

## **Getting the most from your POST**

### **Timely application, diversified chemistry are keys to early season weed control**

By Jerome Lensing, CCA

Weeds can really waste your crop.

A moderate infestation of weeds will cut your corn yields by three bushels per acre, per day — for every day that you let the weeds grow beyond 4 inches.

University of Minnesota studies from 2004 to 2006 found that after weeds reached 4 inches, a spraying delay of 4 to 7 days resulted in a yield loss of 12 bushels per acre. An additional 7-day delay resulted in an average yield loss of 27 bushels per acre.

Weeds start off the season slowly, but once they top 2 inches they grow very fast, competing effectively with young corn plants for water and nutrients. It's amazing how fast weeds grow and how much water they can take out of the soil. Common ragweed, for example, consumes 1.4 times as much nitrogen (N) as corn and 150 percent more water, according to a 2006 report by the University of Nebraska. The same goes for lambsquarters, a weed that consumes 1.6 times as much N as corn and 60 percent more water.

Experiments at the University of Wisconsin showed that delaying glyphosate application until weeds were a foot tall dramatically reduced the amount of N available for corn plants. In fact, the economic optimum N rate rose by about 100 lbs. per acre. That was under moderate weed densities of less than 100 weeds per square foot.

But the good news is that yields don't suffer if you control weeds at the right time. The keys to good weed management? Regular scouting, timely application, diversified chemistry and close attention to details.

#### **Do you go 'bare naked?'**

To reduce the risk of poorly-timed postemergence herbicide applications, I recommend starting the season with a preemergence herbicide — especially on weedy fields or on newly-rented ground where weed density data is lacking.

Growers may be reluctant to apply a preemergence because planting could be delayed or activating rains might not come in time. However, for consistent performance and good economic returns, U of M weed scientist Jeff Gunsolus recommends a one-half-rate application of preemergence grass and small-seeded broadleaf herbicide, followed by a postemergence herbicide application when corn is in the three- to four-leaf growth stage.

The optimum window for spraying can be as short as 7 to 10 days. "Consider the investment in the preemergence herbicide as insurance in case you can't get into your

fields in a timely manner,” Gunsolus says. “In other words, the preemergence herbicide is buying you time.”

In addition, farmers often find that a preemergence application improves the effectiveness of postemergence glyphosate. Weeds are more uniform in size when they are sprayed, and you obtain better contact of the herbicide on the plant surface.

Here are a few more suggestions for early-season weed control.

**Scout and identify weeds.** Start scouting ten days after planting — or even earlier if you didn’t apply a preemergence herbicide. Do a thorough job — don’t assume that weeds coming up in the front part of the field are the same as what’s coming up over the hill. Look first at your weediest fields from last season, Gunsolus suggests, as well as any newly-rented fields.

While you’re scouting for weeds, evaluate your stands, too. If you see variability, try to determine the reason. Is it due to insects, disease, cloddy seedbed, too much residue?

**Treat early.** To prevent yield losses in corn, weeds should be controlled within two to five weeks after they emerge. Soybeans can tolerate four to six weeks of weed competition. But dry weather or high weed densities shorten this tolerance period.

**Identify herbicide-resistant weeds.** There are now 14 different types of herbicide-resistant weeds in Minnesota. Weeds resistant to ALS (acetolactate synthase) chemistry include kochia, common cocklebur, waterhemp, wild oat, and green, yellow and giant foxtail. The state also has glyphosate-resistant populations of giant ragweed and common waterhemp. Giant ragweed, common ragweed, lambsquarters, and waterhemp give Minnesota growers the most problems, Gunsolus says.

**Rotate herbicide modes of action.** Diversification is essential for good weed management. Don’t do more than two consecutive applications of herbicides with the same mode of action to control the same weed, unless you also use other control practices. For example, you may need to combine glyphosate with tank mix partners such as a plant growth regulator or pigment inhibitor.

**Apply herbicides safely.** Follow the label and take care to accurately determine the stage of crop development or height. For corn, the most accurate staging method is to count only the leaves that are fully emerged from the whorl and have a visible leaf collar. Begin with the lowest leaf that has a rounded tip.

**Pay attention to details.** Every year I see expensive spraying blunders. Last season, for instance, a grower I know wiped out 200-plus acres of LibertyLink® corn. When he mixed the glufosinate, he noticed that the color was off. But he was in a hurry, so he went ahead and sprayed anyway, without checking it out. Turned out there was glyphosate left in the shuttle.

In another mishap last season, the person who did the spraying neglected to check with the person who did the planting. As a result, a quarter section of conventional corn was mistakenly sprayed with glyphosate.

Before you spray a field, make sure that you have the right herbicide or herbicide combination for the weeds you need to control. And make sure that the seed product in the field can be sprayed with that herbicide or herbicide combination. The wrong herbicide on the wrong seed product can be very costly!

**Diagnose failures.** Scout fields after application to detect weed escapes or shifts. If weeds survived, try to determine why. Was the failure caused by misapplication, unfavorable weather, improper timing, late weed flushes? If the same herbicide failed in the same area of the field in previous years, you may have resistant weeds.

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*Information and links to certified crop advisers in Minnesota can be found on the Minnesota Crop Production Retailers website, <http://www.mcpr-cca.org> – click on the MN CCA website link at bottom.*

#### Key Points

- Expect significant yield losses if you allow weeds to grow beyond about 4 inches.
- Good weed control requires regular scouting, timely herbicide application, diversified chemistry and careful attention to details.
- Preemergence herbicide application reduces the risk of yield losses from delayed postemergence application.

<b>Effect of Weeds on Corn N Need</b>		
<b>Weed Control</b>	<b>Economic Optimum N Rate (EONR) lbs/acre*</b>	
	<b>2006</b>	<b>2007</b>
<b>Weed-free</b>	96	39
<b>4" removal</b>	97	79
<b>12" removal</b>	200	220
<b>Weedy</b>	200	193

*Source: Boerboom et al., University of Wisconsin 2008*

\*EONR is the point where the last pound of N returns a yield large enough to pay for additional N.

Rates based on a 0.15 ratio of N price: corn price.

<b>Relative Use of Nutrients and Water by Weeds</b>			
<b>Plant</b>	<b>N*</b>	<b>P*</b>	<b>Water**</b>
<b>Corn</b>	10.1 lbs =1X	2.2 lbs =1X	43.6 gal
<b>Lambsquarters</b>	1.6X	1.5X	73 gal
<b>Common Ragweed</b>	1.4X	1.3X	109.4 gal
<b>Redroot Pigweed</b>	1.1X	1.3X	36.6 gal

*Source: Hoeft et al., University of Nebraska 2006*

\*Ratio of nutrients consumed by weeds to corn

\*\*Gallons of water needed to produce 1 lb. of dry matter

<b>Corn Yield Loss from Weeds</b>	
<b>Weed height when sprayed with glyphosate</b>	<b>Avg. corn yield loss vs. weed-free control</b>
2"	7%
4"	6%
6"	7%
9"	9%
12"	21%

*Source: 2005 Ohio State University summary of 35 university trials in IA, MI, IN, IL, MO, KY, OH, TN, WI*