NDSU Plant Diagnostic Lab
Impacts for 2016

The Situation
There is a need for accurate, unbiased, plant-related diagnostic services. These services enable effective management strategies, facilitate seed certification programs, commodity programs, and assist research efforts. Goodwill is created with the general public through homeowner/home gardener samples and plant and insect identification services.

Extension Response
The Plant Diagnostic Lab (PDL) is the only source in North Dakota which provides technical, unbiased plant diagnostic services to assist with horticultural and agronomic plant problems on all scales, from individual homeowners to large corporations or commodity groups.

Impacts
In total, the NDSU PDL received over 4,300 samples last year and performed over 13,000 diagnostic tests. Some of the impacts of processing these samples include reduced pesticide inputs and economic savings from routine diagnostic laboratory diagnoses. On average, 100 acres are represented by each routine diagnostic sample submitted, with a total of 895 routine samples received in 2016. 25% of the samples find no diseases or insect pest problems. In addition, 25% of the samples are properly identified to a target pest, which may not have been controlled by a pesticide application, such as a bacterial disease that is not controlled with fungicides, without a proper diagnosis. We can estimate that routine diagnostics of pests can save growers about $450,000, using a $10 pesticide application fee per acre treated. Furthermore, yield loss is often prevented by properly managing plant diseases and pests. Over 500 samples and calls regarding insect identification and pest management questions were facilitated through collaboration with the extension entomology team, and a new detection of a pest of field peas, the pea leaf weevil, was documented. Our phytosanitary testing services have significant economic impacts. Clients who wish to export pulse crops to India experienced a potential $200 million economic gain from our services in 2016, given the conservative average price of $740/ton for pulse crops in 2016 and the export of North Dakota pulse crops to India (field pea, lentil, chickpea) were ~500 million pounds (based on 200,000 lbs./railcar, avg. of three rail cars/phytosanitary sample). Our seed health testing services are focused on screening potatoes for bacterial ring rot and other pathogens. These services help to protect and facilitate trade for an estimated 500-million-US dollar industry (including ND and MN production). The NDSU PDL also receives seed health samples from CO, ID, MI, NE, and WI.

Feedback
Feedback has been positive, in the form of returning clients thanking lab staff for quick turnaround and valuable expertise. The average number of samples received per year has continued to increase each year since 2004, a testament to both the increase in demand for diagnostic services and the lab’s excellent service.

Public Value Statement
The Plant Diagnostic Lab improves the public’s livelihood by providing a service to the state through detecting pathogens, educating clientele on the nature of their plant-related problems, and providing potential solutions.

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