

Wednesday, September 15, 2021

NOTICE: Meetings will be held electronically and in-person. To access and participate in meetings remotely, please call 641-939-8108 for Zoom meeting information.

- 9:00 A.M. Call To Order Courthouse Large Conference Room
- 2. Pledge Of Allegiance
- 3. Approval Of Agenda
- 4. Approval Of Claims For Payment

Documents:

VENDOR PUBLICATION REPORT 9.15.21.PDF

- 5. Utility Permits & Secondary Roads Department
- 6. Consideration Of Engagement Letters For Pipeline Inspection Services

Documents:

CGA ENGAGEMENT LETTER FOR PIPELINE SERVICES.PDF

7. Recommendation To The DNR On Animal Feeding Operation Construction Permit Application: Schiller Site, Section 3, Alden Township

Documents:

SCHILLER CAFO CONSTRUCTION APPLICATION.PDF CHECKLIST FOR CAFO SCORING - NEW.PDF MASTER MATRIX SCORING AND RECOMMENDATION.PDF

8. Application For Use Of Courthouse Grounds

Documents:

COURTHOUSE GROUNDS APPLICATION - BIBLE READING MARATHON.PDF

9. Auditor's Monthly Report

Documents:

AUDITORS MONTHLY REPORT.PDF

10. Changes Of Status - Sheriff's Office

Documents:

CHANGES OF STATUS - SHERIFFS OFFICE.PDF

- 11. Other Business
- 12. Adjournment/Recess
- 13. 9:30 A.M. Drainage
 Courthouse Large Conference Room
- 14. 10:30 A.M. Closed Session Meeting Pursuant To Iowa Code 21.5(1)(C) Discussion Only

Courthouse Large Conference Room



Hardin County

Vendor Publication Report

Payment Date Range: 09/15/2021 - 09/15/2021

Vendor Name	Vendor Number	Total Payments
Agsource Cooperative Serv	2607V	36.00
Alliant Energy	4253V	2,878.07
Angela De La Riva	100411	352.35
BTX Iowa, Inc	100276	125.00
Campbell Supply Co	620V	314.99
Central Iowa Distr Inc	3043V	68.00
Cintas-Chicago	2475V	194.62
City of Eldora	510V	200.00
Cooley Pumping LLC	61963V	795.00
Culligan	857V	10.00
Dale Howard Inc	81011D	193.56
Eldora Hardware	2647V	350.53
Fareway Food Stores-Eldora	4728V	68.74
Fareway Stores-Ia. Falls	717V	145.77
Galls Incorporated	1389V	298.93
Grass Masters Lawn & Landscaping Service	100587	2,480.00
Hardin Co Tire & Service Inc	4240V	212.35
Hardin County Office Supplies	119V	120.16
Hawkeye West Pest Control	2637V	60.00
Heart of Iowa	6335V	507.36
Heartland Inn-Iowa City/Coralville	100929	436.80
Heritage Motors LLC	100500	480.76
Innovative Ag Services Hubbard	868V	983.77
Iowa Conservation & Improvement Club	100930	15,000.00
Iowa Native Trees & Shrubs	2701V	2,160.00
ISAC	920V	100.00
Kathryn A. Weber	100931	35.00
Keith C Crosser	650E	47.07
Kit Paper	100328	61.98
Linn County Sheriffs Office	61480V	33.68
Marla Kay Williams	2268V	560.00
Mary J Swartz	302E	110.88
McDowell & Sons Contractors, Inc.	62529V	30.00
Moler Sanitation	100385	55.00
Murphy Tractor & Equipment Co., Inc	2286V	1,004.85
Napa Auto Parts Ackley	869V	3.98
Public Employee Health Fund	1782V	782.94
Quaker Security LLC	100507	2,565.00
RC Systems- Waterloo Office	2077V	72.84
RJ Cook Family Land LLC	100926	1,259.50
Shield Pest Control LLC	63086V	180.00
Stop Stick, Ltd	100134	75.00
Storey Kenworthy	61798V	718.40
Summit Food Service LLC	2332V	4,530.10
Times Citizen	538V	162.75
U.S. Cellular	62000V	485.02
Verlyn Mensing	100703	240.00
VISA	150V	582.33
Wesley Wiese	522E	40.00
William J Hoffman	596E	441.11
Windstream	84V	327.50
Youth Shelter Care of North Central Iowa, Inc.	3047V	768.18
Z & Z Glass	62420V	535.00
	Grand Total: 44,280.87	

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September 13, 2021

Hardin County Board of Supervisors 1215 Edgington Ave – Suite 1 Eldora, Iowa 50627

RE: Midwest Carbon Express Pipeline Hardin County, Iowa

Dear Supervisors:

I am sending this letter to you to express our interest in representing Hardin County for construction inspection services per Iowa Code 479B for the above mentioned project. Clapsaddle-Garber Associates (CGA) and its predecessors have a long history of working with Hardin County as a local business that provides quality engineering and surveying services. As you are aware, we are uniquely geographically located to provide unmatched response times to this project when compared to all other engineering firms. In addition, we have experience with pipeline projects and a great depth of drainage work experience. Although we believe that construction is not planned to commence until 2023, we would like the Supervisors to formally acknowledge their intent to contract with CGA to perform construction inspection services related to the above mentioned project. From our understanding, all of our fees on this project would be invoiced to Hardin County who would seek reimbursement from the pipeline owners/developers. Obviously, if the above mentioned project does not become a reality for whatever reason, your intended use of firm would be nullified.

If you are in agreement with the formally acknowledging your intent to contract with us, please sign this document and after doing so return a copy to me. If you have any questions, please contact me at 641-847-3273.

Sincerely, CLAPSADDLE-GARBER ASSOCIATES, INC.

Lee O. Gallentine, P.E.

Vice President

Authorized By:	
	Date:
Sionature & Title	

DAR

lowa Department of Natural Resources

Construction Permit Application Form

Confinement Feeding Operations

INSTRUCTIONS:

THIS APPLICATION IS FOR:

Prior to constructing, installing, modifying or expanding a confinement feeding operation structure¹, answer questions 1-8 on Item 3, Section A (page 2), to determine if a construction permit is required. To calculate the animal unit capacity (AUC) of the operation, complete Table 1 (page 4). If a construction permit is required, complete the rest of the form, have the applicant(s) sign it on pages 5 and 6. Mail to the DNR (see address on page 5) this application form, documents and fees requested in Checklist No. 1 or 2 (pages 10-15). See item 5 (page 5), to determine which checklist to use.

If a construction permit is not needed, some pre-construction requirements may still apply prior to the construction of a formed manure storage structure². See page 5 for additional DNR contact information.

1.	X A new confiner	nent feeding	operation						
2.	. An existing confinement feeding operation (answer all of the following questions):								
	a) Facility ID No. (5								
	b) Date when the o	peration wa	s first constr				 paration distance tab	le used:	
	c) Date when the l	ast construct	ion, expansi	on or modific	cation was co	mpleted			
(No	ot needed if the confin	ement opera	tion has pre	viously recei	ved a constru	uction pe	rmit from DNR.)		
	d) Is this also an ov	vnership cha	nge?	Yes 🗌 No	If ye	es box is o	checked additional fee	es apply. See page	8
ITE	EM 1 – LOCATION AN	ND CONTAC	T INFORMA	ATION (See p	age 17 for ins	tructions o	and an example):		
A)	Name of operation:	Schiller Sit					. ,		
	Location: N	E	SE	03	T89N R22\	N	Alden	Hardin	
	(%	%)	(%)	Section)	(Tier & Range	2)	(Name of Township)	(County)	
B)	Applicant informatio	n:							
,	Name: Kyle Janes					Title:			
	Address: 14987 12	0th St., Alder	, IA 50006						
	Telephone: 515-669	9-1680	Fax:			Email:			
C)	Person to contact wit	h questions a	about this a	polication (if	different tha	n applica	nt):		
•	Name: Kent Krause			- p		Title:			
Address: 620 Country Club Rd., Iowa Falls, IA 50126									
	Telephone: 641-648	3-7300	Fax:			Email:			
X	Enclose aerial photo of all applicable separat 18 to 19, at the end of	ion distances							
	I manage or have a 10 proposed site. Please	0% or more o contact the l	wnership in ONR AFO Pro	terest in ano ogram staff a	ther confine t (712) 262-4	ment feed	ding operation locate erify site adjacency re	d within 2,500 fee	: of the

03/2021 cmc

¹ Confinement feeding operation structure = animal feeding operation structure (confinement building, manure storage structure or egg washwater storage structure) that is part of a confinement feeding operation. Manure storage structures include formed and unformed manure storage structures.

² Formed manure storage structure = covered or uncovered concrete or steel tanks, and concrete pits below the building.

IT	EM 2	- SITING INFORMATION:
A)	scro prop ques	t Determination: Go to DNR AFO Siting Atlas at http://programs.iowadnr.gov/maps/afo/ . Search for your site by either ling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your loosed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map, or if you have stions about this issue, contact the AFO Engineer at (712) 262-4177. Check one of the following: The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked. The site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" must be used. Refer to "Applicant's submittal checklist" on page 10 for karst documentation. The site is within 1,000 feet of a known sinkhole, Secondary Containment Barrier is required in accordance with 567 IAC 65.15(17).
B)	Chec	rial Soils Determination: Go to the AFO Siting Atlas as described above. Make sure the alluvial layer box is checked on the legend. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at (866) 849-0321. It is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked. The site is in alluvial soils. You will need to submit a request for a flood plain determination from DNR Flood Plain (866) 849-0321. After receiving determination submit one of the following: Not in 100-year floodplain or does not require a flood plain permit. Include correspondence from the DNR Flood Plain section. Requires flood plain permit. Include flood plain permit. Documentation has been submitted to determine site is not in alluvial soils. Refer to "Applicant's Submittal Checklist" on large 10 for alluvial soils documentation.
		OPERATION INFORMATION:
A)	A con	struction permit is required prior to any of the following:
	1.	Constructing or modifying any unformed manure storage structure ³ , constructing or modifying a confinement building that uses an unformed manure storage structure ³ , or increasing animal units in a confinement building that uses an unformed manure storage structure.
		Constructing, installing or modifying a confinement building or a formed manure storage structure ² at a confinement feeding operation if, after construction, installation or expansion, the AUC of the operation is 1,000 animal units (AU) or more. This also applies to confinement feeding operations that store manure exclusively in a dry form.
	3	Initiating a change that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in any unformed manure storage structure ³ , even if no construction or physical alteration is necessary. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
	4.	
	5. 🗌	Constructing or modifying any egg washwater storage structure or a confinement building at a confinement feeding
	6. 🗌	operation that includes an egg washwater storage structure. Initiating a change that would result in an increase in the volume of egg washwater or a modification in the manner in which egg washwater is stored, even if no construction or physical alteration is necessary. Increases in the volume of egg
	7. 🔲	washwater due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit. Repopulating a confinement feeding operation if it was closed for 24 months or more and if any of the following apply: 1. The confinement feeding operation uses an unformed manure storage structure ³ or egg washwater storage structure;
		2. The confinement feeding operation includes only confinement buildings and formed manure storage structures ²
	8. 🗍	and has an AUC of 1,000 AU or more. Installing a permanent manure transfer piping system, unless the department determines that a construction permit is
	ــا ٠-	not required.

DNR Form 542-1428

³ Unformed manure storage structure = covered or uncovered anaerobic lagoon, earthen manure storage basin, aerobic earthen structure. 03/2021 cmc **2**

B)	In your own words, describe in detail, the proposed construction, expansion, installation, modification or repair being proposed in this project.(Must be completed) Attach additional pages if necessary:
l wi	Il be constructing a 2 barn site that will house 5400 head of finishing swine.
C)	Master Matrix (must check one). If any of boxes 1 to 3 are checked, the operation is required to be evaluated with the master
	matrix if the county, where the confinement feeding operation structure ¹ is or would be located, has adopted a 'Construction Evaluation Resolution' (CER). Select the one that best describes your confinement feeding operation:
	1. A new confinement feeding operation proposed in a county that has adopted a CER.
	2. An existing operation constructed on or after April 1, 2002, in a county that has adopted a CER.
	3. An existing operation constructed <u>prior to April 1, 2002</u> , with a current or proposed AUC of <u>1,667 AU or more</u> , in a county that has adopted a CER.
	4. None of the above. Therefore, the master matrix evaluation is not required.
D)	Qualified Operation (must check one). If any of boxes 1 to 4 are checked, the operation is also a 'qualified operation'. A qualified operation is required to use a manure storage structure that employs bacterial action which is maintained by the utilization of air or oxygen, and which shall include aeration equipment. However, this requirement does not apply if box 5 is checked. Select the one that best describes your confinement feeding operation:
	1. A swine farrowing and gestating operation with an AUC of 2,500 AU or more. If the replacement breeding swine are raised and used at the operation, the animal units for those replacement animals do not count in the operations total AUC for the purpose of determining a qualified operation.
	2. A swine farrow-to-finish operation with an AUC of 5,400 AU or more.
	3. 🔲 A cattle confinement feeding operation (including dairies) with an AUC of 8,500 AU or more.
	4. Other confinement feeding operations with an AUC of 5,333 AU or more. 5. X This is not a qualified operation because:
	5. X This is not a qualified operation because:a. X It is below the limits shown on boxes 1 to 4.
	b. It includes a confinement feeding operation structure constructed prior to May 31, 1995.
	c. It handles manure exclusively in a dry form (poultry).

ITEM 4 - ANIMAL UNIT CAPACITY (AUC) and, if applicable, ANIMAL WEIGHT CAPACITY (AWC):

A) Calculating AUC - Required for all operations

For each animal species, multiply the maximum number of animals that you would ever confine at one time by the appropriate factor, then add all AU together on Table 1 (page 4). Use the maximum market weight for the appropriate animal species to select the AU factor.

You must complete all applicable columns in Table 1. Use column a) to calculate the existing AUC, before permit for existing operations only. Use column b) to calculate the 'Total proposed AUC' (after a permit is issued) including new operations. The number obtained in column b) is the AUC of the operation and must be used to determine permit requirements. Use column c) to calculate the 'New AU' to be added to an existing operation. To calculate the indemnity fee (see page 7), also use column c), however, if the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in the "New AU" (column c).

In calculating the AUC of a confinement feeding operation, you must include the AUC of all confinement buildings which are part of the confinement feeding operation, unless a confinement building has been abandoned. A confinement feeding operation structure¹ is abandoned if the confinement feeding operation structure¹ has been razed, removed from the site of a confinement feeding operation, filled in with earth, or converted to uses other than a confinement feeding operation structure¹ so that it cannot be used as a confinement feeding operation structure¹ without significant reconstruction. Therefore, in Table 1, enter the animal unit capacity of all the confinement buildings, including those that are from an "adjacent" operation located within 2,500 feet. For more information, contact the AFO Program at (712) 262-4177.

Table 1. Animal Unit Capacity (AUC):

(No. HEAD) x (FACTOR) = AUC

Animal Species	1 '	Existing AUC efore permit)		b (A			
	(No. Head)	x (Factor)	= AUC	(No. Head)	x (Factor)	= AUC	7
Slaughter or feeder cattle		1.0			1.0		7
Immature dairy cattle		1.0			1.0		1
Mature dairy cattle		1.4			1.4		
Gestating sows		0.4			0.4		7
Farrowing sows & litter		0.4			0.4		7
Boars		0.4			0.4		Note: If the "
Gilts		0.4			0.4		(column a) is
Finished (Market) hogs	0	0.4	0	5400	0.4	2160	enter the "To AUC" (colum
Nursery pigs 15 lbs to 55 lbs		0.1			0.1		AU" (column
Sheep and lambs		0.1			0.1		1 (55.55
Goats		0.1			0.1		7
Horses		2.0			2.0		1
Turkeys 7 lbs or more		0.018			0.018		1
Turkeys less than 7 lbs		0.0085			0.0085		1
Broiler/Layer chickens 3 lbs or more		0.01			0.01]
Broiler/Layer chickens less than 3 lbs		0.0025			0.0025		1
Ducks		0.04			0.04		1
Fish 25 grams or more		0.001			0.001		1
Fish less than 25 grams		0.00006			0.00006		c) New AU
TOTALS:	a) E	xisting AUC:	0	b) Total pro	oposed AUC:	2160	

"Existing AUC" 500 AU or less, otal proposed nn b) in the "New

J = b) - a):

2160

(This is the AUC of the operation)

B) Calculating AWC - Only for operations first constructed prior to March 1, 2003

The AWC is needed for an operation that was first constructed prior to March 1, 2003, to determine some of the minimum separation distance requirements for construction or expansion.

The AWC is the product of multiplying the maximum number of animals that you would ever confine at any one time by their average weight (lbs) during the production cycle. Then add the AWC if more than one animal species is present (examples on how to determine the AWC are provided in 567 IAC 65.1(455B).)

If the operation was first constructed prior to March 1, 2003, you must complete all applicable columns in Table 2:

Table 2. Animal Weight Capacity (AWC): (No. head) * (Avg. weight, lbs) = AWC, lbs

Animal Species	1	Existing AWC fore Permit)		1	b) Proposed AWC (After permit)		
	(No. head) x	avg weight	= AWC	(No. head) x	avg weight	= AWC	
Slaughter or feeder cattle							
Immature dairy cattle							
Mature dairy cattle							
Gestating sows						İ	
Farrowing sows & litter							
Boars							
Gilts							
Finished (Market) hogs							
Nursery pigs 15 lbs to 55 lbs			6				
Sheep and lambs				4.			
Goats							
Horses							
Turkeys 7lbs or more							
Turkeys less than 7 lbs							
Broiler/Layer chickens 3 lbs or more							
Broiler/Layer chickens less than 3 lbs							
Ducks							
Fish 25 grams or more							
Fish less than 25 grams							
TOTALS:	a) E:	kisting AWC:		b) Total prop	osed AWC:		

c) New AWC = b) - a):

(This is the AWC of the operation)

ITEM 5 - SUBMITTAL REQUIREMENTS Checklists No. 1 or 2 (pages 10-15) describe the s	ubmittal req	uirements, which are based
on the type of confinement feeding operation structure ¹ and AUC proposed. To determine w	vhich checkli	st to use, choose the option
that best describes your confinement feeding operation:		
A) X Formed manure storage structures ² : The proposed confinement feeding operation	structure ¹ w	vill be or will use a formed
manure storage structure ² . Check one of the following boxes:	0 1 20 1	
 A swine farrowing and gestating operation with an AUC of 1,250 AU or more. Use A swine farrow-to-finish operation with an AUC of 2,750 AU or more. Use Subm 	ie Submittal (Checklist No. 2 (page 13).
3. A cattle confinement feeding operation (including dairies) with an AUC of 4,000		
2 (page 13).	AU OI MOIE.	Ose Submittal Checklist No.
4. Other confinement feeding operations with an AUC of 3,000 AU or more. Use Su	ihmittal Che	rklist No. 2 (nage 13)
5. None of the above. Use Submittal Checklist No. 1 (page 10).	iornical orici	childe ito. 2 (page 15).
If any of boxes 1 to 4 are checked, the operation meets the threshold requirements for an er	ngineer4 and	a Professional Engineer (PE),
licensed in Iowa, is required. For these cases, use Submittal Checklist No. 2 (page 13).		
If you checked box 5, your operation is below threshold requirements for an engineer ⁴ and a	Professiona	l Engineer (PE) is not
required. Use Submittal Checklist No. 1 (page 10).		
B) Unformed manure storage structure ³ : The proposed confinement feeding operation		
B) Unformed manure storage structure ³ : The proposed confinement feeding operatio unformed manure storage structure ³ or an egg washwater storage structure. A Prof	n structure-,	will be or will use an
must design and sign the engineering documents for any size of operation. Use Sub		
Addendum "A" (page 16).	illittal Check	iist No. 2 (page 13) and
, addition , , (page 10).		
ITEM 6- UTILIZING RURAL WATER SYSTEM FOR WATER SUPPLY		
The proposed facility will utilize rural water and the providing rural water system has be	en notified a	nd is aware of the proposed
increase in water use.		
ITEM 7 – SIGNATURE:		
I hereby certify that the information contained in this application is complete and accurate.		
2 1		1.1.
Signature of Applicant(s):	Date:	4 12/21
MAILING INSTRUCTIONS:		
To expedite the application process, follow the submittal requirements explained in Checklist	t No. 1 or 2 (nagge 10 to 16) whichever
applies. Page 1 of this form should be the first page of the package. Mail all documents and f	. NO. 1 01 2 () ees to:	pages to to to, whichever
lowa DNR	ccs to.	
AFO Program		
1900 N Grand Ave		
Gateway North, Ste E17		
Spencer, IA 51301		
(Note: Incomplete applications will be returned to the sender.)		
Questions		

Questions about construction permit requirements or regarding this form should be directed to an engineer of the animal feeding operations (AFO) Program at (712) 262-4177. To contact the appropriate DNR Field Office, go to http://www.iowadnr.gov/fieldoffice.

⁴ Threshold requirements for an engineer apply to the construction of a formed manure storage structure². Operations that meet or exceed the threshold requirements for an engineer are required to submit engineering documents signed by a professional engineer licensed in the state of Iowa. Please refer to Checklist No. 2 (pages 13-15).

ITEM 8

Interested Parties Form Confinement Feeding Operation

Interest means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly or indirectly through a spouse or dependent child, or both.

For each name above, please list below all other confinement on "None", below, if there are no other confinement feed interest. Operation Name Location (% %, %, See None [There are no other confinements in lowa in whice	ing operations in Iowa in	n which the above listed pers	on(s) has or have
ox "None", below, if there are no other confinement feed nterest. Operation Name Location (% ¼, ¼, See None [There are no other confinements in Iowa in which	ing operations in lowa in comment in the comment in	n which the above listed pers	on(s) has or have
ox "None", below, if there are no other confinement feed terest. Operation Name Location (% ¼, ¼, See None [There are no other confinements in Iowa in which	ing operations in lowa in comment in the comment in	n which the above listed pers	on(s) has or have
ox "None", below, if there are no other confinement feed terest. Operation Name Location (% ¼, ¼, See None [There are no other confinements in lowa in which	ing operations in lowa in comment in the comment in	n which the above listed pers	on(s) has or have
ox "None", below, if there are no other confinement feed terest. Operation Name Location (% ¼, ¼, See None [There are no other confinements in lowa in which	ing operations in lowa in comment in the comment in	n which the above listed pers	on(s) has or have
None [There are no other confinements in Iowa in which	h the above listed perso		
		on(s) has or have an interest).	•
See /	attached		
hereby certify that the information provided on this form	s complete and accurate	e.	
ignature of Applicant(s):		1	10.

Confined Feeding Operations - Kyle Janes 8/5/2021

Site Name	DNR Number	Location (1/4 1/4 Sec, 1/4 Sec, Sec, Twp, Range, County)	City
Home Site	58702	SE, SE, 11, T89N R22W, Alden, Hardin	Alden, IA
110th St. Site	65952	SE, SW, 02, T89N R22W, Alden, Hardin	Alden, IA
120th St. Site	61479	SE, SW, 10, T89N R22W, Alden, Hardin	Alden, IA
125th St. Site	59451	NE, SW, 15, T89N R22W, Alden, Hardin	Alden, IA
C Ave. Site	61480	NW, NW, 10, T89N R22W, Alden, Hardin	Alden, IA
Eide Site	61786	SE, SW, 11, T89N R22W, Alden, Hardin	Alden, IA
Harms Site	57783	SE, NE, 15, T89N R22W, Alden, Hardin	Alden, IA
Rose Grove Swenson	71298	SE, NW, 19, T88N R23W, Rose Grove, Hamilton	Ellsworth, IA
Rose Grove North	71523	SE, SE, 30, T90N, R22W, Oakland, Franklin	Alden, IA
			
-			

ITEM 9

Manure Storage Indemnity Fee Form for Construction Permits

CASHIER'S USE ONLY 0474-542-474A-0431 Facility ID # County

Credit fees to: Kyle Janes

Name of operation: Schiller Site

INSTRUCTIONS:

- 1) Use the 'Total Proposed AUC' from column b), Table 1 (page 4), to select the appropriate fee line in the table below. The 'Total Proposed AUC' is the AUC of the operation.
- 2) Select the animal specie and row number (see examples). Enter the 'New AU' from column c), Table 1 (page 4). The 'New AU' is the number of AU to be added to an existing operation or being proposed with a new operation. <u>Note</u>: If the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in "New AU" (column c).
- 3) Multiply the 'New AU' by the appropriate 'Fee per AU'. The resulting number is the indemnity fee due.
 - Example 1: An existing swine operation is expanding from an 'Existing AUC' of 1,000 AU to a 'Total Proposed AUC' of 1,800 AU, and has previously paid an indemnity fee for the existing 1,000 AU. Calculate the indemnity fee as follows: The 'Total Proposed AUC' is between 1,000 AU and 3,000 AU; the animal specie is other than poultry; enter 800 AU in the 'New AU' column, row 4, and multiply it by \$ 0.15:

$$(800 \text{ AU}) \times (\$ 0.15 \text{ per AU}) = \$ 120.00$$

• Example 2: An existing poultry operation is expanding from an 'Existing AUC' of 250 AU to a 'Total Proposed AUC' of 2,000 AU and has not paid the indemnity fee for animals housed in the existing buildings. Calculate the indemnity fee as follows: The 'Total Proposed AUC' is between 1,000 AU and 3,000 AU; the animal specie is poultry and the indemnity fee has not previously been paid, enter 2,000 AU in the 'New AU' column on row 3, and multiply it by \$0.06:

$$(2,000 \text{ AU}) \times (\$ 0.06 \text{ per AU}) = \$ 120.00$$

• Example 3: If you are proposing a new swine confinement feeding operation with a 'Total Proposed AUC' of 3,500 AU, enter 3,500 AU in the 'New AU' column, row 6 and multiply it by \$ 0.20:

$$(3,500 \text{ AU}) \times (\$ 0.20 \text{ per AU}) = \$ 700.00$$

• Example 4: If you are applying for a construction permit but you are not increasing the AUC of the operation, and has previously paid the applicable indemnity for the animals housed in the existing buildings, there is no indemnity fee due (\$ 0.00). If no indemnity fee is due, do not submit this page.

