

UNIVERSITY OF KENTUCKY WHEAT SCIENCE NEWS

Research & Education Center,
Princeton, KY 42445

Volume 8, Issue 5 Nov. 2004

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OUTLOOK FOR ANNUAL RYEGRASS CONTROL IN WHEAT

James R. Martin - Extension Weed Scientist

This fall may be more unique compared with previous seasons with respect to managing annual ryegrass in wheat. Emergence of ryegrass was delayed because of dry conditions in September and early October, yet the above average temperatures plus extremely wet weather in late October and early November provided favorable conditions for emergence and growth of this weed.

The few fields that were planted early this fall may now be at the peak time to treat, while the late planted fields may require more time. The only way to know for sure is to monitor fields for emergence of ryegrass. As a general rule 4 to 6 weeks after planting is an ideal time to spray for ryegrass, however, this window may be slightly narrower depending on when wheat was planted and weather conditions during the next several days. The emergence of ryegrass may be more prolonged and sporadic in fields that have a long history of ryegrass compared to newly infested areas.

Hoelon (diclofop-methyl) at 2 pt/A has traditionally been used by wheat growers for controlling ryegrass having up to 4 leaves. The labeled rate for ryegrass ranges from 1 1/3 to 2 2/3 pt/A and depends on weed size. The fact that Hoelon provides some soil-residual activity, particularly at the high rate, can help extend control after application.

Osprey (mesosulfuron-methyl) is a new postemergence herbicide that was registered this past spring for managing annual ryegrass, as well as annual bluegrass and certain other grasses in wheat. It is recommended at the rate of 4.75 oz/A for controlling ryegrass from 1 leaf to 2 tillers. Data in Table 1 shows that level of ryegrass control with Osprey is comparable to that observed with Hoelon. Unlike Hoelon, Osprey requires an additive to achieve optimum control of annual ryegrass. A methylated seed oil (MSO) at a rate of 1.5 pt/A tends to be the preferred

additive with Osprey. However, a nonionic surfactant (80% active nonionic surfactant) at 2 pt / 100 gal of spray solution can be substituted for MSO when Osprey is used with a tank mix partner that is not adapted to being used with methylated seed oil. The use of an ammonium nitrogen fertilizer is recommended with MSO during adverse conditions, but is required in all instances with nonionic surfactant. The rate for 28% liquid nitrogen is 1 to 2 qt/A and whereas the rate for ammonium sulfate is 1.5 to 3 lb/A.

Results of a study last year showed that ryegrass control with Osprey was essentially equal when Destiny (an methylated seed oil), Hasten (an ethylated seed oil), or nonionic surfactant were used alone (see table 2). The addition of liquid nitrogen tended to improve ryegrass control when added with Destiny or Hasten but in this particular study it did not enhance control with the non-ionic surfactant.

Osprey is an ASL-inhibitor, whereas, Hoelon is an ACC-ase inhibitor. This difference in chemistry can be important where there is mounting evidence of problems in controlling ryegrass with Hoelon. Research in parts of the Southeast show that Osprey is very effective in controlling Hoelon-resistant biotypes of annual ryegrass.

Another major benefit that Osprey offers over Hoelon is flexibility in tank mixing with certain other herbicides for controlling a broad spectrum of weeds including ryegrass, common chickweed, and henbit in a single pass. Data in Table 3 show that Harmony Extra reduced ryegrass control by only 2% when combined with Osprey, compared with an average of 21% reduction when mixed with Hoelon. The Osprey label allows for tank mixing with Harmony Extra, yet sequential sprays of either 5 days before or after Osprey application may be needed when using 2,4-D, Clarity, or other herbicides that are not approved for mixing with Osprey.

The overall outlook on managing annual ryegrass in wheat looks good this season, particularly with the favorable weather this fall and with the introduction of Osprey. Growers should be aware that repeated use of Osprey may lead to populations of ALS-resistant biotypes. The fact that ALS-resistant ryegrass has been documented in Mississippi makes this a real possibility.

Table 1. RYEGRASS CONTROL WITH HOELON AND OSPREY (UKREC 2000- 2004)				
<u>PRODUCT</u>		<u>RYEGRASS CONTROL (%)¹</u>		
		<u>2-4 Leaf</u>	<u>1-3 Tillers</u>	<u>Fully Tilled</u>
HOELON	1.33 pt/A	83 - 100	77 - 87	----
	2 pt/A	83 - 100	85 - 99	----
	2.67 pt/A	87 - 100	90 - 100	80 - 83
OSPREY	4.75oz/A	85 - 93	90-100	----

¹ These data represent the range in ryegrass control across several field trials during the last five seasons. Not all treatments were included as direct comparisons in all studies. Also, control with Osprey was as low as 70% when nitrogen was not included as an additive with MSO.

Table 2. EFFECT OF ADDITIVES ON RYEGRASS CONTROL WITH OSPREY (UKREC 2003)		
Herbicide + Additive ¹	Ryegrass Control (%)	
	Without Liquid N	With 28% Liquid N at 2 qt/A
Osprey 4.5 oz/A + Destiny 1.5 pt/A	70	87
Osprey 4.5 oz/A + Hasten 1.5 pt/A	77	85
Osprey 4.5 oz/A + Nonionic Surfactant 0.25%	70	70
LSD = 12		
¹ Destiny is a methylated seed oil. Hasten is an ethylated seed oil.		

