



## *Planting wheat earlier using alternative rotations*

One of the best ways for growers to improve their wheat yields is to plant earlier in the fall. Generally, there is at least one bushel of yield is lost for each day wheat planting is delayed beyond the optimum planting period. For this reason, growers may want to consider planting some of their wheat following less traditional crop to take advantage of the crop's flexible and adaptable nature.

Soybeans and dry beans continue to be the best crops to precede wheat provided they can be harvested early enough to allow a timely planting of wheat. However, other rotations can work well as they offer an opportunity for timelier planting of wheat. Examples include fallow ground, sugarbeets, oats, alfalfa, and others.

When contemplating alternative rotations, growers would do well to:

- take diseases seriously as most limitations to successful crop rotations are due to plant pathogens;
- insure that there are no herbicide residues that can damage wheat seeding;
- remember to decrease seeding rate when planting early (use approximately 1.2 to 1.4 million seeds per acre when seeding near the Hessian fly-free-date).

The following table lists a dozen crops that might precede wheat, suggests their relative suitability, and comments on their use.

<b><i>Management considerations for seeding wheat following various rotational crops</i></b>	
<b>Soybean &amp; Dry Bean</b>	<ul style="list-style-type: none"> <li>- excellent rotation if harvested early;</li> <li>- lends itself to minimum tillage and no-till systems where residue is evenly distributed;</li> <li>- delayed bean harvest can lead to late wheat seeding (loss of wheat yield = 1.1 bu/ac/day for each day planting is delayed beyond optimum seeding date);</li> </ul>
<b>Prevented - planting &amp; fallow</b>	<ul style="list-style-type: none"> <li>- excellent rotation</li> <li>- fall applied N is likely unnecessary as N mineralized throughout summer will be available;</li> <li>- limited MI experience suggests that where wheat precedes the fallow period, take-all disease could be a constraint, especially for poorly drained fields; avoid early planting and consider using seed placed potash fertilizer.</li> </ul>
<b>Corn silage &amp; Corn grain</b>	<ul style="list-style-type: none"> <li>- relatively good rotation if confident Fusarium head scab can be managed;</li> <li>- elevated risk of Fusarium head which can potentially double with this rotation;</li> <li>- to minimize scab risk, use relatively scab resistant variety and commit to using Prosaro or Caramba fungicide at early flowering (moldboard plowing to bury all corn residue would alleviate much of the additional risk).</li> </ul>

<b>Grass hay &amp; CRP acres</b>	<ul style="list-style-type: none"> <li>- relatively poor rotation as there is a greater risk of soil insect damage and root diseases, including take-all (avoid early planting and consider using seed placed potash fertilizer);</li> <li>- use an aggressive herbicide program for burn-down and in-season perennial grasses;</li> <li>- elevated risk of Fusarium head scab (to minimize scab risk, use a relatively scab resistant variety and use Prosaro or Caramba fungicide at early flowering)</li> </ul>
<b>Alfalfa</b>	<ul style="list-style-type: none"> <li>-relatively good rotation; growers have had success under both no-till and conventional tillage;</li> <li>- use an aggressive herbicide program for burn-down and for suppressing various perennial weeds throughout season;</li> <li>-- elevated risk of fusarium head scab (to minimize scab risk, use a relatively scab resistant variety and use Prosaro or Caramba fungicide at early flowering.</li> </ul>
<b>Wheat &amp; Barley</b>	<ul style="list-style-type: none"> <li>- poor rotation, budget for a 10 to 50 percent yield reduction;</li> <li>- greater risk of take-all and other soil- borne root and crown disease;</li> <li>- greater risk of leaf diseases;</li> <li>- moderately greater risk of Fusarium head scab;</li> <li>- greater risk of barley yellow dwarf mosaic virus (insure that volunteer wheat/barley is destroyed so that it does not provide a bridge for virus-transmitting aphids; use varieties that have some resistance to barley yellow dwarf mosaic virus).</li> </ul>
<b>Oats</b>	<ul style="list-style-type: none"> <li>- relatively good rotation;</li> <li>- destroy volunteer oats at seeding to avoid a bridge for virus-transmitting aphids;</li> <li>- use wheat varieties that have some resistance to barley yellow dwarf mosaic virus;.</li> <li>- volunteer oats that emerge with wheat will eventually winter kill.</li> </ul>
<b>Sugar-beets</b>	<ul style="list-style-type: none"> <li>- relatively good rotation;</li> <li>- provides plenty of time to seed wheat during September;</li> <li>- relatively aggressive tillage may be necessary where harvested under wet conditions;</li> <li>- late seeded wheat may have greater risk of winter injury when following sugar beets.</li> </ul>
<b>Potatoes</b>	<ul style="list-style-type: none"> <li>- relatively good rotation;</li> <li>- there are diseases, including Fusarium spp, that both crops have in common. These diseases are unlikely to cause significant quality or yield reductions assuming there is not just a two crop rotation.</li> </ul>

References:

- correspondence with Drs. William Kirk and Martin Chilvers, Department of Plant, Soil and Microbial Sciences, Michigan State University;
- *Agronomy Guide for Field Crops*, publication 811, Ontario Ministry of Agriculture;
- *Compendium of Wheat Diseases and Pests, Third Edition*, American Phytopathological Society.

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