Indemnity Fee Table:

Total Proposed AUC (After Permit (from column B, Table 1)	Row	Animal species	New AU (from column C Table 1)	х	Fee per AU	Indemnity Fee
Less than 1,000 AU	1	Poultry		Х	\$ 0.04 =	
Less than 1,000 AO	2	Other		х	\$ 0.10 =	
1,000 AU or more to less than 3,000 AU	3	Poultry		х	\$ 0.06 =	
1,000 A0 of More to less than 5,000 A0	4	Other	2160	х	\$ 0.15 =	324.00
2 000 All or man	5	Poultry		х	\$ 0.08 =	
3,000 AU or more	6	Other		х	\$ 0.20 =	

Filing Fees Form for Construction Permits

CASHIER'S USE ONLY 0473-542-473A-0431 0474-542-474A-0431 Facility ID # County

Cre	edit fees to:		
Na	me of operation: Schiller Site		
IN:	STRUCTIONS:		
1.	If the operation is applying for a construction permit enclose a payment for the following: Construction application fee \$250.00. (Note: This fee is non-refundable)		
2.	A manure management plan must be submitted with a filing fee. Manure management plan filing fee \$250.00 (Note: This fee is non-refundable)		
3.	If this is a change in ownership then indemnity fees must also be paid on the current (existing) total AUC at on page 7.	the	appropriate rate
	Indemnity fee due to ownership change \$		
4.	Total filing fees: Add the fees paid in items 1, 2 and 3 (above): \$ 500.00		
	SUMMARY:		
	- Manure Storage Indemnity Fee (see previous page) to be deposited in the Manure Storage Indemnity Fee Fund (474)	\$	324.00
	- Total filing fees (see item 4 on this page) to be deposited in the Animal Agriculture Compliance Fund (473)	\$	500.0
	TOTAL DUE:		824.00

Make check payable to: Iowa Department of Natural Resources or Iowa DNR; and send it along with the construction application documents (See Submittal Checklist No. 1 or 2, pages 10-15.) Note: Do not send this fee to the county.

COUNTY VERIFICATION RECEIPT OF DNR CONSTRUCTION PERMIT APPLICATION

This form provides proof that the County Board of Supervisors has been provided with a complete copy of the construction permit application documents (everything except the fees) for the confinement feeding operation or a complete MMP has been provided to the County because manure will be applied in that county:

Location: NI (%) Documents being subm Construction permi Attachment 1 - Aeri all the separation d Attachment 2 - Stat Construction D Professional En Engineering rep In addition, if p documentation	itted to the county: t application form: s ial photos: Must cleatistances are met, incement of design ceresign Statement for gineer (PE) Design Coort, construction players an unform required in Addemonare management players.	arly show the local cluding those cla tification, submit m Certification form lans and technical ed manure stora dum "A" of this of	eation of the proposimed for points in to tany of the following specifications al specifications age structure ³ or an	sed confinement feedin he master matrix (if ap ng (see Checklist No. 1 egg washwater storage	or 2):
Documents being subm Construction permi Attachment 1 - Aeri all the separation d Attachment 2 - Stat Construction D Professional En Engineering rep In addition, if p documentation	itted to the county: t application form: s ial photos: Must cleatistances are met, incement of design ceresign Statement for gineer (PE) Design Coort, construction players an unform required in Addemonare management players.	(Section) Submit items 1 to arly show the local cluding those classification, submit meterification form lans and technication manure stored the community of this of the community of the commun	(Tier & Range) 9 (see Submittal Cation of the proposimed for points in tany of the following specifications age structure of a name of the specifications age structure of the specifications age of the specif	(Name of Township) Thecklist No. 1 or 2) Sed confinement feedin the master matrix (if aping (see Checklist No. 1	(County) g operation structure ¹ and that plicable). or 2):
Documents being subm Construction permi Attachment 1 - Aeri all the separation d Attachment 2 - Stat Construction D Professional En Engineering rep In addition, if p documentation	itted to the county: t application form: s al photos: Must clea istances are met, inc ement of design cer esign Statement for gineer (PE) Design Coort, construction pl roposing an unform required in Addemo	submit items 1 to arly show the loc cluding those cla tification, submi m Certification form lans and technica ed manure stora dum "A" of this o	o 9 (see Submittal Cation of the proposimed for points in to any of the following specifications age structure ³ or an	Checklist No. 1 or 2) Sed confinement feedin he master matrix (if ap ng (see Checklist No. 1	g operation structure ¹ and that plicable). or 2):
Construction permi Attachment 1 - Aeri all the separation d Attachment 2 - Stat Construction D Professional En Engineering rep In addition, if p documentation	t application form: s al photos: Must clea istances are met, inc ement of design cer esign Statement for gineer (PE) Design Coort, construction pl roposing an unform required in Addemonter	arly show the local cluding those cla tification, submit m Certification form lans and technical ed manure stora dum "A" of this of	eation of the proposimed for points in to tany of the following specifications al specifications age structure ³ or an	sed confinement feedin he master matrix (if ap ng (see Checklist No. 1 egg washwater storage	plicable). or 2):
Attachment 1 - Aeri all the separation d Attachment 2 - Stat Construction D Professional En Engineering rep In addition, if p documentation	al photos: Must cleatistances are met, incoment of design ceresign Statement for gineer (PE) Design Coort, construction players an unform required in Addemonter management players.	arly show the local cluding those cla tification, submit m Certification form lans and technical ed manure stora dum "A" of this of	eation of the proposimed for points in to tany of the following specifications al specifications age structure ³ or an	sed confinement feedin he master matrix (if ap ng (see Checklist No. 1 egg washwater storage	plicable). or 2):
	cer iviacrix (ii require		clude supporting do	ocuments (see Checklist	t No. 1 or 2)
Revised Documents:	Application	CDS [Matrix []	MMP	
	THIS	S SECTION IS	RESERVED FOR	THE COUNTY	
As soon as DNR receives explaining what actions you be seen actions of the seen action of the seen action a	your County Board of for all construction	of Supervisors m	ust complete and toos, including thos	he deadlines. e applications not requ	ired to be evaluated with the
ollowing cases: A new confinement	feeding operation th	nat is applying fo	or a construction pe	ermit	mendation is required for the
	nent feeding operati	on that was first	constructed on or	after April 1, 2002 that	is applying for a construction
permit.An existing confinent permit with an anim					applying for a construction
have read and acknowle 59.304. On behalf of the			struction permit ap	plication, as specified i	n 567 IAC 65.10 and Iowa Code
COUNTY: HOYD	ind				_ FILED
IAME: YVVVVI	W. Huska	U			AUG 1 6 2021
1000	e County Board of S	upervisors or its	designated officia	/employee)	HARDIN COUNTY AUDI
	courtesy reminder l				ns, please contact the animal



Construction Design Statement (CDS)

Instructions:

- This form is for new or expanding confinement feeding operations with an AUC¹ of more than 500 AU, not required to have a professional engineer (PE)², that are proposing to construct a formed manure storage structure³.
- 2. Complete and submit Sections 1, 2 and 3 (pages 1 to 6).
- 3. Complete and submit Section 4 (page 6) only if you are applying for a construction permit and are constructing three or more confinement feeding operation structures⁴.
- 4. Mail only pages 1 to 6, as instructed on page 6 and 7. Do not mail the remainder of this form.
- 5. If the site-specific design is sealed by a PE², do not use this CDS instead use DNR Form 542-8122.

Section 1 - Information about the proposed formed manure storage structure³(s)

- 1					
A)	Informa	ation	about	the	operation:

Name of operation:	Schiller :	Site			Facilit Facilit	y ID No.:	
Location:	NE	SE	03	T89N R22W	Alden	Hardin	
	(1/4 1/4)	(%)	(Section)	(Tier & Range)	(Name of Township)	(County)	

B) Description of the proposed formed manure storage structure³. Include dimensions (length, width, or diameter, depth). Indicate if it is aboveground or belowground; covered or uncovered, made of concrete or steel, address location of pit fans, if applicable, and address water line entry into buildings. If necessary attach more pages:

Two 71'16" x 277' x 8' deep, below ground, covered, formed concrete manure storage tanks will be built.

No water lines will enter through the concrete manure storage or floors and all pit fans will be mounted ontop of concrete pump outs

~ 1	Utilizing	D			D	C	P. 1
U. I	Utilizine	Rurai w	ater Svs	tem and	HOMESTIC	SOME	INCHACA

The proposed facility will utilize rural water and the providing rural water system has been notified and is aware of the
proposed increase in water use.

- I understand that no domestic wastewater (toilets, showers, or sinks) or laundry facilities can be discharged to the manure storage structure.
- D) Aerial photos: Aerial photos must be submitted that clearly show the location of all existing and proposed confinement feeding operation structures and show at least a one-mile radius around the structures. The photos must either show roads on the north and south or east and west sides of a section (so that a mile distance is apparent), or include a distance scale.

The photo(s) must show that the proposed structures comply with all statutory minimum required separation distances to the objects listed below:

- Residences (not owned by the permit applicant), churches, businesses, schools, public use areas
- Water wells (depends on type)
- Major water sources, wellhead or cistern of an agricultural drainage well or known sinkholes
- Water sources (other than major water sources) and surface intakes of an agricultural drainage well
- Designated wetlands
- Road right-of-way

The separation distance to each of the above objects must be noted with a straight line between the proposed structure(s) and the object. If any of the above objects is not located within one mile from the proposed structures, note the fact on the photo(s) or use additional pages. (Example: "No agricultural drainage wells within one mile.")

All separation distances that are not clearly in excess of the required minimum separation distance must be measured according to 567 IAC 65.11(9) using standard survey methods. Go to the <u>DNR Fact Sheet Page</u> on our website and select DNR fact sheet "Distance Requirements for Construction" to find the required separation distances. Or, go directly to the <u>Minimum Separation Distances for Construction or Expansion of Confinement Feeding Operation Structures Form</u>. An <u>example aerial photo</u> can be found on pages 18 to 19 of the AFO Construction Permit Application (DNR Form 542-1428), or at the previously listed link.

9/2019 cmc 1 DNR Form 542-8068

¹ To determine the AUC see the 'Manure Storage Indemnity Fee' (Form 542-4021) or the 'Construction Permit Application' (Form 542-1428), or visit http://www.lowadnr.gov

² PE is a professional engineer licensed in the state of lowa or a NRCS-Engineer working for the USDA-Natural Resources Conservation Service (NRCS).

³ Formed manure storage structure means a covered or uncovered concrete or steel tank, including concrete pits below the floor.

⁴ Confinement feeding operation structure = A confinement building, a formed or unformed manure storage structure, or an egg washwater storage structure.

cl d	laimed in matrix criteria one through ten will be met for the objects listed above. Note the additional separation distance by rawing a straight line between the proposed structures and the matrix item.
	Karst Determination: Go to DNR AFO Siting Atlas at http://programs.iowadnr.gov/maps/afo/ . Search for your site by either scrolling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your proposed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact the AFO Engineer at 712-262-4177. Check one of the following: The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked. The Siting Atlas has indicated that the site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" must be used. Complete and sign Section 3.H (page 5).
F)	Alluvial Soils Determination: Go to the AFO Siting Atlas as described above. Make sure the alluvial box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at 866-849-0321. Check one of the following: The site is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked. If the site is in alluvial soils contact DNR Flood Plain at 866-849-0321. You will be required to submit a petition for a declaratory order if less than 1000 AU or request a flood plain determination if 1000 AU or greater. After receiving Flood Plain determination, submit one of the following: Include correspondence from the DNR showing the site is not in 100-year flood plain or does not require a Flood Plain permit. Include copy of the Flood Plain permit if a Flood Plain permit is required. NOTE: You may not be in a flood plain per DNR, however in a County Flood Hazard Area and need a county permit.
<u>Se</u>	ection 2 - Manure management plan:
	An original manure management plan (MMP) is enclosed with this form, even if a MMP was previously filed.
_	vner's Name (print) Vner's Signature Vner's Signature Vner's Name (print) Vner's Signature Vner's Signature
,W	owner's Signature Date
	ction 3 - Construction design standards: The person responsible for constructing the formed manure storage structure(s)
mu	ust complete Section 3.
A)	Liquid and semi-liquid manure: The proposed formed manure storage structure ³ will be (check one): A.1 A non-circular concrete tank, belowground, with walls laterally braced or below the building concrete pit designed according to 567 IAC Chapter 65, Appendix D. A.2 A non-circular concrete tank, belowground, walls designed according to MidWest Plan Service (MWPS), publication MWPS-36. Include design calculations.
	A.3 A circular concrete tank, walls designed according to MidWest Plan Service (MWPS), publication MWPS TR-9. Include
	design calculations. A.4 Will be made of steel, constructed aboveground according to the manufacturer's recommendations.
В)	Dry manure: The proposed formed manure storage structure ³ will be (check one): B.1 An aboveground concrete tank, with walls designed according to MWPS-36. Include design calculations. B.2 Will be made of steel, constructed aboveground according to the manufacturer's recommendations. B.3 Will be a belowground or partially belowground concrete tank, with walls laterally braced designed according to 567 IAC Chapter 65, Appendix D or MWPS-36. Include design calculations.

<u>Note</u>: If a master matrix is required, the photos must also show that the additional separation distances required for any points

			mit an additional comple pplete all of the following		age 3 for each for	med manure sto	rage structure ³
	ber of buildings:	two	Building name:sv				
imensionر	s of proposed for	med manure	storage structure ³				
	Length	Width		Wall thickness	Diameter (circular tanks only)		
Feet	277	71	8	0	N/A		
Inches		10		8	N/A		
a. 🗌	To use Tables D- (less than 50 pe (see page 9 for t proposed location statement signe Use Tables D-3 at plasticity silts and percent fines); of plasticity silts and	1 and D-2 (or reent fines), we he unified so on of the form d by a qualifi and D-4 (on p d clays with a r low to med d clays (see p	rel in walls, first check one pages 7-8), backfilling of with coarse sand with silt oils classification). You will med manure storage structed organization or NRCS sages 8-9) if backfilling of some sand or gravel (50 plum plasticity silts and classed in box "a", above.	f walls shall be pe or clay (less than I need to submit a ctures ³ clearly man staff. walls will be perfo percent or more fin ays with little sand	rformed with grav 50 percent fines), copy of a USDA s rked showing the rmed with soils the nes); or fine sands I or gravel (50 per	rel, sand, silt, an or cleaner gran oil survey map v unified soil class nat are unknowr s with silt or clay cent or more fin	ular material vith the iffication; or a or with low (less than 50 es); or high
Maximum s	pacing of steel, i			face house "a" o			r
		P	roposed vertical steel in v	walls (see boxes "a" a		***	Proposed
Description reinforcing in walls	steel vehicle	Walls where vehicles are not allowed within 5 feet (use Table D-1) ^a All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-2) ^a		Walls where vel are <u>not</u> allow within 5 fee (use Table D-3)	ed ports an vehicles t with	All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-4) ^b	
Grade 40, N	0.4						
Grade 40, N							
Grade 60, N				10	9		12
Grade 60, N	0. 5						
☐ If the below of tan	ne proposed tank ow the liquid leve nks: Certification k manufacturer c	is to be consel, the tank we that the tan ompany:	eground tanks: Liquid an structed aboveground or will also be constructed ack	partially abovegr cording to the 56 ording to the tank	ound and will hav 7 IAC 65.15(20). manufacturer's s	re an external ou	
Address:							,
Telephone:				нах: <u> </u>			
To determine structure 3, cl If you num If you those	neck any of the form ou checked boxes abered items 1 to ou checked box B se boxes (below). ou checked boxes	equirements ollowing 3 bo A.1, A.2, A.3 15 (below). 1 (on page 2 A.4 or B.2 (c	ards: set forth in 567 IAC 65.1 ixes based on the information B.3 (on page 2) all of c), only the requirements on page 2) and the steel the and need to check those	ation entered on S the following 15 a of numbered iten ank will have a co	sections 3.A or 3.E additional required ans 1, 3, 4, 5, 6, 8 a	3 (page 2): ments apply. Co nd 12 apply and	mplete the

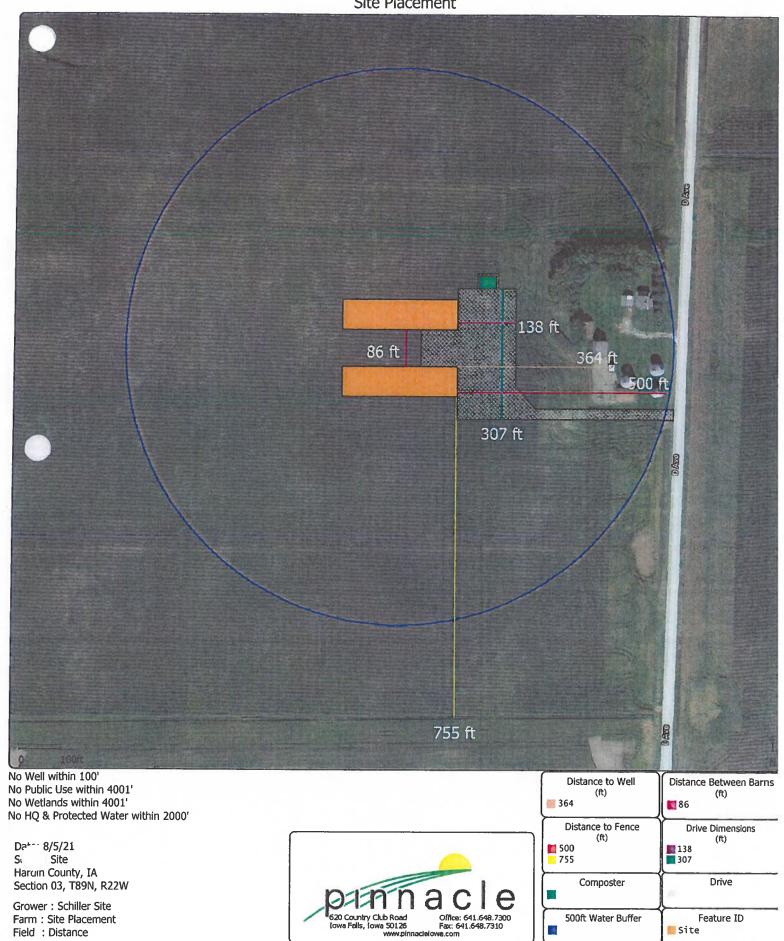
	Additional Requirements that will be followed during construction of the formed manure storage structure(s) ³ : Site preparation (check the following box):
	The finished subgrade of a formed manure storage structure shall be graded and compacted to provide a uniform and level base and shall be free of vegetation, manure and debris. For the purpose of this subrule, "uniform" means a finished subgrade with similar soils.
2	Groundwater separation requirements (check one of the following boxes): When the groundwater table, as determined in 65.15(7)"c," is above the bottom of the formed structure, a drain tile shall be installed along the footings to artificially lower the groundwater table pursuant to 65.15(7)"b"(2). The drain tile shall be placed within 3 feet of the footings as indicated in Appendix D, Figure D-1, at the end of this chapter and shall be covered with a minimum of 2 inches of gravel, granular material, fabric or a combination of these materials to prevent plugging the drain tile. A device to allow monitoring of the water in the drainage tile lines installed to lower the groundwater table and a device to allow shutoff of the drainage tile lines shall be installed if the drainage tile lines do not have a surface outlet accessible on the property where the formed manure storage structure is located. Perimeter tiles must be tied into existing tile, day light, or have an operating sump pump installed in tile riser. Perimeter tiles CANNOT dead end at riser or monitoring port.
	In lieu of the drain tile, a certification signed by a PE ² , a groundwater professional certified pursuant to 567 Chapter 134, or a qualified staff from NRCS, is being submitted indicating that the groundwater elevation, according to 65.15(7)"c", is below the bottom of the formed structure.
3.	Minimum as-placed concrete compressive strength (check the following box): All concrete shall have the following minimum as-placed compressive strengths and shall meet American Society for Testing and Materials (ASTM) standard ASTM C 94: 4,000 pounds per square inch (psi) for walls, floors, beams, columns and pumpouts and 3,000 psi for the footings. The average concrete strength by testing shall not be below design strength. No single test result shall be more than 500 psi less than the minimum compressive strength.
4.	Cement and aggregates specifications (check the following box): Cementitious materials shall consist of Portland cement conforming to ASTM C 150. Aggregates shall conform to ASTM C 33. Blended cements in conformance with ASTM C 595 are allowed only for concrete placed between March 15 and October 15. Portland-pozzolan cement or Portland blast furnace slag blended cements shall contain at least 75 percent, by mass, of Portland cement.
5.	Concrete consolidation and vibration requirements (check the following box): All concrete placed for walls shall be consolidated or vibrated, by manual or mechanical means, or a combination, in a manner which meets ACI 309.
6.	Minimum rebar specifications: (check the following box): All rebar used shall be a minimum of grade 40 steel. All rebar, with the exception of rebar dowels connecting the walls to the floor or footings, shall be secured and tied in place prior to the placing of concrete.
7.	 Wall reinforcement placement specifications (check the following box): All wall reinforcement shall be placed so as to have a rebar cover of 2 inches from the inside face of the wall for a belowground manure storage structure. Vertical wall reinforcement should be placed closest to the inside face. Rebar placement shall not exceed tolerances specified in ACI 318.
8.	Minimum floor specifications. Complete part a) and b): a) Floor thickness requirements (check the following box): The floor slab shall be a minimum of 5 inches thick. Nondestructive methods to verify the floor slab thickness may be required by the department. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4½ inches.
	b) The floor slab reinforcement shall be located in the middle of the thickness of the floor slab (check one of the following boxes): Formed manure storage structures with a depth of 4 feet or more shall have primary reinforcement consisting of a minimum of #4 rebar placed a maximum of 18 inches on center in each direction placed in a single mat. Formed manure storage structure with a depth less than 4 feet shall have shrinkage reinforcement consisting of a minimum of 6 × 6-W1.4 × W1.4 welded wire fabric.

 Minimum footing sp 	ecifications (check the following box):	
(L) The looting of the	Rearea where the floor comes to a company	O walle and and
walls shall have f	footings below the frostline. Tolerances shall not ϵ	e walls and columns shall have a thickness equal to the wall Il be at least twice the thickness of the footing. All exterior exceed -½ inch of the minimum footing dimensions.
10. Requirement to conn	ect walls to footings /chock one as we say	
	Oldi Walis shall be extended the life in	
Appendix D, Figur As an alternative of 3 inches of the same as the sp In lieu of dowels, r	Te D-1 (page 10). Dowel spacing (bend or extender to the 90°bend, the dowel may be extended at least the bottom, as indicated in Appendix D, Figure	nd be bent at 90°, OR with at least 20 inches of rebar in the wall and extended extended at least 3 inches horizontally, as indicated in ed) shall be the same as the spacing for the vertical rebar. east 12 inches into the footing, with a minimum concrete D-1 (page 10). Dowel spacing (bend or extended) shall be used as anchorage of interior walls to footings. Please
11. Concrete forms specific	rations (check the following)	
All walls shall be fo	rmed with rigid forming systems and shall not be	e earth-formed. Form ties shall be <u>non</u> -removable.
12. Curing of concrete requ	rirements (check the following box):	non-removable.
KZI WII COLICIATE ZUSII DI	e cured for at least seven days after placing the	manner which meets ACI 308, by maintaining adequate
moisture or preven compound that me	ting evaporation. Proper curing shall be done by ets ASTM C 309; or by using wet burlap, plastic sl	ponding, spraying or fogging water; or by using a curing
	and wet burlap, plastic st	neets or similar materials.
All construction joints and	waterstops specifications (check the following bo	ox):
placed through the	joint. Waterstons shall be installed in all access the	ox): nt discontinuity of steel and have properly spliced rebar
indicated in Append	ix D. Figures D-1 and D-2 at the and of this above	nt discontinuity of steel and have properly spliced rebar here fresh concrete will meet hardened concrete as ter. The waterstops shall be made of plastic, rolled
	a specific department.	, , , , , , , , , , , , , , , , , , , ,
14. Backfilling of walls specif	ications (check the following box):	
EZI packullilla of the Mal	lls shall not start until the floor slats or permanen erial free of vegetation, large rocks or debris.	nt bracing have been installed. Backfilling shall be
15. Additional design require	ments (check the following box if applicable)	
C A formed manure sto	rage structure with a depth greater than 12 feet	shall be designed by a PE or an NRCS engineer.
 G) Construction Certification Any change(s) to the spec 	n: The person responsible for constructing the for iffications of the formed manure storage structure	rmed manure storage structure ³ must sign this page. e must be first approved by DNR;
"I hereby certify that I have rea Subchapter III, and the 567 low	ad and understand the minimum docine and	struction standards of Iowa Code chapter 459,
Name of operation: Schiller S	ite	
Owner's name: Kyle	Janes	County: Hardin
will be constructed in accordan	ce with these minimum requirements. Included v	with this certification are:
Page 1-3, for each formed m	Nanure storage structure ³ that have different dim	
Pages 4 to 6 (applicable sect Other documents (specify):	ions)	
Contendocaments (specify):		
Brent V Rastetter	Mat Witaster.	8/6/21
(Print name)	(Signature)	(Date)
Quality Ag, Inc.	15481 Hwy D20, Alden, IA 50006	· · ·
(Company)	(Address)	(Phone No.)

