed would be a building. Cary believes we are talking outside storage. Corr clarified that litter has to be inside the animal barns, but dead animals can be outside.

Jen Holloway of County Attorney stated that the definition of building from the Lancaster County Zoning Regulations 2.003.B. is "Any structure designed or intended for the support, enclosure, shelter or protection of persons, animals, chattels, or property. Poles used for the support of wires and appurtenant equipment for supplying public utility services shall not be considered as buildings or structures under this resolution." It is not specific to the number of walls. She thinks each statement would need to be specified. Cary would agree. It would be helpful if someone would propose a statement.

Kolterman stated the challenge is how the industry views these terms. Litter is a universal term. In the litter is animal waste. We take that, once it has been composted, and use it as a carbon element in composting the mortality. If a building is not four enclosed walls and a roof, can we use the litter it for composting the mortality? The second challenge would be if we would do a cleanout of the barn and if we couldn't spread it outside due to a weather event, could it be used in a litter shed? This is different from a mortality facility. They are similar. If there were a catastrophic event, we would be advised by the NE Dept. of Agriculture and NDEQ on what to do.

Spohn believes a mortality shed would constitute a building under the building code. She would argue that although it wouldn't be ideal, she would rather keep the original language to Condition 2.2.2 "Keep all animal waste inside the buildings. No outside storage of animal waste is allowed". She would also add "Except as otherwise mandated by state or federal law".

Cary proposed to revise Condition 2.2.2 as follows: Keep all litter inside all buildings except when used as a carbon element in a mortality shed or when in transit. No outside storage of litter is allowed otherwise."

Kolterman will work with the proposed amendment to Condition 2.2.2 at this time.

COUNTY SPECIAL PERMIT NO. 18025
ACTION BY PLANNING COMMISSION: **August 1, 2018**

Corr moved Conditional Approval as set forth in the staff report dated June 8, 2018, as amended by staff in memo dated July 27, 2018 and including revision to 2.2.2 as suggested by Cary, seconded by Beckius.

Edgerton will not vote in favor of this. She still has some concerns. She feels we are still lacking in some of the regulations. We have received a lot of information. She doesn't feel that the regulations have kept up with the technology. She feels we would be remiss if we didn't look at this.

Joy will vote in favor of this. If a task force ere formed, she would be willing to meet on this regarding future regulations.

Beckius noted that an element is a safety concern for the neighbors. He hasn't seen from any government regulations overseeing this that there is a safety concern. He will vote in favor.

Finnegan is a visual person. Every Saturday her husband drives her around. She has been here three times and she has a good visual. She could not see anything from where she believes the barns will be. She also considers if this is zoned properly. She believes this is. The County Attorney has said this land is agricultural. We heard a lot of facts. This is a tough decision. She sees friends and people she has worked with who oppose this. Her moral issue is to follow what she believes she was asked to do.

Hove is supportive of chicken farms. He is not supportive of this location. This is building up to be residential acreages. He is concerned with the water and litter issues. He is also concerned that Mr. Essink doesn't understand the issues he is getting involved with.

Corr stated that change is hard. She was involved in a similar neighborhood situation. A former Commissioner stated that when you have a vacant property close by, you start to consider it as part of your own. You come to adapt. It may not be what you had in mind and it probably won't be as bad as you thought it would be. There are land use and zoning regulations in place. This is allowed there. She was involved in some past issues that she would like to believe they are going okay or we would be hearing on them.

Motion for Conditional Approval as amended failed 4-2: Beckius, Corr, Finnegan and Joy voting 'yes'; Edgerton and Hove voting 'no'; Harris, Scheer and Washington absent.

Cary is proposing to close the public hearing. We do not anticipate any more new information. This would be on the next Planning Commission meeting agenda for action only. This is final action and there would be an opportunity to appeal the decision at the County Board level.

Hove moved to closed public hearing, seconded by Finnegan and carried 6-0: Beckius, Corr, Edgerton, Finnegan, Hove and Joy voting 'yes'; Harris, Scheer and Washington absent.

There being no further business to come before the Commission, the meeting was adjourned at 6:10 p.m.

Note: These minutes will not be formally approved by the Planning Commission until their next regular meeting on Wednesday, August 15, 2018.

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Example

PC MATERIALS - ATTACHMENT 1 - S. SCHNEIDER

NEBRASKA
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MAY 03 2018

Pete Ricketts, Governor

CONSTRUCTION AND OPERATING PERMIT

Chris Benes Poultry Concentrated Animal Feeding Operation (IIS No: 110798)

Legal Description: SE 1/4, SW 1/4, Section 19, Township 13N, Range 05E, Saunders County

Chris Benes Poultry Concentrated Animal Feeding Operation is issued this Construction and Operating Permit with the following terms and conditions:

1) This Construction and Operating Permit covers the operation described in the application approved on May 3, 2018 by the Nebraska Department of Environmental Quality (Department) and any subsequently approved addendums. This Construction and Operating Permit is issued for the maximum number of livestock and number of confinement structures listed below.

Type(s) of Livestock	Maximum Capacity (# of head)	Existing or Proposed?
Chickens (Broilers)	190,000	Proposed

Type(s) of Structures	Number of Structures	Existing or Proposed?
Dry Litter Barns	4	Proposed

2) Construction shall be completed as described in the approved application.

3) The Department shall be notified, in writing, upon completion of construction.

4) The Permittee, authorized representative or an employee of the operation is required to obtain land application training within 180 days of receiving permit coverage, unless such training was satisfactorily completed within the past five (5) years by at least one of the persons required to obtain the training. Additional training must be completed every five (5) years.

5) The Permittee shall allow the Department access, at any reasonable time, to the operation and any records required under Title 130, *Livestock Waste Control Regulations* and this permit.

6) The Permittee shall obtain approval from the Department prior to making any modifications or changes to the design or operation of the facility.

7) The operation shall be constructed and operated in compliance with the approved application, this permit, Title 130 regulations and the laws of the State of Nebraska. This permit may be revoked, modified or suspended as provided for in Title 130 regulations.

2018002590 5

Department of Environmental Quality
P.O. Box 98922
1200 N Street, Suite 400
Lincoln, Nebraska 68509-8922

deq.ne.gov

Jim Macy, Director

OFFICE 402-471-2186 FAX 402-471-2909
deq.moreinfo@nebraska.gov

8) If construction of the confinement structures as listed above has not begun within two (2) years after issuance of this Construction and Operating Permit, the Permittee shall notify the Department thirty (30) days before starting construction.

9) If changes to the nutrient management plan are substantial, a public notice will be published on the Department's webpage for a period of fifteen (15) days. The following items of the nutrient management plan in the application approved on May 3, 2018 are terms of this permit:

   a. Adequate storage of manure, litter and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities.

   b. Proper management of mortalities to ensure that they are not disposed of in a liquid manure, storm water or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities.

   c. Clean water is diverted, as appropriate, from the production area.

   d. Prevent direct contact of confined animals with waters of the State.

   e. Chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

   f. Appropriate site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the State.

   g. Protocols for appropriate testing of manure, litter process wastewater and soil.

   h. Protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process waste water using either a narrative rate or linear approach.

   i. Specific records that will be maintained to document the implementation and management of the elements described above.

Pursuant to a Delegation Memorandum dated August 22, 2016 and signed by the Director, the undersigned hereby executes this document on behalf of the Director.

Shelley Schneider

Shelley Schneider, Water Permits Division Administrator

5/3/18

Date

Example

NEBRASKA

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Pete Ricketts, Governor

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Chris Benes
Chris Benes Poultry
3195 County Road B
Valparaiso, NE 68065-8672

MAY 03 2018

RE: Chris Benes Poultry Concentrated Animal Feeding Operation
NDEQID: 110798
Program ID: LWC 6-1079
Subject: Construction and Operating Permit Issued – Approval to Operate
SE 1/4, SW 1/4, Section 19, Township 13N, Range 05E, Saunders County
Consultant: Nutrient Advisors

Dear Mr. Benes:

Enclosed is your Construction and Operating Permit for the livestock confined at the above concentrated animal feeding operation. This permit is issued by the Nebraska Department of Environmental Quality (Department) in response to your application received on February 7, 2018.

Please notify the Department, in writing, once construction of the dry litter barns has been completed. The Department hereby grants approval to populate the barns and begin feeding livestock immediately upon construction being completed as described in the submitted application.

Construction activity that disturbs a land area of one (1) acre or more must obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction Storm Water General Permit Number NER160000, which authorizes storm water discharges from construction sites. This permit may be obtained by the operation's authorized representative, the contractor or other party responsible for the construction project. The issuance of a discharge authorization under this Construction Storm Water General Permit does not relieve the Permittee of other duties and responsibilities not authorized under this permit. Application for permit coverage can be made by accessing the following website: https://ecmp.nebraska.gov/DEQ-CSW.

The Permittee, authorized representative or an employee of the operation is required to obtain land application training within 180 days of receiving permit coverage, unless one of these persons satisfactorily completed such training within the past five (5) years. Enclosed is a list of training programs currently available that will meet this training need. You may contact Blythe McAfee at (402) 471-4221 or blythe.mcafee@nebraska.gov to ask any questions related to this training. It is your responsibility to provide the Department documentation verifying one of the above individuals has completed the training for this operation. Additional training must be completed every five (5) years.

2018002590 4

Department of Environmental Quality
P.O. Box 98922
1200 N Street, Suite 400

deq.ne.gov

Jim Macy, Director

OFFICE 402-471-2186 FAX 402-471-2909

Your large concentrated animal feeding operation is not required to obtain coverage under an NPDES Permit for Concentrated Animal Feeding Operations based on your current operation. NPDES Permit coverage of your operation may be required in the future if your operation discharges into waters of the State or if required due to statutory or regulatory changes.

Department staff will conduct periodic compliance inspections of your operation. The issuance of this permit does not remove your responsibility to comply with any Natural Resources District, county or local zoning regulations. This concentrated animal feeding operation shall be operated and maintained according to the approved application this Construction and Operating Permit and the requirements in Title 130, *Livestock Waste Control Regulations*. These documents include operating and maintenance requirements, best management practices and requirements for monitoring, reporting and land application of the waste.

Read and become familiar with these documents, as you will be held responsible for your operation's compliance with these requirements. Violation of Title 130 requirements may result in fines, penalties or removal of the livestock from the operation until compliance is met. You are responsible for preventing any runoff or discharge of livestock waste to waters of the State.

If you have any questions, please contact Kevin Franzluebbers at (402) 471-6687 or myself at (402) 471-4239.

Sincerely,

Blake Onken, Supervisor
Agriculture Section
Water Permits Division
blake.onken@nebraska.gov

Enclosures
cc: Nutrient Advisors

APPROVAL TO OPERATE

Chris Benes Poultry

has been issued an Approval to Operate

on this 3rd day of May 2018

for the livestock operation located at

SE 1/4, SW 1/4, SECTION 19, TOWNSHIP 13N, RANGE 05E, SAUNDERS COUNTY

in accordance with the State of Nebraska, Title 130, "Livestock Waste Control Regulations."

THE ABOVE LARGE CONCENTRATED ANIMAL FEEDING OPERATION IS APPROVED FOR A MAXIMUM CAPACITY OF

190,000 CHICKENS (BROILERS)

NEBRASKA
DEPT. OF ENVIRONMENTAL QUALITY

IIS#: 110798

Blake Onken, Supervisor
Agriculture Section

NEBRASKA

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Pete Ricketts, Governor

MAY 29 2018

Randy Essink
Randy Essink Livestock
PO Box 76
Cortland, NE 68331-0076

RE: Randy Essink Livestock Concentrated Animal Feeding Operation
NDEQID: 111275
Program ID: LWC 2-1087
Subject: Construction & Operating or NPDES Permit Not Required
NW 1/4, SE 1/4, Section 07, Township 08N, Range 05E, Lancaster County

Dear Mr. Essink:

Your proposed concentrated animal feeding operation (CAFO) is not required to construct a livestock waste control facility (LWCF) or obtain a Construction and Operating Permit or a National Pollutant Discharge Elimination System (NPDES) Permit for CAFOs. This determination is based on the May 23, 2018 inspection conducted by Kevin Franzluebbers from the Nebraska Department of Environmental Quality (Department), according to the Livestock Waste Management Act and Title 130, *Livestock Waste Control Regulations*.

While your operation is exempt from the Title 130 permitting requirements described above, please be aware that any construction activity that disturbs a land area of one (1) acre or more must still obtain coverage under the Construction Storm Water General Permit Number NER160000, which authorizes storm water discharges from construction sites (Title 119). This permit may be obtained by the operation's authorized representative, the contractor or other party responsible for the construction project. Application for permit coverage can be made by accessing the following website: https://ecmp.nebraska.gov/DEQ-CSW.

At the time of the inspection, the Department considered your operation a large CAFO that proposed the following:

Livestock Species	Maximum No. of Head Capacity	Existing or Proposed?
Chickens (Broilers)	190,000	Proposed

Type of Structure	Number of Each Type	Existing or Proposed?
Dry Litter Barns	4	Proposed

If you desire to receive a Construction and Operating Permit for your operation, please refer to the minimum application requirements outlined in Title 130, Chapter 4, 001. These include, but are not limited to, the submission of a Nutrient Management Plan and a $200 application fee. It may take the Department up to 110 days from the receipt of a complete application to approve or deny the application.

Department of Environmental Quality
P.O. Box 98922
1200 N Street, Suite 400
Lincoln, Nebraska 68509-8922

deq.ne.gov

Jim Macy, Director

OFFICE 402-471-2186 FAX 402-471-2909
ndeq.moreinfo@nebraska.gov

Please remember, you are responsible for complying with any Natural Resources District, county or local zoning requirements and for preventing any discharge of livestock waste to waters of the State. If you plan to expand or modify the operating style of your operation in the future, you must request an inspection by the Department prior to starting construction or modifications. Failure to request an inspection could result in late fees or other penalties. Enclosed is a copy of Title 130 for your information. If you have any questions, please contact Kevin Franzluebbers at (402) 471-6687 or myself at (402) 471-4239.

Sincerely,

Blake Onken, Supervisor
Agriculture Section
Water Permits Division
blake.onken@nebraska.gov

Enclosure
cc: Nutrient Advisors

Nebraska Department of Environmental Quality

16-001 Revised May, 2016

Proposed Dry Litter Barn Poultry Animal Feeding Operations (AFOs)

Poultry Animal Feeding Operations (AFOs) proposing to build dry litter barns, with no liquid manure system, may be exempt from the permitting requirements included in Title 130 - Livestock Waste Control Regulations provided:

A. The livestock waste generated at the facility is entirely contained within the building; and
B. Any stockpiled waste is stored in an area that will not impact waters of the State.

According to the Nebraska Livestock Waste Management Act (Neb. Rev. Stat. §54-2422), a proposed small poultry AFO is exempt from any inspection and permitting requirements, provided the operation does not discharge pollutants into waters of the State and the Nebraska Department of Environmental Quality has not determined that such a discharge is more likely than not to occur. Any proposed medium or large poultry AFO desiring to build dry litter barns must request an inspection from the Department. Inspections can be requested by submitting a Title 130 Form A - Request for Inspection, along with the appropriate inspection fee. Attachment 1 includes a list of items to consider prior to requesting inspection. Upon completion of the inspection, if the Department determines that the above requirements have been satisfactorily met, a letter of exemption from permitting requirements will be sent to the proposed operation.

Species	Large AFO (# of birds)	Medium AFO (# of birds)	Small AFO
Chickens - Laying Hens No liquid manure system	82,000	25,000-81,999	Small AFOs are those operations with less than the number of animals at a Medium AFO
Chickens - Other than Layers No liquid manure system	125,000	37,500-124,999	
Turkeys	55,000	16,500-54,999	

AFO Size	Inspection Fee
Large	$500
Medium	$200

Receiving an exemption from permitting requirements from the Department does not relieve an operation of other duties and responsibilities under the Nebraska Environmental Protection Act, the Nebraska Livestock Waste Management Act or Title 130 (see Attachment 2). The operation is responsible for preventing the discharge of livestock waste to waters of the State and for complying with any county or local zoning regulations. An operation may be required to obtain a Construction and Operating Permit or a National Pollutant Discharge Elimination System (NPDES) Permit for Concentrated Animal Feeding Operations if a discharge occurs or if revisions to state laws and regulations impact the status of the operation.

If an exempt operation desires to obtain permit coverage, they may submit an application requesting coverage under the NPDES Permit for Concentrated Animal Feeding Operations. The application must include the requirements described in Title 130, Chapter 5. These requirements include, but are not limited to, an application fee ($200) and a Nutrient Management Plan (see Title 130, Chapter 14). Attachment 3 includes a list of the items needed to submit a complete NPDES Permit application to the Department.

Attachment 1

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

The following is a list of items that should be considered prior to submitting a Title 130 Form A - Request for Inspection. This summary is not intended to be a comprehensive list, but rather a helpful planning guide.

- Check your county zoning regulations to determine any setback requirements or other local restrictions;

- Building placement - consider the barn location in relation to surface waters, floodplains and wells. The Department recommends that livestock barns be constructed a minimum of 100 feet from domestic wells and 1,000 feet from municipal wells. If you plan to install a well less than 100 feet from the barn location, please contact the Nebraska Department of Health and Human Services to ensure compliance with all water well standards (see: http://dhhs.ne.gov/publichealth/Pages/enh_wwsindex.aspx);

- An NPDES Construction Storm Water General Permit will be required if construction activity disturbs a land area of one (1) acre or more. Application for permit coverage can be made by accessing the following website: https://ecmp.nebraska.gov/DEQ-CSW;

- Stockpile locations - it will be necessary to designate a location, either on-site or off-site, to stockpile poultry litter. The stockpiles must be placed in a location that will not negatively impact waters of the State. The Department strongly encourages constructing a berm around the stockpile or, when possible, placing the stockpile under roof;

- Land application - does your operation have the necessary application equipment or have alternate methods been established to properly dispose of livestock waste? The Department recommends that each operation design and execute a site specific nutrient management plan. The plan should identify an application protocol that ensures livestock waste will be land applied at a rate that does not exceed the agronomic need of the planted crop. It may be helpful to view the Department's Environmental Guidance Document titled "Narrative Rate Approach Nutrient Management Plan Outline" for additional aide in developing a site specific nutrient management plan. You can view the document by visiting the Department's website at http://deq.ne.gov/ and typing "narrative rate" into the search box. If your operation proposes to transfer waste to another individual, the Department recommends maintaining record of: the recipient name and address, the date of transfer, the approximate amount of waste transferred and documentation indicating that a nutrient analysis was performed on the waste, with a copy of the results given to the recipient;

- Mortality management - evaluate options for the proper disposal of mortalities. This may include composting, burial or incineration. Careful thought should also be given to the operation's response to a catastrophic loss of livestock. Please be aware that the installation of an incinerator will require a permit from the Department's Air Division (see: http://deq.ne.gov/NDEQProg.nsf/OnWeb/Hotline). Additionally, any ash generated by incineration must be disposed of in a landfill. It may be possible to land apply the ash by requesting that the Nebraska Department of Agriculture consider it a soil conditioner. Please contact the Department of Agriculture if you wish to pursue this option (see: http://www.nda.nebraska.gov/plant/fertilizer/index.html);

- Biosecurity - will the operation have a bathroom or showering facilities on-site that will require a septic system? If a septic system is necessary, a Certified Installer must complete the installation and properly register the system. You can find a complete list of Certified Installers by visiting the Department's website at http://deq.ne.gov/ and typing "certified installers" into the search box.

Attachment 2

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

The following is a summary of regulatory requirements for all animal feeding operation owners or operators collected from Title 130, *Livestock Waste Control Regulations*, Chapter 2. This summary is not intended to be a comprehensive list of requirements, but rather a helpful guide for an owner or operator to navigate their responsibilities under the Nebraska Environmental Protection Act, the Nebraska Livestock Waste Management Act and Title 130. Please refer to Title 130 in its entirety for a complete listing of regulatory obligations.

Any person who owns or operates an animal feeding operation shall not:

- Provide or present false or misleading information to the Department or omit relevant facts when submitting reports or applications to the Department;
- Allow livestock at an animal feeding operation to come into direct contact with waters of the State, apply livestock waste on or into waters of the State or otherwise allow or cause a discharge;
- Apply manure, litter or process wastewater to land in a manner that results in a discharge to waters of the State or that is not in accordance with nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater;
- Stockpile livestock waste in a drainage way or other location where it is likely to impact waters of the State;
- Deny the Department access to an animal feeding operation, at any reasonable time, for inspection purposes or deny access to any records, at any reasonable time, required under the regulations;
- Construct an animal feeding operation or any portion thereof prior to an inspection by the Department, unless exempted from inspection by the Nebraska Environmental Protection Act, Livestock Waste Management Act or these regulations;
- Construct a livestock waste control facility without a Construction and Operating Permit or Construction Approval or not in compliance with a Construction and Operating Permit or Construction Approval issued by the Department, unless exempted from the requirements for a Construction and Operating Permit by the Nebraska Environmental Protection Act, Livestock Waste Management Act or these regulations;
- Operate an animal feeding operation prior to construction of an approved livestock waste control facility, unless exempted from the requirements for a Construction and Operating Permit by the Nebraska Environmental Protection Act, Livestock Waste Management Act or these regulations;
- Operate an animal feeding operation without a Construction Approval, Operating Permit, Construction and Operating Permit or an NPDES Permit as required in Chapter 5 of these regulations, unless exempted from permitting under these regulations;
- Discharge animal excreta, feed, bedding, spillage or overflow from water systems, wash and flushing waters, sprinkling water from livestock cooling, precipitation polluted by falling on or flowing onto an animal feeding operation or other materials polluted by livestock waste in violation of or without first obtaining an NPDES Permit, a Construction and Operating Permit, Construction Approval or exemption from the Department, if required by the Nebraska Environmental Protection Act, Livestock Waste Management Act or these regulations;
- Place or allow dead animals or animal parts in a livestock waste control facility. Dead animals or animal parts shall not be land applied with livestock waste except when properly composted or when dead animals have been processed by an approved means of mortality disposal;
- Dispose of chemicals in a livestock waste control facility; or
- Violate any provision of the Livestock Waste Management Act and regulations.

Any person who owns or operates an animal feeding operation shall report any discharge of manure, litter or process wastewater to the Department within twenty-four (24) hours of the event and provide a written report to the Department within five (5) days of the event.

Attachment 3

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY

A complete application for coverage under a National Pollutant Discharge Elimination System (NPDES) Permit for Concentrated Animal Feeding Operations must meet the following minimum requirements outlined in Title 130, *Livestock Waste Control Regulations,* Chapter 5, 003.

Each application for an NPDES Permit shall consist of and include at a minimum, the following:

- The appropriate application fee ($200);
- A completed Form B - Permit Application;
- A completed Form C - Applicant Disclosure;
- A completed nutrient management plan** and supporting documentation as specified in Title 130, Chapter 14, unless such information has previously been submitted and is unchanged;
- Written evidence that the applicant has obtained any necessary approvals related to the animal feeding operation from the Nebraska Department of Natural Resources for any dam structures or for the storage of runoff from any non-feedlot contributing drainage area; and
- Any other relevant information required by the Department.

**See also the Department's Environmental Guidance Document titled "Narrative Rate Approach Nutrient Management Plan Outline" for additional aide in developing the required nutrient management plan.

RESOURCES:

- NDEQ Home Page - http://deq.ne.gov/

NDEQ Publications*:

- Title 130 - *Livestock Waste Control Regulations*
- NDEQ Guidance Document - Animal Feeding Operation (AFO) Categories and Fees
- NDEQ Guidance Document - Narrative Rate Approach Nutrient Management Plan Outline

Contacts:

• NDEQ Agriculture Section	(402) 471-4239
• NDEQ Toll Free Number	(877) 253-2603

*These are available on the NDEQ website or by calling the NDEQ Agriculture Section.

Produced by: Agriculture Section, Water Quality Division, Nebraska Department of Environmental Quality, PO Box 98922, Lincoln, NE 68509-8922; phone (402) 471-4239. To view this, and other information related to the agency, visit our web site at **http://deq.ne.gov/**. This material is intended for guidance purposes only. It is not meant as a substitute for the regulations found in Title 130 - *Livestock Waste Control Regulations* or other applicable Nebraska environmental regulations.

NEBRASKA DEPARTMENT OF ENVIRONMENTAL QUALITY
AGRICULTURE SECTION * 1200 N STREET, SUITE 400 * LINCOLN, NE 68509-8922 * TEL: (402)471-4239
FAX: (402) 471-2909 * WEB SITE: http://deq.ne.gov/

TITLE 130 - FORM A

REQUEST FOR INSPECTION OF ANIMAL FEEDING OPERATION

PLEASE PRINT OR TYPE

LEGAL NAME OF OWNER *(Individual, partner, corporation, company, etc).*: _____

_____

NAME OF OPERATION: _____

ADDRESS OF OPERATION: _____ _____ _____ _____
Street, Route No., etc *City or Town* *State* *Zip*

LEGAL DESCRIPTION OF OPERATION:

_____ _____ _____ _____ N _____ ☐E or ☐W _____County
Qtr. *Qtr.* *Section* *Township* *Range*

_____ _____ _____ _____ N _____ ☐E or ☐W _____County
Qtr. *Qtr.* *Section* *Township* *Range*

DIRECTIONS FROM NEAREST TOWN: _____

_____

CONTACT PERSON INFORMATION:

NAME & TITLE: _____

MAILING ADDRESS: _____ _____ _____ _____
Street, P.O. Box, Route No. etc *City or Town* *State* *Zip*

TEL. (_____) _____ _____ (_____) _____ _____ (_____) _____ _____
Work *Home* *Other (Cell, Fax, etc.)*

EMAIL *(optional)*: _____

REASON FOR REQUESTING INSPECTION: ☐Proposed New Operation ☐Expansion of Existing Operation

☐ Existing Operation *(not inspected previously; major operational changes other than expansion, etc.)* _____

☐ Other *(i.e., local or lender requirements, regulatory changes, previous discharge, etc.)* _____

_____

ANIMAL FEEDING OPERATION INFORMATION: *(Attach additional sheets if more space is needed to list livestock types)*

Type Of Livestock *(i.e., feeder cattle, dairy, swine, nursery pigs, etc.)*	**Animal Capacity** *(maximum number of animals operation can hold at one time)*

Open Lots? ☐Yes ☐No Totally Housed Buildings? ☐Yes ☐No

Printed or Typed Name of Requester: _____

Signature of Requester: _____

(Be sure to include appropriate inspection fee, or form will be returned. Send requests to above address.)

Nebraska Department of Environmental Quality
AGRICULTURE SECTION * 1200 N STREET, SUITE 400 * P.O. BOX 98922 * LINCOLN, NE 68509-8922
TEL: (402)471-4239 * FAX: (402) 471-2909 * WEB SITE: http://deq.ne.gov/

RESERVED FOR NDEQ USE
IIS # _____

TITLE 130 - FORM B – PERMIT APPLICATION

☐ NEW CONSTRUCTION & OPERATING PERMIT ($200)
☐ NEW NPDES GENERAL PERMIT COVERAGE.. ($200)
☐ NEW NPDES INDIVIDUAL PERMIT ..... ($200)
☐ MODIFIED CONSTRUCTION & OPERATING PERMIT OR APPLICATION ..... ($200)
☐ MODIFIED NPDES PERMIT COVERAGE: ☐ GENERAL ☐ INDIVIDUAL ($200)
☐ RENEWAL OF NPDES PERMIT COVERAGE: ☐ GENERAL ☐ INDIVIDUAL ($200)
☐ MODIFICATION TO EXISTING PERMIT NOT LISTED ABOVE: ☐ OPERATING ☐ CONSTRUCTION APPROVAL ($200)

PRINT OR TYPE ALL INFORMATION
(If more space is required for any section, attach separate sheet of paper)

LEGAL NAME OF APPLICANT: _____
(If approved, the permit will be issued in this name)

MAILING ADDRESS OF APPLICANT: _____ _____ _____ _____
Street, Rural Route or P.O. Box *City or Town* *State* *Zip*

TEL. NO(S). OF APPLICANT: (____) _____ _____ (____) _____ _____
Main Number *(Other – Cell, Home, etc.)*

EMAIL *(optional)*: _____

NAME OF ANIMAL FEEDING OPERATION: _____
(If different from applicant name above, the name by which the operation does business)

ADDRESS OF OPERATION: _____ _____ _____ _____
Street (9-1-1) Address of Operation *City or Town* *State* *Zip*

LEGAL DESCRIPTION OF OPERATION:

_____, _____, _____ _____N _____ ☐E or ☐W _____ County
Qtr. *Qtr.* *Section* *Township* *Range*

_____, _____, _____ _____N _____ ☐E or ☐W _____ County
Qtr. *Qtr.* *Section* *Township* *Range*

Latitude _____° _____' _____" Longitude _____° _____' _____"
(NOTE: Latitude and longitude should be for the main entrance to the animal feeding operation from the public road.)

NAME OF AUTHORIZED REPRESENTATIVE: *(See Page 2 for definition of Authorized Representative)*

_____ _____
Printed or Typed Name *Title or Position*

_____ _____ _____ _____
Mailing Address *City or Town* *State* *Zip*

TEL.: (____) _____ _____ (____) _____ _____ Email *(optional)* _____
Main Number *(Other – Cell, Home, Fax, etc.)*

LIVESTOCK *(Indicate one-time capacity of entire operation, including any livestock previously exempted from permitting.)*

Species (Cattle, Dairy, Swine, etc.)	Average Weight (in lbs.)	*Indicate Head Numbers Below*			
		Existing	Proposed (+ or -)	Previously Exempted	New Total

***For Modification of permit or application:** If increasing or decreasing head numbers, indicate the proposed change in head numbers separately from existing numbers. Attach a narrative description of the proposed modification(s).

NOTE: *"Applicant" refers to the legal name of an individual, a corporation, a limited liability company, partnership, or government entity to whom the permit will be issued, if approved. If applicant is an individual, completion of a U.S. Citizenship Attestation form may be required, except when already on file with the Department.* The Applicant is responsible for compliance with all local laws, and for obtaining applicable local, county, and other permits. The Certification below must be signed by the applicant or an authorized representative, as defined below.

CERTIFICATION

I certify that, to the best of my knowledge and belief, I have the authority under the laws of the State of Nebraska to sign this application. I also certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that significant penalties exist for submitting false information, including the possibilities of a fine and imprisonment for knowing violations.

_____
Printed or Typed Name of Applicant or Authorized Representative

_____ _____
Signature of Applicant or Authorized Representative *Date of Signature*

"Authorized Representative" means, for:

A Corporation: a principal executive officer in charge of a principal business function and of at least the level of vice president; or
A Limited Liability Company: a manager or principal executive officer; or
A Partnership: a general partner; or
A Sole Proprietorship: the proprietor; or
A Municipal, state or other public entity: a principal executive officer or ranking elected official

TECHNICAL ADVISOR INFORMATION

NAME OF CONSULTANT OR ADVISOR _____ TITLE OR CERTIFICATION: _____

NAME OF COMPANY _____

STREET ADDRESS _____ CITY/STATE/ZIP _____

CONSULTANT PHONE NO.: (_____) _____ _____ (_____) _____ _____
(Work) *(Other: Cell, Home, Fax,etc.)*

Email: _____

I certify that the design of the livestock waste control facility meets the minimum requirements as outlined in Title 130, "Livestock Waste Control Regulations," of the Nebraska Department of Environmental Quality.

_____ _____
Signature of Technical Advisor or Professional Engineer *Date of Signature*

---Seal of Professional Engineer---
(if required)

---For DEQ Office Use Only---

What is an Initial Inspection?

- Determines the need for a livestock waste control facility at your operation and thus, the need for a permit.

Who needs to request an Inspection?

- Operation that have never had a DEQ inspection and are at least a Medium AFO;
- Newly defined operations;
- Existing operations planning to expand to a Medium or a Large AFO;
- Small AFOs are exempt, if the operation has no discharge

Animal Feeding Operation (AFO)

- Animals are confined for at least 45 days in a 12-month period, and
- The confinement area has no grass or vegetation.

Poultry Type	Large	Medium	Small
Turkeys	≥ 55, 000	16,500 – 54,999	< 16,500
Chickens (layers) w/ dry manure system	≥ 82,000	25,000 – 81,999	< 25,000
Chickens (other than layers) w/ dry manure system	≥ 125,000	37,500 – 124,999	< 37,500
Chicken w/ liquid manure system	≥ 30,000	9,000 – 29,999	< 9,000

Concentrated Animal Feeding Operation (CAFO)

- All Large AFOs;
- A Medium AFO may be a CAFO if it discharges through a man-made conduit; or animals are in contact with waters of the state; or it's designated by the state.
- A Small AFO may be a CAFO only if designated by the state.

Requesting an Initial Inspection

Submit:

1. Form A – Request for Inspection
2. Appropriate fee

AFO Size	Inspection Fee
Large	$500
Medium	$200
Small	$100

If an inspection is not requested, an existing operation may be subject to late fees!

Submit the request:

- At least 6 months prior to planned construction
- Prior to any site preparation, such as land leveling, etc.; and
- Prior to submittal of a permit application

After the Inspection

If the DEQ determines that your operation will require livestock waste controls, you must submit:

1. An application for a Construction & Operating Permit
2. $200 application fee (an application submitted for more than one permit will require separate fees for each permit).

- The application must include construction details, geotechnical data, best management practices, and a nutrient management plan.
- A Construction & Operating Permit must be issued prior to starting construction of the livestock waste control facility (LWCF).
- Construction of other parts of the operation, other than the LWCF, can begin after the inspection had been conducted.

What about a National Pollutant Discharge Elimination System (NPDES) Permit?

- A CAFO must apply for coverage under a NPDES permit if it discharges livestock waste into surface waters of the State.

Annual Permit Fees

An annual fee must be paid by CAFOs with a state-issued permit and by NPDES permit holders. The Department will send an annual invoice to the CAFO. This fee is due each year by March 1.

Species	Fee Rate
Turkeys	$1.00 per 1,000*
Chickens (layers) w/ dry manure system	$0.50 per 1,000*
Chickens (other than layers) w/ dry manure system	$0.50 per 1,000*
Chicken w/ liquid manure system	$1.50 per $1,000*
* Or any fraction of the unit of calculation	

For NPDES permit holders an annual report is also due each year by March 1.

Please visit the Nebraska Department of Environmental Quality for forms and more information!

http://deq/ne/gov

Form A – Request for Inspection of Animal Feeding Operation

Form B – Permit Application

Form C – Applicant Disclosure

Form D – Permit Transfer Request

Title 130 – Livestock Waste Control Regulations

Title 119 – Rules & Regulations Pertaining to the Issuance of Permits under the National Pollutant Discharge Elimination System

List of Professional Engineers and Technical Advisors for Livestock Waste Control Facilities

Annual Report Requirements

Nebraska Department of Environmental Quality
1200 "N" Street, Suite 400
P.O. Box 98922
Lincoln, NE 68509-8922
Tel: (402) 471-4239
Fax: (402) 471-2909
Email: NDEQ.moreinfo@nebraska.gov

Holdrege Field Office
1308 2nd Street
Holdrege, NE 68949
Tel: (308) 995-3150 or (308) 995-3944

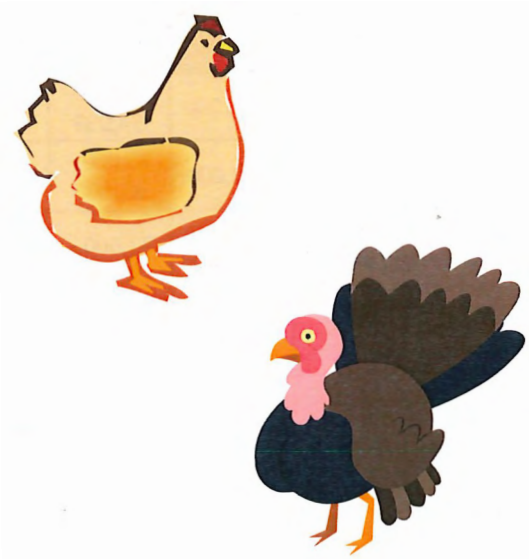
Norfolk Field Office
601 E. Benjamin Ave, Ste 104
Norfolk, NE 68701
Tel: (402) 370-4427 or (402) 370-3173

North Platte Field Office
200 South Silber
North Platte, NE 69101
Tel: (308) 535-8142

Scottsbluff Field Office
505A Broadway, Ste 200
Scottsbluff, NE 69361
Tel: (308) 633-0731

Nebraska Department of Environmental Quality

Environmental Regulations for Poultry Operations in Nebraska



Nebraska Title 130
Livestock Waste Control Regulations

NEBRASKA

Good Life. Great Opportunity.

DEPT. OF ECONOMIC DEVELOPMENT

Pete Ricketts, Governor

August 1, 2018

To Lancaster County Officials:

Value-added agriculture is a key part of growing economic opportunity in both urban and rural Nebraska. According to the U.S. Bureau of Economic Analysis, farms contributed $7.3 billion to total Nebraska gross domestic product (GDP) in 2016. Value added agriculture (food and beverage manufacturing) added another $4.4 billion to the state's GDP, while food and beverage manufacturing accounted for 56.4 percent of total nondurable goods manufacturing. The Costco/Lincoln Premium Poultry (LPP) project, currently under construction in Fremont, will enhance Nebraska's already strong agricultural economy and will have a significant economic impact on the region and the state as a whole.

Costco has a reputation for being a great corporate citizen and creating good paying jobs. With the approximately $400 million investment in the Fremont facility, there will be roughly 1,000 jobs created, ranging from production and maintenance to information technology and management. The project will expand value-added agriculture in our state, and will create secondary jobs in the service sector and transportation industries throughout our state. Additionally, the project will utilize approximately 350,000 bushels of corn each week, as well as approximately 3,000 tons of soybean meal. This grain will be purchased from local farmers and/or local elevators. The total annual economic impact of this operation is estimated at $1.2 billion, which is close to 1% of Nebraska's GDP.

Costco and LPP are partnering with Nebraska farmers to be suppliers for the Fremont facility. The contracts with growers offer an attractive return on investment, while providing our farmers a diversified income stream, and young family members an opportunity to come back to or remain on the family farm.

The proposed barns in Lancaster County play a key role in creating the grower network that will support this great investment. The income for each four barn set is roughly $95,000 after expenses are paid, (including payment on the building), and producers will realize up to $40,000 per year in additional income opportunities from fertilizer per four barn set.

Beyond the investment and the job opportunities across the region, these barns are expected to contribute over $63 million in valuable property tax revenue to our local political subdivisions.

As Costco and LPP's investments into Nebraska come to fruition, and the grower network is developed, I trust you will find that this opportunity is a tremendous opportunity and a valuable addition for our regional and state economies. We are excited for this project, and we believe that area residents will enjoy purchasing locally-raised chicken at the Costco store located in Lincoln. Thank you for your time and thoughtful consideration of the project.

Sincerely,

Dave Rippe, Director

Department of Economic Development
301 Centennial Mall South, PO Box 94666
Lincoln, Nebraska 68509 USA

opportunity.nebraska.gov

An Equal Opportunity/Affirmative Action Employer

Dave Rippe, Director
Office 800-426-6505 **Fax** 402-471-3778
Statewide Relay 800-833-0920 (voice)

C-0
SITE PLAN
SCALE 1" = 200'
0'
200'
400'
N
COMPOST SHED
1320'
Agri-Services & Engineering, Inc.
15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
Fax: (402) 783-2104
Web Site: www.settje.com
Randy Essink Commercial Feedlot
Special Permit #18025
NW ¼ SE ¼ of Sec. 7, T-8-N, R-5-E
Lancaster County, Nebraska
Broiler Houses
Site Plan
Date Printed:
Rev.
Date

PC MATERIALS - ATTACHMENT 4 - K. HASSEBROOK

Date: August 1, 2018
Release Date: Immediate
Contact: Kristen Hassebrook, Executive Director
Phone: 402-421-4416 • E-mail Kristenh@a-fan.org

Ag Coalition supports proposed poultry barns in Lancaster County

AFAN, along with our partner organizations, want to take this opportunity to give our full support for poultry barns like the one proposed in Lancaster County. Livestock, including poultry, are the perfect complement to raising grain and Nebraska is a great place for both to thrive. Nebraska is a top producer of both corn and soybeans, both essential livestock feeds. From an economic standpoint, it makes sense for producers to expand livestock operations close to where these inputs are grown.

As a result, livestock expansion is a critical part of sustaining and growing Nebraska's rural communities. This proposed poultry barn project would create jobs, diversify the local agriculture economy and provide another market for grain as feed. Perhaps most importantly, it will ensure a local family is able to provide for themselves and potentially make plans for the next generation that may want to return to Lancaster County and work in agriculture.

We would like to share some facts, based on research and science to help neighbors understand the proposed project. Below we will outline some of the major issues and benefits of Randy Essink's proposed poultry barn project.

