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**PERFORMANCE OF  
PUBLIC AND PRIVATE  
WINTER WHEAT  
IN INDIANA, 2006**



**Department of Agronomy  
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### Authors

K. M. Day, Senior Research Agronomist  
W. P. Lorton, Technician  
Dr. E. P. Christmas, Professor Emeritus of Agronomy  
Dr. C. W. Mansfield, Agronomist  
Department of Agronomy  
  
G. C. Buechley, Cell Biologist Research Associate  
Dr. G. E. Shaner, Professor  
Department of Botany and Plant Pathology

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# Performance of Public and Private Winter Wheat in Indiana, 2006

## INTRODUCTION

Winter wheat is evaluated annually at several locations in Indiana. These trials are conducted according to the policies and procedures of Indiana Agricultural Research Programs at Purdue University. In this bulletin, results of the 2006 winter wheat performance trials are presented for those entries which are believed to be available to producers for seeding. Data for experimental entries are not included.

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**<http://www.agry.purdue.edu/pcpp/smgrains.html>**

Bulletin copies may be available, in Indiana, from local county Extension Offices.

Performance results for both private and public entries are presented. Certified seed was used for seeding most of the public varieties. Private entries, entered voluntarily by the owner, were accepted in the trial after meeting the requirements for eligibility

and payment of a testing fee. No verification has been made that the seed or the quality of the seed entered in this trial is the same as that offered for sale to the public.

## PERFORMANCE TRIAL METHODOLOGY

This section contains information on locations and procedures used in conducting the trials.

### Trial Locations

In 2006, trials were conducted at five locations for winter wheat (see Figure 1, page 4). The locations, numbered from north to south, are:

Location 1. Porter County at the Pinney Purdue Agricultural Center near Wanatah, on Runnymede loam, a dark gray depressional soil under laid by sandy substrata.

Location 2. Tippecanoe County, near Lafayette, at the Purdue University Agronomy Center for Research and Education (ACRE), on Drummer (Chalmers) silty clay loam, a very dark gray or black, poorly drained depressional soil.

Location 3. Randolph County at the Davis Purdue Agricultural Center near Farmland, on Blount silty clay loam, a dark grayish-brown, somewhat poorly drained soil.

Location 4. Knox Co., at the Southwest Purdue Agricultural Center near Vincennes on Ade loamy fine sand, a very dark gray, gently sloping somewhat excessively drained soil. Ade soil has low available water capacity and rapid permeability. Organic matter is relatively high and surface runoff is slow.

Location 5. Jennings Co., at the Southeast Purdue Agricultural Center near Butlerville, on Avonburg silt loam, a light grayish, nearly level, somewhat poorly drained soil, with fragipan in the sub-soil.



### Methods Used in the Trials

Seedbeds were prepared using conventional farm equipment. A randomized complete block design, with 4 blocks, was used in all trials. The wheat plots were planted in drill strips 35 feet long and 75 inches wide. All plots were end trimmed at harvest to approximately 20 feet in length, and all rows were harvested. Plot width of 75 inches was used for calculating harvest area for yield.

The plots were harvested with an Almaco plot combine, and were weighed and moisture tested automatically, on the combine, using a Seed Spector II and a Psion® Workabout™ (computer). The Almaco plot weight and moisture equipment was calibrated using a Chantillon scales and a Motomco Model 919® moisture meter, and the calibrations were checked throughout the harvest season.

**The electronic weighing and moisture testing equipment, on the Almaco plot harvester, are not the same as equipment used to meet official grain grading standards, but are considered suitable for field plot work.**

**Grain yields** from the test plots are reported as estimates of bushels per acre, adjusted to 14 percent moisture content.

**Test weights** were performed after harvest, in the laboratory, using standard test weight equipment.

**Lodging** is expressed in percent from 0 to 100. Plots with a score of 0 to 25 percent are generally harvestable with conventional equipment, from either direction, and at optimum speed. Plots with a lodging score of 25 to 50 percent are harvestable, but may require reduced speed. As lodging percentages exceed 50 percent, harvesting problems escalate quickly and beyond 75 percent some grain may be lost, or damaged by contact with the soil.

**Plant height**, taken at harvest, was from the center of the plot and was measured to the nearest inch from the soil surface to the top of the head.

**Winter killing** data, at all locations, are generally taken when the plants were beginning spring growth. The data are based on visual observation and not on actual stand count, and are influenced by differences in plant vigor and vegetative growth

**Date headed** is the day when 80 to 90 percent of the heads ruptured the boot.

Fertilization programs are described in the footnotes of each table. Starter fertilizer was applied, at planting, at all locations, and all trials were top-dressed with supplemental nitrogen in the spring.

Soil test results for each of the trials, in 2006, are presented in the footnotes. The soil test values for phosphorus (P) and potassium (K) are expressed in parts per million (ppm) instead of pounds per acre (lbs./acre). To change ppm to lbs./acre, multiply ppm by 2. Conversely, to change lbs./acre to ppm, divide lbs./acre by 2.

Seeding rates for proprietary wheat entries were chosen by the owner, and ranged from 1.4 to 1.8 million live seeds per acre. Public wheat varieties were seeded at 1.5 to 1.8 million live seeds per acre.

### Seed Size and Plant Populations

Seed size will vary among seed lots for any entry. In extreme cases, the smallest size seed may contain nearly double the number of seeds per bushel in comparison with the largest size seed.

A final stand of 1 to 1.3 million plants per acre, or 30 plants per square foot, is the optimum population for soft red winter wheat production in Indiana. Yields generally plateau at this population and any additional yield increases are due to favorable weather combined with best management practices.

Approximately 90 percent of the live seed sown should emerge, if high quality seed is sown in a firm, moist seedbed. A seeding rate of 1.5 million live seeds per acre should produce a final stand of 1.35 million plants per acre, which is about 30 plants per square foot.

The number of seeds per pound may be determined by counting out 100 seeds and weighing them on a gram scale (most grain elevators have one). Divide the weight of the 100-seed sample into 454 (the number of grams in a pound), and multiply by 100 (the number of seeds counted). Example: 100 seeds weigh 3.2 grams;  $454 \div 3.2 \times 100 = 14,188$  seeds per pound. Then adjust for germination to determine the final seeding rate. If the seed germinates 95 percent, there will be 13,478 live seeds per pound ( $14,188 \times 0.95$ ). Dividing 1,500,000 by 13,478 gives 111 pounds of seed per acre, or the amount needed to establish a stand of 30 plants per square foot.

This information is useful in deciding the population you want to achieve in the original stand, and for decisions you may need to make regarding an inadequate stand. Ask your seed dealer to furnish the seed count, in number of seeds per pound, and the recommended seeding rate for the seed lot you are planting. Then calculate the pounds per acre needed to provide an optimum population in the original stand.

Stand reductions, in winter wheat, may occur if winter conditions are severe. The wheat plant, if properly hardened through a gradual hardening process, should be able to tolerate temperatures as low as  $-5^{\circ}$  F without injury. At temperatures of  $-5^{\circ}$  to  $-10^{\circ}$  F injury could occur if unfavorable conditions such as dry soil, low phosphorus, late

planted and/or small plants, or other plant stresses are present. If temperatures reach  $-10^{\circ}$  F or lower, and remain at that temperature for two hours or longer, injury is likely. The extent of the injury will depend on the condition of the plant, how low the temperature, and how long it remains at that low level.

Snow cover of 1 to 2 inches on wheat offers excellent protection against sub-zero temperatures. If cold weather is forecast, keep a record of the amount of snow cover, the extreme low temperature and the duration of that low temperature. This will be useful information in predicting the possibility of damage to the wheat crop. For information on temperatures that cause freeze injury to wheat, during spring growth, see Table A, page 16.

When making stand counts on small grains, divide 144 (the number of square inches in a square foot) by the drill row spacing in inches to get the number of linear inches of drill row needed to equal 1 square foot. Example:  $144 \div 7$  inches (drill row spacing) = 20.5 inches of linear drill row needed to equal 1 square foot. Make numerous random spot checks throughout the field by counting the number of plants or seeds in 20.5 inches of row length, and average several observations to estimate the population.

For purposes of making yield estimates, each wheat plant should produce one main stem (culm) and one or more tillers. The main stem normally produces a head, but under stress the tillers may not produce heads. Less than ideal conditions reduce grain production in the tiller first and then in the main stem.

One head of wheat usually produces one gram of seed (or grain), which is normally 30 to 32 grains of wheat. One head of wheat per square foot is equal to 1.6 bushels per acre. At 30 heads per square foot (one head per plant), the estimated yield potential is 48 bushels per acre.

At 30 plants per square foot, under ideal growing conditions, each plant may produce two heads (one on the main stem and one on the tiller), which would have a yield potential of 96 bushels per acre.

A population of 15 plants per square foot may produce acceptable yields (15 to 20 percent yield loss), but 10 plants per square foot may reduce yields by 50 percent or more, and weed problems are likely.

Due to unusually warm weather during the winter of 2001-2002, questions were raised about vernalization of the winter wheat crop. Dr. Fred Patterson, Wheat Breeder and Professor Emeritus of the Purdue University Agronomy Department provided the following information on vernalization:

**Vernalization** requirement of winter wheat is the period of cold conditioning necessary before the wheat plant will go from the vegetative tillering stage into the jointing and heading stages. Temperatures just above freezing are adequate. Different winter wheat cultivars (varieties) have different lengths of vernalization requirements from about 42 to 70 days. In a vernalization cold room for greenhouse winter wheat plants, Purdue wheat breeders use 65 days at 36° to 38° F, with short day-length light period of 12 hours. For a normal Indiana winter wheat crop, the vernalization requirement would be met by about January first. If vernalization is interrupted by a period of hot weather, as sometimes occurs in south Texas, winter wheat does not resume vernalization and would not head.

Cold acclimatization for survival is a separate process and requires below freezing temperatures to develop the ability of the wheat plants to survive Indiana's coldest winter periods.

## PERFORMANCE TRIAL RESULTS

An analysis of variance and a test of significance were computed on all performance categories where sufficient data were available. The analysis of variance for bushels per acre yield, was significant at the 10 percent probability level this year (2006) for the single-year, single location, yield data presented, except for the trial in Porter County, Location 1 (Table 1). Yates iterative procedure was used to calculate data for missing plots.

The Waller-Duncan Bayesian k-ratio t test is used in determining significant differences for the Indiana small grain performance trials. The Bayesian procedure has a direct dependence upon the calculated F-value for entries. As the F-value

increases, the Bayesian least significant difference (BLSD) decreases. In computing the BLSD for the test of significance, a k ratio of 100:1 was used. This ratio may be considered in a loose sense to take the place of the 5 percent level of significance. The BLSD value may be used to make all possible pairwise comparisons, i.e., any two values in the same column of a sub-table may be compared.

Multiple-year results, especially those having the greatest number of years, are generally best for predicting performance. This is because no interaction of entries by years can be computed for one-year data. This interaction (entry by year) is usually larger than the experimental error in one-year analyses.

The coefficient of variability (C.V.) is an indication of the precision of the test. The coefficient of variability is a relative term. It is the ratio of the standard deviation to the grand mean of the test, expressed as a percent. On the western side of Indiana a small grain test, with good precision, will have a C.V. for yield of 5 percent or less; and on the eastern side of the state, the C.V. will be 10 percent or less. Whenever the C.V. is larger than normal for a test location it indicates that the precision of the test was below normal. When yields are high and the experimental error in the test is small, the C.V. will be small.

Across the years, tests have been performed to determine whether there are specific areas of adaptation for small grain varieties. Is there a variety that is superior on sand, or clay, or adapted to a particular part of the state? To date, there is no evidence to support such a claim.

In long-term averages, those entries that are either at the top or bottom in yield, are generally the same at each test location. For normal production situations, these small grain performance data have broad application in Indiana.

**At Location 1 (Porter Co.),** in 2005, August rain totaled 4.0 inches and September 2.88. Normal precipitation for August is 3.76 inches and for September, 3.67 inches. The wheat plots were planted September 28, 2005 in a firm, moist seedbed. Planting was about a week after the Hessian fly-free date. The first frosts and sharp freezes (24° to 31° F) came on the nights of October 27 through October 30. October rain totaled 2.07 inches, normal precipitation for the month is 2.89 inches. Wheat emerged after the early October rains and vigorous, uniform stands were established.

November precipitation totaled 2.45 inches, with an inch of snow on November 23. Normal November precipitation is 3.41 inches. November temperatures were generally mild with daytime highs ranging from 22° to 72° F, and nightly lows from 9° to 51° F. Temperature, for the month, averaged 53° during the day, 31° during the night and overall 42° F. Long-term average temperature is 39.9° F for November. Wheat growth continued through most of the month.

At the beginning of the month, December temperatures cooled rapidly. During the month, temperatures ranged from daytime highs of 12° to 47° F, and nightly lows from -6° to 34° F. The coldest December temperature (-6° F) was recorded on December 8. December temperature averaged 23.3° compared to 27.8° F for the long-term average. December precipitation totaled 1.1 inches, (2.50 inches is normal). The moisture came as snow, arriving on December 4 and remaining until December 25. Total snowfall was 7.9 inches, and provided wheat with excellent protection during the coldest days of the month.