(See page 7 for mailing instructions)

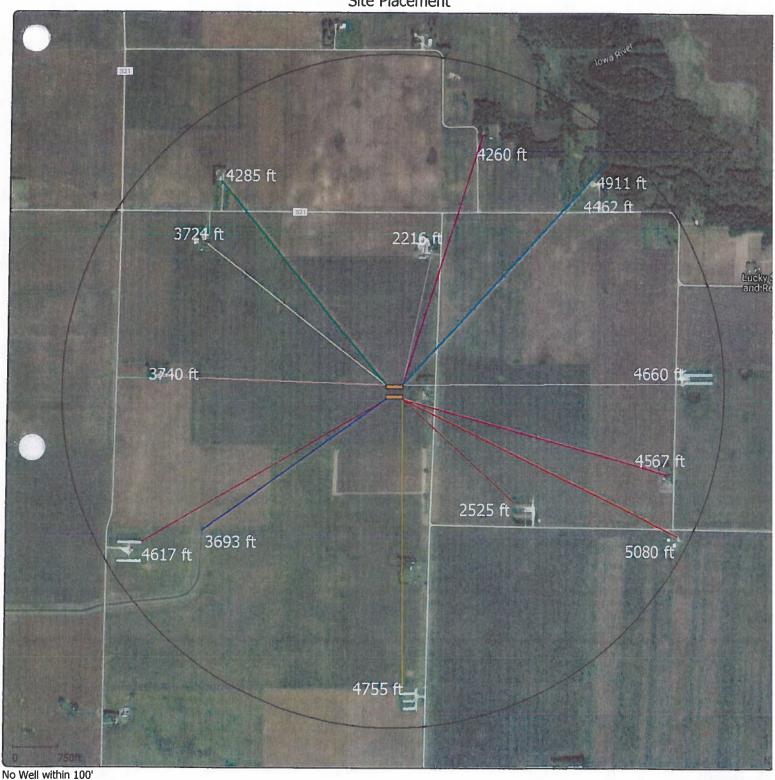
Schiller Site

Site Placement



Schiller Site

Site Placement

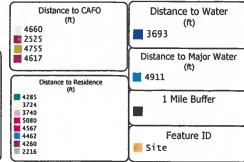


No Public Use within 4001' No Wetlands within 4001' No HQ & Protected Water within 2000'

Da+-- 8/5/21 St Site Haruin County, IA Section 03, T89N, R22W

Grower: Schiller Site Farm: Site Placement Field: Distance





Distance to Water

SMO I SMO

Map layers Legend

AFO Siting Data >

Sinkholes (Year added to Atlas) >

2000

2010

2018

2021

Sinkhole or Potential Karst 2

Sinkhole w/ 1000 ft radius Karst and Potential Karst

🗀 😩 Ag Drainage Well

Wells

Public Water Supply Well

🕩 IGS GeoSam Well

🕀 Private Well Tracking System water Use Well

🜳 Agricultural Drainage Well

County or Test Well

Plugged Well

Animal Feeding Operation

>

Active, Confined/Open Active, Confinement

Active, Open Feedlot Inactive

Public Drainage Infrastructure Drainage Districts

BVA DIAYS Map Info Mail Bookmarks Drawing Tools Measure Basemaps SVA D

Nations' Flood Hazard Layer FIRMette

93°25'39"W 42°33'7"N



OTHER AREAS OF FLOOD HAZARD AREA OF MINIMAL FLOOD HAZARD Hardin/County 190874

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

HAZARD AREAS

With BFE or Depth Zone AE, AO, AH, VE, AR Without Base Flood Elevation (BFE)

0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag areas of less than one square mile 2000 Regulatory Floodway

Future Conditions 1% Annual Chance Flood Hazard Zon

Area with Flood Risk due to Levee zone D Area with Reduced Flood Risk due to Levee. See Notes, Zone X

NO SCREEN Area of Minimal Flood Hazard Zonex

Effective LOMRs

Area of Undetermined Flood Hazard Zone

- - - Channel, Culvert, or Storm Sewer STRUCTURES 1111111 Levee, Dike, or Floodwall

GENERAL

OTHER AREAS

17.5

Cross Sections with 1% Annual Chance Water Surface Elevation Coastal Transect

Base Flood Elevation Line (BFE) - Limit of Study man filmon

Jurisdiction Boundary

Coastal Transect Baseline Hydrographic Feature Profile Baseline

OTHER FEATURES

Digital Data Available

No Digital Data Available

MAP PANELS

The pin displayed on the map is an approximate Unmapped

point selected by the user and does not represe This map complies with FEMA's standards for the use of an authoritative property location.

The basemap shown complies with FEMA's basemap digital flood maps if it is not void as described below.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or was exported on 8/12/2021 at 11:56 AM and does not become superseded by new data over time. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for

1 500

1 000

APPENDIX C MASTER MATRIX

Proposed Site Characteristics

The following scoring criteria apply to the site of the proposed confinement feeding operation. Mark <u>one</u> score under each criterion selected by the applicant. The proposed site must obtain a minimum overall score of 440 and a score of 53.38 in the "air" subcategory, a score of 67.75 in the "water" subcategory and a score of 101.13 in the "community impacts" subcategory.

- Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:
 - * Residence not owned by the owner of the confinement feeding operation,
 - * Hospital.
 - * Nursing home, or

* Licensed or registered child care facility.

2216-1875 = 341	Score	Air	Water	Community
250 feet to 500 feet	(25)	16.25		8.75
501 feet to 750 feet	45	29.25		17.50
751 feet to 1,000 feet	65	42.25		22.75
1,001 feet to 1,250 feet	85	55.25		29.75
1,251 feet or more	100	65.00		35.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- **(B)** The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- (C) "Licensed child care center" a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- **(D)** "Registered child development homes" child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (E) A full listing of licensed and registered child care facilities is available at county offices of the department of human services.
- 2. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest public use area.

1501+1500 = None WHA IN MOO!	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00
501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500	25	10.00		15.00
1,501 feet or more	30	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) "Public use area" a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 of 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.

- 3. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:
 - * Educational institution,
 - * Religious institution, or

* Commercial enterprise.

1501+1873= NON within 3570"	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00
501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500	25	10.00		15.00
1,501 feet or more	(30)	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) The department will award points only for the single building, of the three listed above, closest to the proposed confinement feeding operation.
- (C) "Educational institution" a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (D) "Religious institution" a building in which an active congregation is devoted to worship.
- (E) "Commercial enterprise" a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

4. Additional separation distance, above minimum requirement of 500 feet, from proposed confinement structure to the closest water source.

Olocool Water Course.				
3693-500= 3193'	Score	Air	Water	Community
250 feet to 500 feet	5		5.00	
501 feet to 750 feet	10		10.00	
751 feet to 1,000 feet	15		15.00	
1,001 feet to 1,250 feet	20		20.00	
1,251 feet to 1,500	25		25.00	
1,501 feet or more	(30)		30.00	

"Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.

Separation distance of 300 feet or more from the proposed confinement structure to the nearest thoroughfare.

	-Score	Air_	Water	Community
300 feet or more	30	9.00		21.00

- (A) "Thoroughfare" a road, street, bridge, or highway open to the public and constructed or maintained by the state or a political subdivision.
- (B) The 300-foot distance includes the 100-foot minimum setback plus additional 200 feet.

6. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest critical public area.

500+ 2500= NOM	within 3000'	Score	Air	Water	Community
500 feet or more		(10)	4.00		6.00

- A) All critical public areas as defined in 567--65.1(455B), are public use areas, and therefore subject to public use area minimum separation distances.
- (B) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distance.

7. Proposed confinement structure is at least two times the minimum required separation distance from all private and public water wells.

	Score	Air	Water	Community	
Two times the minimum separation distance	30		24.00	6.00	

Refer to Table 6 of 567--Chapter 65 for minimum required separation distances to wells.

- **8.** Additional separation distance, above the minimum requirement of 1,000 feet, from proposed confinement structure to the closest:
 - * Agricultural drainage well,
 - * Known sinkhole, or
 - * Major water source.

4911-1000= 3911	Score	Air	Water	Community
250 feet to 500 feet	5	0.50	2.50	2.00
501 feet to 750 feet	10	1.00	5.00	4.00
751 feet to 1,000 feet	15	1.50	7.50	6.00
1,001 feet to 1,250 feet	20	2.00	10.00	8.00
1,251 feet to 1,500 feet	25	2.50	12.50	10.00
1,501 feet to 1,750 feet	30	3.00	15.00	12.00
1,751 feet to 2,000 feet	35	3.50	17.50	14.00
2,001 feet to 2,250 feet	40	4.00	20.00	16.00
2,251 feet to 2,500 feet	45	4.50	22.50	18.00
2,501 feet or more	(50)	5.00	25.00	20.00

- (A) The department will award points only for the single item, of the three listed above, that is closest to the proposed confinement feeding operation.
- (B) "Agricultural drainage wells" include surface intakes, cisterns and wellheads of agricultural drainage wells.
- (C) "Major water source" a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567--Chapter 65.
- 9. Distance between the proposed confinement structure and the nearest confinement facility that has a submitted department manure management plan.

	Score	Air	Water	Community
Three-quarter of a mile or more (3,960 feet)	25	7.50	7.50	10.00
		2.11		

Confinement facilities include swine, poultry, and dairy and beef cattle.

- 10. Separation distance from proposed confinement structure to closest:
 - * High quality (HQ) waters,
 - * High quality resource (HQR) waters, or
 - * Protected water areas (PWA)

is at least two times the minimum required separation distance

1000x2= None within 2000'	Seare	Air	Water	Community
Two times the minimum separation distance	(30)		22.50	7.50

- (A) The department will award points only for the single item, of the three listed above, closest to the proposed confinement feeding operation.
- (B) HQ waters are identified in 567--Chapter 61.
- (C) HQR waters are identified in 567--Chapter 61.
- (D) A listing of PWAs is available at:

http://www.iowadnr.gov/Recreation/CanoeingKayaking/StreamCare/ProtectedWaterAreas.aspx

11. Air quality modeling results demonstrating an annoyance level less than 2 percent of the time for residences within two times the minimum separation distance.

ann two arrest are manarit separation distance.				
,	Score	Air	Water	Community
University of Minnesota OFFSET model results demonstrating an annoyance level less than 2 percent of the time	10	6.00		4.00e

(A) OFFSET can be found at

http://www.extension.umn.edu/agriculture/manure-management-and-air-quality/feedlots-and-manure-storage/offs et-odor-from-feedlots/. For more information, contact Dr. Larry Jacobson, University of Minnesota, (612) 625-8288, jacob007@tc.umn.edu.

(B) A residence that has a signed waiver for the minimum separation distance cannot be included in the model. (C) Only the OFFSET model is acceptable until the department recognizes other air quality models

12. Liquid manure storage structure is covered.

	Score	Air	Water	Community
Covered liquid manure storage	(30)	27.00		3.00

(A) "Covered" - organic or inorganic material, placed upon an animal feeding operation structure used to store manure, which significantly reduces the exchange of gases between the stored manure and the outside air. Organic materials include, but are not limited to, a layer of chopped straw, other crop residue, or a naturally occurring crust on the surface of the stored manure. Inorganic materials include, but are not limited to, wood, steel, aluminum, rubber, plastic, or Styrofoam. The materials shall shield at least 90 percent of the surface area of the stored manure from the outside air. Cover shall include an organic or inorganic material which current scientific research shows reduces detectable odor by at least 75 percent. A formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered.

(B) The design, operation and maintenance plan for the manure cover must be in the construction permit application and made a condition in the approved construction permit.

13. Construction permit application contains design, construction, operation and maintenance plan for emergency containment area at manure storage structure pump-out area.

	Score	Air	Water	Community
Emergency containment area	20		18.00	2.00

- (A) The emergency containment area must be able to contain at least 5 percent of the total volume capacity of the manure storage structure.
- (B) The emergency containment area must be constructed on soils that are fine-grained and have low permeability.
- (C) If manure is spilled into the emergency containment area, the spill must be reported to the department within six hours of onset or discovery.
- (D) The design, construction, operation and maintenance plan for the emergency containment area must be in the construction permit application and made a condition in the approved construction permit.

14. Installation of a filter(s) designed to reduce odors from confinement building(s) exhaust fan(s).

	Score	Air	Water	Community
Installation of filter(s)	10	8.00		2.00

The design, operation and maintenance plan for the filter(s) must be in the construction permit application and made a condition in the approved construction permit.

15. Utilization of landscaping around confinement structure.

	Score	Air	Water	Community
Utilization of Landscaping	20	10.00		10.00

The design, operation and maintenance plan for the landscaping must be in the construction permit application and made a condition in the approved construction permit. The design should contain at least three rows of trees and shrubs, of both fast and slow-growing species that are well suited for the site.

16. Enhancement, above minimum requirements, of structures used in stockpiling and composting activities, such as an impermeable pad and a roof or cover.

	\$core	Air	Water	Community
Stockpile and compost facility enhancements	(30)	9.00	18.00	3.00
		•		

- (A) The design, operation and maintenance plan for the stockpile or compost structure enhancements must be in the construction permit application and made a condition in the approved construction permit.
- (B) The stockpile or compost structures must be located on land adjacent or contiguous to the confinement building.

17. Proposed manure storage structure is formed

	Şegre	Air	Water	Community
Formed manure storage structure	(30)		27.00	3.00

- (A) "Formed manure storage structure" -a covered or uncovered impoundment used to store manure from an animal feeding operation, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed manure storage structure shall have the structural integrity to withstand expected internal and external load pressures.
- **(B)** The design, operation and maintenance plan for the formed manure storage structure must be in the construction permit application and made a condition in the approved construction permit.

18. Manure storage structure is aerated to meet departmental standards as an aerobic structure, if aeration is not already required by the department.

	Score	Air	Water	Community
Aerated manure storage structure	10	8.00		2.00

- (A) Aerobic structure an animal feeding operation structure other than an egg wash water storage structure which relies on aerobic bacterial action which is maintained by the utilization of air or oxygen and which includes aeration equipment to digest organic matter. Aeration equipment shall be used and shall be capable of providing oxygen at a rate sufficient to maintain an average of 2 milligrams per liter dissolved oxygen concentration in the upper 30 percent of the depth of manure in the structure at all times.
- **(B)** The design, operation and maintenance plan for the aeration equipment must be in the construction permit application and made a condition in the approved construction permit.
- 19. Proposed confinement site has a suitable truck turnaround area so that semitrailers do not have to back into the facility from the road

	Score	Air	Water	Community
Truck turnaround	(20)			20.00
				· · · · · · · · · · · · · · · · · · ·

- (A) The design, operation and maintenance plan for the truck turn around area must be in the construction permit application and made a condition in the approved construction permit.
- **(B)** The turnaround area should be at least 120 feet in diameter and be adequately surfaced for traffic in inclement weather.
- 20. Construction permit applicant's animal feeding operation environmental and worker protection violation history for the last five years at all facilities in which the applicant has an interest.

	Søere	Air	Water	Community
No history of Administrative Orders in last five years	(30)			30.00

- (A) "Interest" means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.
- (B) An environmental violation is a final Administrative Order (AO) from the department of natural resources or final court ruling against the construction permit applicant for environmental violations related to an animal feeding operation. A Notice of Violation (NOV) does not constitute a violation.
- 21. Construction permit applicant waives the right to claim a Pollution Control Tax Exemption for the life of the proposed confinement feeding operation structure.

	Score	Air	VVater	Community
Permanent waiver of Pollution Control Tax Exemption	5			5.00

- (A) Waiver of Pollution Control Tax Exemption is limited to the proposed structure(s) in the construction permit application.
- **(B)** The department and county assessor will maintain a record of this waiver, and it must be in the construction permit application and made a condition in the approved construction permit.
- 22. Construction permit applicant can lawfully claim a Homestead Tax Exemption on the site where the proposed confinement structure is to be constructed
 OR -

the construction permit applicant is the closest resident to the proposed confinement structure.

	Score	Air	Water	Community
Site qualifies for Homestead Tax Exemption or permit applicant	25			25.00
is closest resident to proposed structure		1		

(A) Proof of Homestead Tax Exemption is required as part of the construction permit application.

(B) Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

23. Construction permit applicant can lawfully claim a Family Farm Tax Credit for agricultural land where the proposed confinement feeding operation is to be located pursuant to lowa Code chapter 425A.

	Søøre	Air	Water	Community
Family Farm Tax Credit qualification	(25)			25.00

Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

24. Facility size.

5400x.4= 2160 All	Score	Air	Water	Community
1 to 2,000 animal unit capacity	20			20.00
2,001 to 3,000 animal unit capacity	(10)			10.00
3,001 animal unit capacity or more	0			0.00

- (A) Refer to the construction permit application package to determine the animal unit capacity of the proposed confinement structure at the completion of construction.
- **(B)** If the proposed structure is part of an expansion, animal unit capacity (or animal weight capacity) must include all animals confined in adjacent confinement structures.
- (C) Two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common area or system for manure disposal. In addition, for purposes of determining whether two or more confinement feeding operations are adjacent, all of the following must apply:
 - (a) At least one confinement feeding operation structure must be constructed on and after May 21, 1998.
 - (b) A confinement feeding operation structure which is part of one confinement feeding operation is separated by less than a minimum required distance from a confinement feeding operation structure which is part of the other confinement feeding operation. The minimum required distance shall be as follows:
 - (1) 1,250 feet for confinement feeding operations having a combined animal unit capacity of less than 1,000 animal units.
 - (2) 2,500 feet for confinement feeding operations having a combined animal unit capacity of 1,000 animal units or more.
- 25. Construction permit application includes livestock feeding and watering systems that significantly reduce manure volume.

	Score	Air	Water	Community
Wet/dry feeders or other feeding and watering systems that	25		12.50	12.50
significantly reduce manure volume				

The design, operation and maintenance plan for the feeding system must be in the construction permit application and made a condition in the approved construction permit.

Proposed Site Operation and Manure Management Practices

The following scoring criteria apply to the operation and manure management characteristics of the proposed confinement feeding operation. Mark <u>one</u> score under each criterion that best reflects the characteristics of the submitted manure management plan.

26. Liquid or dry manure (choose only one subsection from subsections "a" - "e" and mark one score in that subsection).

		Score	Air	Water	Community
a.	Bulk dry manure is sold under Iowa Code Chapter 200A and surface-applied	15		15.00	
	Bulk dry manure is sold under lowa Code Chapter 200A and incorporated on the same date it is land-applied	30	12.00	12.00	6.00
		1			
b.	Dry manure is composted and land-applied under the requirements of an approved department manure management plan	10	4.00	4.00	2.00
	Dry manure is composted and sold so that no manure is applied under the requirements of an approved department manure management plan	30	12.00	12.00	6.00
C.	Methane digester is used to generate energy from manure and remaining manure is surface-applied under the requirements of an approved department manure management plan	10	3.00	3.00	4.00
	After methane digestion is complete, manure is injected or incorporated on the same date it is land-applied under the requirements of an approved department manure management plan	30	12.00	12.00	6.00
d.	Dry manure is completely burned to generate energy and no remaining manure is applied under the requirements of an approved department manure management plan	30	9.00	9.00	12.00
	Some dry manure is burned to generate energy, but remaining manure is land-applied and incorporated on the same date it is land applied	30	12.00	12.00	6.00
e.	Injection or incorporation of manure on the same date it is land-applied	30	12.00	12.00	6.00

(A) Choose only ONE line from subsection "a", "b," "c," "d," or "e" above and mark only one score in that subsection.

(B) The injection or incorporation of manure must be in the construction permit application and made a condition in the approved construction permit.

(C) If an emergency arises and injection or incorporation is not feasible, prior to land application of manure the applicant must receive a written approval for an emergency waiver from a department field office to surface-apply manure.

(D) Requirements pertaining to the sale of bulk dry manure under pursuant to lowa Code chapter 200A must be incorporated into the construction permit application and made a condition of the approved construction permit.

(E) The design, operation and maintenance plan for utilization of manure as an energy source must be in the construction permit application and made a condition in the approved construction permit.

(F) The design, operation and maintenance plan for composting facilities must be in the construction permit application and made a condition in the approved construction permit.

27. Land application of manure is based on a two-year crop rotation phosphorus uptake level.

	Score	Air	Water	Community
Two-year phosphorus crop uptake application rate	10		10.00	

(A) Land application of manure cannot exceed phosphorus crop usage levels for a two-year crop rotation cycle.

'B) The phosphorus uptake application rates must be in the construction permit application and made a condition in the approved construction permit.

28. Land application of manure to farmland that has USDA Natural Resources Conservation Service (NRCS) approved buffer strips contiguous to all water sources traversing or adjacent to the fields listed in the manure management plan.

	Score	Air	_ Water	Community
Manure application on farmland with buffer strips	10		8.00	2.00

- (A) The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications.
- (B) The application field does not need to be owned by the confinement facility owner to receive points.
- (C) On current and future manure management plans, the requirement for buffer strips on all land application areas must be in the construction permit application and made a condition in the approved construction permit.

29. Land application of manure does not occur on highly erodible land (HEL), as classified by the USDA NRCS.

	Score	Air	Water	Community
No manure application on HEL farmland	10		10.00	

Manure application on non-HEL farmland must be in the construction permit application and made a condition in the approved construction permit.

- **30.** Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:
 - * Residence not owned by the owner of the confinement feeding operation,
 - * Hospital,
 - * Nursing home, or
 - * Licensed or registered child care facility.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	3.25		1.75
Additional separation distance of 500 feet	10	6.50		3.50

- (A) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- **(B)** Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (E) "Licensed child care center" a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- **(F)** "Registered child development homes" child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (G) A full listing of licensed and registered child care facilities is available at county offices of the Department of Human Services
- **31.** Additional separation distance, above minimum requirements (0 or 750 feet, see below), for land application of manure to closest public use area.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	2.00		3.00

- (A) "Public use area" a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 in 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
- **(B)** Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

- **32.** Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:
 - * Educational institution,
 - * Religious institution, or
 - * Commercial enterprise.

	Score	Air	Water	Community	
Additional separation distance of 200 feet	5	2.00		3.00	

- (A) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (B) Minimum separation distance for land application of manure injected or incorporated on same date as application: 0 feet.
- (C) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (D) "Educational institution" a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (E) "Religious institution" a building in which an active congregation is devoted to worship.
- (F) "Commercial enterprise" a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.
- **33.** Additional separation distance of 50 feet, above minimum requirements (0 or 200 feet, see below), for the land application of manure to the closest private drinking water well or public drinking water well OR well is properly closed under supervision of county health officials.

	Score	Air	Water	Community
Additional separation distance of 50 feet or well is properly closed	10		8.00	2.00

- (A) Minimum separation distance for land application of manure injected or incorporated on the same date as application or 50-foot vegetation buffer exists around well and manure is not applied to the buffer: 0 feet.
- (B) Minimum separation distance for land application of manure broadcast on soil surface: 200 feet.
- (C) If applicant chooses to close the well; the well closure must be incorporated into the construction permit application and made a condition in the approved construction permit.
- 34. Additional separation distance, above minimum requirements, for the land application of manure to the closest:
 - * Agricultural drainage well,
 - * Known sinkhole.
 - * Major water source, or
 - * Water source

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	0.50	2.50	2.00
Additional separation distance of 400 feet	10	1.00	5.00	4.00

- (A) "Agricultural drainage wells" include surface intakes, cisterns and wellheads of agricultural drainage wells.
- (B) "Major water source" a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state, which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567--Chapter 65.
- (C) "Water source" a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

- 35. Additional separation distance above minimum requirements, for the land application of manure, to the closest:
 - * High quality (HQ) water,
 - * High quality resource (HQR) water, or
 - * Protected water area (PWA).

	Score	Air	Water	Community
Additional separation distance of 200 feet	5		3.75	1.25
Additional separation distance of 400 feet	10		7.50	2.50

- (A) HQ waters are identified in 567--Chapter 61.
- (B) HQR waters are identified in 567--Chapter 61.
- (C) A listing of PWAs is available at:

http://www.iowadnr.gov/Recreation/CanoeingKayaking/StreamCare/ProtectedWaterAreas.aspx.

36. Demonstrated community support.

	Score	Air	Water	Community	
Written approval of 100% of the property owners within a one mile radius	20			20.00	

37. Worker safety and protection plan is submitted with the construction permit application.

	Score	Air	Water	Community
Submission of worker safety and protection plan	10			10.00

- (A) The worker safety and protection plan must be in the construction permit application and made a condition in the approved construction permit.
- **(B)** The worker safety and protection plan and subsequent records must be kept on site with the manure management plan records.
- **38.** Applicant signs a waiver of confidentiality allowing public to view confidential manure management plan land application records

	Score	Air	Water	Community
Manure management plan confidentiality waiver	5			5.00

The waiver of confidentiality must be in the construction permit application and made a condition in the approved construction permit. The applicant may limit public inspection to reasonable times and places.

39. Added economic value based on quality job development (number of full time equivalent (FTE) positions), and salary equal to or above lowa department of workforce development median (45-2093)

-OR-

the proposed structure increases commercial property tax base in the county.

	Score	Air	Water	Community
Economic value to local community	10			10.00

The Iowa Department of Workforce Development regional profiles are available at http://www.iowaworkforce.org/centers/regionalsites.htm. Select the appropriate region and then select "Regional Profile."

40. Construction permit application contains an emergency action plan.

	Score	Air	Water	Community
Emergency action plan	5		2.50	2.50

- (A) Iowa State University Extension publication PM 1859 lists the components of an emergency action plan. The emergency action plan submitted should parallel the components listed in the publication.
- (B) The posting and implementation of an emergency action plan must be in the construction permit application and made a condition in the approved construction permit.
- **(C)** The emergency action plan and subsequent records must be kept on site with the manure management plan records.

41. Construction permit application contains a closure plan.

	Score	Air	Water	Community
Closure Plan	5		2.50	2.50

- (A) The closure plan must be in the construction permit application and made à condition in the approved construction permit.
- (B) The closure plan must be kept on site with the manure management plan records.

42. Adoption and implementation of an environmental management system (EMS) recognized by the department.

	Score	Air	Water	Community
EMS	15	4.50	4.50	6.00

- (A) The EMS must be in the construction permit application and made a condition in the approved construction permit.
- (B) The EMS must be recognized by the department as an acceptable EMS for use with confinement operations.

43. Adoption and implementation of NRCS approved Comprehensive Nutrient Management Plan (CNMP).

	Score	Air	Water	Community
CNMP	10	3.00	3.00	4.00

The implementation and continuation of a CNMP must be in the construction permit application and made a condition in the approved construction permit.

44. Groundwater monitoring wells installed near manure storage structure, and applicant agrees to provide data to the department.

	Score	Air	Water	Community
Groundwater monitoring	15		10.50	4.50

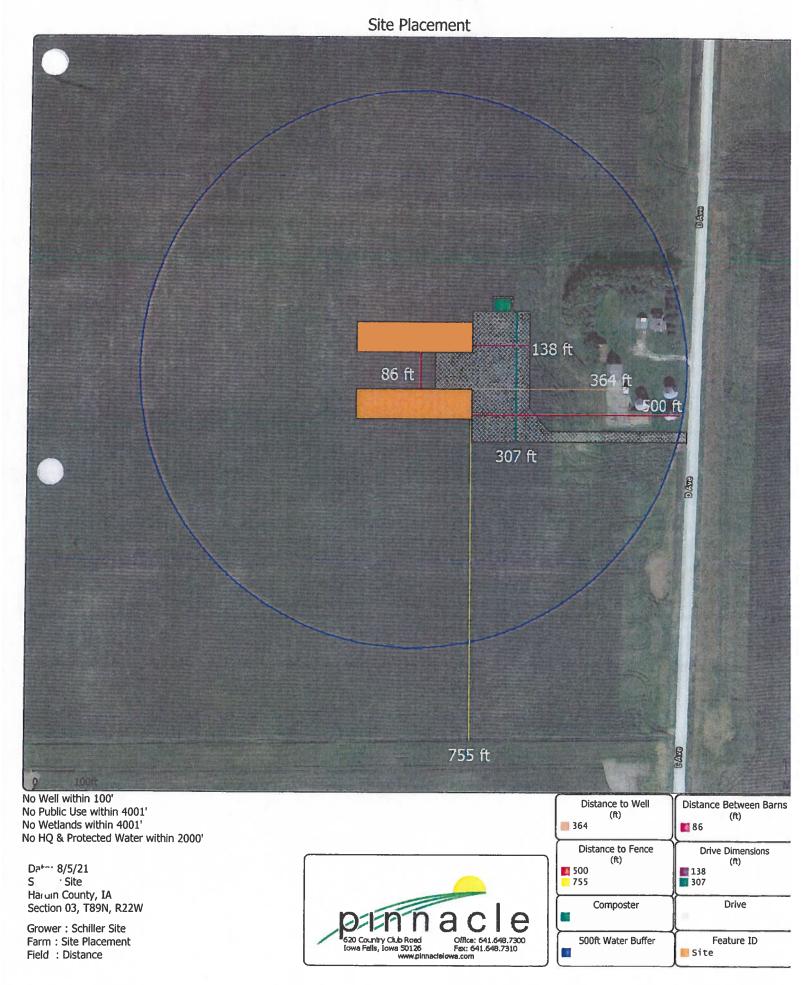
(A) Monitoring well location, sampling and data submission must meet department requirements.

