



Jordan Nutrient Rules: Agriculture TAG#2

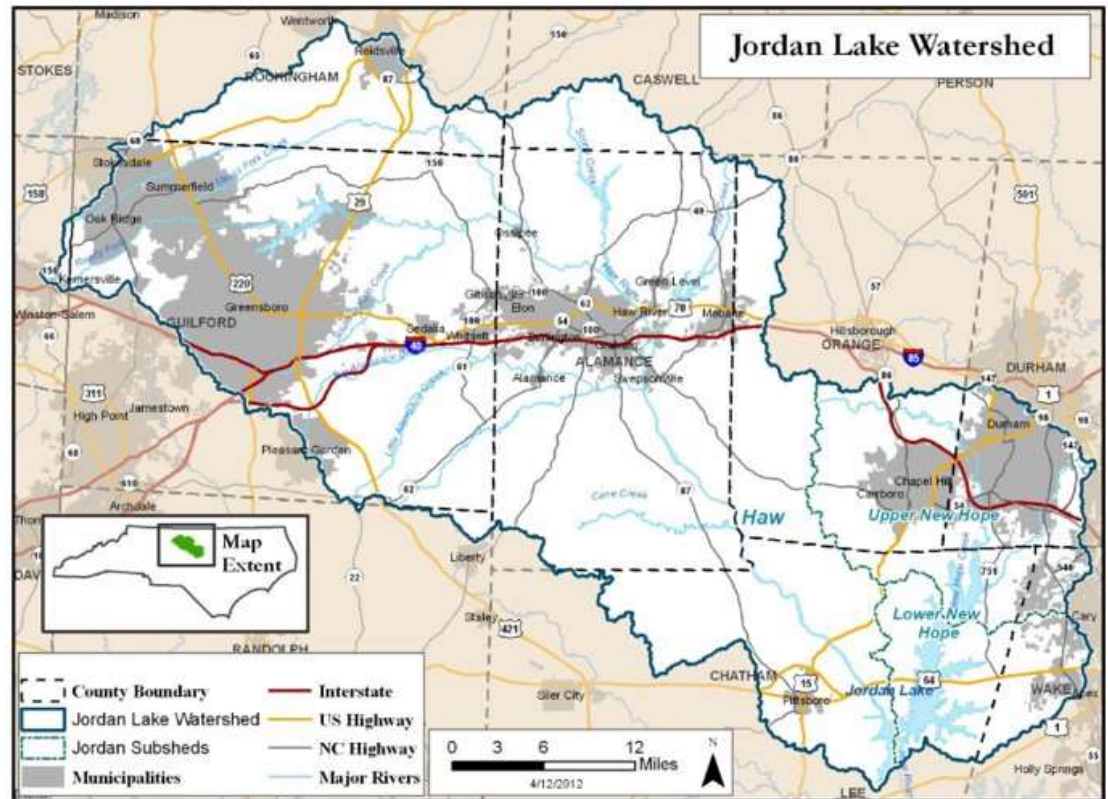
Ellie Rauh, Rich Gannon, and Joey Hester

January 31, 2025



Thank you for joining the Second Technical Agriculture Advisory Group for the Jordan Rule Readoption process.

Please introduce yourself – name and affiliation.



**'Informal'
Stakeholder
Engagement**

2024-2025

- DWR stakeholder engagement.
- DWR TAG meetings end April/May 2025.
- DWR rule drafts and internal review.
- Stakeholder groups review rule language.

**WQC
Approval to Proceed
(expected multiple reviews)**

2025-2026

- April – Begin fiscal analysis
- August - OSBM fiscal approval
- **Nov or Jan WQC:** Action item
 - Provide approved fiscal analysis
 - Request to proceed w/rules
- **Jan or March WQC:** 2nd attempt if needed
(filing dates = 1 mo prior to meetings)

**“Formal” Rulemaking
(steps can require > 1 pass)**

2026-2027

- EMC approval to proceed
- 60-day public comment period
- Hearing Officers deliberate
- Develop Hearing Officers report
- EMC adopts rules
- Rules Review Commission approves



Previous TAGs:

- TAG 1: June 2024 – Reviewed agriculture in Jordan and concerns about continued use of NLEW.
- Biosolid Sub-TAG: September 2024 – Reviewed biosolid land application and any evidence of high soil test P.

