NDSU Langdon Research Extension Center Testimony – HB1020

Randy Mehlhoff, LREC Director – Senate Appropriations March 2, 2023

2021/23 ND Legislative Appropriation Update

- **$473,000 Appropriated for Langdon REC Plant Pathology Greenhouse.**
- **Lowest Bid was $724,430 ($251,430 over).**
- **Important Plant Pathology Research Data Delayed Because of No Greenhouse.**
- **House Appropriations, Government Operations Division, Included Carryover Funding and an Increase 0f $251,430 - 2023/25 biennium**

2023 Research/Extension Programming Update

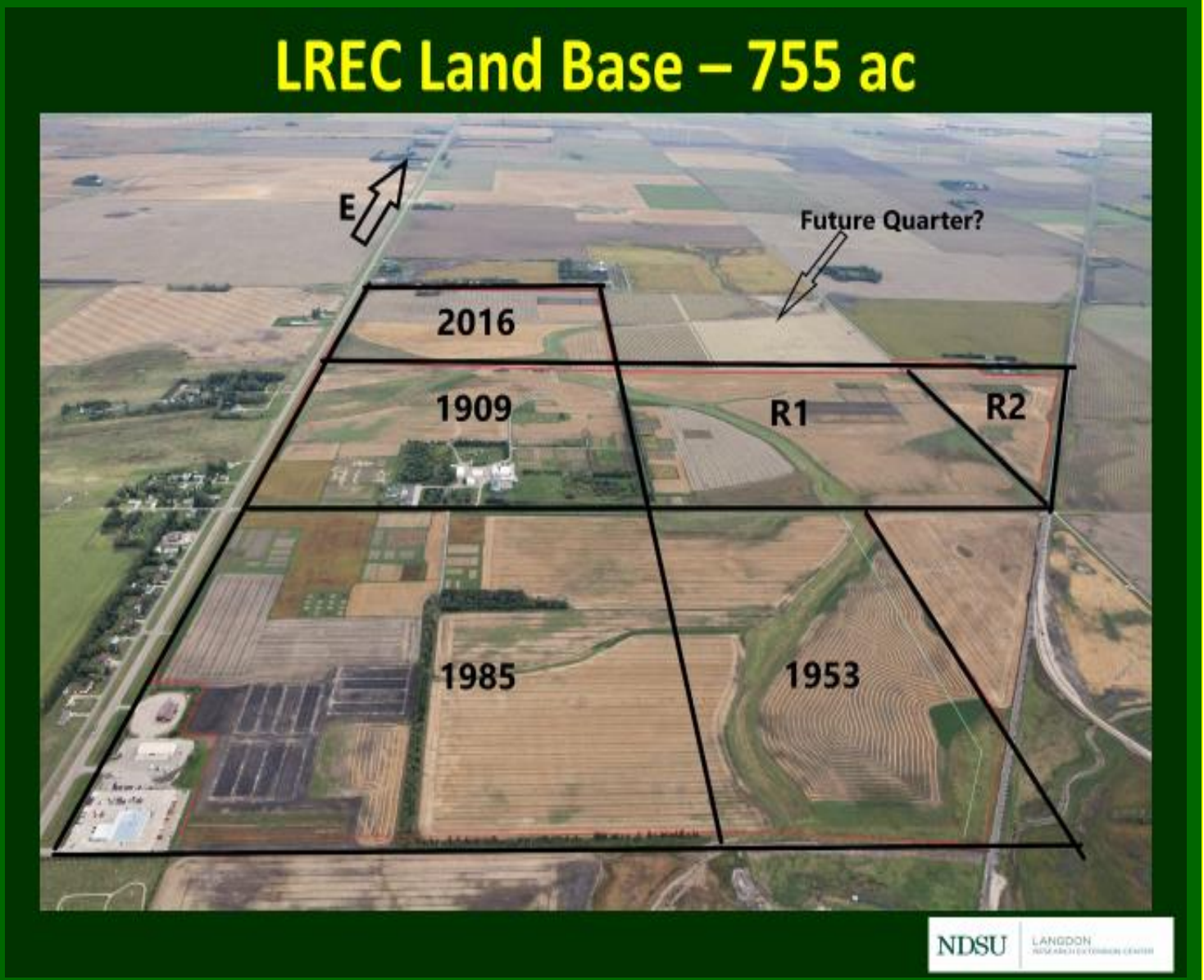
- **Soil Health Extension Program in its 10th Year of Existence and has Benefitted Extension Agents, Crop Consultants and Family Operations. Performed 329 Deep Soil Samples for 122 Family Farmers in 14 ND Counties to Assess Soil Health.**
- **Crop Pathology Research Data Continues to be in High Demand with Evolving and new Crop Diseases on Principle Crops Grown in ND.**
- **Foundation Seed Production at Langdon has Increased from 350 Acres to 600 Acres Providing Foundation Grade Crop Seed for the Regions Growers**
- **Traditional Cropping Systems Research in Crop Variety Testing, Weed Control, New/Emerging Crops, etc. Continues to be in High Demand by Producers.**
- **Extension Cropping System Specialist at Langdon Chairing the Extension Crops Program Planning Team. Especially Important with Many New Extension Agents in ND.**

