A Digital Tool Helps Growers Select Adapted Wheat Varieties

Public Value Statement
When farmers grow adapted, high yielding varieties, they produce more yield per unit of land and therefore better utilize the natural resource based required for agriculture. This reduces the need for increasing production on land that is more marginal for agriculture and more prone to degradation.

The Situation
Farmers have many spring wheat varieties to choose from as multiple private companies and public institutions are developing and marketing new varieties. Selecting high yielding varieties that are adapted to a specific region of the state and that have the disease resistance and quality traits desired by the grower requires access to good data. Variety trials that include most of the new varieties are conducted each year throughout the state by the NDSU agricultural research and extension network. The large database arising from this research can be a very powerful resource for farmers and consultants when they are trying to decide which varieties will be the most productive in their farms the following season. However, shifting through the available data can be a daunting task given the large amount of data that are currently available and the fact that variety performance can interact with the environment in which it is grown (i.e., varieties that are top performers in one location, may not be top performers in another location).

Extension Response
North Dakota State University, in collaboration with University of Minnesota Extension, developed a web-based tool that allows farmers and consultants to easily obtain variety performance data from regions of North Dakota and Minnesota of interest. This digital tool allows the user to access data from research conducted near his/her farm by entering a zip code. These data are tabulated and statistically analyzed. Data on yield, test weight and protein of the tested varieties are available from this database. This tool further allows farmers to conduct head-to-head comparisons of varieties of interest by simply selecting those they wish to compare. This option avails data from every location where the selected varieties were tested. This allows the user to not only see how these varieties performed near their farm, but in other regions as well.

Impacts
It is not possible to precisely quantify the impact that this tool is having on wheat productivity in North Dakota. Nevertheless, we know that in 2019 there were 533 unique users of the tool. Assuming that each of these users grow or provide guidance to growers that grow 1,000 acres of wheat, this tool could have potentially impacted the varietal choice on more than 500,000 acres. If just one bu/acre was added to these acres because the grower was guided to a better variety, this tool would have indirectly created more than 2.5 million dollars in additional farm income in the state each year.

Feedback
Growers and consultants that have used the variety selection tool have expressed appreciation for how easy it is to obtain data relevant to their farms. One grower/consultant described how he obtained yield and the protein data generated to generate information on yield and market value when assuming two differing levels of discounts/premiums for protein levels. These data are critical to the decisions he makes on which varieties will be the most profitable to produce.

Primary Contact
Joel Ransom
Extension Agronomist, Dept. of Plant Sciences
(701) 231-7405
Joel.ransom@ndsu.edu

Collaborators
Jochum Wiersma, University of Minnesota Extension
Andrew Green, NDSU Spring Wheat Breeder.

Resource Links
The link to the variety selection tool:
https://www.ag.ndsu.edu/varietyselectiontool/