Next TAG 3: April 2025.



Purpose of today's AG TAG 2: discuss **pastured cattle** impact on surface water quality and review programs/policies to increase implementation of exclusion systems in Jordan Watershed. This discussion will inform the [Jordan Watershed Rule Readoption process](#).

Agenda

10am

- Introductions
- Cattle Data Overview
- UNC Collab and Exclusion Research Summary
- Recent Survey of NRCS Staff on Cattle Exclusion

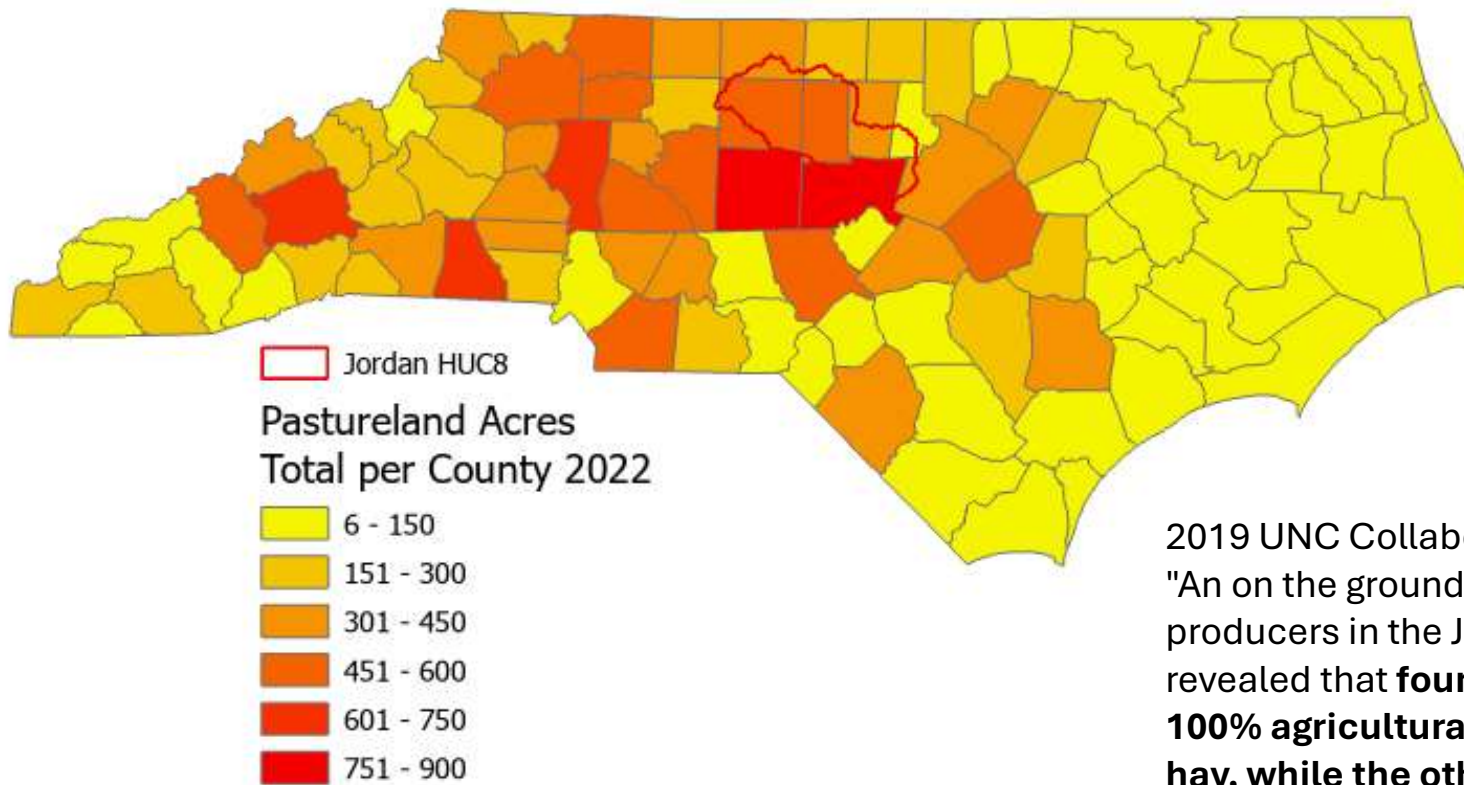
11am

- Initial Comments
- Review Policy Options for Cattle
- Comments
- Discuss Remaining Survey Results (i.e. NLEW) - with any remaining time

Noon

- Close

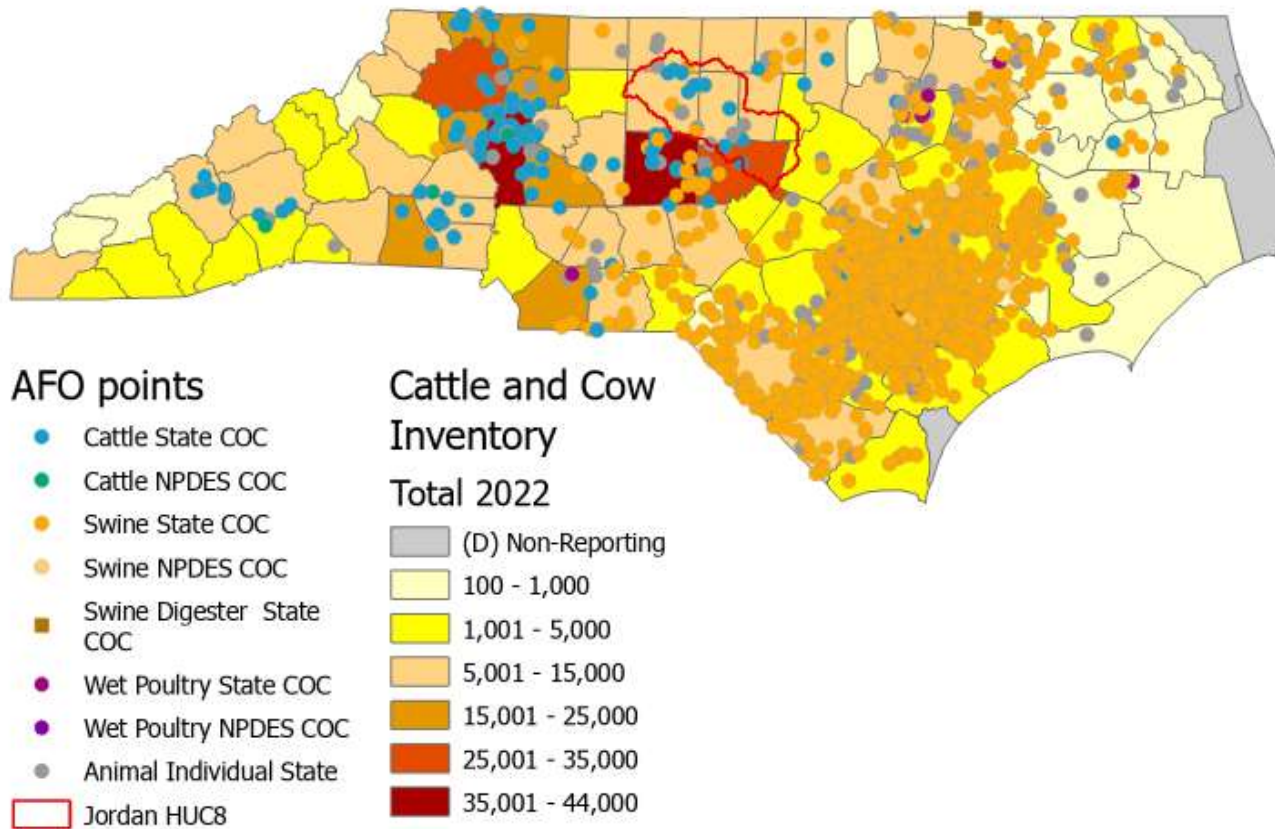
Figure 1. Pastureland Acres per County, 2022.