(B) The design, operation and maintenance plan for the groundwater monitoring wells, and data transfer to the department, must be in the construction permit application and made a condition in the approved construction permit.

Total Score	Air	Water	Community
880	213.50	271.00	404.50
440	53.38	67.75	101.13

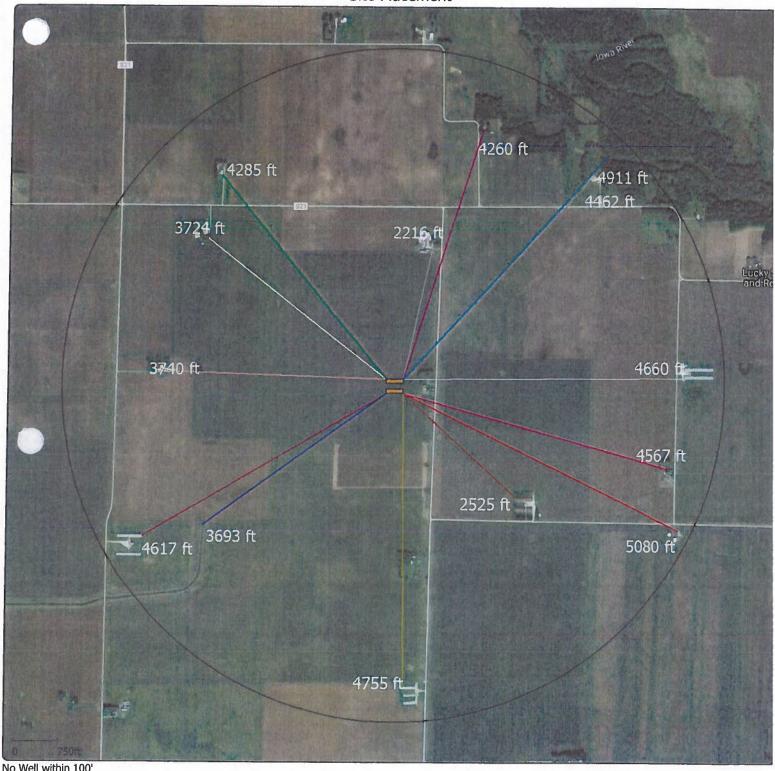
Score to pass

Schiller Site



Schiller Site

Site Placement

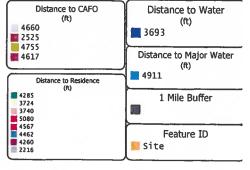


No Well within 100' No Public Use within 4001' No Wetlands within 4001' No HQ & Protected Water within 2000'

Dahn 8/5/21 S Site Harum County, IA Section 03, T89N, R22W

Grower: Schiller Site Farm: Site Placement Field: Distance





Site: Schiller Site

Date: 8/5/21

APPENDIX C MASTER MATRIX

Question	Score	Air	Water	Community	,	
1	25	16.25	0	8.75		
2	30	12	0	18		
3	30	12	0	18		
4	30	0	30	0	7	
5	30	9	0	21		
6	10	4	0	6	1	
	CHARGO THE	100	to a U more	福岡大学() 伊成田		
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9	0	0	0	0	1	
10	30	0	22.5	7.5]	
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12	30	27	0	3		
13	0	0	0	0		
14	0	0	0	0		
15	0	0	0	0		
16	30	9	18	3		
17	30	0	27	3		
18	0	0	0	0		
19	20	0	0	20		
20	30	0	0	30		
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25	25	0	12.5	12.5		
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The same of the sa	V . O	25 4 () 4 5 5 6	2.0	institution (
	0	5-0	VENUE NO	ATTEMPT FOR ALL		
44	0	0	0	0		
44	0	U	U	U		
<u>Total</u>	<u>470</u>	106.25	149.5	<u>214.25</u>		

Requires: "Design, Operation, and Maitenance Plan"

<u>440</u> <u>53.38</u>

67.75

101.13

Regultes Supporting Documentation:

Total to Pass

Design, Óperating, & Maintenance Plans & Supporting Documentation

SITE NAME – Schiller Site

Master Matrix #1

The swine facility is located an additional 341 feet, above the required 1,875 feet, away from the closest residence not owned by the owner of the confinement feeding operation, Hospital, Nursing Home, and Licensed or registered child care facility. Refer to site map. Credits of 25 pts have been counted in the Master Matrix for Item 1.

Master Matrix #2

The swine facility is located at least an additional 1501 feet, above the required 2500 feet, away from the closest Public Use Area; defined as a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Refer to site map. Credits of 30 pts have been counted in the Master Matrix for Item 2.

Master Matrix #3

The swine facility is located at least an additional 1501 feet, above the required 1,875 feet, away from the closest Educational Institute, Religious Institution, or Commercial Enterprise. Refer to site map.

Credits of 30 pts have been counted in the Master Matrix for Item 3.

Master Matrix #4

The swine facility is located an additional 3193 feet, above the required 500 feet, away from the closest water source. Refer to site map.

Credits of 30 pts have been counted in the Master Matrix for Item 4.

Master Matrix #5

The swine facility is located 300 feet or more from the closest thoroughfare. Refer to site map.

Credits of 30 pts have been counted in the Master Matrix for Item 5.

Master Matrix #6

The swine facility is located an additional 500 feet, above the required 2,500 feet, away from the closest critical public area. Refer to site map.

Credits of 10 pts have been counted in the Master Matrix for Item 6.

Master Matrix #8

The swine facility is located an additional 3911 feet, above the required 1,000 feet, away from the closest Agricultural drainage well, known sinkhole, or major water source. Refer to site map.

Credits of 50 pts have been counted in the Master Matrix for Item 8.

Master Matrix #10

The swine facility is located at lease two times the minimum separation distance of 1000 feet, from the closest high quality water, high quality resource water, or protected water areas. Refer to site map.

Credits of 30 pts have been counted in the Master Matrix for Item 10.

Master Matrix #12

Points: We are claiming 30 points because this Manure Storage Structure has a cover. Iowa Code states that "a formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered." On this Site the building roof is the cover.

Design: The site will consist of 2 swine finishing buildings that have manure storage pits directly beneath the roof and floor where the pigs are housed, as required by DNR rules to be considered covered liquid manure storage. The roof has been designed and warranted using ribbed painted, or galvanized steel to withstand appropriate snow and wind loads for **Hardin** County, Iowa.

Operation: The roof is part of the Structure and has no moving parts, therefore it does not require an operating plan.

Maintenance: Each building's roof and floor will be maintained to provide coverage of the manure storage structure. Maintenance of this cover will be minimal since it consists of steel. This facility will have a caretaker on site and in the buildings daily, if there is evidence of storm damage, or any holes/water leaks, which would be evidence of a hole; if found, they will be immediately repaired with appropriate materials to achieve as-built condition.

Credits of 30 points have been counted in the Master Matrix for Item 12.

Master Matrix #16

Design: A structure consisting of a packed lime or concrete floor, steel roof, and wooden or concrete walls will be constructed to contain the mortality and composting materials. We will construct a primary bin with a minimum capacity of 2295 cubic feet based on ISU PM 1917 for a 5400 head Grow to finish site turning 2.5 groups per year, finishing 13,500 head of pigs per year. We will also be constructing a secondary bin with a minimum capacity of 2295 cubic feet, and potentially a third bin for storage of finished compost waiting for field application. As an example, a structure with dimensions of 40° x 30° x 5° deep divided into two equal bins would have a total capacity of 6000 cubic feet (131% of requirement) satisfying the primary and secondary bin capacity requirements. The composting unit is located outside of wetlands and 100- year floodplain areas. It is also located at least 100 feet from all private wells, 200 feet from public wells, 50 feet from property lines, 500 feet from neighboring residences, and 100 feet from flowing or intermittent streams, lakes, or ponds.

Operation: The facility will be used for stockpiling and composting activities. All carcasses will be placed on a bed of 12" of composting material and then covered with 12" of composting material to allow proper decomposing. Dead animals will be placed in the composter within 24 hours of death. Following the primary heating cycle, the partially composted carcasses are removed from the primary bin and placed in a secondary bin. The mechanical action of moving the compost breaks up the pile, redistributes excess moisture, and introduces a new oxygen supply. The design of the

composting facility does not allow the release of leachate, preventing runoff or leaching of pollutants into surfaces or groundwater, controls flies, rodents and other vermin. The compost will not be removed from the composting unit until fully stabilized and all flesh, organs and soft tissue are fully decomposed. The optional third storage bin used for finished compost, shall be limited to 18 months and shall be applied to cropland or pastureland at rates consistent with the nitrogen use levels necessary to obtain optimum crop yields and shall be applied in a manner as to prevent runoff to surface waters of the state.

Maintenance: The facility will be inspected weekly for required maintenance, and kept up to "as built" standards. Credits of **30 pts** have been counted in the Master Matrix for **Item 16**.

Master Matrix #17

Points: We are claiming 30 points because the manure storage structure is formed. The pit is "cast in place" reinforced concrete.

Design: The site will utilize an 8' deep cast in place reinforced concrete pit. The reinforced cast in place structure meets requirements of Chapter 65 for manure storage, the housing of swine, and the support of roof, slats and walls. Tables for steel grade, size and spacing are reviewed by a DNR engineer through the permitting process. Wall and floor thickness, concrete strength, backfill soil categories, and traffic patterns are also reviewed. There will be a wall poured over an approved footing and floor incorporating a water stop that prevents infiltration/exfiltration. Refer to the Construction Design Statement for specifics. The Construction Design Statement has been completed and signed by the building contractor and contains a Construction Certification stating that it was designed in accordance with DNR rules.

Operation: The Manure Storage Structure is static and has no moving parts. The pit will be cleaned and inspected before animals are placed in building looking for any defects, such as cracks or honeycombing, and if discovered will be repaired to industry standards. The facility will be operated as a below building concrete pit. There will be a Caretaker on site and in the buildings daily, and will visually monitor manure levels. In addition water usage meters are routinely monitored by the caretaker to insure the ample water supply to pigs, and will also be used to identify excessive usage or leaks. The concrete walls of the manure storage pit are designed for heavy equipment to be operated no less than 5 feet from the walls. The pump-out pits are designed to allow heavy equipment to be operated closer than 5 feet, and are constructed using stronger design specifications. Perimeter Tile are requirement of this CDS and every tile outlet will have a monitoring location consisting of either a monitoring port including a valve in case of leak, or an outlet to the surface.

Maintenance: Due to the concrete design and specifications for the formed structure, maintenance is expected to be minimal for this structure. As a requirement of the CDS all concrete will be cured to minimize shrinking and cracking. Approximately 12" of pit will be exposed above the soil surface. There will be a Caretaker on site and in the buildings daily, and will routinely looking for cracks in the walls. The building contractor will be notified if any cracking is discovered.

The Caretaker will make routine observations of the perimeter footing tile discharge point, or monitoring port for signs of contamination; such as manure odor, visual discoloration, excessive liquid in the tile during dry periods, and dead foliage. If contamination is observed, an immediate investigation will be conducted to locate the source and the problem will immediately be corrected. A groundwater and/or structural expert will direct the investigation, and the investigation will include closing the tile shutoff valve and taking water samples for visual and laboratory analysis.

Initial Settling of soils will be monitored and corrected to eliminate standing water next to the manure storage structure.

Credits of 30 pts have been counted in the Master Matrix for Item 17.

Master Matrix # 19

Design: The site will have a truck turnaround area at least 120 feet in diameter and adequately surfaced for traffic in inclement weather. The site will have a truck turnaround area allowing the trucks to pull in to the site completely off of the road and turn around.

Operation: The driveway will be operated to provide for safe entrance and exit to the property for delivery vehicles and not obstruct the public thoroughfare.

Maintenance: The driveway will be maintained to a level that will support regular truck traffic. The driveway will be constructed with a 2-3 inch base. Road rock gravel will be used as a road surface that will be monitored for the purposes of leveling, filling potholes, and adequate snow removal.

Credits of 20 pts have been counted in the Master Matrix for Item 19.

Master Matrix #20

The construction permit applicant has no history of Administrative Orders in the last five years at any site in which the applicant has any interest.

Credits of 30 pts have been counted in the Master Matrix for Item 20.

Master Matrix # 23

The construction permit applicant, **Kyle Janes**, can lawfully claim the Family Farm Tax Exemption on the site where the confinement structure is being constructed. The owner, Kyle Janes, holds 100% ownership interest and also farms the contiguous farm ground. Credits of **25** pts have been counted in the Master Matrix for **Item 23**.

Master Matrix #24

The facility has a capacity of **2001 to 3000** animal units. Refer to Construction Permit Application, page 3.

Credits of 10 pts have been counted in the Master Matrix for Item 24.

Master Matrix #25

Design: The buildings on the site will utilize a wet/dry feeder, dry feeder with watering cups, or swinging nipples. Industry wide accepted data shows significant water savings from any of the three options as compared to a gate mounted watering nipple. Please

refer to the attached scientific article illustrating the water savings and benefits any of the three methods mentioned above.

Operation: Feeders, watering cups, or swinging nipples will be adjusted to reduce waste and optimize feed efficiency for the facility. The water savings result in reducing the gallons of water in the pit that later has to be hauled out onto farm fields.

Maintenance: The feeders, watering cups, or swinging nipples will be inspected on a regular basis and adjusted as needed. Water flow will be monitored and adjusted to control waste and excess manure volume.

Credits of 25 pts have been counted in the Master Matrix for item 25.

Master Matrix # 26 "e"

All manure will be injected or incorporated on the same date that it is applied. Credits of 30 pts have been counted in the Master Matrix for Item 26e.

Master Matrix #41

THIS CLOSURE PLAN MUST BE KEPT ON SITE WITH ALL OTHER MMP DOCUMENTS. Closure Plan as of 8/9/21. This plan has been written in accordance with NRCS Conservation Practice Standard "Closure of Waste Impoundments". The closure plan is based on NRCS Code #360. This also meets the standards and requirements, which are set forth by the Iowa DNR. The closure shall comply with all federal, State of Iowa, local, and tribal laws, rules and regulations that are in place at the time of the closure. Kyle Janes will notify the DNR Filed office of their intent to close the structures on this farm which consists of two 8' deep pit barns, subsequent to six (6) months of the structure being empty of livestock. Applicant will follow any closure rules that may be established at that time that is more stringent than this closure plan. Kyle Janes and the DNR will establish a time line of completion for the closure plan.

- 1. Manure should be well agitated to try to remove as much manure as possible. The effluent, solids and any sludge will have an analysis for both nitrogen and phosphorus. This analysis will be used in determining the amount of material to be applied on a per acre basis according to the Manure Management Plan.
- 2. Non-concrete construction material should be removed and disposed of following DNR guidelines.
- 3. Slats should be removed for pit cleaning. Slates can be broken and added back after the pit is clean and walls have been knocked in.
- 4. All solids left in concrete containment shall be removed and field applied using agronomic rates.
- 5. After concrete containment is cleaned, applicant shall contact the DNR Field Office for visual inspection if DNR so advises. If DNR determines containment is clean enough to no create environmental impact, applicant may proceed to the next step.
- 6. Floor of containment shall be broken up so as to not impound water. Sub drain tile may be removed. Containment walls will be broken up and pulled into pit area. Demolished building materials shall be placed on top of concrete if not disposed of in another way.
- 7. Materials are to be covered with soil to a settled depth of one foot, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

8. Measures shall be taken during the construction to minimize site erosion and pollution of downstream water resources. This may include such items as silt fences, hag able barriers, temporary vegetation, and mulching.

Credits of 5 pts have been taken for **Item 41**.

Composting Swine Mortalities in Iowa

Composting Gains Popularity

With more than 25 million hogs produced annually in Iowa, cost effective mortality disposal alternatives that minimize risks to herd health and the environment are essential. Following the lead of the poultry industry, where composting has been used successfully for more than a decade, swine producers are finding that composting is a flexible and reasonably priced disposal method that can be used year round. Results of a statewide survey of lowa swine producers conducted by Iowa State University and the Iowa Pork Producers Association during March of 2001 show that about 12 percent of producers now rely exclusively on composting to dispose of their mortalities. An additional 6 percent of producers say they rely on composting as a backup disposal method when timely rendering service is not available.

Swine producers say they are attracted to composting for a variety of reasons. Composting allows them to manage mortalities promptly, as they occur. With properly designed composting facilities, there is no need to call for rendering service or to worry about options if the rendering truck can't make it that day. Composting also eliminates the need to wait for the ground to dry up or thaw out so that burial can be accomplished.

Composting facilities and equipment

Covered bins versus open windrows?

Composting in moderately sized roofed bins is the recommended method for Iowa's highly variable climate. Use of covered bins simplifies management of the composting operation and maximizes the potential for success regardless of weather conditions. Covered bin systems reduce the potential for seasonal odor problems caused by overly wet compost. Bins also minimize space requirements, improve heat retention during cold weather, and help to avoid problems with scavenging insects and animals. Bin systems need not be complicated or costly. Old corn cribs, open front livestock buildings, and other types of unused farm structures can often be converted for composting at a relatively low cost.

Though sometimes used for emergencies, composting in open piles or windrows is not recommended for day-to-day mortality management. Open systems are vulnerable to saturation during wet weather, which can lead to





Figure 1. Composting rapidly decomposes swine mortalities, producing a soil-like product that can be spread on cropland. (Photo by Tom Glanville, Iowa State University.)

odor production and release of contaminated leachate. While these problems can be reduced to some extent by using extra cover material and turning the piles more frequently to break up wet spots, the material, labor, and management resources required to successfully operate open systems during adverse weather conditions will be higher than for bin composting systems.

Equipment

Most of the equipment used in swine mortality composting is commonly found on livestock farms. Machinery needs include a skid loader, or tractor with front-end loader, to load and unload composting bins or windrow; and a solid manure spreader to spread finished compost on cropland. A stainless steel composting thermometer with a three- or four-foot long stem is needed to check internal pile temperatures.

Cover material

The material used to cover the carcasses is an important part of the composting system. The ideal cover material retains heat, absorbs excess moisture, and provides a barrier that helps discourage insects and scavengers. Cover materials also must provide much of the carbon, which is essential to the microbes that decompose animal carcasses. Due to its excellent ability to retain heat and absorb excess moisture, sawdust is generally acknowledged as the best cover material. Unfortunately, sawdust and recycled wood products are in high demand for many other uses, making them increasingly hard to obtain and raising their prices substantially in recent years.



Alternative cover materials that are much easier to obtain include chopped cornstalks or straw. Since these tend to be less absorptive and have poorer insulating properties than sawdust, their use requires more care during cold or wet weather. Poultry litter, a mixture of sawdust and poultry manure produced during turkey and broiler production, has been used successfully for carcass composting in the poultry industry. Not only does litter have the desirable characteristics of sawdust, the bacteria and nitrogen added by the manure make this mixture more biologically active than sawdust alone. Bedding from swine hoop buildings also can be used as cover material. Since the quality of used bedding from hoop buildings varies considerably, care should be taken to avoid materials that are saturated with liquid or that contain high proportions of manure because these conditions can lead to slow decay and/or excessive odor production.



Figure 2. This low-cost bin composting system was constructed with used materials and is located inside a converted farm building, (photo by Kris Kohl, lowa State University)

Disposal area

Swine composting operations require cropland or pasture land for final disposal of the finished compost. The finished compost will contain some recognizable bones, particularly if large breeding animals or finishing hogs are composted, so locating the disposal area away from non-farm residences is recommended. If the composting operation is functioning properly, however, bones will be free of all soft tissues, and they will be dry, brittle, and of little or no attraction to scavenging animals or insects.

Producers frequently ask about the fertilizer value of their compost. Unfortunately, the nitrogen value of the compost is difficult to predict because it can vary considerably depending on the type and amount of cover material used. Sampling and testing the compost for nutrient content is the only reliable way to determine its fertilizer value.

Composting procedures

Mortality composting is begun by placing a 12-inch layer of cover material in the bottom of the bin. Decaying carcasses release excess moisture, so a thick absorptive base layer plays an important role in preventing release of excess liquid.

Carcasses placed in the composting bins should not touch each other and should be at least 9 to 12 inches from bin walls. Too many carcasses in one spot leads to localized wet spots and poor decay. Carcasses that are too close to the cool exterior side walls of the bin will decay slowly and are less likely to be exposed to the high temperatures necessary to kill disease-causing microorganisms. After a layer of carcasses has been placed in the bin, add 6 to 9 inches of cover material. Complete coverage is essential to avoid problems with insects, rodents, and scavengers. Daily layering of new carcasses and cover material continues until the bin is filled to a depth of about 5 feet. In some instances, it may help to segregate large and small carcasses in separate bins. This allows smaller carcasses to move through the treatment process quickly, minimizing the amount of bin space tied up in lengthy treatment cycles. To ensure continuous coverage throughout the composting cycle, it may be necessary to add cover material from time to time as material within the bins settles. This is particularly true when large carcasses are composted.

In a properly operating facility, new material added to bins reaches temperatures of 120 to 150°F within 24 to 48 hours. Internal temperatures can be monitored with a long-stemmed (36- to 48-inch) composting thermometer. For an accurate picture of internal conditions, probe the bin at several locations. It is normal to find hot and cool spots within the same bin, so a single temperature measurement can be misleading. If a bin fails to heat up, too much or too little moisture is the most common cause. It may be necessary to unload the bin and mix in compost from an active (hot) bin to remedy the problem.

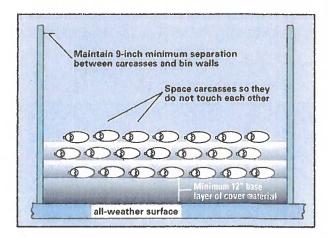


Figure 3. Animal carcasses should not touch each other, and should not be placed in the cool zone near composting bin walls.

After a bin is completely filled, it must undergo a primary heating cycle of 60 to 90 days. The length of the primary heating cycle will vary with the size of carcasses placed in the bin. For farrowing house and nursery losses, an initial heating cycle of as little as 30 days may be adequate. If the bin is filled with larger market-weight animals or breeding stock, primary heating cycles as long as 6 months may be necessary.

Following the primary heating cycle, the partially omposted carcasses are removed from the primary bin and placed in a secondary bin. The mechanical action of moving the compost breaks up the pile, redistributes excess moisture, and introduces a new oxygen supply. Once this takes place, a secondary heating cycle occurs, accompanied by further decomposition. By the end of a 60- to 90-day secondary heating cycle, even large carcasses of breeding stock are normally reduced to a few large bones that are free of soft tissues which cause odors or attract insects and predators.

Sizing and layout

Bin-type composting systems located under a roof are recommended for best year-round performance, optimal processing, and minimal problems with runoff and scavengers. Total bin volume for a swine mortality composting operation is based on average daily weight of animals to be composted. Typically, about 20 cubic feet of primary bin volume is recommended for each pound of average daily loss, with an equal amount of secondary bin space.



Figure 4. Checking internal temperatures with a composting thermometer is a quick way to determine if moisture and other conditions are suitable for rapid decay and pathogen reduction. (Photo by Tom Glanville, Iowa State University.)

Use Table 1 to estimate the amount of primary bin volume for your particular operation. Write in the annual number of pre-wean and nursery pig litters produced by your operation in the first two rows of column B. The annual number of pigs produced by your finishing operation, and the average breeding stock population, are entered in the bottom two rows of column C. Multiply the values in columns B and C by the composter volume factor in column D, and enter the result in column E. The sum of all the values in column E (entered in Total box) is the estimated total amount of primary composting volume needed for your operation. You will need an equal volume of secondary bin space.

(A) Phase of operation	(B) Litters per year	(C)* Number of animals	(D)** Volume factor	(E) Primary bin volume (cubic feet)
Pre-wean pigs	675 litters		X 0.41	= 277
Nursery pigs	675 litters		X 0.26	= 176
Finishing pigs		5,800 pigs	X 0.17	= 986
Breeding stock		300 sows	X 0.57	= 171
			Total	= 1610

* For finishing pigs, use annual number marketed. For breeding stock, use average year-round population.

^{**} Volume factors based on 20 cubic feet of <u>primary</u> bin capacity per pound of average <u>daily</u> loss. Weight of mortalities is calculated assuming average mortality rates as follows: pre-ween mortality, 25 pigs/litter @ 3 lbs./pig, nursery mortality, 2 percent (assume 95 pigs/litter) @ 25 lb./pig, finishing mortality, 2 percent @ 150 lb./pig, and breeding stock mortality, 3 percent annually @ 350 lbs./animal.

Example values shown in italics in columns B and C of Table 1 are for a 300-sow farrow-to-finish operation producing 675 litters per year, and marketing 5,800 finished pigs per year.

Approximate dimensions for each bin can be estimated following these steps:

- Step 1: Estimate minimum bin width. Side-to-side dimensions of at least twice the loader bucket width are recommended to provide sufficient maneuvering room. For a skid loader with a 4 ft. wide bucket, for example, bin widths of at least 8 ft. are suggested.
- Step 2: Select front-to-back bin dimension. One to two times the minimum bin width is suggested. For the 8 ft. wide bins in this example, a front-to-back dimension of 12 ft. is used.
- Step 3: Calculate individual bin volume: Multiply bin width (from step 1) by the front-to-back dimension (from step 2) to obtain bin floor area. Then multiply the floor area by the anticipated working depth to obtain the bin volume. Working depths of 5 ft. or less are recommended (bin walls should be about 1 ft. higher than the working depth). In this example the bin floor area is 8 ft. X 12 ft. = 96 square ft. Using a 5 ft. working depth, the individual bin volume is: 96 sq. ft. X 5 ft. = 480 cubic feet.
- Step 4: Estimate number of primary bins: To determine the number of primary bins needed, divide the estimated Total Primary Bin Volume (sum of values in column E of Table 1) by the Individual Bin Volume (step 3). If a fractional value is obtained, round UP to next whole number. For this example, dividing the total primary bin volume of 1610 cubic feet by the individual bin volume of 480 cubic feet yields a value of 3.35. Rounding this value UP, 4 primary bins are recommended.



