What should I do to get a Bumper Crop of Winter Wheat?

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Winter wheat is environment friendly, because it suppresses weeds, covers the soil during fall and winter and draws left over nutrients from the soil profile that could otherwise have environmental implications. Its cultivation helps to spread seeding and harvesting operations and offers (crop) rotational advantages. Since it matures earlier than spring wheat/cereals, it can escape dry weather during July-August. Following tips could help raising a bumper crop of winter wheat and maximizing returns from investment on inputs:

Variety and seed rate: Grow CDC Falcon, a Western hard red winter wheat, which is usually more winter hardy than the Ontario winter wheat varieties. Use 400 seeds per m^2, which at 32 grams/1000 kernels weight (average over 2006-2008) translates to 128 kg seed/ha. However, this is if the seed is 100% viable, which often isn't the case. Assuming a germination percentage of 95 %, the seed rate will be 128 x 100 ÷ 95 = 135 kg/ha. Again, all viable seeds may not emerge (come out of the soil) due to shallow or deep planting at some spots in the field. Assuming 10 % of the seeds fail to emerge, the adjusted (optimum) seed rate will be 135 x 100 ÷ 90 = 150 kg/ha or 136 lbs/acre. Please note that 1000 kernel weight can vary from year to year. If you don't know the 1000 kernel weight of your seed lot, go to TBARS with a lump sum seed and we will let you know the 1000 kernel weight.

Seeding date and depth: Optimum window of winter wheat seeding at Thunder Bay is August 25 to September 5. If the seeding is delayed beyond September 5, due to unavoidable reasons, September 15-20 should be the cut off period for winter wheat seeding. In this case, it may be advisable to bump up the seed rate by 10-15 % to compensate for low tillering due to delayed seeding. Grain yield loss with each day's delay in seeding from the optimum time could be 100 kg/ha. Seed 2.5 cm (1 inch) deep into the moist soil.

Fertilizer application: For soil test based phosphorus and potassium application, follow Agronomy Guide for Field Crops (OMAFRA). Application of Nitrogen (N) could be made @ 120 kg N/ha; 20-21 kg N/ha should come from ammonium sulphate and the rest from urea. Application of ammonium sulphate will take care of sulphur (S) requirements of winter wheat. Remember our soils are deficient in S and we don't get enough the acid rain that contains S. Multiyear research at TBARS has indicated that it is beneficial to apply all N at seeding. It was also observed that application of S improved winter survival in winter wheat. It is advisable to go for a pre-seeding nitrate N test. A reasonably good crop of winter wheat can be raised without application of N if the pre-seeding nitrate N test is 40 ppm or above. Wheat is known to remove 40 % of the total N up to tillering stage. Therefore, if you plan to apply N in two splits (fall and spring), apply at least 40 kg N/ha at seeding (half of which should come from ammonium sulphate), and the rest (80 kg N/ha) in early spring.

Weed control: Winter wheat can suppress seasonal weeds very well except the winter annuals, such as Shepherd's Purse and Canada Fleabane, which germinate during the fall, survive during winter and over grow winter wheat in spring. It may be too late to control winter annuals in spring. Shepherd's Purse is the predominant winter annual at Thunder Bay, especially in fields that had been under grass hay cultivation for many years. Weed density in such fields can be as

thick as hairs on a human head (not baldy head though!). Winter annuals generally aren't an issue in fields under cultivation of annual (spring) crops. For identification of the two winter annuals mentioned in this note, click at:
http://www.agf.gov.bc.ca/cropprot/weedguid/shepherd.htm, and
http://www.omafra.gov.on.ca/english/crops/facts/02-067.htm
Spray Refine Extra in the fall for the control of winter annuals. For spring applications, Refine Extra may be tank mixed with MCPA or Buctril M for enhanced control of hardy weeds such as ragweed. Perennial weeds are best controlled by a pre-seeding burn down application of glyphosate (Round Up). *Please note that without adequate weed control, you wouldn't be able to raise a bumper crop of winter wheat even if everything else is done at the optimum time/rate!*

Fortunately, we don't have any serious disease or insect-pests problem in winter wheat. Hence, no control measures have been advised. Avoid seeding winter wheat after winter or spring wheat to get rotational advantages from winter wheat cultivation.

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