Data source: USDA NASS Census 2022.

2019 UNC Collaboratory Jordan Lake Report:
"An on the ground agricultural survey of producers in the Jordan Lake watershed revealed that **four out of nine counties had 100% agricultural land use as pasture and hay, while the other counties had agricultural land use that ranged from 25-55% cropland.**"

Figure 2. Cattle Inc Calves 2022 Inventory Total per County and Animal Feeding Operation Locations.



Data source: NC DEQ AFO Map; USDA NASS Census 2022.

Table 1. Inventory,

County	Potential Total Cattle in AFOS	Inventory Cattle Inc Calves NASS 2022
Jordan		
Alamance	600	11760
Guilford	830	9980
Orange	0	6271
Caswell	0	8813
Chatham	4378	30497
Durham	400	3048
Wake	192	3661
Rockingham	264	10451
HRL		
Surry	1350	17892
Wilkes	3931	34494
Davie	300	8671
Davidson	1610	9343
Alexander	1900	20979
Iredell	24499	40002
Yadkin	4745	17264
Caldwell	0	4,929
Forsyth	0	2364
Total		
Jordan	6664	84481
HRL	38335	155938

Table 2. Cattle Inc Calves Farms by Inventory, Jordan Counties, USDA NASS 2022.

	North Carolina	Alamance	Caswell	Chatham	Durham	Guilford	Orange	Rockingham	Wake
Inventory									
farms	14980	313	121	555	48	248	195	303	146
number	718743	11760	8813	30497	3048	9980	6271	10451	3661
Farms by inventory:									
farms, 1 to 9	4187	79	18	102	18	71	64	97	63
number	21240	411	81	(D)	(D)	373	347	474	324
farms, 10 to 19	3455	71	20	96	12	52	45	77	35
number	47028	967	228	1354	160	689	560	1047	438
farms, 20 to 49	4083	93	46	194	5	78	51	69	35
number	123862	2977	1467	5929	135	2245	1552	2046	950
farms, 50 to 99	1699	41	21	76	9	22	19	33	10
number	113967	2572	1509	5155	620	1372	1285	2130	773
farms, 100 to 199	905	22	9	54	-	12	11	19	1
number	118218	2745	1103	7515	-	1830	1247	2524	(D)
farms, 200 to 499	506	7	3	32	1	13	5	8	2
number	145585	2088	615	9065	(D)	3471	1280	2230	(D)
farms, 500 or more	145	-	4	1	3	-	-	-	-
number	148843	-	3810	(D)	1800	-	-	-	-

= top 10% of cattle inventory

Research Summary: Jordan Ag and Cattle Exclusion

2019 UNC Collaboratory Jordan Lake Report.

- Agriculture review was led by Dr. Deanna Osmond.

Excerpt, pg. 84:

- "One important characteristic of the watershed is that erosion is well controlled and many streams (approximately 60%) are already buffered.
- **The largest nutrient losses are derived from pasture lands due to animal excrement, but research indicates that these losses can be reduced by approximately 50% through the use of a narrow exclusion fence and nutrient management.**
- Additional nutrient losses may also be derived from reducing phosphorus applications on elds that do not need more, but since this represents the minority of agricultural lands, it is doubtful than any real water quality reductions will be realized."

Research Summary: Jordan Ag and Cattle Exclusion

Line, D. E., & Doll, B. (2023). Effects of Livestock Exclusion on Pollutant Export From a North Carolina Beef Cow Pasture.

