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**Agriculture and Water Management Committee Testimony
Doug Goehring
Agriculture Commissioner
Agriculture and Water Resources Committee
Roughrider Room, State Capitol
Bismarck North Dakota
March 31, 2026**

Chair Hauck and members of the Agriculture and Water Management Committee, I am Doug Goehring, Agriculture Commissioner. I will testify this morning on numerous topics – specifically, on (1) un-crewed aerial systems (UAS) grants; (2) expanding irrigation in the State; (3) the Low-Carbon Fuels fund; (4) the Environmental Impact Mitigation Fund; (5) the model zoning ordinance; and, (6) fertilizer production.

1. Uncrewed Aerial Systems

Last year, we awarded a grant, for un-crewed aerial systems (UAS), in the amount of three hundred thousand dollars. The grant was awarded for establishing UAS test sites in several counties to develop an optical library for Palmar amaranth, water hemp, and other amaranth species. Grand Farm (a research organization located near Casselton) is the lead on the project, it is a collaborative project with several other partners, including North Dakota State University, Thales Airspace Mobility Solutions, and ISight Drone Service.

The UAS project subject to the grant is designed to help local weed control officials to quickly respond to new and emerging noxious weed infestations. It aims to expand an image database and validate AI-based detection models using drones, with a specific focus on identifying Palmer amaranth at different growth stages. The project is operating in the State's sugar beet and soybean fields.

The fieldwork will primarily be taking place in Traill, Steele, Cass, and Barnes Counties, and additional sites in other counties may be added. Landowners are asked for permission for flyovers. If a suspect plant is detected by optical signature ground truthing will take place and fields found to have weeds will remain confidential and identified at the county-level only.

The UAS grant began July 15, 2025, and will wrap up June 30, 2027.

2. Potential Benefits of Irrigation

When placed in the right areas and properly managed, irrigation can help to reduce crop water stress, consistency and continuity of production, and increase overall economic predictability.

At the present time, there are about 302,000 acres of actively irrigated agricultural land in the State. That accounts for slightly more than 1.1% of the total cultivated land in the State. Two million additional acres could potentially be irrigated.

Irrigated land in the State is usually located over aquifers. The most common irrigated soils are sandy loams and loamy sands.

Currently, total irrigated land acreage in the State is relatively small. However, there is potential for more. Undeveloped land in the State is potentially available and suitable for crop production with expanded irrigation – for example, along the Missouri River. If properly developed and placed in the right areas, additional irrigation could serve to assist in local water management and in boosting the State’s overall agricultural output,

3. Low-Carbon Fuels Fund

The Low Carbon Fuels Program is the precursor to sustainable aviation fuel. The fund is to bolster the State’s ethanol production facilities through supporting beneficial capital projects. Eligible projects will support the State’s ethanol industry in improving production efficiency, while boosting production in the State.

Three ethanol plants have been awarded reimbursable grants for eligible costs associated with installing new process equipment that will capture CO₂ and lower the carbon intensity scores of the ethanol produced.

The Dakota Spirit AgEnergy plant near Spiritwood was awarded up to \$3 million with a total project cost of \$92 million.

The Gevo North Dakota plant near Richardton was awarded up to \$3 million with a total project cost of \$16 million.

And the Hankinson Renewable Energy plant near Hankinson was awarded up to \$1.5 million with a total project cost of \$9.7 million.

The Low Carbon Fuels Program grant period closes for all three awards on June 30, 2027.

4. Environmental Impact Mitigation Fund

The environmental impact mitigation program was created under NDCC 4.1-01-21.1.

This law addresses environmental impacts from the construction and operation of energy conversion facilities and prevents perpetual conservation easements that forever limit agricultural enhancements, agricultural activity, or infrastructure improvements on land in the community.

In short, perpetual easements are not part of the mitigation program. Conservation easements in relation to the program must be limited to no longer than the construction and operational life of the related wind energy facility. Also, mitigation projects must take place as close to the applicable facility as feasible.

Under the law, after the energy company has made reasonable efforts to avoid or minimize impacts, energy companies are required to mitigate adverse environmental residual impacts related to their projects.

Mitigation efforts under the program may include protecting, enhancing, or restoring similar habitats that may have been affected by the wind energy development project. Since 2023, we have entered into five agreements, with 5 separate wind energy companies, to conduct environmental mitigation on their behalf.

Currently, we are in the process of identifying private landowners, in and around the areas of those five projects, who may be interested in entering into conservation easements with the understanding that these enhancements are intended to be working lands easements.

5. Model Zoning Ordinance for Animal Feeding Operations

SB 2174 was passed during the last regular legislative session. This Act becomes effective August 1, 2026, and it will allow counties and townships to voluntarily reduce setback distances for animal feeding operations.

Any reduced setback distance will be contingent upon the use of the Odor Modeling Tool. Odor modeling will also be an optional part of the Livestock Friendly County program.

The tool will provide a measured approach to estimating the likely impacts of odor on properties in the general area surrounding an anticipated animal feeding operation. It will take into consideration possible odor intensity, dispersion of any odor by relevant terrain features such as trees, structures, and general topography. A website is currently under development to make this tool readily available for counties and townships to use if they choose.

6. Fertilizer Production

In North Dakota, average fertilizer consumption is approximately 2.5 million tons annually, with about 1.5 million tons being nitrogen fertilizers. About 20% of the nitrogen used in the State is produced locally.

The United States uses approximately 10-15% of the total global fertilizer production annually. These needs are met through a mix of domestic production and imports. The global market for nitrogen, phosphorus, and potassium fertilizers has grown steadily in the last 25 years, with an annual growth rate of approximately 1.8%.

Common fertilizers used in large quantities in North Dakota include Nitrogen, phosphorus, potash, and AMS (ammonium sulfate).

Phosphate fertilizers are derived from phosphate rock, and most of it is mined in Florida and North Carolina. Most potassium-based potash fertilizers come from Canada. Nitrogen fertilizers are primarily produced

using the Haber-Bosch process and convert nitrogen and hydrogen into ammonia. Nitrogen fertilizers make up the largest segment of U.S. production.

Natural gas and water are the major feedstocks for nitrogen fertilizer production, and these are generally used and consumed in large quantities during fertilizer production. Reliable access to these two feedstocks in sufficient quantities is critical in the proper siting of any nitrogen fertilizer plant.

Currently, Basin Electric is making few nitrogen fertilizers at its Great Plains Synfuels Plant near Beulah. The plant has a capacity of approximately 100,000 tons per year of AMS (ammonium sulfate), 400,000 tons per year of Anhydrous Ammonia, and 400,000 tons per year of Urea. Actual fertilizer production quantities generally depend on current markets, along with facility production capacity.

Small fertilizer plants in the United States typically produce about 100,000 tons per year. Mid-size plants produce about 500,000 tons per year. And, large plants produce about 1 million tons per year or more.

Fertilizer manufacturing costs vary widely depending upon the fertilizer type, production, capacity, raw materials, and local conditions.

Estimated capital construction costs for small fertilizer plants can range from \$150 million to \$350 million, with the capital construction costs for large-scale, high-capacity plants potentially reaching \$3 billion or more.

Thank you, and I will stand for any questions.