



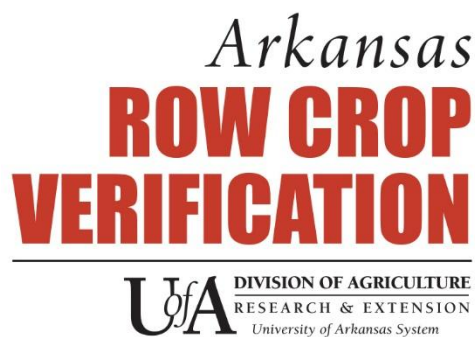
2025

University of Arkansas System Division of Agriculture Wheat Research Verification Program

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University of Arkansas
Cooperative Extension Service
Agriculture Experiment Station
U.S. Department of Agriculture
And County Governments Cooperating

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Introduction

The Wheat Research Verification Program (WRVP) represents an interdisciplinary effort of farmers, county Extension agents, Extension specialists, and researchers committed to improving the profitability of wheat production in Arkansas. The WRVP program began in 1986 under the direction of the University of Arkansas Cooperative Extension Service. The Arkansas Wheat Promotion Board has allocated the funding necessary for the WRVP program each year since its inception.

The WRVP program is designed as an on-farm demonstration of all the research-based recommendations required to grow wheat profitably in Arkansas. The WRVP program is part of the University of Arkansas Extension Service's goal of helping wheat producers make economic, agronomic, and environmentally sound decisions on their farms. The specific objectives of the program are:

1. To verify research-based recommendations for profitable wheat production in all wheat-producing areas of Arkansas.
2. To develop a database for economic analysis of all aspects of wheat production to demonstrate that consistently high yields of wheat can be produced economically.
3. To identify specific problems and opportunities in Arkansas wheat production for further investigation.
4. To promote timely cultural and management practices among all wheat farmers.
5. To provide training and assistance to county agents with limited expertise in wheat production.

Four fields were enrolled in the WRVP for the 2024-2025 growing season. Two fields did not get planted due to wet weather during the intended planting window. Cooperators from the counties selected varieties from a short list provided by the agent and research verification coordinator. These varieties were selected based on multi-year performance and characteristics determined by the University of Arkansas wheat variety testing program.

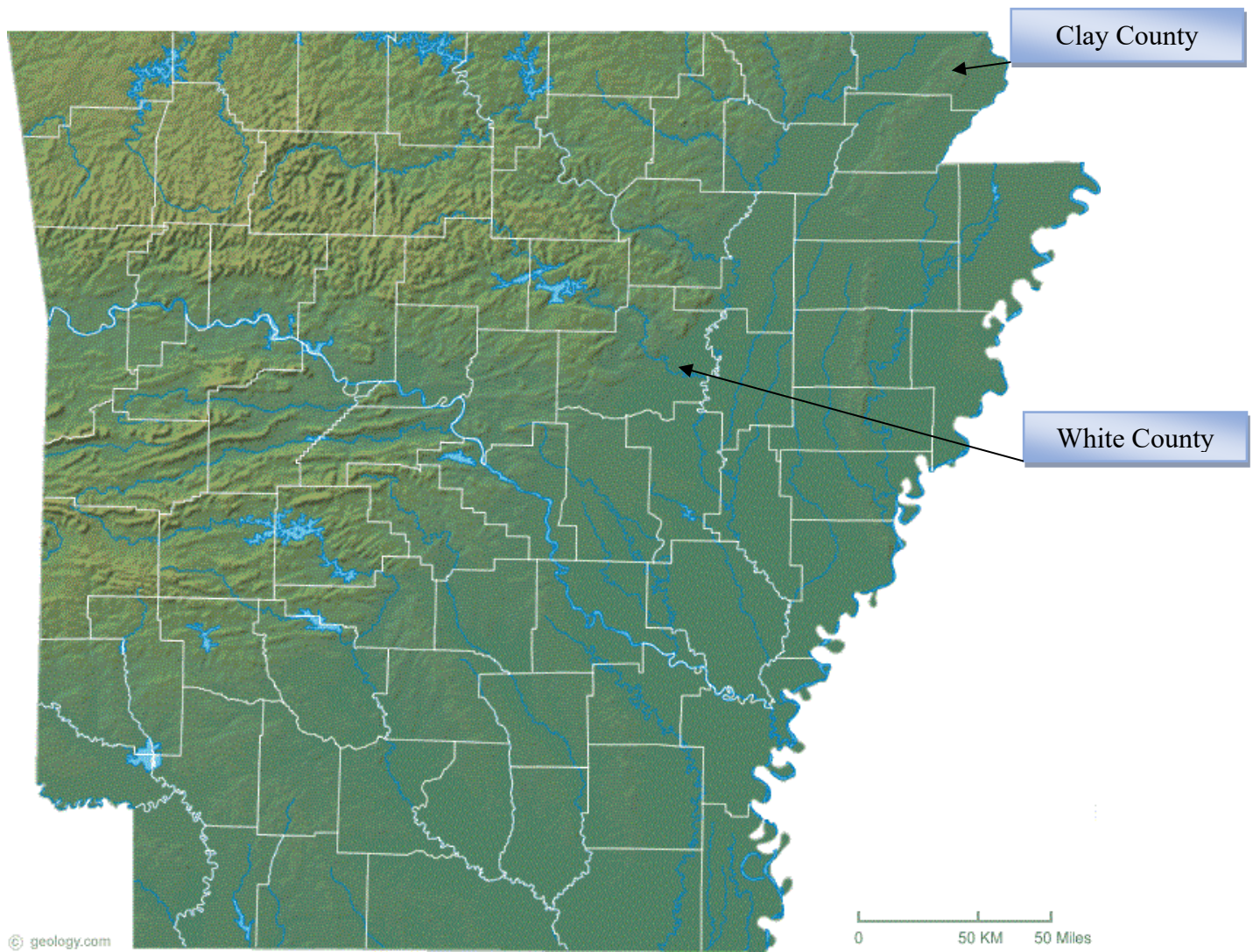
Soil type for fields enrolled in the program was silt loam, with one field having a previous crop of soybean, and one field was summer fallow. Fields were planted in mid-October with a seeding rate of 100-120 lbs/acre. The Clay County field was broadcast with an Airflow truck while applying pre-plant fertilizer. The White County field was drilled planted on 7.5-inch row spacing. All fields required treatment for insects, disease, and weed control. Yields from verification fields ranged from 77.3 bushels/acre in Clay County to 66.4 bushels/acre in White County.