- Fences were installed to exclude cattle from two adjacent small streams on a beef and swine farm located in central North Carolina. The combined reductions for the two periods were 39%, 64%, and 74% for TN, TP, and TSS, respectively. These results indicated that **exclusion fencing was effective at reducing pollutant exports during the first 1.8 years and that its effectiveness increased after about four years.**

Line, D. E., Osmond, D. L., & Childres, W. (2016). Effectiveness of livestock exclusion in a pasture of central North Carolina. *Journal of environmental quality*, 45(6), 1926-1932.

- **Data show that even a relatively narrow exclusion corridor implemented on only the main stream channel can significantly reduce the export of N, P, and sediment from a beef cattle pasture.**

NC DA&CS Agriculture Cost Share Program: cattle exclusion systems in Jordan

How does ACSP work?

The North Carolina Agriculture Cost Share Program is successful because of the grassroots efforts of your local soil and water conservation district. Your district works with agricultural landowners and producers to:

- » develop and approve individual conservation plans;
- » identify the best management practices best suited for your particular operation;
- » design BMPs and help ensure their longevity; and
- » acquire preliminary approval of a Cost Share contract.

The division provides administrative and technical assistance to districts. The division gives final approval to cost share contracts and processes requests for payments to cooperators participating in the program.



Eligibility

If you are a landowner or producer of an existing agricultural operation that has been operating for more than three years, you are eligible to participate in the North Carolina Agriculture Cost Share Program.

How many operations have cattle fenced out of stream so far through the cost share program? How many pasture cattle farms remain? Not reported according to DSWC.

Although, livestock exclusion systems had a 517% increase between 2002-2017.

What are major barriers to cattle exclusion system implementation?

Would a collective compliance policy for cattle exclusion systems improve implementation?

Survey of Jordan NRSC/District Staff, Fall 2024

- Closed on 9/24/2024. Allie emailed 32 staff. Received 13 individual complete surveys.
- Questions 1-5 were self-identification:

#Responses	Response
7	Orange or Team 7
1	Durham
1	Wake
4	unknown

Questions 6-19 Categories:

- **Cattle Exclusion System Implementation**
- NLEW and Agriculture Reports Use
- Organic Land Application

Survey: Cattle Exclusion System



- **All respondents indicated that funding for implementation and maintenance can be a barrier for cattle exclusion program**, so we can infer that increasing funding would improve the program.
- Concerns about leased land as well as landowner vs farmer receptivity were considered major barriers across several cattle exclusion system questions and comments.
- Responses indicate it may be beneficial to increase agency capacity to ‘sell’ the exclusion program and increase farmer capacity for BMP long term maintenance.

Survey: Cattle Exclusion System

Question - Indicate how effective the following Actions might be to maintain or improve livestock exclusion system implementation in your county/Team.

- **“DEQ adopts regulatory language requiring exclusion system implementation”** had the most (4) **“Not effective at all”** responses. It also had 3 **“Don’t know”**, 1 **“A little effective”**, 2 **“Moderately effective”**, and 2 **“Very effective”**.
 - Three of these 4 respondents disagreed with all actions that included a mandate/requirement including those in the organic waste management section.

Comments:

- **“Regulatory language to require exclusion systems will put farmers out of business** if that is what DEQ wishes to do. best solution is to offer more incentives with funding, post installment maintenance funding, and flexibility to flash graze, etc.”
- **“I've worked in multiple states and having DEQ or DEP regulate setbacks is the most effective way to get landowners to implement activities. The funding is available, but the desire to implement the activities is not.”**

