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I. Introduction

Livestock production has always been an important part of Iowa agriculture however, over the past century livestock production has gone through massive changes. Some of these changes have been technological as well as changes in the ownership interests of livestock and some changes with the regulations imposed on production. The biggest and most controversial changes have occurred in the swine industry, but changes in the other sectors have also been seen.\(^1\) Consolidation of the production of livestock and the move to more confinement facilities has raised concerns related to vertical integration, manure application procedures, odor control, and contamination of surface and ground water. As a result of these concerns the state and federal legislature have put into place numerous regulations aimed at construction of livestock production facilities, manure application, and site and location requirements. Increased regulations have been pushed by legislatures as well as administrative agencies and have been driven by a concern over environmental impacts of confinement operations. Increased regulation, however, has been somewhat limited by the desire to promote economic growth in the state, especially rural Iowa. A balance has been struck between protecting the environment and protecting farmers and livestock producers. The state legislature is aware of the necessity of maintaining the current level of livestock production because it translates into increased farm revenue, as well as jobs associated with processing livestock. With the level of regulation that has occurred in the state over the past several decades it has been hard for many in the industry to keep up with the changes. This note will examine some of the regulations of livestock

\(^1\) See Matt M. Dummermuth, A summary and Analysis of Laws Regulating the Production in Iowa and Other Major Pork Producing States, 2 DRAKE J. OF AGRIC. L. 447, 449 (Winter 1997).
production with an emphasis on manure management plans and the increased use of manure sales contracts and manure easements. It is the hope of the author that this note will provide some guidance for agricultural attorneys, general practitioners, and livestock producers.

II. Confinement Feeding Operations

Animal operations are regulated according to chapter 459 of the Iowa Code know as the Animal Agriculture Compliance Act and Chapter 459A of the Iowa Code known as the Animal Agriculture Compliance Act for Open Feedlot Operations. These acts are broad pieces of legislation that regulate several aspects of animal production including: confinement facilities, open feedlots, air quality, water quality, certification for manure application, manure management plans, manure storage, separation distances between facilities, enforcement of regulations, along with a copious amount of other issues. These code sections were separated because the issues rose by confinement operations regarding construction, air quality and manure application are unique to confinement buildings and pose a higher risk of adverse environmental impact. The first portion of this guide will focus on confinement feeding operations.

A confinement feeding operation (CFO) is defined as “an animal feeding operation in which animals are confined to areas which are totally roofed.” Two or more feeding operations that are under common ownership or management are considered to be a single animal feeding operation if one of the structures was built on or after March 21, 1996 and they are within a

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Confinement feeding operations are required to be a specified distance away from a residence which is not the confinement owner’s residence and commercial and public structures. The distance is determined by the date of construction or expansion, the type of manure storage structure used, and the weight and type of livestock housed. There appears to be three important dates that can determine the distance required. If a confinement feeding operation structure was built after March 1, 2003 then tables 4 and 5 apply, if the buildings were built between January 1, 1999 and March 1, 2003 then table 2 applies and anything built or expanded prior to January 1, 1999 but after May 31, 1995 will be governed by table 1. A major problem is the future expansion of confinement facilities constructed prior to the effective date of these regulations. Consequently a farmer who built his confinement structure according to the regulations is now prevented from expanding because the new construction would violate regulations now in effect. The state legislature realized there was a potential problem and enacted 459.203 to help mitigate the harm to producers. The regulations allow a producer to expand an existing confinement feeding operation depending on the size of the expansion and the relation of the date of construction to the three important dates discussed earlier and if no portion of the expansion is closer to an object where separation is

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required. Location of application of manure fertilizer is also restricted and an owner of a CFO cannot apply manure within 750 feet of a residence, unless it is his own, or public facilities including, churches, schools, commercial buildings or public use areas.

Small operations are exempted from the separation distance requirements and those large operations that don’t meet the distance requirement can attempt to get a waiver from the offended landowner. Another exemption is allowed when the distance violation is due to the expansion of a residence, educational facility, church, or commercial structure was expanded after the date on which the CFO began operation. Just like exemptions for distance requirements for the building structures the state legislature has enacted exemptions to the distance setback requirement for liquid manure application. Exemptions are made for operators who get a waiver from the owner of the benefited property, for the operators who inject or incorporate the manure with a twenty-four hour period, and the application of manure through

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11 Iowa Code § 459.204 (2007).

12 Iowa Code § 459.202 (2007). A small operation is defined as an operation of 500 or fewer animal units. Iowa Code § 459.102(44) (2007). The exemption doesn’t apply if that animal feeding operation includes an unformed manure storage structures. Iowa Code § 459.202(1) (2007). For a waiver of the separation distance to be in effect it must be recorded in the office of the recorder of deeds in the county where the benefitted land is located. Iowa Code § 459.205(2) (b) (2007).


central pivot irrigation if several requirements are met.\textsuperscript{15} Since irrigation is not very common in Iowa the requirements regarding pivot irrigation requirements have not affected as many operators as it may in states farther to the west of Iowa where irrigation is much more common.\textsuperscript{16}

**a. Construction Requirements Of Confinement Operations**

Anyone planning on constructing a CFO or expanding a current CFO should determine whether or not they will need to get a building permit. Under state law, to make this determination several questions need to be answered as soon as possible and at least one-hundred-twenty days before construction is set to begin.\textsuperscript{17} Questions that need to be answered are number of animal units or total weight of animals, type of manure storage, location, and proximity to any other commonly owned CFO.\textsuperscript{18}

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\textsuperscript{15} Iowa Code § 459.205(4) (2007). Since irrigation is not very common in most parts of Iowa the main manure application setback exemptions apply to those who get waivers or incorporate manure within twenty-four hours.