Figure 5. This simple four-bin swine mortality composting unity includes space for dry storage of cover material behind the bins. (Photo by Palmer Holden, Iowa State University.)

- Step 5: Estimate number of secondary bins: The number of secondary bins should equal the number of primary bins. In this case, 4 secondary bins are recommended.
- Step 6: Additional bins for cover material: If space to stockpile dry cover material is NOT available in adjacent buildings, construction of 2 or more additional bins for this purpose is recommended.
- Step 7: Select bin layout: Bin layout is usually dictated by the geometry of the available space. Linear and tandem layouts, like the floor plans shown in Figure 6, are most common. If bins will be located outdoors where they are not shielded from wind, the tandem layout is recommended to help retain heat during cold weather.

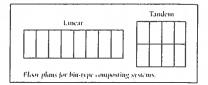


Figure 6. Typical floor plans for bin-type composting systems.

Frequently Asked Questions

- Q. My composting operation is very odorous, the decay is slow, and internal pile temperatures are low even during summer months. What can I do to improve this?
- A. Excessive odor production accompanied by low internal temperatures is typical of compost that is too wet. Excess water is normal in the immediate vicinity of the swine carcasses, but each carcass should be surrounded by sufficient amounts of cover material to absorb the liquid and prevent any from seeping out of the base or sides of the pile. Material in the outer envelope of the compost pile (a few inches beneath the outer surface) should feel slightly damp, but if squeezing a handful of the envelope material causes water to drip out, it is too wet. Excess moisture is usually caused by failure to protect the composting operation or cover material stockpiles from excess precipitation, or by using too little absorptive cover material over and around the animal carcasses.
- Q. My compost fails to heat up, even during warm weather. Excess moisture does NOT seem to be the problem. What else could cause this?
- A. Likely causes are use of cover material that is extremely dry, or too little nitrogen in the cover material. Animal carcasses release considerable

moisture into the cover material immediately surrounding them, but dry or extremely porous cover materials can draw moisture away from the carcasses or encourage excessive moisture evaporation. If so, the zone around the carcasses may become too dry for rapid bacterial decay and heat production. If this happens, do not add water directly to the top of the compost bin. This can saturate the pile, causing seepage, anaerobic conditions, and excessive odor. To increase the water content in a controlled way, add water to stockpiled cover material, and then mix the moistened cover material into the compost pile. If moisture content appears adequate, insufficient nitrogen in the cover material is a likely cause of low internal temperatures. To boost the nitrogen content, mix a small amount of manure into the cover material. Avoid adding large amounts of manure at one time as this can lead to odorous releases of ammonia.

- Q. I have trouble getting my compost bins to heat up during cold weather. What can I do to improve heat production and retention?
- A. If your composting operation works well in warm weather, but not during the winter, try increasing the size of your cover material stockpile or of your composting bins. Most cover materials produce small amounts of heat while stockpiled. Larger stockpiles help to retain this heat, providing warmer material with which to cover the carcasses that are added to the composting bin. It's also important to use composting bins that are large enough to retain heat during cold weather. Small bins contain insufficient amounts of biodegradable material to produce and retain heat during cold, windy weather. It's also important to not let carcasses freeze before putting them into the compost bin. Frozen carcasses require tremendous amounts of heat for thawing before decomposition can begin.
- Q. How can I tell if a material will make a good cover material for carcass composting?
- A. Stockpile some of the potential cover material and use your composting thermometer to monitor internal temperatures. Good cover materials have sufficient moisture, porosity, and nutrient content to promote self-heating. Avoid cover materials that show little potential for self-heating.
- Q. Can I reuse finished compost as cover material to compost subsequent mortalities?
- A. Yes, if the moisture content of the finished compost is acceptable (neither too wet nor too dry), limited reuse is possible. Continuous reuse may ultimately

- lead to a nutrient imbalance that reduces biological activity.
- Q. My swine composting operation is working great and I would like to make some extra money by composting pigs from neighboring farms. Are there any limits on the size of on-farm composting operations or other regulations that I need to know about?
- A. Composting dead animals that do not originate on the same farm where the composting facility is located requires a permit from the Iowa Department of Natural Resources (IDNR). Contact IDNR for further information about permits and operating requirements for commercial composting facilities.

lowa's animal mortality composting regulations

Administrative rules of the IDNR state that on-farm composting of dead animals generated on the same farm as the composting facility is exempt from having a permit if the following operating requirements are met:

- Dead animals are incorporated into the composting process within 24 hours of death and covered with sufficient animal manure, animal bedding, crop residues, or clean wood waste (free of coatings and preservatives) necessary as bulking agents and to prevent access by domestic or wild animals.
- Composting is done in a manner that prevents formation and release of runoff and leachate and controls odors, flies, rodents, and other vermin.
- Dead animals are not removed from composting until all flesh, internal organs, and other soft tissue are fully decomposed.
- Storage of finished compost shall be limited to 18
 months and shall be applied to cropland or pasture
 land at rates consistent with the nitrogen use levels
 necessary to obtain optimum crop yields and shall be
 applied in a manner as to prevent runoff to surface
 waters of the state.
- Application of compost to other lands shall require prior approval by IDNR.
- Composting must be done on an all-weather surface
 of compacted soil, compacted granular aggregates,
 asphalt, concrete or similar relatively impermeable
 material that will permit accessibility during periods
 of inclement weather and prevent contamination of
 surface and groundwater.

- If composting is done in a permanent structure, composter construction shall utilize weather and rot-resistant materials capable of supporting composting operations without damage. (Although not mandatory, a roof over the composting facility is recommended to prevent excess moisture accumulation that can lead to production of undesirable odors and leachate.)
- Composting must be done outside of wetlands or the 100-year flood plain and at least 100 feet from private wells, 200 feet from public wells, 50 feet from property lines, 500 feet from inhabited residences, and 100 feet from flowing or intermittent streams, lakes, or ponds.

More information

For additional information visit lowa State University's award winning swine mortality composting web site on the Internet at: www.abe.iastate.edu/pigsgone/

Written by Tom Glanville, Ph.D, Department of Agricultural & Biosystems Engineering, Iowa State University, Ames, Iowa.

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... and justice for all

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IOWA STATE UNIVERSITY University Extension

Original research

Impact of feeders and drinker devices on pig performance, water use, and manure volume

Michael C. Brumm, MS, PhD; James M. Dahlquist, MS; Jill M. Heemstra, MS

Summary

Objective: To determine the impact of feeder and drinker designs on pig performance, water use, and manure volume.

Methods: Experiment One compared a wet/dry feeder to a dry feeder with wall-mounted nipple drinker. Experiment Two compared a swinging nipple drinker to a gate-mounted nipple, and Experiment Three compared a bowl drinker to the swinging drinker of Experiment Two. In all experiments, pigs were housed in pens of 20–24 pigs per pen in partially slatted, mechanically ventilated facilities.

Results: In Experiment One, water disappearance (L per pig per day) was 4.49 for the wet/dry feeder versus 6.06 for the dry feeder plus nipple drinker. In Experiment Two, water disappearance was 4.90 L per pig per day for the swinging drinker versus 5.50 for the gate-mounted drinker. In Experiment Three, water disappearance was 3.78 for the bowl versus 5.01 for the swinging drinker. Summer manure production in Experiment One was 4.96 L per pig per day for the wet-dry feeder versus 7.02 for the nipple drinker. Winter manure production was 3.96 L per pig per day for the swinging drinker versus 4.59 for the nipple drinker in Experiment Two.

Implications: These results document the wide range in water use and manure volume associated with feeder and drinker devices installed in swine facilities. They also suggest lower amounts of total water use and manure volume than those currently cited in the literature or used by regulatory officials.

For the overall experiment, pigs on wet/dry feeders used 1 kg of water less per kg of feed than did pigs on the conventional system.

The overall W:F ratio was lowest for the wet/dry feeder (1.78; Experiment One) and similar to the bowl drinker (1.89; Experiment Three).

In observations consistent with ours in Experiment One, Maton and Daelemans14 concluded that all wet feeders included in their experiments reduced water spillage so that water consumption was only 70%—80% of that observed from conventional feeders and nipple drinkers. In addition, slurry (manure) volume was reduced by 20%—30% in their study.

		ent One mer)	Experim	ent Two
	Dry	Wet/dry	Swing	Nipple
Per plg	per day			
Volume	7.02 L (1.85 gal)		3.96 L (1.05 gal)	4.59 L (1.21 gal)
Mass*	7.0 kg (15.4 lb)	4.9 kg (10.8 lb)	3.9 kg (8.6 lb)	
Per 1000	kg bodyw	eight		
Mass	109 kg (240 lb)	76 kg (167 lb)	61 kg (134 lb)	70 kg (154 lb)

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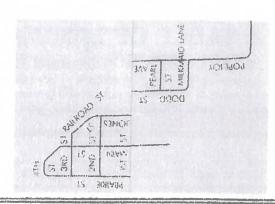
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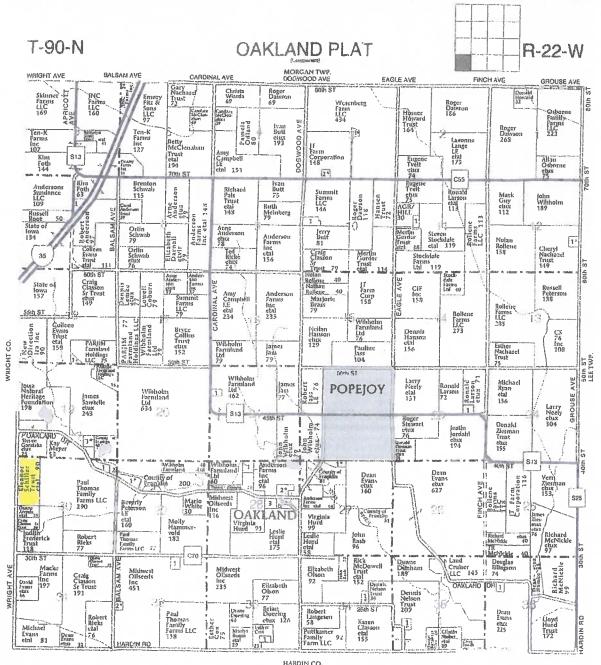
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Color versions of this map available in digital version.

Popejoy City Map







DAKLAND TOWNSHIP SECTION 3

2. Dow, Curlis etux 7 SECTION 7

1. Oriscoll, Matthew 6

SECTION 10 1. Summit Pork I LLP 8 SECTION 11 Krause, Karlton 9

SECTION 12 1. Foley, William etal S SECTION 18

1. Sawtelle, James atux S

SECTION 19
1. Folstadt Jr. Robert etal

SECTION 21 1. Oakland Farms LLC 7 SECTION 23 SECTION 27 1. Stewart, Roger etux 8 SECTION 28

 County of Franklin 10
 Braun, Lynn etal 13 3. Hoversten Trust 9

SECTION 29 Doering Livestock LLC
 5 1. Peterson, Beverly etal 12

SECTION 30 1. Oehlert, Trent 14 County of Franklin 9

SECTION 32
1. Summit Ferms LLC 9
2. Anderson, Levi etal 10
SECTION 33

SECTION 34 1. Husted, Roger etal 6 SECTION 35 Phipps, Christopher etux 5 SECTION 38

Jass, Victor 8



Manure Management Plan Form Animal Feeding Operation Information

Page 1

instructions: Complete this form for your animal feeding operation. Footnotes are provided on page 4.

The information within this form, and the attachments, describes my animal feeding operation, my manure storage and handling system, and my planned manure management system. I (we) will manage the manure, and the nutrients it contains, as described within this manure management plan (MMP) and any revisions of the plan, individual field information, and field summary sheet, and in accordance with current rules and regulations. Deviations permitted by lowa law will be documented and maintained in my records.

me of operation: Schill	er Site			_	Facili	ty ID No.	N/A
cation of the operation:	1056	57 D Ave.					
		(911 address)					
	Alde	n (Town)		(State)		50006	5
NE 1/4 of the SE	1/4 of Sec			Alde		(Zip)	Hardin
(1/4 1/4) (1/4)	. 27 7 01 000	3 T 89 R 22 (Section) (Tier & Range)			wnship Name)		(County)
ner and contacts of the	animal fee	eding operation:					
Owner Kyle Janes					Phone	515-859-7664	
Address 14987 120th St,	Alden, iA, 5	0006					
E-mail address (optional)					Cell	phone (optional)	
Contact person (if different to	han owner)	Kent Krause			Phone	641-648-7300	
						011 040 7300	
Address 620 Country Clu							
E-mail address (optional) Contract company (if applicat Address	kkrause@pi	nnacleiowa.com				phone (optional)	
s manure management	kkrause@pi	nnacleiowa.com		existin	Phone		
E-mail address (optional) Contract company (if applicat Address s manure management existing operation, not expanding the contract to the co	kkrause@pi	nnacleiowa.com (check one)	date o	existin	Phone g operation, nev		
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E-mail address (optional) Contract company (if applicated Address s manure management existing operation, not expanding extruction and Expansion Table 1. Information at 1 Animal type/ Production phase a	plan is for: plan is for: Dates: Max # of animals confined	(check one) existing operation, expanding eck production and manur	date of and a december 4	existing of initial expansion of the second	Phone g operation, new construction nsions ent system 6	v owner <u>x</u> 7 Days/yr Facility occupied	new operation 8 Annual Manu Produced ^e
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E-mail address (optional) Contract company (if applicated Address Separate management existing operation, not expanding a struction and Expansion and Expa	plan is for: plan is for: Dates: Max # of animals confined	(check one) existing operation, expanding eck production and manur	e man	existing of initial expansions of the second	Phone g operation, new all construction nsions ent system 6 gal/space/dy ^d 0.9 0.0	v owner <u>x</u> 7 Days/yr Facility occupied	8 Annual Manue Produced® 1,773,900 000

Manure Management Plan Form

Determining Maximum Allowable Manure Application Rates Page 2 instructions: Complete a worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Complete form by filling in blanks, yellow-colored cells, and drop down menus. Gray shaded cells will calculate automatically. Footnotes are given on pages 4, 5 and 6.

Management Identification (Mgt ID) Corn-Corn N-Rate Hardin (A) (identify this application scenario by letter) Method to determine optimum crop yield USDA FSA proven yields Timing of application Spring/Fall Method of application Knifed in or soil injection of liquid manure Application loss factor 0.98 If spray irrigation is used, identify method

Table 2. Manure nutrient concentration

Manure Nutrient	Conte	nt (lbs/100	Ogal or	lbs/ton) ^j	
Total N	58		P ₂ O ₅	40	
%TN Available 1st year ^k	90%	2nd year	0%	3rd year	0%
Available N 1st year	51.2	2nd year ^m	0.0	3rd year ⁿ	0.0

Table 3. Crop usage rates^o

lb/bu or lb/ton	N	P ₂ O ₅
Corn	1.2	0.32
Soybean	3.8	0.72
Alfalfa	50	13
Other crop	0	0

^{*}Use blank space above to add crop not listed.

Table 4. Calculations for rate based on nitrogen (always required)

7	Applying Manure For (crop to be grown) ^p		Corn	T	Corn	*	Corn	Corn	-
1 2	Optimum Crop Yield ⁸	bu or ton/acre	219		219		219	219	- Personal
3	P ₂ O ₅ removed with crop by harvest ^q	lb/acre	70.1		70.1		70.1	70.1	
4	Crop N utilization ^r	lb/acre	263		263		263	263	39IUS
5a	Legume N credit ^s	lb/acre	0.00		0		0	0	100
5b	Commercial N planned ^t	lb/acre	0		0		0	0	in A
5c	Manure N carryover credit ^u	lb/acre	0		0.0		0.0	0.0	
6	Remaining crop N need ^v	lb/acre	263		263		263	263	
7	Manure rate to supply remaining N w	gal/acre	5137		5137		5137	5137	
8	P ₂ O ₅ applied with N-based rate ^x	lb/acre	205		205		205	205	The same

Table 5. Calculations for rate based on phosphorus (fill out only if P-based rates are planned)

9	Commercial P ₂ O ₅ planned ^y	lb/acre	0	0	0	0
10	Manure rate to supply P removal ^z	gal/acre	1752	1752	1752	1752
11	Manure rate for P based plan aa	gal/acre	1752	1752	1752	1752
12	Manure N applied with P-based plan bb	lb/acree	90	90	90	90

Table 6. Application rates that will be carried over to page 3

13	Planned manure application rate cc	gal/acre	5137	5137	5137	5137

When applicable, manure application rates must be based on the P index value as follows:

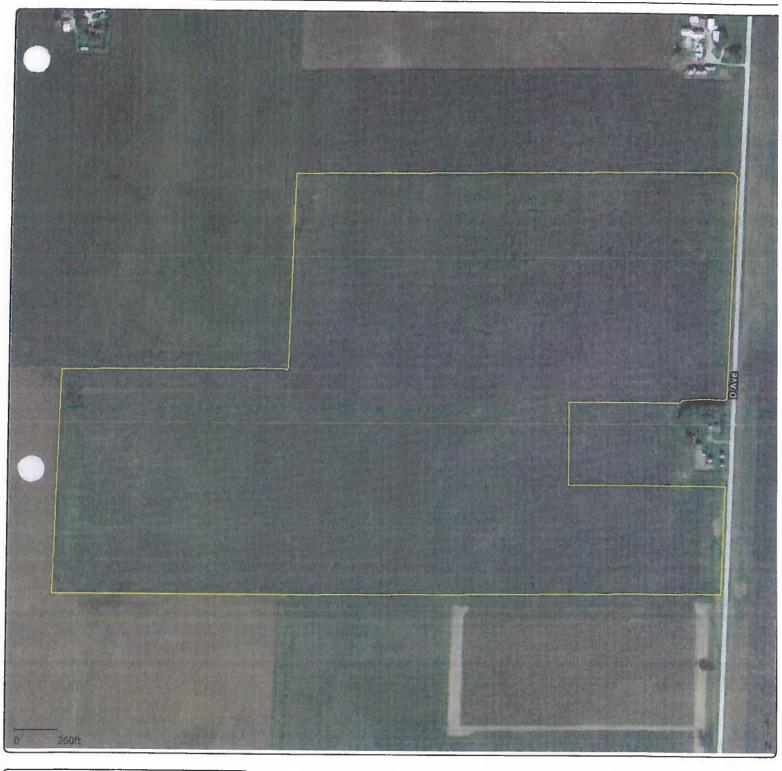
^{&#}x27;0-2) N-based manure management.

⁻⁵⁾ N-based manure management but P application rate cannot exceed two times the P removal rate of the crop schedule.

^{(&}gt;5-15) No manure application until practices are adopted to reduce P index to 5 or below.

^{(&}gt;15) No manure application.

42892203P4000



Grower: Janes

Farm: Fields

Fiold: 42892203P4000

Latitude: 42.54757620

Longitude: -93.42961001



Feature ID
Total Acres(177.8 ac)

42892211P3000 - Eide West



Grower : Janes

Farm: Fields

Field: 42892211P3000 - Eide West

Latitude: 42.52987192

Longitude: -93.42050394



Feature ID
Total Acres(141.3 ac)

42892211P4000 - Home



Grower: Janes

Farm: Fields

Finid: 42892211P4000 - Home

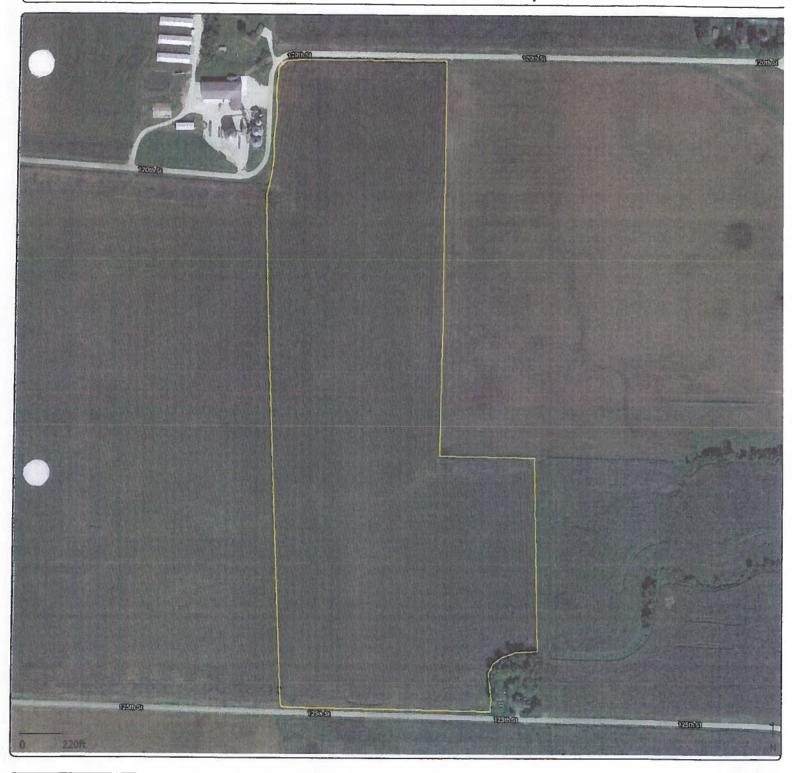
Latitude: 42.53194646

Longitude: -93.41069013



Feature ID
Total Acres(172.7 ac)

42892213P2500 - Dorothy's



Grower: Janes

Farm: Fields

Field: 42892213P2500 - Dorothy's

Latitude: 42.52291112

Longitude: -93.40077508



Feature ID
Total Acres(78.9 ac)

42892214P3000 - McCord North



Grower: Janes

Farm: Fields

Field: 42892214P3000 - McCord North

Lc .de: 42.51601901

Longitude: -93.42044454



Feature ID
Total Acres (154.0 ac)

42892214P4000 - Tjada Highway



Grower : Janes

Farm: Fields

Field: 42892214P4000 - Tjada Highway

. de: 42.51509210

Longitude: -93.40562291



Feature ID
Total Acres(116.7 ac)

42892223P2600 - McCord South



Grower: Janes

Farm: Fields

Field: 42892223P2600 - McCord South

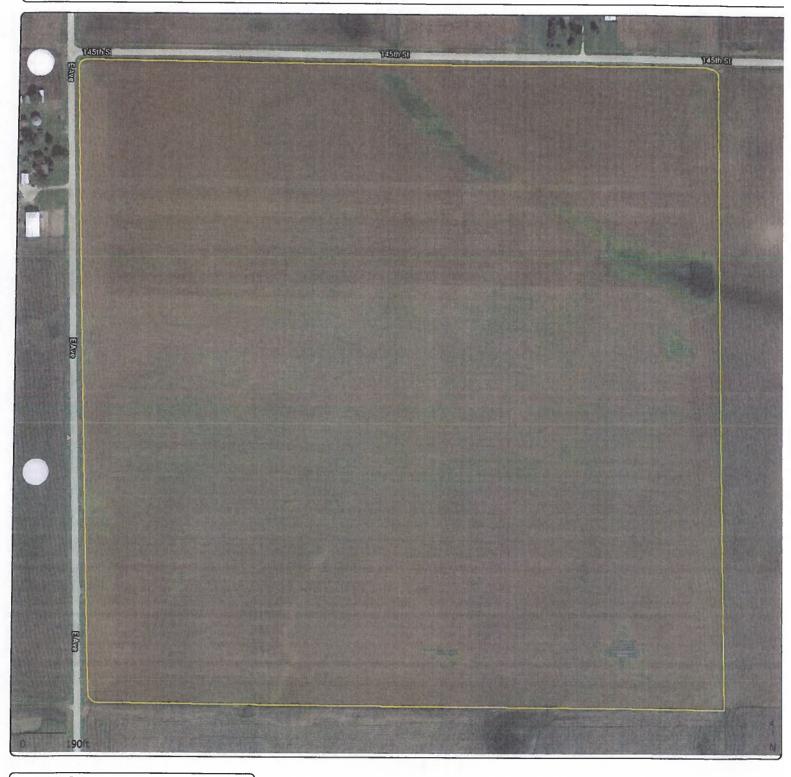
de: 42.51030524

Longitude: -93.41290741



Feature ID
Total Acres(79.5 ac)

42892225P3000 - Combellick



Grower: Janes

Farm: Fields

Field: 42892225P3000 - Combellick

Lautude: 42.48549815

Longitude: -93.40022649



Feature ID
Total Acres(159.9 ac)

Manure Management Plan Form

Determining Maximum Allowable Manure Application Rates Page 2 tions: Complete a worksheet for each unique combination of the following factors (crop rotation, optimum crop yield,

manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Complete form by filling in blanks, yellow-colored cells, and drop down menus. Gray shaded cells will calculate automatically. Footnotes are given on pages 4, 5 and 6.

Management Identification (Mgt ID)^f

Corn-Corn-Beans N-Rate Hardin (B)

(identify this application scenario by letter)

Method to determine of	pptimum crop yield ^g	USDA FSA proven yields	Timing of application S	pring/Fall	
Method of application	Knifed in or soil inject	ion of liquid manure	Application loss factor	0.98	
If spray irrigation is use	d identify method		 _		Ī

Table 2. Manure nutrient concentration

Manure Nutrient	Conte	nt (lbs/100	Ogal or	· lbs/ton) ^j	
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Available N 1st year	51.2	2nd year ^m	0.0	3rd year ⁿ	0.0

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Soybean	3.8	0.72
Alfalfa	50	13
Other crop 🔻	0	0

^{*}Use blank space above to add crop not listed.