January 2006 precipitation totaled 2.65 inches, which was 0.93 of an inch above the normal 1.72 inches. Snowfall for the month totaled 2.3 inches and came in amounts of generally less than an inch. There was virtually no snow cover on the wheat during January. January was mild with day temperatures ranging from 32° to 56° and averaging 43.1° F. Night temperatures ranged from 21° to 40° and averaged 28.4° F. Average temperature for the month was 35.8° or 14° warmer than the long-term average temperature of 21.8° F.

February precipitation was 0.79 of an inch, well below the normal 1.58 inches. The precipitation, which came as snow, totaled 5.9 inches. Snow of 1 inch provided cover on February 5 and 6, and snow cover of 1 to 4 inches, was present February 11 through 14. The coldest February temperature (-2° F) came on February 19. Daytime high temperatures ranged from 9° to 60° and averaged 38.9° F. Nightly lows ranged from -2° to 32° and averaged 17.8° F. Temperature for the month averaged 28.3° F, which was 1.7° F warmer than the long-term temperature average of 26.6° F.

March temperature ranged from 33° to 70° during the day and averaged 47.5° F. Temperatures ranged from 13° to 44° at night and averaged 27.2. Average temperature for the month was 37.3°F, which was the same as the long-term average temperature. The coldest March temperature (13° F) came on the night of March 7. The highest March temperature (70° F) was recorded on March 31.

Precipitation for the month was 3.44 inches. Normal March precipitation is 2.75 inches.

April was dry. Precipitation totaled 1.89 inches, well below the normal precipitation of 3.61 inches. Temperatures ranged from 43° to 81° during the day and averaged 65.6° F. Night temperatures ranged from 21° to 51° and averaged 39.2° F. Temperatures for the month averaged 52.4°, 4.4° warmer than the long-term average of 48.0° F. Spring growth began in wheat trial during April, and no winter killing was observed in the wheat plots.

May rain totaled 3.54 inches, 0.17 of an inch below the long-term average of 3.71 inches. Rain came in showers of less than three-fourths of an inch and was distributed throughout the month. Weather was dry for eight days prior to heading. Wheat headed (emerged from the boot) from May 11 to 17. During heading, it rained on four out of seven days. Temperatures were generally mild and provided excellent growing weather for wheat. Daily high temperatures ranged from 45° to 93° and averaged 67.7° F. Nightly low temperatures ranged from 35° to 67.7° and averaged 45.3° F. Average temperature for the month averaged 56.5° which was 2.9° cooler than the long-term temperature of 59.4° F. Wheat headed from May 12 to May 17.

The first 9 days in June had no measurable precipitation. The largest amount of rain, in one shower (1.07 inches), came on June 10. The rest of the rain came in amounts of less than three-quarters of an inch and was distributed among nine showers. Rain totaled 2.71 inches, 1.64 inches below the normal amount of 4.35 inches. Daytime temperatures ranged from 64° to 93° and averaged 80.1° F. Nightly lows ranged from 45° to 68° and averaged 55.4°F. Temperatures of 92° and 93° F were recorded on June 17, 18 and 22. The average temperature for the month was 67.8° compared to the long-term average of 69.0° F.

The wheat trial was harvested July 6 under ideal conditions. Weather, the first week of July, was favorable for the maturing and ripening wheat crop. Three rain showers, all in amounts of less than half an inch, totaled 0.82 of an inch. This slowed dry down but did not damage the crop.

From October 1, 2005 through March 31, 2006 the wheat trial received a total of 12.5 inches of moisture, which was 2.35 inches (or 16 percent) below the normal 14.85 inches for that period. From April 1, 2006 through June 30, 2006, rain totaled 8.14 inches, which was 3.53 inches or about 30 percent less than the normal 11.67 inches for that period. Total moisture for the wheat trial, October 1, 2005 through June 30, 2006 was 20.64 inches compared to

26.52 inches which is the long-term average for that same period.

Data for the 2006 winter wheat trial, at Location 1, are reported in Table 1. The data are similar to previous years data, but are not, statistically, significant. Disease ratings appear in Tables B and C.

**At Location 2 (Tippecanoe Co.),** in 2005, August rain totaled 2.2 inches. September rain totaled 4.8 inches, with virtually all of it coming during the last half of the month. Normal rainfall for August is 3.68 inches and for September, 2.98 inches.

The regular date-of-seeding wheat trial was planted October 4, 2005 (about a week after the Hessian fly-free date). The wheat was planted in a thick stand of volunteer soybeans. The soil was moist, emergence was rapid, and uniform, vigorous stands were established. October rain totaled 1.42 inches for the month, and came in showers of an inch or less. Normal rainfall for October is 2.73 inches. Daily high temperatures ranged from 49° to 88° F. Low temperatures ranged from 30° F (October 29) to 64° F (October 3). The regular date-of-seeding wheat trial, at the end of the month, was 2 to 3 inches tall, stands were vigorous and soil moisture was adequate.

The late-seeded wheat trial was planted October 28, 2005 (about a month after the Hessian fly-free date). The wheat was planted in a thick stand of volunteer soybeans. Soil was wet to the point of being muddy. By the end of November, the late-seeded wheat had developed good stands and plants were about one inch tall.

November rain (2.31 inches) was distributed throughout the month. Normal November rain is 3.08 inches. Daytime high temperatures ranged from 28° to 72° F, and nightly lows from 10° to 54° F. Average temperature for the month was 43.4° F. The long-term average temperature for November is 41.1° F. Wheat growth and development continued through November.

Temperatures cooled rapidly at the beginning of December. Daytime highs ranged from 14° to 52° F and nightly lows, from -4° to 35° F. The coldest December temperature (-4° F) came on the night of December 7. Average temperature, for the month, was 23.6° compared to 29.1° F for the long-term average. Precipitation for the month was 1.43 inches, normal is 2.43. Total December snow was 9.3 inches. Snow arrived on December 9, and provided 2 to 7 inches of cover from December 9 through December 23.

January temperatures ranged from daily highs of 34° to 63° and averaged 45.3° F. Nightly lows ranged from 19° to 41° and averaged 29.8° F. Average temperature for the month was 37.6° or 14.3° above the long-term average temperature of 23.3° F, making this the warmest January on record. The only snowfall for the month (1.2 inches) came on January 18 and provided snow cover for one day. Precipitation for the month totaled 2.45 inches, normal is 1.79 inches.

February had one inch of precipitation, normal is 1.57 inches. There was no snow cover during the month. Two snow events (0.5 of an inch on February 11 and one inch on February 12) were the only measurable snow for the month. Temperatures ranged from daily highs of 13° to 60° and averaged 40.7° F. Nightly lows ranged from -1° to 39° and averaged 18.7° F. Temperature for the month averaged 29.7° or 2° warmer than the long-term average temperature of 27.9° F.

March precipitation was 4.04 inches; normal is 2.84 inches. On March 6, 1.8 inches of snow came and remained for 1 day. That was the last snow cover for the season. March temperatures fluctuated from 32° to 72° during the day and averaged 48.7° F. Night temperatures ranged from 15° to 55° and averaged 29.2° F. Average temperature for the month was 38.9° which was virtually the same as the long-term average of 38.8° F. Wheat growth began during the last of March.

Ten April rain showers (all in amounts of less than three-fourths of an inch) totaled 3.45 inches. April normal precipitation is 3.57 inches. Day temperatures ranged from 48° to 84° and averaged 67.6° F. Night temperatures ranged from 24° to 57° and averaged 41.5° F. Average temperature for the month was 54.6° which was 4.5° warmer than the, long-term average (50.1° F) April temperature.

May rain totaled 5.16 inches, 4.35 inches is normal. Most of the rain came between May 11 and 20. Wheat was heading during the wet weather. Day temperatures ranged from 46° to 92° and averaged 70.3° F. Night temperatures ranged from 39° to 69° and averaged 49.7° F. Temperature for the month averaged 60.0° compared to the long-term average of 61.4° F. Wheat developed rapidly during May. The regular date-of-seeding trial headed from May 7 to May 13. The late-seeded trial headed from May 16 to May 21.

June rain totaled 2.4 inches, 1.84 inches below the normal 4.24 inches. Rain was distributed among 12 showers, and came in amounts of less than three-fourths of an inch. Daily highs ranged from 61° to 96° and averaged 81.8° F. Nightly lows ranged from 49° to 73° and averaged 58.5° F. For the month, temperatures averaged 70.2° F. The long-term average temperature is 70.5° F.

The regular date-of-seeding wheat trial was harvested June 30, and the late-seeded wheat trial was harvested July 7. The first week of July had 2.48 inches of rain before the late-seeded wheat was harvested. The plots were wet, but not damaged by the rain. Prior to harvesting the late-seeded wheat, temperatures were warm and ranged from 82° to 92° F during the day. Night temperatures ranged from 55° to 68° F.

From October 1, 2005 through March 31, 2006 the winter wheat trials received 12.65 inches of precipitation. This was 1.79 inches (or 12 percent) below the 14.44 inches which is normal for that period. From April 1, 2006 through June 30, 2006, rain totaled 11.01 inches, which was 1.15 inches (or 9 percent) below the normal 12.16 inches for that period. Total precipitation for the wheat trials was 23.66 inches. The long-term average is 26.60 inches for the same period.

The regular date-of-seeding and the late-seeded wheat trials, in 2006, provide acceptable data for performance comparisons. Winter wheat trial results at Location 2, are presented in Tables 2, and 3. The regular date-of-seeding trial data, are included in the multiple location Tables 7 and 8. Disease ratings are presented in Tables B and C.

**At Location 3 (Randolph Co.),** in 2005, August rain totaled 6.43 inches, and September rain 5.52 inches. Normal rain for August is 3.65 inches, and 3.02 inches for September. Wet soil delayed the winter wheat trial planting until October 17. This was about 3 weeks after the Hessian Fly-free date. At planting, the seedbed was dry and firm with small clods. The wheat was slow to emerge but, a month after planting, good stands had developed, and plants were one to one and a half inches tall. Soybean crop residue, during planting, bunched up, and in a few plots, interfered with planting. At harvest, eleven plots were considered missing plots, and were restored using Yate's Iterative procedure

October received near normal precipitation, with measurable rain on eight days. Rain totaled 2.3 inches for the month, normal is 2.62. Frosts and the first hard freeze (30° and 27° F) came on October 26, 27, 28 and 29, respectively. Daytime temperatures

ranged from 46° to 86° F, and nighttime lows from 27° to 61° F. Average temperature for the month was 53.8° F compared to 51.6 for the long-term average.

November was mild, with daily high temperatures ranging from 27° to 70° F, and nightly lows from 11° to 55° F. Temperature for the month averaged 43.7° F compared to 40.5° F for the long-term average. Rain for the month totaled 2.5 inches, normal is 3.23.

December precipitation totaled 2.14 inches. Normal December precipitation is 2.58 inches. Snow arrived (5.0 inches) December 9 and provided snow cover of 1 to 5 inches through December 27. Total snowfall for the month was 8.9 inches. Daytime temperatures ranged from 14° to 53° F, and night temperatures from 1° to 34° F. The coldest December temperature (1° F) was on December 20. Average temperature for the month was 24.3° compared to 29.3 F for the long-term average.

January 2006 precipitation was 1.68 inches, 1.89 is normal. January snow totaled one inch, and remained about two days. Temperatures ranged from 36° to 59° during the day and averaged 46.4° F. Nightly lows ranged from 21° to 40° and averaged 30.1° F. Average temperature for the month was 38.3° or 14.5° above the long-term average of 23.8° F.

February precipitation was 1.40 inches. Normal precipitation is 1.84 inches. Snowfall totaled 5.5 inches. Snow cover ranged from 1 to 4 inches and remained for 10 days (February 9 through 14). Day temperatures ranged from 14° to 60° and averaged 37.8° F. Night temperatures ranged from 2° to 37° and averaged 19.3° F. Average temperature for the month was 28.5° compared to 27.5° F for the long-term average.

March precipitation totaled 3.52 inches, which included 2.5 inches of snow. Snow cover lasted for only one day (March 22). Normal March precipitation is 2.69 inches. Daytime high temperature ranged from 29° to 70° and averaged 47.5° F. Night temperatures ranged from 17° to 56° and averaged 29.2° F. Temperature for the month averaged 38.4° compared to the long-term average of 37.7° F. Wheat began spring growth in late March and stands were somewhat uneven. Winter killing was not a serious problem, spring growth was vigorous and plant color was good.

April rain totaled 3.34 inches, 3.50 is normal. Temperatures were mild. Daily high temperatures ranged from 48° to 79° and averaged 65.6° F. Nightly lows ranged from 25° to 54° F and averaged 39.4° F. Average temperature for the Month was 52.5° F. The long-term temperature average for April is 48.9° F.

May received 5.93 inches of rain. Normal rainfall is 4.06 inches. May temperatures ranged from 47° to 91° during the day and averaged 68.2° F. Night temperatures ranged from 29° to 61°F and averaged 47.4°F. Temperature for the month averaged 57.8° which was cooler than the long-term average of 60.2° F. The wheat trial headed from May 20 to May 23.

June rain totaled 6.46 inches. The long-term average is 4.42 inches. Daily high temperatures ranged from 58° to 89° and averaged 78.6° F. Night temperatures ranged from 50° to 70° and averaged 57.1° F. Temperature for the month averaged 67.8° which was 1.6° cooler than the long-term average of 69.4° F.