\textsuperscript{17} Iowa DNR, *Construction Requirements for Building, Modifying or Expanding a Confinement Facility*, http://www.iowadnr.com/afo/confine2.html.

\textsuperscript{18} Iowa DNR, *Construction Requirements for Building, Modifying or Expanding a Confinement Facility*, http://www.iowadnr.com/afo/confine2.html.
(IDNR) designates three types of CFOs depending on the size and type of manure storage.\footnote{Iowa DNR, \textit{Construction Requirements for Building, Modifying or Expanding a Confinement Facility}, http://www.iowadnr.com/afo/confine2.html.} The three types of CFOs are permitted, non-permitted, and small – formed manure storage.\footnote{Iowa DNR, \textit{Construction Requirements for Building, Modifying or Expanding a Confinement Facility}, http://www.iowadnr.com/afo/confine2.html.} Each CFO has a unique set of forms and requirements that have to be met. A CFO’s animal unit capacity is determined by the maximum number of head and the type of livestock being raised (see appendix A table 6) or for operations which were built prior to 2003 that rely on the total weight of animal capacity based on average weight and capacity number (see appendix A table 7).

If a construction permit is required by the DNR the owner and any parties with an interest in the CFO will need to figure out what forms are needed for their particular operation. A CFO will need a permit if they are using unformed manure storage or the unit will utilize a formed manure storage structure and the size of the unit is more than 1000 animal units.\footnote{Iowa DNR, \textit{Construction Requirements for Building, Modifying or Expanding a Confinement Facility}, http://www.iowadnr.com/afo/confine2.html.} The forms are located on the IDNR website and along with those forms are instructions and checklists so producers don’t overlook anything. One of the first things that needs to be determined is whether the soil the CFO will be built on is either alluvial or karst. If the soil is alluvial then the property owner will need to get a floodplain permit or a declaratory judgment from the IDNR that the location is not within a 100-year floodplain. If the soil type is karst then concrete standards will be affected and soil studies will need to be performed by a qualified entity or individual.
After the soil type is determined a determination of whether a Professional Engineer (PE) will be needed. The services of a PE are required depending on location and type of manure storage structure.\textsuperscript{22} If a CFO requires services of a PE the documents that need to be included with the construction permit will differ from a CFO that doesn’t meet the threshold for a PE, however, many of the forms are similar. One difference is that a non-PE CFO has to provide aerial photos designating setback requirements and showing that they have been met while a PE CFO has to provide engineered drawings showing the necessary setback distances. The other big difference is that a non-PE CFO only has to provide a construction design statement or professional engineer design certification while a PE CFO has to provide a much more detailed set on engineered plans specifically tailored to the particular site. Otherwise the attachments that may have to be filed with the permit application for both PE CFOs and non-PE CFOs includes written waivers, verification of a secondary containment barrier, a master matrix, storm water permits, and water use permits.

1. Construction Regulations of Unformed Manure Structures

Manure storage structure requirements are specified in 567 Iowa Administrative Code 65.15. The purpose of these regulations is to not only protect the state’s natural resources but also to protect the producers by indicating the standard for construction of confinement facilities. As long as the producer abides by these standards they have a valid defense to future negligence lawsuits for the design of the facility. Prior to construction of an unformed manure storage structure an investigation has to be done to determine where there may be tile lines and then

remove those tile lines. Any tile lines within fifty feet of the perimeter of the manure storage structure should also be removed and capped according to specifications. Removing these tile lines prevents manure from seeping into the tile lines and running directly into the nearest stream. Relation of the floor of the earthen manure storage structure to the water table is required to be no less than four feet, if less than four feet special means must be employed to seal the floor of the manure storage structure using a synthetic liner. Determination of the water table height must be established according to the administrative code requirements as well as any artificial lowering of the water table. Any new unformed manure storage structures has to meet structural requirements regarding compaction, sealing, soil type, and twenty-four inch over-excavation of sand, organic soil, and gravel. Almost every aspect of the construction of unformed manure storage structures is regulated, and while most of these regulations are fairly specific they are based on common sense and industry standards. This being said every situation and every site is different and a step by step process of going through these requirements will help avoid costly mistakes.

2. Construction Regulations of Formed Manure Structures

Construction of formed manure storage structures is also regulated. These regulations have become more important over the years as the industry has moved away from earthen

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manure storage to deep pit manure structures. The floors of formed manure storage structures are required to be at least five inches thick and no less than four and a half inches thick, also 95% of the floor area must meet the minimum five inch requirement. Almost all aspects of the construction of the formed structure is regulated: grade and quality of the concrete, use of rebar and mesh reinforcing, use of water-stops, use of concrete vibration, curing time, and backfilling; just to name a few. Virtually all aspects of the construction process are regulated in an effort to eliminate environmental damage due to poor construction. Similar to unformed structures the landowner must determine the height of the water table; if the water table is above the floor of the structure then the operator must install tile to artificially lower the water-table. If the depth of the structure is more than twelve feet it must be individually designed based on the characteristics of the site by a certified professional engineer or an NRCS engineer. Construction of a formed manure structure upon karst terrain or in the presence of a known sinkhole has to meet additional construction, engineering, and water and soil testing requirements due to the increased likelihood of a spill causing groundwater contamination. Usually producers can avoid problems by early planning and investigation. First the producer should determine how large the CFO will be and where it will be constructed; then a walkthrough of the code will provide a checklist of requirements that if followed will help protect the operator from liability down the road.