Table 4. Calculations for rate based on nitrogen (always required)

, and	Applying Manure For (crop to be grown) ^p		Corn -	Corn -	Soybean -	Corn ▼
2	Optimum Crop Yield ^g	bu or ton/acre	219	219	63	219
3	P ₂ O ₅ removed with crop by harvest ^q	lb/acre	70.1	70.1	45.4	70.1
4	Crop N utilization ^r	lb/acre	263	263	239	263
5a	Legume N credit ^s	lb/acre	50.00	0	0	50
5b	Commercial N planned ^t	lb/acre	0	0	0	0
5c	Manure N carryover credit ^u	lb/acre	0	0.0	0.0	0.0
6	Remaining crop N need ^v	lb/acre	213	263	239	213
7	Manure rate to supply remaining N w	gal/acre	4160	5137	4680	4160
8	P ₂ O ₅ applied with N-based rate ^x	lb/acre	166	205	187	166

Table 5. Calculations for rate based on phosphorus (fill out only if P-based rates are planned)

9 Comme	ercial P ₂ O ₅ planned ^y	lb/acre	0	0	0	0
10 Manure	e rate to supply P removal ^z	gal/acre	1752	1752	1134	1752
11 Manure	rate for P based plan ^{aa}	gal/acre	1752	2886	0	1752
12 Manure	N applied with P-based plan bb	lb/acree	90	148	0	90

Table 6. Application rates that will be carried over to page 3

the state of the s	ec. to pag.				
13 Planned manure application rate cc	gal/acre	4160	5137	0	4160

When applicable, manure application rates must be based on the P index value as follows:

^{&#}x27;0-2) N-based manure management.

¹⁻⁵⁾ N-based manure management but P application rate cannot exceed two times the P removal rate of the crop schedule.

^{(&}gt;5-15) No manure application until practices are adopted to reduce P index to 5 or below.

^{(&}gt;15) No manure application.

42892202P2500



Grower: Janes

Farm: Fields

Fiold: 42892202P2500

Latitude: 42.55097736

Longitude: -93.41977858



Feature ID
Total Acres(81.7 ac)

42892211P7000 - Home/Faye's



Grower: Janes

Farm : Fields

Field: 42892211P7000 - Home/Faye's

La...ude: 42.53695986

Longitude: -93.41996772



Feature ID
Total Acres (262.0 ac)

42892212P3000 - Bessman



Grower: Janes

Farm: Fields

Field: 42892212P3000 - Bessman

Latitude: 42.53183519

Longitude: -93.40102808



Feature ID
Total Acres (93.1 ac)

42892212P4800 - Bessman



Grower: Janes

Farm: Fields

Field: 42892212P4800 - Bessman

Latitude: 42.52941542

Longitude: -93.38909877



Feature ID
Total Acres(13.1 ac)

42892214P7000 - Bob's



Grower: Janes

Farm: Fields

Finid: 42892214P7000 - Bob's

Latitude: 42.52375333

Longitude: -93.42021826



Feature ID
Total Acres (306.5 ac)

Manure Management Plan Form

Determining Maximum Allowable Manure Application Rates Page 2 Instructions: Complete a worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Complete form by filling in blanks, yellow-colored cells, and drop down menus. Gray shaded cells will calculate automatically. Footnotes are given on pages 4, 5 and 6.

Management Identification (Mgt ID) Corn-Corn N-Rate Franklin (C) (identify this application scenario by letter) Method to determine optimum crop yield USDA FSA proven yields Method of application Knifed in or soil injection of liquid manure ✓ Application loss factor 0.98

Table 2. Manure nutrient concentration

If spray irrigation is used, identify method '

Manure Nutrient	Conte	nt (lbs/100	Ogal or	· lbs/ton) ^j	
Total N	58		P ₂ O ₅	40	
%TN Available 1st year ^k	90%	2nd year	0%	3rd year	0%
Available N 1st year	51.2	2nd year ^m	0.0	3rd year ⁿ	0.0

Table 3. Crop usage rates^o

lb/bu or lb/ton	N		P ₂ O ₅
Corn	1.2	-	0.32
Soybean	3.8		0.72
Alfalfa	50		13
Other crop 🔻	0		0

^{*}Use blank space above to add crop not listed.

Table 4. Calculations for rate based on nitrogen (always required)

1_	Applying Manure For (crop to be grown) ^p		Corn	•	Corn	-	Corn	-	Corn	-
	Optimum Crop Yield ^g	bu or ton/acre	220		220		220		220	TEN.
3	P ₂ O ₅ removed with crop by harvest ^q	lb/acre	70.4		70.4		70.4		70.4	Onp
4	Crop N utilization ^r	lb/acre	264		264		264		264	
5a	Legume N credit ⁵	lb/acre	0.00		0		0		0	
5b	Commercial N planned ^t	lb/acre	0		0		0		0	
5c	Manure N carryover credit ^u	lb/acre	0		0.0		0.0		0.0	
6	Remaining crop N need ^v	lb/acre	264		264		264		264	
7	Manure rate to supply remaining N w	gal/acre	5161		5161		5161		5161	
8	P ₂ O ₅ applied with N-based rate ^x	lb/acre	206		206		206		206	

Table 5. Calculations for rate based on phosphorus (fill out only if P-based rates are planned)

9	Commercial P ₂ O ₅ planned ^y	lb/acre	0	0	0	0
10	Manure rate to supply P removal ²	gal/acre	1760	1760	1760	1760
11	Manure rate for P based plan aa	gal/acre	1760	1760	1760	1760
12	Manure N applied with P-based plan bb	lb/acree	90	90	90	90

Table 6. Application rates that will be carried over to page 3

13	Planned manure application rate cc	gal/acre	5161	5161	5161	5161

When applicable, manure application rates must be based on the P index value as follows:

^{&#}x27;^-2) N-based manure management.

^{.-5)} N-based manure management but P application rate cannot exceed two times the P removal rate of the crop schedule.

^{(&}gt;5-15) No manure application until practices are adopted to reduce P index to 5 or below.

^{(&}gt;15) No manure application.

35902230P2500



Grower: Janes

Farm: Fields 2

Fiald: 35902230P2500

Latitude: 42.57964120

Longitude: -93.49921261



Feature ID
Total Acres (74.6 ac)

DNR Form 542-4000b

Manure Management Plan Form

Year by Year Manure Management Plan Summary

instructions: Complete this form for each of the next four growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g. every other year), submit only once for the identical years, and indicate which years the form represents. Footnotes are given on

Crop year(s): 2022 & 2025

1	2	4	5	9		×			
Field Location							ח	OT	H
Field 1/4 of the 1/4 Sec T R	Mat	2	Acres	Own, rent,			Planned	Planned Application	Correct Soil
Designation ee Township Name County Name	ivigit	Crop	receiving manure	agreement (include	P index	HEL	1,000	**************************************	Test for P ^{II}
35902230P2500 W1/2, NW, 30, 90, 22, Oakland, Franklin	U	Corn	746	Dontod	Value	(1)	gai/acre	gal/field	(Yes or No)
42892202P2500 W1/2 NW 2 89 22 Alden Hardin	, ,		0 1	veilled	0.43	z	5161	385011	Yes
S1/2, NE & N1/2, SE & NE, SW, 3, 89, 22, Alden.	٥	Corn	81./	Rented	0.37	z	4160	339872	Yes
42892203P4000 Hardin	∢	Corn	177.8	Rented	0.37	z	5137	010000	,
42892211P3000 SW, 11, 89, 22, Alden, Hardin	∢	Corn	141.3	Rented	1 10	2 2	5137	725559	Yes
42892211P4000 SE & SE, NE, 11, 89, 22, Alden, Hardin	∢	Corn	172.7	Rented	1 98	2 2	5137	057200	Yes
42892211P7000 NW & W1/2 & NE, NE, 11, 89, 22, Alden, Hardin	В	Corn	262	Rented	1.13	2 2	5137	1345994	Yes
42892212P3000 SW, 12, 89, 22, Alden, Hardin	В	Beans	93.1	Rented	0.53	Z		+5054	res
42892212P4800 SW, SE, 12, 89, 22, Alden, Hardin	_	Beans	13.1	Rented	10.0	2 2		0	Yes
)	2			Yes
42892213P2500 W1/2, NW, 13 & SW, SW, 12, 89, 22, Alden, Hardin	∢	Corn	78.9	Owned	1.21	Z	5137	405309	Yes
42892214P3000 SW, 14, 89, 22, Alden, Hardin	A	Corn	154	Owned	1.36	z	5137	791098	Yes
42892214P4000 S1/2 & NE, SE, 14, 89, 22, Alden, Hardin	٧	Corn	116.7	Rented	0.79	z	5137	599488	200
42892214P7000 N1/2, 14, 89, 22, Alden, Hardin	В	Corn	306.5	Rented	1.14	z	4160	1275040	200
42892223P2600 E1/2, NW & NW, NE, 23, 89, 22, Alden, Hardin	∢	Corn	79.5	Owned	0.73	z	5137	408397	55
42892225P3000 SW, 25, 89, 22, Alden, Hardin	4	Corn	159.9	Owned	0.72	z	5137	821406	S 20 20 20 20 20 20 20 20 20 20 20 20 20
								0	
								0	
					-			0	
								0	
								0	
								0	
								0	
								0	
-	- 1								
Total acres available for manure		application	1911.8	Total gallons that could be applied	s that co	onld be	applied	8,897,886	

Manure Management Plan Form

Year by Year Manure Management Plan Summary

Page 3

Instructions: Complete this form for each of the next four growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g. every other year), submit only once for the identical years, and indicate which years the form represents. Footnotes are given on

Crop year(s): 2023

7	2	3	4	5	9		80	6	10 L	
	Field Location			Acres					21	11
Field	1/4 of the 1/4 Sec T R	Mg	Descio	receiving	Own, rent,		į	Planned	Planned Application	Correct Soil
Designation ^{ee}	Township Name County Name	, p	Crop	manure	agreement (include length of agreement) hh	P Index	HEL (V/NI) ^{jj}	0,300/100	160 J. K.	Test for P ^{II}
5902230P2500	35902230P2500 W1/2, NW, 30, 90, 22, Oakland, Franklin	U	Corn	74.6	Rented	0.43	2 2	ממו/ מכו ה	gal/fleid	(Yes or No)
2892202P2500	42892202P2500 W1/2, NW, 2, 89, 22, Alden, Hardin	B	Corn	81.7	Rented	0.37	2 2	2101	385011	Yes
	S1/2, NE & N1/2, SE & NE, SW, 3, 89, 22, Alden,)	2	212/	4.19693	Yes
42892203P4000	Hardin	٨	Corn	177.8	Rented	0.37	z	5137	913359	>
2892211P3000	42892211P3000 SW, 11, 89, 22, Alden, Hardin	A	Corn	141.3	Rented	1.49	z	5137	725858	VAS
2892211P4000	42892211P4000 SE & SE, NE, 11, 89, 22, Alden, Hardin	A	Corn	172.7	Rented	1.98	z	5137	887160	S A A
2892211P7000	42892211P7000 NW & W1/2 & NE, NE, 11, 89, 22, Alden, Hardin	8	Beans	262	Rented	1.13	z	0	0	Nev Y
2892212P3000	42892212P3000 SW, 12, 89, 22, Alden, Hardin	В	Corn	93.1	Rented	0.51	z	4160	387296	Yes
2892212P4800	42892212P4800 SW, SE, 12, 89, 22, Alden, Hardin	В	Corn	13.1	Rented	0.57	z	4160	54496	Yes
2892213P2500	42892213P2500 W1/2, NW, 13 & SW, SW, 12, 89, 22, Alden, Hardin	∢	Corn	78.9	Owned	1.21	z	5137	405309	>
2892214P3000	42892214P3000 SW, 14, 89, 22, Alden, Hardin	۷	Corn	154	Owned	1.36	z	5137	791098	S N
2892214P4000	42892214P4000 S1/2 & NE, SE, 14, 89, 22, Alden, Hardin	∢	Corn	116.7	Rented	0.79	z	5137	599488	Yes
2892214P7000	42892214P7000 N1/2, 14, 89, 22, Alden, Hardin	В	Corn	306.5	Rented	1.14	z	5137	1574491	Yes
2892223P2600	42892223P2600 E1/2, NW & NW, NE, 23, 89, 22, Alden, Hardin	A	Corn	79.5	Owned	0.73	z	5137	408392	Yes
2892225P3000	42892225P3000 SW, 25, 89, 22, Alden, Hardin	4	Corn	159.9	Owned	0.72	z	5137	821406	Yes
		1							0	
									0	
				-					0	
						_			0	
									0	
									0	
									0	
									0	
						-				
	l otal acres available for manur	е арр	e application	1911.8	Total gallons that could be applied	s that co	ed pinc	applied	8,373,056	

DNR Form 542-4000b

Manure Management Plan Form

Year by Year Manure Management Plan Summary

Page 3 **Instructions:** Complete this form for each of the next four growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g. every other year), submit only once for the identical years, and indicate which years the form represents. Footnotes are given on

Crop year(s): 2024

1	m	7	4	3					
						×	6	10	II
Field Location 1/4 of the 1/4 Sec T R			Acres	Own, rent,			Planned	Planned Application	Correct Soil
on ee Township Name County Nam	Mgt Id #	Planned	receiving manure ⁶⁶	agreement (include	P index	HEL	:	3	Test for P ^{II}
35902230P2500 W1/2, NW, 30, 90, 22, Oakland, Franklin	L	2 2	277	length of agreement)	value	Z(N/X)	gal/acre	gal/field **	(Yes or No)
42892202P2500 W1/2 NW 2 89 22 Alden Hardin	, ,		0.4.0	Kented	0.43	z	5161	385011	Yes
S1/2, NE & N1/2, SE & NE, SW, 3, 89, 22, Alden,	۵	peans	81./	Rented	0.37	z	0	0	Yes
42892203P4000 Hardin	А	Corn	177.8	Rented	0.37	Z	5137	012250	,
42892211P3000 SW, 11, 89, 22, Alden, Hardin	А	Corn	141.3	Rented	1.49	z	5137	775959	Yes
42892211P4000 SE & SE, NE, 11, 89, 22, Alden, Hardin	Α	Corn	172.7	Rented	1.98	z	5137	887160	res
42892211P7000 NW & W1/2 & NE, NE, 11, 89, 22, Alden, Hardin	В	Corn	262	Rented	1.13	z	4160	1089920	Se Se
42892212P3000 SW, 12, 89, 22, Alden, Hardin	В	Corn	93.1	Rented	0.51	z	5137	4787EE	SD 2
42892212P4800 SW, SE, 12, 89, 22, Alden, Hardin	В	Corn	13.1	Rented	0.57	z	5137	67795	<u> </u>
42892213P2500 W1/2, NW, 13 & SW, SW, 12, 89, 22, Alden, Hardin	∢	Corn	78.9	Denwo	1 21	2	5137	405300	3
42892214P3000 SW, 14, 89, 22, Alden, Hardin	⋖	Corn	154	Owned	136	z	5127	405309	Yes
42892214P4000 S1/2 & NE, SE, 14, 89, 22, Alden, Hardin	∢	Corn	116.7	Rented	0.79	Z	5137	191098	Yes
42892214P7000 N1/2, 14, 89, 22, Alden, Hardin	6	Beans	306.5	Rented	1.14	2 2		223400	Yes
42892223P2600 E1/2, NW & NW, NE, 23, 89, 22, Alden, Hardin	4	Corn	79.5	Owned	0.73	2 2	5137	00000	res
42892225P3000 SW, 25, 89, 22. Alden. Hardin	۵	Corn	1500	Dames of the control	5,50	2 2	7512	408392	Yes
		3	177.7	Owiled	0.72	z	513/	821406	Yes
								0	
								0	
								0	
								0	
								0	
								0	
								0	
								0	
l otal acres available for manure		application	1911.8	Total gallons that could be applied	s that co	ad bluc	applied	7,572,550	



Info: 35902230P2500

File: profiles\default

Inputs:

Location: USA\lowa\Franklin County

Soil: SSURGO\Franklin County, lowa\1226 Lawler loam, 0 to 2 percent slopes, rarely flooded\Lawler Loam rarely flooded 80%

Avg. slope steepness: 1.0 %

Yield units | # yield units, #/ac 174.00 managements\CMZ 04\c.Other Local Mgt Records*CC North | vegetations\Corn, grain, high yield | bushels Management

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 3.0 t/ac/yr

Soil loss erod. portion: 0.56 t/ac/yr

0.56 Vac/yr Detachment on slope: 0.56 t/ac/vr Soil loss for cons. plan:

Sediment delivery: 0.56 t/ac/yr

Crit. slope length: 300 ft

Surf. cover after planting: 59 %

Avg. ann. total biomass removal: 0 lb/ac

	0.14	Sun. res. cov. after op, %	84		10	R7		93	85	
	Vegetation	TO T					Corn grain bigh wield	delli, iligii yleid		
Operation	Operation	Manure injector, liquid high disturb 30 inch	hieol	Ornsel, St. Pt.	Cultivator, field 6-12 in sweeps	Dissipation of the second of t	riginer, double disk opnr w/fluted coulter	Harvest, killing crop 50pct standing stubble		
Date	24.45	0/1/1	11/2/0	7/77/7	4/12/1	4/15/1	20000	102/01		



Credits:

Iowa State University USDA National Soil Tith Laboratory USDA Natural Resource Conservation Service

P P Index 0.43
Flow STP Tile/Subsertor Factor x Factor = PI 1.00 0.07 0.07
Runoff P App Runoff + Factor) = PI 0.00 0.33
on RCN STP Factor X (Factor 1.96 0.11
ment STP Erosion or x Factor = PI .10 0.80 0.00
Erosion Buffer Enrich SDR x Factor x Fact
Gross Sediment Buffer Erosion x Trap Factor x SDR x Factor 0.56 1.00 0.07 1.00
Field Number Gross Erosion 35902230P2500 0.56



Info: 42892202P2500

File: profiles/default

Inputs:

Location: USA\lowa\Hardin County

Soil: Hardin County, Iowa\138B Clarion loam, 2 to 6 percent slopes\Clarion Loam 85% Slope length (horiz): 98 ft

Avg. slope steepness: 3.0 %

Yield units # wield units # A.	222 00	222.00	64.000
Yield units	bushels	عدا	pn
Vegetation	nents/CMZ 04/c.Ourier Local Mgt Records/*CCB North vegetations/Corn, grain	ents/CMZ 04/c Other I ocal Mo	www.30 in rows of the control of the

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none) Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 1.00 t/ac/yr Detachment on slope: 1.00 t/ac/yr

Soil loss for cons. plan: 1.00 t/ac/yr

Sediment delivery: 1.00 t/ac/yr

Surf. cover after planting: Crit. slope length: 98 ft

Avg. ann. forage harvest:

		Suff. res. cov. after op, %	80	09	57	00	000	06	CS CS
	Vacatation	Vegetation			Corn, grain				
	Operation	Manure injector, liquid high district 30 inch	field 6-1	Planter, double disk oppr	FO00	Milling CLOP SOPE	Manure injector, liquid high disturb.30 inch	Cultivator, field 6-12 in sweeps	
11-0	Date	10/30/0	4/16/1	4/24/1	10/23/1		10/31/1	4/17/2	

	Corn, grain 83	93	Soybean, mw 30 in rows 92	91
Planter, double disk oppr	Harvest.	Planter double dis	Harvest killing	And and a second
416	10/23/2	5/8/3	10/12/3	



Credits:

Iowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service

		= Overall P Index 0.37
		Flow STP Tile/Sub Factor x Factor = PI 1.00 0.07 0.07
Service	i d	RCN STP PApp Runoff Factor x (Factor + Factor) = PI 1.76 0.13 0.00 0.24
BOIDALIAGIOA ANIDARIAGIONI	4	Enrichment STP Erosion x Factor x Factor = P! 1.10 0.77 0.06
	Erosion	Sediment Buffer Trap Factor x SDR x Factor 1.00 0.07 1.00
		Gross Sediment Erosion x Trap Factor 1.00 1.00
	Field Number	42892202P2500



Info: 42892203P4000

File: profiles\default

Inputs:

Location: USA\lowa\Hardin County

Soil: SSURGO\Hardin County, Iowa\138B Clarion loam, 2 to 6 percent slopes\Clarion Loam 85%

Slope length (horiz): 98 ft Avg. slope steepness: 3.0 %

	# yield units. #/ac	222.00
	Yield units	pushels
Management	managements/CMZ 04/c.Other Local Mot Records/*CC North	Selections of the property of

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Adjust res. burial level: Normal res. burial Subsurface drainage: (none)

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.72 t/ac/yr

Soil loss for cons. plan: 0.72 t/ac/yr Sediment delivery: 0.72 t/ac/yr

Crit. slope length: 98 ft

Avg. ann. total biomass removal: 0 lb/ac Surf. cover after planting: 65 %

	Vegetation
Operation	piector liquid biate district con
Date	11/1/0 Manura i

	Suf res con affer on 9/	20: 00: and 0p, 70	88	67	63	38	60
	Vegetation					Corn, grain, high vield	
Operation		e injector, ii	Chisel st nt	Cultivator field 6-12 in sweeps	disk on	Liling order	i lei vest, Millig Clob Subct Standing etilbhla
Date	11/1/0		11/2/0	4/12/1	4/15/1	10/20/1	



Credits:

fowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service

	+ Tile / Subsurface Recharge = Overall Flow STP Tile/Sub P Factor x Factor = P! Index 1.00 0.07 0.07 0.37
Jrce Conservation Service	+ Runoff Erosion RCN STP P App Runoff = P Factor x (Factor + Factor) ≈ P 0 0.04 1.53 0.16 0.00 0.26
DOSA) Marata Reson	Gross Sediment Buffer Enrichment STP Erosion x Trap Fector x SDR x Factor x Factor x Factor x Factor 0.72 1.00 0.07 1.00 1.10 0.80
Eloin Florida	Gross Sediment Erosion x Trap Facto 42892203P4000 0.72 1.



Info: 42892211P3000

File: profiles/default

Inputs:

Location: USANowa\Hardin County

Soil: Hardin County, lowa\638C2 Clarion-Storden loams, 5 to 9 percent slopes, moderately eroded\Clarion loam moderately eroded 55%

Avg. slope steepness: 7.0 %

" " Cimin bloin #	# yield units, #/ac 185.00
Vield units	spensor
Vegetation	h vegetations\Corn, grain
Management	ements/CMZ 04/c.Other Local Mgt Records/*CC North

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Adjust res. burial level: Normal res. burial Subsurface drainage: (none)

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 2.4 t/ac/yr Detachment on slope: 2.4 t/ac/yr Soil loss for cons. plan: 2.4 t/ac/yr

Sediment delivery: 2.4 t/ac/yr

Crit. slope length: 98 ft

Surf. cover after planting: 63 %

0 lb/ac Avg. ann. forage harvest:

	Verietation Surf ros on offer of	- On 1: 100 COV. ALER OD . % -	07	0	40	20	80	30	63	20	oc c
	Venetation	1000000							Corn grain	() () () () ()	
	Operation	4 4	Manure Injector, liquid high disturb 30 inch		Chisel, st. pt.		Cultivator, field 6-12 in sweeps		rigitler, gouble disk ophr		narvest, Kliling crop 50pct standing stubble
-	Date	44.410	0/1/1	447010	11/2/0	4/40/4	1./7//5	1/48/4	5	40/00/4	┪



Credits:

lowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service

Service Conservation Service	Gross Sediment Eurifier Errichment STP RCN STP P App Runoff Tile / Subsurface Recharge Overall Erosion x Trap Factor x Trap Factor x Factor x
	42892211P3000



Info: 42892211P4000

File: profiles\default

Inputs:

Location: USA\lowa\Hardin County

Soil: Hardin County, Iowa\138C2 Clarion loam, 6 to 10 percent slopes, moderately eroded\Clarion Loam moderately eroded 85% Slope length (horiz): 98 ft

Avg. slope steepness: 8.0 %

	h wield units #/ac	213.00
	Yield units	pushels
"citatoroll	י כשמומווטוו	Vegetations/Corn, grain, high yield
Management	managements/CMZ 04\c Other ocal Mat Doscalation Not	Service of the control of the control of North

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res, burial

Soil loss erod. portion: 2.1 t/ac/yr Outputs: T value: 5.0 t/ac/yr

Detachment on slope: 2.1 Vac/yr

Soil loss for cons. plan: 2.1 Vac/yr

Sediment delivery: 2.1 t/ac/yr

Surf. cover after planting: Crit. slope length: 98 ft

Avg. ann. forage harvest:

64 %

	Sint ree now offer on of	can res cov. aner op, %	888	99	62	64
	Vedetation				17:11 1:032 020	grain, grain, nigh yield
Operation	Charles of the control of the contro	Manure injector, liquid high disturb 30 inch	Chisel, st. pt.	J	¶ ≿	Harvest, killing crop 50pct standing stubble
Date		11/1/0	11/2/0	4/12/1	4/15/1	10/20/1



Credits:

Iowa State University USDA National Soil Tiith Laboratory USDA Natural Resource Conservation Service

	Partor X Factor X Factor Factor X Factor P App Runoff Flow STP Tile/Sub P Pactor P Pactor
	chment STP Erosi
Erosion	Buffer Enri SDR x Factor x F 0.06 1.00
	Gross Sediment Buffer Enr Erosion x Trap Factor x SDR x Factor x F 2.10 1.00 0.06 1.00
Field Number	42892211P4000



Info: 42892211P7000

File: profiles/default

Inputs:

Location: USANowa\Hardin County

Soil: SSURGO\Hardin County, towa\638C2 Clarion-Storden complex, 6 to 10 percent slopes, moderately eroded\Clarion Loam moderately

Slope length (horiz): 98 ft Avg. slope steepness: 8.0 %

	Yield units # vield units #/ac	ls 200 00		200.00	58.000
	Yield ui	pushels	hichele	-1	ng
	vegeration	vegetations/Corn, grain, high yield	-cear ingli Necolds CCB North Vegetations/Corn, grain, high vield	ocal Mgt Records/*CCB North venetations/Sovies	Topologia Control III Nows
Management	managements/CMZ 04/c. Other Local Mot Records *CCB North	managements/CM7 04\c Other I ocal Mat Booglast Con Inch		Local Mgt Records/*CCB North	

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 3.8 t/ac/yr
Detachment on slope: 3.8 t/ac/yr

Soil loss for cons. plan: 3.8 t/ac/yr

Sediment delivery: 3.8 t/ac/yr

Crit. slope length: 98 ft Surf. cover after planting: -- %

Avg. ann. total biomass removal: 0 lb/ac

	Surf. res. cov. after on %	73	34	25	23
	Vegetation				Corn, grain, high yield
Operation	Manure injector, liquid high disturb 30 inch	Chisel st of	-100	Planter double disk oner	ob 50pc
Date	10/30/0	11/1/0	4/16/1	4/24/1	10/23/1

	85	62	57	90	000	99		00 00	88
				Corn, grain, high yield				Soybean, mw 7in rows	
Manure injector, liquid high disturb 30 inch	Chisel of mt	Cultivator field 6-12 in swoons	Planter double dist one	Harvest killing gron 50ng standing of the	Chisel of pt	Cultivator field 6-12 in success	Planter double disk own	Harvest, killing crop 30pct standing strubble	200000
10,	11/1/1	4/17/2	4/22/2	10/23/2	10/25/2	5/1/3	5/8/3	10/12/3	