Table 3. EFFECT OF HARMONY EXTRA AT 0.5 OZ/A ON ANTAGONISM TO RYEGRASS CONTROL WITH HOELON & OSPREY (UKREC 2002 & 2003)							
	Ryegrass Control (%)						Average Change
	2002		2003—A		2003—B		
	-	+ Harmony Extra	-	+ Harmony Extra	-	+ Harmony Extra	
Hoelon 2 pt/A	95	45	96	98	92	77	-21
Osprey 4.75 oz/A	90	80	92	93	93	95	-2
LSD	26		10		14		

A nonionic surfactant was included as an additive in the tank mixture with Hoelon in all studies. The additives used with Osprey included a nonionic surfactant plus liquid N in 2002 and Destiny plus liquid N in both 2003 studies.

LATE WINTER WHEAT PLANTING DATE EFFECTS ON YIELD AND PLANT GROWTH

Jim Herbek and Chad Lee
Grain Crops Extension Specialists

The recent wet weather in October has delayed seeding of the 2005 wheat crop in Kentucky. The Kentucky Agricultural Statistics Service reported that as of October 31 only 43% of the intended wheat acreage had been planted (which is 31% behind the five-year average of 74%). This implies that 57% of the intended wheat acreage was yet to be planted after November 1. Further planting delays may even result in some of the intended wheat acreage not to be planted.

Many producers are questioning how much of a yield reduction is likely to occur from later planting dates. The optimal planting dates for winter wheat are between October 10th and 30th for most of Kentucky. Thus, wheat planted after November 1st will very likely result in a yield reduction and grain yields will usually decline progressively with increased planting delays. However, the amount of yield reduction can be quite variable and is determined by wheat plant growth and development that occurs during the remaining fall and early winter growing period. Late planted wheat growth and development will be highly dependent on the remaining fall and early winter weather (particularly temperature). A warm, mild, extended fall growing season will favor plant development, whereas a cooler, remaining fall (which is usually the norm) will hinder plant development.

Late-planted wheat misses much of the critical fall growing period for tiller development, generally incurs more winter damage, is more prone to heaving, and matures later than wheat planted at the recommended time. Fall growth is critical for the development of an adequate number of tillers. Tillers developed in the fall are essential to producing high yields. Since late plantings of wheat will usually not get as much fall growth; you may have to compensate for the lack of fall growth with nitrogen application management (See section on nitrogen management).

Wheat planting date research indicates that planting dates in early November reduce yields on the average by 10-20%. Planting dates in mid to late November reduce yields on the average by 35-45%. Because of the variability in yield reduction that can occur, due to the plant growth (particularly tillering) that actually occurs in the remaining fall growing season prior to winter dormancy, yield losses can be more or less than the average losses indicated for the later planting dates.

Later planted wheat will have a delay in maturity and could result in a delay in planting double-crop soybeans. However, there is not a direct day-to-day correlation between planting date and maturity (i.e. a 20 day delay in planting date will not result in a 20 day delay in maturity). As a general rule, a five-day difference in planting date results in a one-day difference in maturity (i.e. a 20 day difference in planting date would likely result in a four-day difference in maturity).

A general recommendation for late planting dates is that seeding rates should be increased by two to three seeds per sq. ft. (one to two seeds per linear foot of row) for each two-week period delay past October 30th. The theory behind this recommendation is that the increased seeding rate will help offset the lack of fall tiller production associated with late plantings.

NITROGEN NEEDED ON LATE PLANTED WHEAT

Lloyd Murdock
Extension Soils Specialist

Late planted wheat will probably be reduced in yield due to a reduced number of early tillers which are bearers of strong grain producing heads. It is best to have these tillers developed prior to the onset of cold winter temperatures. Late planted wheat reduces the time and the chances of this happening. So nitrogen should be available to the plant in sufficient quantities to encourage as much and as rapid growth as possible. This increases the yield potential and the chance of winter survival.

Wheat requires only a small amount of nitrogen at this stage of growth to fulfill this requirement. Nitrogen at the rate of 20 to 40 lb/ac after corn is sufficient. No nitrogen would probably be required if the wheat is planted after soybeans.

The stand will need to be evaluated again in early February concerning tiller and plant development. Depending on the tillering to that point, nitrogen applications may need to be adjusted to stimulate further earlier tillering as the plant begins late winter "green-up". This will be covered in a later newsletter.

UK WHEAT MEETING **January 11, 2005 UKREC—Princeton**

- 9:00 Your Check Off Dollars at Work—Todd Barlow
- 9:20 Overview of 2003-04 Wheat Crop—Chad Lee
- 9:50 Folicur Section 18—Past Year and Next Year—Don Hershman

BREAK

- 10:00 Genetics in Relation to Fusarium Head Blight—Dave Van Sanford
- 10:30 Tillage and Residue Relationship with Fusarium Head Blight—Don Hershman
- 11:00 Fusarium Head Blight Prediction Model—Erick DeWolfe

LUNCH

- 1:00 DON Measurement Accuracy—A.J. Stewart
- 1:20 Potential for Wheat in Ethanol Production—To Be Announced
- 1:40 The World Wheat Situation and Outlook—Steve Riggins
- 2:10 Maintaining High Quality Wheat in Summer Storage—Sam McNeill and Doug Johnson

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