

# Improving nitrogen use efficiency in brassica (cole) vegetable production

Enhanced efficiency formulations (EEFs) help to reduce N losses by slowing down the rate at which it becomes plant available. There is little information available for producers in north central Saskatchewan on the potential benefits of using EEFs in the production of cole vegetables. In order to assess the effects of using EEF products in the production of cole vegetables in the north central region, a trial was conducted in Prince Albert SK in 2020.

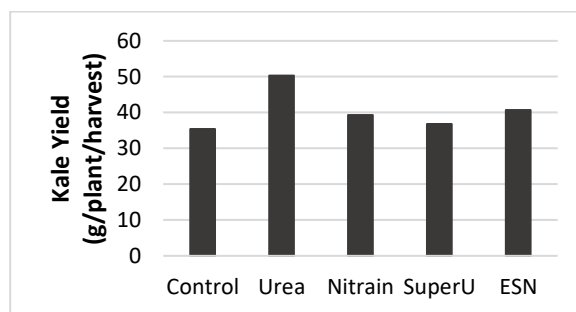
Three brassica crops were planted at the Conservation Learning Centre in 2020: a short season crop (bronco cabbage), a long season crop (dagan brussels sprouts), and a continuous harvest crop (winterbor kale). 5 different fertilizer treatments were applied: a control (0 kg N/ha), urea (100 kg N/ha), Nitrain (70 kg N/ha), Super U (70 kg N/ha) and ESN (70 kg N/ha). The cole crops were irrigated weekly and sprayed several times throughout the season to control pests and disease.

The control treatment had lower yields than the fertilized treatments for all 3 cole crops in the trial (Figures 1, 2, 3). There were no significant differences in yield between the urea and EEF treatments for any of the cole crops. Given that urea treatments received an additional 30 kg N/ha compared to the EEF treatments, this would indicate that producers could use a lower rate of EEF fertilizer and still achieve similar yields.

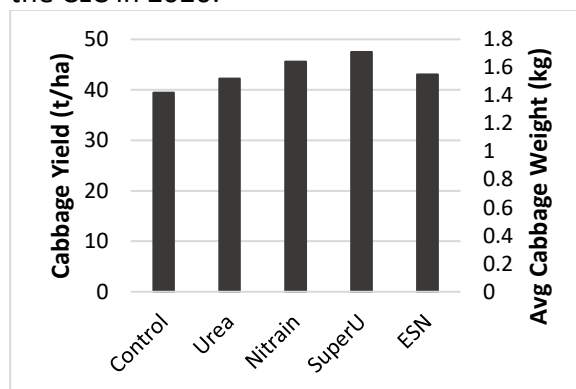
Response to the different fertilizer types varied by brassica crop. Kale yields were highest in the urea treatment (Figure 1). Super U produced higher overall cabbage yields and larger individual cabbages than the other EEF products (Figure 2). Brussels sprouts in the urea treatment yielded higher overall, but also had a higher proportion of unmarketable and oversized sprouts (Figure 3).

The benefits associated with N efficiency are often weather dependent. Further testing under different weather conditions may be needed to determine if there are benefits to using N efficiency products on cole crops.

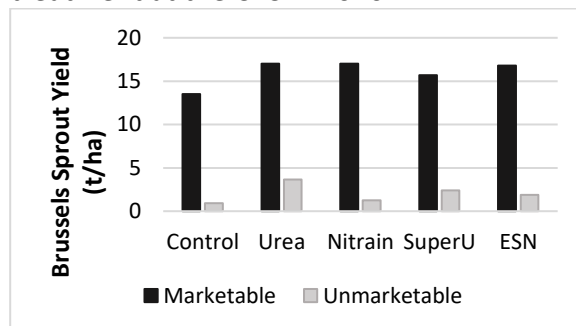
Funding for this project was provided by the Agricultural Demonstration of Practices and Technologies (ADOPT) Program.



**Figure 1.** Kale yield by fertilizer treatment at the CLC in 2020.



**Figure 2.** Cabbage yield by fertilizer treatment at the CLC in 2020.



**Figure 3.** Brussels sprout yield by fertilizer treatment at the CLC in 2020.