Field Number

lowa Phosphorus Index

Credits: lowa State University

USDA National Soil Tilth Laboratory	Control of the contro	COOL Matural Resource Conservation Service

P P Index
charge = Tile/Sub PI 0.07
STP STP Factor =
Flow Factor x F-
Runoff = PI
P App Factor }
Runoff STP (Factor + 0.52
RCN Factor x (
Erosion Pf 0.26
STP Factor =
Factor x 1.10
Buffer E Factor x 1.00
× SDR ×
Sediment Trap Factor × SDR × 1.00 0.06
Sross Trosion x T 3.80
Gi Erc
2892211P70
1 14



Info: 42892212P3000

File: profiles\default

Inputs:

Location: USA\lowa\Hardin County Soil: SSURGO\Hardin County, Iowa\138B Clarion loam, 2 to 6 percent slopes\Clarion Loam 85%

Avg. slope steepness: 3.0 %

	hickels # yield units, #/ac	222.00	222.00	64.000
Viola unit	hickord	Signal	pusueis	nq
Vegetation	1gt Records*CCB North vegetations\Corn. grain high vield	gt Records*CCB North vegetations\Corn grain high	Initialization of the Local Mgt Records/*CCB North Venetations/Sovier 3 and 1 year	Samuel Samuel (III) III III III III III III III III I

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 1.2 t/ac/yr Detachment on slope: 1.2 t/ac/yr

Soil loss for cons. plan: 1.2 Vac/yr

Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 98 ft

Surf. cover after planting: -- %

Avg. ann. total biomass removal: 0 lb/ac

	Surf. res. cov. after on %	76	37	27	25	87	87
	Vegetation				Corn, grain, high yield		
Operation	Manure injector, liquid high disturb 30 inch	Chisel st pt	9-1	Planter double disk oppr	Harvest, killing crop 50nct standing strubble	Manure injector. liquid high disturb 30 inch	
Date	10/30/0	11/1/0	4/16/1	4/24/1	10/23/1	10/31/1	

65	63	69	71
	Corn, grain, high yield		Soybean, mw 7in rows
Chisel, st. pt. Cultivator, field 6-12 in sweeps	Planter, double disk opnr Harvest, killing crop 50pct standing stubble	Cultivator, field 6-12 in sweeps	Harvest, killing crop 30pct standing stubble
4/17/2	4/22/2 10/23/2 10/25/2	5/1/3	10/12/3

Field Number

lowa Phosphorus Index

Iowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service

Credits:

P P Index
11
Recharge Tile/Sub PI PI
Str STP Factor = 0.07
Tile / Subs Flow Factor x F
hooff + 100.35
) = Ru
P App
STP STP Factor 0.23
RCN Factor x (
+ 5 80:
F P 0
STP Factor 0.85
richment Factor x 1.10
Buffer En Factor x 1.00
Buffe R x Facto
× SO
Gross Sediment Buffer E Erosion X Trap Factor X SDR x Factor X 1.20 1.00 0.08 1.00
ss on x T
Gross Erosior 1.2
92212P3000
4289221



Info: 42892212P4800

File: profiles\default

Inputs:

Location: USANowa\Hardin County

Soil: SSURGO\Hardin County, lowa\27B Terril loam, 2 to 6 percent slopes\Terril Loam 80%

Slope length (horiz): 98 ft

Avg. slope steepness: 3.0 %

	Yield units # yield units #/ac	240.00	219.00	219.00	000
	Yield units	hishala	112	pushels	ءَ
	Vegetation	Social Mark Branch Strain Segerations/Corn, grain, high vield	Eucal Wigt Records/ CCB North vegetations/ Corn grain high winds	Mat Records *CCB North (1001) yield	vegetations/Soybean, mw 7in rows
Management	managements/CMZ 04/c. Other Local Mot Records/*CCB North	managements/CM7 04\c Other I pool Mat D. 11000	Seconds CCB North	managements/CMZ 04/c. Other Local Mot Records/*CCB North	

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none) Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 1.4 t/ac/vr Detachment on slope: 1.4 t/ac/yr

Soil loss for cons. plan: 1.4 t/ac/yr

Sediment delivery: 1.4 t/ac/yr

Surf. cover after planting: -- % Crit. slope length: 98 ft

0 lb/ac Avg. ann. total biomass removal:

	Crist was and	Sull. les. cov. affer op. %	76	70	70	27	25	0.7	/0	87
	Vegetation						Corri, grain, nigh yield			
Oneration	iona codo	Manure Injector, liquid high disturb 30 inch	Chisel of of	Cultivator field 6 40 :-	Cultivator, Ileia 0-12 In sweeps	Planter, double disk opnr	Harvest, killing crop 50pcf standing stubble	,	iviariule Injector, liquid high disturb 30 inch	
Date	0/00/07	10/20/0	11/1/0	4/16/1	410414	1/47/4	10/23/1	10/31/1		

	65	09	Corn, grain, high yield	80		500	6	Soybean, mw /in rows 70	06
Chisel, st. pt.	Cultivator, field 6-12 in sweeps	Planter, double disk opnr	Harvest, killing crop 50pct standing stribble	Chise of of	Cities and City of the Picture of th	Cultivator, field 6-12 in sweeps	Planter, double disk opnr	Harvest, killing crop 30pct standing strukkla	פוממוני הייני העלי הייני
11, 11.	4/1/1/2	412212	10/23/2	10/25/2	5/1/3	5/0/2	2/0/2	10/12/3	



Credits: lowa State University

		arci y	ervation Service
The state of the s	USDA National Soil Tilth Lahoraton	JICHA Material D	COURT NATURAL RESOURCE CONSERVATION Service

PENALON SELVICE	Gross Sediment Buffer Enrichment STP From STP From STP From STP From STP From STP From STP PApp Runoff Flow STP Tile/Subsurface Recharge Coverall 1.40 1.00 0.12 1.00 1.10 0.84 0.16 1.53 0.22 0.00 0.34 1.00 0.07 0.07 0.07 0.07 0.07 0.07 0.07 0.57
	Gross S Frosion x Tr 1.40
Field N:Thos	42892212P4800



Info: 42892213P2500

File: profiles/default

Inputs:

Location: USA\lowa\Hardin County

Soil: Hardin County, Iowa\138B Clarion Ioam, 2 to 6 percent slopes\Clarion Loam 85% Slope length (horiz): 98 ft

Avg. slope steepness: 3.0 %

ield units. #/ac	222.00
Yield units # ,	pushels
Management Vegetation Veget	wedgetations/Corn, grain, high yield

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none) Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.72 t/ac/yr Detachment on slope: 0.72 t/ac/yr

Soil loss for cons. plan: 0.72 t/ac/yr

Sediment delivery: 0.72 t/ac/yr

Surf. cover after planting: 65 % Crit. slope length: 98 ft

Avg. ann. forage harvest:

	, , , , , , , , , , , , , , , , , , ,	Sur. res. cov. after on %		58		/9		633		650		08
	Veretation	Constant							Corn arain high viola	ממנוי מומוי זומוי אונות		
	Operation		Manure Injector, liquid high disturb, 30 inch	ľ	Chisel, St. Dt.	. 07 0 11-3	Cultivator, rigid b-12 in sweeps	ľ	i milei, double disk opili Willufed coulfer	Lilling oron EO	Harvest, Killing Grop Supple stubble	
0,00	Dale	77/7/	0/1/1	447270	11/2/0	PICPIF	1/7//40	4/15/1		10/00/1	10201	



Field Number

lowa Phosphorus Index

Credits: Iowa State University USDA National Soil Tith Laboratory USDA Natural Resource Conservatic

	Service
LOCI GLOLY	nservation
j	ပိ
100 minutes	Resource
	Natural
	USDA

	Tile / Subsurface Recharge
	National National
Erosion	Buffer Enrichment STP Ero X SDR x Factor x Factor = 1 0 0.07 1.00 1.10 1.13
Field Number	Gross Sediment



Info: 42892214P3000

File: profiles\default

Inputs:

Location: USANowa\Hardin County

Soil: SSURGO\Hardin County, lowa\138C2 Clarion loam, 6 to 10 percent slopes, moderately eroded\Clarion Loam moderately eroded 85%

Avg. slope steepness: 8.0 %

# vield units #/ac	213.00
Yield units	pushels
Vegetation	vegetations/Corn, grain, high yield
Managements\CMZ 04\c.Other Local Mot Records*CC North	

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 2.1 t/ac/yr

Detachment on slope: 2.1 Vac/yr

Soil loss for cons. plan: 2.1 t/ac/yr Sediment delivery: 2.1 t/ac/yr

Crit. slope length: 98 ft

Avg. ann. total biomass removal: 0 lb/ac Surf. cover after planting: 64 %

	Surf. res. cov. after op. %	88	99	62	64
	Vegetation				Corn, grain, high yield
Operation	Manure injector, liquid high disturb 30 inch	hisel		Planter, double disk opnr w/fluted coulter	Harvest, killing crop 50pct standing stubble
Date	11/1/0	11/2/0	4/12/1	4/15/1	10/20/1



Credits:

lowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service



Info: 42892214P4000

File: profiles/default

Inputs:

Location: USA\lowa\Hardin County Soil: Hardin County, lowa\138B Clarion loam, 2 to 5 percent slopes\Clarion loam 100%

Slope length (horiz): 98 ft

Avg. slope steepness: 3.0 %

# yield units. #/ac	223.00
Yield units	pushels
Management Vegetation Vegetation	The second of th

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.74 t/ac/yr

Soil loss for cons. plan: 0.74 t/ac/yr Detachment on slope: 0.74 t/ac/yr

Sediment delivery: 0.74 t/ac/yr

Crit. slope length: 98 ft

% 69

0 lb/ac Surf. cover after planting: Avg. ann. forage harvest:

Vedetation Surf res cov affer on %	۵۷ , ماری تاریخ این	7.7	22	Corn grain	60
Operation	Manure injector, liquid high disturb.30 inch	Chisel, st, pt.	Cultivator, field 6-12 in sweeps		Harvest, killing crop 50pct standing stubble
Dare	11/1/0	11/2/0	4/12/1	4/15/1	10/20/1



Field Number

lowa Phosphorus Index

Credits:

Iowa State University USDA National Soil Tiith Laboratory USDA Natural Resource Conservation Service

P P Index 0.79
bsurface Recharge STP Tile/Sub Factor = P! 0.07 0.07
+ Tile / Su Flow Factor × 1.00
or) = PI 00 0.67
Runoff STP P Age actor + Fact
RCN Factor x (F-
Erosion PI 0.05
r X Factor
osion Buffer Enrichm Factor x Facto 1.00 1.
SDR × 0.06
Gross Sediment Erosion x Trap Factor x 0.74 1.00
Gross Erosion x 0.74
92214P4000
428922



Info: 42892214P7000

File: profiles/default

Inputs:

Location: USANowa\Hardin County

Soil: Hardin County, Iowa\138C2 Člarion Ioam, 5 to 9 percent slopes, moderately eroded∖Clarion Ioam moderately eroded 95%

Avg. slope steepness: 8.0 %

_				
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	hisholo # yield units, #/ac	213.00	213.00	62.000
Vield units	Pichala Pichola	Sign of the	puspels	nq
Vegetation	vegetations/Corn grain		Washington Committee of the Committee of	vegetations/Soybean, mw 30 in rows
Managemen	inariagements/CMZ 04/c. Other Local Mgt Records/*CCB North	managements/CMZ 04/c. Other Local Mgt Records/*CCB North	managements/CMZ 04/c. Other Local Mot Records *CCB North	

Contouring: a, rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 2.9 t/ac/yr Detachment on slope: 2.9 t/ac/yr Soil loss for cons. plan: 2.9 t/ac/yr

Sediment delivery: 2.9 t/ac/yr

Crit. slope length: 98 ft

0 lb/ac Avg. ann. forage harvest: Surf. cover after planting:

	Clirt ros con offer or of	our. 100. cov. allel op, %	62	58		55	000	800	0.00		80
	Vegetation				Corn orain	300					
Oneration	- 1	Manure injector, liquid high disturb 30 inch	field 6-12	- H. 100	rianter, double alsk ophr	Harvest, killing crop 50pct standing stubble	2022	Manure Injector, Ilquid high disturb 30 inch	Control of the contro	Cultivator, field 6-12 in sweeps	
Dafe	0,000	10/30/0	4/16/1	4/24/1	1 11 211	10/23/1	40104	1/15/01	014712	7/11/4	

	82	26	200	0	06
	Corn, grain		Soybean, mw 30 in rows		
Planter double disk oppr	Harvest, killing crop 50nct standing stubble	Planter double dist, over	Longs Lillia Consider	I lal vest, Killing crop super standing stubble	
414212	10/23/2	5/8/3	10/12/3		



Credits:

Iowa State University USDA National Soil Tifth Laboratory USDA Natural Resource Conservation Service

	Flow STP Tile/Sub P Factor = P! Index	0.07
and	RCN STP PApp Runoff Factor x (Factor + Factor) = PI 1.76 0.50 0.00 0.87	
	Enrichment STP Erosion x Factor x Factor = PI 1.10 1.07 0.20	
	Sediment Buffer x Trap Factor x SDR x Factor 1.00 0.06 1.00	
	Field Number Gross Erosion) 42892214P7000 - 2.90	



Info: 42892223P2600

File: profiles/default

Inputs:

Location: USANowa\Hardin County

Soil: SSURGO\Hardin County, Iowa\138B Clarion Ioam, 2 to 6 percent slopes\Clarion Loam 85%

Slope length (horiz): 98 ft Avg. slope steepness: 3.0 %

	eld units # yield units #/ac	ushels 222.00
Management	managements/CMZ 04\c. Other Local Mot Records*CC North \(\sigma \)	

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.72 t/ac/yr Detachment on slope: 0.72 t/ac/yr

Soil loss for cons. plan: 0.72 t/ac/yr

Sediment delivery: 0.72 t/ac/yr

Surf. cover after planting: 65 % Crit. slope length: 98 ft

0 lb/ac Avg. ann. total biomass removal:

	Surf. res. cov. after on %	68	67	63	65	
	Vegetation				Corn, grain, high yield	
Operation	Manure injector, liquid high disturb 30 inch	Sel	ا س	Planter, double disk oppr.w/fluted coulton	Harvest, killing crop 50pct standing stubble	
Date	11/1/0	11/2/0	4/12/1	4/15/1	10/20/1	



Credits:

Iowa State University USDA National Soil Tiith Laboratory USDA Natural Resource Conservation Service



Info: 42892225P3000

File: profiles\default

Inputs:

Location: USA\lowa\Hardin County

Soil: SSURGO\Hardin County, Iowa\138B Clarion loam, 2 to 6 percent slopes\Clarion Loam 85%

Avg. slope steepness: 3.0 %

	# yield units, #/ac 222.00
Y. or blow	bushels
Vegetation	h vegetations\Corn, grain, high yield
Management	inaliagements/CMZ 04/c. Other Local Mgt Records/*CC North

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none) Adjust res. burial level: Normal res. burial

Outputs: T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.72 t/ac/yr Detachment on slope: 0.72 t/ac/yr

Soil loss for cons. plan: 0.72 t/ac/yr

Sediment delivery: 0.72 t/ac/yr

Surf. cover after planting: 65 % Crit. slope length: 98 ft

0 lb/ac Avg. ann. total biomass removal:

	Surf. res. cov. after op. %	89	67	63	65
	Vegetation				Corn, grain, high yield
Operation	Manure injector, liquid high disturb 30 inch	nisel st	_ ~	Planter, double disk pour w/fluted coulter	Harvest, killing crop 50pct standing stubble
Date	11/1/0	11/2/0	4/12/1	4/15/1	10/20/1

1.15.DA v. 1/22/2007

Field Number

Iowa Phosphorus Index

Credits:

lowa State University USDA National Soil Tilth Laboratory USDA Natural Resource Conservation Service

	P P Index
	Tiles
	STP STP X Factor
	Flow Factor x 1.00
	PI PI 0.60
	P R
;	P App + Factor 0.00
ŧ	STP STP Factor 0.39
	RCN actor x (
+	= \tau \ta
	Erosion PI 0.0
	STP Factor = 0.99
	tor x
	Enrict X Fac
Erosion	Buffer Factor 1.00
	SDR ×
	actor x
	Sediment Trap Facto
	Frosion x Trap Factor x SDR x Factor x 0.72 1.00 0.06 1.00
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erd Numb	225P3000
	42892

CY2012

Manure Management Plan Form

Appendix	AO. IUWA AB STA	Corn	orn and Soybean	YIEID Average:	s, 2016-2020 Soybeans	Page 7
	5-yr. avg. yield	5-yr. ave. yield + 10%	Avg. yield of 4 highest	5-yr. avg. yield	5-yr. ave. yield + 10%	Avg. yield of 4 highest
County	(bu/ac)	(bu/ac)	(bu/ac)	(bu/ac)	(bu/ac)	(bu/ac)
Adair	172	189	178	52	57	53
Adams	181	199	183	55	60	55
Allamakee	196	215	198	55	61	56
Appanoose	162	178	167	47	52	49
Audubon	197	217	203	56	61	58
Benton	195	214	207	59	65	59
Black Hawk	200	219	207	57	63	58
Boone	190	209	197	55	60	56
Bremer	207	228	212	57	63	58
Buchanan	208	229	213	57	63	57
Buena Vista	192	211	193	56	62	57
Butler	207	227	210	56	62	57
Calhoun	191	210	199	55	60	57
Carroll	199	219	211	58	64	59
Cass	188	207	193	55	60	57
Cedar	202	222	213	60	66	46
Cerro Gordo	192	212	195	55	61	56
herokee	206	227	211	62	68	64
Lhickasaw	199	218	202	54	59	55
Clarke	153	168	159	47	51	47
Clay	182	201	188	54	60	56
Clayton	203	223	206	59	65	60
Clinton	203	223	209	59	65	59
Crawford	213	235	221	60	67	62
Dallas	180	198	190	53	58	55
Davis	161	177	174	48	53	51
Decatur	159	175	167	48	53	49
Delaware	208	229	212	61	68	63
Des Moines	195	214	199	60	66	61
Dickinson	180	198	184	54	59	55
Dubuque	211	232	214	59	65	60
Emmet	189	207	197	55	60	57
Fayette	198	218	203	57	63	58
Floyd	195	215	198	54	59	55
Franklin	200	220	204	57	63	58
Fremont	193	212	196	54	60	55
Greene	193	212	203	56	61	57
Grundy	207	228	213	61	67	63
Guthrie	187	206	196	54	59	56
milton	192	211	198	54	59	55
lancock	194	214	199	56	62	58
lardin .	199	219	210	57	63	58

Manure Management Plan Form

Appendix A8: Iowa Ag Statistics County Corn and Soybean Yield Averages, 2016-2020 (continued)

Page 8

	Corn			Couhoone	
				Soybeans	
5-yr. avg.	5-yr. ave.	Avg. yield	5-yr. avg.	5-yr. ave.	Avg. yield
yield	yield + 10%	of 4 highest	yield	yield + 10%	of 4 highest
				(bu/ac)	(bu/ac)
			54	60	55
			58	64	59
		197	53	59	54
	211	199	56	62	57
	232	216	61	67	62
	216	207	54	60	56
196	215	198	57	63	58
205	225	212	59	65	60
178	196	182	54	59	56
192	211	199	56	61	57
201	221	208	57	63	58
186	204	191	55	60	56
196	216	200	59	65	60
184	203	187	57		59
205	225	214			58
194	214	1			57
150	165				47
201	221	204			63
175	193	177			53
192	211	196			57
184	203				56
212	233				62
192	211				54
201	221	í			57
189	208				56
167	184				54
193	213				56
193					60
206					62
193					57
188					55
		4			57
202		(61
					57
					54
					57
					57
					51
					60
					63
208	229	212	63	69	59 64
	(bu/ac) 193 185 195 192 211 196 196 205 178 192 201 186 196 184 205 194 150 201 175 192 184 212 192 201 189 167 193 193 206 193 188 186 202 191 187 198 197 170 201 204 204	(bu/ac) (bu/ac) 193 212 185 203 195 214 192 211 211 232 196 216 196 215 205 225 178 196 192 211 201 221 186 204 196 216 184 203 205 225 194 214 150 165 201 221 175 193 192 211 184 203 212 233 192 211 201 221 189 208 167 184 193 213 206 227 193 213 206 227 193 212 188 207 18	(bu/ac) (bu/ac) (bu/ac) 193 212 197 185 203 190 195 214 197 192 211 199 211 232 216 196 216 207 196 215 198 205 225 212 178 196 182 192 211 199 201 221 208 186 204 191 196 216 200 184 203 187 205 225 214 194 216 200 184 203 187 205 225 214 194 214 199 150 165 155 201 221 204 175 193 177 192 211 196 184 203 1	(bu/ac) (bu/ac) (bu/ac) (bu/ac) 193 212 197 54 185 203 190 58 195 214 197 53 192 211 199 56 211 232 216 61 196 216 207 54 196 216 207 54 196 215 198 57 205 225 212 59 178 196 182 54 192 211 199 56 201 221 208 57 186 204 191 55 201 221 208 57 186 204 191 55 205 225 214 57 196 216 200 59 184 203 187 57 205 225 214 57 <td>(bu/ac) (bu/ac) (bu/ac) (bu/ac) (bu/ac) 193 212 197 54 60 185 203 190 58 64 195 214 197 53 59 192 211 199 56 62 211 232 216 61 67 196 216 207 54 60 196 215 198 57 63 205 225 212 59 65 178 196 182 54 59 192 211 199 56 61 200 225 212 208 57 63 186 204 191 55 60 61 196 216 200 59 65 61 184 203 187 57 63 63 205 225 214 57 63</td>	(bu/ac) (bu/ac) (bu/ac) (bu/ac) (bu/ac) 193 212 197 54 60 185 203 190 58 64 195 214 197 53 59 192 211 199 56 62 211 232 216 61 67 196 216 207 54 60 196 215 198 57 63 205 225 212 59 65 178 196 182 54 59 192 211 199 56 61 200 225 212 208 57 63 186 204 191 55 60 61 196 216 200 59 65 61 184 203 187 57 63 63 205 225 214 57 63

Manure Management Plan Form

Appendix A8: Iowa Ag Statistics County Corn and Soybean Yield Averages, 2016-2020

(continued)

Page 9

		Corn			Soybeans	
County	5-yr. avg. yield (bu/ac)	5-yr. ave. yield + 10% (bu/ac)	Avg. yield of 4 highest (bu/ac)	5-yr. avg. yield (bu/ac)	5-yr. ave. yield + 10% (bu/ac)	Avg. yield of 4 highest (bu/ac)
Story	189	207	198	54	59	55
Tama	198	218	215	58	64	60
Taylor	164	180	166	51	56	52
Union	167	184	172	51	56	52
Van Buren	165	181	174	49	54	52
Wapello	175	192	180	54	59	56
Warren	171	188	175	51	57	52
Washington	202	222	207	57	63	58
Wayne	159	175	167	49	54	50
Webster	193	212	197	53	59	54
Winnebago	199	219	204	58	63	59
Winneshiek	198	217	202	55	60	55
Woodbury	207	227	210	58	64	59
Worth	195	214	198	55	60	56
Wright	194	214	198	_56	61	56

Manure can supply nutrients required Nutrients in Animai Manure how the ratio of nutrients in manure term impacts on crop nutrient supply should consider short-term and long-Good manure nutrient management removed from soil by crop harvest. under-application and subsequent by crops and replenish nutrients consider not only what is needed and reduces potential for over- or for the crop to be grown but also ensures adequate nutrient supply Since manure contains multiple could affect soil test levels. This buildup or depletion in the soil. nutrients, applications should ind soil resources.

Manure has characteristics that make organic and inorganic nutrient forms; concentration requiring large application volumes. Since manure nutrient nutrient management different and or solid; and relatively low nutrient sampling and laboratory analysis are nutrient concentrations are provided sometimes more complicated than variation in nutrient concentration and forms; variation in dry matter composition can vary significantly, always needed, while with fertilizer and resultant handling as a liquid fertilizer. These include a mix of at a guaranteed analysis.

recent sampling across swine finishing facilities found a range in total N from manure types. Nutrient analyses often 32 to 79 lb N/1,000 gal, P from 17 to ed from loads during land application. emptied or manure is stockpiled, and Therefore, collecting multiple manure production facilities. For example, a 54 lb P₂O₅/1,000 gal, and K from 23 larger range can be found with other also among multiple samples collectto 48 lb K₂O/1,000 gal. A similar or vary greatly as storage facilities are of analysis results will improve use samples and maintaining a history of manure nutrients.

rates and equating to crop fertilization For determining manure application basis in 1b per ton or 1b per 1,000 gal 50 based on an as-received or wet publication to give detailed manure manure analyses give N. P2Os, and units. It is beyond the scope of this requirements, it is most helpful if sampling and laboratory analysis

PMR 1003 Revised May 2016

IOWA STATE UNIVERSITY Extension and Outreach

Using Manuer Nutricals for Carp Production

species; dietary options; animal genet-

The manure nutrient concentration varies considerably between animal

collection, bedding, storage, handling, ics; animal performance; production

and agitation for land application. Use of average or "book" nutrient

values can be helpful for designing

a new facility and creating manure management plans but is not very manure nutrient supply or applica-

helpful in determining specific

tion rates due to wide variation in

nutrient concentrations between

management and facility type; and

to these units. See the ISU Extension methods to estimate manure nutrient listed on page 7. If manure analyses be found in the extension materials are provided from the laboratory in other units, they must be converted are of interest or needed for planning Midwest Plan Service bulletins listed purposes, those can be found in the manure average nutrient values or concentrations based on excretion appropriate conversion factors. If manure sampling publication for recommendations. Those can on page 7.