- **Economic impact**
  Based on Nebraska Public Power District study, that looked at expanding poultry production in the state one can begin to see the potential economic impact a four-barn project like the one proposed here would have on Lancaster County. Per this study, best guess estimates this project and its multiplier effect in the county would provide:
  +3 direct/indirect jobs
  +$300,000 direct/indirect labor income
  +$16,000 direct/indirect local property taxes annually

- **Environment**
  Lancaster County's own conditional use permit process and regulations set by the Nebraska Department of Environmental Quality will also closely monitor the practices used by the Essink family to ensure they are protecting the environment. This poultry operation will use a nutrient management plan that will guide the land application of the waste from the poultry barns. They will be required to follow best management practices to minimize odor, dust and other potential impacts to air and water.

- **Property Value of existing homes in the area**

  Different projects have different impacts and the impact to neighboring property values can decrease, but they can also increase too. Today's livestock and poultry buildings are more environmentally responsible than ever before. Farmers and ranchers employ the best available technologies for dealing with both waste and odor. These things help ensure a better quality of life for rural Nebraska, and for generations to come.

  AFAN has completed some of our own research surrounding valuations of properties near existing livestock operations in the area. In particular, we have detailed our findings related to the most similar site in the area, a 5 barn egg laying farm on the Lancaster/Gage County Line Southeast of Firth.

  People have felt so comfortable there are several instances of new construction surrounding this layer farm. There is overall generally positive growth in property values no matter the size or location of a home. And any decrease seems likely related to the age and quality of the home.

- **Road Safety and traffic**

  Road safety is very important to livestock producers. They want to make sure that their families, employees, animals and anyone who visits their farm travels to and from safely. Here are some steps that livestock producers take to assure safety and minimize the impact of the roads: covering manure trucks, proper signage, improvements to ingress/egress for trucks to turn and maneuver easily and scheduling of trucks to avoid commuter schedules.

- **Odor Footprint**

  Country living means living near agriculture. And with agriculture comes some odor. Nebraska farmers and ranchers do what they can to mitigate odor, but we cannot eliminate it all. That's why agriculture is located in the country! Poultry farmers take several steps to reduce the odor from their barns and land application of litter. Here are a few examples:
  1. Barns with solid walls
  2. Fans and a filter system for the barns
  3. Manure is removed only a few times a year
  4. Consideration of weather, time of day and wind speed prior to land application.

  In addition, UNL's odor footprint tool can help individuals evaluate the impact that the farm will have on the area. AFAN ran this tool in relation to the proposed poultry barn project in Lancaster County and found that at ¼ of a mile odor should not be an issue 95% of the time. When increased to ½ a mile it is closer to 99% odor free.

- **Straight From the Farmer – Randy Essink**

  "We like the location. We like the seclusion. You can't see any neighbors, there's trees all around the property and we're really excited about it," said Essink.

  Essink is looking forward to being one of the newest growers for Costco. This project will allow him to quit his current off-farm job that requires extensive travel and work on-farm raising poultry to provide for his family.

Impact of Livestock Expansion on Property Values
Lancaster County, NE
July 2018

Many studies have been completed by Universities, realtor association and other stake holders on the effect confined livestock operations have on property values for neighboring homes. The consensus is... there is no consensus. Different projects have different impacts and the impact to neighboring property values can decrease, but they can also increase too.[1] Today's livestock and poultry buildings are more environmentally responsible than ever before. Farmers and ranchers employ the best available technologies for dealing with both waste and odor. These things help ensure a better quality of life for rural Nebraska, and for generations to come.

With this in mind, we have completed some of our own research surrounding valuations of properties near existing livestock operations in the area. In particular, we have detailed our findings related to the most similar site in the area, a 5 barn egg laying farm on the Lancaster/Gage County Line Southeast of Firth.

Property Value Research Lancaster County

- Based on Lancaster and Gage County Assessor GIS data
- Evaluating the assessed value of "improvements" on each of these parcels.
    - Improvements may incorporate more than just a home, but Lancaster and Gage County separate improvements from outbuildings and so evaluating the assessed value of improvements in both of these counties generally reflects only the home on the site.

Conclusions

- People have felt so comfortable there are several instances of new construction.
- Generally positive growth in property values no matter the size or location of a home to a livestock facility.
- Any decrease seems likely related to the age and quality of the home.
- Difference in percentage valuation increases between Lancaster and Gage county is likely due to county assessor discretion.

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[1] Edwards, Seanicaa; Massey, Ray, "Animal Feeding Operations and Residential Value: Summary of Literature." University of Missouri Extension, MP748, Revised October 2011 (2011).

Alliance for the Future of Agriculture in Nebraska
Will Keech, Director of Livestock Development
willk@A-FAN.org

5 barn egg laying facility on Lancaster/Gage County Line
5 barns constructed from 2001 to 2005. There are 25+/- homes within 1 mile of this facility, and an additional 20+/- within 1.5 miles. Many homes in this area are similar "mini acreage" type properties comparable to those near the Denton Road site proposed by Randy Essink. There have been multiple built within 1 mile of this facility since 2010.

Manure handling practices are very similar to the proposed Randy Essink project. Manure from the layer houses is stored in the layer house until it is sold to a commercial applicator and loaded onto truck-mounted manure spreaders for transport to land application sites to be applied at agronomic rates following an approved nutrient management plan by NDEQ.

Lancaster County Homes
28550 Fonda Road, 1 Mile Northwest: Up 26% in valuation since 2010 to $240,000
28551 Fonda Road, 1 Mile Northwest: Up 25% in valuation since 2010 to $284,000
28751 Fonda Road, 1 Mile Northwest: Up 27% in valuation since 2010 to $274,100
29151 Golden Pond Road, .60 Miles Northwest, Up 29% in valuation since 2010 to $274,100
29400 S 120 St, 1 mile East/Northeast, Up 25% in valuation since 2014 to $295,300
29200 S 120 St, 1 mile Northeast, Up 35% in valuation since 2014 to $225,100
28800 S 120 St, 1.25 mile Northeast, Down 35% in valuation since 2014 to $76,900 (1000 Square Foot, unimproved home built in 1960)
6041 Village Dr. 1.25 mile Northeast, Up 28% in valuation since 2014 to $88,300
11801 Firth Rd, 1.25 mile Northeast, Up 15% in valuation since 2014 to $247,000.

Gage County Homes
10702 E Apple Rd, 1 mile South, No increase or decrease since 2013. Valuation of $66,690 (1 story home built in 1900)
11402 E Apple Rd, 1 mile South, No increase or decrease since 2013. Valuation of $64,000 (1 story home, unimproved, built in 1979)
680 S 120th St, 1.25 mile East, Up 13% in valuation since 2013 to $229,030
12455 E Gage, 1.25 mile East, Up 6% in valuation since 2013 to $240,165
12511 E Gage Rd, 1.25 mile East, Up 9% in valuation since 2013 to $237,535

Alliance for the Future of Agriculture in Nebraska
Will Keech, Director of Livestock Development
willk@A-FAN.org

Livestock, including poultry, are the perfect complement to raising grain and Nebraska is a great place for both to thrive. Nebraska is a top producer of both corn and soybeans, both essential livestock feeds. From an economic standpoint, it makes sense for producers to expand livestock operations close to where these inputs are grown.

As a result, livestock expansion is a critical part of sustaining and growing Nebraska's rural communities. This proposed poultry barn project would create jobs, diversify the local agriculture economy and provide another market for grain as feed. Perhaps most importantly, it will ensure a local family is able to provide for themselves and potentially make plans for the next generation that may want to return to Lancaster County and work in agriculture.

Based on Nebraska Public Power District study, that looked at expanding poultry production in the state one can begin to see the potential economic an four-barn project like the one proposed here would have on Lancaster County.[1] Per this study, best guess estimates this project and its multiplier effect in the county would provide:

+3 direct/indirect jobs
+$300,000 direct/indirect labor income
+$16,000 direct/indirect local property taxes annually

Lancaster County's own conditional use permit process and regulations set by the Nebraska Department of Environmental Quality will also closely monitor the practices used by the Essink family to ensure they are protecting the environment. [2] This poultry operation will use a nutrient management plan that will guide the land application of the waste from the poultry barns. They will be required to follow best management practices to minimize odor, dust and other potential impacts to air and water.

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[1] Lemke, Kenneth, "Projected Economic Impacts of Two Commercial Broiler Grow-Houses in Non-metropolitan, Nebraska." (2017).
[2] Nebraska Rev. Stat. 54-2416 et al.

SP14044

PC MATERIALS - ATTACHMENT 5 - A. KNIGHT

October 28, 2014

To: Lancaster County Planning Commission members

Subject: Comments on Bill Bevans special use permit application for commercial chicken feedlot

Lincoln-Lancaster County Planning Commission Members:

Bill Bevans has applied for a special use permit regarding a commercial chicken feedlot being built and operated at his farm located 1.25 miles south of Waverly, or roughly at North 148th and Alvo Road. The site location itself is outside of the City of Waverly's jurisdiction, and is under Lancaster County jurisdiction.

Please understand that initially the idea of any sort of commercial feedlot near Waverly's corporate limits did not sound appealing. Some of the larger concerns were:

- 2 years ago Waverly completed our 20 year comprehensive plan, which involved nearly fifty people from the community. Land south of Waverly, which abuts the proposed feedlot, was identified as "Residential" regarding the future land use map.
- Part of a $3.5 million dollar fresh water improvement project involves bringing a 16" distribution main north along 148th Street from our well fields along Alvo Road. This is for added capacity and redundancy. This project will be completed by the end of the 2014 calendar year.
- Domesticated animals in large numbers tend to cause people to complain of smell (odors), noise, and extra commercial vehicular traffic.
- Although the jurisdiction on this matter rests with you today, I would suspect that during the next two years some annexation will occur and jurisdiction over this site will shift to the City of Waverly.
- Presently Waverly does not allow any feedlots (even with special use permits) to operate within our jurisdictional boundaries. Grandfathering of existing permits obviously would continue. Expansion of pre-existing feedlots would be considered a non-conforming use and that would not be allowed (unless Waverly were to amend both the Zoning Regulations and the Future Land Use Map).

However, having shared the concerns by themselves is not fair to Mr. Bevans or to the situation as a whole. There is a much larger picture that we have to comprehend:

- Urbanization is growing and infringing upon the agricultural zoned areas, so potential conflicts are bound to arise.
- The world's food production requirements are growing at a staggering pace. Somehow we must all work together towards solutions that would allow the masses to be fed.
- The agricultural economy for Waverly (possibly Nebraska) generates the largest amount of jobs, and by far is the largest faction when measuring dollars.

It became apparent that Waverly should perform due diligence on this matter. We should really do the responsible thing and actually go and observe a feedlot firsthand to see if our concerns were valid.

On October 21st, Mr. Bevans was at our City Council meeting and shared his plans for a proposed feedlot. We challenged him to prove to us that a feedlot that close to Waverly would not present any serious potential conflicts. As a result, a trip was arranged to visit a large active feedlot complex near Tecumseh.

The following afternoon we visited the Tecumseh site as well as Mr. Bevan's proposed new site near Waverly. Those in attendance were: Bill Bevans, Mike Werner (Mayor), John Hestermann (City Council), Doug Rix (City Administrator) and Chad Lyon (City Building/Zoning).

The firsthand experience proved to be invaluable. The time we spent asking questions, examining the facility, and moving about the complex revealed the following:

- The "bad odors" were minimal. The worse smell we detected was a small amount of spoiled feed on the ground.
- There was a "fresh" manure pile outside at the far end of the 450 foot long buildings. There was a strong wind that day. Although you could sense it was manure, it was not offensive.
- You could pick up the smell of feathers or feather dust if you walked right by a fan that was spinning. Again, very minor odor.
- There was zero noise, in fact next to serene. The fans when running made normal noise from the blades cutting the air. Again, exceptionally minor and "normal".
- The internal road system was outstanding. Any sort of commercial vehicles could easily get around the complex with ease.
- It was confirmed that a fair amount of the commercial traffic occurs at nighttime or off hours. The total amount of traffic that could occur at Mr. Bevans proposed site is no different than a normal farming operation and is not a worry.
- The buildings being proposed are low profile by nature. They integrate or blend in quite well with the natural surroundings. They do not stand out "like a sore thumb".
- It was apparent to me that if a housing development occurred within 900 feet (3 blocks) from the feedlot, I really doubt that a homeowner would know what happens "over there" (unless you told them).
- The Poultry Industry is very sensitive to public perception. They do not want the public complaining or having issues any more than we as City officials would.

In conclusion, I am convinced this proposed chicken feedlot presents Waverly with no serious points of conflict. Mr. Bevans is a man of impeccable integrity. I am confident we will be able to reach amicable solutions with Mr. Bevans if problems arise. The Industry he is a part of is very sensitive to the same issues I had, and appear to become engaged if necessary to resolve differences that could arise. This proposed project will have a positive economic impact for Lancaster County and Waverly. I would

encourage or recommend approval of Mr. Bevan's application for a special use permit regarding his commercial chicken feedlot.

I'd like to thank John Hestermann for being the voice of reason and arranging a trip to Tecumseh, Chad Lyon for being point man concerning Waverly's interest, and especially Mr. Bevans for being patient and taking the time to answer any and all questions.

Sincerely,

Mike Werner

Mike Werner
Mayor

SP17018

SPECIAL PERMIT NO. 17018
Heetderks Farm
(PUBLIC HEARING/ACTION 6/21/17)

ADDITIONAL COMMENTS

From: Planning
Subject: Additional Comments RE: SP17018

From: Roger Furrer [mailto:roger.furrer@doane.edu]
Sent: Tuesday, June 20, 2017 10:20 PM
To: Planning <Plan@lincoln.ne.gov>
Subject: Re: Special Permit SP17018

Following up on our previous email re: SP17018

We would request clarification on the following issues:

What plans are in place for dealing with carcuses and other non-compostable solids?
What are the plans for dealing with liquid and solid wastes since the sight is on a well-head protection zone?
What protection plans are in place for potential run-off in adjacent steams?
Avenues for recourse in the event that our property values decrease due to proximity to the chicken production site?

We appreciate your input,

Roger Furrer and Malia Robinson.

On Tue, Jun 20, 2017 at 2:21 PM, Roger Furrer <roger.furrer@doane.edu> wrote:

June 20, 2017

Dear Lancaster County Planning Commission

:

We would like to raise the following concerns regarding the proposed chicken production plant proposed for near South 176th Street and Firth Rd (**Special Permit SP17018**).

Our home is located less than a mile from the proposed site. We already experience strong smells from Prairie Land Dairy during northwesterly winds. Recently Prairie Land, who have always been good neighbors, curtailed their composting operation because of the impact on the surrounding community. We are told by Mr. Heetderks that they will be composting the chicken manure on site and "possibly" applying to the adjacent fields. Since southeastern winds are common in the spring and summer, we are concerned about the impact on our home and those of our neighbors.

Mr. Heetderks has spoken with us personally about the project. During that conversation, he told us one of the "benefits" of the operation would be that the County would have to improve the Firth Road to accommodate the semi-tractor trailers that be serving the facility. However, according to our conversation with Tom Cajka of the Planning Department, estimated traffic would be one semi a day and that the County Engineer had determined there was no need for improvements. We are concerned that there appears to be a disparity between the operator and the county as to the understanding of the impact of this development. We have already noted that with the recent influx of home construction traffic, Firth Rd. has been deteriorating, particularly with rain or snow. Perhaps further study is required as to the anticipated impact of this project on the county infrastructure and the actual cost to the Lancaster County taxpayers.

Finally, Mr. Heetderks has informed us that the chicks to be raised in this facility need constant and high temperatures. These buildings will require large fans running constantly and we would appreciate more information regarding the noise impact of this facility on the surrounding families before this facility is approved.

We appreciate your attention to this matter and ask that you defer action until the actual impact of this project is determined.

Sincerely

Roger Furrer and Malia Robinson

27805 S. 176th St.

Adams, NE 68301

PC MATERIALS - ATTACHMENT 6A - C. DICKS

IOWA CONCENTRATED ANIMAL FEEDING OPERATIONS AIR QUALITY STUDY

Final Report

Iowa State University and The University of Iowa Study Group

February 2002

CHAPTER 1 Executive Summary

Introduction

In mid-June of 2001, Governor Tom Vilsack requested that the faculty of the two universities address the public health and environmental impacts of concentrated animal feeding operations (CAFOs, also referred to as Concentrated Feeding Operations or CFOs). In response to this request, Richard Ross, PhD, DVM, Dean of the College of Agriculture at Iowa State University and James Merchant, MD, DrPH, Dean of the College of Public Health at The University of Iowa, were asked by the Department of Natural Resources Director Jeffrey Vonk to provide guidance **"regarding the impacts of air quality surrounding CFOs on Iowans and recommended methods for reducing and/or minimizing emissions. Specifically, I am asking your advice and recommendations on how the Department of Natural Resources should address this critically important public policy issue."**

Director Vonk asked five questions. Through a series of discussions and meetings, a combined study group of faculty and consultants (See Attachment 1) was identified, conflict of interest and confidentiality statements were signed by all faculty and consultants, definitions were discussed and agreed upon, a comprehensive report outline was developed and agreed upon and individual teams of faculty agreed to write each of the 10 chapters that constitute the full report. A technical and policy workshop was held in Des Moines on December 18 and 19, 2001, at which time chapter presentations were made and discussions were held regarding the series of five questions asked by Director Vonk. Groups were assigned to summarize the responses to these five questions in this Executive Summary. Peer review of this Executive Summary and the full report was considered to be vital to the validity and integrity of the report. This peer review, completed by national and international scientists who are experts in the areas addressed by the report (See Attachment 2), was completed in January, 2002. Their review comments, as well as comments from members of the combined study group, were discussed at meetings on January 8, 24 and 29 and were useful in completing the final report for submission to the Iowa Department of Natural Resources (IDNR). An agreed-upon glossary, which defines the many technical terms used in this report, is found in Attachment 3.

Response to Question 1

There are two questions contained in Question 1. The first is:

Based on analysis of peer-reviewed, duplicated, legitimate, published scientific research, is there direct evidence of harm to humans by emissions, byproducts, toxic waste, or infectious agents produced by CFOs?

There is now an extensive literature documenting acute and chronic respiratory diseases and dysfunction among workers, especially swine and poultry workers, from exposures to complex mixtures of particulates, gases and vapors within CAFO units. Common complaints among workers include sinusitis, chronic bronchitis, inflamed mucous membranes of the nose, irritation of the nose and throat, headaches, muscle aches and pains. Asthma and acute (cross-shift) declines in lung function are

documented among CAFO workers, even though workers with pre-existing asthma usually select themselves out of such employment because of increased asthma severity. Progressive declines in lung function over years are documented among CAFO workers. Those workers with increased acute declines in lung function, which are often accompanied by chest tightness and wheezing (asthma-like syndrome), have been found to have more rapid declines in lung function over time. Very high exposures to hydrogen sulfide, which occurs during pit agitation, may result in death from asphyxia and respiratory arrest; those who survive such high dose exposures often develop reactive airways distress syndrome (RADS), bronchiolitis obliterans and severe respiratory impairment. It is therefore concluded that there is direct evidence of harm to humans from occupational exposures within CAFOs (See Chapter 6.3.2).

However, one cannot directly extrapolate occupational health risks observed among workers inside CAFOs to community health risks that may arise from CAFO emissions. While the discharge of airborne particulates and gases/vapors from CAFOs and manure handling clearly occur, the aerosols at the point source differ from ambient exposures as they move downwind, both in composition and in concentration. The populations at risk (workers) within CAFO units and within the community (community residents) also differ significantly. CAFO workers are generally a healthy population (those fit enough to work), while community residents include children, the elderly, and those with preexisting impairments. Regulatory agencies recognize the need for lower exposure limits to compensate for increased susceptibility among community residents, to allow for uncertainty factors from epidemiological study findings (and for species to species differences when animal data is used) to establish community ambient exposure limits.

The second part of the first question is:

What human research is there to confirm the existence of disease and exactly what are the specific chemical, bacterial, or aromatic causes of such diseases?

Published, controlled studies of odor experienced by community residents living in proximity to CAFOs are limited to two studies in North Carolina and one in Iowa. The first North Carolina study reported more negative mood states (tension, depression, anger, reduced vigor, fatigue and confusion) among those exposed to CAFO odor compared with control subjects. The second North Carolina study reported increased symptoms of headache, runny nose, sore throat, excessive coughing, diarrhea, burning eyes and reduced quality of life measures among community residents living in proximity to a swine CAFO compared with rural residents not living in proximity to livestock operations. The Iowa study found increases in several symptom clusters, mainly eye and upper respiratory symptoms, among those living within two miles of a swine CAFO compared with rural residents living near minimal livestock production. These studies are limited in size and scope, did not make specific environmental exposure or odor measurements, and are subject to recall bias. They are notable in that they are controlled studies that report eye and respiratory symptoms associated with concentrated livestock exposures that are similar to more prevalent and severe symptoms experienced by CAFO workers who are exposed at much higher concentrations of mixed emissions (See Chapter 6.3.3).

Also relevant in responding to this question are many experimental and epidemiological studies of non-CAFO populations exposed to low concentrations of individual chemical components of CAFO emissions, particularly hydrogen sulfide, ammonia and endotoxin. These studies document respiratory symptoms associated with low levels of these individual exposures. Because at least two of these

chemicals (hydrogen sulfide and ammonia) are found in CAFO emissions that contribute to ambient community exposures, these experimental and community exposure studies are relevant to this question (See Chapter 6.3.1). Both the Environmental Protection Agency (EPA) and the Agency for Toxic Substance and Disease Registry (ATSDR)[1] have recommended ambient exposure limits for ammonia and hydrogen sulfide based on these studies.

It is concluded that no specific disease(s) *per se* among community residents can be confirmed to arise from a specific chemical, bacteria or aromatic cause. However, the findings of the limited community studies of concentrated livestock exposures are consistent with adverse health effects observed in other experimental and epidemiological studies of some specific chemicals (ammonia and hydrogen sulfide) known to be components of CAFO air emissions. It is, therefore, also concluded that CAFO air emissions may constitute a public health hazard[2] and that precautions should be taken to minimize both specific chemical exposures (hydrogen sulfide and ammonia) and mixed exposures (including odor) arising from CAFOs.

Response to Question 2

Question 2: Based on an analysis of peer-reviewed, duplicated, legitimate, and published scientific research, what specific substances, including aromatic compounds, do you believe require regulatory action to protect the public?

By consensus of the entire study group, the following substances should be considered for regulatory action: (1) hydrogen sulfide; (2) ammonia; and (3) odors. The justification for regulatory action of these substances is based on our assessment of the scientific literature, (See Chapters 2.0-8.0), recommendations by pertinent federal agencies, and review of regulations established in other states (See Chapter 9.0).

Hydrogen sulfide and ammonia are recognized degradation products of animal manure and urine (See Chapter 3.4 in the full report). Both of these gases have been measured in the general vicinity of livestock operations at concentrations of potential health concern for rural residents, under prolonged exposure (See Chapter 8.0).

The World Health Organization lists hydrogen sulfide as a toxic hazard in many environments, and recommends specific exposure limits. The ATSDR lists hydrogen sulfide and ammonia on its registry of toxic substances[1] under its federal mandate to protect the public health according to the Comprehensive Environmental Response, Compensation, and Liability Act, [42 U.S.C. 9604 et seq] as amended by the Superfund Amendments and Reauthorization Act [pub. 99-499]. Furthermore, the ATSDR has published Minimum Risk Levels (MRL's) for these substances to protect the public's health.[1] The EPA historically evaluates scientific information regarding environmental contaminants and the potential threats for human health hazards. Based on a standardized risk assessment process, the EPA identifies hydrogen sulfide and ammonia as potentially hazardous substances.[3] A detailed description of the process and justification used by the EPA and ATSDR to include ammonia and hydrogen sulfide as hazardous substances is provided in detail in Chapter 8.7.

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[1] Agency for Toxic Substances and Disease Registry, Minimal Risk Levels for Hazardous Substances (MRL's), http://www.atsdr.cdc.gov/mrls.html

[2] hazard: the potential for radiation, a chemical or other pollutant to cause human illness or injury

[3] Environmental Protection Agency, Integrated Risk Information System, www.epa.gov/iris/subst.html

Minnesota and Nebraska have established air quality standards for hydrogen sulfide based on public health concerns. California and Minnesota regulate ambient concentrations of hydrogen sulfide based upon nuisance and human health effects. Minnesota is in the process of setting standards for ammonia ambient exposures. Monitoring of ammonia ambient exposures is taking place in Missouri. The regulatory actions taken by other states in setting standards are described in Chapter 9.0.

Odors have been a major concern of residents in the vicinity of CAFOs (see Chapter 3.4, 4.0, 6.8 and 8.0). Colorado, Missouri, and North Carolina have recognized the need to promulgate odor regulations. Details of the processes of odor regulations for these states are presented in Chapter 9.0.

Response to Question 3

Question 3: Based on an analysis of peer-reviewed, duplicated, legitimate, and published scientific research, what would you recommend as Iowa or National consensus standards for any proposed substances to be regulated as emissions from CFOs?

The study group recommends that ambient air quality standards be developed to regulate the concentration of hydrogen sulfide, ammonia and odor. There has been considerable discussion on what standard levels should be established for each pollutant as well as where the measurement should take place. Some states measure concentration at the property line of the source while others measure at the residence or public use area. The U.S. EPA has determined that simultaneous exposure of two substances such as hydrogen sulfide and ammonia (both pulmonary irritants) results in an additive effect. Thus, in order to protect against the adverse effects of such binary mixtures the exposure limit for each should be reduced accordingly. While emissions from CAFOs fluctuate over time, they produce chronic rather than acute exposures. Rather than representing single doses, these exposures are recurring and may persist for days with each episode.

The study group reached consensus that measurements for hydrogen sulfide and ammonia should be taken at the CAFO property line and residence or public use area. Measurements for odor should be taken at a residence or public use area and one proposal includes measurements at the CAFO property line. The study group recommends that measurements for hydrogen sulfide and ammonia should be time weighted rather that instantaneous to allow for atmospheric variability.

With current animal production practices, stored manure must be removed and land-applied. During these times hydrogen sulfide, ammonia and odor levels at or near production facilities may be significantly higher than during normal conditions. Therefore, it is also recommended that provisions be made for allowable times to exceed the established standards to allow for proper manure application to land. Notification must be given to the Iowa DNR and nearby residents, at least 48 hours in advance when the operation expects to exceed the standards

The study group provides the following recommendations on the regulation of hydrogen sulfide, ammonia, and odor from CAFOs:

<u>Hydrogen Sulfide</u>
It is recommended that hydrogen sulfide, measured at the CAFO property line, not exceed 70 parts per billion (ppb) for a 1-hour time-weighted average (TWA) period. In addition, the concentration at a residence or public use area shall not exceed 15 ppb, measured in the same manner as the property line

measurement. It is recommended that each CAFO have up to seven days (with 48 hour notice) each calendar year when they are allowed to exceed the concentration for hydrogen sulfide.

Ammonia

It is recommended that ammonia, measured at the CAFO property line, not exceed 500 ppb for a 1-hour TWA period. In addition, the concentration at a residence or public use area shall not exceed 150 ppb, measured in the same manner as the property line measurement. It is recommended that each CAFO have up to seven days (with 48 hour notice) each calendar year when they are allowed to exceed the concentration for ammonia.

Odor

The study group was unable to reach consensus on the regulation of odors. Thus, the following two opinions for odor are presented:

Opinion 1:

It is recommended that odor, measured at the residence or public use area, shall not exceed 7:1 dilutions with an exceedence defined as two excessive measurements separated by 4 hours, in any day. It is recommended that each CAFO have up to seven days (with 48 hour notice) each calendar year when they are allowed to exceed the concentration for odor. At the CAFO property line, odor shall not exceed a 15:1 dilution, with an exceedence defined as one excessive two-hour time averaged sample, in any day. It is recommended that each CAFO have up to 14 days (with 48 hour notice) each calendar year when they are allowed to exceed the property line concentration for odor. Exceedence of a CAFO ambient air quality standard should result in regulatory action similar to that which would be required in regulatory action exceedence of a National Ambient Air Quality Standard. The IDNR should be granted the power to develop an implementation plan to reduce the emissions that led to the violation.

Opinion 2:

Odor recommendations are more difficult to establish because studies relating health impacts to odor exposure have not measured odor concentrations. However, odor concentrations related to annoyance impacts have been established. Measurements for odor should be taken at a residence or public use area. Using sampling events at the source, the frequency, duration, and concentration of exposure to odor at the residence can be modeled using tools currently available, thereby avoiding extensive monitoring.

Polls indicate that residents are willing to tolerate nuisance odors for only up to a reasonable amount of time (see Iowa Rural Life Poll, Chapter 7 in the full report). Thus, the reported odor concentration represents tolerable continuous exposure, above which, concentrations are tolerated only in relation to their frequency and duration. An odor concentration of 7:1 dilutions at a residence is a tolerable odor providing it is not exceeded for periods that extend beyond that considered reasonable.

Response to Question 4

Question 4: What do you think should be done to address any other emerging issues with respect to industrial CFOs in Iowa?

There are other important emerging issues surrounding the intensification of livestock production that extend beyond concerns over air emissions. These include concerns about water quality, the health of CAFO workers, socioeconomic impacts in rural communities, and the emergence of microorganisms resistant to antibiotics used in human and veterinary medicine. There are also concerns about the emission of greenhouse gases from CAFO sites. The effects of siting large CAFOs in or near communities should be recognized and used in making informed decisions on permitting facilities. There is a need to evaluate plans for controlling livestock epidemics and for proper disposal of carcasses in the event of an outbreak. Recent events in Europe associated with foot and mouth disease, plus renewed concerns over agricultural bioterrorism highlight this need. Lastly, the study group makes recommendations regarding the formation of a science advisory panel to advise the IDNR on agricultural and environmental health issues. Each of these issues is further described below.

Some issues discussed in this section may be outside the purview of the IDNR, but all are congruent with science-based conclusions in the body of the report. Some are appropriately addressed by other state or federal agencies, and some can only be addressed through a combination of related public policies.

Water Quality

Water quality is a major issue concerning CAFOs. Concerns include: 1) leakage or rupture of lagoons (both lined and unlined); and 2) runoff from agricultural fields where animal waste has been improperly applied. Nonpoint discharges may result in surface runoff with high concentrations of ammonia, biochemical oxygen demand (BOD), total and fecal coliform bacteria, total suspended solids, and phosphorus which can cause low dissolved oxygen in streams. Ecosystem impacts may include fish kills, changes in the natural food webs, algae growth, and losses of biological diversity in stream habitat. Both the structure and function of aquatic ecosystems can be impaired. Impacts may include increased cost for drinking water treatment of surface water supplies, reduced harvest of fish and shellfish, closed bathing beaches due to fecal coliforms, and loss of aesthetic beauty of Iowa's waterways.

Recently, Iowa has experienced an increase in the number of CAFOs as well as a greater density of animals per operation. Many larger operations are not self-sufficient in grain production and purchase feed from other sources. Therefore, applicators must follow additional application guidelines established by legislation and rules. While some study group members believe manure should never be applied to frozen ground or steep slopes, others recommend that manure application on steep slopes and frozen ground follow guidelines established by USDA Natural Resources Conservation Service "Iowa Nutrient Management Standard 590". In addition, large producers are required to file manure management plans with the IDNR.

Study group members reached consensus that as operations become more numerous and concentrated on limited land bases, there is an increased risk for deterioration of water quality. All members believe that if producers do not follow their manure management plans, the chance for runoff of nutrients and bacteria is increased. In addition, some members felt more strongly on this issue, stating that it is not possible to apply manure at high areal loading rates without runoff of nutrients and bacteria because

one cannot foresee intense rainfall events. One cannot assume that manure can always be safely applied to land without a potential for runoff. These members feel the present system of CAFO production disposes of too much manure in too small an area exposed to uncontrolled meteorological conditions to realistically expect acceptable water quality.

Wastes that are stored in lagoons or earthen waste storage structures have a potential for spills and/or groundwater contamination if existing standards are not met. National Pollutant Discharge Elimination System (NPDES) permits are required for large (>1000 animal units) open feedlots which allow discharge only in the event of a 25-year, 24-hour storm. Totally roofed CAFOs are not allowed to discharge into surface waters, and therefore do not require NPDES permits. This is in contrast to small Iowa towns, all of which are required to have NPDES permits and meet effluent discharge requirements.

Occupational Health

The occupational health problems for those who work inside CAFOs have been well recognized since 1977. At least 25 percent of workers in swine CAFOs have been reported to have current respiratory health problems. Recommended maximum exposure levels designed to protect worker health have been defined (See Chapter 6.3). It is apparent that current Occupational Safety and Health Administration (OSHA) limits are not protective of CAFO worker health because a number of hazardous contaminants are not regulated. Importantly, OSHA has not promulgated any Permissible Exposure Limits specifically to protect the health of livestock production workers.

There are several important regulatory problems that have interfered with the protection of workers in CAFOs. Most of the large livestock and poultry producers have not been regulated by OSHA, even though they may have more than 10 employees and are subject to OSHA regulations. The specialization of livestock production has led to increased cumulative exposure, as workers may spend as much as 70 hours per week in these buildings. There is a need to establish exposure standards that protect workers for these extended work schedules. There is enough information to protect workers' health if recognized workplace management procedures are adopted. It is recommended that the livestock-producing industries institute comprehensive worker health protection programs.

Antibiotic Resistance

Antibiotic resistance is a health threat of great concern. Recent documents from the World Health Organization (2000), the Centers for Disease Control, and other health agencies have placed a high priority on the understanding and control of antibiotic resistance (Interagency Task Force On Antimicrobial Resistance, 2000; Tenover and Hughes, 1995). It is clear that certain antibiotic use practices in human medicine have contributed to resistance. Agricultural antibiotic use practices have also been targeted as contributing to this serious problem (Witte, 1998). In particular, the subtherapeutic use of antibiotics in food producing animals has been identified by public health officials as the key factor in the development of resistance among foodborne pathogens (Gorbach, 2001).

Antibiotic resistant organisms or the resistance genes responsible can be spread from agricultural settings into human populations through a variety of mechanisms. Ingestion of contaminated food products, especially animal-derived foods including meat and dairy products, has been linked to spread of antibiotic resistant organisms (Mead et al., 1999). Direct contact between colonized or infected animals and farm workers has also been associated with the acquisition of resistant organisms in humans (Levy et al, 1976).

Various studies have demonstrated that continued use of antibiotics in feedstuffs provides conditions favorable to the selection of resistant strains of bacteria in food animals and their environment (Chee-Sanford et al., 2001; Zahn, Anhalt, & Boyd, 2001). Yet the threats for emergence of resistant strains of bacteria through subtherapeutic use of antibiotics in livestock applies wherever these practices occur; the threat is not restricted to CAFOs. Selection pressure may be enhanced by: (1) the long-term use of antibiotics in animals having endemic subclinical infections; (2) poor environmental hygiene; and (3) management practices that allow for the introduction of naïve, susceptible animals or the movement of carrier animals into a naïve herd. This latter practice allows for the continuous passage of resistant bacteria among susceptible animals. Over the past decade, increasing numbers of organisms isolated from food animals or meat products demonstrate resistance to antibiotics including penicillins, tetracycline, sulfamethoxazole, streptomycin and other compounds (Aarestrup et al, 1998; Centers for Disease Control and Prevention, 1999; Molbak et al, 1999; Smith et al., 1999; Threlfall et al., 1996; White et al., 2001).

Antibiotics are critically important in human and veterinary medicine, and in the current context, food animal production. Organisms resistant to all classes of available antimicrobial agents have been identified in human medicine and the incidence of community acquired highly drug resistant organisms is increasing (Neu, 1992). No new classes of antimicrobial agents will be available in the foreseeable future. It is critical that the appropriate state and federal agencies and the research community in the United States take a leading role in defining the risks associated with different antibiotic use practices and develop strategies to improve our antibiotic stewardship both in human and agricultural settings (American Medical Association, 2001).

Greenhouse Gas Emissions

Regarding air pollution, air permits are not required for emissions from CAFOs, so there is not a good method to quantify their inputs. However, emissions of particulate matter, sulfur compounds, and nitrogen oxides are believed to be a very minor portion of Iowa's total emissions. CAFO emissions of these pollutants are small compared to emissions from stationary sources (power plants and industry) and mobile sources (automobiles and truck diesel). Greenhouse gas emissions from CAFOs are significant for methane. On a radiative basis (greenhouse gas impacts), methane is about 10-15% of the total greenhouse gas produced in Iowa, and methane from manure management is about 25% of the total (approximately 3% of total greenhouse gas estimated in Ney et al., 1996). The Iowa Greenhouse Gas Action Plan calls for capture of methane at large feed lots (Ney et al., 1996). Nitrous oxide emissions from manure management at CAFOs is a small contribution, and the emissions of carbon dioxide from CAFOs are a negligible portion of the state's CO_2 emissions.

Community and Socioeconomic Impacts

A number of important community and socioeconomic issues have developed with the emergence of CAFOs, as described in Chapter 7. Research has explored some of these issues, and posed and evaluated alternatives, including some alternatives for livestock production. To a significant extent, these issues are tied to overall changes in agriculture and rural life in America. Importantly, these issues are complex and generally outside the purview of the IDNR.

These issues include the concern about increased concentration of control of livestock supply chains, lack of public price discovery, and loss of family farmers' control of production. Another concern is decline in local economic activity and increases in purchases of some animal production inputs from

outside the local area, as CAFOs increase in size and number. This is a complex issue since we must estimate what purchases would have been made had the structure remained the same. Of equal importance is the fact that decision-making on questions that matter at the local level are increasingly more centralized with the growth of corporate CAFOs.

Devaluation of property near hog CAFOs and related legal challenges are documented. Studies in Michigan, North Carolina, and Missouri found that the value of real estate close to CAFOs tended to fall. These and other data show that CAFOs are defined by present and potential neighbors as at least a nuisance.

Studies showing a decline in neighborliness, or community social capital, have been conducted in Iowa, North Carolina, Minnesota, and Missouri. This decline was measured by diminished opportunities to socialize, lack of trust, increased community conflict, and related variables in communities where CAFOs are concentrated.

A more diverse livestock sector that was able to remain competitive and responded to increasingly differentiated consumer preferences would likely result in greater environmental (Donham, 2000), social (Wright, et al., 2001), and economic sustainability of rural areas than one dominated by large-scale CAFOs. Policies that encourage more diverse livestock/crop farms, particularly those using sustainable production systems, could also reduce the regulatory burden of the IDNR and other agencies.

The most clearly recognizable socioeconomic issue for CAFOs that impinges on the IDNR's responsibilities is what CAFOs may do to aquatic, wildlife, and aesthetic qualities of living in Iowa, as well as tourism in Iowa. If air and water quality is compromised, the interest of persons and businesses considering relocation to Iowa will be lessened. A compromised environment could have an economic impact on tourism by keeping Iowa a low priority destination for visitors as well as driving fishing and hunting activity away from Iowa and toward less challenged environments.

Livestock Epidemic and Disposal Issues

The current state plan for Foot and Mouth Disease (FMD) in Iowa is multi-agency and is called the Foot and Mouth Disease Response and Recovery Plan. As part of its responsibilities in the state plan, the IDNR has developed the FMD Carcass Disposal Plan. Burial and composting are given high priority compared to burning, in order to reduce air pollution consequences. However, the potential impacts of a FMD epidemic like that of last year in the United Kingdom and Europe should be evaluated to assess if the current plans are sufficient for isolation of pathogens and destruction of carcasses. In addition, these plans should be evaluated for other pathogens, including bioterrorist introduction of anthrax and other potential agents of agricultural bioterrorism.

Formation of a Science Advisory Panel

To enhance the effectiveness of responses to emerging issues, the study group recommends formation of a science advisory panel to contract with the IDNR on agricultural and environmental issues. The University of Iowa and Iowa State University participants have found the current review of scientific literature on CAFOs and the ensuing discussions to be very useful. University faculty could continue in a more general role as a scientific advisory panel. This would provide the opportunity to develop closer collaboration and planning in a prospective manner. The partnership of the IDNR and other appropriate state agencies with a continuing advisory group of specialists in the sciences germane to

agricultural, environmental, and public health issues would strengthen Iowa's ability to plan for prevention or remediation of emerging problems in a thoughtful and positive manner with sufficient lead-time to engage the needed resources and evaluation. A science advisory panel could suggest areas for needed research to better resolve or control the factors related to emerging issues. The panel could recommend consultants, establish standard operating procedures for resolving questions, and be prepared with the necessary background, literature resources and ongoing discussion to support science-based advice as needed by the IDNR or other agencies in Iowa.

Response to Question 5

Question 5: Finally, I am seeking your recommendations regarding available methods of reducing or minimizing the emissions from CFOs and the impact of those emissions on the ambient air surrounding sites.

Emissions from CAFOs originate from three primary sources: (1) air emissions from housing units; (2) air emissions from manure storage facilities, and (3) air emissions during and following land application events. Documented emission reduction strategies exist for all three of these sources. Some of the documented strategies are more effective than others and some are more economical than others, however, economical strategies exist for dealing with emissions from all three sources.