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III. Construction Requirements of Open Feedlot Operations

Similar to confinement facilities open feedlots need to meet a host of requirements depending on the size of the operation, the location, and proximity to water supplies. Since 1970, laws have been in place to regulate Concentrated Animal Feeding Operations CAFO, but most of these laws were not enforced. In 2001 the State of Iowa attempted to encourage producers to register their feedlots with the IDNR and in return those operations do not risk penalties. They have two to five years to become compliant with any shortcomings in their facilities, including manure management. Assessing the need to get a construction permit requires determining how your operation is defined by the IDNR. Once this determination has

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36 See generally Iowa Admin Code. r. 567-65.100, 105 (2008). (CAFO is an animal feeding operation (AFO) which is designated as a large CAFO, medium CAFO, or designated CAFO. A large CAFO is an AFO which houses a specified number of livestock including: 1000 beef cattle, 700 dairy cattle, 2,500 swine weighing more than fifty-five pounds, 10,000 swine weighing less than fifty five pounds, 500 horses, 10,000 sheep or lambs as well as poultry depending on several more factors. A medium CAFO is defined as an AFO which houses a specified number of livestock including: 200-999 beef cattle, 200-699 dairy cattle, 750-2,499 swine weighing more than fifty-five pounds, 3,000-9,999 swine weighing less than fifty five pounds, 150-499 horses, 3,000-9,900 sheep or lambs as well as poultry depending on several more factors. A medium CAFO can also include an operation which houses 300-999 animal units when one of two other conditions is also met regarding the discharge of water into waters of the United States. A designated CAFO is an AFO which has been designated as a CAFO after an on-site inspection by the department based on the size, proximity to waters of the United States, means of discharge into the water source,
been made the next step is to decide whether a permit is required for the type of operation being built. IDNR requires a permit when constructing or expanding a settled open feedlot effluent basin, alternative technology (AT) system, or installing a piping system if the operation is required to get a National Pollutant Discharge Elimination System (NPDES) permit.\textsuperscript{37} According to Iowa’s Administrative Code every CAFO owner or operator has to apply for an NPDES permit unless the feedlot doesn’t discharge waste materials into waters of the United States.\textsuperscript{38} Other operators who must get a construction permit are those who are increasing animal capacity above a threshold level determined by a previous permit, increasing volume of settled open feedlot effluent stored to an amount previously approved under a permit, and when repopulating an open feedlot that was not used for twenty-four months and capacity will be 1000 or more.\textsuperscript{39} The threshold number depends on the planned capacity of the new facility added to the capacity of any adjacent operation which is owned or operated by the same entity.\textsuperscript{40} Once

\begin{itemize}
\item factors affecting the likeliness and frequency of discharge including: slope, vegetation, rainfall, and any other factor.
\end{itemize}

\textsuperscript{37} Iowa Admin Code. r. 567-65.105(1)(a) (2008); see also Iowa Admin Code. r. 567-65.100 (2008)(for definitions of settled open feedlot effluent basin and alternative technology)

\textsuperscript{38} Iowa Admin Code. r. 567-65.102 (2008), see generally Bren Mollerup, Note, \textit{Rapanos v. United States: Waters of the United States” Under the Clean Water Act}, 12 Drake Journal of Agric. Law 521 (2007) (this note discusses in depth the arguments surrounding the definition of “waters of the United States” and examines the definition used by the Supreme Court in a 2006 case).

\textsuperscript{39} Iowa Admin Code. r. 567-65.105(1)(a),(b),(c) (2008).

\textsuperscript{40} Iowa Code 459A.103(1)(a) (2008); see also Iowa Code 459A.103(1)(b) (2008) (for two operations to be considered adjacent one has to be constructed on or after July 17, 2002 and they are separated by less than 1,250 feet).
these preliminary questions have been answered the operator then needs to determine what he needs to include in the application.

A permit application will only be approved if the operator provides a nutrient management plan, an engineering report, constructions plans, and specifications prepared by a PE or by the National Resource Conservation Service (NRCS) certifying the construction of the effluent basin.\textsuperscript{41} No part of construction can take place until the permit has been issued and once issued the permit will expire if no construction has taken place within one year of approval or if construction has not been completed within three years of approval.\textsuperscript{42} Also the department can revoke the permit if the department determines for some reason the operation will pose a clear, present and impending danger to the safety of the public or environment.\textsuperscript{43} If the operator is using a settled effluent basin they must include a soils and hydro geologic report describing the site, the geologic issues faced, effects on groundwater elevation and soils, subsurface soil description and at least three soil corings.\textsuperscript{44} After the construction has taken place an operator must provide certification from a PE stating the basin was constructed according to regulations, there was an inspection after construction and prior to operation, and a written investigation of tile lines.\textsuperscript{45}

\textbf{a. Construction Requirements of a Settled Effluent Basin}

\textsuperscript{41} Iowa Code 459A.205(3) (2008).
\textsuperscript{42} Iowa Code 459A.205(7)(a) (2008).
\textsuperscript{43} Iowa Code 459A.205(8) (2008).
\textsuperscript{44} Iowa Code 459A.206 (2008).
\textsuperscript{45} Iowa Code 459A.207 (2008).
If a construction permit is issued a settled effluent basin must meet several requirements.\(^{46}\) First and foremost an investigation must be made to locate any tile lines near the basin and those tile lines must be rerouted at least twenty-five feet from the outside edge of the berm, or the tile line must be replaced with a non-perforated section underneath the berm.\(^{47}\) If a tile line is found within fifty feet of a settled effluent basin and there is no berm in that area of the basin the tile must be moved at least fifty feet away.\(^{48}\) There must be at least two feet between the top of basins liner and the seasonal high water table and the bottom of the berm cannot be any closer than four feet from a bedrock formation.\(^{49}\) A berms liner cannot have a percolation rate of more than one-sixteenth of an inch per day and if made of clay soil the liner must be a minimum of twelve inches thick.\(^{50}\) Location of basin cannot be in an area where there is karst terrain or known sinkholes.\(^{51}\) Any location within one mile of a known sinkhole or karst terrain is prohibited from having a basin installed unless there is adequate site specific geologic information stating there is twenty-five feet of suitable material between the bottom of the basin and the bedrock formation.\(^{52}\) This raises the question of what is “suitable material” and how


\(^{49}\) Iowa Code 459A.302(2)(a), 459A.302(4) (2008); see also Iowa Code 459A.302(2)(b) & (3) (2008)(several exceptions including artificial lowering of the water table are discussed which affect the distance between the top of the basin liner and the water table).