The wheat trial was harvested July 7, 2006, and trial results are published in Tables 4, 7 and 8. Disease ratings are presented in Tables A and B. Precision in the trial is good and the data should be useful for making performance comparisons.

From October 1, 2005 to March 31, 2006 the winter wheat trial received 13.54 inches of moisture, or 1.36 inches (9 percent) less than the normal 14.9 inches for that period. From April 1, 2006 through June 30, 2006, rain totaled 15.73 inches, which was 3.75 inches (31 percent) above the normal 11.98 inches for that season. From October through June, precipitation totaled 29.27 inches, 2.44 inches or 8 percent above the long-term, October through June, precipitation of 26.83 inches.

Trial results from Location 3 are presented in Table 4 and are included in the multiple location data presented in Tables 7 and 8. Disease ratings are presented in Tables B and C. The data are, statistically, significant and should be useful in comparing performance.

**At Location 4** (Knox Co.), in 2005, August precipitation came mostly during the last half of the month, and totaled 6.02 inches. Normal August rain is 3.72 inches. September precipitation totaled 4.13 inches. Normal September precipitation is 3.16 inches.

The wheat trial was planted October 18, 2005, about twelve days after the Hessian fly-free date. Most of the October rain came in the week following planting. Emergence was rapid. Vigorous, uniform stands were established. Precipitation for October totaled 1.12 inches. Normal for the month is 3.21

inches. October day temperatures ranged from 51° to 90° F, and night temperatures from 31° to 65° F. Temperature for the month averaged 57.9° F compared with 55.4° F for normal.

November rain totaled 5.85 inches, 4.26 inches is normal. Daytime high temperatures ranged from 35° to 79° F, and nightly lows ranged from 16° to 61° F. Average temperature for the month was 47.6° compared to 43.7° F for normal. Frost and freezing came on November 10, 11 and 12. The wheat made vigorous growth during November.

December precipitation totaled 2.68 inches, normal is 3.24 inches. Snowfall totaled 5.6 inches. Snow (4 inches) came on December 9 and remained about three days. During that period, temperatures were the coldest of the month. For the month, temperatures during the day, ranged from 22° to 57° F and at night, from 5° to 36° F. December temperature averaged 30.3° compared to 32.3° F for the long-term average.

January 2006 precipitation totaled 2.54 inches compared to 2.6 inches for the long-term average. The month had one measurable snowfall of 0.8 of an inch which came on January 18. There was no snow cover on the wheat during the month. Day temperatures ranged from 36° to 70° and averaged 50.4° F. Night temperatures ranged from 20° to 43° and averaged 31.0° F. Average temperature for the month was 40.8°, or 13.5° warmer than the long-term average of 27.3° F.

February precipitation was 1.23 inches, normal is 2.51. There was no snow during the month. Daytime high temperatures ranged from 19° to 66° and averaged 44.5° F. Night temperatures ranged from 4° to 41° and averaged 21.4 F. Temperature for the month averaged 32.9° compared to 32.0° F for the long-term average.

March day temperatures ranged from 35° to 76° and averaged 52.6° F. Night temperatures ranged from 20° to 60° and averaged 31.9° F. Average temperature for the month was 43.6° compared to the long-term average of 42.7° F. The coldest night temperature (20° F) was on March 22. After that, temperatures moderated and remained favorable for wheat growth. March precipitation totaled 6.99 inches, 3.39 inches above the long-term average of 3.6 inches.

April day temperatures ranged from 50° to 87° and averaged 72.1° F. Night temperatures ranged from 30° to 65° and averaged 46.3° F. Temperatures for the month, averaged 59.2° which was 5.7° warmer than the long-term average of 53.5° F. Rain totaled 6.50 inches, normal is 4.28. Wheat headed from April 27 through May 2.

May was warm. High temperatures ranged from 53° to 92° and averaged 72.6° F. Nightly low temperatures ranged from 43° to 69° and averaged 52.9° F. Temperature for the month averaged 62.8° which was 1° cooler than the long-term average of 63.8° F. May rain totaled 4.79 inches, normal is 5.13. The rain was distributed among 14 showers, all in amounts less than one and one half inches. About half of the rain came in the middle of the month. The heaviest rain (1.41 inches) came on May 11.

During the first three weeks of June, the trial received 2.58 inches of rain. The trial was harvested, in good shape, on June 22. During the first three weeks of the month, day temperatures ranged from 73° to 93° and averaged 84.4° F. During the same period, night temperatures ranged from 55° to 70° and averaged 61.4° F.

From October 1, 2005 through March 31, 2006, the wheat trial received 20.41 inches of moisture; about an inch more than the 19.42 inches which is normal for that period. From April 1, 2006 through June 21, 2006, the trial received 13.87 inches of rain, which is nearly an inch and a half above normal. Total precipitation for the winter wheat trial was 34.28 inches, or 2.45 inches (8 percent) more than the 31.83 inches which is normal for the period. During the spring 2006 winter wheat growing season, daytime high temperatures reached 90° F or above, six times (May 28, 29, 30 and June 17, 18, and 21).

Trial results for Location 4, in 2006 are presented in Table 5, and are included in the multiple location data in Tables 7, and 9. Disease ratings are presented in Tables B and C. Precision in the trial was very acceptable, and the data may be useful in comparing performance between entries in the trial.

**At Location 5** (Jennings Co.), in 2005, August rain totaled 9.65 inches, September 3.99 and October 0.98. Normal rain for August is 4.42, September 2.89, and October 3.19 inches.

The wheat trial was planted October 17, 2005 (about eleven days after the Hessian fly-free date) in a firm, dry, cloddy seedbed. During the week following planting, four light showers brought a total of 0.90 of an inch of rain. Rain total for the month was 0.98 of an inch. Normal rainfall for October is 3.19 inches. October temperatures ranged from 49° to 89° during the day and averaged 68.3° F. Night temperatures ranged from 27° to 60° and averaged 45.1° F. Average temperature for the month was 56.7° compared to the long-term average of 55.9° F. The first hard freeze (27° F) came on the nights of October 28 and 29. The wheat was slow in emerging and there was a limited amount of tillering. Wheat stands were adequate but not impressive.

November rain totaled 4.63 inches, normal is 3.83 inches. Day temperatures ranged from 32° to

76° and averaged 57.7° F. Nightly lows ranged from 11° to 61° and averaged 34.1° F. Average temperature for the month was 45.9° compared to 45.3° F for the long-term average.

December turned sharply colder. Daytime high temperatures ranged from 21° to 57° F, and nightly lows ranged from 7° to 37° F. Average temperature for the month was 30.2° F compared to 34.9° F for the long-term average. Snow (5.0 inches) arrived on December 9, and provided cover through December 18. The coldest December temperature (7° F) came on December 20. December precipitation totaled 2.11 inches, 3.40 is normal.

During January 2006, daytime high temperatures ranged from 34° to 66° and averaged 50.3° F. Nightly lows ranged from 20° to 51° and averaged 32.9° F. Temperatures for the month averaged 41.6° which was 11.5° warmer than the long-term average of 30.1° F. Precipitation for January totaled 4.0 inches, 2.97 inches is normal. Rain came in showers of less than an inch and was distributed throughout the month. On January 18 an inch and a half of snow fell in the area and provided some snow cover for about 2 days.

February precipitation totaled 1.68 inches, 2.71 inches is normal. For about 3 days during the first week of February, snowfall in Jennings County, totaled 3.2 inches and provided snow cover of 1 to 3 inches. Daytime temperatures ranged from 24° to 65° and averaged 44.1° F. Nightly lows ranged from -1° to 52° and averaged 24.5° F. Temperature, for the month, averaged 34.3° compared to the long-term average of 35.0° F. Wheat came through the winter months of December, January and February with virtually no winter damage.

March precipitation totaled 7.36 inches, 3.76 is normal. On March 21 and 22, the Jennings County area received 2.9 inches of snow. The snow melted rapidly and no snow cover remained on the wheat. Day temperatures ranged from 36° to 73° and averaged 52.1° F. March night temperatures ranged from 12° to 55° and averaged 32.5° F. Average temperature for the month was 42.3° compared to 44.6° F for the long-term average. Wheat began spring growth in March.

April rain totaled 4.74 inches, normal is 4.37 inches. Daytime high temperatures ranged from 51° to 84° and averaged 69.5° F. Nightly low temperatures ranged from 28° to 66° and averaged 46.0° F. Average temperature for the month was 57.8° which was 3.6° warmer than the long-term. Wheat made rapid growth and development in April and May.

The wheat plots headed from May 4 through May 7. May temperatures continued warm, but precipitation was three-quarters of an inch below

normal. Rain totaled 3.98 inches; the long-term average is 4.72. Three days in May had temperatures at or above 90° F. Daily high temperatures ranged from 51° to 91° and averaged 72.8° F. Nightly lows ranged from 38° to 67° and averaged 50.9° F. Average temperature for the month was 61.8° which was 1.9° cooler than the long-term average of 63.7° F.

June was near normal in temperature and rainfall. Only two days (June 20 and 21) had temperatures of 90° and 92° F, respectively. Temperatures ranged from 66° to 92° during the day, and averaged 81.4° F. At night, temperatures ranged from 50° to 70° and averaged 59.1° F. For the month, temperatures averaged 70.2° which was 1.7° cooler than the long-term average of 71.9° F. June rain totaled 4.59 inches, 3.82 inches is normal. The wheat trial was harvested June 28, 2006.

From October 1, 2005 through March 31, 2006, precipitation, on the winter wheat trial, totaled 20.76 inches, 0.90 of an inch above the 19.86 inches, which is normal for that period. From April 1, 2006 through June 30, 2006, rain totaled 13.31 inches, which was 0.40 of an inch above the 12.91 inches, which is normal for that period. For the winter wheat growing season, total precipitation was 34.07 inches, compared to 32.77 inches, which is normal for the season.

Trial results for Location 5, in 2006, are presented in Table 6. Precision in the test (C.V.) was acceptable and the data should be useful in comparing performance. Multi-location data, which includes Location 5 can be found in Tables 7 and 9. Disease ratings are presented in Tables B and C.

## Weather Summary

Detailed weather information can be obtained from the Indiana State Climate Office, on the web at:

<http://www.iclimat.org>

Information presented in this section is based on the weekly Indiana Crop and Weather Report, published by the Indiana Field Office of USDA's National Agricultural Statistics Service.

For the week ending September 26, 2005, Indiana topsoil moisture was rated 3 percent very short, 16 percent short, 67 percent adequate and 14 percent surplus. Subsoil moisture was rated 12 percent very short, 31 percent short, 52 percent adequate and 5 percent surplus. Six percent of the winter wheat crop was planted, compared with 6 percent last year and 5 percent for average. Heavy rains fell in some areas of the state and delayed planting in a few areas. The state received 4.27

inches of rain (138 percent of normal) compared to 3.09 for the long-term average.

By October 2, the crop was 11 percent planted, compared to 22 percent last year, and 15 percent for average. Mid-October wheat planting was 68 percent planted compared to 63 percent last year and 54 percent for the five-year average. Topsoil was rated 5 percent very short, 24 percent short, 70 percent adequate and 1 percent surplus. Rain arrived the third week of October. At the end of the month, topsoil moisture was rated 4 percent very short, 17 percent short, 77 percent adequate and 2 percent surplus. At the end of October, the wheat crop was 94 percent planted compared to 86 percent for average. Seventy-four percent of the crop had emerged compared to 59 percent last year and 64 percent for average. The crop was rated 0 percent very poor, 3 percent poor, 22 percent fair, 64 percent good and 11 percent excellent. During September and October, temperatures, state-wide were cooler than normal, and precipitation was below normal.

At the beginning of November, 98 percent of the wheat was planted, compared with 94 percent for average. Eighty-seven percent of the wheat acreage had emerged, compared to 80 percent for the five-year average. The final crop and weather report for 2005, issued November 13, reported that virtually all the winter wheat crop had been planted. Ninety-six percent of the crop had emerged compared to 83 percent the previous year and 90 percent for average. The condition of the wheat crop was rated 0 percent very poor, 2 percent poor, 19 percent fair, 68 percent good and 11 percent excellent. Statewide, topsoil moisture was rated 5 percent very short, 22 percent short, 71 percent adequate and 2 percent surplus. Subsoil moisture was rated 13 percent very short, 29 percent short, 57 percent adequate and 1 percent surplus. During November, temperatures remained cooler than normal. Precipitation was normal or above normal in central Indiana and slightly below normal in northern and southern Indiana.

Early in December temperatures turned sharply colder with the state averaging 4.4° F below the normal (31.1° F) for the month. The first major snow storm of the season, arrived on December 8 and provided northern and central Indiana with 7 to 8 inches of snow. The last of December, temperatures moderated and the two warmest days of the month were December 27 and 28, when temperatures reached the 50s in the southern two-thirds of the state and into the 40s in the north.

January 2006 was unseasonably warm with temperature averaging 38.6° which was 12.6° above the long-term average of 26.0° F. Precipitation was

137 percent of normal. Normal precipitation is 2.44 inches and January received 3.34 inches.