Housing Unit Air Emissions

Housing unit air emissions ultimately are carried out with the ventilation air exhausted from buildings. Emissions originate from the feeding floor itself, where deposited manure and urine decompose anaerobically resulting in airborne gases and particulates from dried fecal material. In addition, emissions originate from under-floor manure storage in slatted systems and from bedding pack in deep-bedded systems. Studies have shown that, in slatted-floor housing systems, the emission contribution from the feeding floor itself can exceed 60 percent of the total with the remaining contribution from the under-floor storage compartment. Use of smooth cleanable surfaces along with frequent and complete scraping, and/or frequent flushing of the feeding floor with minimal air exchange between the housing air and the under-floor slurry, is a good strategy for reducing housing unit emissions.

If housing unit emissions are post-processed, (i.e., exhaust ventilation air is treated), additional strategies exist. Scrubbing the ventilation air with biofilters, where the exhausted air is passed through a bed of gas-scrubbing microorganisms, has been shown to reduce ammonia and odor emissions by more than 90 percent. However, effective use of biofilter technology requires simultaneous use of power ventilation. Biofilters are difficult to implement under high ventilation rate situations typical of Iowa summers and, of course, are not useful in naturally ventilated housing systems.

Gases and odors adhere to dust particles. Natural biomass filters such as corn stalks and chopped-straw have been used to capture a portion of the larger dust particles emitted with ventilation air. The evidence on this strategy is still being documented but research to date indicates that about 60 percent of the odor can be reduced using this technique.

Tree barriers are being evaluated for effectiveness in reducing odor and particulates and enhancing mixing and dilution. However, the impact on a large scale relative to livestock or poultry production sites is unknown. Tree barriers surrounding production sites have high aesthetic value.

Storage Unit Air Emissions

Outside manure storage systems can be a source of additional gas emissions. Regardless of whether the storage system is formed concrete, steel-lined, or earthen basin, these open exposures to the atmosphere can result in high emission rates. Emission rates are highly influenced by weather conditions. The most effective and economically feasible strategy for reducing emissions from outside storage units (not including anaerobic lagoons) is accomplished by covering the entire surface area of the storage unit. Research has been conducted on many covering materials, ranging from expensive impermeable covers, to relatively inexpensive chopped-straw covers with a maintained minimum depth of coverage. Inexpensive, chopped-straw cover, with a maintained minimum depth is as effective in reducing emissions as the more expensive covers. However, the key to success with this strategy is maintenance of a minimum depth of straw.

The best method for minimizing odors from anaerobic lagoons is to simply practice good management. It is most important to use adequate dilution water and load at or below design capacity. There has been much discussion recently about the use of anaerobic digesters which can significantly reduce storage odors and generate energy in the form of methane gas.

Air Emissions from Land Applied Manure

Emissions during land application of livestock and poultry manure can be intense if the manure is surface-applied. The majority of total emissions, roughly 80 percent, occur during the first six hours after land application. To significantly reduce emissions of gases and odors during land application, injection or immediate coverage (within 1 hour) is required. Odor reduction is, in turn, dependent upon the degree of soil coverage. Poorly injected manure slurry with little soil coverage is only marginal in effectiveness in reducing gas and odor emissions. To take full benefit of the natural odor absorption capacity of soils, the slurry must be completely covered. The evidence is clear that 85-90 percent emission reduction is possible with complete soil coverage compared to surface application when coverage is delayed for more than 3-6 hours.

Policy Strategies for Long-Term Viability of the Livestock Industry in Iowa

Emission of gases and particulates from livestock and poultry systems is an inevitable outcome requiring special attention. Strategies for emission reduction for all stages of production have been outlined, with most being economically feasible. The strategies outlined previously are documented techniques that have gained fairly widespread acceptance with scientists and engineers working in this area.

A few strategies have been discussed for years. They lack the scientific evidence to document their specific benefits, but nevertheless deserve discussion. The study group is unanimous in the belief that a long-term strategy of better facility siting, setbacks, and landscape considerations, in addition to the implementation of available odor and gas reducing technologies, will benefit both the producer and residents in the community. The study group strongly urges that the following topics receive careful consideration.

Statewide Spatial Planning

Facilities built today, under current siting and setback practices, have a lifetime of roughly 15 years. In the long-term, guidelines should be established based on siting and spatial planning considerations that require siting of new and replaced facilities in accordance with a statewide spatial plan. Some areas of the state are currently over-populated with facilities. A statewide spatial plan, based for example on

animal units per acre, would help guide and distribute animals in a manner that takes full advantage of Iowa's soil/nutrient capabilities and minimizes the impacts of air emissions on the community.

Local Siting Guidelines

The study group feels strongly that current siting guidelines are outdated and not reflective of the changing demographics in rural Iowa. Current siting guidelines use a simple distance and size regulation for new facilities. The study group feels that this method of siting is not conducive to the long-term viability of the livestock and poultry industries in Iowa. A strategy that takes into account proposed facility size and type, distance and orientation to surrounding neighbors, local weather patterns, odor control measures, existing recreational and public-use facilities, and other existing production facilities in a community would provide better placement guidance of facilities and contribute positively to spatial planning considerations. Siting models that utilize the above mentioned inputs have been developed, are currently being calibrated, and should be used in community-wide applications.

Aesthetic Considerations for Livestock and Poultry Production Sites

Evidence exists in the literature that foliage (primarily trees) will enhance mixing and capture some of the odor-producing gases and particulates emitted from livestock and poultry production facilities. Currently, research projects are being planned, and some have already been conducted, to test the use of strategically placed tree barriers around production sites. Although evidence documenting odor, gas, and particulate-capture-percentages on a production-size scale is limited, the study group feels strongly that landscape changes such as strategically placed tree lines will positively impact producer/community relationships. This is a researchable area and one that holds promise as a natural, aesthetically pleasing strategy for producers to implement.

Conclusion to Executive Summary

The consensus responses summarized in this Executive Summary provide a science-based summary of this inquiry from the Iowa Department of Natural Resources. The study group recognizes the importance of livestock production and the vital role it plays in the livelihoods of Iowa producers and suppliers and the state's economy. It is, therefore, critically important that science-based policies be developed to sustain livestock production. It is equally vital that such policies protect the public's health, sustain and enhance the communities in which livestock production takes place, and protect and enhance the environment and Iowa's natural resources through sound production practices, environmental controls and the development of a long-range, sustainable, community health and environmentally conscious spatial plan for CAFOS.

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Aggregate Industry Statistics

USDA's monthly periodical, *Livestock, Dairy and Poultry Outlook*,[38] discusses poultry market conditions and reports numerous statistics for livestock and poultry, but does not give average or base pay received by contract broiler growers.

Included in the USDA's *Livestock, Dairy and Poultry Outlook* are estimates of monthly returns to producers of feeding cattle and feeding hogs. Also included is the USDA's estimate of monthly *"estimated returns for broiler, turkey and egg production."* These three series, however, reflect the return the integrator received, not what the contract grower received. In other words, these USDA series reflected integrator profits, not poultry grower profits.

After reporting integrator profits for over 25 years in *Livestock, Dairy and Poultry Outlook*, USDA changed its policy in 2004 and converted the estimated returns from cents/lb to indices.[39] The USDA's published explanation was *"...the use of indexes shifts the focus of the data to the relative changes and away from absolute net returns values that have been the primary source of concern to a number of segments of the poultry industry."*[40]

The only "industry participants" who have concern about USDA statistics on estimated integrator profits would be the integrators themselves. In contrast, USDA did not change similar series for Great Plains cattle feeding or North Central hog farrow-to-finish operations. No policy justification for the estimates of integrator profits has surfaced to the authors' knowledge.

Figure 3 shows estimated integrator net returns in current dollars.[41]

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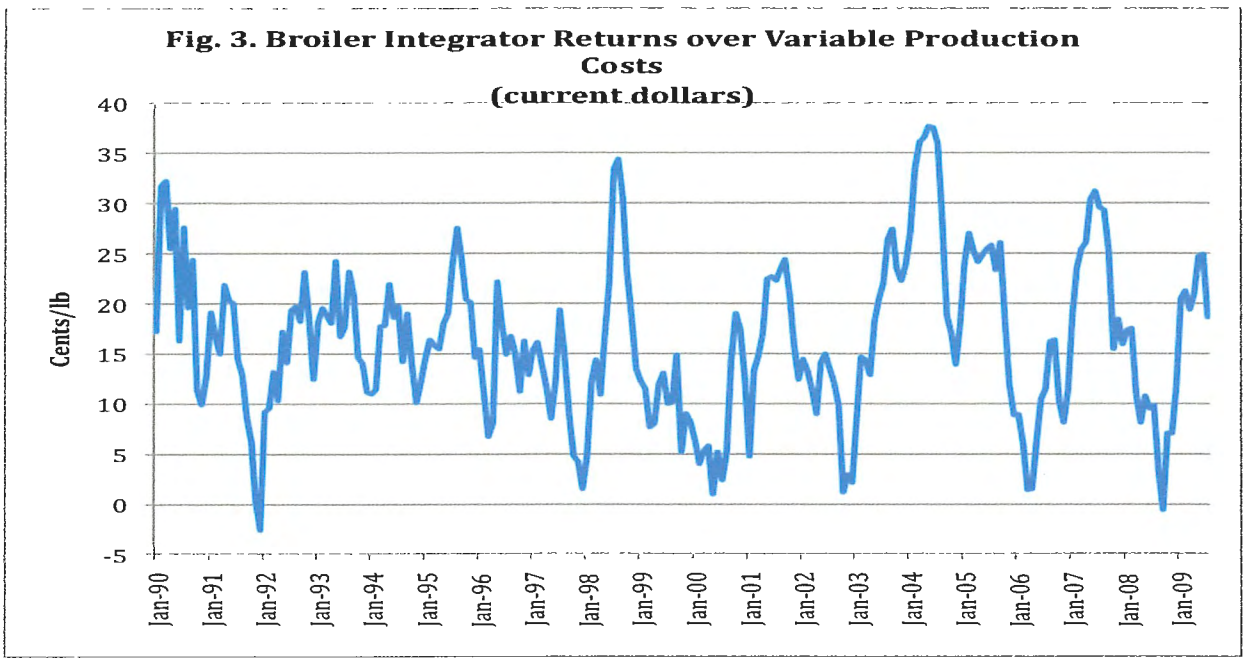
[38] http://www.ers.usda.gov/Publications/LDP/

[39] It is illogical to index profit, as profit be negative, zero, or positive, while indices are typically positive only.

[40] USDA/ERS, Livestock, Dairy & Poultry Outlook, LDP-M-117, March 16, 2004.

[41] Nominal net returns for 1990-2003 are those reported by USDA, and net returns for 2004 on were computed based on the USDA net returns index keyed to the ratio of the index and net returns per pound in an overlapping period in 2003.



One necessity for competitive markets is symmetric information. Both sides to a transaction must have similar information. Poultry growers do not have public access to either grower pay or integrator profits, yet integrators have both. Information asymmetry strengthens the integrator's monopsony or oligopsony position.

Risks and Risk Shifting

Many assert that contracting reduces risks for growers. The National Chicken Council claims *"grower contracts ...securely lock-in a stable income flow (for growers)."*[42] Academics have claimed that significant gains from contract farming come through the reallocation of risk from farmers to integrators (Knoeber and Thurman; Hedge and Vukina), and USDA economists have stated that tournament contracts shift "almost all" traditional output and input price risk, and common yield risk, from the grower to the integrator (USDA, MacDonald). The academic statements refer to risks very narrowly defined and are often taken out of context and given much broader, but inappropriate, interpretation.

Contracting does not eliminate risk. Contracting does not allow growers to *"lock-in stable income"* as contracts are presently written. Contracting changes risk but it does not give growers any real advantage because the grower lacks power to take advantage of a viable bargaining position during contracting. Indeed, contracts are not "negotiated"; they are advanced by integrators on a "take or leave it – and if the latter, we leave you stuck with your investment" basis. The contract allows the grower to subsist, perhaps, but not to grow, profit, or prosper.

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[42] National Chicken Council, submission to the Legal Policy Section/Antitrust Division, U.S. Department of Justice, 12/21/2009.

There is no "wealthy" subset of chicken growers, except perhaps for corporate insiders with sweetheart deals.

Although there is a set average pay amount in the integrator's price tournament, actual grower pay fluctuates considerably from flock to flock because tournament rankings fluctuate as shown in Figure 4 (actual data). Often the growers ranking changes more because of factors controlled by the integrator than by the grower's management. As a result, grower gross returns fluctuate considerably as shown in Figure 5.

Figure 4. Tournament Ranking of an Individual Grower's Successive Flocks

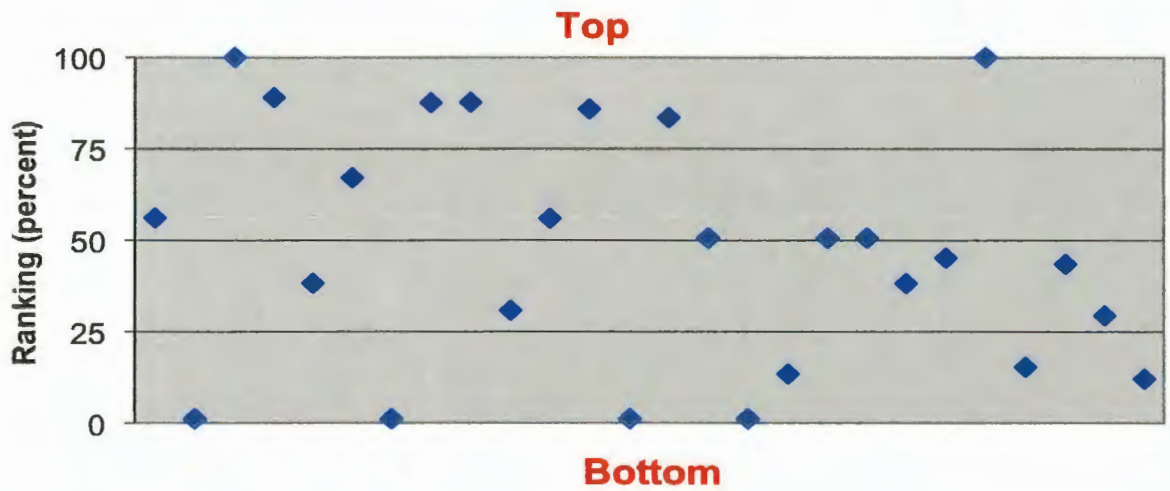
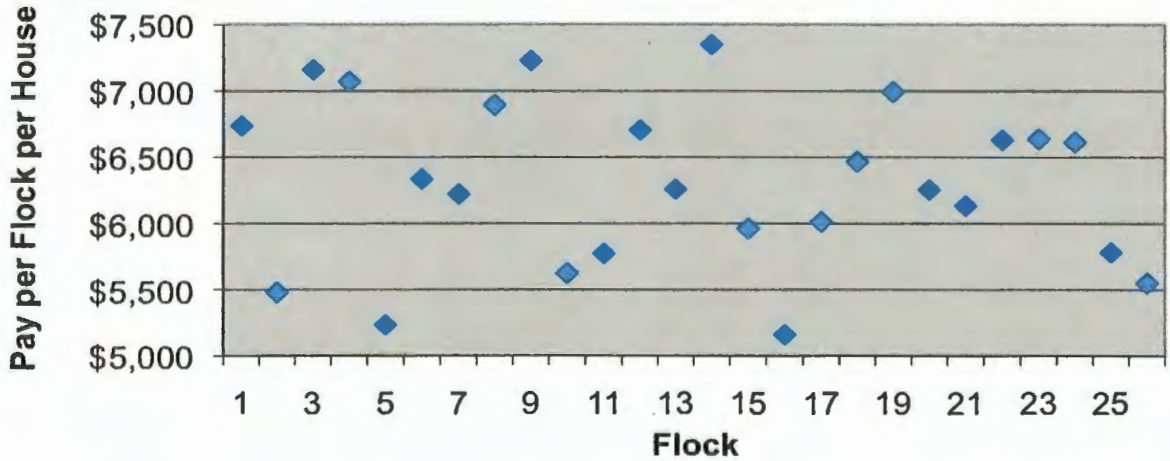


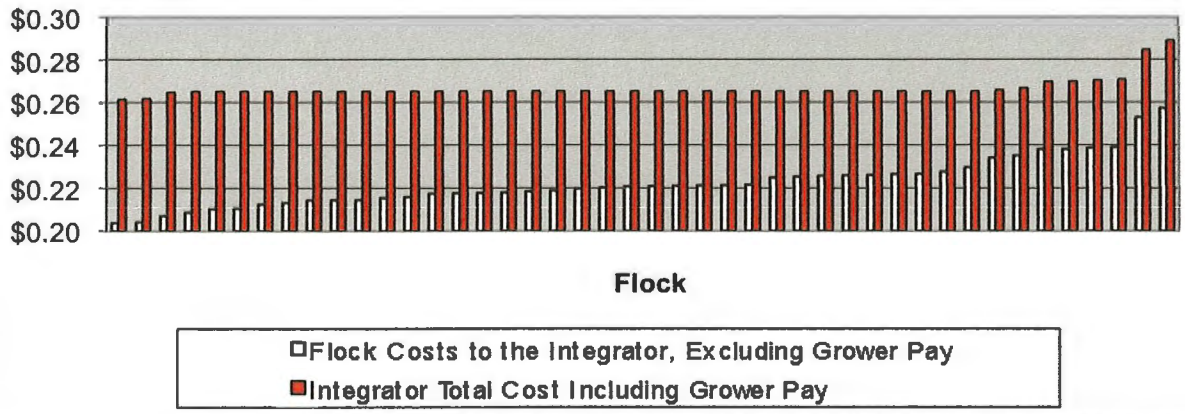
Figure 5. Illustration of Pay Variability from Flock-to-Flock for a Single Grower



If growers were paid a fixed unit pay for all flocks, they would still have an incentive to properly manage flocks because poor management would result in less production. That is, grower pay would decrease with poor management, but growers would not be doubly penalized as they are in existing tournaments.

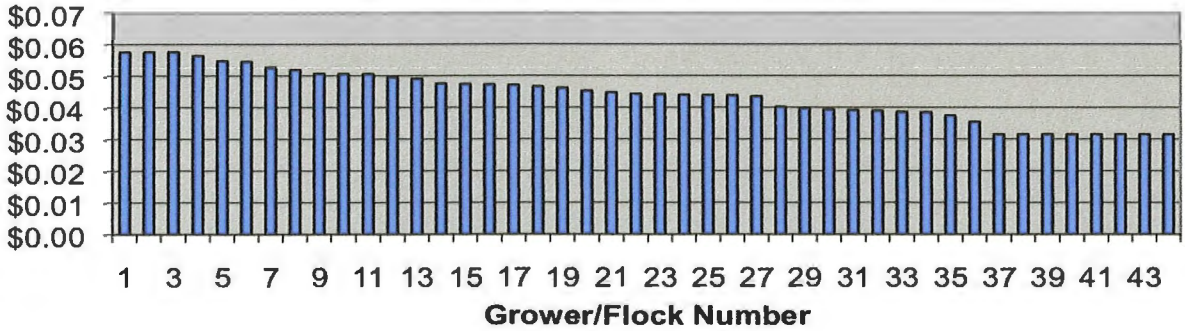
Because of the way in which the grower pay "tournament" is typically structured by the integrator, the cost of broilers to the integrator is the same for almost all flocks produced in a given week (see Figure 6). Week-to-week variability in actual flock costs to the integrator is only due to feed cost changes, and not due to changes in grower pay in the aggregate.

Figure 6. Integrator Costs for Each Flock in a Given Week



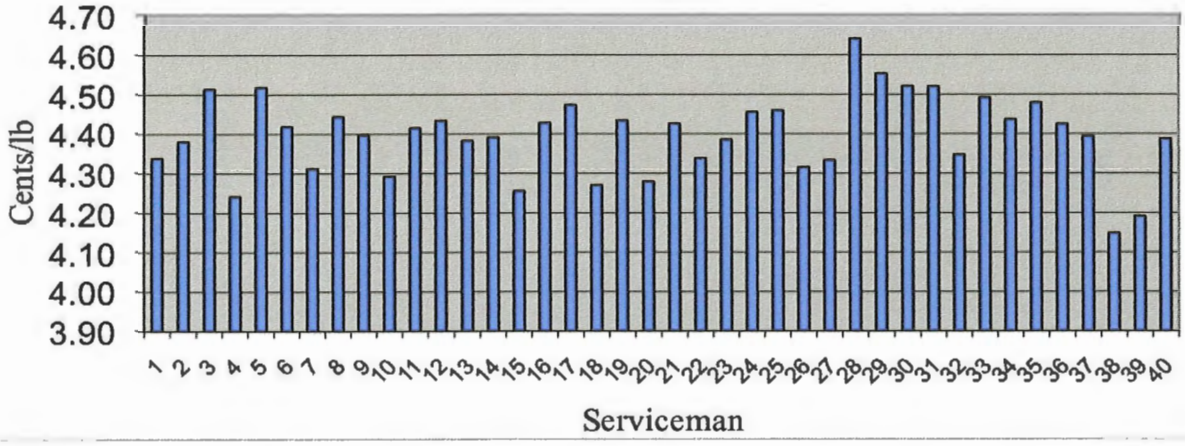
Yet, grower pay for individual flocks varies considerably from flock-to-flock as shown in figures 4, 5, and 7. In other words, the tournament system transfers risk to growers. Growers are doubly penalized for performance shortfalls with individual flocks because of the tendency for unit pay to fall along with reduced production, unlike what would happen for an individual producer in a competitive market.

Figure 7. Grower Pay in a Single Settlement
Assumptions: Base Pay = $0.045; Min = $0.0315; max = $0.0575; Standard Cost (used to compute pay) based on median flock costs with exclusions +/- $0.0175



The integrator's representative or agent assigned to the grower may have a significant effect on grower's performance. Figure 8 shows average pay for all flocks assigned to individual representatives in a single complex, averaged over five years. The grower thus faces the risk of having flock management dictated by a sub-par company representative.

Figure 8. Average Pay for Flocks Managed by Individual Servicemen, Averaged over 5 years



The manner in which most integrators determine pay for individual flocks may result in declining pay as other producers in the same tournament (lottery) adopt new, more efficient technology. This deceptive practice has the effect of shuffling an average producer with a conventional house down the pay scale in a concealed way, making average pay to all growers with conventional houses less than stated in the contract. Stated average contract pay often differs by the style or type of chicken house. For example, stated base pay for a conventional house might be 5.0 cents/lb, while base pay for a more modern tunnel house might be 5.5 cents/lb. However, the pooling of flocks from different houses in the same tournament will tend to result in actual average pay lass than stated contract pay for growers with conventional houses, and actual pay to growers with modern house being higher than stated base pay. This is a deceptive practice.

Some tournaments are based on weighted (by size) average flock cost, some based on an un-weighted average flock cost, and some on a median flock cost. Exclusion of certain flocks, as well as minimum and maximum pay also typically factor into calculation of grower pay by the integrator. Often these integrator-controlled factors result in a true average pay for growers that is below the average pay specified in the grower's contract. Growers do not have all information necessary to uncover and monitor such potentially deceptive practices.

Economic risk for growers is imbalanced. The growers bear the risks of production, but they are forced to shoulder many risks that appropriately should reside with the integrator. Integrators often adjust to a soft wholesale market for broilers by reducing placement of chicks or by delaying delivery of chicks to their contract growers. This practice transfers income risk from the integrator to the contract producer.

Often the biggest risk of all is that of bankruptcy. Integrator acts and demands, not grower's mismanagement, is the problem. Delayed delivery of chicks, reduced placement, or similar actions by the integrator can have a devastating effect on the profitability of the contract poultry operation. A decision by the integrator to slow delivery of chicks to a grower can mean quick bankruptcy for that grower[43]. Several reported instances of this happening in the 1990s to growers who tried to organize other growers so they could bargain collectively for pay. These reprisals created tremendous fear in the industry; the fear lingers and now permeates the industry. The integrator controls the economic viability of each grower and can easily push select targets into bankruptcy, even on whim.

Termination of entire broiler production complexes has left rural areas in economic ruin and families destroyed. This was not brought about by bad management by growers, but because of bad decisions or even spiteful actions by integrators

Recent events surrounding Pilgrim's Pride Corporation (PPC) bankruptcy painfully illustrate the problem with control combined with bigness. PPC's road to bankruptcy came from paying too much for GoldKist Poultry, rapidly rising feed prices, the wrong position in the futures market for corn, a softening market for poultry, dependence on the commodity markets, and loss of a substantial contract to supply a large grocery chain.

PPC used Bankruptcy Court to close down entire complexes, terminating 200-300 growers in the process. PPC stated publicly and in court that they were terminating complexes to reduce production to increase price. We fail to see how this is not a clear violation of Section 202 (e) of the PSA, which *"(prohibits a live poultry dealer from) engag(ing) in any course of business or do any act for the purpose or with the effect of manipulating or controlling prices, or of creating a monopoly in the acquisition of, buying, selling, or dealing in, any article, or of restraining commerce."*

PPC compounded the anguish when it refused to sell processing plants (complexes) because the buyer would put them back into production and in their words, thereby "compete" with PPC and prevent poultry product prices from increasing. PPC working through the Bankruptcy Court blocked entry of a competitor who would have put the terminated growers back in business. The end result of the PPC bankruptcy is that a few hundred growers were terminated, losing their livelihood and in some cases the family farm, local banks lost millions, but PPC emerged from bankruptcy court with stock plus $800 million from JBS. Fair? Hardly.

A competitive market with many small or mid-sized poultry processors stressed by low poultry prices and high feed prices would have had much different economic adjustments. Production would have decreased, but production changes would have occurred at the margin. Inefficient growers would have exited the industry. Efficient growers with houses and equipment that had

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[43] The spreadsheet model developed by Moore shows that a five-day increase in out time (days between flocks) decreases net returns by $2,350 per house annually. Casey Moore, "Economic Returns to Contract Broiler Production," M.S. Thesis, Auburn University, May 10, 2003, p. 46.

reached the end of their useful economic life would have exited. Remaining growers would have struggled until the markets readjusted. But there would not have likely been the bloodbath--a bloodbath triggered by bad decisions by a "too big to fail" corporation.

Comparison to Competitive Cash Markets

An individual producer in a true competitive market who has "bad" or below average production would still receive the same unit price as growers who had a good crop. Under the tournament, however, growers who have bad flocks not only have lower production on which pay is based, but get dinged on price as well—a double whammy for a grower with a below average flock and a double bonus for a grower with a above average flock.

In a typical tournament system, if all growers are equally good managers they receive the same pay as they would if they were all equally bad managers. With the tournament ranking system, if 100% of the growers do an excellent job of raising their flocks, 50% or more of these highly efficient growers will fall below average for that group and receive below average pay. In a competitive cash market, contract growers in one complex would benefit if they were all equally good managers relative to other complexes with growers who were not good managers. The integrator would benefit if growers were all equally good managers relative to other groups of growers who were not good managers. The integrator benefits if all of their growers are good managers, as opposed to if they were all bad managers, but the growers do not benefit.

The tournament pay system, as structured by integrators, does not mimic a competitive market.

Industry Efficiency

Industry apologists often brag about the wonderful "efficiency" of the vertically integrated poultry industry especially compared to beef and pork. This is generally true, but only for "feed" efficiency. Feed efficiency should not be equated with aggregate economic efficiency, which is imbedded in antirtust law and economics. Perfect feed efficiency does not necessarily result in aggregate economic efficiency.

Textbook economic theory shows that a monopsonist (or oligopsonist) tends to acquire a sub-competitive quantity at a sub-competitive price. Because the processor acquires less than a competitive buyers market, less is processed and less is sold on the retail market. Sub-competitive quantities provided by a firm with buyer power can thus result in higher retail prices to final consumers. Thus, consumers may be hurt by an integrator's buyer power. Exertion of buyer and seller power reduces aggregate economic efficiency, even with perfect feed efficiency.

Fair Return in a Competitive Market

In a mature competitive market, the equilibrium return for an input supplier, such as a poultry grower, would be a market rate of return on the labor, capital and management provided by the input supplier, and a return on risk commensurate with asset returns in competitive industries. In equilibrium, no windfall profits would be earned.

Although economists tend to discuss competition in the context of price discovery in "cash" markets, the same principles and economic outcomes apply to price discovery in a vertically integrated market involving "contracts" between a processor and an input supplier. For a competitive market to function efficiently and fairly, there must be a balance of market power between buyers (processor) and sellers (cash market or contract producer).

The imbalance of power in contracting is evident in the poultry industry, as contract terms are not negotiated; the grower must accept the contract offered by the integrator. Thus, there is no balanced "price discovery" in contracting. As shown in a theoretical paper[44], when the buyer has the power to dictate both price and quantity to the competitive supplier, as is the case with the vertically integrated poultry industry, the integrator ends up appropriating income that would normally be earned by the supplier (grower).

What is "fair" or unfair in a PSA or antitrust context can be defined relative to what an average supplier (contract grower) would earn in a true competitive market, averaging out short-term fluctuations in prices and production over the economic life of houses and equipment that are captive to the integrator. By this definition, AFAA records (figure 1) and other information presented previously show that growers have not earned a fair return over the past decade or two.

Retail Developments & Emerging Business Practices

Retail consolidation and emerging business practices also raise concern about competition.

Highly regarded University of Missouri Agricultural Economist Harold Breimyer's warning from almost a half-century ago has gone unheeded, "*Not the least among the consequence of the integration of broiler production in the United States is the change in the status of the grower. Formerly an independent entrepreneur in the traditional sense, he bought his supplies on the open market; he directed his enterprise as he saw fit; he was at once manager, investor of capital, and worker; and he sold his produce also on the open market for the best price it would bring. If he is still in the business, in all probability he is a contract grower. In some areas he not only would find it hard to survive as an independent producer but might not be able to operate at all because no processing outlet would be available to him. Fully integrated production brings to an end one of the old and established characteristics of a freely competitive market system, namely, freedom of entry.*[45]

A potential entrant into poultry processing faces two hurdles.[46] First, a small processor cannot

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[44] C. Robert Taylor, "Monopsony and All-or-Nothing Supply: Putting the Squeeze on Suppliers". College of Agriculture, Auburn University, Working Paper. June, 2003.

[45] Harold F. Breimyer, Individual Freedom and the Organization of Agriculture, University of Illinois Press, 1965, p. 214.

[46] Specialty products and niche markets are an exception. However, as niche markets have been developed by small producers and processors and begin to grow, they are often taken over by existing large integrators.

deliver the volume demanded by consolidated food retailers. Second, even if a small processor accessed the retail market they may face stiff predatory pricing by existing processors. Thus, entry into poultry processing now requires large size as well as financial staying power, which can be substantial hurdles to potential entrants into poultry processing.

Breimyer anticipated the power shift to retailers: "*During the last 30 years (published in 1965) the power center in farm markets has shifted forward from processors to retailers. Quoted in Chapter 7 was Earl Crouse's observation that 'the real big force in the integration movement is the change in the retail outlet.' George Mehren has sketched the possibility that all production and marketing might be integrated up to the retailing level: 'Carried to a distant and perhaps never-to-be-realized but still logical extreme, present trends could well mean that competitive independence may one day be restricted basically to the retailing segment—and such competitive independence may be greatly different from that which prevails today'.* "[47]

In the half Century since Briemyer's warning, we have witnessed the emergence of four potentially beneficial but also potentially anti-competitive business practices: category management, category captains, slotting fees, and long-term fixed-price contracts with retailers.

"Category management" refers to a retailer having an employee manage an entire product category such as the meat and poultry section of stores as a category rather than allocating shelf space on a brand-by-brand basis. This practice can vest considerable market power in the hands of a few individuals who manage the category for all stores owned by a large retailer. Some retailers have started to outsource retail category management to a chosen supplier on whom they rely for strategic recommendations, a practice referred to as "category captainship."[48] Of antitrust concern is the possibility that category managers and category captains may be able to exclude non-captain processors, or only deal with very large firms.[49]

A related business practice is known as "slotting fees" to have a supplier's products placed on retail shelves, or placed in prominent locations in the retail outlet. Small suppliers may not be able to pay such fees, thus relegating their products to less prominent locations in the store or not even being able to access the retail market.

An increasingly dominant business practice in the U.S. is "long-term fixed price contracts" between integrators and food retailers. Such contracts pose two competition concerns. First, the economic outcome could be akin to classic price-fixing and favor either the category manager

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[47] Breimyer, pp. 287-288.

[48] Mumin Kurtulus and L. Beril Toktay, "Category Captainship: Who Wins, Who Loses?" 2005, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=934970

[49] A report based on roundtable discussion of concerns about retail category captains is available from the American Antitrust Institute, http://www.antitrustinstitute.org/Archives/270.ashx

(retailer) or category captain (supplier), depending on relative market power. Second, the long-term (12-18 month) nature of these contracts may result in magnified production changes imposed on poultry growers compared to a competitive market. With shifting demand, as has occurred recently, these contracts may prevent price and quantity adjustments that would be experienced in a competitive vertical market chain. With price fixed, reduced demand will result in a decrease in quantity consumed larger than if retail price adjusts along with quantity. In essence, long-term fixed-price contracts between retailers and integrators may make the grower the shock absorber for the industry, an unfair practice.

Considerable investigation and research is needed to better understand the economic and competition aspects of category managers, category captains, slotting fees, and long-term fixed-price contracts in the meat and poultry industry.

Bigness of integrators and retail food corporations create barriers to entry for new processors. Such barriers may be higher due to emerging business practices discussed above. The barriers may be so high, in fact, that a John Tyson or Bo Pilgrim, or Arthur and Frank Purdue, or Lloyd Peterson, all of who are pioneers of the vertically integrated industry and who began with backyard sized operations, would not likely be successful if they were to begin today.

Sweetheart Deals for Corporate Insiders

Integrators often assert that the *Packers & Stockyards Act* (PSA) requires them to have the "same contract" for all growers. The plain language of the PSA does not require growers to have the same contracts; the PSA prohibits *"... use of unfair, unjustly discriminatory, or deceptive practice or device."* To an economist, a contract that offered higher pay with higher risk would not necessarily be unfair. Integrators' use of the PSA to stifle growers' efforts to negotiate fair contracts can be construed as a violation of the intent and the plain language of the Act.

Integrators' PSA assertions are belied by the fact than many integrators have different contracts for different complexes, even adjacent complexes, bounds of which integrators define without any reference to the PSA. A grower in one complex may have production facilities in close proximity to another grower for the same integrator but have a different contract, only because the two growers' production facilities are in different complexes.

Integrators' claim that the PSA requires them to have the same contract for all growers is belied by "sweetheart deals" for insiders and executives. The extent of sweetheart deals is so prevalent in the industry that the Internal Revenue Service (IRS) published a lengthy training manual on the subject in 2002.[50]

The IRS Training Manual describes these deals in detail,

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[50] IRS, Market Segment Specialization Program: Poultry Industry, Training 3123-013 (03/2002), TPDS No. 87537E. Parenthetical statements added.

"Most (poultry) contracts are with unrelated third party growers ... However, corporate officers, majority stockholders, their family members, and close business associates, may be given access to special arrangements involving these contracts. The industry name for these special contracts with "insiders" is "Sweetheart Deals."... Following the downfall of the publicly sold tax shelters (in 1986), some of the companies set up a new plan under the title "Sweetheart Deals". The corporate "insiders" needed a vehicle through which they could obtain large losses to offset their corporate salaries and other sources of income. The "Sweetheart Deals" provided just such benefits by shifting various costs from the companies records to the insider's tax return. By devising an internal system of accounting for the "Sweetheart Deals", the stockholders and corporate employees are kept unaware of the transactions.

A company employee prepares documents that assign numerous grower contracts to selected "insiders". Amounts are designated as the separate prices covering the chicks, feed, medication, technical services, etc., which are purchased from the corporation. ... The invoices provided to the insider supporting these transactions are not usually run through the regular corporate accounting system. The main corporate employee privy to this information maintains complete control of all the paper work, including checks written at year-end, as well as the subsequent sales proceeds. The payments for chicks, feed, and medication, etc., are normally based on historical or estimated costs and not on the actual costs. In most situations, the actual costs to the corporation for feed, technical and medical services, etc. are more than the contracted amounts paid by the insider. The insider is not liable for any amounts in excess of the contracted costs...The corporate explanation for these favorable transactions may be the shifting of their risk of loss due to the large number of flocks in various stages of completion. By "selling" the flocks to the investors the company would not be liable for any loss if the flock is destroyed by fire, tornado, etc. In reality, the company normally absorbs the loss in these situations. A new flock may be substituted for the lost flock or the lost flock will be shown as "sold" back to the company based on estimated weights."

Other "SWEETHEART DEALS" can include the use of corporate entertainment facilities, excess rents being paid to the "insiders" for farm structures, such as hog farrowing and finishing houses (or egg layer facilities), and waste water treatment facilities located near their corporate owned processing plants. Normally the amounts paid to the insiders are not comparable to a true arms length transaction."

Yet, integrator representatives tell growers that the PSA "requires" them to have the "same contract" for all growers. Simply, the integrators misrepresent the law to the unknowing. Growers are not told that the birds they may be raising are in fact a sweetheart deal for an insider. Growers have not been offered the chance to buy birds and feed from the integrator, raise birds and sell them back for processing, nor are the given the opportunity to grow their own birds to an integrator's specifications then sell birds ready for processing.

Environmental Responsibility is Absent

Health and environmental degradation associated with confined animal feeding operations (CAFOs) are of increasing concern. It is widely known that concentrated poultry production in several areas of the U.S. generates more waste products than can be effectively and safely

applied to nearby land. These problems have lead to a host of state and federal regulations, as well as taxpayer subsidies to haul excess litter out of sensitive areas. The poultry industry has a long record of deflecting responsibility: They did not know that there were problems, or that they think that there are no problems, or that it is the growers fault.

An April 2008 report by the Union of Concerned Scientists states, *"The problems that arise from excessive size and density (e.g. air and water pollution from manure, overuse of antibiotics) are exacerbated by the parallel trend of geographic concentration, whereby CAFOs [confined animal feeding operations] for particular types of livestock have become concentrated in certain parts of the country. For example ... broiler chicken CAFOs in Arkansas and Georgia."*[51] They also state, *"Manure from CAFOs is a major source of water pollution because these operations produce too much manure in too small an area, and this manure is rarely treated to eliminate potentially harmful components before being applied to crop fields or stored in facilities such as lagoons or pits (EPA 2003)"*[52]

An integrator's decisions about where to locate a complex and the size of the area in which growout facilities (and thus waste production) is typically based on its out-of-pocket expenses for hauling feed to growout facilities and birds to processing plants. The business model adopted by integrators ignores external (pollution and health) costs associated with poultry waste and thus results in waste generation and land application of waste being concentrated in relatively small geographical areas. Watershed pollution problems in the aggregate are therefore determined not by an individual farmer's growout operations, but by integrators individual and collective decisions to concentrate poultry production and thus waste generation in relatively small geographic areas. As stated in a University of Arkansas Extension Bulletin, *"The real issue is not the P concentration in runoff from the edge of any one field, but the total P load that is transported to the stream or lake from an entire watershed."*[53]

Integrators have used their economic control over growers to attempt to shift environmental costs and health risk costs from themselves to growers. Molnar, et al, summarize this attempted risk shifting, *"Broiler production is concentrated in a few southern states where farmers are highly dependent on contract arrangements for income and livelihood. ... Asymmetrical power relationships shift waste management responsibilities to growers in a number of ways. This paper details maneuvers poultry integrators use to avoid environmental risk and transfer it to their contract growers. Corporations 'pass the cluck' when they shift responsibility for achieving regulatory compliance to the farmer who then must seek technical and financial assistance from*

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[51] Doug Gurian-Sherman, CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations, Union of Concerned Scientists, April 2008, p. 2.

[52] *Ibid.*, p. 42.

[53] Mike Daniels, Tommy Daniel and Karl VanDevender, Soil Phosphorus Levels: Concerns and Recommendations, University of Arkansas Division of Agriculture, Cooperative Extension Service, Bulletin FSA1029-500-3-04R, 1999 and 2004

public agencies. Poultry integrators 'dodge pullets' when they retain ownership of live animals, but dead birds become the farmer's property and disposal problem." [54]

A Pew Commission report, published in 2008, notes the integrators shifting of risks and external costs to growers, *"Under the modern-day contracts between integrators and growers, the latter are usually responsible for disposition of the animal waste and the carcasses of animals that die before shipment to the processor. The costs of pollution and waste management are also the grower's responsibility. ... Because the integrators are few in number and control much if not all of the market, the grower often has little market power and may not be able to demand a price high enough to cover the costs of waste disposal and environmental degradation. These environmental costs are thereby 'externalized' to the general society and are not captured in the costs of production nor reflected in the retail price of the product."*[55] The 2008 report on CAFOs by the Union of Concerned Scientists discusses at length the external costs of excess manure being borne by society rather than integrators.[56] Integrators' shifting of environmental risks to growers and society at large is evident.

Integrators fully control who will be a grower, who will be responsible for disposal of waste and dead birds, and all contract terms. Integrators therefore determine the location of poultry waste generation. Due to high transportation costs for waste products, integrators determine where the waste products will be disposed.