\(^{50}\) Iowa Code 459A.302(6) (2008).


hard it would be to establish the proper distance requirement. One possible solution would be to find a location where this isn’t a problem to avoid possible penalties and costly investigations. Obviously this isn’t always a possibility but one should consider the other options prior to seeking a permit. Another option would be to install a formed manure structure. The structure must be built to the same specification for an open feedlot as a CFO including the design and certification of a PE to the integrity of the design, a minimum of five feet of distance between the bedrock and the basin, and geologic information indicating adequate protection of the bedrock formation. Settled effluent basins for a CAFO also cannot be built within 1,000 feet of a public shallow well, 400 feet from a public deep well, or 400 feet from any private well.

**b. Nutrient Management Plan**

An owner of a CAFO with a capacity 1,000 animal units or more or an operation that must be issued an NPDES is required to develop and submit to the department a nutrient management plan. The nutrient management plan is a field by field analysis of application rates, application methods, timing of applications, land area manure is applied on, nutrient levels

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55 Iowa Admin. Code r. 567-65.108(1) (2008); see also Iowa Admin. Code r. 567-65.100 (2008) (A shallow well is defined as a well that does not have at continuous layer of low permeability soil or rock at least five feet thick, the top of which is at least twenty-five feet below normal ground surface. Conversely a deep well is a well that does have a continuous layer of low permeability soil or rock at least five feet thick the top of which is at least twenty five feet below normal ground surface).

in the manure or wastewater, and needs based on crop and desired yield. The nutrient management plan must also provide estimated amount of discharge and assurance that there is plenty of room for storage of manure as well as proper operation and maintenance of storage structures. Operators must also include information regarding management of mortalities to prevent prohibited discharge, prevention of animals having contact with water of the United States and inspection of manure application equipment. An operator needs to make sure they are keeping records on all aspects of manure application such as timing, rates, location, and weather conditions twenty-four hours prior to and following application. Records must also be kept of commercial nitrogen and phosphorous applications on any field that receives manure from the CAFO. If the operator applies manure to a field that he neither owns nor leases for crop production he must try to get records of commercial fertilizer applications, however if those records can’t be produced the department won’t seek an enforcement action unless the operator knew or should have known nitrogen or phosphorous would be applied in excess of maximum levels. Approval of the nutrient management plan will be made along with the application for construction, if the operation doesn’t require a construction permit then the approval of the nutrient management plan will be made within sixty days.

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IV. Manure Management Plans

A manure management plan (MMP) is a comprehensive plan operators use to help manage manure application to ensure an accurate level of nutrient application is applied to crop production property. Through the process of filling out a MMP a producer will have to identify manure nutrient concentration and the amount of manure produced. Predicting these numbers will provide a producer the information needed to know how much property they will need access to in order to apply the manure in an efficient manner. The producer will also then be able to predict whether the land he has will be adequate for application or whether he will need to try to secure manure application leases or easements in order to ensure they aren’t overloading the soil with nutrients. According to Iowa law, a MMP must be provided to the IDNR if the operation was constructed after May 31, 1985 and has an operation of more than 500 animal units or a 500 animal unit facility is proposed to be constructed, or manure from an out of state CFO is applied on Iowa land. Operators required to submit an MMP must also submit annual

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updates for their MMP to the county supervisor in the county where the facility is located as well as where manure is applied.\textsuperscript{69} If a facility is updated, expanded, or changes ownership an original MMP must be submitted taking the changes into consideration.\textsuperscript{70} Currently there is a $250.00 filing fee when an original MMP is filed even if it is filed with a construction permit as well as a $0.15 annual compliance fee per animal unit.\textsuperscript{71} The IDNR requires the producer to provide proof of the county supervisor’s receipt of the MMP by sending the IDNR a filled out form with the signature of a county supervisor verifying the MMP requirements were satisfied.\textsuperscript{72} If the MMP is part of a construction permit the county is also required to provide notice to the public that a CFO has been proposed.\textsuperscript{73} A county can hold a public hearing and provide

\begin{footnotesize}
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\item \textsuperscript{73} IDNR, Manure Management Plan Forms for Confinement Animal Feeding Operations, http://www.iowadnr.com/afo/mmp.html.
\end{itemize}
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comments to the IDNR if they wish but they are not obligated.\(^{74}\) Another possible procedure that must be complied with is the use of Master Matrix calculations.\(^{75}\)

**a. Master Matrix**

Master Matrix (MM) calculations have been proposed and passed at the county level so the determination of whether these procedures must be followed is county specific. To this point there are only twelve counties that have not adopted a MM requirement.\(^{76}\) All producers applying for a construction permit for a CFO in a county where a MM has been approved must provide the IDNR with MM forms and calculations.\(^{77}\) There is really only one exception for a producer in a MM county; if the operation was constructed prior to April 1, 2002 and will not exceed 1,666 animal units.\(^{78}\) Counties must re-adopt the construction evaluation resolution every year to keep it in place.\(^{79}\) The MM requires producers to achieve higher standards of impact on the environment in three specific areas; air, water, and community impact.\(^{80}\) The hope is that


through stricter regulations on locating CFO’s there will be less intrusion on the environment and neighbors.