The first Indiana Crop and Weather report for the 2006 growing season, issued for the week ending April 2, 2006, rated the wheat crop as 5 percent jointed, the same as the 5-year average. The wheat condition was rated 75 percent good to excellent compared to 69 percent for the previous year. Soil moisture ratings (in percent) for topsoil were, very short 0, short 4, adequate 61, and surplus 35. Subsoil moisture ratings were, very short 1, short 9, adequate 74, surplus 16 percent.

Wheat jointing, during April, proceeded at a pace slower than the 5-year average, but at the end of April, heading was ahead of the 5-year average. The crop was rated 80 percent good to excellent compared to 72 percent last year. Soil moisture remained mostly adequate to surplus.

In mid May, the wheat condition was rated 83 percent good to excellent compared to 68 percent last year. Forty-six percent of the crop had headed compared to 48 percent for average. By the end of May the wheat crop rating was 77 percent good to excellent. Ninety-five percent of the crop was headed compared to 90 percent for average. Topsoil moisture was rated 60 percent adequate and 40 percent surplus. Subsoil was 2 percent short, 66 percent adequate and 32 percent surplus.

By June 4, wheat was 99 percent headed; the 5-year average is 96 percent. The crop was rated 77 percent good to excellent, compared to 65 percent last year. The June 11 report indicated wheat harvest was 1 percent complete, on par with the 5-year average. By June 25, wheat harvest was 24 percent completed, compared to 30 percent for average. Both topsoil and subsoil moisture remained favorable in June and by the end of the month topsoil was rated 1 percent very short, 9 percent short, 64 percent adequate and 26 surplus. Subsoil was rated 1 percent very short, 6 percent short, 72 percent adequate and 21 percent surplus.

By July 2, 37 percent of the wheat was harvested compared to 53 percent for average. A week later, July 9, 70 percent of the wheat was harvested compared to 74 percent for average. Wheat harvest in the north was 45 percent complete, 75 percent in central Indiana and 94 percent in southern Indiana. Statewide, by July 23, 98 percent of the wheat crop was harvested, which was on par with the 5-year average. Topsoil moisture was 1 percent very short, 7 percent short, 77 percent adequate and 15 percent surplus. Subsoil moisture was 2 percent very short, 10 percent short, 77 percent adequate and 11 percent surplus.

In summary, the Indiana crop was established in a timely manner and came through a relatively mild winter. The first half of 2006 was, nationwide, the warmest on record. Grain yields and grain quality were generally good.

### **State-wide Harvest Summary**

The Indiana Field Office of USDA's National Agricultural Statistics Service, in a report issued July 20, 2006, estimated the 2006 Indiana winter wheat production as follows:

Based on conditions July 1, Indiana's 2006 winter wheat crop is expected to total 31.1 million bushels, 27 percent above last year's estimate of 24.5 million bushels. The expected yield of 69 bushels per acre is unchanged from the June 1 forecast. If realized, this would be 3 bushels below last year's new record yield of 72 bushels per acre. Intended acreage for harvest as grain, at 450,000 acres, is up 32 percent from a year earlier. As of July 16, wheat harvest had advanced to 94 percent complete. This compares with 96 percent last year and 91 percent for the average. ....

Winter wheat harvest continues to make good progress for the entire state. Harvest of winter wheat is 94 percent complete compared to 96 percent last year and 91 percent for the 5-year average. By area, wheat harvest is 88 percent complete in the north, 96 percent in the central, and 99 percent in the south.

United States winter wheat production is forecast at 1.28 billion bushels. This is up 1 percent from last month but 15 percent below 2005. The U.S. yield is forecast at 41.1 bushels per acre, up 0.6 bushel from last month but down 3.3 bushels from last year. Area harvested for grain totals 31.1 million acres, unchanged from the *Acreage* report released on June 30, 2006, but down 8 percent from last year.

**INFORMATION CONCERNING SEED**

Information concerning certified seed may be obtained from the Indiana Crop Improvement Association, which certifies seed from both public and private sources. Publicly developed varieties, presented in this bulletin, are listed under the Indiana Crop Improvement Association address.

Private companies have requested that inquiries concerning proprietary entries, presented in this bulletin, be directed to the addresses listed below.

Other names associated with the entry name are brand or company names usually associated in the trade with the entry name.

**Adler Seeds**  
**6085 West 550 North**  
**Sharpsville, Indiana 46068**  
Telephone: 765-963-5397

Adler 545

**AgriPro Wheat**  
**520 East 1050 South, P.O. Box 411**  
**Brookston, Indiana 47923**  
Telephone: 765-563-3111

Branson AgriPro  
Coker 9312  
Coker 9511  
Coker 9553  
Cooper AgriPro

**Excel Brand Seed**  
**257 East Hail**  
**Bushnell, Illinois 61422**  
Telephone: 309-772-2070

Excel 173  
Excel 211  
Excel 388  
Excel 392TW  
Excel 399  
Excel 410TW

**Indiana Crop Improvement Assoc.**  
**7700 Stockwell Road**  
**Lafayette, Indiana 47909**  
Telephone: 765-523-2535

**Wheat**  
Patterson Public  
Roane Public

**Miles Seed**  
**P.O. Box 22879**  
**2760 Keller Road**  
**Owensboro, Kentucky 42304**  
Telephone: 270-926-2420

Judith Exsegen  
Leah Exsegen  
Lydia Exsegen  
Rachel Exsegen

**Ohio Seed Improvement Assoc.**  
**6150 Avery Road, P.O. Box 477**  
**Dublin, Ohio 43017**  
Telephone: 614-889-1136

Bravo OSIA  
Cecil OSIA  
Daisy OSIA  
Hopewell OSIA

**Royster-Clark, Inc.**  
**717 Robinson Road SE**  
**Washington C.H., Ohio 43160**  
Telephone: 740-869-2181

Vigoro Tribute  
Vigoro V9410  
Vigoro V9412  
Vigoro V9512

**Steyer Seeds**  
**6154 North County Road 33**  
**Tiffin, Ohio 44883**  
Telephone: 419-992-4570

McLane Steyer  
Merrell Steyer  
Morrall Steyer  
Wiser Steyer

## DISCUSSION

### Soft Red Winter Wheat

Indiana's climate and soils are well suited for the production of high quality soft red winter wheat. In the southern half of Indiana, where double cropping (wheat-soybeans) is common, many growers plant early maturing varieties. Even in northern Indiana, varieties with relatively early maturity may produce higher quality grain because they mature before hot, humid weather which often occurs during July.

Wheat varieties differ in agronomic characteristics. Each has certain advantages, but none possess all of the most desirable traits. Winter hardiness, grain yielding ability, grain quality, straw strength, plant height, and resistance to diseases and insects are important traits to consider when choosing which wheat to plant.

Many diseases attack wheat in Indiana. Resistant varieties are the mainstay for managing disease. A grower should carefully examine resistance ratings for any wheat considered for production. The originator of a variety should have resistance ratings for the diseases mentioned in this discussion, and seed dealers should have this information available for customers.

Important wheat diseases in Indiana include root rots, several leaf diseases, and diseases of the wheat head itself. Probably the most consistently troublesome wheat disease in Indiana is leaf blotch, caused by either of two fungi, *Septoria tritici* and/or *Stagonospora nodorum*. Both fungi cause a foliage blight that results in premature leaf death and poorly filled grain. *Stagonospora nodorum* can also infect heads, producing a disease known as glume blotch.

Varieties differ in their degree of susceptibility to leaf and glume blotch, but none has a high degree of resistance. Partial resistance, which tends to keep the upper two leaves green until normal maturity, can protect test weight.

Early seeding favors leaf blotch, yellow dwarf, spindle streak, and the fungus root and foot rots, especially take-all. Seeding after the Hessian fly-free date (see Figure 1, page 4) is suggested to reduce the severity of these diseases.

In addition to *Stagonospora nodorum*, three other fungi can infect wheat grain directly. Loose smut and common bunt are two diseases with a long history in Indiana, but have been essentially eliminated by the use of modern, systemic fungicide seed treatments. The best time to detect loose smut is just after the wheat heads. Of much greater concern

is scab (*Fusarium* head blight). A widespread fungus, *Fusarium graminearum*, can infect wheat during flowering and early grain filling. Infected grain is badly shriveled, resulting in low test weight. The grain may also contain a toxin produced by the fungus (deoxynivalenol, also known as DON or vomitoxin). Elevators may refuse to buy grain that has more than 2 to 4 ppm of DON. Wheat breeders are working to develop varieties resistant to scab, but so far only a few varieties, with a modest degree of resistance, have reached the marketplace.

Three other potentially damaging diseases are powdery mildew, leaf rust, and stem rust. Fortunately, most varieties adapted to Indiana have good resistance to these diseases. The pathogens which cause these diseases are genetically variable, and strains may arise that can overcome resistance. However, in recent years, this has not been a serious problem in Indiana.

The resistance of some varieties to powdery mildew is of the partial type. Powdery mildew will develop in these varieties, but does not normally become severe enough to damage the crop. High levels of nitrogen, even if not sufficient to induce lodging, can negate partial resistance and result in severe disease in a variety that would not be damaged under moderate levels of nitrogen.

In most years (normal warm weather), wheat matures before stem rust has time to reach destructive levels. However, in years when maturity is delayed, because of cool spring weather, stem rust may reach damaging levels during late June. Some wheat, offered for sale in Indiana, may not have resistance to stem rust.

Three virus diseases of wheat are common in Indiana: wheat spindle streak, soilborne wheat mosaic, and yellow dwarf. Most varieties have at least some resistance to the viruses that cause these diseases. A susceptible variety can be severely damaged by any one of these diseases.

Wheat performance data are presented in Tables 1 to 9.

### Wheat Hybrids and Blends

Proprietary wheat hybrids were first included in the 1982 performance trials. Some hybrids were produced using a chemical to sterilize pollen in the seed parent. Other hybrids were produced using the cytoplasmic male sterile and nuclear restorer system. Techniques of hybrid wheat production are often less than 100 percent effective. Therefore, the seed produced on the seed parent may not be 100 percent hybrid.

By Indiana law, seed labeled as hybrid must contain at least 75 percent hybrid seed, and if less than 95 percent hybrid, the hybrid percentage must be stated on the seed label.

Seed having less than 75 percent hybrid is considered a blend. Seed from hybrid wheat, like corn, should not be saved for seeding the following year.

**Table A. Temperatures that cause freeze injury to wheat, at spring growth stages. Symptoms and yield effect of spring freeze injury.**

| Growth stage | Approximate injurious temperature (2 hours) | Primary symptoms  | Yield effect       |
|--------------|---|---|--------------------|
| Tillering    | 12° F (-11° C)                              | Leaf chlorosis; burning of leaf tips; silage odor; blue cast to the field.  | Slight to moderate |
| Jointing     | 24° F (-4° C)                               | Death of growing point; leaf yellowing or burning; lesions, splitting, or bending of lower stems; odor.           | Moderate to severe |
| Boot         | 28° F (-2° C)                               | Floret sterility; head trapped in boot; damage to lower stem; leaf discoloration; odor.                           | Moderate to severe |
| Heading      | 30° F (-1° C)                               | Floret sterility; white awns or white heads; damage to lower stem; leaf discoloration.                            | Severe             |
| Flowering    | 30° F (-1° C)                               | Floret sterility; white awns or white heads; damage to lower stem; leaf discoloration.                            | Severe             |
| Milk         | 28° F (-2° C)                               | White awns or white heads; damage to lower stems; leaf discoloration; shrunken, roughened, or discolored kernels. | Moderate to severe |
| Dough        | 28° F (-2° C)                               | Shriveled, discolored kernels; poor germination.  | Slight to moderate |

