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Considerations for Crop Season 2017

by Dr. Tarlok Singh Sahota, CCA-ON

Crop variety is the most important factor for crop production. Each variety carries a genetic yield potential, which Agronomists and farmers try to attain through optimum management under particular agro ecosystems. A high yielding variety gives a higher return per unit of time, area, and dollars invested in crop production. Yield differences in temperate grain/seed crops' varieties can often equal or even exceed one MT/ha under the same input management system. Some examples from research at TBARS in 2016 and earlier years are:

- In spring wheat, AAC Penhold and Megantic produced 1.54 MT/ha and 1.32 MT/ha higher grain yield than Sable, respectively. Boro barley gave 0.77 MT/ha higher grain yield than Synasolis and ~3 MT/ha higher grain yield than CDC Coalition. Grain yield index of Boro in OCCC trials was 105 in 2015 and 108 in 2016. It was the highest yielding variety at EARS too! Grain yield of CDC Celebration in 2012-'14 was only 4.5 MT/ha as against 6.6 MT/ha from Boro in 2016.

Choose varieties with moderate to strong disease resistance. Grow more than one variety of a single crop to increase vertical and horizontal resistance to plant diseases; to create an obstacle against spread of plant diseases in an epidemic form! Growing more than one variety may also help in spreading harvest/combining operations if the maturity days of the varieties chosen differ even by one to two days.

A blend of Nitrogen (N) fertilizers works better than a single N fertilizer such as urea!

- In spring wheat in 2016, N application @ 60 kg/ha from urea and 20 kg/ha from ESN produced 1.24 MT/ha higher grain yield than equal rate of N application from urea alone.
- In forage grasses, averaged over three harvest years, application of N @ 140 kg/ha from three sources (84.5 kg/ha from urea, 35 kg/ha from ESN and 20.5 kg/ha from ammonium sulphate) gave 0.86 MT/ha/year higher dry matter yield than application of 140 kg N/ha from urea alone. Residual effect (better protein content with the blend of three sources of N) as compared to N from urea alone was recorded even in the 4th year when no fertilizers were applied.

Remember urea alone can't sustain N supply to crops throughout the crop season, especially during the grain/seed development stages!

Make it a rule to apply part of the N from ammonium sulphate (to meet sulphur requirements of crops), 1/3rd N from ESN and the rest of N as urea.

Other nutrients: Apply other nutrients such as phosphorus, potassium, sulphur, zinc, manganese and boron as per soil tests and crop requirements indicate. For details, refer to Soil Fertility Guide (<http://www.omafra.gov.on.ca/english/crops/pub611/p611order.htm>).

Try mixed/intercropping cereals and legumes for forage or grain production. Research at TBARS has established that:

- Growing berseem clover (at full seed rate) with spring barley or oats at 70% of seed rate for a pure crop adds one to three MT/ha to the forage dry matter yield and raises the protein content by four to five percentage points. Likewise, spring cereals could be grown mixed with peas for forage production. Seeding berseem clover alone or in mixture with spring cereals could be a good strategy to recover forage yield loss due to winter kill of perennial forages.
- Intercropping barley and peas for grain production at TBARS resulted in a land equivalent ratio of 1.3. This means that the grain production one will get from 130 acres from a pure crop of barley could be obtained from 100 acres with the intercropping of barley with peas. Thirty acres thus saved could be put under cash crop (such as canola) production. This grain mixture would make a better feed for dairy cows than barley alone.

Rotate! Rotate! Rotate!

Rotating crops is a must for improving crop yields over time. The challenges we face without adequate crop rotations are: increased insects-pests and diseases, resistance to pesticides, resistant weeds, poor soil health and declining crop yields /and inability to continue growing an otherwise good crop. For example, in areas east to us in northern Ontario, farmers are reluctant to grow canola because of severe/or uncontrollable swede midge infestations.

Protect your crops from weeds, insect-pests and diseases!

Use preventive and mechanical measures, and recommended herbicides at the right rate and time and in an appropriate manner to control weeds that could not only lower yields and quality, but could also be nuisance in future crops; especially weeds such as wild oats.

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This industry driven program helps ensure that Ontario crop producers are well served by those providing their crop production advice. This article was written by one of those CCAs.