

Tips for winter wheat cultivation

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Winter wheat has the potential to yield considerably more than the spring wheat, because of its (i) relatively longer duration and (ii) maturity before the soil moisture declines in late July-August. Some of the other advantages from winter wheat cultivation include:

- It utilizes residual fertilizer nutrients, especially N, from spring/previously seeded crops, which minimizes chances of damage to the environment
- It helps in spreading of labour peaks, farm operations, and cash flows because its seeding and harvesting times are different from those of spring cereals
- It acts as a cover crop during fall and winter, which reduces soil and nutrient losses and improves soil quality
- It smothers weeds and might even eliminate the need for herbicide application provided a burn down application of Round Up is made to control perennial weeds/or preceding crops before seeding and an adequate plant stand is assured
- Winter wheat in rotation with other crops, especially soybean and corn, is reported to improve their yields, and
- With commissioning of a pilot scale flour mill in the area, there is an opportunity for a local market

Three Thunder Bay growers (Fritz Jaspers, Jacob Schep and Tim Janssens) seeded winter wheat last fall on about 200 acres and at the time of writing this note, their crops had a reasonably good growth after surviving a winter that didn't provide adequate snow cover. Here are some tips for those who are interested to diversify their cropping systems with winter wheat.

Selection of field: Fields vacated by forage legumes and grasses may be the best choice for seeding winter wheat. A burn down application of Round Up will however be required to control perennial crops and weeds in such fields before land preparation. Winter wheat after spring barley/other cereals can lead to competition from volunteer barley/cereals.

Selection of varieties: CDC Falcon (hard red), 25R47 (soft red) and AC Ron/Superior (soft white), in descending order of winter hardiness, had given higher grain yield than other varieties in the same group at TBARS. Remember as well that each type has a different end use.

Tillage: Zero tillage should be an option only if there had been sufficient rain in the pre seeding months. Otherwise, resort to normal tillage (ploughing and disking/cultivation before seeding) particularly to overcome volunteer cereals. Shallow tillage (disking/or cultivation without ploughing) can increase the challenge of volunteer cereals.

Seeding: Optimum seeding time window is August 25 to September 5. Seed into the moist soil at a depth of 2.5cm and target a population of 350-450 plants/m² (~15% higher than spring wheat). If the surface soil is dry, increase the seeding depth to 3-5cm. Seeding when maximum afternoon soil temperature is 18°C that provides 4-5 weeks of growth before the maximum soil temperature drops to 10°C in the afternoon and 7°C in the morning is considered ideal in western Canada. This helps to establish healthy vigorous plants before soil freezes to attain maximum cold tolerance and to provide optimum energy reserves for the following spring.

Fertilizer application: P and K application at seeding should be done based on soil tests using the fertilizer recommendation tables in Agronomy Guide for Field Crops (OMAFRA publication 811). Economic optimum rate of N will depend upon targeted yield and grain prices. Generally, 110-120kgN/ha is required by winter wheat. Apply at least 40kgN/ha at seeding and the rest in early spring. It is desirable to use a mix of urea and ammonium sulphate (~80:20 on N basis) than urea alone. At this mix, ammonium sulphate will adequately meet sulphur requirements of winter wheat. If 11-52-0 (safe to drill with the seed) is used as a source of P, reduce the amount of N supplied by this fertilizer from the total rate of N application (from N fertilizers). Like wise, take into account N supply from manure application, if any, while deciding on the rate of application of N fertilizers. In the absence of a manure test, N contribution from manure could be taken up to 10kg/1000 gallons of liquid dairy manure or up to 1kg/tonne of solid dairy manure. If zinc has not been applied in the previous 2-3 years, it may be desirable to apply 14kgzn/ha at seeding through zinc sulphate.

Weed Control: A burn down application of Round Up, well before land preparation, is desirable to control perennial weeds/crops. Seasonal weeds aren't a problem in the fall. Scout for weeds in spring. Stink weed and shepherd's purse are the weeds noticed in early spring and other dicot

weeds such as lamb's quarter appear late in the spring. Lamb's quarter can outgrow and shade the dwarf winter wheat varieties in patchy stands. Annual chickweed doesn't survive the winter, but perennial chickweed can. These weeds will fill gaps in the crop stand, and give an ugly appearance to the field, but can be controlled by spraying Refine Extra/or 2, 4-D. Please check the product labels for the right amount and time of application of herbicides. However, as mentioned earlier, herbicide application isn't required if the crop stand and tillering is adequate. Winter wheat can very well smother weeds.

Insect-pests and diseases: Since winter wheat is a new crop to the area, no serious pest or disease has been noticed so far, especially in the varieties mentioned in this note. However, use treated seed and keep an eye on the crop for disease and insect-pest development.

Crops after wheat: If residual moisture is good enough, direct seeded alfalfa after winter wheat harvest is a very good option. Winter rye for fall or spring pasturing is another option. Alternatively, soybean/or silage corn could be seeded next spring in the fields vacated by winter wheat. However, fall seeded crops would better utilize residual fertilizers from winter wheat and will serve as cover crops protecting the soil.