**Table B. Disease ratings for the 2006 winter wheat performance trials at 5 Indiana locations; 1) Porter, 2) Tippecanoe, 3) Randolph, 4) Knox, and 5) Jennings Counties. Ratings are for *Septoria tritici* or *Stagonospora nodorum* leaf blotch (SLB) glume blotch (GB) and leaf rust (LR).**

| <b>Entry name(1)</b> | <b>Loc 1<br/>SLB (2)</b> | <b>Loc 2<br/>SLB (2)</b> | <b>Loc 3<br/>SLB (2)</b> | <b>Loc 4<br/>SLB (2)</b> | <b>Loc 5<br/>SLB (2)</b> | <b>Loc 5<br/>GB (3)</b> | <b>Loc 1<br/>LR (4)</b> | <b>Loc 2<br/>LR (4)</b> | <b>Loc 3<br/>LR (4)</b> |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Adler 545            | -                        | -                        | -                        | 7.7                      | 9.1                      | 3.5                     | -                       | -                       | -                       |
| Branson AgriPro      | -                        | 6.5                      | 7.8                      | 7.5                      | 8.1                      | 1.3                     | -                       | 8.8                     | 0.8                     |
| Bravo OSIA           | 6.8                      | 7.3                      | 7.7                      | 7.2                      | 8.4                      | 1.0                     | 0.9                     | 33.8                    | 2.5                     |
| Cecil OSIA           | 7.0                      | -                        | 7.4                      | -                        | -                        | -                       | 50.0                    | -                       | 0.0                     |
| Coker 9312           | -                        | 6.7                      | 7.3                      | 7.5                      | 8.5                      | 4.3                     | -                       | 0.0                     | 0.0                     |
| Coker 9511           | -                        | 7.2                      | 7.3                      | 6.6                      | 8.5                      | 2.5                     | -                       | 0.0                     | 0.0                     |
| Coker 9553           | -                        | 6.8                      | 7.9                      | 7.0                      | 8.0                      | 6.3                     | -                       | 0.0                     | 0.3                     |
| Cooper AgriPro       | -                        | 6.6                      | 7.3                      | 7.1                      | 8.7                      | 1.3                     | -                       | 0.0                     | 0.3                     |
| Daisy OSIA           | -                        | 7.5                      | 7.2                      | -                        | -                        | -                       | -                       | 55.0                    | 1.3                     |
| Excel 173            | -                        | -                        | 8.0                      | 7.1                      | -                        | -                       | -                       | -                       | 0.8                     |
| Excel 211            | -                        | -                        | 8.3                      | 7.7                      | -                        | -                       | -                       | -                       | 0.0                     |
| Excel 388            | -                        | -                        | 8.3                      | 7.4                      | -                        | -                       | -                       | -                       | 0.0                     |
| Excel 392TW          | -                        | -                        | 7.1                      | 6.6                      | -                        | -                       | -                       | -                       | 0.0                     |
| Excel 399            | -                        | -                        | 8.0                      | 7.5                      | -                        | -                       | -                       | -                       | 0.8                     |
| Excel 410TW          | -                        | -                        | 8.0                      | 7.5                      | -                        | -                       | -                       | -                       | 0.3                     |
| Hopewell Public      | 7.1                      | 6.8                      | 7.7                      | -                        | -                        | -                       | 8.0                     | 10.3                    | 2.5                     |
| Judith Exsegen       | -                        | -                        | -                        | 7.3                      | 8.6                      | 2.8                     | -                       | -                       | -                       |
| Leah Exsegen         | -                        | -                        | -                        | 7.5                      | 8.7                      | 0.8                     | -                       | -                       | -                       |
| Lydia Exsegen        | -                        | -                        | -                        | 8.0                      | 7.9                      | 10.5                    | -                       | -                       | -                       |
| McLane Steyer        | -                        | -                        | -                        | 6.8                      | 8.2                      | 2.3                     | -                       | -                       | -                       |
| Merrell Steyer       | -                        | -                        | -                        | 7.2                      | 8.5                      | 0.3                     | -                       | -                       | -                       |
| Morral Steyer        | -                        | -                        | -                        | 6.8                      | 8.9                      | 3.3                     | -                       | -                       | -                       |
| Patterson Public     | 7.9                      | 7.1                      | 8.2                      | 7.6                      | 8.9                      | 5.5                     | 1.7                     | 0.8                     | 0.0                     |
| Rachel Exsegen       | -                        | -                        | -                        | 7.1                      | 8.6                      | 2.8                     | -                       | -                       | -                       |
| Roane Public         | 6.4                      | 6.8                      | 7.6                      | 7.8                      | 8.3                      | 4.0                     | 0.1                     | 0.9                     | 0.0                     |
| Vigoro Tribute       | -                        | 6.5                      | 6.8                      | -                        | -                        | -                       | -                       | 0.0                     | 0.0                     |
| Vigoro V9410         | -                        | 7.4                      | 8.1                      | 7.8                      | 8.6                      | 1.3                     | -                       | 0.5                     | 0.0                     |
| Vigoro V9412         | -                        | 6.6                      | 7.6                      | 7.1                      | 8.9                      | 0.8                     | -                       | 0.5                     | 0.0                     |
| Vigoro V9512         | -                        | 7.3                      | 8.1                      | 7.0                      | 9.1                      | 0.8                     | -                       | 2.8                     | 0.0                     |
| Wiser Steyer         | -                        | -                        | -                        | 7.5                      | 8.0                      | 1.3                     | -                       | -                       | -                       |
| LSD (0.05)           | 0.7                      | 0.5                      | 0.7                      | 0.5                      | 0.8                      | 5.5                     | 4.7                     | 6.7                     | 2.1                     |

**Table B contd. Disease ratings for the 2006 winter wheat performance trials at 5 Indiana locations; 1) Porter, 2) Tippecanoe, 3) Randolph, 4) Knox, and 5) Jennings Counties. Ratings are for *Septoria tritici* or *Stagonospora nodorum* leaf blotch (SLB) glume blotch (GB) and leaf rust (LR).**

- (1) Public entries were developed by Agricultural Experiment Stations (e.g. Indiana Agricultural Programs) or in cooperation with the Agricultural Service of the USDA. Other names are company or brand names generally associated in the trade with variety, hybrid or blend names.
- (2) SLB = leaf blotch, caused by either *Septoria tritici* or *Stagonospora nodorum*. Ratings were made at location 1 on 15 June, location 2 on 8 June, location 3 on 7 June, location 4 on 24 May and location 5 on 6 June. Leaf blotch severity is scored on a scale of 1 - 10 based on percentage area, of the upper 4 leaves, that is blighted. Percentage area blighted for these four leaves, for scale values 3 through 9.5, are as follows:

| Scale value | Percent area blighted on leaf |        |        |        |
|-------------|-------------------------------|--------|--------|--------|
|             | Flag (F)                      | F-1    | F-2    | F-3    |
| 3           | -                             | -      | 0      | 20-40  |
| 4           | -                             | -      | 1-10   | 40-70  |
| 5           | -                             | 0-1    | 10-25  | 70-90  |
| 6           | -                             | 1-10   | 25-75  | 90-100 |
| 7           | -                             | 10-50  | 75-100 | 100    |
| 8           | 1-20                          | 50-90  | 100    | 100    |
| 9           | 20-90                         | 90-100 | 100    | 100    |
| 9.5         | 90-100                        | 100    | 100    | 100    |

- (3) GB = Glume Blotch (*Stagonospora nodorum*) recorded as percent of head area affected, 6 June at location 5.
- (4) LR = leaf rust, recorded as the percent of flag leaf area affected, at location 1 on 15 June, location 2 on 9 June, and location 3 on 16 June.

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**Table C. Disease ratings for the 2006 winter wheat performance trials at 5 Indiana locations; 1) Porter, 2) Tippecanoe, 3) Randolph, 4) Knox and 5) Jennings Counties. Ratings are for *Fusarium* head blight (scab) and yellow dwarf.**

| <b>Entry name(1)</b> | <b>Loc 1<br/>FHB(2)</b> | <b>Loc 2<br/>FHB(2)</b> | <b>Loc 3<br/>FHB(2)</b> | <b>Loc 5<br/>FHB(2)</b> | <b>Loc 4<br/>YD(3)</b> |
|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|
| Adler 545            | -                       | -                       | -                       | 0.1                     | 1.6                    |
| Branson AgriPro      | -                       | 8.3                     | 5.0                     | 0.0                     | 0.2                    |
| Bravo OSIA           | 0.3                     | 4.4                     | 3.9                     | 0.2                     | 16.0                   |
| Cecil OSIA           | 0.0                     | -                       | 0.8                     | -                       | -                      |
| Coker 9312           | -                       | 5.8                     | 3.1                     | 0.0                     | 2.7                    |
| Coker 9511           | -                       | 2.7                     | 0.8                     | 0.0                     | 0.1                    |
| Coker 9553           | -                       | 9.3                     | 7.2                     | 0.1                     | 0.7                    |
| Cooper AgriPro       | -                       | 5.3                     | 1.9                     | 0.6                     | 1.6                    |
| Daisy OSIA           | -                       | 6.6                     | 2.9                     | -                       | -                      |
| Excel 173            | -                       | -                       | 3.0                     | -                       | 2.8                    |
| Excel 211            | -                       | -                       | 1.9                     | -                       | 1.8                    |
| Excel 388            | -                       | -                       | 2.1                     | -                       | 1.4                    |
| Excel 392TW          | -                       | -                       | 1.1                     | -                       | 0.1                    |
| Excel 399            | -                       | -                       | 2.7                     | -                       | 2.4                    |
| Excel 410TW          | -                       | -                       | 1.1                     | -                       | 1.4                    |
| Hopewell Public      | 0.1                     | 1.3                     | 0.4                     | -                       | -                      |
| Judith Exsegen       | -                       | -                       | -                       | 0.4                     | 9.0                    |
| Leah Exsegen         | -                       | -                       | -                       | 0.6                     | 18.3                   |
| Lydia Exsegen        | -                       | -                       | -                       | 0.0                     | 9.3                    |
| McLane Steyer        | -                       | -                       | -                       | 0.0                     | 0.1                    |
| Merrell Steyer       | -                       | -                       | -                       | 0.0                     | 1.5                    |
| Morral Steyer        | -                       | -                       | -                       | 0.0                     | 10.8                   |
| Patterson Public     | 0.4                     | 7.5                     | 5.0                     | 0.2                     | 11.3                   |
| Rachel Exsegen       | -                       | -                       | -                       | 0.2                     | 9.0                    |
| Roane Public         | 0.2                     | 2.6                     | 3.0                     | 0.1                     | 0.2                    |
| Vigoro Tribute       | -                       | 4.5                     | 2.2                     | -                       | -                      |
| Vigoro V9410         | -                       | 9.0                     | 2.8                     | 0.1                     | 4.4                    |
| Vigoro V9412         | -                       | 2.2                     | 1.3                     | 0.0                     | 0.6                    |
| Vigoro V9512         | -                       | 7.8                     | 2.1                     | 0.5                     | 2.8                    |
| Wiser Steyer         | -                       | -                       | -                       | 0.1                     | 2.4                    |
| LSD (0.05)           | 0.4                     | 2.6                     | 2.6                     | 0.5                     | 8.3                    |

(1) Public entries were developed by Agricultural Experiment Stations (e.g. Indiana Agricultural Programs) or in cooperation with the Agricultural Service of the USDA. Other names are company or brand names generally associated in the trade with variety, hybrid or blend names.

(2) FHB = *Fusarium* head blight (scab). Disease is scored as percent severity: the product of the percentage of heads with symptoms and the proportion of those heads that are blighted. Ratings were made at location 1 on 15 June, location 2 on 8 June, location 3 on 7 June, and location 5 on 6 June. (milk stage).

(3) YD = yellow dwarf. Disease intensity is scored as percentage of plants showing symptoms. Ratings were made at location 4 on 24 May.

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**2006 Indiana Winter Wheat Performance Trial Results,  
Tables 1 through 9.**

**Table 1. Results of winter wheat performance trials in Porter Co., Location 1, northwest Indiana.**

| Entry Name(1)                                |        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|--------|---------------|----------|-----------|-----------|-----------|-------------|
|  |        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |        |               |          |           |           |           |             |
| Roane  | Public | 101.7 *       | 60.3     | 0         | 35        | 0         | 5-16        |
| Bravo  | OSIA   | 101.3 *       | 59.8     | 2         | 38        | 0         | 5-13        |
| Patterson                                    | Public | 97.2 *        | 59.8     | 0         | 38        | 0         | 5-13        |
| Hopewell                                     | OSIA   | 96.2 *        | 57.2     | 0         | 38        | 0         | 5-17        |
| Grand mean                                   |        | 99.1          | 59.3     | 1         | 37        | 0         | 5-15        |
| BLSD (k=100)                                 |        | ns            | 2.6      | ns        | 2         | ns        | 1           |
| C.V. (%)                                     |        | 6.3           | 0.8      | 282       | 3         |           | 1           |
| <b>Two-year average, 2005, 2006.</b>         |        |               |          |           |           |           |             |
| Patterson                                    | Public | 106.8 *       | 60.1     | 0         | 39        | 0         | 5-15        |
| Bravo  | OSIA   | 106.8 *       | 59.9     | 2         | 38        | 0         | 5-15        |
| Roane  | Public | 105.9 *       | 61.0     | 0         | 35        | 0         | 5-17        |
| Hopewell                                     | OSIA   | 101.1 *       | 58.3     | 0         | 38        | 0         | 5-19        |
| Grand mean                                   |        | 105.2         | 59.8     | 1         | 38        | 0         | 5-17        |
| BLSD (k=100)                                 |        | ns            | ns       | ns        | 3         | ns        | 1           |
| C.V. (%)                                     |        | 5.5           | 0.7      | 297       | 3         |           | 1           |
| <b>2006 results(3)</b>                       |        |               |          |           |           |           |             |
| Patterson                                    | Public | 105.0 *       | 59.4     | 0         | 41        | 0         | 5-12        |
| Roane  | Public | 102.4 *       | 60.8     | 0         | 38        | 0         | 5-14        |
| Hopewell                                     | OSIA   | 101.2 *       | 59.5     | 0         | 41        | 0         | 5-17        |
| Bravo  | OSIA   | 99.0 *        | 59.1     | 5         | 40        | 0         | 5-13        |
| Cecil  | OSIA   | 95.1 *        | 58.5     | 0         | 43        | 0         | 5-17        |
| Grand mean                                   |        | 100.5         | 59.5     | 1         | 41        | 0         | 5-15        |
| BLSD (k=100)                                 |        | ns            | 0.3      | 3         | 2         | ns        | 1           |
| C.V. (%)                                     |        | 6.0           | 0.4      | 188       | 3         |           | 1           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

