UNIVERSITY OF KENTUCKY
COLLEGE OF AGRICULTURE
Lexington, Kentucky 40546

COOPERATIVE EXTENSION SERVICE

Volume 4, Issue 3
April 11, 2000

University of Kentucky Wheat Science News

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A SUMMARY OF KENTUCKY WHEAT PRODUCTION CONTEST, 1987-1999

Morris J. Bitzer and James H. Herbek
Extension Grain Crop Specialists

A wheat production contest was initiated in Kentucky in 1987 and has continued now for 13 years. The objectives of the contest are: (1) to emphasize those production practices necessary for efficient and profitable wheat production, (2) to encourage producers to strive for higher efficient yields, (3) to determine which combination of practices produced the highest yields, and (4) to give recognition to those producers who achieve superior yields. Any producer in Kentucky is eligible to enter this contest through their local county extension agricultural agent's office. A record of all production practices used on their wheat must be submitted with the yield certification form. A minimum of a three acres must be harvested in a continuous area. All yields must be certified by either the county agricultural agent or someone designated by that agent. The entries with the highest yields are recognized at the annual meeting of the Kentucky Small Grain Growers Association.

Some of the data requested on the Agronomic Form to be completed by each contestant is as follows: variety grown, date planted, seeding rate (pounds per acre), row width, fertilizer used at planting, nitrogen applied in the spring, pesticides used including herbicides, insecticides and fungicides. Starting in 1997, a no-till division was added to the contest. About 10 entries are received each year in the no-till division. The number of entries

received each year has ranged from a low of 23 in 1987 and a high of 94 in 1992 and 88 in 1999. The average number of entries was 62.

The yields of the top 5 entries each year averaged about 60 bushels above the state average in high yielding years, whereas; in low yielding years, they averaged about 40 bushels above the state average. The top yields have been level since 1988. The highest yield, 122 bushels per acre, occurred in 1988 and the second highest yield, 116 bushels per acre was in 1999. This was probably the most shocking of all the data. It looks like we have reached a plateau for the highest yields possible in Kentucky, but at least when conditions are right, we can obtain yields in excess of 110 bushels per acre. This may be the top limit for wheat in Kentucky.

In accessing which varieties were used each year, on the average the variety that is among the winners most remains about 4 years. On two separate occasions, a single variety showed up for just one year and then quickly disappeared. In looking at those varieties that were most entered each year, a variety is used about 3 years and then starts declining from use very rapidly. One variety, Pioneer 2552, has now been the most entered variety over the past 5 years. The major varieties over the years have been: 1) Saluda, 2) Pioneer 2548, 3) Clark, 4) FFR555, and 5) Pioneer 2552.

The average date of seeding has been pretty consistent throughout the contest with most of the winning entries being seeded in the period which is recommended (Oct. 10 to Oct. 20). The row width of the drills used from 1987 to 1990 was predominately 7 inch rows. In 1991, the predominate row width was 7.0 and 7.5 inch rows but a few producers were using drills with 6 inch rows. Since 1993, many of the top producers are using 6 inch rows but row width does not appear to be real important for obtaining top yields. In 1999, the predominant row width was 7.5 inches. The average seeding rate per acre was 112 pounds in 1987-90, 126 pounds from 1991-94 and 131 pounds from 1995-1999. Most producers are now using seed size in determining their seeding rate and are seeding at least 35 seeds per square foot. Most of the producers with the highest yields are splitting their nitrogen rates in the spring where many of the lower yielding entries are not using a spring split application. The average amount of total nitrogen being used has increase from an average of 100 units of nitrogen per acre to about 130 pounds per acre. The bottom 5 yields averaged using only 109 pounds per acre in 1999. The other practice that has probably changed the most over the years is the use of pesticides. In 1987, less than 50% of the producers were using herbicides and fungicides and less than 10% were using an insecticide. Since 1992, most of the higher yielding entries were using all 3 pesticides. Many of the lower yielding entries were not using any pesticide or at the most a herbicide.

In summary, it appears from the data that has been accumulated that those producers that are obtaining the higher yields are adopting the newer practices and are using more of the tools that are available to them to obtain the highest yields. Although this contest does not include an economic analysis of the production practices used. There have only been a few times when a producer that only used limited inputs obtained one of the higher yields. When prices for wheat are higher than they are now, a producer has a tendency to use some of these practices as insurance and may not always need as much as they are using.

POWDERY MILDEW CONTROL AND FUNGICIDE OPTIONS

Don Hershman
Extension Plant Pathologist

I have received numerous reports from throughout the state that powdery mildew is becoming a serious problem in some fields. Powdery mildew is always active this time of year, but reports suggest that the activity of this disease is greater than usual. This increased activity is probably linked to the unseasonably mild fall, winter and early spring (thus far) conditions.

