Minimizing the Risk of Growing Wheat

Tom Jensen, PhD. Agronomy, CCA, P.Ag.
Northern Great Plains Director, International Plant Nutrition Institute (IPNI)
Saskatoon, SK

Introduction

Growing wheat is something that our climate in Saskatchewan is well suited for. Compared to the majority of agricultural areas in the world, we grow wheat with a relatively short growing season, cooler growing conditions, and we usually experience a limitation in moisture, at least some portion of and often through a significant part of a growing season. In spite of these climatic limitations, we have and are able to grow wheat that is of good quality and yields reasonably well. Cropping practices have been developed that minimize the risk of crop failure. These practices will be discussed in context of a Spring-seeded wheat crop and will follow a cropping calendar year that begins in fall after harvest of the previous crop and continues until the harvest of this year's crop. *(The context of this discussion is crop production and not marketing.)*

Fall

Pre-harvest or post-harvest weed control: If hard-to-control perennial weeds are present in a field, fall is an excellent time to use a pre-harvest or post-harvest application of a non-selective herbicide to manage these weeds.

Residue Management: The beginning of a crop is at the harvest of the previous crop. Most importantly, it is how the residue from the previous crop is handled. In context of the tillage system used, properly handling residue will help future field operations, especially planting go smoothly. In most of the wheat growing areas of Saskatchewan, precipitation received is less than what could result in optimum yields. The exception is irrigated fields but even then, timely and adequate but not excessive irrigation applications require proper scheduling. In most rain-fed areas the goal is to chop and spread straw and chaff as evenly as possible over the field to allow the use of minimum or no-till seeding operations to conserve moisture. By keeping residue on the soil surface and minimizing or avoiding tillage, not only is moisture conserved but wind and water erosion are usually controlled.

Accessing Nutrient Levels: The majority of growers who soil sample do so in the fall. This allows them time to determine what the residual nitrogen (N) levels are in a field and determine the status of phosphorous (P), potassium (K), sulfur (S), and any of the other 10 secondary and micronutrients crops need to grow and be monitored.

Consider Fall Fertilizer Applications: Make use of fall N fertilizer applications to capitalize on normally lower fall compared to spring prices, as well as spreading the labor and work load out. It may also be a good time to pre-purchase, or purchase and store P, K, S and other nutrient fertilizers.

Winter

Nutrient Management Plans: Look over the soil-test results from the fall soil sampling and develop a nutrient plan for each field, taking into consideration field history, existing moisture conditions and what the average growing season precipitation is for your area. One strategy growers use is to manage nutrients for a better than average crop so if conditions are better than average they can capture the improved yield potential. If dry conditions are experienced excess nutrients will remain in the soil for the next year's crop and fertilizer applications can then be reduced.

Spring

Plant Early: Plant towards the beginning of the planting window suitable for your area. Late planting usually results in reduced yields compared to earlier planting.

Use an Effective Planting System: Use a planting system that gives your wheat crop the best chance of germinating and emerging rapidly and with good vigor. This includes such factors as the proper depth, adequate packing, adequate but not excessive starter fertilizer, enough separation of the seed from the majority of N fertilizer so as to avoid ammonia toxicity, adequate seed rate to obtain the desired optimum plant stand, and use of seed treatments to control and reduce the effects of fungal or insect pests as required.

Scout Fields Early: It is effective to begin checking fields as soon as the crop begins to emerge for weeds and potential insect pests. Choose appropriate pesticides and conduct applications on the early-side to maximize weed and pest control and give your crop the best chance to grow successfully.

Summer

Continue to Scout Fields Regularly: The earlier problem growth areas are detected the sooner a possible corrective measure can be used effectively. This is especially applicable to fungal diseases that may or may not develop depending on weather conditions. Also if patches of a specific nutrient deficiency are found, some top-dressing or foliar nutrient applications may be possible. However, some nutrients are not applied very successfully as an in-crop operation but detection will allow prevention of the same problem in future years.

In the late summer, assess the potential to use a pre-harvest herbicide (e.g. glyphosate) application to facilitate even ripening and or control perennial weed problems.

Conclusion

A successful wheat crop is not the result of one activity. It is the culmination of a series of well-planned and executed operations. Some of the individual actions may seem of little consequence but if not done well can result in decreased crop yields and lower economic returns.