**Table 1 contd. Results of winter wheat performance trials in Porter Co., Location 1, northwest Indiana.**

|  |
|--|
| (3) Conducted on the Pinney Purdue Agricultural Center, Wanatah.<br>Jon D. Leuck, superintendent.<br>Randomized complete block design: 4 blocks.<br>Soil type: Runnymede silt loam.<br>Soil test: pH 6.3, P 34 ppm (high), K 255 ppm (very high).<br>Fertility program: 300 lbs./acre 8-32-16 broadcast and incorporated prior to seeding. Topdressed March 21, 2006 with 294 lbs./acre of 34-0-0.<br>Rates of seeding: 1.5 to 1.8 million live seeds per acre.<br>Date of seeding: September 28, 2005.<br>Date of harvest: July 6, 2006.<br>(Copyright 2006 Purdue University. All rights reserved) |
|--|

**Table 2. Results of regular date-of-seeding winter wheat performance trials in Tippecanoe Co., Location 2, west central Indiana.**

| Entry Name(1)                                |        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|--------|---------------|----------|-----------|-----------|-----------|-------------|
|  |        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |        |               |          |           |           |           |             |
| Roane  | Public | 82.5 *        | 60.3     | 9         | 34        | 2         | 5-12        |
| Patterson                                    | Public | 75.6 *        | 58.4     | 13        | 38        | 1         | 5-11        |
| Bravo  | OSIA   | 74.4 *        | 58.1     | 15        | 37        | 2         | 5-11        |
| Hopewell                                     | OSIA   | 71.1 *        | 57.4     | 13        | 37        | 1         | 5-13        |
| Daisy  | OSIA   | 70.8 *        | 56.4     | 11        | 37        | 1         | 5-12        |
| Coker 9312                                   |        | 65.1 *        | 58.4     | 19        | 31        | 32        | 5-12        |
| Grand mean                                   |        | 73.3          | 58.2     | 13        | 36        | 7         | 5-12        |
| BLSD (k=100)                                 |        | ns            | 1.4      | ns        | 3         | ns        | ns          |
| C.V. (%)                                     |        | 11.4          | 1.0      | 120       | 5         | 38        | 3           |

**Table 2 contd. Results of regular date-of-seeding winter wheat performance trials in Tippecanoe Co., Location 2, west central Indiana.**

| Entry Name(1)                        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--------------------------------------|---------------|----------|-----------|-----------|-----------|-------------|
|                                      | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Two-year average, 2005, 2006.</b> |               |          |           |           |           |             |
| Vigoro Tribute                       | 82.1 *        | 60.3     | 0         | 33        | 7         | 5-13        |
| Roane Public                         | 79.4 *        | 60.9     | 0         | 34        | 3         | 5-14        |
| Vigoro V9512                         | 76.5 *        | 58.3     | 3         | 37        | 0         | 5-13        |
| Vigoro V9412                         | 76.2 *        | 59.9     | 0         | 33        | 15        | 5-14        |
| Patterson Public                     | 74.6 *        | 58.9     | 0         | 36        | 2         | 5-13        |
| Hopewell OSIA                        | 73.0 *        | 58.7     | 0         | 36        | 1         | 5-15        |
| Daisy OSIA                           | 71.1 *        | 57.2     | 0         | 35        | 2         | 5-13        |
| Bravo OSIA                           | 69.7 *        | 58.5     | 18        | 35        | 2         | 5-14        |
| Coker 9312                           | 59.8 *        | 59.0     | 0         | 30        | 48        | 5-16        |
| Grand mean                           | 73.6          | 59.1     | 2         | 34        | 9         | 5-14        |
| BLSD (k=100)                         | ns            | 2.3      | ns        | 4         | ns        | 3           |
| C.V. (%)                             | 10.7          | 1.1      | 381       | 5         | 115       | 3           |

| <b>2006 results(3)</b> |         |      |     |    |    |      |
|------------------------|---------|------|-----|----|----|------|
| Branson AgriPro        | 113.5 * | 58.2 | 0   | 39 | 0  | 5-09 |
| Cooper AgriPro         | 110.1 * | 59.2 | 0   | 39 | 0  | 5-09 |
| Vigoro V9412           | 104.6   | 60.1 | 0   | 38 | 0  | 5-12 |
| Vigoro Tribute         | 102.3   | 60.6 | 0   | 37 | 0  | 5-10 |
| Coker 9553             | 100.9   | 59.4 | 0   | 40 | 0  | 5-08 |
| Coker 9511             | 100.6   | 62.3 | 0   | 39 | 0  | 5-11 |
| Roane Public           | 97.0    | 61.1 | 0   | 40 | 0  | 5-11 |
| Coker 9312             | 95.8    | 59.8 | 0   | 35 | 0  | 5-11 |
| Hopewell OSIA          | 95.4    | 59.3 | 0   | 42 | 0  | 5-13 |
| Vigoro V9512           | 94.2    | 57.1 | 6   | 40 | 0  | 5-10 |
| Patterson Public       | 90.9    | 58.7 | 0   | 41 | 0  | 5-10 |
| Vigoro V9410           | 89.6    | 58.3 | 0   | 43 | 0  | 5-07 |
| Daisy OSIA             | 88.4    | 57.2 | 0   | 39 | 0  | 5-11 |
| Bravo OSIA             | 80.1    | 57.9 | 36  | 39 | 0  | 5-10 |
| Grand mean             | 97.4    | 59.2 | 3   | 39 | 0  | 5-10 |
| BLSD (k=100)           | 7.4     | 0.7  | 16  | 2  | ns | 1    |
| C.V. (%)               | 5.7     | 0.9  | 338 | 3  |    | 1    |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

**Table 2 contd. Results of regular date-of-seeding winter wheat performance trials in Tippecanoe Co., Location 2, west central Indiana.**

(3) Conducted on the Purdue University Agronomy Center for Research and Education (ACRE), Lafayette. James J. Beaty III, superintendent. Randomized complete block design: 4 blocks. Soil type: Drummer (Chalmers) silt loam. Soil test: pH 6.1, P 47 ppm (high), K 191 ppm (high). Fertility program: 200 lbs./acre 18-46-0 broadcast and incorporated prior to seeding. Topdressed March 1, 2006 with 294 lbs./acre of 34-0-0. Rates of seeding: 1.4 to 1.8 million live seeds per acre. Date of seeding: October 4, 2005. Date of harvest: June 30, 2006. (Copyright 2006 Purdue University. All rights reserved)

**Table 3. Results of late-seeded winter wheat performance trials in Tippecanoe Co., Location 2, west central Indiana.**

| Entry Name(1)                                | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|---------------|----------|-----------|-----------|-----------|-------------|
|  | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |               |          |           |           |           |             |
| Roane Public                                 | 79.3 *        | 58.7     | 1         | 32        | 12        | 5-17        |
| Hopewell OSIA                                | 79.3 *        | 56.0     | 5         | 36        | 3         | 5-19        |
| Bravo OSIA                                   | 78.1 *        | 56.8     | 3         | 36        | 2         | 5-16        |
| Patterson Public                             | 72.3 *        | 57.3     | 9         | 36        | 5         | 5-14        |
| Grand mean                                   | 77.3          | 57.2     | 5         | 35        | 6         | 5-17        |
| BLSD (k=100)                                 | ns            | ns       | ns        | 2         | ns        | 1           |
| C.V. (%)                                     | 9.5           | 1.1      | 129       | 5         | 153       | 2           |

| <b>Two-year average, 2005, 2006.</b> |        |      |    |    |     |      |
|--------------------------------------|--------|------|----|----|-----|------|
| Hopewell OSIA                        | 76.8 * | 57.2 | 0  | 35 | 4   | 5-22 |
| Roane Public                         | 75.6 * | 58.9 | 0  | 31 | 18  | 5-21 |
| Bravo OSIA                           | 74.8 * | 57.1 | 0  | 35 | 3   | 5-19 |
| Patterson Public                     | 67.8 * | 57.2 | 0  | 35 | 8   | 5-17 |
| Grand mean                           | 73.8   | 57.6 | 0  | 34 | 8   | 5-20 |
| BLSD (k=100)                         | ns     | ns   | ns | ns | ns  | 2    |
| C.V. (%)                             | 11.8   | 1.1  |    | 5  | 125 | 2    |

**Table 3 contd. Results of late-seeded winter wheat performance trials in Tippecanoe Co., Location 2, west central Indiana.**

| Entry Name(1)          |        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|------------------------|--------|---------------|----------|-----------|-----------|-----------|-------------|
|                        |        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>2006 results(3)</b> |        |               |          |           |           |           |             |
| Roane                  | Public | 96.3 *        | 59.7     | 0         | 37        | 0         | 5-19        |
| Hopewell               | OSIA   | 95.6 *        | 57.3     | 0         | 39        | 0         | 5-21        |
| Bravo                  | OSIA   | 85.9          | 56.6     | 0         | 40        | 0         | 5-17        |
| Patterson              | Public | 81.6          | 56.4     | 0         | 39        | 0         | 5-16        |
| Grand mean             |        | 89.8          | 57.5     | 0         | 39        | 0         | 5-18        |
| B LSD (k=100)          |        | 2.8           | 0.7      | ns        | ns        | ns        |             |
| C.V. (%)               |        | 2.1           | 0.9      |           | 3         |           | 1           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

(3) Conducted on the Purdue University Agronomy Center for Research and Education (ACRE), Lafayette. James J. Beaty III, superintendent.

Randomized complete block design: 4 blocks.

Soil type: Drummer (Chalmers) silt loam.

Soil test: pH 6.1, P 43 ppm (high), K 187 ppm (high).

Fertility program: 200 lbs./acre 18-46-0 broadcast and incorporated prior to seeding.

Topdressed March 1, 2006 with 294 lbs./acre of 34-0-0.

Rate of seeding: 1.5 to 1.8 million live seeds per acre.

Date of seeding: October 28, 2005.

Date of harvest: July 7, 2006.

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**Table 4. Results of winter wheat performance trials in Randolph Co., Location 3, east central Indiana.**

| Entry Name(1)                                |        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|--------|---------------|----------|-----------|-----------|-----------|-------------|
|  |        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |        |               |          |           |           |           |             |
| Bravo  | OSIA   | 99.6 *        | 57.1     | 2         | 38        | 1         | 5-18        |
| Roane  | Public | 97.4 *        | 58.5     | 5         | 36        | 1         | 5-19        |
| Hopewell                                     | OSIA   | 96.7 *        | 56.9     | 0         | 38        | 1         | 5-20        |
| Daisy  | OSIA   | 92.6 *        | 55.2     | 1         | 37        | 1         | 5-18        |
| Patterson                                    | Public | 91.8 *        | 56.9     | 2         | 39        | 1         | 5-17        |
| Coker 9312                                   |        | 91.1 *        | 57.1     | 1         | 32        | 2         | 5-18        |
| Grand mean                                   |        | 94.9          | 57.0     | 2         | 37        | 1         | 5-18        |
| B LSD (k=100)                                |        | ns            | 0.9      | 4         | 1         | ns        | ns          |
| C.V. (%)                                     |        | 6.0           | 1.3      | 139       | 5         | 91        | 3           |

**Two-year average, 2005, 2006.**

|                |        |         |      |     |    |     |      |
|----------------|--------|---------|------|-----|----|-----|------|
| Vigoro Tribute |        | 105.2 * | 59.1 | 1   | 35 | 3   | 5-20 |
| Excel 392TW    |        | 105.0 * | 57.4 | 10  | 40 | 1   | 5-21 |
| Cooper AgriPro |        | 104.4 * | 55.9 | 2   | 36 | 5   | 5-20 |
| Excel 410TW    |        | 103.1 * | 56.8 | 3   | 39 | 1   | 5-22 |
| Excel 399      |        | 103.1 * | 56.1 | 4   | 39 | 1   | 5-20 |
| Vigoro V9412   |        | 102.5 * | 58.3 | 1   | 37 | 3   | 5-20 |
| Bravo          | OSIA   | 101.8 * | 57.0 | 3   | 39 | 1   | 5-21 |
| Roane          | Public | 99.6 *  | 58.3 | 7   | 37 | 1   | 5-22 |
| Excel 388      |        | 99.5 *  | 55.7 | 3   | 40 | 1   | 5-20 |
| Vigoro V9512   |        | 99.2 *  | 55.5 | 6   | 38 | 2   | 5-20 |
| Hopewell       | OSIA   | 98.3 *  | 56.8 | 0   | 39 | 1   | 5-22 |
| Excel 211      |        | 97.6 *  | 56.0 | 7   | 40 | 1   | 5-20 |
| Patterson      | Public | 95.8 *  | 56.6 | 4   | 40 | 1   | 5-20 |
| Coker 9312     |        | 91.6 *  | 57.2 | 1   | 33 | 3   | 5-20 |
| Daisy          | OSIA   | 91.1 *  | 54.6 | 1   | 38 | 1   | 5-20 |
| Grand mean     |        | 99.9    | 56.8 | 4   | 38 | 2   | 5-21 |
| B LSD (k=100)  |        | ns      | 1.1  | 5   | 2  | ns  | ns   |
| C.V. (%)       |        | 6.9     | 1.2  | 114 | 4  | 165 | 4    |