Early grower contracts made no mention of used litter and waste disposal responsibilities. However, since the early 1990s, integrators' contracts typically state that the grower is "responsible" for meeting all applicable state, federal, and local environmental laws and regulations. The integrator owns the bird, the feed, determines who will be a grower, where than grower will be located, generally adds phosphorus to the feed which worsens phosphorus pollution, indirectly determines where the waste will be land applied, but claims the litter and all environmental responsibility belong to the serf. But the contracts do not state in practical or legal language that the grower "owns" the used litter, excrement, and dead birds.[57] This is classical risk shifting.

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[54] J. J. Molnar, T. Hoban and G. Brant, "Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower," Southern Rural Sociology, Vol. 18 (2), 2002, pp88-110.

[55] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 6.

[56] Doug Gurian-Sherman, CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations, Union of Concerned Scientists, April 2008. Chapter 3, in particular, discusses the externalized costs of CAFOs.

[57] We are aware of only a single contract that states that the grower actually owns the litter, and that contract is recent and by a small integrator.

Environmental risks are shifted to growers, pollution and adverse health consequences are shifted to citizens, and costs of cleanup are shifted to state and federal taxpayers. None of these occur in an operative market. But the broiler market is broken. Indeed, it is an utter failure.

SOLUTIONS

Restoring Economic Fairness to Contract Production

Only a functional viable market characterized by relatively equitable pricing power, equal access to information, transparent sales transactions, and contracts that either have a duration that matches producer debt structure for duration, or are so brief as to make the cash market vibrant again. Sweetheart deals must end. The market must reward product quality, producer efficiency, and other factures that go with value, availability, cost efficiencies, and innovation. The market is not a place to reward only the abusively shrewd.

Growing chickens was a family business but now it happens only "by invitation." One who wants to produce chickens must have a contract with an integrator. Deliveries of sickly or underweight chicks, late deliveries, bad feed deliveries, and bad advice from the integrator's field representative, or simple pricing power can all ruin the producer's business. It is well known in the chicken industry that producers dare not speak out against integrators.[58]

After contracting to be a grower, the integrator has near total economic control over profitability in the grow-out operation. The grower's capital, labor, management and risk bearing are all captive to the integrator. In economics the relationship between the grower and integrator is an extreme power imbalance; in law this is a contract of adhesion; in colloquial terms this is serfdom—with a mortgage.

Supreme Court Justice Peckham, in one of the first substantive decisions interpreting the Sherman Antitrust Act, said

> *"[I]t is not for the real prosperity of any country that such changes should occur which result in transferring an independent business man . . . into a mere servant or agent of a corporation . . . having no voice in shaping the business policy . . . and bound to obey orders issued by others."* [59]

Yet poultry producers have become precisely what Justice Peckham opined antitrust laws were intended to prevent. Based on the AFAA records summarized in Figure 1, a paltry increase in grower pay of 0.34 cents—not 34 cents but about a third of a penny per pound—would offset the cumulative loss of $182,000. More is needed to provide the grower a return for management, equity and bearing substantial risk. Economic health—modest returns on management and risk for contract growers—could be established with a pay increase of only about one penny per

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[58] Taylor, C. Robert, *Restoring Economic Health to Contract Poultry Production*, Agriculture and Resource Policy Forum, Auburn University College of Agriculture (May 2002).

[59] Source: Peter Carstensen

pound ($0.005/lb). If transferred to consumers, such an increase would amount to slightly over of a penny per pound, or $0.012/lb on a dressed weight basis at the retail counter.

Restoring economic health, viability and fairness to contract poultry production would cost the average consumer about a dollar a year, at most, and perhaps nothing.[60] The key to restoring economic fairness[61] is establishing a balance of power in economic relationships between integrator and grower. The key to restoring environmental harm caused by CAFOs is internalizing externalities. While internalizing externalities would eventually result in very small increases in the cost of poultry products to consumers, eliminating the current taxpayer subsidies now going to clean up problems could offset higher costs at the grocery store. Solving these two fundamental problems in the poultry industry—fairness in contract production and internalizing externalities—will not collapse the U.S. economy, or lead to the demise of the poultry industry, or lead to the poultry industry leaving the country, or have make poultry too expensive for consumers.

The current monopsonistic system appears to be too far gone to "repair"; it may require whole scale redefinition by expansion and enforcement of the *Packers & Stockyards Act*, and redefining property rights to the environment to internalize external costs associated with poultry waste disposal.

Vertical integration of the poultry industry has achieved much efficiency, and brought a consistent product to consumers.[62] The PSA and antitrust challenge is to design a policy that will maintain efficiencies, but restore fairness. We believe that the following changes would go far to restore competition and fairness in the poultry industry. The changes might make it possible to avoid the necessity to split integrators into smaller units. Information is power. Information asymmetry is a power imbalance. Eliminating the huge power imbalance in the poultry industry is imperative. Steps that need to be taken are

1. USDA must collect and publicly report average contract pay by region, at least annually.
2. Grower settlement must be required to include basic information, such as breed, strain and sex of chicks, health and feeding histories.

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[60] Per capita consumption of poultry in the U.S. averages about 100 lbs/year.

[61] In the context of this article, fairness for contract poultry growers would be achieved if they earned a "competitive" return on labor, management, risk and equity over a long time period.

[62] Poultry industry representative often make definitive public statements about all of the wonderful efficiency gains achieved by their business model. What they don't tell you is that their claims are based purely on feed efficiency. Feed efficiency and aggregate economic efficiency are related, but they do not equate. In an antitrust context, aggregate economic efficiency is an important criterion, not feed efficiency. Textbook monopoly and monopsony models both show that there is aggregate economic inefficiency and consumer harm from the power imbalance, even with maximum feed efficiency as defined by the poultry industry.

3. Growers must have means to validate essential payment computation parameters. Transparency and validation must be required.

4. Detailed information—AgriStats – now available to integrators to share with each other must be made public promptly. This must become USDA NASS[63] data.

5. More information like the Alabama Farm Business Analysis Association managerial records need to be publicly provided along with educational programs on the true economics (not just cash-flow) of poultry production.

6. Growers should be less trusting of representations made by integrators, or get such representations in writing.

7. Contract reform must occur. Grower contracts must have legally controlling criteria; a balance of power in contracting is needed.

8. Pre-dispute mandatory arbitration provisions and waivers to the right to trial by jury at the time of contracting must not be allowed to continue. The use of the courts and the right to trial by jury are basic to the American system.

9. Contract must clearly state who owns used litter and waste, and not just who is responsible for disposal of waste and dead birds.

10. Contracts must be publicly available. Legislation similar to the swine contract library must be enacted.

11. Bankers must "wake-up." Routinely making 10-15 year loans on the basis of a contract that only guarantees a single flock of birds is not a sound banking practice. Multi-year contracts that guarantee only a single flock of birds do not solve the bankers or growers problems. Contracts need to guarantee a minimum number of flocks over a long enough time period to at least insure loan repayment.

12. Banking credit standards must be adjusted to analyze long-term risks and rewards for the banker and the grower over the term of the loan, and the capital asset's, useful life. This can be done with banking credit regulations that will not be an onerous burden.

13. Contracts must be for longer time periods, and must include grower renewal options and prohibitions against assignment by the integrator to a shell entity or financially weak successor. Contracts should permit the integrator to "buy out" of the contract at a declining rate over the life of a house.

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[63] U S Department of Agriculture, National Ag Statistics Service. (USDA NASS).

Conclusion

Change must come to the poultry industry in America. The industry, as structured today, simply does have hallmarks of sustainability essential to the nation's food supply's stability. It is debilitated by market concentration and monopsony power wielded against producers by integrators.

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PC MATERIALS - ATTACHMENT 6B - C. DICKS

Understanding Concentrated Animal Feeding Operations and Their Impact on Communities

ENVIRONMENTAL HEALTH

N A L B O H
National Association of Local Boards of Health

Understanding Concentrated Animal Feeding Operations and Their Impact on Communities

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Foreword

The National Association of Local Boards of Health (NALBOH) is pleased to provide *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* to assist local boards of health who have concerns about concentrated animal feeding operations (CAFOs) or large industrial animal farms in their communities. The Environmental Health Services Branch of the Centers for Disease Control and Prevention (CDC), National Center for Environmental Health (NCEH) encouraged the development of this product and provided technical oversight and financial support. This publication was supported by Cooperative Agreement Number 5U38HM000512. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC.

The mission of NALBOH is to strengthen boards of health, enabling them to promote and protect the health of their communities, through education, technical assistance, and advocacy. Boards of health are responsible for fulfilling three public health core functions: assessment, policy development, and assurance. For a health agency, this includes overseeing and ensuring that there are sufficient resources, effective policies and procedures, partnerships with other organizations and agencies, and regular evaluation of an agency's services.

NALBOH is confident that *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities* will help local board of health members understand their role in developing ways to mitigate potential problems associated with CAFOs. We trust that the information provided in this guide will enable board of health members to develop and sustain monitoring programs, investigate developing policy related to CAFOs, and create partnerships with other local and state agencies and officials to improve the health and well-being of communities everywhere.

A special thanks to Jeffrey Neistadt (NALBOH's Director – Education and Training), NALBOH's Environmental Health subcommittee, and any local board of health members and health department staff who were contacted during the development of this document for their contributions and support.

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Introduction

Livestock farming has undergone a significant transformation in the past few decades. Production has shifted from smaller, family-owned farms to large farms that often have corporate contracts. Most meat and dairy products now are produced on large farms with single species buildings or open-air pens (MacDonald & McBride, 2009). Modern farms have also become much more efficient. Since 1960, milk production has doubled, meat production has tripled, and egg production has quadrupled (Pew Commission on Industrial Animal Farm Production, 2009). Improvements to animal breeding, mechanical innovations, and the introduction of specially formulated feeds and animal pharmaceuticals have all increased the efficiency and productivity of animal agriculture. It also takes much less time to raise a fully grown animal. For example, in 1920, a chicken took approximately 16 weeks to reach 2.2 lbs., whereas now they can reach 5 lbs. in 7 weeks (Pew, 2009).

New technologies have allowed farmers to reduce costs, which mean bigger profits on less land and capital. The current agricultural system rewards larger farms with lower costs, which results in greater profit and more incentive to increase farm size.

AFO vs. CAFO

A CAFO is a specific type of large-scale industrial agricultural facility that raises animals, usually at high-density, for the consumption of meat, eggs, or milk. To be considered a CAFO, a farm must first be categorized as an animal feeding operation (AFO). An AFO is a lot or facility where animals are kept confined and fed or maintained for 45 or more days per year, and crops, vegetation, or forage growth are not sustained over a normal growing period (Environmental Protection Agency [EPA], 2009). CAFOs are classified by the type and number of animals they contain, and the way they discharge waste into the water supply. CAFOs are AFOs that contain at least a certain number of animals, or have a number of animals that fall within a range and have waste materials that come into contact with the water supply. This contact can either be through a pipe that carries manure or wastewater to surface water, or by animal contact with surface water that runs through their confined area. (See Appendix A)

History

AFOs were first identified as potential pollutants in the 1972 Clean Water Act. Section 502 identified "feedlots" as "point sources" for pollution along with other industries, such as fertilizer manufacturing. Consequently, a permit program entitled the National Pollutant Discharge Elimination System (NPDES) was created which set effluent limitation guidelines and standards (ELGs) for CAFOs. CAFOs have since been regulated by NPDES or a state equivalent since the mid-1970s. The definitions of what was considered an AFO or CAFO were created by the EPA for the NPDES process in 1976. These regulations remained in effect for more than 25 years, but increases and changes to farm size and production methods required an update to the permit system.

The regulations guiding CAFO permits and operations were revised in 2003. New inclusions in the 2003 regulations were that all CAFOs had to apply for a NPDES permit even if they only discharged in the event of a large storm. Large poultry operations were included in the regulations, regardless of their waste disposal system, and all CAFOs that held a NPDES permit were required to develop and implement a nutrient management plan. These plans had CAFOs identify ways to treat or process waste in a way that maintained nutrient levels at the appropriate amount.

The 2003 CAFO rule was subsequently challenged in court. A Second Circuit Court of Appeals decision required alteration to the CAFO permitting system. In *Water Keeper et al. vs. the EPA*, the court directed the EPA to remove the requirement for all CAFOs to apply for NPDES. Instead, the court required that nutrient management plans be submitted with the permit application, reviewed by officials and the public, and the terms of the plan be incorporated into the permit.

As a result of this court decision, the CAFO rule was again updated. The current final CAFO rule, which was revised in 2008, requires that only CAFOs which discharge or propose to discharge waste apply for permits. The EPA has also provided clarification in the discussion surrounding the rule on how CAFOs should assess whether they discharge or propose to discharge. There is also the opportunity to receive a no discharge certification for CAFOs that do not discharge or propose to discharge. This certification demonstrates that the CAFO is not required to acquire a permit. And while CAFOs were required to create nutrient management plans under the 2003 rule, these plans were now included with permit applications, and had a built-in time period for public review and comment.

Benefits of CAFOs

When properly managed, located, and monitored, CAFOs can provide a low-cost source of meat, milk, and eggs, due to efficient feeding and housing of animals, increased facility size, and animal specialization. When CAFOs are proposed in a local area, it is usually argued that they will enhance the local economy and increase employment. The effects of using local materials, feed, and livestock are argued to ripple throughout the economy, and increased tax expenditures will lead to increase funds for schools and infrastructure.

Environmental Health Effects

The most pressing public health issue associated with CAFOs stems from the amount of manure they produce. CAFO manure contains a variety of potential contaminants. It can contain plant nutrients such as nitrogen and phosphorus, pathogens such as *E. coli*, growth hormones, antibiotics, chemicals used as additives to the manure or to clean equipment, animal blood, silage leachate from corn feed, or copper sulfate used in footbaths for cows.

Depending on the type and number of animals in the farm, manure production can range between 2,800 tons and 1.6 million tons a year (Government Accountability Office [GAO], 2008). Large farms can produce more waste than some U.S. cities—a feeding operation with 800,000 pigs could produce over 1.6 million tons of waste a year. That amount is one and a half times more than the annual sanitary waste produced by the city of Philadelphia, Pennsylvania (GAO, 2008). Annually, it is estimated that livestock animals in the U.S. produce each year somewhere between 3 and 20 times more manure than people in the U.S. produce, or as much as 1.2–1.37 billion tons of waste (EPA, 2005). Though sewage treatment plants are required for human waste, no such treatment facility exists for livestock waste.

While manure is valuable to the farming industry, in quantities this large it becomes problematic. Many farms no longer grow their own feed, so they cannot use all the manure they produce as fertilizer. CAFOs must find a way to manage the amount of manure produced by their animals. Ground application of untreated manure is one of the most common disposal methods due to its low cost. It has limitations, however, such as the inability to apply manure while the ground is frozen. There are also limits as to how many nutrients from manure a land area can handle. Over application of livestock wastes can overload

soil with macronutrients like nitrogen and phosphorous and micronutrients that have been added to animal feed like heavy metals (Burkholder et al., 2007). Other manure management strategies include pumping liquefied manure onto spray fields, trucking it off-site, or storing it until it can be used or treated. Manure can be stored in deep pits under the buildings that hold animals, in clay or concrete pits, treatment lagoons, or holding ponds.

Animal feeding operations are developing in close proximity in some states, and fields where manure is applied have become clustered. When manure is applied too frequently or in too large a quantity to an area, nutrients overwhelm the absorptive capacity of the soil, and either run off or are leached into the groundwater. Storage units can break or become faulty, or rainwater can cause holding lagoons to overflow. While CAFOs are required to have permits that limit the levels of manure discharge, handling the large amounts of manure inevitably causes accidental releases which have the ability to potentially impact humans.

The increased clustering and growth of CAFOs has led to growing environmental problems in many communities. The excess production of manure and problems with storage or manure management can affect ground and surface water quality. Emissions from degrading manure and livestock digestive processes produce air pollutants that often affect ambient air quality in communities surrounding CAFOs. CAFOs can also be the source of greenhouse gases, which contribute to global climate change.

All of the environmental problems with CAFOs have direct impact on human health and welfare for communities that contain large industrial farms. As the following sections demonstrate, human health can suffer because of contaminated air and degraded water quality, or from diseases spread from farms. Quality of life can suffer because of odors or insect vectors surrounding farms, and property values can drop, affecting the financial stability of a community. One study found that 82.8% of those living near and 89.5% of those living far from CAFOs believed that their property values decreased, and 92.2% of those living near and 78.9% of those living far from CAFOs believed the odor from manure was a problem. The study found that real estate values had not dropped and odor infestations were not validated by local governmental staff in the areas. However, the concerns show that CAFOs remain contentious in communities (Schmalzried and Fallon, 2007). CAFOs are an excellent example of how environmental problems can directly impact human and community well-being.

Groundwater

Groundwater can be contaminated by CAFOs through runoff from land application of manure, leaching from manure that has been improperly spread on land, or through leaks or breaks in storage or containment units. The EPA's 2000 National Water Quality Inventory found that 29 states specifically identified animal feeding operations, not just concentrated animal feeding operations, as contributing to water quality impairment (Congressional Research Service, 2008). A study of private water wells in Idaho detected levels of veterinary antibiotics, as well as elevated levels of nitrates (Batt, Snow, & Alga, 2006). Groundwater is a major source of drinking water in the United States. The EPA estimates that 53% of the population relies on groundwater for drinking water, often at much higher rates in rural areas (EPA, 2004). Unlike surface water, groundwater contamination sources are more difficult to monitor. The extent and source of contamination are often harder to pinpoint in groundwater than surface water contamination. Regular testing of household water wells for total and fecal coliform bacteria is a crucial element in monitoring groundwater quality, and can be the first step in discovering contamination issues related to CAFO discharge. Groundwater contamination can also affect surface water (Spellman &

Whiting, 2007). Contaminated groundwater can move laterally and eventually enter surface water, such as rivers or streams.

When groundwater is contaminated by pathogenic organisms, a serious threat to drinking water can occur. Pathogens survive longer in groundwater than surface water due to lower temperatures and protection from the sun. Even if the contamination appears to be a single episode, viruses could become attached to sediment near groundwater and continue to leach slowly into groundwater. One pollution event by a CAFO could become a lingering source of viral contamination for groundwater (EPA, 2005).

Groundwater can still be at risk for contamination after a CAFO has closed and its lagoons are empty. When given increased air exposure, ammonia in soil transforms into nitrates. Nitrates are highly mobile in soil, and will reach groundwater quicker than ammonia. It can be dangerous to ignore contaminated soil. The amount of pollution found in groundwater after contamination depends on the proximity of the aquifer to the CAFO, the size of the CAFO, whether storage units or pits are lined, the type of subsoil, and the depth of the groundwater.

If a CAFO has contaminated a water system, community members should be concerned about nitrates and nitrate poisoning. Elevated nitrates in drinking water can be especially harmful to infants, leading to blue baby syndrome and possible death. Nitrates oxidize iron in hemoglobin in red blood cells to methemoglobin. Most people convert methemoglobin back to hemoglobin fairly quickly, but infants do not convert back as fast. This hinders the ability of the infant's blood to carry oxygen, leading to a blue or purple appearance in affected infants. However, infants are not the only ones who can be affected by excess nitrates in water. Low blood oxygen in adults can lead to birth defects, miscarriages, and poor general health. Nitrates have also been speculated to be linked to higher rates of stomach and esophageal cancer (Bowman, Mueller, & Smith, 2000). In general, private water wells are at higher risk of nitrate contamination than public water supplies.

Surface Water

The agriculture sector, including CAFOs, is the leading contributor of pollutants to lakes, rivers, and reservoirs. It has been found that states with high concentrations of CAFOs experience on average 20 to 30 serious water quality problems per year as a result of manure management problems (EPA, 2001). This pollution can be caused by surface discharges or other types of discharges. Surface discharges can be caused by heavy storms or floods that cause storage lagoons to overfill, running off into nearby bodies of water. Pollutants can also travel over land or through surface drainage systems to nearby bodies of water, be discharged through manmade ditches or flushing systems found in CAFOs, or come into contact with surface water that passes directly through the farming area. Soil erosion can contribute to water pollution, as some pollutants can bond to eroded soil and travel to watersheds (EPA, 2001). Other types of discharges occur when pollutants travel to surface water through other mediums, such as groundwater or air.

Contamination in surface water can cause nitrates and other nutrients to build up. Ammonia is often found in surface waters surrounding CAFOs. Ammonia causes oxygen depletion from water, which itself can kill aquatic life. Ammonia also converts into nitrates, which can cause nutrient overloads in surface waters (EPA, 1998). Excessive nutrient concentrations, such as nitrogen or phosphorus, can lead to eutrophication and make water inhabitable to fish or indigenous aquatic life (Sierra Club Michigan Chapter, n.d.). Nutrient over-enrichment causes algal blooms, or a rapid increase of algae growth in an aquatic environment (Science Daily, n.d.). Algal blooms can cause a spiral of environmental problems to an aquatic system. Large groups of algae can block sunlight from underwater plant life, which are

habitats for much aquatic life. When algae growth increases in surface water, it can also dominate other resources and cause plants to die. The dead plants provide fuel for bacteria to grow and increased bacteria use more of the water's oxygen supply. Oxygen depletion once again causes indigenous aquatic life to die. Some algal blooms can contain toxic algae and other microorganisms, including *Pfiesteria*, which has caused large fish kills in North Carolina, Maryland, and the Chesapeake Bay area (Spellman & Whiting, 2007). Eutrophication can cause serious problems in surface waters and disrupt the ecological balance.

Water tests have also uncovered hormones in surface waters around CAFOs (Burkholder et al., 2007). Studies show that these hormones alter the reproductive habits of aquatic species living in these waters, including a significant decrease in the fertility of female fish. CAFO runoff can also lead to the presence of fecal bacteria or pathogens in surface water. One study showed that protozoa such as *Cryptosporidium parvum* and *Giardia* were found in over 80% of surface water sites tested (Spellman & Whiting, 2007). Fecal bacteria pollution in water from manure land application is also responsible for many beach closures and shellfish restrictions.

Air Quality

In addition to polluting ground and surface water, CAFOs also contribute to the reduction of air quality in areas surrounding industrial farms. Animal feeding operations produce several types of air emissions, including gaseous and particulate substances, and CAFOs produce even more emissions due to their size. The primary cause of gaseous emissions is the decomposition of animal manure, while particulate substances are caused by the movement of animals. The type, amount, and rate of emissions created depends on what state the manure is in (solid, slurry, or liquid), and how it is treated or contained after it is excreted. Sometimes manure is "stabilized" in anaerobic lagoons, which reduces volatile solids and controls odor before land application. ← NDEQ say this is not the case 129 large poultry operations

The most typical pollutants found in air surrounding CAFOs are ammonia, hydrogen sulfide, methane, and particulate matter, all of which have varying human health risks. Table 1 on page 6 provides information on these pollutants.

Most manure produced by CAFOs is applied to land eventually and this land application can result in air emissions (Merkel, 2002). The primary cause of emission through land application is the volatilization of ammonia when the manure is applied to land. However, nitrous oxide is also created when nitrogen that has been applied to land undergoes nitrification and denitrification. Emissions caused by land application occur in two phases: one immediately following land application and one that occurs later and over a longer period as substances in the soil break down. Land application is not the only way CAFOs can emit harmful air emissions—ventilation systems in CAFO buildings can also release dangerous contaminants. A study by Iowa State University, which was a result of a lawsuit settlement between the Sierra Club and Tyson Chicken, found that two chicken houses in western Kentucky emitted over 10 tons of ammonia in the year they were monitored (Burns et al., 2007).

Most studies that examine the health effects of CAFO air emissions focus on farm workers, however some have studied the effect on area schools and children. While all community members are at risk from lowered air quality, children take in 20-50% more air than adults, making them more susceptible to lung disease and health effects (Kleinman, 2000). Researchers in North Carolina found that the closer children live to a CAFO, the greater the risk of asthma symptoms (Barrett, 2006). Of the 226 schools that were included in the study, 26% stated that there were noticeable odors from CAFOs outdoors, while 8% stated

Table 1 Typical pollutants found in air surrounding CAFOs.

CAFO Emissions	Source	Traits	Health Risks
Ammonia	Formed when microbes decompose undigested organic nitrogen compounds in manure	Colorless, sharp pungent odor	Respiratory irritant, chemical burns to the respiratory tract, skin, and eyes, severe cough, chronic lung disease
Hydrogen Sulfide	Anaerobic bacterial decomposition of protein and other sulfur containing organic matter	Odor of rotten eggs	Inflammation of the moist membranes of eye and respiratory tract, olfactory neuron loss, death
Methane	Microbial degradation of organic matter under anaerobic conditions	Colorless, odorless, highly flammable	No health risks. Is a greenhouse gas and contributes to climate change.
Particulate Matter	Feed, bedding materials, dry manure, unpaved soil surfaces, animal dander, poultry feathers	Comprised of fecal matter, feed materials, pollen, bacteria, fungi, skin cells, silicates	Chronic bronchitis, chronic respiratory symptoms, declines in lung function, organic dust toxic syndrome

they experience odors from CAFOs inside the schools. Schools that were closer to CAFOs were often attended by students of lower socioeconomic status (Mirabelli, Wing, Marshall, & Wilcosky, 2006).

There is consistent evidence suggesting that factory farms increase asthma in neighboring communities, as indicated by children having higher rates of asthma (Sigurdarson & Kline, 2006; Mirabelli et al., 2006). CAFOs emit particulate matter and suspended dust, which is linked to asthma and bronchitis. Smaller particles can actually be absorbed by the body and can have systemic effects, including cardiac arrest. If people are exposed to particulate matter over a long time, it can lead to decreased lung function (Michigan Department of Environmental Quality [MDEQ] Toxics Steering Group [TSG], 2006). CAFOs also emit ammonia, which is rapidly absorbed by the upper airways in the body. This can cause severe coughing and mucous build-up, and if severe enough, scarring of the airways. Particulate matter may lead to more severe health consequences for those exposed by their occupation. Farm workers can develop acute and chronic bronchitis, chronic obstructive airways disease, and interstitial lung disease. Repeated exposure to CAFO emissions can increase the likelihood of respiratory diseases. Occupational asthma, acute and chronic bronchitis, and organic dust toxic syndrome can be as high as 30% in factory farm workers

(Horrigan, Lawrence, & Walker, 2002). Other health effects of CAFO air emissions can be headaches, respiratory problems, eye irritation, nausea, weakness, and chest tightness.

There is evidence that CAFOs affect the ambient air quality of a community. There are three laws that potentially govern CAFO air emissions—the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as the Superfund Act), the Emergency Planning & Community Right to Know Act (EPCRA), and the Clean Air Act (CAA). However, the EPA passed a rule that exempts all CAFOs from reporting emissions under CERCLA. Only CAFOs that are classified as large are required to report any emission event of 100 pounds of ammonia or hydrogen sulfide or more during a 24-hour period locally or to the state under EPCRA (Michigan State University Extension, n.d.). The EPA has also instituted a voluntary Air Quality Compliance Agreement in which they will monitor some CAFO air emissions, and will not sue offenders but instead charge a small civil penalty. These changes have attracted criticism from environmental and community leaders who state that the EPA has yielded to influence from the livestock industry. The changes also leave ambiguity as to whether emission standards and air quality near CAFOs are being monitored.

Greenhouse Gas and Climate Change

Aside from the possibility of lowering air quality in the areas around them, CAFOs also emit greenhouse gases, and therefore contribute to climate change. Globally, livestock operations are responsible for approximately 18% of greenhouse gas production and over 7% of U.S. greenhouse gas emissions (Massey & Ulmer, 2008). While carbon dioxide is often considered the primary greenhouse gas of concern, manure emits methane and nitrous oxide which are 23 and 300 times more potent as greenhouse gases than carbon dioxide, respectively. The EPA attributes manure management as the fourth leading source of nitrous oxide emissions and the fifth leading source of methane emissions (EPA, 2009).

The type of manure storage system used contributes to the production of greenhouse gases. Many CAFOs store their excess manure in lagoons or pits, where they break down anaerobically (in the absence of oxygen), which exacerbates methane production. Manure that is applied to land or soil has more exposure to oxygen and therefore does not produce as much methane. Ruminant livestock, such as cows, sheep, or goats, also contribute to methane production through their digestive processes. These livestock have a special stomach called a rumen that allows them to digest tough grains or plants that would otherwise be unusable. It is during this process, called enteric fermentation, that methane is produced. The U.S. cattle industry is one of the primary methane producers. Livestock production and meat and dairy consumption has been increasing in the United States, so it can only be assumed that these greenhouse gas emissions will also rise and continue to contribute to climate change.

Concentrated Animal Feeding Operations

Odors

One of the most common complaints associated with CAFOs are the odors produced. The odors that CAFOs emit are a complex mixture of ammonia, hydrogen sulfide, and carbon dioxide, as well as volatile and semi-volatile organic compounds (Heederik et al., 2007). These odors are worse than smells formerly associated with smaller livestock farms. The anaerobic reaction that occurs when manure is stored in pits or lagoons for long amounts of time is the primary cause of the smells. Odors from waste are carried away from farm areas on dust and other air particles. Depending on things like weather conditions and farming techniques, CAFO odors can be smelled from as much as 5 or 6 miles away, although 3 miles is a more common distance (State Environmental Resource Center, 2004).

How close is the Spring Native Grass Prairies ?

Because CAFOs typically produce malodors, many communities want to monitor emissions and odors. Quantifying odor from industrial farming can be challenging because it is a mixture of free and particle-bound compounds, which can make it hard to identify what specifically is causing the odor. Collecting data on specific gases, such as hydrogen sulfide, can be used as a proxy for odor levels.

CAFO odors can cause severe lifestyle changes for individuals in the surrounding communities and can alter many daily activities. When odors are severe, people may choose to keep their windows closed, even in high temperatures when there is no air conditioning. People also may choose to not let their children play outside and may even keep them home from school. Mental health deterioration and an increased sensitization to smells can also result from living in close proximity to odors from CAFOs. Odor can cause negative mood states, such as tension, depression, or anger, and possibly neurophysciatric abnormalities, such as impaired balance or memory. People who live close to factory farms can develop CAFO-related post traumatic stress disorder, including anxiety about declining quality of life (Donham et al., 2007).

Ten states use direct regulations to control odors emitted by CAFOs. They prohibit odor emissions greater than a set standard. States with direct regulations use scentometers, which measure how many times an odor has to be doused with clean air before the smell is undetectable. An additional 34 states have indirect methods to reduce CAFO odors. These include: setbacks, which specify how far CAFO structures have to be from other buildings; permits, which are the most typical way of regulating CAFOs; public comment or involvement periods; and operator or manure placement training.

Insect Vectors

CAFOs and their waste can be breeding grounds for insect vectors. Houseflies, stable flies, and mosquitoes are the most common insects associated with CAFOs. Houseflies breed in manure, while stable and other flies breed in decaying organic material, such as livestock bedding. Mosquitoes breed in standing water, and water on the edges of manure lagoons can cause mosquito infestations to rise. Flies can change from eggs to adults in only 10 days, which means that substances in which flies breed need to be cleaned up regularly.

Flies are typically considered only nuisances, although insects can agitate livestock and decrease animal health. The John Hopkins Bloomberg School of Public Health found evidence that houseflies near poultry operations may contribute to the dispersion of drug-resistant bacteria (Center for Livable Future, 2009). Since flies are attracted to and eat human food, there is a potential for spreading bacteria or pathogens to humans, including microbes that can cause dysentery and diarrhea (Bowman et al., 2000). Mosquitoes spread zoonotic diseases, such as West Nile virus, St. Louis encephalitis, and equine encephalitis.

Residences closest to the feeding operations experience a much higher fly population than average homes. To lower the rates of insects and any accompanying disease threats, standing water should we cleaned or emptied weekly, and manure or decaying organic matter should be removed twice weekly (Purdue Extension, 2007). For more specific insect vector information, please refer to NALBOH's vector guide (*Vector Control Strategies for Local Boards of Health*).

Pathogens

Pathogens are parasites, bacterium, or viruses that are capable of causing disease or infection in animals or humans. The major source of pathogens from CAFOs is in animal manure. There are over 150 pathogens in manure that could impact human health. Many of these pathogens are concerning because

they can cause severe diarrhea. Healthy people who are exposed to pathogens can generally recover quickly, but those who have weakened immune systems are at increased risk for severe illness or death. Those at higher risk include infants or young children, pregnant women, the elderly, and those who are immunosuppressed, HIV positive, or have had chemotherapy. This risk group now roughly compromises 20% of the U.S. population.

Table 2 Select pathogens found in animal manure.

Pathogen	Disease	Symptoms
Bacillus anthracis	Anthrax	Skin sores, headache, fever, chills, nausea, vomiting
Escherichia coli	Colibacilosis, Coliform mastitis-metris	Diarrhea, abdominal gas
Leptospira pomona	Leptospirosis	Abdominal pain, muscle pain, vomiting, fever
Listeria monocytogenes	Listerosis	Fever, fatigue, nausea, vomiting, diarrhea
Salmonella species	Salmonellosis	Abdominal pain, diarrhea, nausea, chills, fever, headache
Clostirdum tetani	Tetanus	Violent muscle spasms, lockjaw, difficulty breathing
Histoplasma capsulatum	Histoplasmosis	Fever, chills, muscle ache, cough rash, joint pain and stiffness
Microsporum and *Trichophyton*	Ringworm	Itching, rash
Giardia lamblia	Giardiasis	Diarrhea, abdominal pain, abdominal gas, nausea, vomiting, fever
Cryptosporidium species	Cryptosporidosis	Diarrhea, dehydration, weakness, abdominal cramping

Sources of infection from pathogens include fecal-oral transmission, inhalation, drinking water, or incidental water consumption during recreational water activities. The potential for transfer of pathogens among animals is higher in confinement, as there are more animals in a smaller amount of space. Healthy or asymptomatic animals may carry microbial agents that can infect humans, who can then spread that infection throughout a community, before the infection is discovered among animals.

When water is contaminated by pathogens, it can lead to widespread outbreaks of illness. Salmonellosis, cryptosporidiosis, and giardiasis can cause nausea, vomiting, fever, diarrhea, muscle pain, and death, among other symptoms. *E.coli* is another serious pathogen, and can be life-threatening for the young, elderly, and immunocompromised. It can cause bloody diarrhea and kidney failure. Since many CAFO use sub-therapeutic antibiotics with their animals, there is also the possibility that disease-resistant bacteria can emerge in areas surrounding CAFOs. Bacteria that cannot be treated by antibiotics can have very serious effects on human health, potentially even causing death (Pew Charitable Trusts, n.d.).

There is also the possibility of novel (or new) viruses developing. These viruses generate through mutation or recombinant events that can result in more efficient human-to-human transmission. There has been some speculation that the novel H1N1 virus outbreak in 2009 originated in swine CAFOs in Mexico. However, that claim has never been substantiated. CAFOs are not required to test for novel viruses, since they are not on the list of mandatory reportable illness to the World Organization for Animal Health.

Antibiotics

Antibiotics are commonly administered in animal feed in the United States. Antibiotics are included at low levels in animal feed to reduce the chance for infection and to eliminate the need for animals to expend energy fighting off bacteria, with the assumption that saved energy will be translated into growth. The main purposes of using non-therapeutic doses of antimicrobials in animal feed is so that animals will grow faster, produce more meat, and avoid illnesses. Supporters of antibiotic use say that it allows animals to digest their food more efficiently, get the most benefit from it, and grow into strong and healthy animals.

The trend of using antibiotics in feed has increased with the greater numbers of animals held in confinement. The more animals that are kept in close quarters, the more likely it is that infection or bacteria can spread among the animals. Seventy percent of all antibiotics and related drugs used in the U.S. each year are given to beef cattle, hogs, and chickens as feed additives. Nearly half of the antibiotics used are nearly identical to ones given to humans (Kaufman, 2000).

There is strong evidence that the use of antibiotics in animal feed is contributing to an increase in antibiotic-resistant microbes and causing antibiotics to be less effective for humans (Kaufman, 2000). Resistant strains of pathogenic bacteria in animals, which can be transferred to humans thought the handling or eating of meat, have increased recently. This is a serious threat to human health because fewer options exist to help people overcome disease when infected with antibiotic-resistant pathogens. The antibiotics often are not fully metabolized by animals, and can be present in their manure. If manure pollutes a water supply, antibiotics can also leech into groundwater or surface water.

Because of this concern for human health, there is a growing movement to eliminate the non-therapeutic use of antibiotics with animals. In 2001, the American Medical Association approved a resolution to ban all low-level use of antibiotics. The USDA has developed guidelines to limit low-level use, and some major meat buyers (such as McDonald's) have stopped using meat that was given antibiotics that are also used for humans. The World Health Organization is also widely opposed to the use of antibiotics, calling for a cease of their low-level use in 2003. Some U.S. legislators are seeking to ban the routine use of antibiotics with livestock, and there has been legislation proposed to solidify a ban. The Preservation of Antibiotics for Medical Treatment Act (PAMTA), which was introduced in 2009, has the support of over 350 health,

consumer, and environmental groups (H.R. 1549/S. 619). The act, if passed, would ban seven classes of antibiotics important to human health from being used in animals, and would restrict other antibiotics to therapeutic and some preventive uses.

Other Effects – Property Values

Most landowners fear that when CAFOs move into their community their property values will drop significantly. There is evidence that CAFOs do affect property values. The reasons for this are many: the fear of loss of amenities, the risk of air or water pollution, and the increased possibility of nuisances related to odors or insects. CAFOs are typically viewed as a negative externality that can't be solved or cured. There may be stigma that is attached to living by a CAFO.

The most certain fact regarding CAFOs and property values are that the closer a property is to a CAFO, the more likely it will be that the value of the property will drop. The exact impact of CAFOs fluctuates depending on location and local specifics. Studies have found differing results of rates of property value decrease. One study shows that property value declines can range from a decrease of 6.6% within a 3-mile radius of a CAFO to an 88% decrease within 1/10 of a mile from a CAFO (Dakota Rural Action, 2006). Another study found that property value decreases are negligible beyond 2 miles away from a CAFO (Purdue Extension, 2008). A third study found that negative effects are largest for properties that are downwind and closest to livestock (Herriges, Secchi, & Babcock, 2005). The size and type of the feeding operation can affect property value as well. Decreases in property values can also cause property tax rates to drop, which can place stress on local government budgets.

Considerations for Boards of Health

Right-to-Farm Laws

With all of the potential environmental and public health effects from CAFOs, community members and health officials often resort to taking legal action against these industrial animal farms. However, there are some protections for farms in place that can make lawsuits hard to navigate. Right-to-farm laws were created to address conflicts between farmers and non-farming neighbors. They seek to override common laws of nuisance, which forbid people to use their property in ways that are harmful to others, and protect farmers from unreasonable controls on farming.

All 50 states have some form of right-to-farm laws, but most only offer legal protections to farms if they meet certain specifications. Generally, they must be in compliance with all environmental regulations, be properly run, and be present in a region first before suburban developments, often a year before the plaintiff moves to that area. These right-to-farm laws were originally created in the late 1970s and early 1980s to protect family farms from suburban sprawl, at a time when large industrial farms were not the norm. As industrial farms grew in size and number, the agribusiness industry lobbied for and achieved the passage of stricter laws in the 1990s, many of which are now being challenged in court by homeowners and small family farmers. Opponents to these laws argue that they deprive them of their use of property and therefore violate the Fifth Amendment to the Constitution.

Some state courts have overturned their strict right-to-farm laws, such as Iowa, Michigan, Minnesota, and Kansas. Others such as Vermont have rewritten their laws. Vermont's updated right-to-farm bill

protects established farm practices as long as there is not a substantial adverse effect on health, safety, or welfare.

Boards of health need to be aware of what legal protection their state offers farms. Right-to-farm laws can hinder nuisance complaints brought about by community members. State laws can prevent local government or health officials from regulating industrial farms.

Board of Health Involvement with CAFOs

Boards of health are responsible for fulfilling the three public health core functions: assessment, policy development, and assurance. Boards of health can fulfill these functions through addressing problems stemming from CAFOs in their communities. Specific public health services that can tackled regarding CAFOs include monitoring health status, investigating health problems, developing policies, enforcing regulations, informing and educating people about CAFOs, and mobilizing community partnerships to spread awareness about environmental health issues related to CAFOs.

Assessment: Board of health members should ensure that there is an effective method in place for collecting and tracking public complaints about CAFOs and large animal farms. Since environmental health specialists at local health departments are often responsible for investigating complaints, the board of health must take measures to ensure that they are properly trained and educated about CAFOs. It is possible that the board of health may be responsible or choose to do some investigations itself. Schmalzried and Fallon (2008) advocate that local health districts adopt a proactive approach for addressing public concerns about CAFOs, stating that health districts can offer some services that may help ease public frustration with CAFOs. A fly trapping program can establish a baseline for the average number of flies present prior to the start-up of CAFOs or large animal farms, which can then establish if a fly nuisance exists in the area. Testing for water quality and quantity can provide evidence if CAFOs are suspected of affecting private water supplies. Boards of health can also monitor exposure incidences that occur in emergency rooms to determine if migrant or farm workers are developing any adverse health conditions as a result of their work environments. Establishing these programs benefit both members of the community and provide information to future animal farm operators, and local boards of health should recommend them if they've been receiving complaints about CAFOs.