Under the MM requirements counties have required guidelines for citing confinement facilities that place stricter regulations depending on water, air, and community impacts. In order for an operator to meet the requirements of a MM they must receive a total score of 440 or more and individual scores of 53.38 in the air category, 67.75 in the water category, and 101.13 in the community impact category. Requirements are based on separation distances to residences, hospitals, nursing homes, education facilities, public use areas, sinkholes, drainage wells and water sources. Other areas of scoring include measures taken to cut back on odor. An operator can gain points for installing landscaping, filters, and controlling odor of stockpiles using a roof or impermeable cover. Community points are awarded for such things as proper turnaround distance in the facility yard to allow trucks to turn around without backing in from the road, no history of administrative orders in the past five years, additional separation distances

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above the required distances, and groundwater monitoring.\textsuperscript{85} Master Matrix requirements are a result of increased concern of nuisance suits and understanding of the community’s desire for odor, water, and air quality control.

\textbf{b. Phosphorous Based Land Application}

Another change to Iowa’s MMP requirements aimed at protecting the environment is the phased in requirement of phosphorus based land application requirements instead of nitrogen based.\textsuperscript{86} The thought behind this change is that typically nitrogen is the most limiting nutrient in the soil. In order to maximize crop potential a producer would determine how much nitrogen was lost through the past growing season based on the crop type and how much manure would need to be applied to achieve the desired amount of nitrogen. Unfortunately phosphorous being a relatively stable nutrient would build up in the soil over years of applying manure resulting in a phosphorous overload. Now producers required to apply based on phosphorous will only be replacing the phosphorous lost and will then have to supplement the manure with commercial nitrogen to receive the proper nutrient balance to maximize growth. The switch to phosphorous based MMP’s has been phased in over time and in 2008 will be totally phased in.

<table>
<thead>
<tr>
<th>Implementation Date for P Index-based plans</th>
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<tr>
<td><strong>Original MMP Submitted</strong></td>
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<td>prior to April 1, 2002</td>
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Meeting the requirements of MMP’s will necessitate extensive record keeping of manure applications.\textsuperscript{87} The DNR requires producers to keep records for the previous five years and have those records available for review.\textsuperscript{88} The records must include field specific information regarding previous crops grown, planned crop, previous application to this field, nitrogen fixed by previous crop, and planned crop rotation.\textsuperscript{89} A producer must also keep track of the dates of application information including the method of application, total gallons applied, rate of application, and weather condition the day of, prior to, and after the application.\textsuperscript{90} A problem can occur when the manure is being applied to land that isn’t owned or leased by the CFO operator. They will have to do their best to provide all the information needed but some of the records could be hard to get from the land owner. Iowa law requires that not only the records be available for inspection but also the CFO itself can be inspected.\textsuperscript{91} The department can inspect the CFO any time during normal operating hours.\textsuperscript{92} This raises concerns of what exactly can be

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between April 1, 2002 and Oct. 24, 2004 & First annual update after Aug. 25, 2006 \\
- & - \\
on or after Oct. 25, 2004 & upon submittal \\
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\textsuperscript{91} Iowa Admin. Code r. 567-65.17(14) (2008).

\textsuperscript{92} Iowa Admin. Code r. 567-65.17(14) (2008).
inspected. Does it only include the CFO location site or does it include the farmyard because equipment is stored there as well as feed, supplements, and medicine? Are all aspects of the records open for inspection or only those that pertain to the application of manure? These regulations seem to indicate a limitation to those aspects of the operation that affect the application of manure but that could be extremely broad and encompass remote aspects of the operation.

V. Manure Application Agreements

Manure is one of the best sources of nutrients for cropland because unlike commercial fertilizer organic matter and micronutrients are also found in manure. With the increase in CFOs has come an increase of concerns of what to do with all the manure being produced. These growing concerns have resulted in agreements between CFO owners and crop farmers to spread manure on land not owned by the CFO. Farmers who don’t have any livestock can utilize the excess manure produced by CFOs thereby cutting down on the amount of commercial fertilizer that needs to be purchased. This is especially important now that costs of nitrogen have increased to an all time high.93 As a result, manure which once was viewed as waste has developed into added income to a CFO owner.94 Only a few years ago a CFO owner had to search out a land owner who was willing to let them apply their manure to their property, now


http://farmindustrynews.com/mag/waste_not_manure/
property owners are seeking out CFO owners trying to negotiate so they can buy the manure.\textsuperscript{95} Increased demand and sales has resulted in an increased desire for legal business arrangements to assure manure will be available, land will be available, and to protect the parties from damages.\textsuperscript{96} These legal arrangements can include a contract to sell inputs and manure application easements.\textsuperscript{97} It is important to understand the differences between these various tools and what the parties should consider when entering into business arrangements.\textsuperscript{98}

Before entering into a business agreement it is important to identify what type of business agreement best fits a certain circumstance. One tool used to procure the right to apply liquid manure to someone else’s land is called an easement.\textsuperscript{99} An easement is a “right to use the land of another for a special and limited purpose not inconsistent with a general property in the owner.”\textsuperscript{100} An easement can be arranged that runs for a number of years or can actually run with the land so future landowners will still have to recognize the easement. As the definition indicates the easement only affects the manner of use that is included in the easement not the other property rights of the owner. So the property owner is otherwise able to use the property in whatever manner they choose even to the point of selling or conveying the land to another person. This provides the livestock producer with the security of knowing their right to apply

\textsuperscript{95} Karen McMahon, \textit{Waste Not}, \textit{FARM INDUSTRY NEWS}, March 1, 2007

http://farmindustrynews.com/mag/waste_not_manure/

\textsuperscript{96} Bob Koehler et al., Writing Manure Contracts, http://swroc.cfans.umn.edu/Bob/docs/writing_contracts.PDF.