Manue Surient Availability

availability" when suggesting manure Present or ready for immediate use, or not consistent. Available is defined as meaning of "availability" for manure present in such chemical or physical nutrients often is not clear or its use be used by plants immediately upon typically applied to fertilizers because form as to be usable (as by a plant). Nutrient management guidelines take up. The term "available" is not inorganic fertilizers contain basically converted to a form that plants can use the words "manure nutrient the term "available" in describing applications to supply nutrients most include chemical forms that converted upon application to soil. According to this definition, most portions are in forms that cannot application to soil and have to be needed by crops. However, the plants can take up or are quickly manure nutrients is that some The main reasoning for using

dissolves in water and rapidly changes nitrate by soil microorganisms. Mono-100 percent crop-available nutrients. ammonium is further transformed to highly soluble in water and dissolve orthophosphate and K ions are taken up by plants. Because all K contained For example, anhydrous ammonia to ammonium, urea hydrolyzes to ammonium within a few days, and diammonium phosphate (DAP) are to ammonium and orthophosphate. manure K is readily crop available in ammonium phosphate (MAP) and Potassium chloride (KCI, potash), (K*) and chloride (Cl⁻) ions. Both in manure is in the K* ionic form, dissolves in water to potassium all manure sources.

sources, production systems, bedding, For manure N and P, there is usually materials that varies among manure storage, and handling. This variety a mix of organic and inorganic in forms of N and P in manure

organic N varies considerably with the cluded manure sampling and analysis contributes to greater uncertainty in example, by on-farm research that in-The fraction of total N as ammonium manure nutrient management commanure source. This was shown, for that is easily mineralized after applicainorganic (mainly ammonium) and anaerobic lagoons, 65 to 100 percent (average 84 percent) for liquid swine (average 20 percent) for solid poultry concentration and organic-N fraction N was almost 100 percent for swine crop available and almost comparable from swine and poultry operations. manure from under-building pits or pared with fertilizers. The ratio of Swine manure is considered "highly" and greater (and tougher to degrade) manure from the liquid portion of storage tanks, and 10 to 40 percent tion to soil explain why N in liquid lower ammonium-N concentrations to fertilizer N. Other manures have manure. The large ammonium-N



nutrients in both fertilizer and manure Also, these nutrients can be converted might be lost and became unavailable for short or long periods of time into retention by soil mineral constituents long supply of nutrients. Significant ple, N can be lost through processes to crops after application. For examthrough erosion and surface runoff forms not usable by plants through for P. Nutrient loss issues are not as There is a clear difference between such as leaching, volatilization, or denitrification while P can be lost amounts of plant usable forms of processes such as immobilization lowa soils as long as there is little pertinent for P and K as for N in Manue Nucien Sapply crop availability of nutrients in fertilizer or manure and seasonsoil erosion and surface runoff, to organic materials for N and

to increased uncertainty with manure difficult to manage with manure than affect nutrient supply and contribute applied nutrient sources but are more history, and calibration of application achieved. Due to material characteris-The immediate or long-term fate of be similar for manure and fertilizer. nutrient concentration, application with fertilizer. With careful manure distribution uncertainties affect all management. Application rate and sampling, pre-application nutrient analysis, study of nutrient analysis application rate variability often is rate, and application distribution plant usable nutrients in soil can nutrient application rates can be variability, field distribution and equipment, reasonable manure tics, and sampling and analysis greater for dry manure sources. However, variation in manure

These supply issues can be important for N, P, and K, although typically are of greater concern with N. There are several reasons, including manure usually is applied for com production where N supply is critical, many lowa soils have optimum or higher P and K test levels where need for and response to P and K is much less than with N, and crop deficiency symptoms and yield loss resulting from nurtient supply problems are more obvious for N.

Manure nutrient loss, application rate, and distribution uncertainties usually are not included in crop nutrient availability estimates, Instead, they

are handled by suggested managemen lines are consistent in this regard and, commonly used fertilizers. The guideply issues are handled in the best way ment, in many instances supply issues are as, or more, critical than estimates first crop after application or beyond, values provided correlate to those for It is important to understand that for availabilities do vary between states and regions. In this publication, use plant uptake (with no losses) by the lines in this publication assume supsuccessful manure nutrient managepractices. Not all published guidetherefore, suggested crop nutrient possible as is done with ferulizers. of "availability" refers to manure nutrients potentially available for and percent nutrient availability of nutrient availability.

available tools to determine initial soil nutrient levels and adjust application Improving crop nutrient supply with standing the issues related to manure benefits and risks related to managebased on response trial clata (such as timing and placement that influence These tools include commonly used and tools to help determine need for potential losses. Additionally, use of estimates of N application rate need rates can help provide for adequate manure can be achieved by underment practices such as application season-long nutrient supply when nutrient analysis, application rate, either manure or fertilizer is used. the Com Nitrogen Rate Calculator) pre-plant soil testing for P and K, application distribution, and the

Using Manuer Nutrients for Crisp Pruduction

additional N after planting corn such as the late-spring soil nitrate test and in-season crop sensing for N stress.

analysis; nutrient crop availability; and tion rate for N. P. K. or other deficient ommendations for crops are provided rates, the following information is required: needed crop nutrient fertiliza-Angusta Westanden Application Once the needed nutrient application in other lowa State University Extenmethod of application. Nutrient recrate is determined, the manure rate To determine manure application repeated here (see list on page 7). to supply crop available nutrients is calculated based on the specific nutrients; manure type; nutrient sion publications and are not manure source being used. K.Z.Connentallanions

An additional consideration is what portion of the needed fertilization will be supplied from manure—to meet the full crop nurtien requirement, or a partial requirement from manure and the remaining from fertilizer. This is an important consideration because manure contains multiple nurtients and a manure rate to supply the most deficient nutrient can over-supply other nutrients. Also, manure application of the least deficient or most environmentally restrictive nutrient application can result in under-supply of other nutrient.

In these cases, use of fertilizers in addition to manure application is necessary to appropriately meet all nutrient application requirements.

Table 1 are derived from research trials availability are provided to account for and inorganic N and P forms, bedding and analysis variation, and application variation in the proportion of organic information was taken from research test levels. See the footnote in Table 1 for further information on variability values based on manure with similar able estimate. The ranges in nutrient characteristics can provide a reasontype and amount, manure sampling conducted in lowa. However, when local research is lacking, applicable crop availability estimates listed in nure sources not listed in the table, importance at different P and K soil conducted in other states. For ma-Many of the manure N, P, and K in manure nutrient availability.

First-Year Availability Estimates

Table I. First-year nutrient availability for different animal manure sources.

Manure Source	Nitrogen ¹	Phosphorus ²	Potassium ²
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Percent of Total Nutrient Applied	
Beef cattle (solid or liquid)	30-50	80-100	
Dairy (solid or liquid)	30-50	80-100	90-100
Liquid swine (anaerobic pit)	90-100	90-100	90-100
Liquid swine (anaerobic lagoon)	90-1003	90-100	90-100
Poultry (all species)	1-06 09-05	90-100	001 00

The estimates for N availability do not account for potential volatile N tosses during and after land application. Correction factors for volatile toss are given in Table 2. The ranges are provided to account for variation in the proportion of ammonlum N (and for poultry manure also urk add), bedding type and amount, and both sampling and analysts.

¹The ranges in P and K availability are provided to account for variation in sampling and analysis, and for needed P and K supply with different soil test levels. A small portion of manure P may not be available immediately after application, but all P is potentially available over time. Use lover P and K availability values for soils testing in the Very Low and Low soil test interpretation categories, where large yield loss could occur if insufficient P or K is applied and a reasonable buildup is destriable. Use 100% when manure is applied to maintain soil-test P and K in the Optimum soil test caregory, when the probability of a yield reporce is small.

Values upply for the lequid portion of swine manure in lagoons; the N and P availability will be less and difficult to estimate with settled solids.

Second- and Third-Year Availability Estimates

Adjusting for Manuse

While manure N may become crop (recalcitrant) and will become part with bedded systems, not all of the third-year availability may not add manure N will eventually become difficult to degrade organic forms for in manure plans over multiple available over multiple years for some sources, there should nor be an expectation that all of the manure N should be accounted years and the first-, second-, or some manure sources, such as of the soil organic matter. For crop available. This happens because some of the N is in up to 100 percent.

second-year crop available N. These

manure stored in under-building

organic N and bedding could have

Other manures that have similar

and 5 percent for the third year

similar second- and third-year N have low organic N will not have include liquid systems like swine pits and above-ground tanks, and

availability. Manure sources that

anacrobic lagoons. Poultry manure,

material, has some but low second-

year (0-10 percent) availability

and no third-year N availability.

since it has considerable organic

availability estimate for beef cattle erable organic material can have Animal manure that has considapplication. The second-year N and dairy manure is 10 percent, some residual-N availability in the second or third year after

long term. Residual effects of P and K not used in the year of applica-100 percent crop available over a tion will be reflected in soil tests and crop use, just like fertilizer P and K applied for one year or for animal manure are estimated at The P and K contained in multiple years.

N remaining in soil after application, muluply the applied manure N rate by the appropriate correction factor. during storage and handling (time being applied. To estimate manure time period from sampling to land analysis) and assume a reasonable from excretion to sampling for application so that the manure analysis represents the manure

The estimates for manure N availabiloften are difficult to predict accurately and, therefore, it is important to make some N fertilizers such as anhydrous ammonia, urea, and urea-ammonium from applied manure and for manure urea, uric acid, or other compounds is left on the soil surface, losses may and amount of volatile loss, such as or after application. Losses are from occur until N is moved into the soil temperature, humidity, rainfall, soil Volatile losses at or after application nitrate (UAN) solutions. If manure tillage. Many factors affect the rate an adjustment for volatile N losses Table 2 do not account for N losses However, losses can be significant convert to ammonium. These are similar losses that can occur from with rainfall or incorporated with potential volatile N losses during various volatile N compounds in moisture, soil pH, surface residue ammonia that is produced when cover, and days to incorporation. manure, such as ammonia, and management planning purposes. losses. The correction factors in Values given in Table 2 provide Nitrogen Voisridization ity in Table 1 do not consider juidance on potential volatile

Using Mannie Nutrients for Crop Production

Table 2. Correction factors to account for N volatilization losses during and after land application of animal

hod	Incorporation	Volatilization Correction Factor2
Direct injection	-	0.98-1.00
Broadcast (liquid/solid)	Immediate incorporation	860
Broadcast (liquid)	No incorporation	00 0 22 0
Broadcast (solid)	No incorporation	06:0-C-C
Irrigation No incom	No incomoration	5.0-0.0

Autiliply the manure total N rate applied times the volatilization correction factor to determine the portion of total manure N remaining. Service MWPS-18, Third Edition. Nitrogen losses during and within four days of application.

Countelexuelicosco for Time of Application

application also allows for nitrification crop season. This is more important for N in manures with high organic manure and nutrient loss from soil. The time of application influences Fall applications allow more time available for plant uptake the next organic N mineralization with fall nutrient availability and potential systems. Iowa research has shown manure to mineralize so they are that fall versus springtime P and agronomic issue for fertilizers or for organic N and P portions of matter content, such as bedded manure. The increased time for K application usually is not an

important issue for manure with large liquid swine manure. Coarse-textured ing or denitrification with excessively ammonium-N concentration, such as wet spring conditions. This is a more important issue for manure with high potential nitrate loss through leachsoils, with high permeability, are the losses. Manure applied in the spring Fine- and moderately fine-textured of ammonium and therefore more most likely to have leaching losses. soils, prone to excess wetness, are most likely to have denitrification mineralization before crop uptake. in cold springs. With manure that Delayed mineralization can be an organic matter content, especially has less time for organic N and P

allows for better timing of nitrification to nitrate and subsequent crop use, contains a large portion of N as ammonium, spring application and less chance of N loss.

slow the mineralization and nitrificaimportant consideration for manure temperature is 50° F and cooling at tion processes and is an especially the four-inch soil depth. This will manure in the fall unless the soil containing a large portion of N As a general rule, do not apply as ammonium.

snow-covered, water-saturated soils If manure must be applied in these increases the potential for nutrient conditions, it should be applied on relatively flat land, slopes less than Broadcasting manure onto frozen, Department of Natural Resources streams and waterways (see lowa losses with rainfall or snowmelt runoff to surface water systems 5 percent, and well away from rules on setback distances).



Cample !

- Manure source, liquid swine manure, finishing under-building pit
- Manure analysis, 40 lb NV1,000 gal, 25 lb P2Os/1,000 gal, 35 lb K2Ov1,000 gal.
- Intended crop: corn in a corn-soybean
- Soil tests: 19 ppm Bray P-1 (Optimum) 165 ppm Ammonium Acetate K (Орашты)

Manure rate: based on P requirement for

the crop rotation at 120 lb P₂O₅/acre.

Manure application: late fall, incorpo-

rated after four days.

120 ppm Ammonium Acetate K (Low).

Soll tests: 18 ppm Bray P-1 (Optimum)

Intended crop; corn-suybean rotation.

- Manure analysis: 72 lb N/ton, 69 lb

P₂O₅/ton, 54 lb K₂O/ton.

- Manure source: solid layer manure.

Printing price 2

- maintain the Optimum soil test category 200 bu/acre curn yield; 75 lb P₁O_y/acre determining nutrient rates needed to Cmp yield and P and K removal for and 60 lb K₂O removal
- Manure N volatilization correction factor Manure nutrient availability: 35 percent for N, 100 percent for P and K. 0.80 Manure rater based on corn N fertilization
- Manure rate: 120 lb P₂O₂/acre + (69 lb
- applied: 17 towacre × (72 lb N/ton × 0.60 × 0.80) = 60 lb N/acre, and 1.7 ton/acre × (54 lb KyO/ton × 1.00) Manure available N and K nutrients P₂O₅Aun × 1 00) = 1.7 ton/acm.

Manure nutrient availability 100 percent Manure N volantization correction factor

for N. P. and K.

Manure application, injected fate fall.

requirement at 125 lb Nacre.

Low soil test category: 130 lb N/acre and Corn N fenilization need and K needed for the corn and soybean crops with a 172 lb K₂O/acre.

= 92 lb KyO/acre.

Manure rate: 125 lb Nacre - (40 lb N/

1.000 gal × 0.98) = 3.200 gal/acre.

additional 70 fb tentilizer N/acre (130 fb Nacre - 60 lb Nacre); and applied K is not adequate for the corn and soybean crops, need additional 80 lb K₂O/acre (172 – 92 lb K₂O/acre) from fertilizer. Crop available N and K applied with manure is not adequate for N, need

3,200 gal/acre × (35 lb K₂O/L,000 gal ×

1.00) = 112 lb KyO/acre.

manure are adequate for P (slightly more

Phosphorus and K applied with the

supply more than needed K. The extra and shauld be accounted for. However,

Pand K can be used by the next crop

than expected corn removal) and will

1,000 gal × 1.00) = 80 lb P,Os/acre; and

applied: 1,200 galvacre × (25 lb P,Ov

Manure available P and K nutrients

additional P and K will need to be applied

for the following soybean crop.

CROP 3073 Nitrogen use in Iowa additional fresources Crop Production

PM 1688 A General Guide for Crop Nutrient and Limestone Recommendations in Iowa PM 287 Take a Good Sample to Help PM 2015 Concepts and Rationale Make Good Decisions

for Regional Nitrogen Rate Guidelines for Com

Recommendations for Corn in Iowa PM 2026 Sensing Nitrogen Stress PM 1714 Nitrogen Fertilizer

PM 1584 Comstalk Testing to Evaluate

in Com

PM 1588 How to Sample Manure Nitrogen Management

A3769 Recommended Methods of for Nutrient Analysis

Manure Analysis (University of

MWPS-18-51 Manure Characteristics: MWPS-18 Livestoch Waste Facilities Handbook, Third Edition (Midwest Section 1 (Midwest Plan Service)

http://cnrc.zgron.lasiaic.cdu/ Com Nitrogen Rate Calculator

Using Manuer Nutricuts for Crop Preducton

in animal manure as you would Carefully manage the nutrients manage ferulizer. Have representative manure samples P, and K. For additional information on N composition, samples can be analyzed for ammonium. Maintain moisture (dry matter) and total N. samples should be analyzed for analyzed to determine nutrient concentration. At a minimum, a manure analysis history for production facilities.

availability of manure N, P, and K. Set the manure application rate according to crop fertilization requirements and for the crop

Adjust manure rates for estimated

N volatilization.

fertilization requirements and field P-Index ratings, but do not exceed For manure application rates, consider the crop N, P, and K the crop N ferulization need and justice for all

crops, which is especially important rotations rather than just individual for P and K management

· Allocate manure to fields based on soil tests and crops to be grown.

for manure sources that have a large ture is 50° F and cooling, especially Fall applications of manure should not be made until the soil temperaportion of N as ammonium.

covered, frozen, or water-saturated sloping ground to reduce risk of Do not apply manure to snownutrient loss and water quality impairment.

Prepared by John E. Sawyer and Antonio P. Mallarino, professors of agronomy and extension soil fertility specialists, lowa State University

Consider the nutrient needs of crop

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Acts of May 8 and June 30, 1914 in cooperation with the U.S. Department of Agriculture. Catham A. Kress, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa. issued in furtherance of Cooperative Extension work







CHECKLIST – NEW CONSTRUCTION FEEDING OPERATIONS Matrix & Nonmatrix Schiller Site

Sec.3 T-89-N R-22-W

ok 1) Check flood planes
no 2) Does it need a subdivision waiver or subdivided (check with Planning and Zoning)
yes 3) Are all the residences property listed
ok 4) Is there proper distances for the well & sewer system. Also distance of right of way
ok 5) Check to see if site location is within a county Drainage District. If site sits on county tile North edge of DD 37
yes 6) Are all the distances right for the points taken or if they missed something and it changes the points (440 is minimum)
1875' from residence (Matrix) 1250' from residence (Non Matrix) Passing score 440 / 53.38 / 67.75 / 101.13
Scored 470 / 106.25 / 149.5 / 214.25
Lan Sello Date @ /24/2021
Dan Tilkes

Franklin County Environmental Health



1215 Edgington Ave., Suite 1 Eldora, IA 50627 (641) 939-8219 Supervisors@HardinCountyIA.gov

Hardin County Master Matrix Scoring and Recommendation

The Hardin County Board of Supervisors has reviewed the Master Permit Application for Schiller Site, Section 3, Alden Township.	Matrix and Construction
Public Notice was published on 08/31/2021 and 09/01/2021 and pr	roof of publication is attached.
Matrix as scored by Hardin County = 470 points. Passing / Failin	g (Circle One)
If the County scored matrix is different than submitted then the Cowith justifications.	ounty scored matrix is attached
Supplemental letters or documentation is being sent to DNR	
Upon review and inspection of the construction site and document. County Board of Supervisors recommend the permit application be	•
Approved / Disapproved (Circle One)	
Comments or Reason for Disapproval:	
Signed:	Date:
BJ Hoffman, Chair	
Hardin County Board of Supervisors	
Tandin County Dourd of Duporvisors	

APPLICATION FOR USE OF HARDIN COUNTY COURTHOUSE GROUNDS After you have completed this form, please return it to the Hardin County Auditor's Office by fax at 641-939-8245 or to Angela Silvey at asilvey@hardincountyia.gov.

Date(s) of use: Wednesday, October 6 and Thursday, October 7, 2021

Time of use (start and end times): Wednesday 9am-4pm and 6-8 pm; Thursday 9am-6pm

Group requesting use: 99 County Bible Reading Marathon

Name of person responsible: Jennifer Nazario

Address: 26657 155th Street, Iowa Falls, IA 50126

Telephone #: Fax #: 641-485-1437

E-mail address: nazjen123@gmail.com

Name of event: 99 County Bible Reading Marathon Hardin County

Type of event: Reading the Bible and claiming God's truth over Hardin County,

Specific areas of Courthouse grounds you request to use: People will bring chairs or sit on benches and read Bible where they find a place on the grounds. They will take Covid 19 precautions.

Is the event open to the general public? Yes

Number of participants expected: Last year 17 people attended through the time scheduled. It is our hope that we would triple this in attendance

What equipment will be used on the Courthouse grounds? (Ex: chairs, tables, electrical equipment, etc.)

All equipment will be provided by myself. I will set up a small table and chair. Requesting use of bathrooms as needed.

When will equipment be set up? Prior to each day's starting time 15-30 minutes.

If held outside, will food be served for a fee? no

If yes, has the appropriate Health Department permit been obtained? N/A

Has this group used Courthouse grounds for other events? Yes

If yes, please list functions and dates: This has been done last year and other years past, but I do not have dates.

A liability insurance policy naming the County as an "additional insured" is required in the amount of \$ at the time of the event. Does this group have liability insurance to cover this event? Yes -see attachment

I have read the *Policy for Use of Courthouse Grounds*. I understand that Courthouse grounds will be left in a clean and neat condition after use. I am liable for all damages, expenses, and loss caused by any person who attends or participates in this scheduled event. By signing this application, I agree to defend and hold harmless the County regarding any damage which may occur as a result of this scheduled function.

Jennifer L. Nazario, September 11, 2021 signed electronically

FOR COUNTY USE ONLY

Date Received:

Date Certificate of Insurance Received:

Approved by the Board of Supervisors on

Date



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 09/08/2021

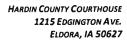
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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed.

		BROGATION IS WAIVED, subject ertificate does not confer rights							require an endorsement.	. A st	atement on
	DUCE		-			CONTA NAME:		,-			
American Church Group IA/Platte River				PHONE (000) 040 0000 FAX (077) 044 5000				314-5382			
7647 NE Bluff Dr.				E-MAIL ADDRESS: service.ia@americanchurchgroup.com							
Bondurant, IA 50701				INSURER(S) AFFORDING COVERAGE				NAIC#			
				INSURER A: Brotherhood Mutual Insurance Company				13528			
INSU	IRED					INSURER B:					
5 -			INSURER C:								
204 College Ave Iowa Falls, IA 50126			INSURE	RD:							
IOW	a i ai	13, IA 30 120				INSURE	RE:				
						INSURE	RF:				
COVERAGES CERTIFICATE NUMBER: THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HA				<u>/F DEE</u>	N IOOUED TO		REVISION NUMBER:	IE DOI	IOV PEDIOD		
		S TO CERTIFY THAT THE POLICIE ATED. NOTWITHSTANDING ANY R									
С	ERTI	FICATE MAY BE ISSUED OR MAY	PERT	AIN,	THE INSURANCE AFFORD	ED BY	THE POLICIE	S DESCRIBE	D HEREIN IS SUBJECT TO		
INSR		JSIONS AND CONDITIONS OF SUCH		CIES. . SUBR		BEEN F					
LTR		TYPE OF INSURANCE	INSD	WVD	POLICY NUMBER		(MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
	X	COMMERCIAL GENERAL LIABILITY							DAMAGE TO RENTED	4.04	00,000.00
		CLAIMS-MADE X OCCUR							PREMISES (Ea occurrence)	Ψ ,	00,000.00
_							0=11010000		() /	4.04	00.00
Α					14M464892		05/10/2020	05/10/2023		Ψ ,	00,000.00
		N'L AGGREGATE LIMIT APPLIES PER: POLICY PRO- JECT LOC									00,000.00
	X									\$ 3,00	30,000.00
	AUT	OTHER: FOMOBILE LIABILITY							COMPINIED OBJOLE LIMIT	\$	
	7.0	ANY AUTO								\$	
		OWNED SCHEDULED							, , ,	\$	
		AUTOS ONLY AUTOS HIRED NON-OWNED AUTOS ONLY AUTOS ONLY							DDODEDTY DAMAGE	\$	
		AUTOS ONLY AUTOS ONLY								\$	
		UMBRELLA LIAB OCCUR							EACH OCCURRENCE	\$	
		EXCESS LIAB CLAIMS-MAD	≣							\$	
		DED RETENTION \$								\$	
		RKERS COMPENSATION EMPLOYERS' LIABILITY							PER OTH- STATUTE ER		
	ANY	PROPRIETOR/PARTNER/EXECUTIVE ICER/MEMBEREXCLUDED?	N/A						E.L. EACH ACCIDENT	\$	
	(Mar	ndatory in NH)							E.L. DISEASE - EA EMPLOYEE	\$	
	DES	s, describe under CRIPTION OF OPERATIONS below							E.L. DISEASE - POLICY LIMIT	\$	
		TION OF OPERATIONS / LOCATIONS / VEHIC							•		
Co ²		ge on the policy referenced above	applie	s to t	he Bible Reading Marathor	n being	held at the H	ardin County	Courthouse on October 6t	h and (October 7th,
202	- 1.										
CE	RTIF	FICATE HOLDER				CANO	CELLATION				
		County Courthouse				22.114					
121	5 Ed	Igington Ave IA 50627				SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.					
						AUTHO	RIZED REPRESE	NTATIVE	5, 1,		
				Ed Dansen							

County Auditor's Report of Fees Collected

County of) SS:) Hardin County	
To the Board of Supervisors of	HARDIN COUNTY:	
	ect statement of the fees	and State, do hereby certify that collected by me in my office for and the same has been paid to the
		Face
	No. Doc.	Fees collected
4150 Passport foos	19	
4150 Passport fees 4150 Photo fees	30	\$665.00 \$450.00
4150 Passport Postage	30	\$450.00
4150 Fassport Fostage	Total	\$1,115.00
All of which is respectfully subm	nitted.	
		0.004
Volene Pieters		9.8.21 Date
Hardin County Auditor		Date
Tiarani County Auditor		
Chairperson, Board of Supervis		Date
onanporoon, board or ouporvio	,010	Duito





HARDIN COUNTY Employee Change of Status Report

Please enter the following	g change(s) as of _	9/10/2021 Date	-			
Name: Cyrus Thomas	i	_ Department: Sheriff				
Address: 1010 I Avenu			Position: Correctional Officer			
Grundy Center	lowa	50638	Salary/Hourly Rate:			
City	State	Zip Code				
Fund:		<u> </u>	_			
Status: X Full-time	Permane	nt Part-time	☐ Temporary/Seasonal Part	-time		
Reason of Change:						
Hired	Resignation					
Promotion	Retirement					
Demotion	Layoff					
Pay Increase	Discharge					
Leave of Absence						
	Dates		_			
Other:		· · · · · · · · · · · · · · · · · · ·				
Dates of Employment: _	8/10/2016 to	9/10/2021	Last Day of Work	9/10/2021		
				4-		
Beyond the last day of w	ork, the following	vacation time v	vas (or will be paid):	to To		
Authorized by:) all 9 () a	· · · · /	C	8 SEP 21		
radiiorized by:	Elected Official o	or Department Head		Date		
Authorized by:		Supervisors		Date		

HTTP://WWW.HARDINCOUNTYIA.GOV





HARDIN COUNTY Employee Change of Status Report

Please enter the following change(s) as of	-
Name: Brock Kinney	Department: Sheriff
Address:	Position: Correctional Officer
City State Zip Code	Salary/Hourly Rate:
Fund:	-
Status:	☐ Temporary/Seasonal Part-time
Reason of Change:	
☐ Hired ☐ Resignation ☐ Promotion ☐ Retirement ☐ Demotion ☐ Layoff ☐ Pay Increase ☒ Discharge ☐ Leave of Absence ☐ Dates Other:	
Dates of Employment: to	Last Day of Work
Beyond the last day of work, the following vacation time w Authorized by: Elected Official or Department Head	
Authorized by:Board of Supervisors	Date