Comments, Questions



Draft Concept: Collective Compliance Cattle Exclusion

APPLICABILITY.	All discrete pasture sites in the watershed on which more than 8 cattle graze for at least 30 consecutive days at any time . Discrete pasture sites are continuous fields unbroken by property lines, streams, roads, fences, or other physical barriers.
EXCLUSION.	Adequate physical barrier is provided to preclude passage of cattle through it to access the stream.
ALLOWABLE ACCESS.	Livestock would be allowed in excluded areas during specific situations such as a State of Emergency, heat-related events, 14 day flash grazing, and unexpected failure .
COLLECTIVE COMPLIANCE REQUIREMENTS.	This regulation would use collective compliance and the rate of implementation needs to be evaluated. For example, "150 sites subject to the rule shall have cattle excluded from surface waters every 5 years".
SMALL PRODUCER EXEMPTION. HARDSHIP EXEMPTION.	There would be several exceptions to this rule, including individuals who own fewer than 20 total cattle shall be exempt as well as sites that would result in the loss of more than 20% of grazeable pasture acres on that site .
TEMPORARY EXTENTIONS:	Extensions to individuals would be provided in specific scenarios such as those who have entered into a cost share contract with NC DSWC or who can demonstrate insufficient shade for cattle health.

Comments, Questions





Short Poll: Please take 5 minutes now to complete the survey.

LINK IN THE CHAT

<https://forms.office.com/g/P5MEbnwEUR>

I will wait 5 minutes while participants review the survey, and I can answer any questions.

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Questions 6-19 Categories:

- Cattle Exclusion System Implementation
- **NLEW and Agriculture Reports Use**
- Organic Land Application

Survey: NLEW and Agriculture Reports Use

14. What reports do you review to inform local conservation strategic planning and decision making (outreach, funding prioritization, etc.)? You may select multiple choices or type in a custom response.

Multiple Selections. **Almost all (9) included “Crop/BMP county data reports”** – only those that answered (3) “I do not review any reports to inform district planning” and (1) “Unsure - are not familiar with any of the items listed did not include crop county data” did not select this option. **Three respondents said they use Nitrogen Loss Estimation Worksheet (NLEW) results in addition to Crop BMP data.**

#Responses (Multiple Selection)	Response
9	Crop/BMP county data reports
3	NLEW
3	Jordan Lake annual report
3	I do not review any reports to inform district planning
1	Unsure - are not familiar with any of the items listed

Survey: NLEW and Agriculture Reports Use

15. Do you think the aggregate Nitrogen Loss Estimation Worksheet (NLEW) tool outputs accurately capture the work farmers are doing to manage Nitrogen in your county/Team?

Of the 4 specific “Yes” respondents, only 1 of these said they use NLEW to inform their decisions in question 14.

#Responses	Response
5	Unsure
2	I never review NLEW tool outputs or annual reports
2	No
4	Yes

16. Do you think running the aggregate Nitrogen Loss Estimation Worksheet (NLEW) tool annually is the best use of staff capacity at the local and state level to track agriculture's progress in meeting Nitrogen reduction targets? Select a choice or type in a custom response.

Only 1 of the 2 “Yes” respondents also said they use NLEW in question 14.

7	Unsure
2	I do not have an opinion on use of the NLEW tool
1	No
2	Yes

Survey: NLEW and Agriculture Reports Use

17. Rate the usefulness of the Agriculture Rule Reporting Outputs below. Usefulness may involve ability to improve technical assistance and conservation program delivery or to tell the story of agriculture conservation activity in your county/Team.

Mixed responses for all Outputs.

“Summary of NRCS and District implemented BMPs” Output had the most (9) responses that it is “Very useful, is worth time”.

Comments:

“All data, including NLEW data, is only as good and accurate as what information is loaded into the program. CREP is great program but not all landowners are interested in permanent conservation easements on farm. CREP is a more complex funding program to coordinate with multiple agencies and limited staff capacity.”

Survey: NLEW and Agriculture Reports Use

Overall: When asked about NLEW, less than a third of respondents said they used NLEW, that it was accurate, and that it was worth agency capacity. NRCS and District implemented BMPs outputs and Crop/BMP county data reports may be the most useful data currently used for NRSC/District decision making.

Next AG TAG 3: April/May 2025

To Dos: Email me any additional comments.

Thank you!

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