Policy Development: Boards of health in many states can adopt health-based regulations about CAFOs, however, they may be met with some resistance. Humbolt County, Iowa, adopted four health-based ordinances concerning CAFOs that became models for regulations in other states, but the Iowa Supreme Court ruled the ordinances were irreconcilable with state laws. Boards of health that choose to regulate CAFOs can also be subject to pressure from outside forces, including possible lawsuits or withdrawal of funding. Boards of health should also consider working with other local officials to institute regulations on CAFOs, such as zoning ordinances.

Assurance: Boards of health can execute the assurance function by advocating for or educating about better environmental practices with CAFOs. Board members may receive complaints from the public about CAFOs, and boards can hold public meetings to receive complaints and hear public testimony about farms. If boards of health are not capable of regulating industrial farms in their communities, they can still try to collaborate with other local agencies that have jurisdiction. Board of health members can educate other local agencies and public officials about CAFOs and spread awareness about the environmental and health hazards. They can request a public hearing with the permitting agency of the

CAFO to express their concerns about the potential health effects. They can also work with agricultural and farm representatives to teach better environmental practices and pollution reduction techniques.

In many states, boards of health are empowered to adopt more stringent rules than the state law if it is necessary to protect public health. Board of health members should examine their state laws before they take any action regarding CAFOs to determine the most appropriate course of action. Any process should include an investigative period to gather evidence, public hearings, and a time for public review of draft policies.

Board of Health Case Studies

Tewksbury Board of Health, Massachusetts

Locals have complained about Krochmal Farms, a pig farm, for many years, but complaints have increased recently. The addition of a hog finishing facility to the farm coincided with the time that community member complaints grew. Most complaints are centered on the odor coming from the farm. The complaints were originally just logged when phone calls were received; however, the health department added a data tracking system as the number of complaints increased. After a complaint is received, the sanitarian or health director does a site visit to investigate.

The health director in Tewksbury filed an order of prohibition against the farm, which is allowed under Massachusetts law 111, section 143, for anything that threatens public health. The order of prohibition was appealed and the matter was taken to the board of health for a grievance hearing. The board of health hearing included months of testimony about the pig farm. The board of health is also doing a site assignment, which determines if a location is appropriate for treating, storing, or disposing of waste, including agricultural waste. The site assignment process includes both the Department of Environmental Protection (DEP) and the local board of health. The board of health holds a public hearing process, while the DEP reviews the site assignment application. The board of health grants the site assignment only if it is concurrently approved by the DEP.

The health director in Tewksbury points out that the only laws the board of health is able to regulate the farm under are nuisance laws. There have been efforts by the community to do a home rule petition to address the air quality and pest management complaints. The home rule petition is currently working its way through the Massachusetts state house. The status of the petition is unknown.

The board of health has tried to work directly with the pig farm to manage complaints. The farm contains manure composting facilities and the health district has requested advance notice to warn the community before manure is treated or applied to the soil. The farm has adopted a new manure management system. This system uses Rapp technology to control odors and reduce ammonia and hydrogen sulfide levels. However, questions still remain as to whether this addition will fully solve the odor issue. Typically, systems using Rapp technology include an oil cap that floats on manure holding pools and helps seal odors inside. These techniques have been researched and proven to reduce odors. However, the Tewksbury farm did not install the oil cap, and it is unknown whether the exclusion of the cap will hinder the technology's ability to reduce odors.

The complaints about the farm primarily concern the odor that emanates from the farm. The complaints do include mention of health side effects, including nausea and burning eyes. The health director has also heard concerns about potential environmental effects from the pig manure. Community members are

worried the manure runoff is entering and contaminating Sutton Brook, since there has been flooding in that area. There has been no confirmation of this occurring. The board of health is aware that the farm has a nutrient management plan, but they are not allowed to request and find out what is incorporated in that plan.

The Tewksbury piggery is technically not classified as a CAFO, though it is believed to be the largest pig farm in the commonwealth of Massachusetts. The area around it has become densely populated and the community members state that they just want to live peacefully with the farm. The board of health has submitted multiple grant applications to study the health effects associated with the farm. After the site assignment process is complete, the board of health will decide how it will regulate the farm. At the beginning of 2010, the board of health was still working on drafting regulations for the pig farms.

Wood County Board of Health, Ohio

Wood County, Ohio, contains two existing large dairy farms, both of which were proposed in 2001 to be expanded to over 1500 cows each. It is also the site for three other proposed dairy farms. There is a large community effort that supports restricting the operation and expansion of these farms, mainly represented by the community group Wood County Citizens Opposed to Factory Farms. The Wood County Board of Health became involved in investigating these dairy farms through this community group and other local officials. The Trustees of Liberty Township requested assistance from the Wood County Board of Health in supporting a moratorium on factory farm operations until local regulations were in effect. The trustees believed that manure runoff from the farms could contaminate local waterways, lower the ground water table, increase the presence of insect vectors, and devalue local properties.

The Wood County Health Director, in cooperation with the board of health, contacted nearby counties to determine what actions they had taken against farms in their communities. While the health director and board of health investigated action in the form of a nuisance regulation against the farms, they were advised that nuisance lawsuits filed against farms in Ohio were held to a tough standard, and they would be forced to demonstrate with scientific proof that the farms have a substantial adverse effect on health. They found that no other board of health in Ohio had opted to regulate farming operations and relied on the enforcement of existing state laws.

The board of health held a public forum to hear public opinion regarding the industrial farms. Ultimately, the Wood County Board of Health took actions other than regulations to help protect the health and environment of its community. They helped community members protect the safety of their water wells by offering free and low cost water well testing and inspections. They tested area ditch and water ways for fecal coliform bacteria, phosphorous, and nitrates to monitor the impact of farm runoff. They also purchased fly traps to monitor and count fly types to determine if the farms have caused an increase in insect vectors. Board of health members also met with state officials from the Ohio EPA in an effort to facilitate cooperation regarding the factory farms. While the Wood County Board of Health and Health Department chose not to institute any local regulations, they continue to monitor the situation and respond to community complaints.

Cerro Gordo County Board of Health, Iowa

Officials in Cerro Gordo County, Iowa, began looking into regulating animal feeding operations after the number of hog farms in Iowa started to grow. Floods in North Carolina and new regulations in Colorado meant that many hog farms began relocating to Iowa. Many citizens had concerns over the effects of

CAFOs, and the Iowa State Association of Counties wanted to review air quality issues. Officials in Cerro Gordo County originally began working on a regulation that required inspections and was based on public health concerns, since farms were already exempt from any regulations related to zoning. However, Iowa state senators soon introduced legislation that passed and prevented any animal feeding operations from being regulated from a public health angle as well.

As Iowans were now prevented from regulating animal feeding operations in terms of zoning or public health, officials in Cerro Gordo County decided to place a moratorium on the construction of new animal feeding operations in that county. They wanted to temporarily stop the growth of animal feeding operations until they could get better science about their effects. Cerro Gordo County Ordinance #40, the "Animal Confinement Moratorium Ordinance," went into effect on May 14, 2002. Since the moratorium did not address public health or zoning, officials were able to get around the rules and still have a way to temporarily control animal feeding operation growth in their county. The ordinance placed "a 1-year moratorium on any new construction, expansion, or activity occurring on land used for the production, care, feeding, or housing of animals." The ordinance also afforded "local public health officials adequate time to appropriately assess health and environmental concerns that may be related to confined animal feeding operations and concentration of animals; establish objective measurable standards of enforcement; exercise the Board of Health's responsibility to protect and improve the health of the public; refrain from impacting farm operators unfairly; and provide penalties for violations of the provisions hereof pursuant to Chapter 137, Code of Iowa" (Cerro Gordo County, 2002).

The moratorium was first adopted by the Cerro Gordo County Board of Health. It was then presented to the county board of supervisors by the health director on behalf of the board of health. Before the board of health adopted the moratorium, they held an investigative meeting in which representatives from the Iowa Farm Bureau and other industry spokespeople exchanged opinions on the issue of animal feeding operations. The moratorium was created through a collaboration between local and county officials—health department staff, the board of health, and the board of supervisors. The moratorium did not receive any help or backing from state officials, who were concerned about the political nature of the ordinance. However it did receive backing from a *Globe Gazette* editorial.

The moratorium was immediately met with resistance from state officials. The Cerro Gordo County Board of Supervisors was contacted by a local legislator, and the Iowa Farm Bureau stated they would challenge the county budget. The Iowa Farm Bureau threatened to take the county to court. There were concerns over the cost of a court trial, which was estimated to be as high as $60,000. The county attorney doubted the legality of the moratorium and ultimately recommended removing it. The moratorium was in effect until June of 2005, when it was repealed by the county board of supervisors.

Since the moratorium was repealed there have been a few hog farms built in Cerro Gordo County, but the decline in pork prices has prevented any large growth of hog farms. Health officials believe that if the county had not implemented the animal confinement moratorium, there would have been many more farms built in their county, since many hog farms were built in counties south of Cerro Gordo County. There is now a process for siting new animal confinement operations in Iowa that uses a Master Matrix scoring system. The Cerro Gordo County Board of Supervisors tracks the Master Matrix system, but so far no animal feeding operations in Iowa who have applied using this system have been denied the right to build.

Conclusion

Concentrated animal feeding operations or large industrial animal farms can cause a myriad of environmental and public health problems. While they can be maintained and operated properly, it is important to ensure that they are routinely monitored to avoid harm to the surrounding community. While states have differing abilities to regulate CAFOs, there are still actions that boards of health can and should take. These actions can be as complex as passing ordinances or regulations directed at CAFOs or can be simply increasing water and air quality testing in the areas surrounding CAFOs. Since CAFOs have such an impact locally, boards of health are an appropriate means for action. Boards of health should take an active role with CAFOs, including collaboration with other state and local agencies, to mitigate the impact that CAFOs or large industrial farms have on the public health of their communities.

Appendix A: Regulatory Definitions of Large CAFOs, Medium CAFOs, and Small CAFOs

Animal Sector	Size Thresholds (number of animals)		
	Large CAFOs	Medium CAFOs[1]	Small CAFOs[2]
Cattle or cow/calf pairs	1,000 or more	300-999	Less than 300
Mature dairy cattle	700 or more	200-699	Less than 200
Veal calves	1,000 or more	300-999	Less than 300
Swine (over 55 pounds)	2,500 or more	750-2,500	Less than 750
Swine (under 55 pounds)	10,000 or more	3,000-9,999	Less than 3,000
Horses	500 or more	150-499	Less than 150
Sheep or lambs	10,000 or more	3,000-9,999	Less than 3,000
Turkeys	55,000 or more	16,500-54,999	Less than 16,500
Laying hens or broilers[3]	30,000 or more	9,000-29,999	Less than 9,000
Chickens other than laying hens[4]	125,000 or more	37.500-124,999	Less than 37,500
Laying hens[4]	82,000 or more	25,000-81,999	Less than 25,000
Ducks[4]	30,000 or more	10,000-29,999	Less than 10,000
Ducks[3]	5,000 or more	1,500-4,999	Less than 1,500

Data: Environmental Protection Agency

1 Must also meet one of two "method of discharge" criteria to be defined as a CAFO or must be designated.

2 Never a CAFO by regulatory definition, but may be designated as a CAFO on a case-by-case basis.

3 Liquid manure handling system

4 Other than a liquid manure handling system

Restoring Economic Health to Contract Poultry Production[1]

C. Robert Taylor
David A. Domina[2]

May 13, 2010

Introduction—Market Power in the Food Industry

Concentration in major markets for agricultural products is dramatic, and the number of major food processing firms is concentrated in the hands of only a few. These anticompetitive markets deliver processed foods to consumers and retailers by using their market power to demand higher prices, causing an increase in the consumer cost of food. The highly concentrated structure of the American food processing markets drives producer prices down dangerously, while increasing consumer costs unnecessarily and unfairly.

Monopsony power exists where too few consumers of raw goods control the market and can engage in the practice of "under-demanding" their full need, thereby creating an artificial impression and causing sellers of perishable goods to accept unfair lowered prices. Major ag markets are controlled by companies with monopsony power.

Farmers and ranchers are unable to bargain effectively with purchasers of major ag commodity products in the United States. They are thwarted by monopsony (buyer) market power produced by disparate information, opaque markets, and concentration so intensive there are simply too few firms at the marketplace, in a competitive bidding setting, to sell their beef, pork, broilers, dairy products and many other agricultural commodities. This is acutely true in the poultry industry where producers cannot bargain for a supplier relationship due to market structure, cannot own their birds, and are dependent on the whims of a single processor for continuing business to meet significant capital debt service requirements on their poultry facilities.

Consumers are poorly served by existing market structures, too. The spread between the price paid to the farmer and the price paid by the consumer increases steadily as concentration increases in food processing and retailing. The winners are in the middle. The losers are producers and consumers.

The monopsony problem is not new to American agricultural, but it is extremely acute, now, in the early part of the 21st century. A hundred years ago a similar problem led to enforcement of the newly-enacted antitrust laws and the adoption of the *Packers and Stockyards Act* of 1921, all in an effort to rid the nation of monopsony's gripping the same major agricultural markets then,

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[1] Report prepared for the Joint U.S. Department of Justice and U.S. Department of Agriculture/GIPSA Public Workshop on Competition Issues in the Poultry Industry, May 21, 2010, Normal, AL

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as find themselves gripped by the monopsony problem now. Concern must focus on the basic purposes of antitrust laws. The authors believe the most significant evil, at which antitrust laws are aimed, is concentration. Antitrust laws serve the fundamental purpose of ensuring freedom of business opportunity. They are not designed to prevent growth, nationwide businesses, or success. But, they are designed to prevent monopolies, monopsonies, and abuse of market power.

Market concentration in too few corporate hands poses risks of price, biosecurity, and lack of redundancy to all American consumers. Corrective action is an urgent national priority.

The State of Contract Poultry Production, 2010

The domestic poultry meat industry is integrated vertically. This means ownership and control of essentially all aspects of production in the vertical chain from baby chick to processed broilers and wholesale poultry products is held by poultry companies. These companies are commonly known as "integrators." The poultry industry, which includes broiler, turkey and egg production, is the most vertically integrated of all major agricultural industries.

Integrators generally own or control the breeding flock, hatcheries, chicks, assignment of baby chicks to growers, feedmills, feed ingredients, transportation of feed, and processing (slaughter) plants. These companies, integrating all decision making affecting poultry production, direct the course of action in all key areas of production: placement of baby chicks, the number of chicks placed with each grower, what birds are fed, and when birds ready for processing will be picked up from the grower. Integrators also dictate physical size and equipment specifications for grow out[3] house and equipment. Locations or placements of grow out facilities are fully dictated by the integrators.

Under the dominant business arrangement, the integrator owns the chicks and feed, while farmers, commonly called contract growers, carry out actual production, or grow out, from chicks to birds ready for processing.[4] If the bird dies, it becomes the grower's property and responsibility. This is achieved by paying the grower or producer for only what is returned when the birds reach slaughter weight.

The integrator directs and oversees the production process and serves as overlord to the contract grower. Company representatives (called service technicians) typically visit each producer and grow out house weekly to supervise the grower's work and check on litter, waste and dead birds. Integrator representatives also give directives governing maintenance and upgrades of facilities. They police the handcuffing provisions in nonnegotiable standardized contracts integrators

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[3] Each segment of agriculture has its own "lingo" What poultry producers call integrators are the same as what beef and pork producers call "packers" or "slaughterhouses". A "grow out" house is where young birds gain weight to reach market readiness, or slaughter weight.

[4] See, for example, Tomislav Vukina, "Vertical Integration and Contracting in the U.S. Poultry Sector," Journal of Food Distribution Research, July 2001:29-38.

demand of growers. "This network of company specialists (i.e. service technicians) comprises the command-and-control structure that specifies the grower's production process."[5]

Integrators require growers to provide expensive specialized production facilities (houses, associated equipment, and utilities), grower services (labor and management), waste management and dead bird disposal. Costs for these facilities can reach $1 million or more for a typical family operation.

Beginning in the 1950s broiler production contracting evolved from simple credit arrangements with feed companies, to profit-sharing arrangements, to flat fee contracts, and finally to a basic feed-conversion contracts. [6] Almost all broiler and turkey contracts now establish a base fee the grower will receive, with adjustments based on relative performance compared to other growers for the same integrator in the same complex. Economists call this a "tournament pay system" but, due to variable feed and chick quality, more of a "lottery."

Open, transparent cash markets for broilers or turkeys ready for processing disappeared decades ago.[7] There is no open market for poultry ready for processing, so there is no economically viable alternative for commercial, non-specialty growers who wish to be independent from integrators. The integrator companies refuse to purchase birds from independent growers. They break them. In poultry the choice is stark: Sign the handcuffing contract offered, or get out of the business through bankruptcy. Once one enters the life of a grower, the trap is closed: high capital costs and large debt to enter the business, no input on product price, no market in which to sell goods and no way out except bankruptcy if the integrator "dumps" the grower.

Early in the course of complete vertical integration poultry companies and growers tended to look out for each other's economic welfare like partners. Vukina and Leegomonchai, observed, *"Production contracts have played a decisive role in the broiler industry's remarkable growth but the integrator-grower relations have gradually worsened. Starting in the mid 1990s the tensions have received increasing attention nationwide."*[8] The industry now, by 2010, places growers completely at the mercy of their integrators. In economics, this is referred to as monopsony, "buyer" or "contractor" power held by the integrator over their growers.

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[5] J. J. Molnar, T. Hoban and G. Brant, "Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower," Southern Rural Sociology, Vol. 18 (2), 2002, pp88-110.

[6] Vukina further discusses evolution of the poultry industry. See *supra* note 4. The lack of bargaining power is also discussed by Daryll E. Ray, "On Compensating Producers Who Contract Production," Article Number 233, Agricultural Policy Analysis Center, University of Tennessee, 2005.

[7] Although there is no open, transparent market for birds ready for processing, there have special "sweetheart" deals allowing executives and insiders of some integrators to sell birds ready for processing to the integrator.

[8] Tomislav Vukina and Porametr Leegomonchai, "Political Economy of Regulation of Broiler Contracts," American Journal of Agricultural Economics 88, December 2006, 1258-1265.

Broiler production is both capital and labor intensive.[9] Growers bring roughly one-half of the capital and most of the labor required to produce a processed whole bird. Growers' capital and labor are "captive" to the integrator. It gets the broilers, sets the price, and imposes the growing conditions. The grower does the work and hopes to please the "boss" integrator.

Integrators typically mandate specifications for poultry houses and equipment, and often require growers to make investments in upgrading equipment or facilities. A 2001 USDA national survey reveals that 84% of contract poultry growers were *"... required to make investments in equipment or facilities."*[10] A USDA survey update revealed that 49% of broiler growers were required to make capital investments in 2004, and that this investment in the single year averaged $49,037 per grower. Survey results imply that the average respondent had 3-4 standard size houses, so the average investment in the single year averaged $10,000-15,000 per house for about one-half of the growers.

New growers borrow all funds for construction of houses and equipment, offering a small acreage of land as collateral. Integrator mandated house and equipment modifications send growers to creditors and rob them of any equity they manage to earn. It may take 20 – 30 years to pay off the amortized debt for a poultry facility, but the integrators contract is seldom more than five, and often only two or three, years long. Recent contracts, some covering several years, actually only guarantee the grower a single flock. Renewal time puts the integrator in control and leaves the producer with no power to bargain.

New growers are not permitted to negotiate contract terms; the only option offered by an integrator is to accept or reject the integrator's standard form contract. Accepting means the grower will have birds to grow; rejecting means she will not. Vukina and Leegomonchai, state, *"Modern broiler contracts are written by the integrator and offered to prospective growers on a take-it-or-leave-it basis."*[11] The integrator alone decides when a new contract will be written. The integrator decides the take it, or leave it, terms. The long economic life of highly specialized poultry grow out facilities makes business options facing an existing grower narrow to (a) bankruptcy, or (b) acceptance of the integrator's dictates. Arms-length contract negotiations rarely if ever occur between grower and integrator; rather, contracts of adhesion characterize the industry. Indeed, with no cash market for broilers, there is no basic context above or within which price negotiations can occur.

MacDonald and Korb, economists with ERS/USDA, state, *"Once the investment is made, growers face the risk of opportunistic behavior by integrators, who may have considerable monopsony power at that point. ... With a short-term contract, integrators may adjust payment*

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[9] Vukina notes, "The poultry industry is predominately organized in a manner that limits capital requirements by the integrator." *Supra* note 4.

[10] http://www.ers.usda.gov/Briefing/FarmStructure/Questions/livestock.htm

[11] Tomislav Vukina and Porametr Leegomonchai, "Political Economy of Regulation of Broiler Contracts," American Journal of Agricultural Economics 88, December 2006, 1258-1265.

schemes, or hold up growers for additional investments, as a condition of renewal."[12] The 2008 Pew Commission report on Industrialized Farm Animal Production emphasizes the limited choices grower have, *"Once the commitment is made to such capital investment, many farmers have no choice but to continue to produce until the loan is paid off. Such contracts make access to open and competitive markets nearly impossible for most ... poultry producers, who must contract with integrators if they are to sell their product."*[13]

These industry characteristics are manifestations of poultry integrator market power. Even though there may be several integrators in some areas, integrators maintain monopsony power over their contract growers in nearly all phases of their business lives. This includes bank credit, which requires a contract with an integrator the bank likes, birds to grow, which come from the integrator, feed and vet supplies which must conform to integrator specs, specifications for the physical plant including updates, and the protocol used for waste and dead bird disposal. The grower provides the sinew and muscle and performs the stoops and heaves, but makes none of the judgments.

Poultry Market Concentration

Concentration statistics are often improperly used to assess market power. At a given market level, the concentration ratio on the seller side of the market is not generally equal to the concentration ratio on the buyer side of the market. Using a seller's CR4 or HHI to increase buyer power is inappropriate and misleading. For example, GAO reports CR4=57% in broiler production. The HHI=1,200. Broiler processing concentration measures may be appropriate for assessing seller power in the wholesale market for poultry and poultry products, but they are absolutely inappropriate for analyzing buyer power of the poultry companies. The integrators have nearly absolute control of their respective growers. From an antitrust perspective, the integrator "defines" the relevant market for grower services, typically no more than 40 miles from the integrator's feed mill and processing facility.

Tacit collusion of integrators can suppress grower switching and "police" producers. Even without collusion, the Hobson's choice facing a grower is between a bad arrangement with her current integrator and an equally bad arrangement with another one.

In the tournament system, each grower has detailed information on flock performance relative to all flocks processed that week by the integrator. By law—PSA regulations—the integrator is required to furnish this information to the grower on what is commonly called a "settlement sheet." Such settlement sheets for many flocks establish whether a grower is a good or poor manager. In a truly competitive market for grower services, integrators would be trying to sign the good managers for other integrators. But such switching is extremely rare, even in areas with several integrators.

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[12] James M. MacDonald and Penni Korb, "Duration in Production Contracts," paper presented at the American Agricultural Economics Association Annual meeting, Long Beach, CA, July 23-26, 2006, pp 4-5.

[13] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 49.

A recent study of detailed USDA poultry grower survey data by Key and MacDonald, ERS economists, concluded, *"There appears to be small but economically meaningful effects of concentration on grower compensation."*[14]

Sharing of Detailed Cost, Pay & Production Information by Integrators

A recent GAO Report states *"We did not identify reliable information on prices poultry farmers received (p. 15)."* USDA does not report prices contract poultry producers receive, although they report cattle and hog prices twice daily. To some extent, GAO's inability to find direct data to support the impact of concentration on poultry farmers is understandable[15]. Once a market is destroyed, useful data cannot be gleaned from it, just as a house cannot be inhabited once it has burned to the ground.

Most poultry integrators participate in a common private reporting service, known as AgriStats,[16] and share information on contract grower pay by month. They do not share this information with growers or outsiders.

The sharing of price and other market information by so-called competitors is well known as a significant antitrust issue. Grower payout and cost information shared by most integrators is incredibly detailed and comprehensive. As such it could provide critical data for competition investigations and analyses of oligopoly and oligopsonistic behavior far more complex and advanced than available for any other agricultural industry. An intensive inquiry is needed.

Highly Limited Public Information for Growers

Integrators share highly detailed cost and pay information monthly. But growers typically have little or no information on the economics of contract production. During expansion phases of the industry, integrators typically increase grower pay to induce new entrants. Due to the lack of accurate public information on the true economics of contract production, potential growers must

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[14] Nigel Key and James M. MacDonald, "Local Monopsony Power in the Market for Broilers: Evidence from a Farm Survey," Selected Paper, Annual meeting of the AAEA, Orlando, FL, July 27-29, 2009.

[15] Throughout this publication, General Accounting Office's Report, GAO 09746R, *Concentration in Agriculture*, issued June 30, 2009, is generally referred to as the GAO Report.

[16] *"Agri Stats, Inc. is a statistical research and analysis firm serving agribusiness companies domestically and internationally. Clients include, but are not limited to: Tyson, Louis Rich, Perdue, Jennie-O/ The Turkey Store, Cargill, and Smithfield. Agri Stats was founded in 1985 by James H. Cox as a provider of management reports to improve the profitability of broiler companies in the United States and around the world. Twenty years later, Agri Stats has grown to be the premier management reporting and benchmarking company for numerous industries: broiler, egg, turkey, swine, beef and dairy. Agri Stats also provides consultation on data analysis, action plan development and management practices of participating companies.. ... Our mission: To improve the bottom line profitability for our participants by providing accurate and timely comparative data while preserving the confidentiality of individual companies."* http://www.agristats.com/, downloaded on 2/12/2010. While AgriStats may have some semblance of trying to "preserve confidentiality of individual companies," we think that the reports are so detailed that an insider could indentify other company's pay and cost information.

Dr. Daryl Ray[20] describes the contract poultry industry as follows. "*... let us look at what happens with broiler (or turkey) production. To attract new producers the company has to offer a price that will allow the producer to pay all of the variable costs and some return for management and risk. In addition, a new operator will need enough income to pay principal and interest on the loan that has to be taken out to build the facilities. At that point [before incurring debt, building houses, or signing the initial contract[21]] the farmer has nothing at risk and can walk away from the first contract if the offer does not cover the variable costs, the fixed costs, and a reasonable return for management and risk. ... What happens when the contract is up for renewal? The producer usually still owes some money on the original loan, plus he has the equity from the investments in the original facilities. If the company decides to reduce the price offered for the birds, the grower is in a difficult position, given his investment in the barns and remaining debt. If the company offers a lower price for the birds or does not offer some increase to cover increased labor costs, the grower has no leverage. ... He is a captive of the company.*"

Dr. Ray continues, "*This is what many contract growers (and economists) call 'hold-up'. ... In most cases the farmer cannot negotiate with another company because there is usually only one company in a give area. In this situation, the farmer is not negotiating in a free-market environment. Rather he is selling into a monopsony, where the company has all of the negotiating power. In this situation the producer is in a take it or go bankrupt situation. ... Because of the investment to begin production and because he is selling into a monopsony, the producer has no bargaining power at contract renewal time. The producer may be forced to choose between moderate and consistent losses, and the higher cost of foreclosure on the land and buildings and exiting the business. Either way the producer loses. Exit is far from costless; rather exit is likely to be a financial catastrophe. The investment in farms is useless if the grower does not get more birds from the company*"

The 2008 Pew Commission report on Industrialized Farm Animal Production emphasizes the limited choices growers have, "*Once the commitment is made to such capital investment, many farmers have no choice but to continue to produce until the loan is paid off. Such contracts make access to open and competitive markets nearly impossible for most ... poultry producers, who must contract with integrators if they are to sell their product.*"[22]

Entry and exit barriers are important antitrust economic considerations in a monopsonistic market. The poultry industry is rife with entry and exit barriers and contract negotiations barriers.

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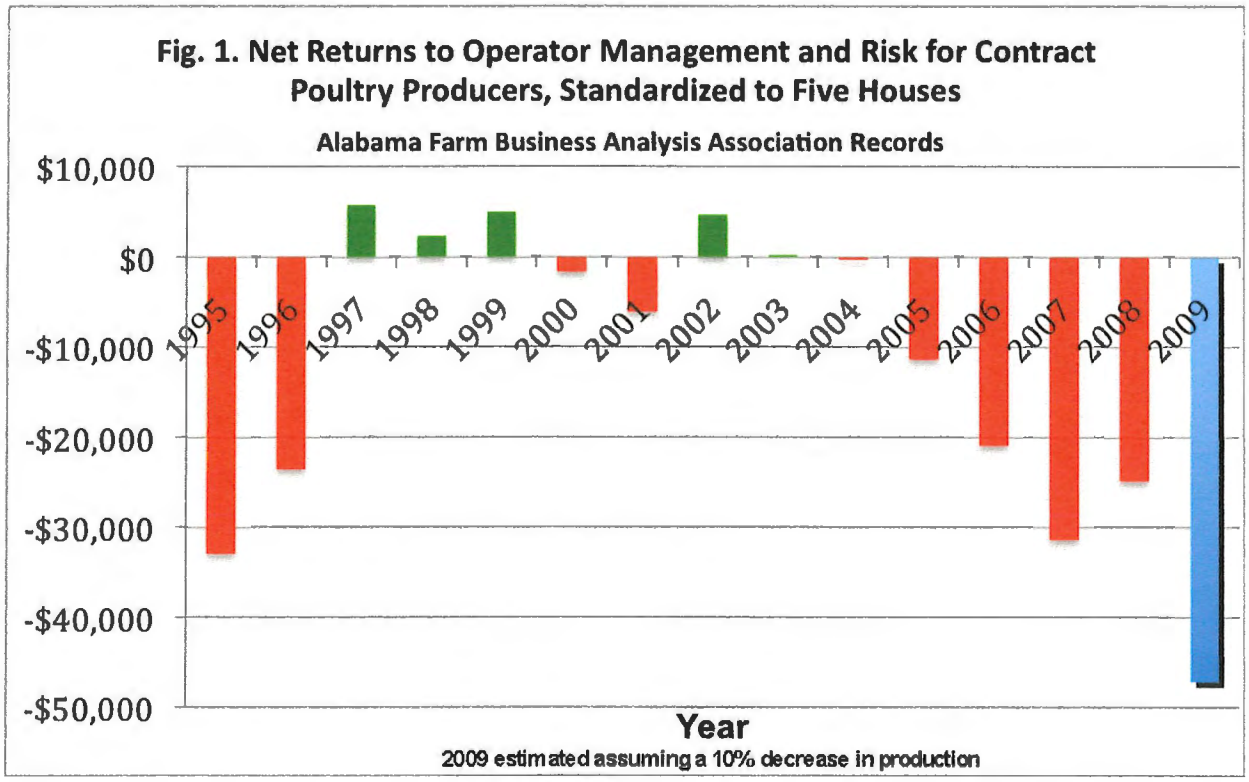
[20] Daryl Ray, "On Compensating Producers Who Contract Production," Jan. 21, 2005, (http://apacweb.ag.utk.edu/articles05.html). Dr. Ray holds the Blasingame Chair of Excellence in Agricultural Policy at the University of Tennessee, and is the Director of their Agricultural Policy Analysis Center (APAC)." Parenthetical comments added.

[21] Clarification in brackets added.

[22] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 49.



AFAA records show gross contract payouts are somewhat above average for the area. Thus the economic plight of the average contract grower is worse than shown in Fig 1.

Industry representatives often assert that grower pay (per pound produced) has been increasing. For example, Michael Donohue, Vice President, Agri Stats, Inc., stated, *"Grower expense (i.e. gross pay per lb) has risen each year over the last fifteen years in absolute and in relative terms."*[25] While this is true in nominal terms, grower pay per pound of bird adjusted for inflation actually shows a downward trend. Industry representatives also assert that growers have benefited from production per foot increasing. While this is true, gains have been very modest in recent years, not offsetting increases in expenses.

Cunningham's budgeted estimates of average broiler grower returns over cash operating expenses per foot of house space, nominal and real, are shown in Figure 2. The Consumer Price Index (CPI) was used to adjust for inflation. Estimates shown in Figure 2 assume a normal production cycle, and do not reflect, in particular, reduced placements in 2009-2010. Furthermore, the budgeted estimates shown in Figure 2 do not include any depreciation or loan expenses.

While the trend in nominal returns over cash expenses has trended upward, real returns over cash expenses have trended downward (Fig. 2).

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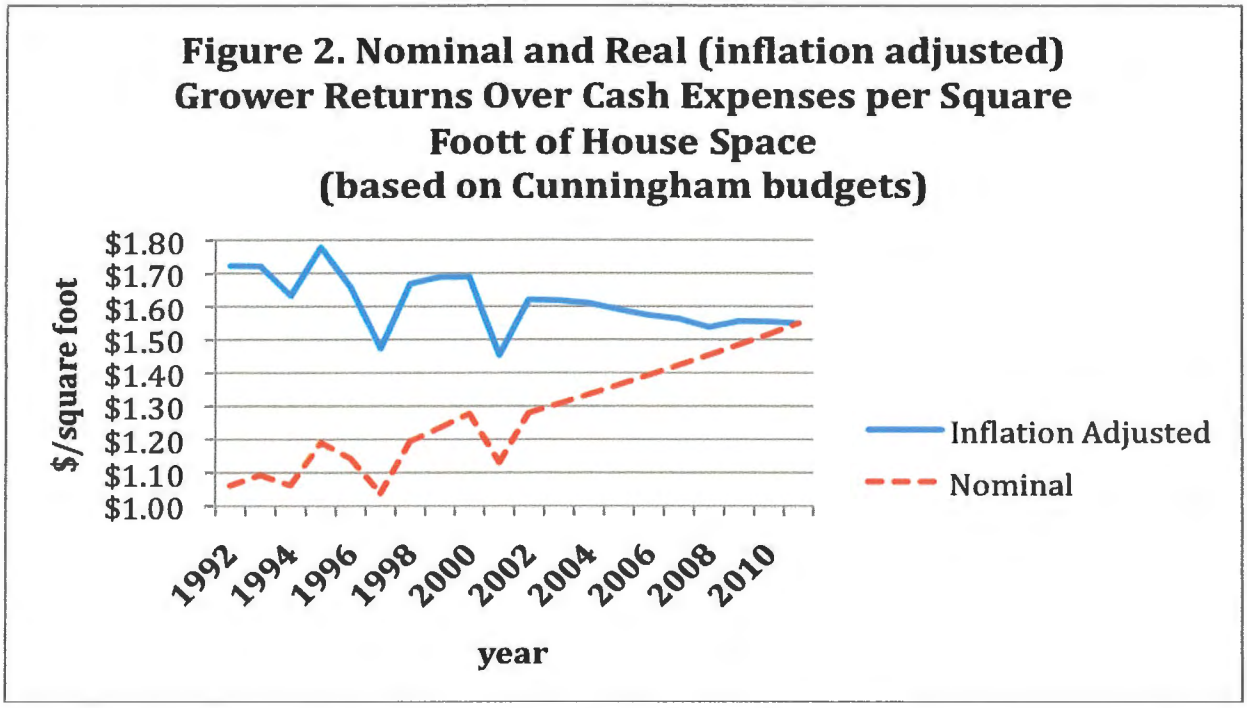
[25] Michael Donohue, "The Importance and Value of America's Poultry Farms," http://www.nationalchickencouncil.com/aboutIndustry/detail.cfm?id=20 downloaded 4/26/2010.



Growers profitability is worse than depicted above. Costs of technologically advanced houses and equipment, often mandated by the integrator, have increased more than inflation. Based on house and equipment estimates presented in various reports by Cunningham, the nominal cost of houses has increased by 82% since 1992.[26] Inflation adjusted cost of houses and equipment has increased by 15% in about two decades, while inflation adjusted pay per foot has decreased (Figure 2). Thus the contract grower has been caught in a profit vise controlled by the integrators.

Tara Shofner reports a 1999 survey of Arkansas poultry growers conducted by the University of Arkansas on behalf of the Arkansas Farm Bureau Association (AFBA). She reports that the survey revealed " ... *67% (of respondents) stated that they are not getting a fair return on their investment.*" Shofner also states, "*As it becomes apparent that income from the poultry operations is not sufficient, many producers are finding it necessary to have off-farm income just to make ends meet. Over 47% of respondents of the AFBA survey revealed that their spouse had either part-time or full-time off-farm employment. There simply may not be adequate net income*

[26] Dan L. Cunningham and Brian D. Fairchild, Broiler Production Systems in Georgia Costs and Returns Analysis 2009-2010, University of Georgia Cooperative Extension Service, Bulletin 1240, Dec 2009. Dan L. Cunningham , Cash Flow Estimates for Contract Broiler Production in Georgia: A 20-Year Analysis, University of Georgia Cooperative Extension Service, Bulletin 1228, March 2003. Up until recently, Cunningham's cash flow budgets extended only 16 years, even though the life of a house is 25-30 years. Thus, Cunningham's analyses are generally incomplete.

from the poultry operations only to support a household. This is particularly the case if substantial debt service on the operation exists." [27]

H. L. Goodwin, Jr., Economist, Center of Excellence for Poultry Science at the University of Arkansas, reports results of a survey of Arkansas grower cost and returns. He states, *"... data was gathered from four growers with four different companies (16 total) over a four-year period. Participating companies approved of the project and provided the names of at least four contract growers. Growers names submitted were from the* ***top one-third*** *of each production complex based on their past performance and record-keeping practices. Actual data were collected through personal contact with growers."*[28]

Integrator control apparently exerted over a cost and return survey by university economists, as noted in the above quote, is another illustration of the lack of transparency and unbiased information prevalent in the industry.

Results from the survey reported by Goodwin show net farm income of $9,206 annually for a four-house operation. What he calls net income is actually a return to unpaid labor, management, equity and risk.[29] Once a modest return is subtracted for operator labor, Goodwin's analysis shows a negative return to management, equity and risk for growers that were in the "top one-third."

Goodwin also alludes to the fact that market values may be distorted because of the lack of public information on actual costs and returns. He states, *"... many potential farm sellers are not usually willing to supply all of their past records to be evaluated before the sale of their farm. This situation leaves buyers with little actual data upon which to judge the profitability of their impending purchase, and potential growers are faced with the difficult task of approximating the farm's past performance."* [30] Because of a lack of information, biases can be institutionalized into the appraisal process.

"Budgeted" poultry cost and returns are highly sensitive to assumptions about the house equipment replacement cycle and cost. Sensitivity of budgets to assumptions is apparent from Cunningham's 2009-2010 analyses. Cunningham assumes a single equipment upgrade in 30

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[27] Tara Shofner, "Development of the Interactive Broiler Income Spreadsheet," American Journal of Agricultural Economics 82 (Dec. 2000): 1240-1246.

[28] Goodwin, H. L. "Spreadsheet for Broiler Farm Economic Analyses," Avian Advice, Spring 2002, University Arkansas Division of Agriculture, Center of Excellence for Poultry Science.

[29] The budget shows $2,700 labor cost. Since four houses are typically full time for one person, this labor cost appears to be hired labor only and does not include a charge for unpaid family labor.

[30] Goodwin, H. L. "Spreadsheet for Broiler Farm Economic Analyses," Avian Advice, Spring 2002, University Arkansas Division of Agriculture, Center of Excellence for Poultry Science.

years, equal to about 20% of initial construction cost. In contrast, Simpson, et al, state[31]: *"A new modern broiler house may have a useful life of twenty-five or more years. However, the equipment must be replaced periodically, and regular repairs and refinements to the facilities will also be required. A good rule of thumb is that the house and site preparation will account for about 45%, and the equipment portion for about 55% of the total facilities (housing and equipment) cost. Thus, about 55% of the new facilities cost should be allocated for repair and replacement of equipment every 10 to 15 years. Production efficiencies, bird genetic improvements, and new technologies are likely to occur more frequently in the future than in previous years. These facts will result in a need for making improvements to your houses every few years. This contingency should certainly be factored into your projected cash flow as an anticipated and realistic expense."*

A 2001 USDA national survey reveals that 84% of contract poultry growers were *"... required to make investments in equipment or facilities."*[32] A USDA survey update revealed that 49% of broiler growers were required to make capital investments in 2004, and that this investment in the single year averaged $49,037 per grower. Survey results imply that the average respondent had 3-4 standard size houses, so the average investment in the single year averaged $10,000-15,000 per house for about one-half of the growers. These USDA survey results show that Simpson's, et al, recommendations for budgeting equipment replacement are much more accurate than Cunningham's assumptions.

Long-term profitability for growers is declining. A 1992 Oklahoma State University (OSU) study reports a negative budgeted return (loss) of $953 annually (on a $100,000 investment) to risk, management, land, and overhead after subtracting a modest charge for family labor.[33] A similar OSU budget published in 2006 reports a larger loss of $4,260 annually (on a $255,000 investment). [34] Translated from economic jargon, the OSU studies, like the detailed AFAA records, show that growers are getting a sub-competitive return for labor, and nothing for bearing substantial risks due to the integrators control of future pay, flock placements, and many other factors influencing profitability.

USDA conducts an annual survey of field-level production practices, farm business accounts, and farm households, called the Agricultural Resource Management Survey (ARMS).[35] ARMS

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[31] Simpson, E. H., H. B. Strawn, M. K. Eckman, J. P. Blake, and J. O. Donald, Entering the Contract Broiler Business, Alabama Cooperative Extension System, Department of Agricultural Economics and Rural Sociology, AEC-PS 0001, June, 2000.