I wish the news was good for dealing with powdery mildew, but it is not. Of course, the best way to manage this disease would have been to plant a resistant or moderately resistant variety last fall. Alternately, seed could have been treated with the seed treatment fungicide, Baytan, as a preventative before planting. However, hindsight is always 20/20 and the cost of Baytan is high enough and projected wheat prices low enough that few could have been expected to utilize the Baytan option in Kentucky.

In the past, powdery mildew was easily and economically managed by applying 2 oz/A rate of the foliar fungicide Bayleton. However, the manufacturer, Bayer, opted not to support the wheat label for that product during the re-registration process. Thus, the new product label for Bayleton does not provide for application to wheat. Old product with wheat on the label is still legal to use on wheat, but by now older stocks of Bayleton are difficult to find at best.

Tilt and Quadris are both labeled for powdery mildew control. However, if either product is applied now for control of powdery mildew, mid- to late-season disease pressure may demand a second fungicide application. We have proven many times over that applications of foliar fungicides up to flag leaf emergence are ineffectual in managing late-season disease pressure. The application is simply too early to last throughout the season. This is a moot point for Tilt because that product is limited to one, 4-fl oz application per acre per year. In addition, **Tilt no longer has a 24c label in Kentucky**. Thus, Tilt cannot be applied after flag leaf extension, legally. The main point is that Tilt's utility in managing late season disease pressure in Kentucky is now very limited. Quadris could be applied later if either Tilt or Quadris had been used earlier to control powdery mildew. Specifically, the Quadris label provides for up to two applications per year. However, the high cost of Quadris probably excludes this as a possibility except in the rarest of circumstances. This situation is exacerbated by the fact that powdery mildew is Quadris' Achilles' heel. The minimum rate suggested by the label for powdery mildew control is 7.7 fl oz/A. This is an expensive treatment in itself (about $17.50/A for chemical), but when you couple that with another possible application of Quadris, the cost would be excessive for most producers in the current economic climate.

So what do I recommend? If powdery mildew is becoming a serious problem and you have an excellent crop, you have no choice but to apply a foliar fungicide. Delaying an application now, with the idea of providing late season disease control, could backfire seriously if the crop is heavily damaged by powdery mildew. If you can find old stocks of Bayleton with wheat on the label, that would be your most economical and effective application (at the 2 oz/A rate, that is). Tilt would be the next least expensive option. In addition, Tilt is more effective in managing powdery mildew than Quadris, especially at lower recommended use rates for Quadris.

On a related topic, the only foliar fungicides that can be applied after flag leaf emergence in Kentucky are Quadris, mancozeb, and Benlate + mancozeb. Current low wheat prices and the high cost of Quadris may give reason for producers to take another look at the inexpensive, protectant fungicide, mancozeb. Applied properly, and before infection takes place, mancozeb can provide

good control of leaf and glume blotch and very good control of leaf rust. The key is to get uniform coverage of flag leaves and heads. This requires excellent application technique, use of spray adjuvants, and sufficient application volume (20 gal/A ground- and 5/gal/A aerially-applied). Adding Benlate to the mix will significantly increase the cost, but will provide only minor gains in leaf and glume blotch control and no addition leaf rust control. The Benlate label also provides for a tank mix of Benlate and Bayleton for powdery mildew control. However, do not expect the Benlate component of that tank mix to do much in the way of powdery mildew control.

WHEAT INJURY

James R. Martin, Extension Weed Scientist

I received a call the other day regarding growth-regulatory type symptoms on wheat that was recently sprayed with Harmony Extra. Leaves were twisted and distorted to such an extent that limited the development and unrolling of new leaves. These symptoms are not typical of Harmony Extra. Since no growth regulator herbicides (i.e. 2,4-D, Banvel, or Clarity) were included with the Harmony Extra, then what could have caused these strange symptoms?

After further discussion about this situation, I learned that 2,4-D was applied in the fall. Apparently no symptoms were evident until just recently. This latent expression of 2,4-D can happen when 2,4-D is applied in the fall. Wheat, like many grass-like plants, is susceptible to injury from growth-regulatory herbicides. The risk of injury is least when wheat is fully tillered and just prior to jointing (i.e. Feekes 5). Wheat is especially susceptible to injury from growth-regulator herbicides when plants are in the boot stage of growth (i.e. Feekes 10).

This note is just a reminder to observe the label directions when applying herbicides.

For More Information, Contact:

Dottie Call, Wheat Group Coordinator
UK Research and Education Center
P.O. Box 469, Princeton, KY 42445

Telephone: 270/365-7541 Ext. 234

E-mail: dcall@ca.uky.edu

Visit our Website:
http://www.ca.uky.edu/ukrec/welcome2.htm