

Agronomy Seed Farm SBARE Testimony 12-12-23

Good morning Chairman Lovas, members of the SBARE committee. My name is Brian Otteson, I am the Director of the Agronomy Seed Farm at Casselton ND. Today I would like to speak to you about the Agronomy Seed Farm and its involvement in Ag Research at NDSU as well as what I feel are some of the Ag Research needs that affect the Agronomy Seed Farm. Although the seed farm is 100% self-supportive, we rely on a continuous stream of new crop varieties to be released each year in order for us to maintain adequate seed sales. So it is in our best interest to help facilitate and support these research projects.

First of all, for those of you new here, I'll give a brief background on the Agronomy Seed Farm as well as the status of our current operations and how we are involved with the main station scientists and the Research Extension Centers across the state. The seed farm is located just 20 miles west of Fargo, or about 1 mile west of the Casselton exit off I-94. We have just 3 full time employees. The Agronomy Seed Farm's primary mission is to produce a good supply of high quality Foundation seed for the seed producers of ND. However, we also provide support to the main station scientists. This is achieved by providing assistance with land preparation in the spring prior to planting as well as cleaning up their research plots following harvest so we can prepare the land for next year's crop. We also provide uniform rotational ground for various research plots and breeding nurseries.

The Agronomy Seed Farm is comprised of roughly 1400 acres of cropland that we utilize at Casselton, Prosper and Fargo. Of those acres, about 1100 are for seed production and 300 acres for research plots. We raise Foundation grade seed of winter wheat, spring wheat, barley, oat, field pea and soybean. This past year we increased seed of 26 varieties including both released varieties and experimental lines up for release. We work closely with NDSU Plant Sciences, especially the plant breeders as well as soil science, plant pathology, entomology, Ag & Biosystems Engineering, and others. The seed farm assists with increasing experimental lines that may be up for release and work closely with the plant breeders to insure the seed is pure and of very high quality before it goes out to farmers and seedsmen. We also work closely with the REC's that produce Foundation seed to help distribute newly released varieties through the county seed increase program to eligible seedsmen who wish to produce Registered and Certified seed of these varieties.

That is a brief overview of the Agronomy Seed Farm. Now, I'd like to switch gears and talk about the Ag Research needs affecting the seed farm including: **machinery storage sheds, precision agriculture and Big Data.**

First of all, **Machinery Storage Sheds.** The NDAES main station is putting a shed at NW22 on Cass 20 in 2023 which was funded by the 2023 Legislature. There is still a need for machinery storage sheds at Carrington, Streeter and Dickinson. Many research projects have updated much of their planting equipment with new larger tractors with GPS guidance and planters that are controlled by GPS also. In the past, much of the planting equipment involved using an open

cab tractor and basic planter. Now, many of the plot tractors have cabs and are much larger requiring more storage space. The size of the harvest equipment has increased also with most plot combines equipped with cabs with sophisticated electronics for collecting data on yield, TW and other factors. Many of the current storage sheds were built many years ago and are either too small to house the larger plot equipment, or there is just not enough room in current storage sheds. So storage sheds are definitely needed.

Precision Agriculture: There is a definite need for additional research in precision agriculture. While a lot has been accomplished in recent years, there is still much more to do. The Agronomy Seed Farm has collaborated with Ag & Biosystems engineering on the collection of data at the seed farm for the past 5 years. This has included drone imagery, yield mapping, soil sampling, soil electrical conductivity, resistant weed ID, weather data, prescription maps, and remote grain storage monitoring. Many of the plant breeding projects are also working with Ag & Biosystems engineering on collecting data in the breeding nurseries at Casselton and Prosper using drones. The drones capture agronomic data useful to the plant breeders and help them make decisions on experimental lines being tested. Some research projects have also been utilizing wireless sensors to collect a wide array of field data also. Overall, the adoption of precision agriculture has increased significantly in the past two years will continue to increase.

Big Data Initiative: Along with the rapid advances in precision agriculture technology, the collection and analysis of the large data sets is becoming increasingly important. Its one thing to collect the data, but to analyze and put the data to use is a different story. Collecting the data in the research plots has evolved from using a notebook to now using tablets along with specialized software. This will increase efficiency and streamline much of the process. It will also be utilized in collecting variety trial data which will speed up the analysis and delivery of the variety trials published by NDSU. To assist with uploading data from the research plots at Casselton, researchers can utilize the 1 gigabyte internet connection and wi-fi network at the seed farm that is directly connected back to the main campus. This allows researchers to quickly upload large data sets from a drone or a tablet directly back to campus. Additional expertise in computational sciences will help further this initiative and build out NDSU's expertise in this area.

Waldron Hall Replacement: Thank you for the support on this project

As I mentioned earlier, the seed farm is 100% self-supportive so we do not ask for any funding. However, we do rely on consistent releases of new and improved crop varieties which is why the investment in all aspects of Ag research is so important. Our Foundation seed production is the culmination of years of crop breeding and research here at NDSU and is the final step before these varieties are released to producers across the state for their benefit.

With that, I would like to thank you for your time today and answer any questions you may have?