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UNIVERSITY OF KENTUCKY WHEAT SCIENCE NEWS

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Rain and Nitrogen Losses

Lloyd Murdock - Extension Soils Specialist

The amount of rain that we received in February was not excessive in much of Kentucky, but it was a wet month. At Princeton, there was 5.1 inches in February and 1.4 inches in the first 13 days of March. In some parts of Kentucky there was considerably more rain than this. There are fields in the Purchase area of Kentucky that are quite yellow due to many days of saturated soils and nitrogen losses.

Some nitrogen was applied on the fields in the latter part of January and in some parts of Kentucky 6 to 9 inches of rain has fallen since that time.

If the nitrogen applied in January was the first part of a split application and it was about 1/3 of the total N to be applied in the spring, there is probably no reason to change the amount of nitrogen planned to the wheat crop in the spring. However, if all of the nitrogen for the winter/spring application was added in January, the nitrogen may limit crop yields due to nitrogen loss.

For each day that the soil is saturated with water, some nitrogen is lost. In 1997, about 10 inches of rain fell over a period of about 25 days in late February and early March. About 1/2 of the nitrogen applied in early February was lost. This is more rain than fell this year so the soils have probably not been saturated as long as 1997, but some nitrogen has been lost this year in the wetter parts of Kentucky. If the nitrogen applied in January was for a single application we certainly would expect some of it to be lost. It will be a guess as to how much was lost. I would guess about 1/3.

Therefore, for a split application this should present no problem. However, for a single application this could be significant depending on how much nitrogen was applied. If application rates were 90 lbs/ac or lower, the yield may be limited due to nitrogen availability.

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Ryegrass Control in Wheat

James R. Martin, Extension Weed Scientist

Very few, if any, brief warm periods occurred after late November. Once cold weather arrived, it seemed to stay. This made it difficult to squeeze in any late-season fall applications for controlling for ryegrass in wheat. Perhaps the good news from the cold temperatures is that ryegrass growth is less than it would have been had the temperatures been warm. In some instances the cold temperatures killed ryegrass, particularly plants that emerged late in the fall or from shallow depths.

Fields that have a history of Italian ryegrass may need some attention if they have not been checked recently. Controlling ryegrass can be a challenge if plants grow beyond the recommended stage for postemergence herbicide applications.

Our first experience with timing of postemergence herbicides was in a no-till wheat study that we conducted several years ago. In cases where a burndown was not used, we observed about 75% ryegrass control with fall applications of Hoelon. Granted this is not great, but it was better than the 35% that was observed with some of the spring postemergence treatments.

The results of a ryegrass control last year's study in conventional tillage wheat was better than our previous experience in no-tillage wheat. We observed 87 and 95% ryegrass control with Hoelon applied in November at rates of 1.33 and 2.66 pt/A, respectively. Delaying the Hoelon application until late February resulted in slightly less control (i.e. 83 and 90% for 1.33 and 2.66 pt/A, respectively). Postemergence treatments of Achieve at 7 or 9.5 oz/A provided to 67 to 70% ryegrass control, regardless whether it was applied in November or February.

The main difference in these two studies was the amount of ryegrass growth at the time of application. In the no-tillage situation, ryegrass plants were well established before going into the winter months; consequently, the fall treatments did not provide exceptional control, but it was better than the control from the spring treatments. The fact that ryegrass was not as well established in the conventional tillage study provides a wider window of opportunities for achieving successful control.

The decision on whether on not to spray for ryegrass control will be difficult, particularly this late into the season. The investment will be high (approximately $25/A for herbicide and application costs) and the benefit may be minimal in cases where ryegrass is well established (i.e. plants with several tillers). Hoelon is the preferred herbicide option at this point in the season. Applying it at the high rate of 2.66 pt/A should control ryegrass plants with two tillers. Control will be variable for plants that exceed the 2-tiller stage of growth.

Burndown Control of Ryegrass In No-Tillage Corn Pays Dividends For Future Wheat Crops

James R. Martin, Extension Weed Scientist

Achieving good burndown control of ryegrass not only improves the chance of increasing corn yield, but may also may help in limit further increase or spread of this weed from seed produced form escaped plants (Table 1). This could be good news for growers who plant wheat into no-till corn fields that have a history of ryegrass.

An attempt was made to evaluate the long-term benefits of burndown control of ryegrass in no-till corn. We used visual ratings of the amount of ryegrass that was re-infested with seed produced from plants that escaped burndown herbicide treatments. Plots that were sprayed last spring with Gramoxone Extra at 1.5 pt/A or Gramoxone Extra at 1.5 pt/A plus Atrazine at 3 pt/A provided only 33 to 57 % burndown control of ryegrass. Ryegrass

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plants that escaped these treatments produced enough seed that eventually re-infested about 70 to 78 % of the plot area.

Applying sequential sprays of Gramoxone Extra at 1.5 pt/A (early preplant followed by preemergence at planting with Atrazine at 3 pt/A), or a single application of Roundup Ultra at 3pt/A plus Atrazine at 3 pt/A resulted in at least 90% control in no-till corn last season. The amount of ryegrass that was observed in plots treated last season with the sequential treatments or single spray of Roundup was 22 and 5%, respectively. While it is unlikely that achieving complete burndown control of ryegrass in a single season in no-till corn will eliminate the problem for the following wheat crop, it should limit the infestation level and further spread of this weed.

Table 1. Burndown Control of Ryegrass and No-Till Corn Yield and Re-Infestation of Ryegrass

Herbicide[1]		Burndown Control [2] (%)	Corn Yield (Bu/A)	Re-Infestation [3] (% groundcover)
Gramoxone Extra 1.5 PT/A	(Pre)	33	61	78
Gramoxone Extra 1.5 PT/A Atrazine 3 Pt/A	(Pre) (Pre)	57	122	70
Gramoxone Extra 1.5 PT/A Gramoxone Extra 1.5 PT/A Atrazine 3 Pt/A	(Epp) (Pre) (Pre)	93	146	15
Roundup Ultra 3 PT/A Atrazine 3 Pt/A	(Pre) (Pre)	86	155	5

1 Nonionic Surfactant was included with Gramoxone Extra treatments. Epp = early preplant at approximately 2 weeks before planting. Pre = Preemergence at planting.
2 Burndown ratings made on 6/8/00.
3 Re-infestation ratings were made on 2/28/01 and were based on percent of groundcover occupied by ryegrass.

Grain Storage Integrated Pest Management Meetings this Spring

Sam McNeill, Extension Agricultural Engineer
Doug Johnson, Extension Entomologist

The University of Kentucky and Purdue University will sponsor the first meeting on: Thursday March 22. 2001, at the Henderson Community College (Henderson, KY) from 9:00AM– 3:00PM.

The second meeting will be sponsored by the combined efforts of the Universities of Kentucky and Tennessee. This meeting will be held on: Thursday March 29, 2001, at the Warren Co. (Bowling Green, KY) Extension office, from 9:00AM– 3:00PM.

These meetings have been approved by the Division of Pesticides, KDA for continuing education credit in the following categories.

1c Agricultural Fumigation
4 Seed Treatment
10 Demonstration and Research Pest Control
12 Pesticide Sales Agent
14 Pest Control Consultant