

Maximizing Economic Yields – Considerations for Season 2016

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Variety and Seeding Time: Seeding at the right time with the right crop variety are fundamental to get maximum economic yields. All other factors of production come after that. A late seeded crop will seldom equal in yield with timely seeded crop and poor genetics can't compete with good genetics. Use location specific research, your own experience and experience of your peers in your area to determine what would work best for you. With changing and unpredictable weather patterns it may not be always possible to seed at the optimum time. Resort to practices such as zero or minimum tillage that could save time in spring. Don't step back if the seed of a new variety seems to be costly. Weigh the extra seed cost against the extra yield you may get. Even if you break even in the first year and you can keep your own seed for next years (possible in non GMO varieties), it will still be to your advantage to buy a new variety seed. The advantage could be even more if the new variety has higher straw yield and some other good traits such as lodging resistance, disease or pest resistant that would minimize your cost on pest and disease control.

Adequate Crop Nutrition: High yields from today's crop varieties don't come without high removal of nutrients. There is already a concern for depletion of soil nutrients in Ontario and elsewhere. Gone are the days when good crop yields could be obtained with N, P and K alone. In many areas, deficiencies of other nutrients, such as S, Zn and B are common. Soil test is a pre requisite to know what nutrients need to be supplemented and to what extent. A holistic approach to crop nutrition including contribution from all sources, such as soil, manure, previous crops and crop residues (removal or additions) etc., and targeted crop yields and nutrients removal at those yield levels need to be considered. 4R Nutrient Stewardship (right source, right time, right place and right method) need to be followed for efficient utilization of nutrients, maximizing economic returns and protecting the environment. No technology could be foolproof under all circumstances. For example, seed row or side placement of nutrients in permissible limits is generally useful, but may not help if the nutrients are high/or in excess amounts in the soil. However, the technique is likely to minimize the environmental impact. Another point to be kept in mind is that nutrients in soil test labs are extracted at a particular temperature and with particular extractants (chemicals). Such conditions are not necessarily always available under field conditions, especially in the early springs all over Ontario and during most of the season in colder northwestern Ontario. A starter fertilizer in or along the seed row may therefore be desirable. Precision agriculture (variable rate of nutrients application) may or may not work under rainfed conditions, because there could be factors other than nutrients limiting the crop yields; for example compacted soil blocks, poor water holding capacity in some spots and excess water conditions in other spots, knolls/sandy shallow soils in some spots and deep soils in other spots, more so under undulating topography. Rely on location specific research and a CCA/or a Crop/Soil Specialist in your area. Research conducted at Thunder Bay, during 2006-2015, has shown that it pays to use multiple sources on N; part N from ammonium sulphate to meet S requirements of crops, one-fourth N from ESN and the rest from urea. It helped to increase crop yields/or protein content or both. In grasses, the return for every dollar invested in the

combination was two dollars. The combined application of N from these three sources could obviate the need for split application of N in corn (and other crops). ESN could be applied in seed rows at seeding up to full rates of N without any adverse effect on seedlings or crop yields.

Pest Control: Timely weed, insect-pest and disease control is must for economic optimum crop yields. Read and follow the product labels for control of weeds, insect-pests and diseases. You will know from your experience what weeds, insect-pests and diseases are prevalent in your area. Follow Integrated Pest Management (resistant crop varieties, proper crop rotations, timely seeding at optimum seed rates, proper/balanced crop nutrition, other preventive measures and use of pesticides, if necessary) for control of weeds, insect-pests and diseases and to avoid development of resistance in them to pesticides. Producers in the northwestern Ontario in general and Thunder Bay in particular have been following these measures; with the result that they don't have any challenges of resistant weeds/or pests. Revenge spray of pesticides has to be avoided. In some cases (for example Fusarium Head Blight), you can't wait for the disease to come; fungicides have to be sprayed at the optimum time (75 % of the heads fully emerged to 50 % of the heads having visible anthers). Apart from grain yield gain, fungicides spray for Fusarium Head Blight control assures clean and strong straw and may even add to the straw yield.

Diversify Cropping Systems: Try to diversify your cropping systems with addition of new crops (for example canola and flax in northwestern Ontario), grain legumes (such as peas and edible beans or even chickpea; Ontario is a net importer of pulses-even the seeds have to be imported), cover crops and winter crops. The more you keep the soil covered better it is for protection and buildup of its organic matter, nutrients content and soil health (including earthworms and soil microorganisms). This will ensure sustainable production and yield stability over time.

The Final Words: Don't hesitate to consult a CCA, a local researcher or a Crop/Soil Specialist! Two heads put together could be better than one! Inputs applied in excess/or at the wrong times or in wrong ways will cut down on your Maximum Economic Yields and Returns and you don't want to do that! *Good Luck for the Crop Season 2016 and always!*

Published in Northwest Link, March 2016, Pages 7-8 & Ontario Farmer, March 29, 2016: Page B19!