\textsuperscript{97} Bob Koehler et al., Writing Manure Contracts, http://swroc.cfans.umn.edu/Bob/docs/writing_contracts.PDF.

\textsuperscript{98} Bob Koehler et al., Writing Manure Contracts, http://swroc.cfans.umn.edu/Bob/docs/writing_contracts.PDF.

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\textsuperscript{100} West’s Legal Thesaurus/Dictionary.
manure to a specific piece of property will not be affected by a death, divorce, or retirement of the landowner.\textsuperscript{101} The easement must be recorded in order to provide adequate notice to future purchasers and to make the agreement enforceable.\textsuperscript{102} A contract to sell inputs on the other hand is a legally binding document that requires the parties to abide by the terms within the contract.\textsuperscript{103} An easement can only be agreed to by the property owner so an easement is a tool available for a landowner and a CFO owner to use to provide some protection in regards to manure fertilizer application.\textsuperscript{104} On the other hand if the agreement is made between a CFO owner and someone who is leasing agricultural ground then they cannot enter into an easement and instead should use a contract agreement.\textsuperscript{105} So throughout the process it is important for everyone involved to know who they are dealing with, what their role is, and what type of arrangements are available and are best suited for the situation.

\textbf{a. Manure Easements}

The use of easements to procure adequate acres for manure application has given rise to many issues and problems that all parties involved in need to think about prior to entering into

\begin{itemize}
\item \textsuperscript{101} Chris Boessen & Ray Massey, \textit{Securing Manure Spreading Rights through Easements}, Univ. of Mo. Extension, http://extension.missouri.edu/explore/agguides/agecon/g00361.htm.
\item \textsuperscript{102} Chris Boessen & Ray Massey, \textit{Securing Manure Spreading Rights through Easements}, Univ. of Mo. Extension, http://extension.missouri.edu/explore/agguides/agecon/g00361.htm.
\item \textsuperscript{103} See West’s Legal Thesaurus/Dictionary.
\item \textsuperscript{104} Bob Koehler et al., \textit{Writing Manure Contracts}, http://swroc.cfans.umn.edu/Bob/docs/writing_contracts.PDF.
\item \textsuperscript{105} Bob Koehler et al., \textit{Writing Manure Contracts}, http://swroc.cfans.umn.edu/Bob/docs/writing_contracts.PDF.
\end{itemize}
manure application agreements.\textsuperscript{106} Since an easement is usually a long term arrangement it is important for the parties to address all issues that may arise.

1. \textbf{Is this easement between the landowner and the AFO owner personally or is it between the landowner and the AFO?}

In other words, is the easement going to run with the AFO if the current owner sells the AFO to another operator or corporation? This question raises concerns that the landowner can view as bad or good. For instance, if the AFO is sold the landowner may be concerned with who is going to apply manure; are they environmentally sound, will they respect the issues of application timing, compaction, and weather. The landowner could also be concerned about whether the new AFO operator will even need his land. If the new operator also owns 10,000 acres of farmland it is less likely they will need the easement at all. Even if the easement is in place it doesn’t necessarily mean the manure will be spread on that property it simply means the manure can be spread on that property. These dueling issues will require the landowner to determine what issue he is more concerned with.

The owner of the AFO will have different views and concerns. If the AFO is sold the new owner may need somewhere to spread the manure, if an easement has been established then it may remove some of the barriers to purchase and result in more buyers and a better price. Also, if the AFO is sold the old owner won’t likely have any need to have an easement in place

so the AFO owner would rather have the easement run with the AFO. While assigning the easement to the AFO rather than the person is one way around this issue the AFO owner and the landowner can also solve this problems by making the easement shorter so they are only stuck with the terms for a few years instead of ten or twenty.

2. How long will the easement be in effect?

The length of the easement can be determined either by a set time period or by a significant event such as the death of a landowner or AFO owner. Once again there are several competing interests of both parties. By connecting the easement length to the death of one of the parties it negates what may be considered a benefit of an easement. Also, if the landowner decides to sell the property an easement length that is very long may affect his ability to get a good price. An AFO operator may want to have some security down the road to know that they will have sufficient property to apply manure to so they can expand their current operation and want an easement that runs the life of the feeding facility or the length of the financing. In fact, some lenders require some kind of arrangement be made when an AFO


owner doesn’t own/lease enough land to legally apply the manure produced by the proposed AFO.\textsuperscript{110}

3. What kind on manure is this agreement referring to and where is the manure coming from?

The type of animal and type of storage manure comes from can play a large part in the nutrient level of the manure. Usually liquid manure from a deep pit system has the highest level of nutrients, however, it also carries with it additional application requirements. Dry manure on the other hand may not have as high nutrient level but it also doesn’t require as much regulation as liquid manure. Also, because timing and weather play such a large part in the ability to apply manure the location of the manure may change quite often. The landowner would probably rather have some assurances of what type of facility the manure applied to his property is coming from so they know how much commercial fertilizer will need to be applied, if any. This will provide the landowner with more reliable and consistent results. The AFO owner on the other hand would rather have the flexibility of applying manure as needed to the ground that is ready to be fertilized. If the AFO operator has thousands of gallons of manure to apply and only a few months in the fall and a few weeks in the spring to apply it they want the flexibility to run from one field that is too wet the field a few miles down the road that is ready without worrying about what building they are taking the manure from.