Immediate Research/Extension Programming Needs 2023/25

- **One fte supporting the Langdon REC Plant Pathology Research Effort. (SBARE AES Priority # 1). House Appropriations, Government Operations Division, Included one FTE $176,000 and $76,000 Operating - 2023/25 biennium**
- **Funding the Needs Based Budget Requests for the AES and Extension in the Priority List Order as Set by the SBARE.**

Immediate Capital Project Needs 2023/25

- **A new Equipment Storage Shed to House Expensive Small Plot Machinery and Other Implements. House Appropriations, Government Operations Division, Included Four of Seven Requested Sheds - $1,900,000 - 2023/25 biennium**
- **One Time Request for Deferred maintenance on Aging Infrastructure. House Appropriations, Government Operations Division, Included $500,000 of the Requested $1,440,465 for Deferred Maintenance - $500,000 - 2023/25**



Why We Need a Greenhouse at the Langdon REC

Clubroot pathotype determination: Situation demanded faster results as the disease is spreading rapidly in North Dakota. There is no chemical control for this disease. Only the use of resistant varieties works. Using resistant varieties frequently leads to resistance breakdown due to development of new pathotypes/races (Canadian Research). In order to determine the pathotypes/races of clubroot in ND, it took one year to get ¼ of sample results. **Note**: The researchers we have been collaborating are from University of Alberta, Edmonton, Canada. Consider the time, money, travel, and the economic importance of crop if we were to depend on their greenhouse.

1. **Clubroot germplasm evaluation**: There is an urgent need to screen for clubroot resistance canola lines, as current clubroot resistance is from a single source; it is vulnerable to faster resistance breakdown.
2. **Clubroot soil amendments in greenhouse**: saves time and money, in single year we can research two years' worth of field trials.
3. **Environmental control**: Often, we lose a research trial, as the crop did not get significant disease due to warmer weather; consider the time, money and efforts we lose here. Whereas, in greenhouse under controlled condition we can perform the trial twice in a season with desirable disease.
4. **Blackleg germplasm evaluation**: Every year we test 100's of germplasm to evaluate canola lines for blackleg resistance in field condition, if we have a greenhouse in Langdon, can test up to 1000 lines in one season.
5. **Soybean cyst nematode** prevalence is increasing in ND, just a bioassay in the greenhouse will determine presence or not in the soil of grower's field.
6. **Resistance to fungicides:** Repeated use of fungicides on a pathogen leads to resistance, we can determine far ahead by conducting lab and greenhouse studies.
7. **New crop introduction:** Crops in ND without prior data on possible diseases they can be infected, for instance, Faba bean white mold and Chocolate spot (we did the first reports from Langdon by field studies and collaborative studies) and similarly, hemp is infected with quite a few diseases, not able to prove to the scientific and grower community as the seed cannot be given to other researchers, if we had a greenhouse we could have proved by now.
8. New Disease Identified then what?
   Soybean Sudden Death Syndrome in soybeans have been identified by us in Cavalier County, it's a new disease to this area so limited to no management options available to recommend. Resistant varieties are available but none in zero maturity group which is suitable to us. Preliminary research in greenhouse on these lines can help growers in managing this disease without significant losses.

Other research projects that can be done at our research center greenhouse: Bioassays of wild oat resistance to various herbicides, flea beetle resistance to insecticides on canola greenhouse studies. One of our colleagues stays in Fargo for two weeks to do this trial and then travels once in a week to monitor, hires a student hourly. Consider the time, travel, lodging that would be avoided with a greenhouse at Langdon.