**Table 4 contd. Results of winter wheat performance trials in Randolph Co., Location 3, east central Indiana.**

| Entry Name(1)          | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|------------------------|---------------|----------|-----------|-----------|-----------|-------------|
|                        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>2006 results(3)</b> |               |          |           |           |           |             |
| Excel 173              | 103.6 *       | 57.8     | 23        | 37        | 0         | 5-20        |
| Cooper AgriPro         | 103.0 *       | 55.9     | 4         | 35        | 0         | 5-22        |
| Vigoro Tribute         | 102.9 *       | 58.4     | 1         | 35        | 0         | 5-20        |
| Branson AgriPro        | 102.9 *       | 55.1     | 6         | 35        | 0         | 5-20        |
| Bravo OSIA             | 102.6 *       | 56.5     | 1         | 39        | 0         | 5-23        |
| Excel 399              | 99.3 *        | 55.9     | 5         | 39        | 0         | 5-22        |
| Coker 9511             | 99.2 *        | 59.2     | 3         | 37        | 0         | 5-22        |
| Vigoro V9412           | 98.6 *        | 57.2     | 3         | 37        | 0         | 5-20        |
| Excel 410TW            | 98.0 *        | 56.4     | 5         | 39        | 0         | 5-23        |
| Excel 392TW            | 97.3 *        | 57.4     | 13        | 39        | 0         | 5-22        |
| Roane Public           | 96.1 *        | 58.5     | 9         | 37        | 0         | 5-23        |
| Daisy OSIA             | 95.9 *        | 54.8     | 3         | 37        | 0         | 5-20        |
| Vigoro V9512           | 94.0          | 55.7     | 8         | 37        | 0         | 5-22        |
| Coker 9312             | 93.0          | 56.8     | 3         | 32        | 0         | 5-23        |
| Hopewell OSIA          | 91.4          | 56.8     | 0         | 38        | 0         | 5-22        |
| Excel 388              | 91.2          | 55.1     | 5         | 38        | 0         | 5-22        |
| Vigoro V9410           | 91.1          | 55.0     | 9         | 39        | 0         | 5-20        |
| Coker 9553             | 90.3          | 56.3     | 0         | 36        | 0         | 5-23        |
| Excel 211              | 87.7          | 55.8     | 11        | 38        | 0         | 5-22        |
| Patterson Public       | 87.6          | 56.4     | 5         | 39        | 0         | 5-23        |
| Cecil OSIA             | 84.4          | 55.3     | 5         | 38        | 0         | 5-23        |
| Grand mean             | 95.7          | 56.5     | 6         | 37        | 0         | 5-22        |
| BLSD (k=100)           | 8.3           | 0.7      | 7         | 2         | ns        | ns          |
| C.V. (%)               | 5.9           | 1.0      | 86        | 4         |           | 5           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

**Table 4 contd. Results of winter wheat performance trials in Randolph Co., Location 3, east central Indiana.**

(3) Conducted on the Davis Purdue Agricultural Center, Farmland.  
 Jeffrey L. Boyer, superintendent.  
 Randomized complete block design: 4 blocks.  
 Soil type: Blount silty clay loam.  
 Soil test: pH 5.8, P 62 ppm (very high), K 274 ppm (very high).  
 Fertility program: 374 lbs./acre 5-12-38 with 11 lbs. of sulfur, broadcast and incorporated prior to seeding. Topdressed March 2, 2006 with 294 lbs./acre of 34-0-0.  
 Rates of seeding: 1.4 to 1.8 million live seeds per acre.  
 Date of seeding: October 17, 2005.  
 Date of harvest: July 7, 2006.  
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**Table 5. Results of winter wheat performance trials in Knox Co., Location 4, southwest Indiana.**

| Entry Name(1)                                | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|---------------|----------|-----------|-----------|-----------|-------------|
|  | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |               |          |           |           |           |             |
| Cooper AgriPro                               | 83.6 *        | 56.6     | 33        | 37        | 0         | 5-04        |
| Roane Public                                 | 75.8 *        | 58.9     | 32        | 37        | 0         | 5-06        |
| Judith Exsegen                               | 74.4 *        | 56.9     | 33        | 40        | 0         | 5-05        |
| Patterson Public                             | 57.3          | 56.2     | 31        | 39        | 0         | 5-04        |
| Grand mean                                   | 72.8          | 57.1     | 32        | 38        | 0         | 5-05        |
| BLSD (k=100)                                 | 13.4          | 1.3      | ns        | 2         | ns        | ns          |
| C.V. (%)                                     | 8.3           | 1.6      | 14        | 4         |           | 3           |

**Table 5 contd. Results of winter wheat performance trials in Knox Co., Location 4, southwest Indiana.**

| Entry Name(1)                        |         | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--------------------------------------|---------|---------------|----------|-----------|-----------|-----------|-------------|
|                                      |         | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Two-year average, 2005, 2006.</b> |         |               |          |           |           |           |             |
| Cooper                               | AgriPro | 86.2 *        | 58.2     | 0         | 36        | 0         | 5-05        |
| Merrell                              | Steyer  | 85.3 *        | 57.7     | 0         | 37        | 0         | 5-05        |
| Excel 392TW                          |         | 85.2 *        | 58.9     | 0         | 42        | 0         | 5-07        |
| Roane                                | Public  | 84.0 *        | 60.6     | 0         | 36        | 0         | 5-08        |
| Judith                               | Exsegen | 83.2 *        | 58.6     | 0         | 40        | 0         | 5-07        |
| Vigoro V9412                         |         | 81.2 *        | 59.6     | 0         | 36        | 1         | 5-04        |
| Leah                                 | Exsegen | 80.3 *        | 56.3     | 0         | 35        | 0         | 5-06        |
| Excel 211                            |         | 79.6 *        | 57.0     | 0         | 41        | 0         | 5-02        |
| Excel 410TW                          |         | 77.0 *        | 57.4     | 0         | 39        | 0         | 5-05        |
| Vigoro V9410                         |         | 76.4 *        | 56.4     | 0         | 39        | 0         | 5-02        |
| Rachel                               | Exsegen | 76.3 *        | 58.0     | 0         | 36        | 0         | 5-02        |
| Vigoro V9512                         |         | 76.1 *        | 57.6     | 0         | 40        | 0         | 5-06        |
| Excel 388                            |         | 74.5          | 56.4     | 0         | 39        | 0         | 5-04        |
| Excel 399                            |         | 73.6          | 56.3     | 0         | 40        | 0         | 5-05        |
| Patterson                            | Public  | 66.2          | 58.1     | 0         | 39        | 1         | 5-05        |
| Grand mean                           |         | 79.0          | 57.8     | 0         | 38        | 0         | 5-05        |
| B LSD (k=100)                        |         | 10.3          | 2.1      | ns        | 2         | ns        | 3           |
| C.V. (%)                             |         | 5.6           | 0.8      |           | 5         | 557       | 4           |
| <b>2006 results(3)</b>               |         |               |          |           |           |           |             |
| Branson                              | AgriPro | 87.2 *        | 54.6     | 0         | 35        | 0         | 4-30        |
| Cooper                               | AgriPro | 80.8 *        | 55.3     | 0         | 34        | 0         | 5-02        |
| Excel 173                            |         | 79.2          | 55.7     | 0         | 36        | 0         | 5-01        |
| Coker 9553                           |         | 79.1          | 56.6     | 0         | 35        | 0         | 4-29        |
| Merrell                              | Steyer  | 78.8          | 54.1     | 0         | 35        | 0         | 5-01        |
| McLane                               | Steyer  | 77.8          | 55.3     | 0         | 38        | 0         | 5-02        |
| Coker 9312                           |         | 77.2          | 57.0     | 0         | 30        | 0         | 4-27        |
| Lydia                                | Exsegen | 76.6          | 55.2     | 0         | 34        | 0         | 4-29        |
| Excel 392TW                          |         | 76.5          | 56.1     | 0         | 41        | 0         | 5-02        |
| Roane                                | Public  | 75.4          | 58.3     | 0         | 34        | 0         | 5-02        |
| Morrall                              | Steyer  | 75.4          | 56.1     | 0         | 33        | 0         | 4-30        |
| Coker 9511                           |         | 74.4          | 58.4     | 0         | 36        | 0         | 4-30        |
| Vigoro V9412                         |         | 72.9          | 57.1     | 0         | 34        | 0         | 5-02        |
| Judith                               | Exsegen | 68.4          | 56.5     | 0         | 37        | 0         | 5-02        |
| Excel 410TW                          |         | 67.4          | 54.1     | 0         | 37        | 0         | 5-01        |
| Vigoro V9512                         |         | 67.3          | 54.9     | 0         | 38        | 0         | 5-02        |
| Wiser                                | Steyer  | 67.1          | 53.2     | 0         | 36        | 0         | 5-02        |
| Excel 211                            |         | 66.9          | 53.9     | 0         | 38        | 0         | 4-28        |
| Leah                                 | Exsegen | 66.5          | 51.8     | 0         | 32        | 0         | 5-02        |
| Rachel                               | Exsegen | 64.2          | 55.2     | 0         | 35        | 0         | 4-28        |

**Table 5 contd. Results of winter wheat performance trials in Knox Co., Location 4, southwest Indiana.**

| Entry Name(1)                    |        | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|----------------------------------|--------|---------------|----------|-----------|-----------|-----------|-------------|
|                                  |        | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>2006 results continued(3)</b> |        |               |          |           |           |           |             |
| Excel 388                        |        | 63.6          | 53.0     | 0         | 36        | 0         | 5-01        |
| Adler 545                        |        | 62.5          | 52.8     | 0         | 37        | 0         | 4-28        |
| Excel 399                        |        | 61.3          | 52.5     | 0         | 38        | 0         | 5-02        |
| Vigoro V9410                     |        | 60.6          | 53.4     | 0         | 38        | 0         | 4-28        |
| Bravo                            | OSIA   | 60.3          | 56.0     | 0         | 38        | 0         | 4-29        |
| Patterson                        | Public | 56.6          | 54.6     | 0         | 38        | 0         | 5-01        |
| Grand mean                       |        | 70.9          | 55.1     | 0         | 36        | 0         | 4-30        |
| B LSD (k=100)                    |        | 6.6           | 0.8      | ns        | 2         | ns        | 2           |
| C.V. (%)                         |        | 7.1           | 1.1      |           | 4         |           | 5           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

(3) Conducted on the Southwest Purdue Agricultural Center, Vincennes.

Melborn K. Lang, superintendent.

Randomized complete block design: 4 blocks.

Soil type: Ade fine sandy loam.

Soil test: pH 6.1, P 61 ppm (very high), K 247 ppm (very high).

Fertility program: 250 lbs./acre 9-0-48 broadcast and incorporated prior to seeding. Topdressed March 2, 2006 with 220 lbs./acre of 34-0-0.

Rates of seeding: 1.4 to 1.8 million live seeds per acre.

Date of seeding: October 18, 2005.

Date of harvest: June 22, 2006.

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**Table 6. Results of winter wheat performance trials in Jennings Co., Location 5, southeast Indiana.**

| Entry Name(1)                                |         | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|---------|---------------|----------|-----------|-----------|-----------|-------------|
|  |         | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |         |               |          |           |           |           |             |
| Roane  | Public  | 94.3 *        | 59.9     | 7         | 36        | 2         | 5-10        |
| Bravo  | OSIA    | 91.4 *        | 57.2     | 1         | 39        | 1         | 5-10        |
| Judith                                       | Exsegen | 90.7 *        | 56.9     | 2         | 40        | 3         | 5-10        |
| Patterson                                    | Public  | 86.1 *        | 56.8     | 5         | 40        | 5         | 5-09        |
| Grand mean                                   |         | 90.6          | 57.7     | 4         | 39        | 3         | 5-10        |
| B LSD (k=100)                                |         | ns            | 1.1      | ns        | 3         | ns        | 1           |
| C.V. (%)                                     |         | 3.6           | 0.5      | 126       | 4         | 103       | 2           |

**Two-year average, 2005 2006.**

|               |         |         |      |    |    |    |      |
|---------------|---------|---------|------|----|----|----|------|
| Vigoro V9410  |         | 101.1 * | 57.0 | 0  | 40 | 3  | 5-08 |
| Judith        | Exsegen | 99.7 *  | 57.6 | 0  | 40 | 4  | 5-10 |
| Vigoro V9412  |         | 98.6 *  | 59.5 | 0  | 36 | 3  | 5-09 |
| Roane         | Public  | 98.4 *  | 60.5 | 0  | 36 | 3  | 5-11 |
| Merrell       | Steyer  | 97.6 *  | 57.2 | 0  | 39 | 2  | 5-10 |
| Bravo         | OSIA    | 94.9 *  | 57.4 | 0  | 38 | 2  | 5-10 |
| Vigoro V9512  |         | 93.0 *  | 57.5 | 0  | 40 | 3  | 5-10 |
| Leah          | Exsegen | 91.0 *  | 54.9 | 0  | 35 | 1  | 5-10 |
| Patterson     | Public  | 90.1 *  | 56.9 | 0  | 40 | 8  | 5-09 |
| Rachel        | Exsegen | 88.1 *  | 58.2 | 0  | 35 | 5  | 5-09 |
| Grand mean    |         | 95.2    | 57.7 | 0  | 38 | 3  | 5-10 |
| B LSD (k=100) |         | 14.1    | 1.6  | ns | 3  | ns | 2    |
| C.V. (%)      |         | 5.2     | 0.8  |    | 4  | 98 | 2    |