[32] http://www.ers.usda.gov/Briefing/FarmStructure/Questions/livestock.htm

[33] Damona G. Doye, Joe G. Berry, Parman R. Green, and Patricia E. Norris, Broiler Production: Considerations for Potential Growers, Oklahoma Cooperative Extension Fact Sheet, F-202, November 1992.

[34] Damona Doye, Brian Freking and Joshua Payne, Broiler Production: Considerations for Potential Growers, Oklahoma Cooperative Extension Fact Sheet, F-202, March 2006.

[35] For details on the ARMS data set, see http://www.ers.usda.gov/Briefing/ARMS/

survey results can be summarized by production specialty (poultry) and farm typology, but generally do not separate income and expenses specific to a poultry operation from other on-farm agricultural enterprises such as cattle and crops.

A summary of the rates of return on equity and return on assets for the poultry specialty for 1996-2008 ARMS surveys are given in Table 1. Financial ratios shown in Table 1 represent a return on the investment and risk, as a modest charge for unpaid family labor and management were deducted.

Table 1. ARMS Survey Data for the Poultry Production Specialty, 1996-2008.

Farm Typology	Return on Equity (%)	Return on Assets (%)	Gross Income from Contract Pay (%)[36]
Farming occupation/higher-sales	-3.6%	-0.7%	68.0%
Farming occupation/lower-sales	-5.5%	-3.0%	68.2%
Large	0.9%	2.3%	79.1%
Residential/lifestyle	-5.5%	-3.4%	77.0%
Retirement	-2.5%	-1.9%	62.4%
Very large	5.3%	6.0%	47.6%
Nonfamily	25.1%	34.4%	7.7%
TOTAL	**4.7%**	**5.5%**	**42.7%**
TOTAL, Excluding Nonfamily	**-0.2%**	**1.4%**	

The 13-year average-return on equity for the poultry specialty in the ARMS survey is negative or a very small, except for the very large and the non-family farm typologies included in the surveys (Table 1). Survey respondents in the very large typology have a positive, but below competitive market return. Farms in the very large category obtained less than one-half of their gross income from poultry.

The non-family farm typology is not representative of contract poultry production, since contract pay represents only 7.7% of gross income averaging almost $3 million annually (Table 2). Furthermore, this group represents only 2% of the poultry growers. This category may, in fact, include financials for some of the integrators themselves and thus account for the high rates of return.

[36] Contract poultry pay is included in the ARMS category, "other farm related income." And thus may overestimate income from poultry contracts compared to gross income for the whole farm.

Table 2. ARMS Survey Data for the Poultry Specialty, 1996-2008.					
Farm Typology	**Gross Income**	**Contract Income**	**Farms Represented**	**Assets**	**Equity**
Farming occupation/higher-sales	$87,704	$59,640	3,980	$615,451	$467,768
Farming occupation/lower-sales	$31,037	$21,173	3,810	$407,005	$313,430
Large	$98,358	$77,835	5,931	$664,606	$532,195
Residential/lifestyle	$20,334	$15,655	6,405	$364,832	$288,507
Retirement	$14,896	$9,289	1,740	$290,514	$275,025
Very large	$326,185	$155,150	12,213	$1,225,221	$929,213
Nonfamily	$2,758,814	$211,163	683	$2,276,107	$1,677,194
TOTAL	**$198,029**	**$84,636**	**34,824**	**$775,459**	**$601,906**
TOTAL, Excluding Nonfamily	**$152,030**	**$81,747**	**34,141**	**$754,155**	**$582,499**

The 13-year average-return on equity for the poultry specialty in the ARMS survey, excluding the unrepresentative non-family typology (but including the very large typology) is negative 0.2%; the average return on assets is a paltry 1.4%.

Inflation over the 13 years covered by the ARMS survey averaged 2.6%, so the average return of 1.4% represented a *real* loss of 1.2%.

The American Agricultural Economics Association (AAEA) Commodity Costs and Returns Estimation Handbook, after reviewing risks and returns for non-agricultural investments, suggests that a reasonable additive risk adjustment for agricultural investments would be from 3% to 6% *plus* inflation.[37] With inflation averaging 2.6%, a reasonable or fair or competitive long-term return would range from 5.6% to 8.6%, well above the 1.4% actual shown in Table 1.

ARMS data covering 13 years, and AFAA detailed managerial data covering 14 years all show that contract poultry growers, on average, are not earning a fair or competitive return for labor, management, equity and risk. This is true for AFAA records for the whole farm as well as AFAA records for the poultry enterprise isolated from other farming and ranching activities. While poultry contracts may cash flow (i.e. pay bank loans and put some money in the growers pockets), contract pay has not generally been sufficient for growers to earn a competitive return.

Contract poultry growers are now living off depreciation.

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[37] "Commodity Costs and Returns Estimation Handbook," published by the American Agricultural Economics Association Task Force on Commodity Costs and Returns, Feb. 1, 2000, p. 2-39. This Handbook is used by USDA in cost and return budgeting. http://www.ers.usda.gov/Data/CostsAndReturns/methods.htm. The Handbook is available on the USDA/NRCS site, http://www.economics.nrcs.usda.gov/care/Aaea/index.html

Aggregate Industry Statistics

USDA's monthly periodical, *Livestock, Dairy and Poultry Outlook*,[38] discusses poultry market conditions and reports numerous statistics for livestock and poultry, but does not give average or base pay received by contract broiler growers.

Included in the USDA's *Livestock, Dairy and Poultry Outlook* are estimates of monthly returns to producers of feeding cattle and feeding hogs. Also included is the USDA's estimate of monthly *"estimated returns for broiler, turkey and egg production."* These three series, however, reflect the return the integrator received, not what the contract grower received. In other words, these USDA series reflected integrator profits, not poultry grower profits.

After reporting integrator profits for over 25 years in *Livestock, Dairy and Poultry Outlook*, USDA changed its policy in 2004 and converted the estimated returns from cents/lb to indices.[39] The USDA's published explanation was *"...the use of indexes shifts the focus of the data to the relative changes and away from absolute net returns values that have been the primary source of concern to a number of segments of the poultry industry."*[40]

The only "industry participants" who have concern about USDA statistics on estimated integrator profits would be the integrators themselves. In contrast, USDA did not change similar series for Great Plains cattle feeding or North Central hog farrow-to-finish operations. No policy justification for the estimates of integrator profits has surfaced to the authors' knowledge.

Figure 3 shows estimated integrator net returns in current dollars.[41]

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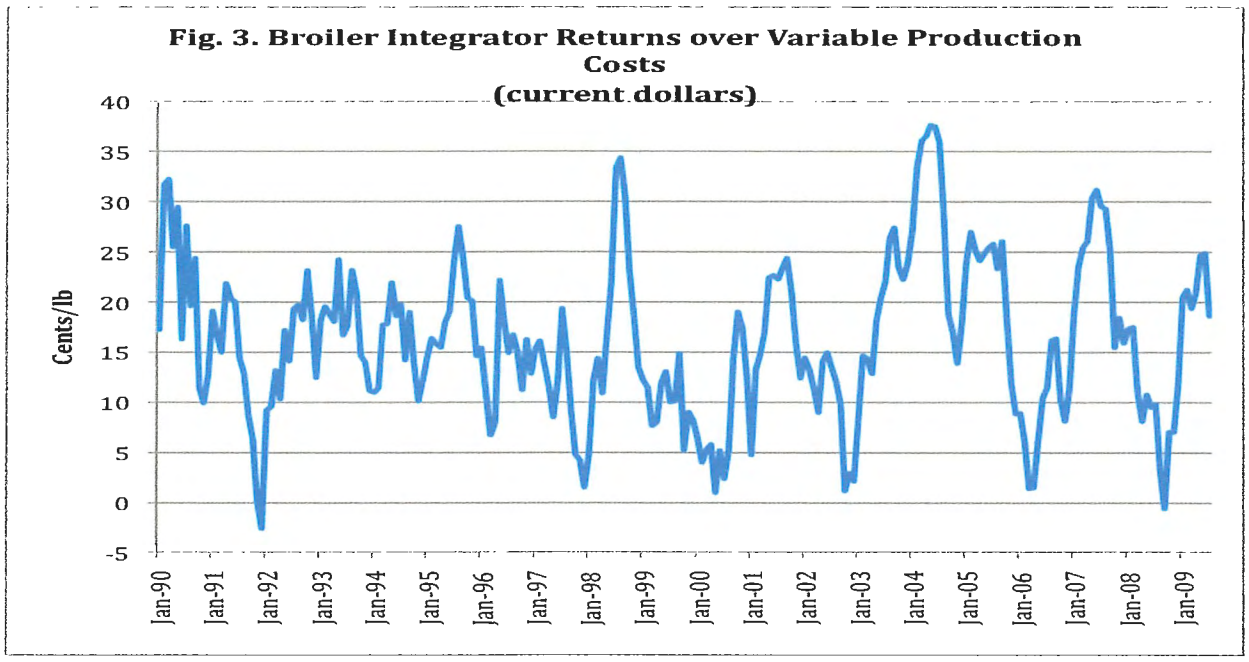
[38] http://www.ers.usda.gov/Publications/LDP/

[39] It is illogical to index profit, as profit be negative, zero, or positive, while indices are typically positive only.

[40] USDA/ERS, Livestock, Dairy & Poultry Outlook, LDP-M-117, March 16, 2004.

[41] Nominal net returns for 1990-2003 are those reported by USDA, and net returns for 2004 on were computed based on the USDA net returns index keyed to the ratio of the index and net returns per pound in an overlapping period in 2003.



One necessity for competitive markets is symmetric information. Both sides to a transaction must have similar information. Poultry growers do not have public access to either grower pay or integrator profits, yet integrators have both. Information asymmetry strengthens the integrator's monopsony or oligopsony position.

Risks and Risk Shifting

Many assert that contracting reduces risks for growers. The National Chicken Council claims *"grower contracts ...securely lock-in a stable income flow (for growers)."*[42] Academics have claimed that significant gains from contract farming come through the reallocation of risk from farmers to integrators (Knoeber and Thurman; Hedge and Vukina), and USDA economists have stated that tournament contracts shift "almost all" traditional output and input price risk, and common yield risk, from the grower to the integrator (USDA, MacDonald). The academic statements refer to risks very narrowly defined and are often taken out of context and given much broader, but inappropriate, interpretation.

Contracting does not eliminate risk. Contracting does not allow growers to *"lock-in stable income"* as contracts are presently written. Contracting changes risk but it does not give growers any real advantage because the grower lacks power to take advantage of a viable bargaining position during contracting. Indeed, contracts are not "negotiated"; they are advanced by integrators on a "take or leave it – and if the latter, we leave you stuck with your investment" basis. The contract allows the grower to subsist, perhaps, but not to grow, profit, or prosper.

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[42] National Chicken Council, submission to the Legal Policy Section/Antitrust Division, U.S. Department of Justice, 12/21/2009.

There is no "wealthy" subset of chicken growers, except perhaps for corporate insiders with sweetheart deals.

Although there is a set average pay amount in the integrator's price tournament, actual grower pay fluctuates considerably from flock to flock because tournament rankings fluctuate as shown in Figure 4 (actual data). Often the growers ranking changes more because of factors controlled by the integrator than by the grower's management. As a result, grower gross returns fluctuate considerably as shown in Figure 5.

Figure 4. Tournament Ranking of an Individual Grower's Successive Flocks

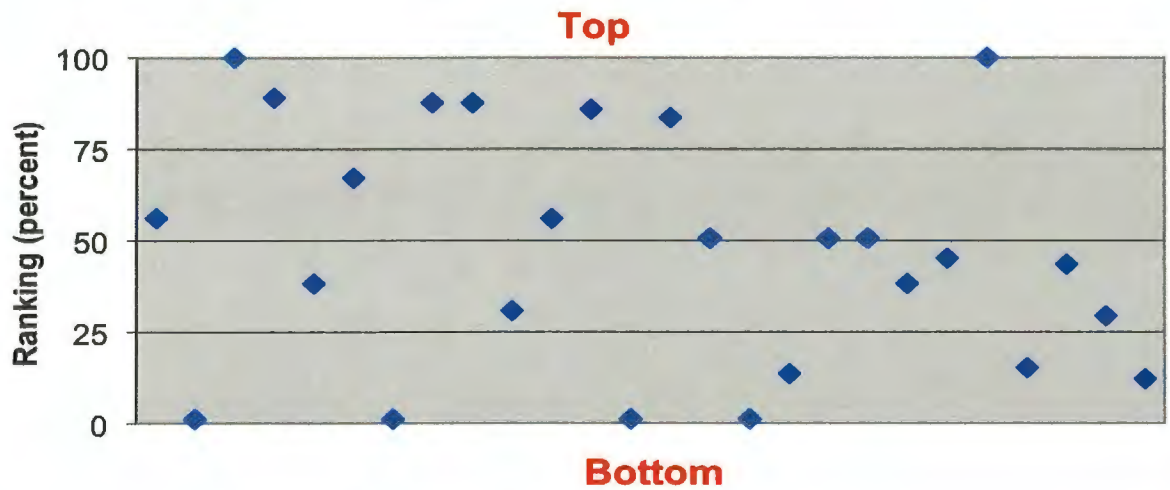
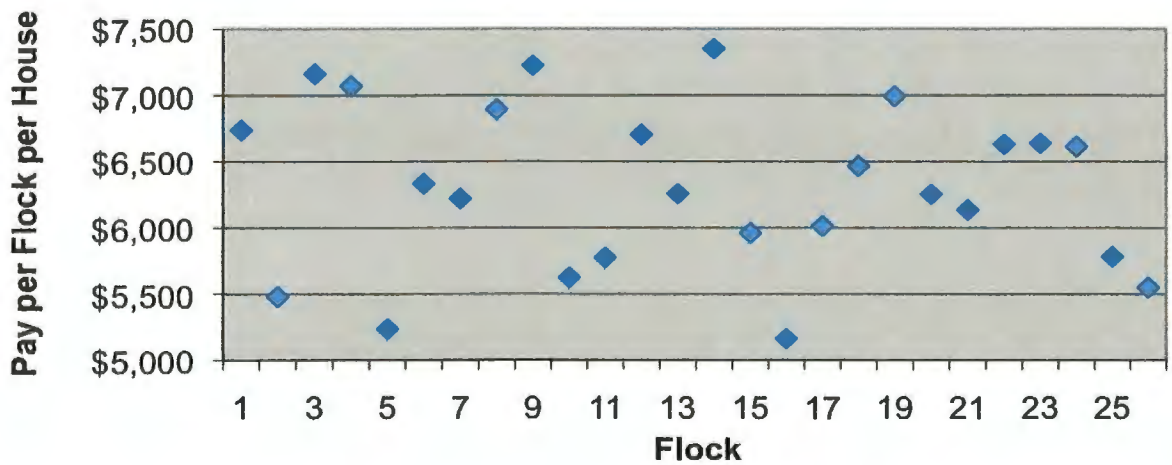
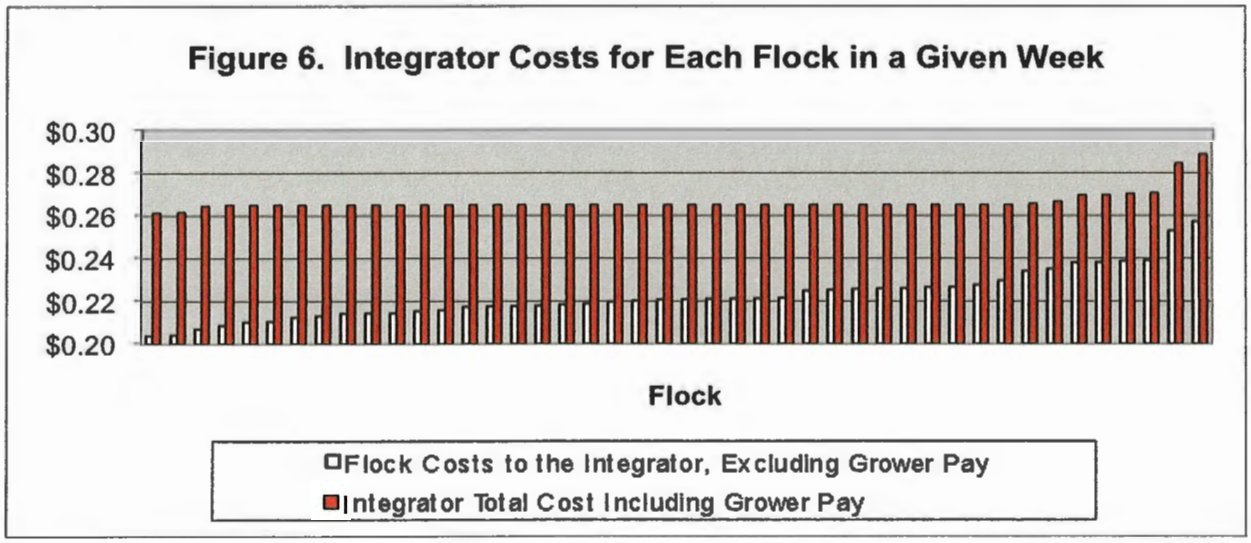


Figure 5. Illustration of Pay Variability from Flock-to-Flock for a Single Grower

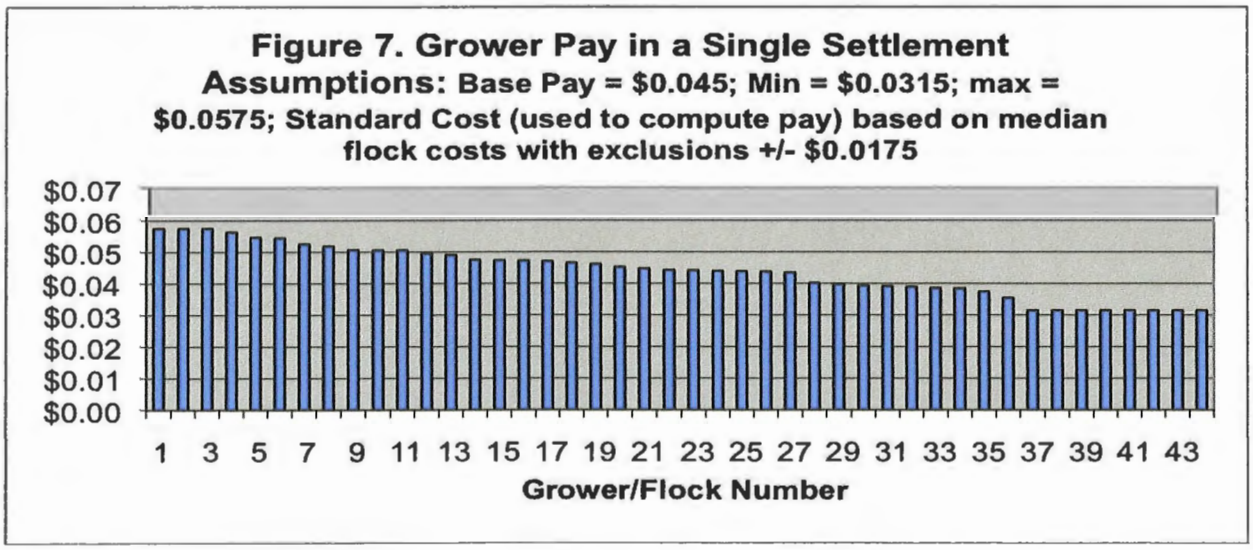


If growers were paid a fixed unit pay for all flocks, they would still have an incentive to properly manage flocks because poor management would result in less production. That is, grower pay would decrease with poor management, but growers would not be doubly penalized as they are in existing tournaments.

Because of the way in which the grower pay "tournament" is typically structured by the integrator, the cost of broilers to the integrator is the same for almost all flocks produced in a given week (see Figure 6). Week-to-week variability in actual flock costs to the integrator is only due to feed cost changes, and not due to changes in grower pay in the aggregate.

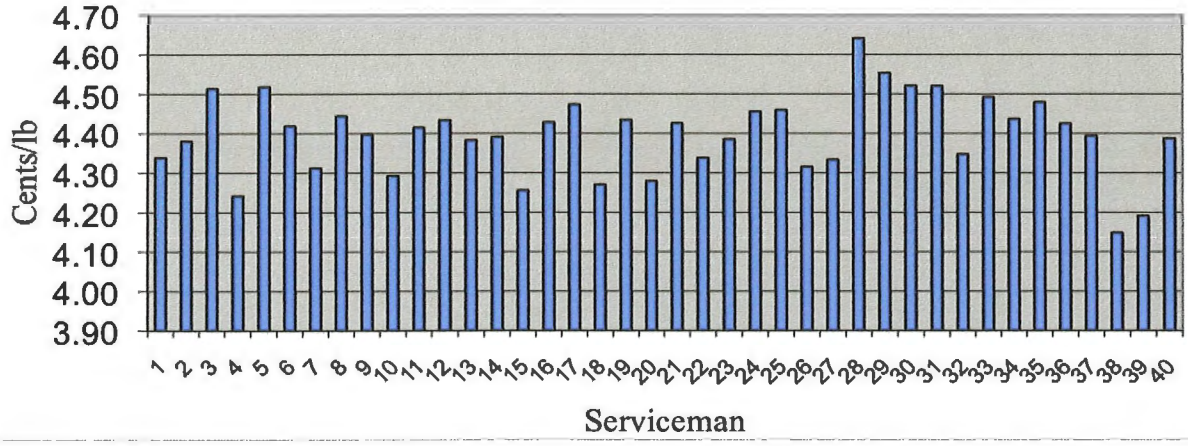


Yet, grower pay for individual flocks varies considerably from flock-to-flock as shown in figures 4, 5, and 7. In other words, the tournament system transfers risk to growers. Growers are doubly penalized for performance shortfalls with individual flocks because of the tendency for unit pay to fall along with reduced production, unlike what would happen for an individual producer in a competitive market.



The integrator's representative or agent assigned to the grower may have a significant effect on grower's performance. Figure 8 shows average pay for all flocks assigned to individual representatives in a single complex, averaged over five years. The grower thus faces the risk of having flock management dictated by a sub-par company representative.

Figure 8. Average Pay for Flocks Managed by Individual Servicemen, Averaged over 5 years



The manner in which most integrators determine pay for individual flocks may result in declining pay as other producers in the same tournament (lottery) adopt new, more efficient technology. This deceptive practice has the effect of shuffling an average producer with a conventional house down the pay scale in a concealed way, making average pay to all growers with conventional houses less than stated in the contract. Stated average contract pay often differs by the style or type of chicken house. For example, stated base pay for a conventional house might be 5.0 cents/lb, while base pay for a more modern tunnel house might be 5.5 cents/lb. However, the pooling of flocks from different houses in the same tournament will tend to result in actual average pay lass than stated contract pay for growers with conventional houses, and actual pay to growers with modern house being higher than stated base pay. This is a deceptive practice.

Some tournaments are based on weighted (by size) average flock cost, some based on an un-weighted average flock cost, and some on a median flock cost. Exclusion of certain flocks, as well as minimum and maximum pay also typically factor into calculation of grower pay by the integrator. Often these integrator-controlled factors result in a true average pay for growers that is below the average pay specified in the grower's contract. Growers do not have all information necessary to uncover and monitor such potentially deceptive practices.

Economic risk for growers is imbalanced. The growers bear the risks of production, but they are forced to shoulder many risks that appropriately should reside with the integrator. Integrators often adjust to a soft wholesale market for broilers by reducing placement of chicks or by delaying delivery of chicks to their contract growers. This practice transfers income risk from the integrator to the contract producer.

Often the biggest risk of all is that of bankruptcy. Integrator acts and demands, not grower's mismanagement, is the problem. Delayed delivery of chicks, reduced placement, or similar actions by the integrator can have a devastating effect on the profitability of the contract poultry operation. A decision by the integrator to slow delivery of chicks to a grower can mean quick bankruptcy for that grower[43]. Several reported instances of this happening in the 1990s to growers who tried to organize other growers so they could bargain collectively for pay. These reprisals created tremendous fear in the industry; the fear lingers and now permeates the industry. The integrator controls the economic viability of each grower and can easily push select targets into bankruptcy, even on whim.

Termination of entire broiler production complexes has left rural areas in economic ruin and families destroyed. This was not brought about by bad management by growers, but because of bad decisions or even spiteful actions by integrators

Recent events surrounding Pilgrim's Pride Corporation (PPC) bankruptcy painfully illustrate the problem with control combined with bigness. PPC's road to bankruptcy came from paying too much for GoldKist Poultry, rapidly rising feed prices, the wrong position in the futures market for corn, a softening market for poultry, dependence on the commodity markets, and loss of a substantial contract to supply a large grocery chain.

PPC used Bankruptcy Court to close down entire complexes, terminating 200-300 growers in the process. PPC stated publicly and in court that they were terminating complexes to reduce production to increase price. We fail to see how this is not a clear violation of Section 202 (e) of the PSA, which *"(prohibits a live poultry dealer from) engag(ing) in any course of business or do any act for the purpose or with the effect of manipulating or controlling prices, or of creating a monopoly in the acquisition of, buying, selling, or dealing in, any article, or of restraining commerce."*

PPC compounded the anguish when it refused to sell processing plants (complexes) because the buyer would put them back into production and in their words, thereby "compete" with PPC and prevent poultry product prices from increasing. PPC working through the Bankruptcy Court blocked entry of a competitor who would have put the terminated growers back in business. The end result of the PPC bankruptcy is that a few hundred growers were terminated, losing their livelihood and in some cases the family farm, local banks lost millions, but PPC emerged from bankruptcy court with stock plus $800 million from JBS. Fair? Hardly.

A competitive market with many small or mid-sized poultry processors stressed by low poultry prices and high feed prices would have had much different economic adjustments. Production would have decreased, but production changes would have occurred at the margin. Inefficient growers would have exited the industry. Efficient growers with houses and equipment that had

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[43] The spreadsheet model developed by Moore shows that a five-day increase in out time (days between flocks) decreases net returns by $2,350 per house annually. Casey Moore, "Economic Returns to Contract Broiler Production," M.S. Thesis, Auburn University, May 10, 2003, p. 46.

reached the end of their useful economic life would have exited. Remaining growers would have struggled until the markets readjusted. But there would not have likely been the bloodbath--a bloodbath triggered by bad decisions by a "too big to fail" corporation.

Comparison to Competitive Cash Markets

An individual producer in a true competitive market who has "bad" or below average production would still receive the same unit price as growers who had a good crop. Under the tournament, however, growers who have bad flocks not only have lower production on which pay is based, but get dinged on price as well—a double whammy for a grower with a below average flock and a double bonus for a grower with a above average flock.

In a typical tournament system, if all growers are equally good managers they receive the same pay as they would if they were all equally bad managers. With the tournament ranking system, if 100% of the growers do an excellent job of raising their flocks, 50% or more of these highly efficient growers will fall below average for that group and receive below average pay. In a competitive cash market, contract growers in one complex would benefit if they were all equally good managers relative to other complexes with growers who were not good managers. The integrator would benefit if growers were all equally good managers relative to other groups of growers who were not good managers. The integrator benefits if all of their growers are good managers, as opposed to if they were all bad managers, but the growers do not benefit.

The tournament pay system, as structured by integrators, does not mimic a competitive market.

Industry Efficiency

Industry apologists often brag about the wonderful "efficiency" of the vertically integrated poultry industry especially compared to beef and pork. This is generally true, but only for "feed" efficiency. Feed efficiency should not be equated with aggregate economic efficiency, which is imbedded in antirtust law and economics. Perfect feed efficiency does not necessarily result in aggregate economic efficiency.

Textbook economic theory shows that a monopsonist (or oligopsonist) tends to acquire a sub-competitive quantity at a sub-competitive price. Because the processor acquires less than a competitive buyers market, less is processed and less is sold on the retail market. Sub-competitive quantities provided by a firm with buyer power can thus result in higher retail prices to final consumers. Thus, consumers may be hurt by an integrator's buyer power. Exertion of buyer and seller power reduces aggregate economic efficiency, even with perfect feed efficiency.

Fair Return in a Competitive Market

In a mature competitive market, the equilibrium return for an input supplier, such as a poultry grower, would be a market rate of return on the labor, capital and management provided by the input supplier, and a return on risk commensurate with asset returns in competitive industries. In equilibrium, no windfall profits would be earned.

Although economists tend to discuss competition in the context of price discovery in "cash" markets, the same principles and economic outcomes apply to price discovery in a vertically integrated market involving "contracts" between a processor and an input supplier. For a competitive market to function efficiently and fairly, there must be a balance of market power between buyers (processor) and sellers (cash market or contract producer).

The imbalance of power in contracting is evident in the poultry industry, as contract terms are not negotiated; the grower must accept the contract offered by the integrator. Thus, there is no balanced "price discovery" in contracting. As shown in a theoretical paper[44], when the buyer has the power to dictate both price and quantity to the competitive supplier, as is the case with the vertically integrated poultry industry, the integrator ends up appropriating income that would normally be earned by the supplier (grower).

What is "fair" or unfair in a PSA or antitrust context can be defined relative to what an average supplier (contract grower) would earn in a true competitive market, averaging out short-term fluctuations in prices and production over the economic life of houses and equipment that are captive to the integrator. By this definition, AFAA records (figure 1) and other information presented previously show that growers have not earned a fair return over the past decade or two.

Retail Developments & Emerging Business Practices

Retail consolidation and emerging business practices also raise concern about competition.

Highly regarded University of Missouri Agricultural Economist Harold Breimyer's warning from almost a half-century ago has gone unheeded, "*Not the least among the consequence of the integration of broiler production in the United States is the change in the status of the grower. Formerly an independent entrepreneur in the traditional sense, he bought his supplies on the open market; he directed his enterprise as he saw fit; he was at once manager, investor of capital, and worker; and he sold his produce also on the open market for the best price it would bring. If he is still in the business, in all probability he is a contract grower. In some areas he not only would find it hard to survive as an independent producer but might not be able to operate at all because no processing outlet would be available to him. Fully integrated production brings to an end one of the old and established characteristics of a freely competitive market system, namely, freedom of entry.*[45]

A potential entrant into poultry processing faces two hurdles.[46] First, a small processor cannot

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[44] C. Robert Taylor, "Monopsony and All-or-Nothing Supply: Putting the Squeeze on Suppliers".. College of Agriculture, Auburn University, Working Paper. June, 2003.

[45] Harold F. Breimyer, Individual Freedom and the Organization of Agriculture, University of Illinois Press, 1965, p. 214.

[46] Specialty products and niche markets are an exception. However, as niche markets have been developed by small producers and processors and begin to grow, they are often taken over by existing large integrators.

deliver the volume demanded by consolidated food retailers. Second, even if a small processor accessed the retail market they may face stiff predatory pricing by existing processors. Thus, entry into poultry processing now requires large size as well as financial staying power, which can be substantial hurdles to potential entrants into poultry processing.

Breimyer anticipated the power shift to retailers: "*During the last 30 years (published in 1965) the power center in farm markets has shifted forward from processors to retailers. Quoted in Chapter 7 was Earl Crouse's observation that 'the real big force in the integration movement is the change in the retail outlet.' George Mehren has sketched the possibility that all production and marketing might be integrated up to the retailing level: 'Carried to a distant and perhaps never-to-be-realized but still logical extreme, present trends could well mean that competitive independence may one day be restricted basically to the retailing segment—and such competitive independence may be greatly different from that which prevails today'.*"[47]

In the half Century since Briemyer's warning, we have witnessed the emergence of four potentially beneficial but also potentially anti-competitive business practices: category management, category captains, slotting fees, and long-term fixed-price contracts with retailers.

"Category management" refers to a retailer having an employee manage an entire product category such as the meat and poultry section of stores as a category rather than allocating shelf space on a brand-by-brand basis. This practice can vest considerable market power in the hands of a few individuals who manage the category for all stores owned by a large retailer. Some retailers have started to outsource retail category management to a chosen supplier on whom they rely for strategic recommendations, a practice referred to as "category captainship."[48] Of antitrust concern is the possibility that category managers and category captains may be able to exclude non-captain processors, or only deal with very large firms.[49]

A related business practice is known as "slotting fees" to have a supplier's products placed on retail shelves, or placed in prominent locations in the retail outlet. Small suppliers may not be able to pay such fees, thus relegating their products to less prominent locations in the store or not even being able to access the retail market.

An increasingly dominant business practice in the U.S. is "long-term fixed price contracts" between integrators and food retailers. Such contracts pose two competition concerns. First, the economic outcome could be akin to classic price-fixing and favor either the category manager

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[47] Breimyer, pp. 287-288.

[48] Mumin Kurtulus and L. Beril Toktay, "Category Captainship: Who Wins, Who Loses?" 2005, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=934970

[49] A report based on roundtable discussion of concerns about retail category captains is available from the American Antitrust Institute, http://www.antitrustinstitute.org/Archives/270.ashx

(retailer) or category captain (supplier), depending on relative market power. Second, the long-term (12-18 month) nature of these contracts may result in magnified production changes imposed on poultry growers compared to a competitive market. With shifting demand, as has occurred recently, these contracts may prevent price and quantity adjustments that would be experienced in a competitive vertical market chain. With price fixed, reduced demand will result in a decrease in quantity consumed larger than if retail price adjusts along with quantity. In essence, long-term fixed-price contracts between retailers and integrators may make the grower the shock absorber for the industry, an unfair practice.

Considerable investigation and research is needed to better understand the economic and competition aspects of category managers, category captains, slotting fees, and long-term fixed-price contracts in the meat and poultry industry.

Bigness of integrators and retail food corporations create barriers to entry for new processors. Such barriers may be higher due to emerging business practices discussed above. The barriers may be so high, in fact, that a John Tyson or Bo Pilgrim, or Arthur and Frank Purdue, or Lloyd Peterson, all of who are pioneers of the vertically integrated industry and who began with backyard sized operations, would not likely be successful if they were to begin today.

Sweetheart Deals for Corporate Insiders

Integrators often assert that the *Packers & Stockyards Act* (PSA) requires them to have the "same contract" for all growers. The plain language of the PSA does not require growers to have the same contracts; the PSA prohibits *"... use of unfair, unjustly discriminatory, or deceptive practice or device."* To an economist, a contract that offered higher pay with higher risk would not necessarily be unfair. Integrators' use of the PSA to stifle growers' efforts to negotiate fair contracts can be construed as a violation of the intent and the plain language of the Act.

Integrators' PSA assertions are belied by the fact than many integrators have different contracts for different complexes, even adjacent complexes, bounds of which integrators define without any reference to the PSA. A grower in one complex may have production facilities in close proximity to another grower for the same integrator but have a different contract, only because the two growers' production facilities are in different complexes.

Integrators' claim that the PSA requires them to have the same contract for all growers is belied by "sweetheart deals" for insiders and executives. The extent of sweetheart deals is so prevalent in the industry that the Internal Revenue Service (IRS) published a lengthy training manual on the subject in 2002.[50]

The IRS Training Manual describes these deals in detail,

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[50] IRS, Market Segment Specialization Program: Poultry Industry, Training 3123-013 (03/2002), TPDS No. 87537E. Parenthetical statements added.

"Most (poultry) contracts are with unrelated third party growers ... However, corporate officers, majority stockholders, their family members, and close business associates, may be given access to special arrangements involving these contracts. The industry name for these special contracts with "insiders" is "Sweetheart Deals."... Following the downfall of the publicly sold tax shelters (in 1986), some of the companies set up a new plan under the title "Sweetheart Deals". The corporate "insiders" needed a vehicle through which they could obtain large losses to offset their corporate salaries and other sources of income. The "Sweetheart Deals" provided just such benefits by shifting various costs from the companies records to the insider's tax return. By devising an internal system of accounting for the "Sweetheart Deals", the stockholders and corporate employees are kept unaware of the transactions.

A company employee prepares documents that assign numerous grower contracts to selected "insiders". Amounts are designated as the separate prices covering the chicks, feed, medication, technical services, etc., which are purchased from the corporation. ... The invoices provided to the insider supporting these transactions are not usually run through the regular corporate accounting system. The main corporate employee privy to this information maintains complete control of all the paper work, including checks written at year-end, as well as the subsequent sales proceeds. The payments for chicks, feed, and medication, etc., are normally based on historical or estimated costs and not on the actual costs. In most situations, the actual costs to the corporation for feed, technical and medical services, etc. are more than the contracted amounts paid by the insider. The insider is not liable for any amounts in excess of the contracted costs...The corporate explanation for these favorable transactions may be the shifting of their risk of loss due to the large number of flocks in various stages of completion. By "selling" the flocks to the investors the company would not be liable for any loss if the flock is destroyed by fire, tornado, etc. In reality, the company normally absorbs the loss in these situations. A new flock may be substituted for the lost flock or the lost flock will be shown as "sold" back to the company based on estimated weights."

Other "SWEETHEART DEALS" can include the use of corporate entertainment facilities, excess rents being paid to the "insiders" for farm structures, such as hog farrowing and finishing houses (or egg layer facilities), and waste water treatment facilities located near their corporate owned processing plants. Normally the amounts paid to the insiders are not comparable to a true arms length transaction."

Yet, integrator representatives tell growers that the PSA "requires" them to have the "same contract" for all growers. Simply, the integrators misrepresent the law to the unknowing. Growers are not told that the birds they may be raising are in fact a sweetheart deal for an insider. Growers have not been offered the chance to buy birds and feed from the integrator, raise birds and sell them back for processing, nor are the given the opportunity to grow their own birds to an integrator's specifications then sell birds ready for processing.

Environmental Responsibility is Absent

Health and environmental degradation associated with confined animal feeding operations (CAFOs) are of increasing concern. It is widely known that concentrated poultry production in several areas of the U.S. generates more waste products than can be effectively and safely

applied to nearby land. These problems have lead to a host of state and federal regulations, as well as taxpayer subsidies to haul excess litter out of sensitive areas. The poultry industry has a long record of deflecting responsibility: They did not know that there were problems, or that they think that there are no problems, or that it is the growers fault.

An April 2008 report by the Union of Concerned Scientists states, *"The problems that arise from excessive size and density (e.g. air and water pollution from manure, overuse of antibiotics) are exacerbated by the parallel trend of geographic concentration, whereby CAFOs [confined animal feeding operations] for particular types of livestock have become concentrated in certain parts of the country. For example ... broiler chicken CAFOs in Arkansas and Georgia."*[51] They also state, *"Manure from CAFOs is a major source of water pollution because these operations produce too much manure in too small an area, and this manure is rarely treated to eliminate potentially harmful components before being applied to crop fields or stored in facilities such as lagoons or pits (EPA 2003)"*[52]

An integrator's decisions about where to locate a complex and the size of the area in which growout facilities (and thus waste production) is typically based on its out-of-pocket expenses for hauling feed to growout facilities and birds to processing plants. The business model adopted by integrators ignores external (pollution and health) costs associated with poultry waste and thus results in waste generation and land application of waste being concentrated in relatively small geographical areas. Watershed pollution problems in the aggregate are therefore determined not by an individual farmer's growout operations, but by integrators individual and collective decisions to concentrate poultry production and thus waste generation in relatively small geographic areas. As stated in a University of Arkansas Extension Bulletin, *"The real issue is not the P concentration in runoff from the edge of any one field, but the total P load that is transported to the stream or lake from an entire watershed."* [53]

Integrators have used their economic control over growers to attempt to shift environmental costs and health risk costs from themselves to growers. Molnar, et al, summarize this attempted risk shifting, *"Broiler production is concentrated in a few southern states where farmers are highly dependent on contract arrangements for income and livelihood. ... Asymmetrical power relationships shift waste management responsibilities to growers in a number of ways. This paper details maneuvers poultry integrators use to avoid environmental risk and transfer it to their contract growers. Corporations 'pass the cluck' when they shift responsibility for achieving regulatory compliance to the farmer who then must seek technical and financial assistance from*

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[51] Doug Gurian-Sherman, CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations, Union of Concerned Scientists, April 2008, p. 2.

[52] *Ibid.*, p. 42.

[53] Mike Daniels, Tommy Daniel and Karl VanDevender, Soil Phosphorus Levels: Concerns and Recommendations, University of Arkansas Division of Agriculture, Cooperative Extension Service, Bulletin FSA1029-500-3-04R, 1999 and 2004

public agencies. Poultry integrators 'dodge pullets' when they retain ownership of live animals, but dead birds become the farmer's property and disposal problem."[54]

A Pew Commission report, published in 2008, notes the integrators shifting of risks and external costs to growers, *"Under the modern-day contracts between integrators and growers, the latter are usually responsible for disposition of the animal waste and the carcasses of animals that die before shipment to the processor. The costs of pollution and waste management are also the grower's responsibility. ... Because the integrators are few in number and control much if not all of the market, the grower often has little market power and may not be able to demand a price high enough to cover the costs of waste disposal and environmental degradation. These environmental costs are thereby 'externalized' to the general society and are not captured in the costs of production nor reflected in the retail price of the product."*[55] The 2008 report on CAFOs by the Union of Concerned Scientists discusses at length the external costs of excess manure being borne by society rather than integrators.[56] Integrators' shifting of environmental risks to growers and society at large is evident.

