



Considerations for Maximizing Economic Yields in 2016

by Dr. Tarlok Singh Sahota CCA

Variety and Seeding Time:

Seeding at the right time with the right variety is fundamental for maximum economic yields. A late seeded crop seldom yields as high as a timely seeded crop and poor genetics can't compete with good genetics.

Use location specific research, your own experience and that of peers in your area to determine what works best. With changing and unpredictable weather patterns, it may not always be possible to seed at the optimum time. Consider time saving practices such as zero or minimum tillage.

Don't be put off if a new seed variety seems costly; weigh the extra cost against the extra yield. The advantage may be greater if the new variety has higher straw yield or other beneficial traits such as lodging or disease resistance that minimizes other costs.

Adequate Crop Nutrition:

High yields from today's crops come with high removal of nutrients. There is already a concern for depletion of soil nutrients in Ontario and elsewhere. Focusing on N, P and K alone may not be sufficient. In many areas, deficiencies of other nutrients, such as S, Zn and B are common.

Soil testing is a pre-requisite to know what nutrients need to be supplemented. Keep in mind that nutrients in soil test labs are extracted at a particular temperature and with particular extractants. Such conditions are not necessarily always available under field conditions, especially in the early spring and during most of the season in colder northwestern Ontario.

A holistic approach to crop nutrition includes contribution from all sources, such as soil, manure, previous crops and crop residues (removal or additions). Targeted crop yields and nutrient removal at those yield levels need to be considered. 4R Nutrient Stewardship (right source, right rate, right time and right place) supports the efficient utilization of nutrients, maximizing economic returns and protecting the environment.

No technology is 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. However, the technique is likely to minimize the environmental impact. A starter fertilizer in or along the seed row may be desirable.

Precision agriculture (variable nutrient application rate) may or may not work under rain fed conditions because there could be factors other than

nutrients limiting the crop yields, e.g. compacted soil blocks, poor water holding capacity in some areas with excess water conditions elsewhere, knolls/sandy shallow soils or deep soils, etc.

Research conducted at Thunder Bay, during 2006-2015, has shown that it pays to use multiple sources of 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, protein content or both in cereals and forages. In grasses, the return for every dollar invested in the combination was \$2. The combined application of N from these three sources could reduce the need for split application of N on 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 and disease control are musts for economic crop yields. You know from your experience what weeds, insects and diseases are prevalent in your area. Follow Integrated Pest Management (resistant crop varieties, crop rotations, timely seeding at optimum seed rates, proper/balanced crop nutrition, and use of pesticides) for control of pests and to avoid development of resistance.

Revenge spray of pesticides has to be avoided. In some cases (e.g. 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, Fusarium Head Blight control assures clean and strong straw and may add to the straw yield.

Diversify Cropping Systems:

Consider diversifying your cropping systems with the addition of new crops (e.g. canola and flax in northwestern Ontario), grain legumes (such as peas, edible beans or chickpeas), cover crops and winter crops. The more you keep the soil covered, the better it is for protection and buildup of organic matter, nutrient content and soil health (including earthworms and soil microorganisms).

The Final Word:

Don't hesitate to consult a CCA, a local researcher or a crop/soil specialist! Inputs applied in excess, at the wrong time or in the wrong way will cut down on your maximum economic yields and returns and you don't want to do that! *Good luck for the 2016 crop season and always!*

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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 CCA's.