

With larger farm sizes, limited time and labour during spring seeding, and the need for higher fertilizer rates, many producers have been reverting back to a two-pass seeding/fertilization system with fall fertilizer applications. Fertilizing in the fall commonly involves surface broadcasting of granular products. Surface broadcasting granular products like urea, makes nitrogen more vulnerable to volatilization and leaching losses, which can result in economic loss and major environmental consequences. In response, a spring wheat trial was conducted near Prince Albert, SK in 2019. The trial's purpose was to examine the use of enhanced efficiency N products to reduce the potential risks associated with fall broadcast applications.

The trial was split into two separate components. For the first component, N was side banded and seven different rates of fertilizer were used; 0x, 0.5x, 0.75x, 1x, 1.25x, 1.5x, and 1.75x the soil test adjusted rate of 125 kg/ha of total N to establish a N curve (Figure 1). The second component examined the different N management strategies; spring and fall application, broadcast or side-band, and four N sources (urea, ESN, Agrotain, and SuperU).

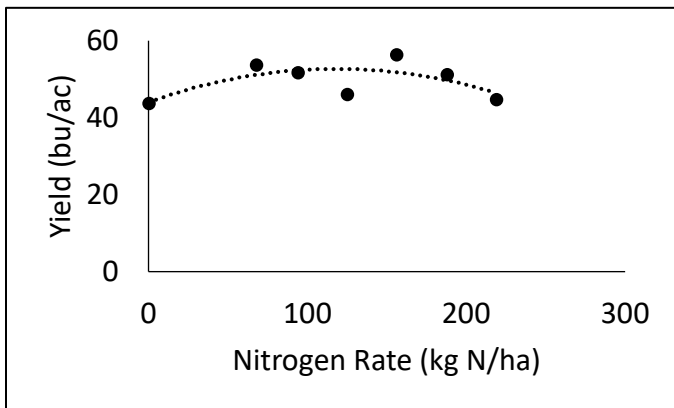


Figure 1. Nitrogen response curve of spring wheat at the CLC in 2019.

There was no clear yield response to added N in Figure 1, likely because of the very dry growing conditions in 2019. As seen in Figure 2, side-banding had significantly lower plants/m² than broadcasting. This is likely

due to fertilizer burn, caused by the dry conditions and placing the fertilizer too close to the seed during side-banding.

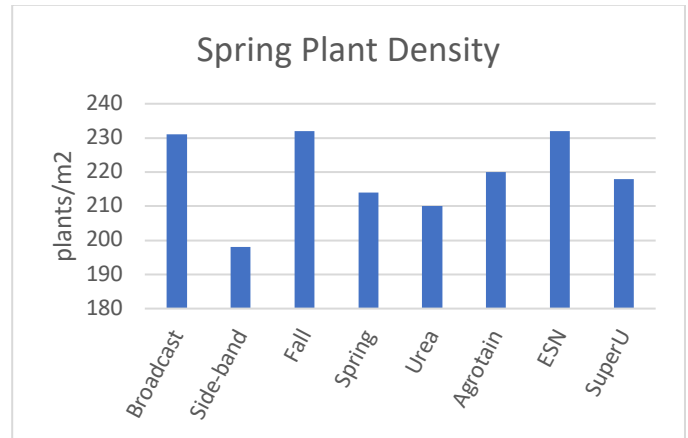


Figure 2. Spring plant density of spring wheat measured about 3 weeks after seeding at the CLC in 2019.

Despite these low plant densities, the plants recovered and there was no significant difference between yield for any of the treatments (Figure 3). While not significant, the use of N efficiency products increased mean yield by 4-8 bu/ac. However, the dry conditions were not conducive to show the potential of using products such as SuperU and ESN, that can reduce N losses as a result of denitrification and leaching under excess moisture. Funding for this project was provided by the Agricultural Demonstration of Practices and Technologies (ADOPT) Program.

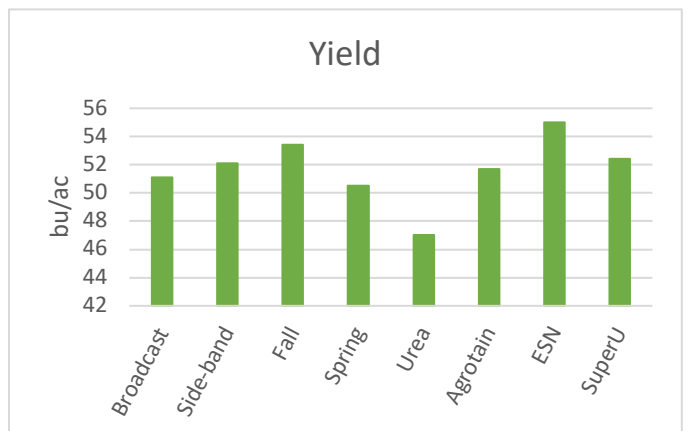


Figure 3. Yield of spring wheat at the CLC in 2019.