Integrators fully control who will be a grower, who will be responsible for disposal of waste and dead birds, and all contract terms. Integrators therefore determine the location of poultry waste generation. Due to high transportation costs for waste products, integrators determine where the waste products will be disposed.

Early grower contracts made no mention of used litter and waste disposal responsibilities. However, since the early 1990s, integrators' contracts typically state that the grower is "responsible" for meeting all applicable state, federal, and local environmental laws and regulations. The integrator owns the bird, the feed, determines who will be a grower, where than grower will be located, generally adds phosphorus to the feed which worsens phosphorus pollution, indirectly determines where the waste will be land applied, but claims the litter and all environmental responsibility belong to the serf. But the contracts do not state in practical or legal language that the grower "owns" the used litter, excrement, and dead birds.[57] This is classical risk shifting.

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[54] J. J. Molnar, T. Hoban and G. Brant, "Passing the Cluck, Dodging Pullets: Corporate Power, Environmental Responsibility, and the Contract Poultry Grower," Southern Rural Sociology, Vol. 18 (2), 2002, pp88-110.

[55] Putting Meat on the Table: Industrial Farm Animal Production in America, a Report of the Pew Commission on Industrial Farm Animal Production, The Pew Charitable Trusts and Johns Hopkins Bloomberg School of Public Health, April 29, 2008, p. 6.

[56] Doug Gurian-Sherman, CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations, Union of Concerned Scientists, April 2008. Chapter 3, in particular, discusses the externalized costs of CAFOs.

[57] We are aware of only a single contract that states that the grower actually owns the litter, and that contract is recent and by a small integrator.

Environmental risks are shifted to growers, pollution and adverse health consequences are shifted to citizens, and costs of cleanup are shifted to state and federal taxpayers. None of these occur in an operative market. But the broiler market is broken. Indeed, it is an utter failure.

SOLUTIONS

Restoring Economic Fairness to Contract Production

Only a functional viable market characterized by relatively equitable pricing power, equal access to information, transparent sales transactions, and contracts that either have a duration that matches producer debt structure for duration, or are so brief as to make the cash market vibrant again. Sweetheart deals must end. The market must reward product quality, producer efficiency, and other factures that go with value, availability, cost efficiencies, and innovation. The market is not a place to reward only the abusively shrewd.

Growing chickens was a family business but now it happens only "by invitation." One who wants to produce chickens must have a contract with an integrator. Deliveries of sickly or underweight chicks, late deliveries, bad feed deliveries, and bad advice from the integrator's field representative, or simple pricing power can all ruin the producer's business. It is well known in the chicken industry that producers dare not speak out against integrators.[58]

After contracting to be a grower, the integrator has near total economic control over profitability in the grow-out operation. The grower's capital, labor, management and risk bearing are all captive to the integrator. In economics the relationship between the grower and integrator is an extreme power imbalance; in law this is a contract of adhesion; in colloquial terms this is serfdom—with a mortgage.

Supreme Court Justice Peckham, in one of the first substantive decisions interpreting the Sherman Antitrust Act, said

> *"[I]t is not for the real prosperity of any country that such changes should occur which result in transferring an independent business man . . . into a mere servant or agent of a corporation . . . having no voice in shaping the business policy . . . and bound to obey orders issued by others."* [59]

Yet poultry producers have become precisely what Justice Peckham opined antitrust laws were intended to prevent. Based on the AFAA records summarized in Figure 1, a paltry increase in grower pay of 0.34 cents—not 34 cents but about a third of a penny per pound—would offset the cumulative loss of $182,000. More is needed to provide the grower a return for management, equity and bearing substantial risk. Economic health—modest returns on management and risk for contract growers—could be established with a pay increase of only about one penny per

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[58] Taylor, C. Robert, *Restoring Economic Health to Contract Poultry Production,* Agriculture and Resource Policy Forum, Auburn University College of Agriculture (May 2002).

[59] Source: Peter Carstensen

pound ($0.005/lb). If transferred to consumers, such an increase would amount to slightly over of a penny per pound, or $0.012/lb on a dressed weight basis at the retail counter.

Restoring economic health, viability and fairness to contract poultry production would cost the average consumer about a dollar a year, at most, and perhaps nothing.[60] The key to restoring economic fairness[61] is establishing a balance of power in economic relationships between integrator and grower. The key to restoring environmental harm caused by CAFOs is internalizing externalities. While internalizing externalities would eventually result in very small increases in the cost of poultry products to consumers, eliminating the current taxpayer subsidies now going to clean up problems could offset higher costs at the grocery store. Solving these two fundamental problems in the poultry industry—fairness in contract production and internalizing externalities—will not collapse the U.S. economy, or lead to the demise of the poultry industry, or lead to the poultry industry leaving the country, or have make poultry too expensive for consumers.

The current monopsonistic system appears to be too far gone to "repair"; it may require whole scale redefinition by expansion and enforcement of the *Packers & Stockyards Act*, and redefining property rights to the environment to internalize external costs associated with poultry waste disposal.

Vertical integration of the poultry industry has achieved much efficiency, and brought a consistent product to consumers.[62] The PSA and antitrust challenge is to design a policy that will maintain efficiencies, but restore fairness. We believe that the following changes would go far to restore competition and fairness in the poultry industry. The changes might make it possible to avoid the necessity to split integrators into smaller units. Information is power. Information asymmetry is a power imbalance. Eliminating the huge power imbalance in the poultry industry is imperative. Steps that need to be taken are

1. USDA must collect and publicly report average contract pay by region, at least annually.
2. Grower settlement must be required to include basic information, such as breed, strain and sex of chicks, health and feeding histories.

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[60] Per capita consumption of poultry in the U.S. averages about 100 lbs/year.

[61] In the context of this article, fairness for contract poultry growers would be achieved if they earned a "competitive" return on labor, management, risk and equity over a long time period.

[62] Poultry industry representative often make definitive public statements about all of the wonderful efficiency gains achieved by their business model. What they don't tell you is that their claims are based purely on feed efficiency. Feed efficiency and aggregate economic efficiency are related, but they do not equate. In an antitrust context, aggregate economic efficiency is an important criterion, not feed efficiency. Textbook monopoly and monopsony models both show that there is aggregate economic inefficiency and consumer harm from the power imbalance, even with maximum feed efficiency as defined by the poultry industry.

3. Growers must have means to validate essential payment computation parameters. Transparency and validation must be required.

4. Detailed information—AgriStats – now available to integrators to share with each other must be made public promptly. This must become USDA NASS[63] data.

5. More information like the Alabama Farm Business Analysis Association managerial records need to be publicly provided along with educational programs on the true economics (not just cash-flow) of poultry production.

6. Growers should be less trusting of representations made by integrators, or get such representations in writing.

7. Contract reform must occur. Grower contracts must have legally controlling criteria; a balance of power in contracting is needed.

8. Pre-dispute mandatory arbitration provisions and waivers to the right to trial by jury at the time of contracting must not be allowed to continue. The use of the courts and the right to trial by jury are basic to the American system.

9. Contract must clearly state who owns used litter and waste, and not just who is responsible for disposal of waste and dead birds.

10. Contracts must be publicly available. Legislation similar to the swine contract library must be enacted.

11. Bankers must "wake-up." Routinely making 10-15 year loans on the basis of a contract that only guarantees a single flock of birds is not a sound banking practice. Multi-year contracts that guarantee only a single flock of birds do not solve the bankers or growers problems. Contracts need to guarantee a minimum number of flocks over a long enough time period to at least insure loan repayment.

12. Banking credit standards must be adjusted to analyze long-term risks and rewards for the banker and the grower over the term of the loan, and the capital asset's, useful life. This can be done with banking credit regulations that will not be an onerous burden.

13. Contracts must be for longer time periods, and must include grower renewal options and prohibitions against assignment by the integrator to a shell entity or financially weak successor. Contracts should permit the integrator to "buy out" of the contract at a declining rate over the life of a house.

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[63] U S Department of Agriculture, National Ag Statistics Service. (USDA NASS).

Conclusion

Change must come to the poultry industry in America. The industry, as structured today, simply does have hallmarks of sustainability essential to the nation's food supply's stability. It is debilitated by market concentration and monopsony power wielded against producers by integrators.

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Appendix B: Additional Resources

American Public Health Association. *Precautionary moratorium on new concentrated animal feed operations.* http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1243

Center for a Livable Future. http://www.livablefutureblog.com/

Environmental Health Sciences Research Center. *Iowa concentrated animal feeding operation air quality study.* http://www.public-health.uiowa.edu/ehsrc/CAFOstudy.htm

Environmental Protection Agency. *Animal feeding operations.* http://cfpub.epa.gov/npdes/home.cfm?program_id=7

Food and Water Watch. http://www.foodandwaterwatch.org/

Impacts of CAFOs on Rural Communities. http://web.missouri.edu/ikerdj/papers/Indiana%20--%20CAFOs%20%20Communities.htm#_ftn1

Land Stewardship Project. http://www.landstewardshipproject.org/index.html

Midwest Environmental Advocates. http://www.midwestadvocates.org/

National Agriculture Law Center. *Animal feeding operations reading room.* http://www.nationalaglawcenter.org/readingrooms/afos

National Association of Local Boards of Health. *Vector control strategies for local boards of health.* http://www.nalboh.org/publications.htm

Pew Charitable Trusts. *Human health and industrial farming.* http://www.saveantibiotics.org/index.html

Pew Commission on Industrial Animal Farm Production. http://www.ncifap.org/

Purdue Extension. *Concentrated animal feeding operations.* http://www.ansc.purdue.edu/CAFO/

State Environmental Resource Center. http://serconline.org

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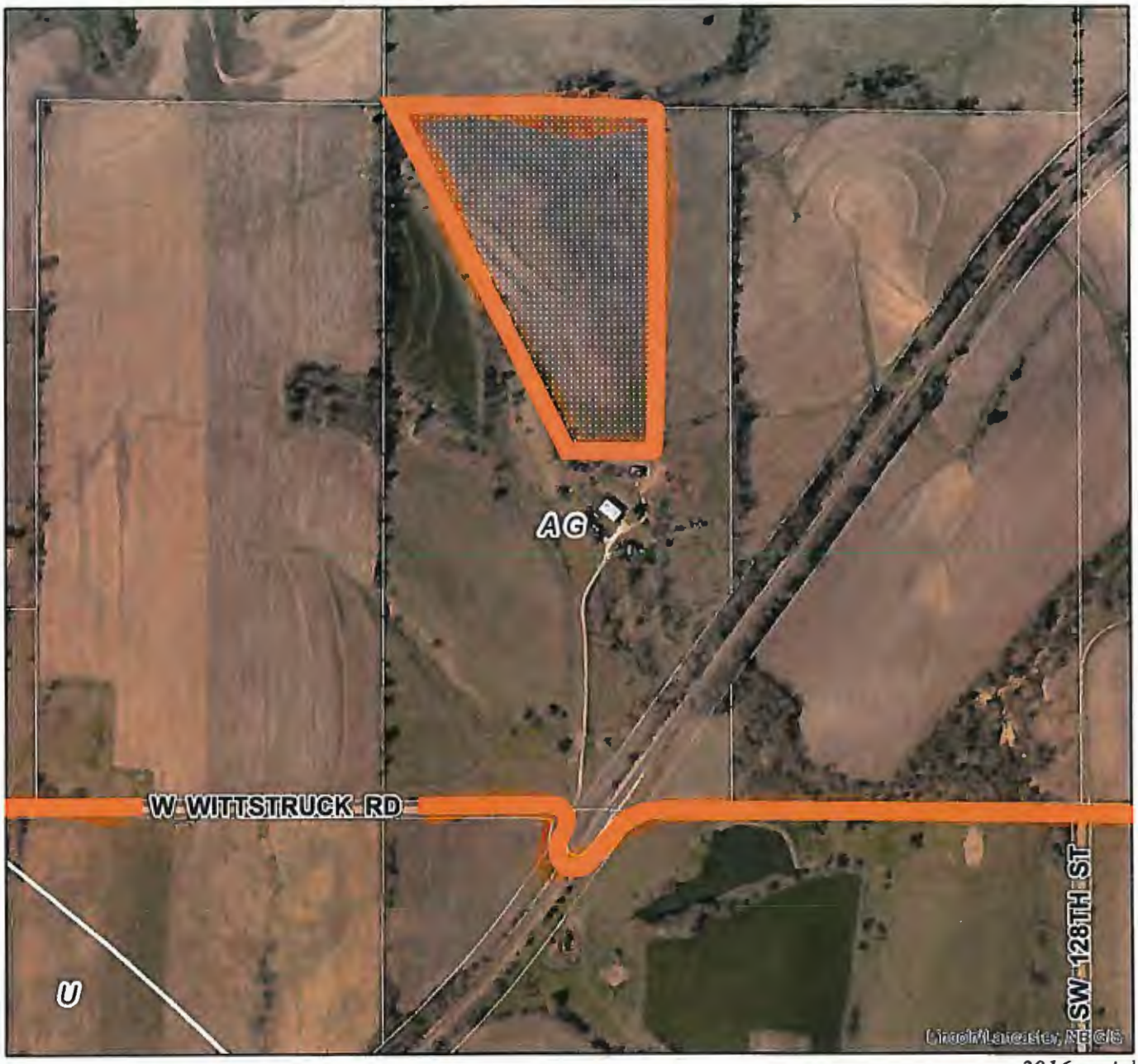
CHICKEN ~~FARM~~

CHICKEN ~~FEEDLOT~~

CHICKEN FACTORY

CONFINEMENT "FACTS"

Special Permit for "Commercial Feedlot" for 190,000 Chickens in 4 Buildings (150,000 SF)



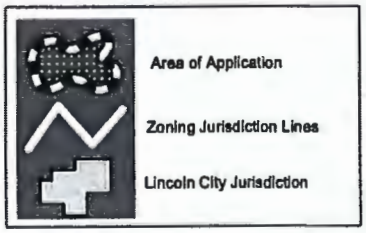
2016 aerial

Special Permit #: SP18025
SW 142nd St & W Wittstruck Rd

Zoning:

R-1 to R-8	Residential District
AG	Agricultural District
AGR	Agricultural Residential District
O-1	Office District
O-2	Suburban Office District
O-3	Office Park District
R-T	Residential Transition District
B-1	Local Business District
B-2	Planned Neighborhood Business District
B-3	Commercial District
B-4	Lincoln Center Business District
B-5	Planned Regional Business District
H-1	Interstate Commercial District
H-2	Highway Business District
H-3	Highway Commercial District
H-4	General Commercial District
I-1	Industrial District
I-2	Industrial Park District
I-3	Employment Center District
P	Public Use District

One Square Mile:
Sec.07 T08N R05E



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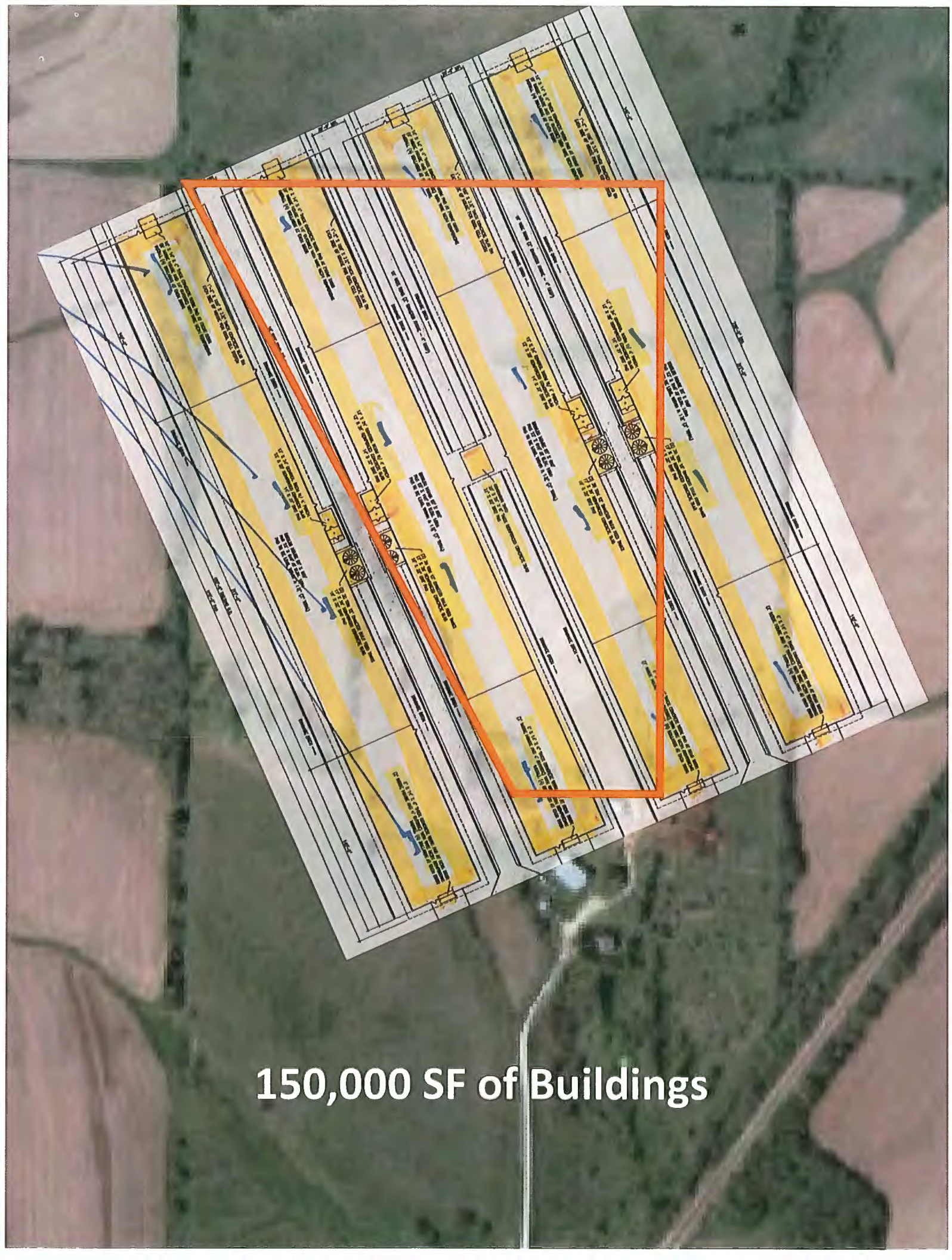

150,000 SF of Buildings

CHICKEN FACTORY FACTS

INTRODUCTION

SOURCE: NPR – National Public Radio
Farmers Take out Millions in Loans to Raise Chickens for Big-Box Retailers.

1. The big box retailer Costco is building a new chicken-processing plant in Fremont, Nebraska. The company plans to slaughter 2 million birds per week. To raise all those chickens, Costco is recruiting about 120 farmers to sign on as contract poultry farmers.

2. "The upfront promises of a poultry production contract are really enticing," says Christopher Leonard, author of *The Meat Racket*, a book about cutthroat contracts in the poultry industry.

3. Lincoln Premium Poultry, the Costco subsidiary, says the company will ask farmers to sign a 15-year contract.

4. The Organization for Competitive Markets (OCM), a non-profit that advocates on antitrust issues in agriculture, and the Nebraska Farmers Union sent a letter to Costco outlining their concerns with an early draft contract. For instance, if the project struggles financially, Costco can cancel the contract. It can require farmers to pay for expensive building upgrades. And farmers can always lose money on a bad batch of birds.

5. Neither Costco nor Lincoln Premium Poultry responded to the concerns the groups raised.

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

SOURCE: Wikipedia
Concentrated Animal Feeding Operation

1. A concentrated animal feeding operation (CAFO) defined by the USDA is an animal feeding operation in which animals are raised in confinement, that has over 125 thousand broiler chickens.

2. The categorization of CAFOs affects whether a facility is subject to regulation under the Clean Water Act (CWA). According to the 2008 rule adopted by the EPS, "large CAFOs are automatically subject to EPA regulation.

Size thresholds for chicken CAFOs			
	Large CAFOs	**Medium CAFOs**	**Small CAFOs**
Laying hens or broilers (liquid manure handling systems)	30,000 +	9,000 – 29,999	Less than 9,000
Chickens other than laying hens (other than a liquid manure handling systems)	125,000 +	37,500 – 124,999	Less than 37,500

3. CAFOs are commonly characterized as having large numbers of animals crowded into a confined space, a situation that results in the concentration of manure in a small area.

CHICKEN FACTORIES MULTIPLY

SOURCE: NPR – National Public Radio
When a Chicken Farm Moves Next Door, Odor May Not Be the Only Problem.

1. A chicken house in North Carolina. As farms move closer to residential areas, neighbors are complaining that the waste generated is a potential health hazard.

2. North Carolina is one of the Country's largest poultry producers with thousands of confined animal feeding operations in the state. Government regulations have allowed these farms to get much closer to where people live. That's not just a nuisance. Neighbors say it's also a potential health hazard.

3. The waste is a combination of manure, feed and carcasses. Just how much waste is produced is unknown. The North Carolina Department of Environmental Quality says it doesn't have a system to track these dry litter systems.

4. Environmental groups are concerned. Chicken farms are not under the same scrutiny as other industries. These dry-litter poultry operations are exempt from state odor ordinances, and federal regulators don't monitor their air emissions.

5. "What you are seeing here is the influence of a very powerful industry over state legislatures and over the federal government." "To the point where even the Environmental Protection Agency has not stepped up to regulate these facilities, despite the fact that we know they are polluting waterways across the Country."

SOURCE: Winston-Salem Journal
Paying the Price of Living too Close to Chicken Farms

6. Some property owners have converted their land into what many residents here describe as an industrial-style method of chicken farming.

7. Each chicken house at capacity provides roughly 1 square foot for each chicken to eat, live and defecate before they are taken to the processing plant.

   150,000 s.f. ÷ 190,000 birds = < .85 s.f.

8. Residents here refer to these chicken farms as industrial operations. They go beyond the traditional agricultural character. Such chicken farms emit the unbearable stench of death, destroy property values and pose health risks.

9. Property owners who have lived in the County, paid taxes and have a right to live on their land as they wish – without being subjected to an industrial chicken operation next door.

10. A year after four massive chicken houses were installed, property owners wonder what happened to their right to a decent quality of life – and whether anyone will represent them as taxpayers.

11. **Everything they have worked for so many years has been taken by a chicken factory!**

12. According to the U.S. Environmental Protection Agency, concentrated feeding operations produce several pollutants. Manure and wastewater can emit nitrogen and phosphorus, organic matter, sediments, pathogens, heavy metals, hormones, antibiotics and ammonia.

13. "The stench is indescribable. " "I never dreamed the smell could get inside my home."

14. **'It just smells like pure crap!"**

15. "You think about it when you go to bed. You think about it when you wake up. You try not to think about it during the day, but even a simple drive up the street is a reminder that these gigantic buildings are here to stay."

16. It's demoralizing.

SOURCE: Modern Farmer
Chicken Farming and Its Discontents

17. Nearly all the chicken raised in the United States is grown by farmers who contract with 'vertically integrated' companies that own the chickens as well as the entire supply chain, from hatcheries to feed mills to processing and packaging plants.

18. In West Virginia "growers", the industry term for chicken farmers, haven't received a pay increase for 10 years and are earning just a fraction more in absolute, non-inflation-adjusted dollars than they did three decades ago.

19. Growers are simply paid to raise newly hatched chicks to market weight, a process that takes just about five weeks.

20. The companies deliver chicks and feed and return later to collect the full-grown chickens for slaughter and processing, while the growers construct, maintain, upgrade and pay for utilities and labor in their poultry houses.

21. Stagnating income and rapidly increasing expense, holds true for growers across the country.

22. The average Alabama grower lost money on a poultry operation in 10 of the 15 years between 1995 and 2009.

23. "When you are in debt up to your ass like this, you can't just quit, even if you are losing money on your flocks."

24. Growers earn a base rate of between 5¢ and 5.5¢ per pound.

25. Growers have no way to verify the data used to calculate their pay or dispute a performance penalty when they receive their settlement checks.

26. It's hard to feel too optimistic these days. If the companies give his growers a two-cent base pay increase they have been asking for, for several years, that's close to a 40 percent raise, he may still be doing this in five years. If not, he will close his door, sooner rather than later.

CHICKEN FACTORY ISSUES (SIZE, SMELL, DUST, AMMONIA, ETC.)
SOURCE: Wikipedia
Concentrated Animal Feeding Operation

1. The EPA has focused on regulating CAFOs because they generate millions of tons of manure every year. When improperly managed, the manure can pose substantial risks to the environment and public health.

2. The large amounts of animal waste from CAFOs present a risk to water quality and aquatic ecosystems.

3. Surface water may be polluted by CAFO waste through the runoff of nutrients, organics, and pathogens from fields and storage.

4. CAFOs release several types of gas emissions, ammonia, hydrogen sulfide, methane, and particulate matter, all of which bear varying human health risks. CAFOs emit strains of antibiotic resistant bacteria into the surrounding air, particularly downwind from the facility.

5. People who live near CAFOs frequently complain of the odors, which come from a complex mixture of ammonia, hydrogen sulfide, carbon dioxide, and volatile and semi-volatile organic compounds.

6. The growth of corporate contracting has also contributed to a transition from a system of many small-scale farms to one of relatively few large industrial-scale farms.

7. Negative production externalities. Retail prices of industrial products omit immense impacts on human health, the environment, and other shared public assets. These negative production externalities, include massive waste amounts with the potential to foul fisheries, pollute drinking water, spread disease, contaminate soils, and damage recreational areas are not reflected in the price of the product. Citizens ultimately foot the bill. Billions of dollars in taxpayer subsidies, medical expenses, insurance premiums, declining property values, and mounting cleanup costs. Economists claim that CAFOs are at an unfair competitive advantage because they shift the costs of animal waste to the surrounding region.

8. **Evidence shows that CAFOs may be contributing to the drop in nearby property values.** One study shows property values on average decrease by 6.6% within a 3-mile radius and by 88% within 1/10 of a mile from a CAFO.

9. Other economic criticisms. CAFOs benefit from the availability of industrial and agricultural tax breaks/subsidies and the vertical integration of giant agribusiness firms.

10. Discharge of manure from CAFOs and the accompanying pollutants (including nutrients, antibiotics, pathogens, and arsenic) is a serious public health risk.

11. Consequences of the air pollution caused by CAFO emissions include asthma, headaches, respiratory problems, eye irritation, nausea, weakness, and chest tightness. A Dutch cross-sectional study 2,308 adults found decreases in residents' lung function to be correlated with increases particle emissions by nearby farms.

12. Regulation under the Clean Water Act (CWA). Under the CWA, the EPA specifies the maximum allowable amounts of pollution that can be discharged by facilities within an industrial category life CAFOs.

13. Debate over EPA policy. Researchers have identified regions in the Country that have weak enforcement of regulations and therefore, are popular locations for CAFO developers looking to reduce cost and expand operations without strict government oversight.

14. States role and authority. The role of the federal government in environmental issues is generally to set national guidelines and the state governments' role is to address specific issues. The framework of federal goals is as such that the responsibility to prevent, reduce, and eliminate pollution are the responsibility of the states.

15. Zoning ordinances. State planning laws and local zoning ordinances represent the main policy tools for regulating land use. Many states have adopted legislation that specifically exempt CAFOs (and other agricultural entities) from zoning regulations. So-called "right to farm" statues. Right-to-Farm statues expanded in the 1970s when state legislatures became increasingly sensitive to the loss of rural farmland to urban expansion. The statues were enacted at a time when CAFOs and "modern confinement operations did not factor into legislator's perceptions of the beneficiaries of the generosity" of such statues.

The Iowa Supreme Court, for instance, struck down a right-to-farm statue as a "taking" (in violation of the 5th and 14th Amendments of the U.S. Constitution) because the statue stripped neighboring landowners of property rights without compensation.

SOURCE: EOS Earth and Space Science News
Is Living Near a Farm Bad for Your Health?

16. Large-scale livestock farms are often located close to populated areas, exposing nearby residents to potentially harmful bacteria, viruses and air pollutants.

17. The most important **health threat for neighbors comes from inhalation of air pollutants**. These can cause serious respiratory and cardiovascular effects. Rearing poultry in barns generates large quantities of dust.

18. Poultry farms emit large amounts of dust particles from manure, bedding material, straw, animal feed, feathers, and skin flakes. The dust may be contaminated with bacteria and viruses.

19. Long-term exposure to barn dust can also cause chronic respiratory conditions.

20. New inhabitants of livestock farming areas, and also vulnerable groups such as children, the elderly, and people with chronic illnesses may be at higher risk to become ill, despite the lower ambient exposure levels.

21. Ambient ammonia concentrations turned out to be associated with worse lung function Borlee et al. 2017 (https://doi.org/10.1164/rccm.201701-0021OC), while people living closer to poultry farms were at increased risk of pneumonia.

22. Waste is a combination of manure, feed and carcasses, which can cause harmful gas emissions

23. Large chicken operations cause odors and emissions of ammonia, hydrogen sulfide and poultry dust, containing bacteria, bacterial toxins and chicken debris. Airborne ammonia causes eye and lung irritation. Chicken manure also produces nitrogen oxides, a component of smog. Air is also contaminated with harmful microorganisms emanating from chickens used for food production as reported in the *Journal of Infection and Public Health*.

24. In the poultry industry, ammonia is a major concern. Ammonia can do a lot of damage to the animal, especially the respiratory system, and effects animal health and welfare. Ammonia is emitted to the air from the poultry house. The National Clean Air Act, regulations from the Environmental Protection Agency, have strict guidelines for controlling emissions.

25. General effect of ammonia gas. Ammonia gas is irritating to mucous membranes of the respiratory and the corneas of the eyes.

26. Broiler chickens kept in an environment with ammonia concentrations of 50 ppm and 75 ppm have reductions in body weight of 17% and 20%, compared to broiler chickens kept in an environment with near 0 ammonia concentration.

27. Maximum levels of ammonia in poultry houses have been set at 25 ppm by the National Institute of Occupational Safety and Health (NIOSH) and 50 ppm by the Occupational safety and Health Administration (OSHA). These levels have been established based on human safety.

28. People can generally smell ammonia at concentrations between 20 and 30 ppm.

29. Nitrogen is excreted as uric acid (80%), ammonia (10%), and urea (5%). In practice, the concentration of ammonia is some broiler houses may easily exceed 30 – 70 ppm.

30. In the air, ammonia will last about 1 week.

Recommended gas concentrations for air quality and odor control in poultry buildings.		
Gas	**Odor**	**Recommended Max Concentration**
Carbon Dioxide	None	3,000 ppm
Ammonia	Sharp, pungent	15 ppm
Hydrogen Sulfide	Rotten egg smell	3 ppm
Carbon Monoxide	None	50 ppm

31. Crete air quality is 82. (The US average is 58) 100 is best. This is based on new measures of hazardous air pollutants from the EPA, called the National Air Toxics Assessment. This analysis models respiratory illness and cancer risk down to the zip code lever.

32. Crete water quality is 40. (The US average is 55.) 100 is best. This is a measure of Watershed quality. The EPA has stated that a healthy watershed is closely related to drinking water quality.

33. Crete Superfund Index is 78. (The US average is 87.) 100 is best. EPA's Superfund is responsible for cleaning our nation's most contaminated land.

QUOTES: HOW BAD IS THE SMELL FROM CHICKEN FARMS NEAR A PROPERTY IN THE HOT MONTHS?
SOURCE: Trulia

How bad is the smell from chicken farms near a property in the hot months?

- Real Estate Agent and Former Chicken Farm Worker
  - I've worked on a chicken farm and the only thing that smells worse than a chicken farm, is a chicken farm in the summer.

- Real Estate Agent
  - I can assure you that you will be hard not to notice odor from a chicken house. They have to be clean as these birds are hatchery raised and do not have a strong immune system and they can very easily get diseased.

- Home Buyer – Monroe, NC
  - It stinks here! I'm going back to NYC.

- Home Buyer – Monroe, NC
  - It is such a big problem they even have **chicken industry reps like this guy on forums trying to BS people**. I live a mile down the road from one and I can still smell it!

- Home Buyer – Monroe, NC
  - Every chicken farm is not so "clean". I live next to a chicken farm and let me tell you that there are 3 blocks with 200,000 chickens in it and when the wind is blowing in the direction of our houses, **it smells like HELL!!!**

- Home Buyer – Saint Cloud, FL
  - I live down the road from a chicken farm and **the smells are horrible**. They spread their waste on the fields across from my house causing **me to have burning eyes, horrible headaches, chest pain** and it takes weeks to get that smell out and then guess what, they start all over again!!! **Still nothing stops that horrible smell from getting in your house, clothes and even in your food! Can you tell me this is healthy???**

- Renter – Athens, GA
  - **I live up the hill from a chicken farm, it smells horrible like shrimps left out in the sun for weeks. Don't even get me started on the flies, rodents and mites.** I have been here a year and feel like I am going crazy! I hate the chicken farm, the smell and everything that goes along with it. Last but not least, **my children who rarely get colds, seem to always be sick with headaches and colds.**

- Renter
  - I deliver chickens and every single chicken plant I go to smells so bad that it makes me feel sick and I have to cover my mouth and nose just to walk inside to get my paperwork. I see the loads of chickens coming into the plants to be killed and processed and I've seen the dead and dying chickens in the tiny cages they bring them into the plant in and the smell of those chickens is horrendous. Chickens are not brought in clean and are full of their own filth with poop and pee all over them and the people at these plants do not care how they treat these chickens and I've seen it so I know. **You can smell these plants and the chicken farms for miles before you get to either of them. SHAME ON YOU FOR LYING TO PEOPLE!!!**

- Renter
  - I made the mistake of not checking Google Earth before I moved into a hasty rental decision. My new home is less than 300 feet from the vector path of the exhaust fans of one of four chicken houses. **I feel like I'm getting "gassed" by ammonia. At night when I turn my flood light on in the back yard, you can see it just raining chicken particles.** Then every 6 weeks or so, you get a VERY STRONG stench of dung. When they incinerate the dead chickens, the worst charred chicken smell descends upon the neighborhood. **Health problems for everyone in the hood.**

- Real Estate Agent
  - What exactly do you EXPECT when you move into the neighborhood of a chicken farm?

- Home Buyer
  - When a small farm is getting bigger and the GOVERNMENT DOES NOT LISTEN TO THE PEOPLE LIVING IN THE AREA what do you do? Sell your house? Who's going to buy?

- Real Estate Agent
  - The smell from a poultry farm depends on proximity and prevailing winds. It depends on what is going on at the poultry farm. If the chickens are in the grow-out state, the smell will be pretty much contained in the barn. If the barn is in a clean-out stage (the birds have been emptied from the barns and delivered to the processing plant), then that will be the time that any odor will be "traveling with the wind". During clean-out, all the sawdust on the floor of the barn is scraped out and hauled away. Stuff is stirred up and therefore the bouquet is airborne. Clean outs usually take one to two days. In Union County, NC, you do not need to live near a barn to share in the smells of poultry barns. The sawdust collected in the clean out it packed full of nitrogen rich poop. The farmers spread that mixture on their crop fields. That smell will last only a day or two, unless a hard rain packs in down, thus reducing the smell factor.

Location:
Lancaster County Planning & Impact Zone Commission

A - Chicken Factory

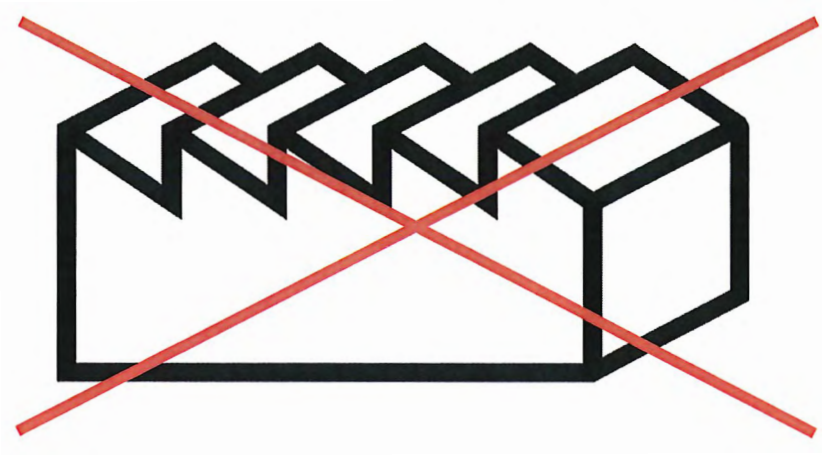
B - Factory

C - Farm

WHICH PICTURE DOES NOT BELONG WITH THE OTHER?

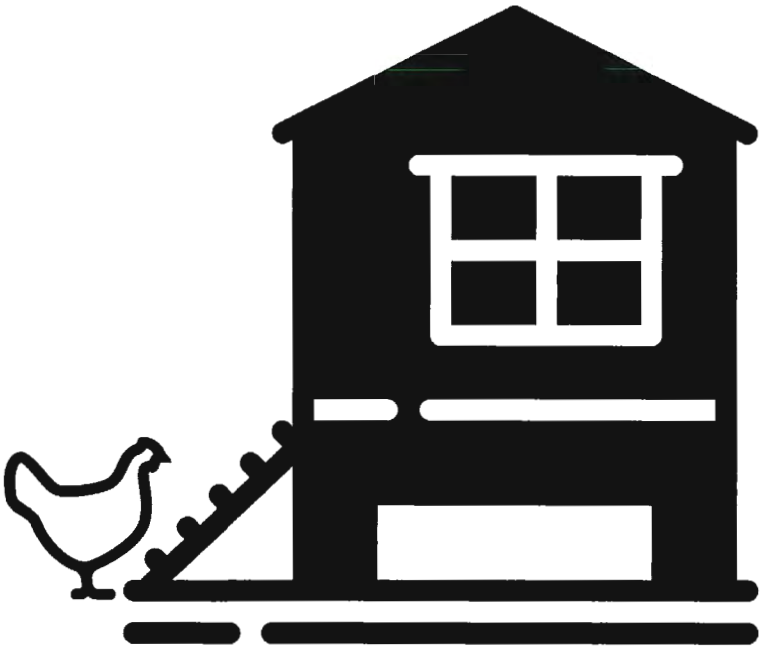
(Cross Out The Picture That Does Not Belong)

A - Chicken Factory



B - Farm

C - Chicken Farm



WHICH PICTURE DOES NOT BELONG WITH THE OTHER?

(Cross Out The Picture That Does Not Belong)

FACT SHEET

AIR POLLUTION FROM FACTORY FARMS

- Most meat, milk, and eggs produced in the United States come from animals raised in industrial factory farms – facilities that confine hundreds, thousands, or even millions of animals.

- EPA estimates that there are approximately 20,000 of these facilities throughout the country, and many are geographically clustered in certain regions and communities.[i]

- Factory farms (also called concentrated animal feeding operations or CAFOs) produce more than 300 million tons of manure every year, which is more than three times the amount of waste produced by humans.[ii] The waste is often stored in enormous sewage pits or "lagoons" before being spread, effectively untreated, on crop land.

- Factory farms emit a large number of air pollutants, including hydrogen sulfide (which causes extreme odors for downwind residents, and contributes to acid rain and regional haze), ammonia (which causes respiratory problems in farmers and neighbors), particulate pollution (which can trigger asthma and heart attacks), volatile organic compounds (which can cause headaches, nausea, and increased risk of cancer), and greenhouse gases (which cause a warming of the climate often referred to as climate change). These dangerous air emissions emanate from various areas on the facility, with some of the greatest releases coming from the animal confinement areas and waste impoundments.

- Factory farm emissions of two greenhouse gases – methane and nitrous oxide – are a significant driver of climate change. Nitrous oxide has more than 300 times the global warming potential of carbon dioxide, and methane has more than 20 times the potential. In 2006, factory farms in the U.S. were responsible for emitting almost nine million tons of methane, or almost 185 million tons of carbon dioxide equivalent, according to EPA.[iii]

- Ammonia and nitrogen oxide gases from factory farms contribute to water pollution and "dead zones" in estuaries and lakes. Nitrogen from these gases binds to rain drops, where, upon precipitation, it is washed into waterways and feeds the growth of algae blooms, which die and rot, sucking oxygen out of the water.

- In addition to causing health and quality of life problems, air pollution from factory farms also drive down the real estate values of nearby residents. University of Missouri researchers found that every factory farm in that state depresses surrounding property values by $2.68 million.[iv]

- Despite clear scientific evidence that industrial animal operations contribute significantly to nationwide air pollution that negatively affects human health and welfare, EPA currently does not require factory farms to meet any testing, performance, or emission standards under the Clean Air Act, which was enacted nearly 45 years ago. However, as the petitions make clear, the Clean Air Act has two at least programs that EPA could use to regulate factory farm air pollution.

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[i] EPA, NPDES CAFO Reporting Rule, 76 Fed. Reg. 65431, 65445 (Oct. 21, 2011).
[ii] Pew Commission on Industrial Farm Animal Production. "Putting meat on the table: industrial farm animal production in America." April 2008 at 23.
[iii] EPA, Overview of Greenhouse Gases, http://epa.gov/climatechange/ghgemissions/gases/ch4.html.
[iv] Mubarak, H., T.G. Johnson, and K.K. Miller. 1999. *The impacts of animal feeding operations on rural land values*. Report R-99-02. College of Agriculture, Food and Natural Resources, University of Missouri–Columbia.