**2006 results(3)**

|              |         |        |      |   |    |   |      |
|--------------|---------|--------|------|---|----|---|------|
| Vigoro V9410 |         | 84.7 * | 54.8 | 0 | 40 | 0 | 5-05 |
| Wiser        | Steyer  | 84.2 * | 55.7 | 0 | 40 | 0 | 5-07 |
| Adler 545    |         | 84.0 * | 55.2 | 0 | 41 | 0 | 5-05 |
| Morrall      | Steyer  | 82.8 * | 56.9 | 0 | 36 | 0 | 5-05 |
| Branson      | AgriPro | 82.2 * | 54.7 | 0 | 35 | 0 | 5-05 |
| Vigoro V9412 |         | 79.8 * | 58.0 | 0 | 36 | 0 | 5-06 |
| Cooper       | AgriPro | 79.8 * | 56.1 | 0 | 35 | 0 | 5-06 |
| Judith       | Exsegen | 79.4 * | 56.7 | 0 | 39 | 0 | 5-07 |
| Merrell      | Steyer  | 79.1 * | 55.7 | 0 | 38 | 0 | 5-06 |
| Coker 9312   |         | 78.9 * | 56.7 | 0 | 34 | 0 | 5-04 |
| McLane       | Steyer  | 78.7 * | 57.2 | 0 | 41 | 0 | 5-07 |
| Leah         | Exsegen | 77.0 * | 54.2 | 0 | 35 | 0 | 5-06 |
| Vigoro V9512 |         | 75.4   | 55.5 | 0 | 40 | 0 | 5-06 |
| Coker 9511   |         | 74.6   | 60.3 | 0 | 39 | 0 | 5-06 |
| Lydia        | Exsegen | 74.3   | 53.9 | 0 | 38 | 0 | 5-06 |

**Table 6 contd. Results of winter wheat performance trials in Jennings Co., Location 5, southeast Indiana.**

| Entry Name(1)                    |         | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|----------------------------------|---------|---------------|----------|-----------|-----------|-----------|-------------|
|                                  |         | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>2006 results continued(3)</b> |         |               |          |           |           |           |             |
| Roane                            | Public  | 72.8          | 59.5     | 0         | 35        | 0         | 5-06        |
| Coker 9553                       |         | 71.9          | 56.8     | 0         | 37        | 0         | 5-05        |
| Bravo                            | OSIA    | 70.5          | 56.3     | 0         | 40        | 0         | 5-06        |
| Patterson                        | Public  | 70.2          | 55.3     | 0         | 40        | 0         | 5-06        |
| Rachel                           | Exsegen | 67.0          | 56.6     | 0         | 35        | 0         | 5-05        |
| Grand mean                       |         | 77.4          | 56.3     | 0         | 38        | 0         | 5-06        |
| B LSD (k=100)                    |         | 7.9           | 0.5      | ns        | 2         | ns        | 1           |
| C.V. (%)                         |         | 6.9           | 0.8      |           | 4         |           | 2           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

(3) Conducted on the Southeast Purdue Agricultural Center, Butlerville.

Donald J. Biehle, superintendent.

Randomized complete block design: 4 blocks.  
Soil type: Avonburg.

Soil test: pH 6.6, P 44 ppm (high), K 191 ppm (high).

Fertility program: 524 lbs./acre 6-16-37 broadcast and incorporated prior to seeding. Topdressed March 2, 2006 with 294 lbs./acre of 34-0-0.

Rates of seeding: 1.4 to 1.8 million live seeds per acre.

Date of seeding: October 17, 2005.

Date of harvest: June 28, 2006.

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**Table 7. Results of winter wheat performance trials averaged across four Indiana locations; 2) Tippecanoe, 3) Randolph, 4) Knox, and 5) Jennings Counties.**

| Entry Name(1)       | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|---------------------|---------------|----------|-----------|-----------|-----------|-------------|
|                     | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>2006 results</b> |               |          |           |           |           |             |
| Branson AgriPro     | 96.5 *        | 55.6     | 2         | 36        | 0         | 5-08        |
| Cooper AgriPro      | 93.4 *        | 56.7     | 1         | 36        | 0         | 5-09        |
| Vigoro V9412        | 89.0 *        | 58.1     | 1         | 36        | 0         | 5-10        |
| Coker 9511          | 87.2          | 60.0     | 1         | 38        | 0         | 5-09        |
| Coker 9312          | 86.2          | 57.6     | 1         | 33        | 0         | 5-09        |
| Coker 9553          | 85.5          | 57.3     | 0         | 37        | 0         | 5-09        |
| Roane Public        | 85.3          | 59.3     | 2         | 37        | 0         | 5-11        |
| Vigoro V9512        | 82.7          | 55.8     | 3         | 39        | 0         | 5-10        |
| Vigoro V9410        | 81.5          | 55.4     | 2         | 40        | 0         | 5-08        |
| Bravo OSIA          | 78.4          | 56.7     | 9         | 39        | 0         | 5-10        |
| Patterson Public    | 76.3          | 56.3     | 1         | 39        | 0         | 5-10        |
| Grand mean          | 85.6          | 57.2     | 2         | 37        | 0         | 5-09        |
| BLSD (k=100)        | 8.4           | 0.7      | ns        | 1         | ns        | 2           |
| C.V. (%)            | 6.0           | 0.9      | 286       | 4         |           | 4           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

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**Table 8. Results of winter wheat performance trials averaged across two central Indiana locations; 2) Tippecanoe, and 3) Randolph Counties.**

| Entry Name(1)                                | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--|---------------|----------|-----------|-----------|-----------|-------------|
|  | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Three-year average, 2004, 2005, 2006.</b> |               |          |           |           |           |             |
| Roane Public                                 | 90.0 *        | 59.4     | 7         | 35        | 1         | 5-16        |
| Bravo OSIA                                   | 87.0 *        | 57.6     | 8         | 37        | 1         | 5-15        |
| Hopewell OSIA                                | 83.9 *        | 57.1     | 6         | 37        | 1         | 5-16        |
| Patterson Public                             | 83.7 *        | 57.7     | 8         | 38        | 1         | 5-14        |
| Daisy OSIA                                   | 81.7 *        | 55.8     | 6         | 37        | 1         | 5-15        |
| Coker 9312                                   | 78.1          | 57.8     | 10        | 31        | 17        | 5-15        |
| Grand mean                                   | 84.1          | 57.6     | 8         | 36        | 4         | 5-15        |
| BLSD (k=100)                                 | 10.7          | 1.0      | ns        | 2         | ns        | ns          |
| C.V. (%)                                     | 8.5           | 1.2      | 153       | 5         | 51        | 3           |
| <b>2006 results</b>                          |               |          |           |           |           |             |
| Branson AgriPro                              | 108.2 *       | 56.7     | 3         | 37        | 0         | 5-14        |
| Cooper AgriPro                               | 106.5 *       | 57.6     | 2         | 37        | 0         | 5-15        |
| Vigoro Tribute                               | 102.6 *       | 59.5     | 1         | 36        | 0         | 5-15        |
| Vigoro V9412                                 | 101.6 *       | 58.7     | 1         | 37        | 0         | 5-16        |
| Coker 9511                                   | 99.9 *        | 60.7     | 1         | 38        | 0         | 5-16        |
| Roane Public                                 | 96.6 *        | 59.8     | 4         | 39        | 0         | 5-17        |
| Coker 9553                                   | 95.6 *        | 57.8     | 0         | 38        | 0         | 5-16        |
| Coker 9312                                   | 94.4 *        | 58.3     | 1         | 33        | 0         | 5-17        |
| Vigoro V9512                                 | 94.1 *        | 56.4     | 7         | 38        | 0         | 5-16        |
| Hopewell OSIA                                | 93.4 *        | 58.0     | 0         | 40        | 0         | 5-17        |
| Daisy OSIA                                   | 92.2 *        | 56.0     | 1         | 38        | 0         | 5-15        |
| Bravo OSIA                                   | 91.4          | 57.2     | 19        | 39        | 0         | 5-17        |
| Vigoro V9410                                 | 90.4          | 56.7     | 4         | 41        | 0         | 5-14        |
| Patterson Public                             | 89.3          | 57.6     | 2         | 40        | 0         | 5-17        |
| Grand mean                                   | 96.9          | 57.9     | 3         | 38        | 0         | 5-16        |
| BLSD (k=100)                                 | 16.2          | 0.9      | ns        | 2         | ns        | ns          |
| C.V. (%)                                     | 5.8           | 0.9      | 230       | 3         |           | 4           |

(1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA.

Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.

(2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.

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**Table 9. Results of winter wheat performance trials averaged across two southern Indiana locations; 4) Knox, and 5) Jennings Counties.**

| Entry Name(1)                        |         | Yield est.(2) | Test wt. | Lodg- ing | Plant ht. | Win. kill | Date headed |
|--------------------------------------|---------|---------------|----------|-----------|-----------|-----------|-------------|
|                                      |         | bu./A.        | lb./bu.  | %         | in.       | %         |             |
| <b>Two-year average, 2005, 2006.</b> |         |               |          |           |           |           |             |
| Judith                               | Exsegen | 91.4 *        | 58.1     | 0         | 40        | 2         | 5-08        |
| Merrell                              | Steyer  | 91.4 *        | 57.5     | 0         | 38        | 1         | 5-07        |
| Roane                                | Public  | 91.2 *        | 60.5     | 0         | 36        | 1         | 5-09        |
| Vigoro V9412                         |         | 89.9 *        | 59.6     | 0         | 36        | 2         | 5-06        |
| Vigoro V9410                         |         | 88.7 *        | 56.7     | 0         | 40        | 2         | 5-05        |
| Leah                                 | Exsegen | 85.6 *        | 55.6     | 0         | 35        | 1         | 5-08        |
| Vigoro V9512                         |         | 84.6          | 57.6     | 0         | 40        | 1         | 5-08        |
| Rachel                               | Exsegen | 82.2          | 58.1     | 0         | 36        | 3         | 5-05        |
| Patterson                            | Public  | 78.2          | 57.5     | 0         | 39        | 4         | 5-07        |
| Grand mean                           |         | 87.0          | 57.9     | 0         | 38        | 2         | 5-07        |
| BLSD (k=100)                         |         | 6.5           | 1.1      | ns        | 2         | ns        | 3           |
| C.V. (%)                             |         | 5.7           | 0.9      |           | 5         | 136       | 3           |

**2006 results**

|              |         |        |      |    |    |    |      |
|--------------|---------|--------|------|----|----|----|------|
| Branson      | AgriPro | 84.7 * | 54.6 | 0  | 35 | 0  | 5-02 |
| Cooper       | AgriPro | 80.3 * | 55.7 | 0  | 35 | 0  | 5-04 |
| Morrall      | Steyer  | 79.1 * | 56.5 | 0  | 34 | 0  | 5-03 |
| Merrell      | Steyer  | 79.0 * | 54.9 | 0  | 37 | 0  | 5-03 |
| McLane       | Steyer  | 78.3 * | 56.3 | 0  | 39 | 0  | 5-04 |
| Coker 9312   |         | 78.1 * | 56.8 | 0  | 32 | 0  | 5-01 |
| Vigoro V9412 |         | 76.4 * | 57.6 | 0  | 35 | 0  | 5-04 |
| Wiser        | Steyer  | 75.7 * | 54.4 | 0  | 38 | 0  | 5-04 |
| Coker 9553   |         | 75.5 * | 56.7 | 0  | 36 | 0  | 5-02 |
| Lydia        | Exsegen | 75.5 * | 54.5 | 0  | 36 | 0  | 5-02 |
| Coker 9511   |         | 74.5 * | 59.3 | 0  | 37 | 0  | 5-03 |
| Roane        | Public  | 74.1 * | 58.9 | 0  | 35 | 0  | 5-04 |
| Judith       | Exsegen | 73.9 * | 56.6 | 0  | 38 | 0  | 5-04 |
| Adler 545    |         | 73.3 * | 54.0 | 0  | 39 | 0  | 5-01 |
| Vigoro V9410 |         | 72.7 * | 54.1 | 0  | 39 | 0  | 5-01 |
| Leah         | Exsegen | 71.8 * | 53.0 | 0  | 34 | 0  | 5-04 |
| Vigoro V9512 |         | 71.4 * | 55.2 | 0  | 39 | 0  | 5-04 |
| Rachel       | Exsegen | 65.6   | 55.9 | 0  | 35 | 0  | 5-02 |
| Bravo        | OSIA    | 65.4   | 56.1 | 0  | 39 | 0  | 5-03 |
| Patterson    | Public  | 63.4   | 54.9 | 0  | 39 | 0  | 5-03 |
| Grand mean   |         | 74.4   | 55.8 | 0  | 37 | 0  | 5-03 |
| BLSD (k=100) |         | 18.8   | 1.4  | ns | 2  | ns | 2    |
| C.V. (%)     |         | 7.0    | 1.0  |    | 4  |    | 3    |

**Table 9 contd. Results of winter wheat performance trials averaged across two southern Indiana locations; 4) Knox, and 5) Jennings Counties.**

- (1) Public entries were developed by Agricultural Experiment Stations (Indiana Agricultural Research Programs) or in cooperation with the Agricultural Research Service of the USDA. Other names are company or brand names, generally associated in the trade, with variety, brand, hybrid or blend names.
- (2) Yields followed by an asterisk (\*) are not, statistically, significantly different from the highest yield in the sub-table.
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