4. What property is included in the easement?

Easements can include a certain field or an entire farm. The AFO would prefer to tie up an entire farm to assure themselves of adequate acres and flexibility. Since crop rotation, soil type, and weather will play a huge role in when and where manure can be applied more acres allows more flexibility. The landowner wants to make sure that any acres that are not tied up in one easement are still available for another easement; therefore they may want to only include part of their farm in an easement rather than the entire farm. Also, if the manure applicators need to access land, will they have to travel through your farmyard or someone else’s to get to the property? This is a concern because of the nature of manure application. Manure applicators are required to run all night long which may be a nuisance to the homeowner. The AFO operator would prefer to use land that is close to the facility to cut down on transportation costs, many times commercial manure applicators charge extra depending on the distance between the application site and the facility.

5. **Can the easement be terminated and if so for what?**

Typically the benefit of an easement is the assurance of the terms of the easement being binding for a certain time period. However, the parties may wish to include some sort of clause to allow them to get out of the easement in certain situations. Some situations could include bankruptcy, death of a party, sale of property or AFO or any other number of reasons. It is important for the parties to be specific about what circumstances result in the ability to terminate, for instance, if the easement can terminate upon the sale of the AFO, what happens if the AFO is gifted to an heir as part of an estate.

6. **Is there an indemnity clause contained in the easement?**
Manure application can be a very controversial subject because manure can have adverse affects on land, property value, and the local environment. A landowner will likely want some language included in the easement that protects the landowner from liability for accidents in transportation, improper application, and accidental discharge. An indemnity clause would require the owner of the AFO to defend and hold harmless the property owner from any liability caused by spreading manure.\textsuperscript{111} Unfortunately this clause might not carry as much strength as the landowner would like. If the AFO is bankrupt there won’t be any money to defend any litigation that may be brought against the landowner.\textsuperscript{112} Also, an AFO’s insurance carrier may exclude claims for environmental damages or for claims occurring off property owned or leased by the AFO therefore leaving the AFO and landowner holding the bag.\textsuperscript{113} Unfortunately, all the issues that could arise during life of an easement are too numerous to address or even realize. It is important that all parties involved consider carefully their position and try to think through the specific issues that they are concerned with and address those throughout the drafting process.

\textbf{b. Manure leases, contracts, sales and more}

Many terms have been used to describe the idea of selling manure through a legally binding document, for the purposes of this paper I will refer to them as manure contracts. Many


of the issues involved in establishing a manure easement can also be addressed through a manure contract. Issues such as timing of application, application rate, manure nutrient load, indemnity clauses and any other hosts of issues can be addressed. A manure contract can be coupled with a manure easement so some flexibility is available through the renewal of a contract while enabling security through a manure easement. Due to constantly changing technology and seemingly exponential rise in input costs the need for flexibility is obvious. In the future the numbers of manure sales contracts are going to steadily increase and require more specific information on all issues related to manure application.

1. What rate will be charged for the manure?

A determination of the cost for the manure will depend on several outside factors and may be best left to annual negotiation or at least allow for the rate to change. Initially large AFO’s were simply happy to have someone take their manure and didn’t charge anything in some cases or they may have charged enough to cover the cost of application. Recently, the price of commercial fertilizer has soared to new heights.\textsuperscript{114} Along with the increase in fertilizer costs has come even more demand for manure causing the price paid for manure to increase as well.\textsuperscript{115} Many landowners have begun to build their own CFO’s or in some cases even sell small


\textsuperscript{115} \textit{UNIV. OF ILL. EXTENSION, AS FERTILIZER COSTS RISE, THE MANURE OPTION IS LOOKING BETTER}, http://web.extension.uiuc.edu/state/discover.cfm?DiscoverID=24; \textit{see also} Gretchen Vander Wal, \textit{Manure Value Rises as Fertilizer Prices Soar}, \textit{NATIONAL HOG FARMER}, Feb. 15, 2001 (manure has around fifty-six pounds of nitrogen for every 1000 gallons of liquid manure and around seventy percent will be available for the crop resulting in 4,000
plots of land to AFO operators to put up a CFO simply to obtain a homegrown fertilizer source. The actual cost/benefit of manure will vary depending on the type of manure, the nutrient content, and distance traveled prior to application. With the volatility seen over the past years within the agriculture industry the need to adjust cost of manure application will require flexibility in manure agreements.

2. **What is the Nutrient Content of the Manure; and Who Pays to Find Out?**

As discussed earlier, nutrient content of manure can vary depending on several factors including: type of storage, type of animal, feed variability, length of time stored, and type of application. To determine what rate of manure needs to be applied a sample of the manure should be analyzed to determine what the nutrient load is. Typically the AFO operator will pay for the testing and provide the landowner with this information, but this should be included in the manure contract. The parties may also want to include how often a sampling will be done, where the sample will be analyzed, as well as how the sample will be taken.\(^\text{116}\) Results will be most accurate if sampling is done close to the time of application.\(^\text{117}\) With the increase in regulations and cost of manure a precise rate of application will be increasingly dependent on an accurate nutrient analysis.

\(^{116}\) See generally IA. STATE UNIV. EXTENSION, HOW TO SAMPLE MANURE FOR NUTRIENT ANALYSIS (2003), http://www.extension.iastate.edu/Publications/PM1558.pdf (provides guidance on proper ways to take samples depending on the facility and storage type).

\(^{117}\) IA. STATE UNIV. EXTENSION, HOW TO SAMPLE MANURE FOR NUTRIENT ANALYSIS (2003), http://www.extension.iastate.edu/Publications/PM1558.pdf.
3. When Will Manure Applications be Accomplished?