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Opinion

Faeces, bacteria, toxins: welcome to the chicken farm

George Monbiot

Whether it's welfare standards, environmental impact or the emerging threat to human health, we've got to change our insatiable greed for this meat

@GeorgeMonbiot

Tue 19 May 2015 15.42 EDT

t's the insouciance that baffles me. To participate in the killing of an animal: this is a significant decision. It spreads like a fungal mycelium into the

I heartwood of our lives. Yet many people eat meat sometimes two or three times a day, casually and hurriedly, often without even marking the fact.

I don't mean to blame. Billions are spent, through advertising and marketing, to distract and mollify, to trivialise the weighty decisions we make, to ensure that we don't connect. Even as we search for meaning and purpose, we want to be told that our actions are inconsequential. We seek reassurance that we are significant, but that what we do is not.

It's not blind spots we suffer from. We have vision spots, tiny illuminated patches of perception, around which everything else is blanked out. How often have I seen environmentalists gather to bemoan the state of the world, then repair to a restaurant in which they gorge on beef or salmon? The Guardian and Observer urge us to go green, then publish recipes for fish whose capture rips apart the life of the sea.

The television chefs who bravely sought to break this spell might have been talking to the furniture. Giant chicken factories are springing up throughout the west of England, the Welsh marches and the lowlands of the east. I say factories for this is what they are: you would picture something quite different if I said farm; they are hellish places. You might retch if you entered one – yet you eat what they produce without thinking.

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▲ Giant chicken factories are springing up throughout the west of England, the Welsh marches and the lowlands of the east.

Two giant broiler units are now being planned to sit at the head of the Golden Valley in Herefordshire, one of the most gorgeous landscapes in Britain. Each shed at Bage Court Farm – warehouses 90 metres long – is likely to house about 40,000 birds that will be cleared out, killed and replaced every 40 days or so. The UK now has some 2,000 chicken factories, to meet a demand for the meat that has doubled in 40 years.

I don't know how these units will operate, but factories elsewhere inflict noise and dust and stench and traffic on quiet corners of the country. Because everything is automated, they employ few people, and those in hideous jobs: picking up and binning the birds that drop dead every day, catching chickens for slaughter in a flurry of excrement and feathers, then scraping out the warehouses before the next batch arrives.

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The dust such operations raises is an exquisite compound of aerialised faeces, chicken dander (dead skin), mites, bacteria, fungal spores, mycotoxins, endotoxins, veterinary medicines, pesticides, ammonia and hydrogen sulphide. It is listed as a substance hazardous to health, and helps explain why 15% of poultry workers suffer from chronic bronchitis.

Ad

Yet, uniquely in Europe, the British government classifies unfiltered roof vents on poultry sheds as the "best available technology". If this were any other industry, it would be obliged to build a factory chimney to disperse the dust and the stink. But farming, as ever, is protected by deference and vested interest, excluded from the regulations, planning conditions and taxes other businesses must observe. Already, Herefordshire county council has approved chicken factories close to schools, without surveying the likely extent of the dust plumes before or after the business opens. Bage Court Farm is just up-wind of the village of Dorstone.

Inside chicken factories are scenes of cruelty practised on such a scale that they almost lose their ability to shock. Bred to grow at phenomenal speed, many birds collapse under their own weight and lie in the ammoniacal litter, acquiring burns on their feet and legs and lesions on their breasts. After slaughter they are graded. Those classified as grade A can be sold whole. The others must have parts of the body removed, as they are disfigured by bruising, burning and necrosis. The remaining sections are cut up and sold as portions. Hungry yet?

Plagues spread fast through such factories, so broiler businesses often dose their birds with antibiotics. These require prescriptions but – amazingly – the government keeps no record of how many are issued. The profligate use of antibiotics on farms endangers human health, as it makes bacterial resistance more likely.

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> Nor does free range solve the feed problem: the birds are usually fed on soya, for which rainforests are wrecked

But Herefordshire, like other county councils in the region, scarcely seems to care. How many broiler units has it approved? Who knows? Searches by local people suggest 42 in the past 12 months. But in December the council claimed it has authorised 21 developments since 2000. This week it told me it has granted permission to 31 since 2010. It admits that it "has not produced any specific strategy for managing broiler unit development". Nor has it assessed the cumulative impact of these factories. At Bage Court Farm, as elsewhere, the council has decided that no environmental impact assessment is needed.

So how should chicken be produced? The obvious answer is free range, but this exchanges one set of problems for another. Chicken dung is rich in soluble reactive phosphate. Large outdoor flocks lay down a scorching carpet of droppings, from which phosphate can leach or flash-flood into the nearest stream.

Rivers such as the Ithon, in Powys, are said to run white with

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chicken excrement after rainstorms. The River Wye, a special area of conservation, is blighted by algal blooms: manure stimulates the growth of green murks and slimes that kill fish and insects when they rot. Nor does free range solve the feed problem: the birds are usually fed on soya, for which rainforests and cerrado on the other side of the world are wrecked.

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More on this topic
The truth about the poultry industry | Letters

There is no sensible way of producing the amount of chicken we eat. Reducing the impact means eating less meat – much less. I know that most people are not prepared to stop altogether. But is it too much to ask that we should eat meat as our grandparents did, as something rare and special, rather than as something we happen to be stuffing into our faces while reading our emails? To recognise that an animal has been sacrificed to serve our appetites, to observe the fact of its death: is this not the least we owe it?

Knowing what we do and what we induce others to do is a prerequisite for a life that is honest and meaningful. We owe something to ourselves as well: to overcome our disavowal, and connect.

Twitter: @georgemonbiot. A fully referenced version of this article can be found at monbiot.com

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Editors' Vox

Perspectives on Earth and space science: A blog from AGU's journal editors

Is Living Near a Farm Bad for Your Health?

A recent commentary in *GeoHealth* highlighted the health risks for people living close to large-scale livestock farms.

In countries such as the Netherlands, large-scale livestock farms are often located close to densely-populated areas, exposing nearby residents to potentially harmful bacteria, viruses and air pollutants. Credit: Pixabay (CC0 1.0)

By Daniela Ceccarelli and Lidwien Smiton 28 September 2017

Across the world, large-scale livestock farming has expanded rapidly in recent years. However, new scientific evidence shows an association with increased human health issues in both farmers and neighboring populations. A commentary by Smit and Heederik (http://onlinelibrary.wiley.com/doi/10.1002/2017GH000103/full) [2017] recently published in *GeoHealth* (http://agupubs.onlinelibrary.wiley.com/hub/journal/10.1002/(ISSN)2471-1403/) explores how viruses, bacteria and air contaminants derived from livestock farming cause respiratory health problems in humans. Daniela Ceccarelli, one of the journal's editors, asked Lidwien Smit, co-author of the commentary, some questions about the health risks associated with intensive farming and how these could be addressed with improved agricultural planning.

What are the major livestock-associated risks to human health?

Infectious diseases that can be transmitted from animals to humans, so-called zoonoses, are a threat. For example, avian influenza, *Salmonella* and *Campylobacter* infections are livestock-associated zoonoses. While large-scale epidemics in the general population due to airborne transmission are rare, infected dairy goat farms caused a large Q-fever outbreak in the Netherlands about a decade ago.

Some people are also concerned about antibiotic resistant bacteria; while this is a risk for everyone through foodborne pathogens, scientists are still gathering evidence to determine whether living near a farm puts you at increased risk [Moyer, 2016 (https://www.scientificamerican.com/article/how-drug-resistant-bacteria-travel-from-the-farm-to-your-table/)]. I think the most important health threat for neighbors comes from inhalation of air pollutants. Like traffic-related pollution, this can cause serious respiratory and cardiovascular effects.

How does agriculture contribute to air pollution?

Rearing poultry in barns generates large quantities of dust.
Credit: Naim Alel
(https://en.wikipedia.org/wiki/File:%D0%9F%D1%82%D0%B8%D1%87%D0%BD%D0%B8%D0%BA.JPG) (CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0/deed.en))

Livestock farms – particularly poultry and swine barns – emit large amounts of dust particles from manure, bedding material, straw, animal feed, feathers, skin flakes and hair. The dust may be contaminated with bacteria and viruses that are mostly harmless for humans, although pathogenic microorganisms such as avian influenza virus or *Coxiella burnetii*, the bacterium causing Q-fever, can under certain circumstances be found in the air near farms.

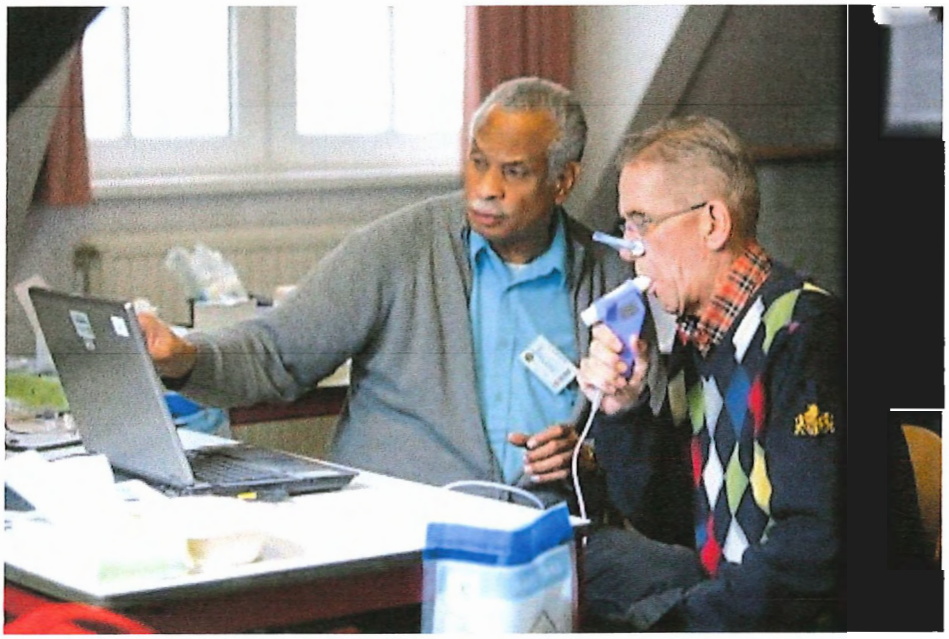
Farm operations also emit a mixture of gases such as ammonia, an irritant gas that is formed by enzymes in animal waste. Ammonia is primarily emitted by cattle farms, and by the application of manure to agricultural land. Ammonia reacts with combustion-derived gases in the atmosphere (primarily from industrial and traffic emissions) to form secondary inorganic aerosols, which contributes to fine dust air pollution.

Do farmers experience greater health threats than the general population?

Obviously, farmers are exposed to much higher exposure levels, and contact with farm animals is a major risk factor for carrying antibiotic resistant bacteria. Long-term exposure to barn dust can also cause chronic respiratory conditions. That said, farmers are a working-

age population group (aged 16-65) often with a relatively healthy lifestyle. Moreover, they may have built up immunity in the past, for instance to the bacterium that causes Q-fever. However, new inhabitants of livestock farming areas, and also vulnerable groups such as children, the elderly, and people with chronic illnesses may be at higher risk to become ill, despite the lower ambient exposure levels.

What specific research studies have you been involved with?



A participant in the Livestock Farming and Neighboring Residents' Health Study has a lung function test. Credit: Lidwien Smit

In recent years, I coordinated a large-scale epidemiological study among 2500 neighboring residents of livestock farms. We conducted the study in the southeast of the Netherlands, a region that is both densely populated and characterized by a large number of intensive swine, poultry, cattle and goat farms.

Participants attended a medical examination that included lung function tests, blood and feces collection, and a questionnaire.

Ambient ammonia concentrations turned out to be associated with worse lung function [Borlée et al, 2017 (https://doi.org/10.1164/rccm.201701-0021OC)], while people living closer to poultry and goat farms were at increased risk of pneumonia. As a direct result of our

research, the Dutch government now plans to reduce the emissions from poultry barns by 50% over the next ten years.

How can scientific knowledge help improve agricultural policy making?

First of all, it is of major importance that the scientific community, policy makers, farmers and other stakeholders are aware that agriculture is one of the major sources of air pollution. Clearly, more stringent environmental regulations need to be enforced, while taking into account animal welfare and the economic viability of (family) farm operations. Better knowledge of exposure-response relationships in the general population will help to inform whether the risk of living near a farm is acceptable or not.

A key question is whether the risk of living near a farm is acceptable or not. Credit: Graham Hogg (http://www.geograph.org.uk/photo/4750569) (CC BY-SA 2.0 (https://creativecommons.org/licenses/by-sa/2.0/))

Where are additional research efforts needed in this field?

Despite clear associations between lung health and farm proximity, it needs to be elucidated which of the multi-pollutant mixture of farm emissions are actually causing the observed respiratory effects. That will help to implement better preventive measures. Furthermore, we need to know more about the effects of farm-related pollution on the most vulnerable people.

—Daniela Ceccarelli, Editor for *GeoHealth* and Department of Bacteriology and Epidemiology, Wageningen Bioveterinary Research, The Netherlands; email: daniela.ceccarelli@wur.nl (mailto:daniela.ceccarelli@wur.nl); and Lidwien Smit, Institute for Risk Assessment Sciences, Utrecht University, The Netherlands

Citation: Ceccarelli, D., and L. Smit (2017), Is living near a farm bad for your health?, *Eos, 98,* https://doi.org/10.1029/2018EO082985. Published on 28 September 2017.

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FOOD (HTTPS://GRIST.ORG/TAG/FOOD-2/)

How poultry producers are ravaging the rural South

By Suzi Parker (https://grist.org/author/suzi-parker/) on Feb 22, 2006

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A person driving through the South might notice the chicken houses dotting the hills and flatlands. He might marvel at the larger ones, as long as a football field. He might react to their gagging stench for a moment, and then forget as he travels on. But those who live near the structures — stuffed with as many as 25,000 chickens each — combat the odor and health hazards daily.

Not yer pappy's chicken coop.

Photo: USDA.

"There's a horrible odor, a stench, and I have flies and rodents digging in, trying to get into my house," says Bernadine Edwards, whose 39-acre farm near Owensboro, Ky., is surrounded by 108 chicken houses within a two-mile radius. "It is unbelievable."

The 65-year-old school bus driver, who recently bought a purifier to help her breathe easier in her home, says the value of her property has plummeted since the chicken houses arrived in the early 1990s. "I'm too old to start over," she says. "I can't afford to. My house is paid for."

Edwards is not alone. Over the last 15 years, the country has seen a boom in chicken farming. Today, the industry is serving a cocktail of injustice and pollution to rural residents, and most of them aren't in a position to fight back.

Growing Pains

Since the early 1990s, observers say, thousands of chicken houses have cropped up across the South as consumer demand for poultry has grown. Today, the U.S. is the world's poultry leader, with production of broilers, turkeys, and eggs valued at $29 billion in 2004, according to the National Chicken Council. Broilers — chickens raised for meat — generated $22 billion of that. The leading broiler production states in 2004 were Georgia, Alabama, and Arkansas, which is home to the world's largest poultry producer, Tyson Foods.

Like chemical companies and industrial hog farmers, poultry producers don't tend to place these concentrated animal-feeding operations, or CAFOs, in ritzy neighborhoods beside multimillion dollar McMansions. Instead, chicken houses commandeer spacious rural areas, where local residents need the income and their neighbors won't speak out against them — or are unaware of the factories' environmental and health consequences.

"These companies seek rural areas where unemployment, or underemployment, is high and people are desperate for ways to stay on the farm," says Aloma Dew, a Sierra Club organizer in Kentucky. "They assume that poor, country people will not organize or speak up, and that they will be ignorant of the impacts on their health and quality of life."

The companies provide local growers, who work under contract, with chicks, feed, medicine, and transportation. Growers take care of the rest, investing hundreds of thousands of dollars in construction, maintenance, and labor costs. When the company requires upgrades, the costs fall to the growers. The massive amounts of manure, too, are their responsibility. (In Arkansas alone, chicken farms produce an amount of waste each day equal to that produced by 8 million people.) Payment is results-oriented, based on measures like total weight gain of the flock. It's a system, says the United Food and Commercial Workers, that leaves 71 percent of growers earning below poverty-level wages.

A far cry from free range.

Photo: USDA.

If growers protest, companies can cancel their contracts, leaving farmers responsible for incurred debt, says Laura Klauke, director of contract agriculture reform at the North Carolina-based Rural Advancement Foundation International (http://www.rafiusa.org/). And that debt can be substantial: since banks in the region will more readily loan money for poultry houses than other types of agriculture, Klauke says, some farmers put everything on the line, mortgaging their property to make a living this way.

"If those contracts are canceled — and they can be if the farmer doesn't do what the industry wants — then that farmer could literally be homeless," said Klauke. "I know farmers who have been in that situation." (Industry representatives did not respond to requests for comments on this or any of the concerns expressed in this story.)

Pecks and Effects

More frightening than the economic balancing act may be the health and environmental hazards posed by chicken farms, from the arsenic, ammonia, and other chemicals found in feed and manure to threats from diseased animals. While traditional farming can carry similar risks, CAFOs are especially hazardous because of the tight confinement that defines them. "The fact is, you put hundreds of animals in a very small area, that creates problems that would not exist if these animals were distributed across the countryside," says Barclay Rogers, who successfully litigated a pollution case against Tyson in Kentucky in 2003.

Rogers says the industry grew rapidly with little regulatory constraint, and has been "riding roughshod" over land and people. While CAFOs must follow federal environmental laws such as the Clean Water Act and Clean Air Act, he says, many growers try to "duck and weave" regulations. "The industry may stand up and say we are over-regulating, and that we have all of these permits, but the practical aspect is that they have devised many ways to avert pollution controls," said

Rogers. "That's why we are seeing the fouling of water and air. We just now are coming to grips with these consequences, as people are catching up and realizing what has happened to them."

Last year, Oklahoma Attorney General Drew Edmondson (D) filed suit against Tyson, Cargill, and several other poultry companies, seeking to stop water pollution caused in his state by soiled chicken litter dumped in Arkansas. Polluted runoff, also known as non-point source pollution, is the biggest remaining water pollution problem in the U.S., according to the EPA, which cites agriculture as the largest source of such pollution. Edmondson described the problem as "an economic development issue, an agricultural issue, and a quality-of-life issue." Not to be outdone, Arkansas Attorney General Mike Beebe (D) — who is running for governor — countered in November by suing the state of Oklahoma directly, asking the U.S. Supreme Court to prohibit Oklahoma from forcing his state's poultry farmers to adhere to the stricter standards. Both cases are still pending.

This messy interstate situation is just one indication of the many unknowns at stake. "Some of the [environmental] consequences of these CAFOs are just not clear," said Van Brahana, a geologist at the University of Arkansas who studies groundwater. "What we do know is when you have a lot of organisms living in close conditions and you have a buildup of chemicals, you might get a cause-and-effect relationship. The scary thing is we just don't know right now."

The effects on those who work directly with the animals are clearer. "In rural America, the poultry companies can get workers for a song, and the workers are so grateful to get the jobs," says Jackie Nowell of the United Food and Commercial Workers. These workers — usually poor, and often African American or Hispanic — "are exposed to feces [and] any disease the chicken has," Nowell says. "There are also horrible levels of dust and dander inside these houses."

Nowell adds that researchers in the region are currently exploring the possible crossover of various viruses from poultry to humans, like avian flu (https://grist.org/article/avianflu/). "That's a real concern. These workers and people who live near these houses will be on ground zero of an outbreak."

Flies cluster around a pile of carcasses in Missouri.

Photo: USDA.

Workers in poultry processing plants also face serious dangers from machinery, carpal tunnel syndrome, and health hazards such as contaminated microorganisms and dust. "There are huge health and safety violations in every plant," says Jennifer Rosenbaum, a lawyer with the Southern Poverty Law Center (http://www.splcenter.org/index.jsp) in Montgomery, Ala. In 2004, for example, the Occupational Safety and Health Administration issued citations to Tyson for alleged violations after an employee was asphyxiated when he inhaled hydrogen sulfide, a gas created by decaying organic matter. OSHA fined the company $436,000.

Poultry companies "hire relatively low-income people, immigrants who have less of an understanding of rights and health issues," Rosenbaum says. Simply put, she says, the companies are hurting the South's small towns while they fatten their own wallets.

Chicken Fight

Katie Tillinghast lives in rural northwest Arkansas. In early January, she received a call from a neighbor who told her he planned to put three large turkey houses on his property, 200 yards away. Tillinghast wants to stop the project, but the only plausible choice would be to buy her neighbor out at $3,000 an acre — and he owns 73 acres. She can't afford that, and knows it's highly unlikely that a rich buyer will step in to help.

You'll never look at chicken nuggets the same way again.

Photo: USDA.

Like other states, Arkansas does not yet have a law to protect residents from these operations, though several states have considered such legislation. So Tillinghast can't do much but worry — about her drinking water, about avian flu, about noise and light pollution, about air quality. "I agree someone should be able to do what they want to do on their land," Tillinghast says. "But I don't think you should be able to do something that hurts your neighbors."

Many others agree with her, but local dynamics can make it hard for activists to issue a battle cry. "Often these plants are the only major industry in town," says SPLC's Rosenbaum. "Everyone goes to church together or went to high school together. Everyone knows everyone, and it's hard to fight that."

Groups like the Sierra Club have fought the poultry industry for many years, but only recently have they begun to collaborate with people on the ground. In 2004, a group of growers, workers, and environmental, public-health, religious, and social-justice organizations created the National Poultry Justice Alliance.

Do Good

Learn more (http://www.sierraclub.org/factoryfarms) from the Sierra Club and help stop factory-farm pollution.

The idea came from the Glenmary Commission on Justice in Ohio, a group of Catholic brothers and priests who have worked in the South since 1939. Marcus Keyes, the commission's director, says he was inspired by a statement from the Catholic Bishops of the South in 2000 about workers' rights. "These are moral issues — the rights of workers, conditions of workers, pay and benefits," said Keyes. "These are human rights issues, and environmental [issues, but] in the end they are all moral issues." The group's members are working to strengthen the alliance before launching a major campaign.

Meanwhile, a lawsuit may come to trial in early April that could up the ante. While previous suits have dealt with pollution and workers' rights, this one tackles the issue of health effects on residents. In 2003, a group of citizens from Prairie Grove, Ark., a town of 2,500, filed a lawsuit against several poultry producers. Citing a connection between the community's high cancer rates and arsenic contamination from chicken litter spread as fertilizer, they are seeking damages from the

companies that own the birds (not, it should be noted, from the local growers). Their lawyers say cancer rates in the small town are 50 times higher than the national average.

The Prairie Grove effort has grown to include about 100 plaintiffs in multiple suits, each of which will be tried separately. Supporters say that legal action may be the only way to bring these issues to light and hold the industry to higher standards. If the court rules in Prairie Grove's favor, the decision could provide ground for others to stand on. Until then, the only ones winning in this despair-filled industry are the mammoth corporations.

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Legend

- Dwellings within 1 Mile of 18025
- SP18025 - 1/4 Mile Buffer - 1 Property
- SP18025 - 1/2 Mile Buffer - 3 Properties
- SP18025 - 1 Mile Buffer - 21 Properties (16 - Lancaster, 5 - Saline)

Exhibit A
Essink Poultry

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LINCOLN - LANCASTER COUNTY
PLANNING DEPARTMENT

0 0.25 0.5 Miles

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Exibit B

Bevans Broilers

Dwellings within 1 Mile of 14044

1/4 Mile Buffer - 0 Dwelling Locations

1/2Mile Buffer - 6 Dwelling Locations

1 Mile Buffer - 27 Dwelling Locations

N W E S

LINCOLN-LANCASTER COUNTY PLANNING DEPARTMENT

GIS

0 0.25 0.5 Miles

Date: 7/10/2018

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A plan to raise up to 90,000 chickens in the southeastern part of the county got the go-ahead from the Lincoln-Lancaster County Planning Commission on Wednesday.

Commissioners voted unanimously to approve a special permit to allow Nick Heetdirks to raise broiler chickens for organic meat on his farm near 190th Street and Firth Road.

Heetdirks said he is seeking to diversify his farming operation to provide more income stability in the face of depressed prices for corn and soybeans.

4-Barns
90,000

His plans call for four barns to be built that are roughly 500 feet by 50 feet. Each would contain about 22,500 young chicks that would be raised from infancy to the age of six weeks before being sent off for processing.

Heetdirks said manure from the chickens will be kept in the buildings and only removed once a year to be used as fertilizer.

The only opposition to the plan voiced at Wednesday's meeting came from a group of home and lot owners at a small lake development about three-fourths of a mile from the proposed operation.

They mentioned worries about potential truck traffic, odor and lowered property values.

Mark Hunzeker, an attorney representing the homeowners, said Heetdirks had provided few details about the operation, and he urged a two-week delay to allow neighbors to receive more information.

Commissioners, however, said it appeared that Heetdirks had met the necessary requirements to qualify for a special permit.

The plan does not have to go before the Lancaster County Board, unless someone appeals the Planning Commission's decision.

Reach the writer at 402-473-2647 or molberding@journalstar.com.

On Twitter @LincolnBizBuzz.

MORE INFORMATION

Lancaster County/City of Lincoln GIS Map

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Lancaster County/City of Lincoln GIS Map

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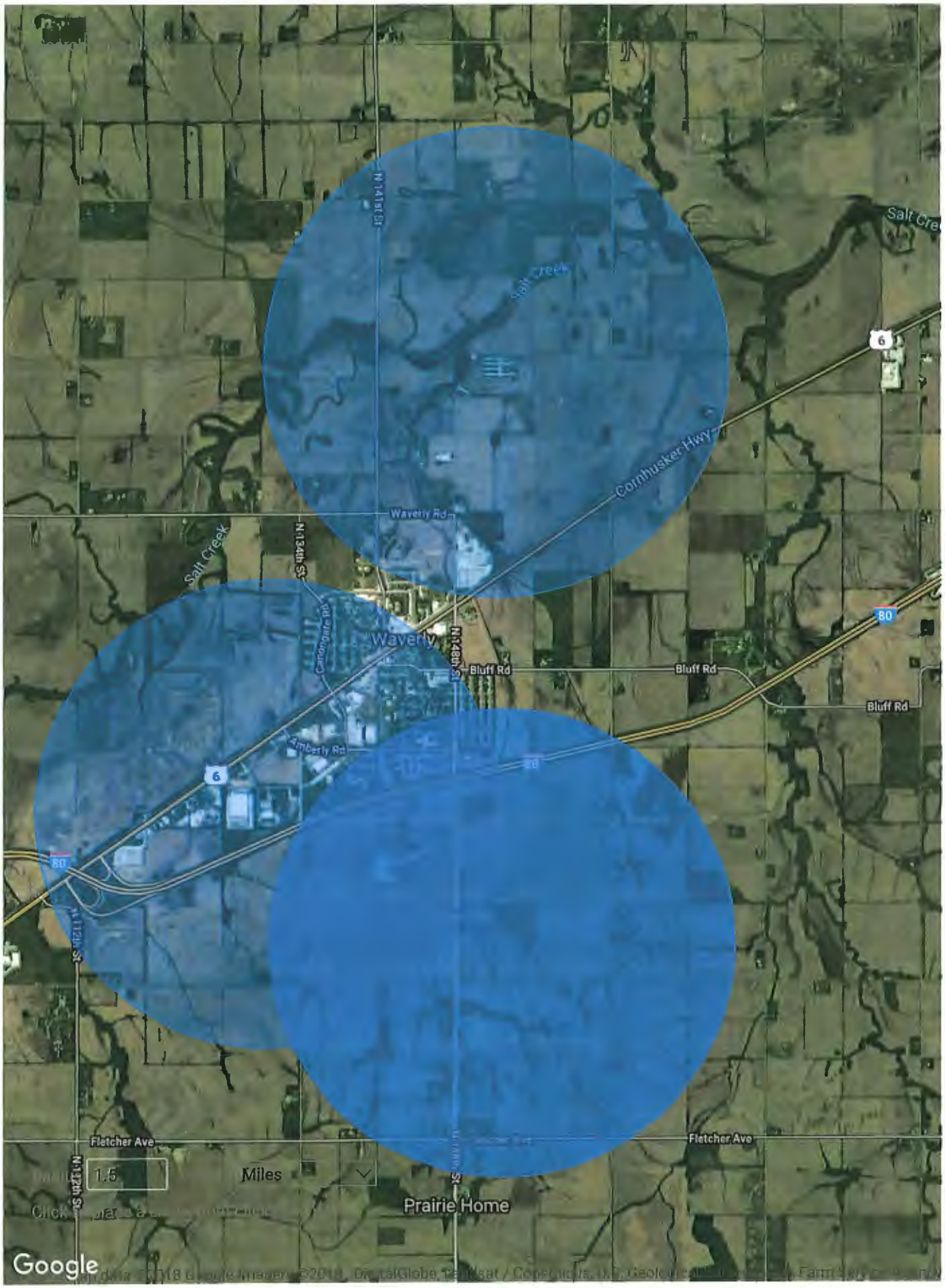
1mile radius

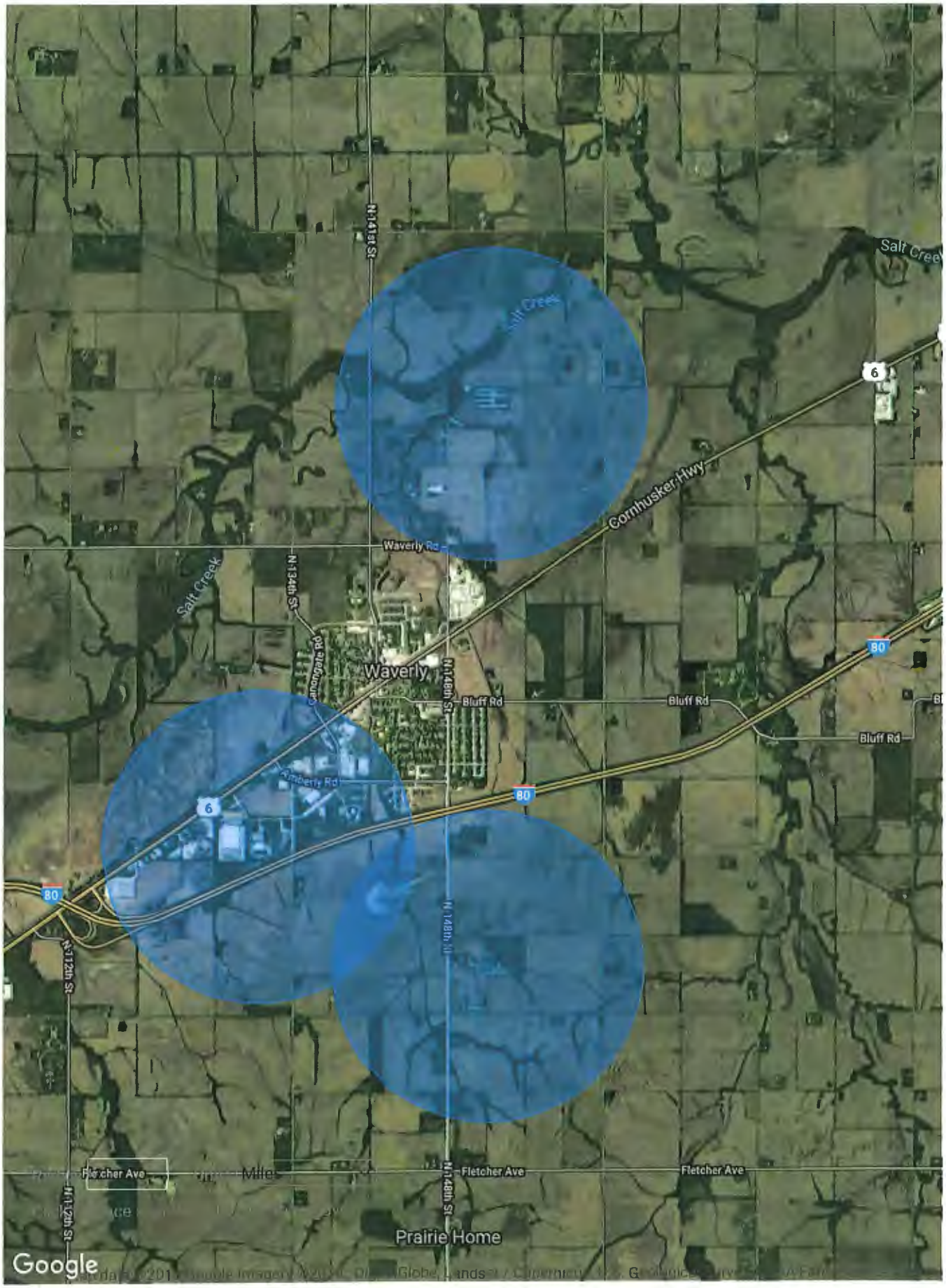
10 - Homes Approximately

1.5 mile radius

Approximately 15 homes



1.5 mile radius



1 mile radius

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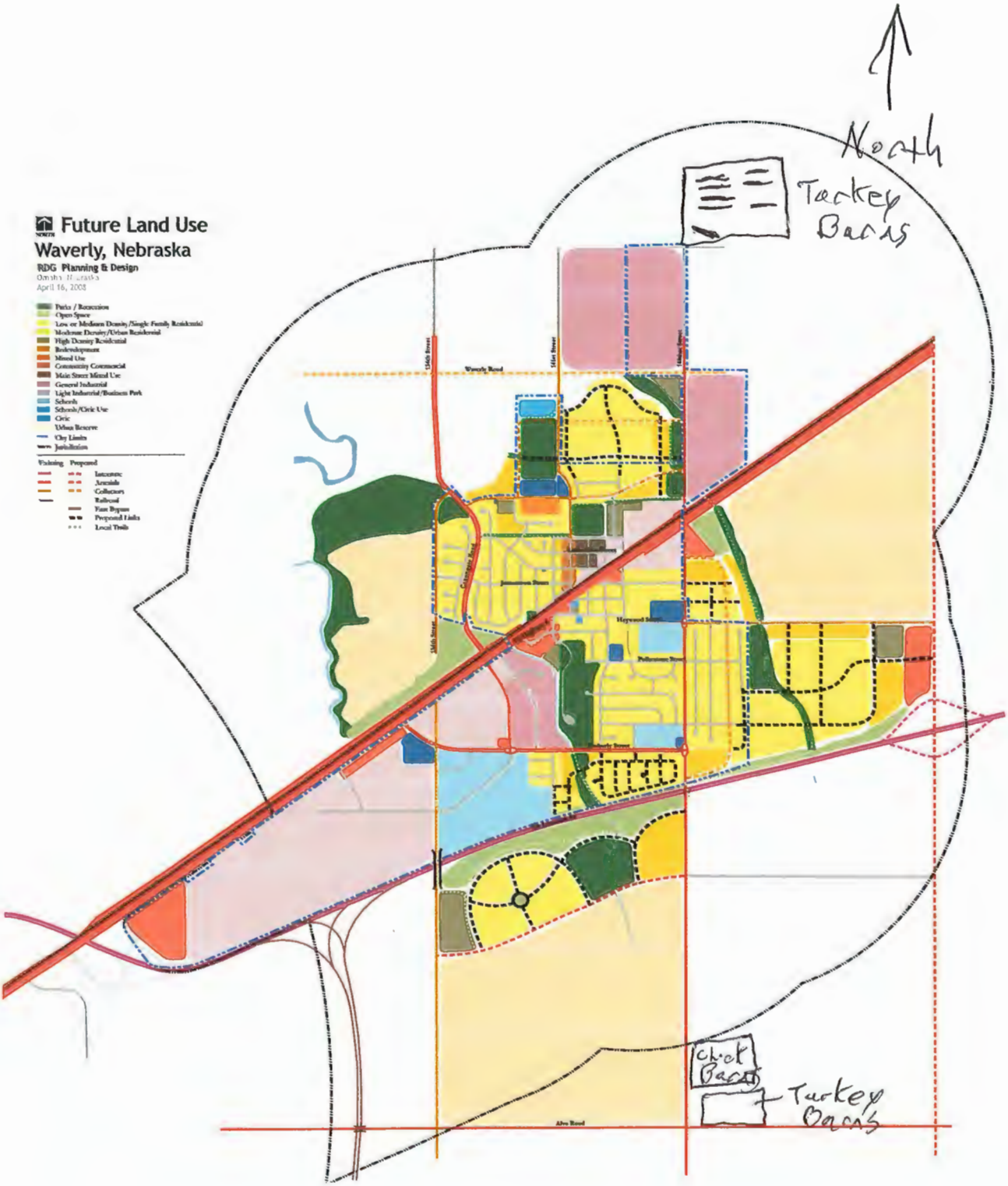
North
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Waverly, Nebraska
RDG Planning & Design
Omaha, Nebraska
April 16, 2008
Parks / Recreation
Open Space
Low or Medium Density/Single Family Residential
Moderate Density/Urban Residential
High Density Residential
Redevelopment
Mixed Use
Community Commercial
Main Street Mixed Use
General Industrial
Light Industrial/Business Park
Schools
Schools/Civic Use
Civic
Urban Reserve
City Limits
Jurisdiction
Existing
Proposed
Interstate
Arterials
Collectors
Railroad
Fast Bypass
Proposed Links
Local Trails
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Johnson Street
Hayward Street
Pellerstone Street
Alvo Road
Turkey Barns
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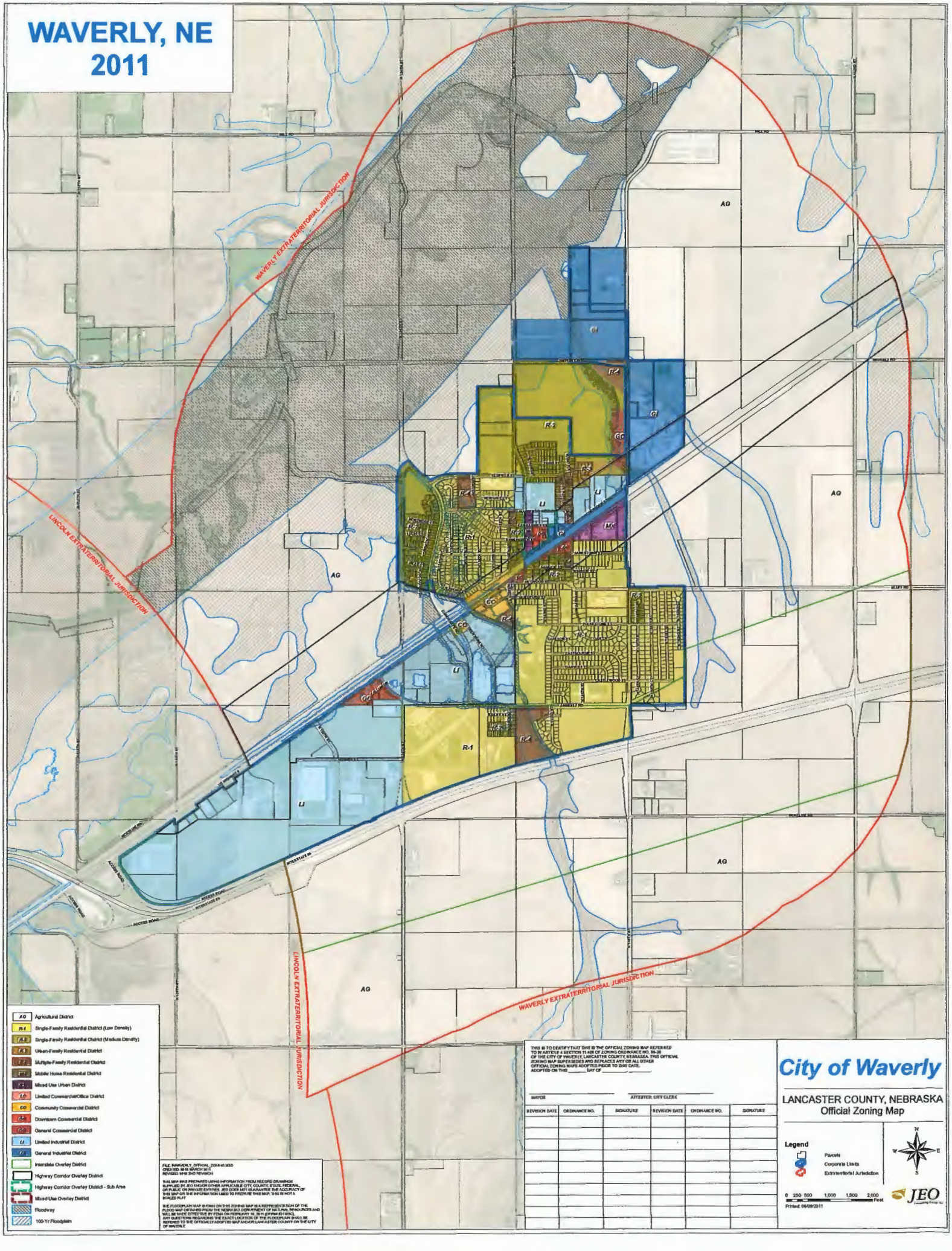
WAVERLY, NE
2011