Many AFOs have adequate storage of manure to only require manure application once or twice per year. The AFO operator and the landowner may have different opinions on when manure should be applied, therefore it is important that the parties discuss this and include language addressing the timing of application in the manure contract. Nitrogen while a stable product is only available to plants for a certain amount of time. The availability of nitrogen depends on several factors including: weather, temperature, and time.\(^\text{118}\) As time goes by the nitrogen in manure can leach into the subsoil because of rain, or it can escape into the atmosphere due to high temperatures and the natural process of denitrification.\(^\text{119}\) Thus the landowner would want manure applied in the spring prior to planting crops. The AFO on the other hand may not have adequate storage for the entire year and need to apply some or all their manure in the fall. Also, weather in the spring is unpredictable and can cause serious problems; especially if the AFO operator has multiple facilities that need to be pumped. Both parties need to discuss these issues and if possible make some arrangement within the manure contract to address the timing of application.

Another issue of timing that should be addressed is the condition of the soil at time of application. A landowner will want to avoid any activity when the ground is too wet so as to

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avoid compaction problems. Resolving this problem requires defining what “too wet” means and determining who makes the determination and how. Environmental and soil conditions are hard to include in a contract so the parties should address how these decisions are made and who is involved in the process.

4. Type of Application

For the most part application of manure depends on the type of manure being applied. Liquid manure is almost always knifed into the soil using a large tanker. This method of application helps eliminate nitrogen loss and complaints of odor. Also, according to the state code manure that is knifed into the ground can be applied closer to public use property. Liquid manure can also be surface applied. Dry manure can’t be knifed in and thus must be applied onto the surface of the ground. The type of application will affect the availability of nitrogen, the amount of compaction, the cost of application and the benefit of the manure and should be made known to all parties involved.

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120 Chris Boessen & Ray Massey, Securing Manure Spreading Rights Through Easements, Univ. of Mo. Extension, http://extension.missouri.edu/explore/agguides/agecon/g00361.htm (application using tanker equipment on wet soil can cause excessive compaction or severe ruts); see also M.M. Al-Kaisi, J.G. Davis & R.M. Waskom, Liquid Manure Application Methods (2002), http://www.ext.colostate.edu/pubs/livestk/01223.html (using drag hose application will allow flexibility, won’t cause as much compaction, but doesn’t work well on sloped and irregular land).


5. **Responsibility of Recordkeeping and Obtaining a MMP**

The responsibility of developing an MMP is generally within the purview of the AFO operator. However, some information will need to be shared for the AFO to comply with the original MMP and annual MMP reports. The landowner and AFO operator should discuss the sharing of information in regards to manure application rates as well as any commercial fertilizer applications to ensure all regulations are met. Some information that will need to be disseminated among the parties includes soil type, nutrient load and application rate of manure, commercial fertilizer application, optimum crop yields, and application methods. Addressing this issue early will avoid the problem of surprise to the landowner when the AFO operator begins asking questions that most landowners don’t otherwise discuss.

6. **How will disputes be resolved?**

Many of the aspects of the manure contract may be open to interpretation or may need to be adjusted according to the changing circumstances. Both parties to the agreement should determine how the disputes are going to be settled. The parties should consider various options of dispute resolution. Some matters could be solved by adhering to an industry standard as developed by a certain publication or entity, such as Iowa State recommendations regarding manure application rates. The parties can also agree to work out their differences by using mediation or arbitration. Arbitration and mediation each have benefits and disadvantages that a

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landowner and an AFO operator should consider prior to agreeing to one of these dispute resolution tools.\(^{125}\)

Arbitration is a process where the parties agree to allow a third party act as judge and jury in resolving a dispute.\(^{126}\) The parties will have to agree on who to use for an arbitrator then both sides will be allowed to present evidence and make arguments.\(^{127}\) The arbitrator will then make a decision based on the evidence.\(^{128}\) There are two types of arbitration; binding and non-binding. Just like the names indicate a binding arbitration binds the parties by the decision and can be enforced in a court of law if one of the parties fails to follow the arbitrator’s decision.\(^{129}\) Arbitration is a simple process compared to resolving issues in court; it proceeds quicker and costs less than a trial would.\(^{130}\) An arbitrator is not bound by rules of procedure and evidence; they can choose to weigh facts that wouldn’t be presented in an actual trial.\(^{131}\) Along with benefits come drawbacks as well. One drawback is that there is no guarantee the process will be fair. Also, there is no ability to appeal the decision of the arbitrator and the parties will be bound by the decision of the arbitrator.\(^{132}\) The arbitrator’s decision may not be enforceable unless the


arbitration is binding.\textsuperscript{133} When including an arbitration clause into a contract the parties need to weigh the benefits and drawbacks of arbitration and determine what will be covered by the arbitration clause.

Another option for resolving conflicts is mediation. Mediation is an intervention of a third party to help resolve a conflict by assisting in the negotiations of the parties.\textsuperscript{134} Unlike arbitration the parties retain the decision making power while the mediator simply facilitates discussion and helps maintain order and prevents the escalation of conflict.\textsuperscript{135} Mediation offers benefits such as being faster and less expensive than formal court proceedings. Also, if the mediation process doesn’t result in a solution the parties are free to seek adjudication in a court of law. Like arbitration the parties need to consider what will be encompassed within a mediation clause. The list of issues discussed in this paper is not exclusive and every situation is different and requires careful consideration of all parties.

\textbf{VI. Conclusion}

Over the past couple decades rural Iowa has seen many changes. As animal production becomes more and more concentrated the potential impact on the environment becomes more of a concern. The large volume of manure that has to be stored and applied increases concerns of environmental damage and contamination. In response to these environmental concerns the legislature has enacted numerous laws and the IDNR has developed a legion of regulations to


control and avoid environmental contamination. While these laws are complicated, careful thought and planning will mitigate the conflict and any problems that may arise.