The 2024-2025 Arkansas wheat production season started off very dry. November was wet, which prevented other program fields from being planted. Warmer temperatures in November and December promoted excellent fall growth, and fields had good tiller development before winter. Early winter temperatures remained warm, and the White country field had a few tiller joints prior to dormancy. Jointing tillers died during freezing temperatures, but plants produced more tillers later in the season, and overall, the loss of some fall tillers likely did not impact yield.

Spring nitrogen applications were applied starting in early March and continued until late March. Clay County was treated with a foliar fungicide for *Septoria tritici* blotch and leaf rust, and White County was treated with a foliar fungicide at flowering for suppression of *Fusarium* Head Blight and leaf rust. Aphid pressure was higher than normal, and insecticide was added to the herbicide application to control populations. One to two herbicide applications were needed in all Wheat Research Verification fields for winter weed control. Wheat research verification fields were harvested mid-June to early July. Arkansas producers planted an estimated 120,000 acres of wheat in the fall of 2024 and harvested 85,000 acres. Statewide average yield was estimated at 62 bu/acre. The verification program's average yield for the 2024-2025 season was 71.9 bushels/acre.

The Wheat Research Verification Program continues to demonstrate that Extension's research-based recommendations can produce profitable, high-yielding wheat across a wide range of conditions and soil types. Over the last 10-year period, the WRVP has averaged approximately 11 bushels above the average state yield. The program is funded by wheat check-off dollars and is administered through the Arkansas Wheat Promotion Board.

Figure 1. Locations of 2024-2025 Wheat Research Verification Program Fields



Field Reviews

2024-2025 Fields – Chris Elkins

Clay County

The 75-acre field with Collins & Falaya silt loam soil was located west of St. Francis and followed soybeans. A pre-plant fertilizer application of 0-36-72 was broadcast with Dixie Brown at 120 pounds/acre on October 24, 2024. Wheat emerged on October 31, 2024, to a stand of 34 plants/ ft². An initial early spring fertilizer application of 75lbs/acre ammonium sulfate plus 100 pounds/acre urea was made with a ground applicator on March 2, 2025. A herbicide application of .75 ounces/acre Harmony Extra Plus, 15 ounces/acre Axial Bold was made for broadleaf and ryegrass control. An insecticide application of 1.92 ounces/acre of lambda cyhalothrin for aphid control, along with 4 ounces/acre of Tilt fungicide, was applied on March 2, 2025. The final spring nitrogen application was applied with a ground applicator on March 23, 2025, of 75 pounds/acre ammonium sulfate plus 100 pounds/acre urea. The total spring nitrogen rate of 124 pounds/acre. On April 24, 2025, 6 ounces/acre azoxystrobin fungicide was applied for control of Septoria tritici blotch and leaf rust. The field was harvested on June 14, 2025, and yielded 77.3 bushels/acre adjusted to 13.5% moisture.

White County

The 28-acre field with Calloway silt loam soil was located south of Higginson and was planted on summer fallow ground. A pre-plant fertilizer application of 1.5 tons/acre of poultry litter was applied. The field was drill planted on October 10, 2024, with Progeny Colt at 100 pounds/acre. A delayed pre-emerge application of 3.25 ounces/acre Zidua for ryegrass control was made on October 17, 2024. Wheat emerged on October 15, 2024, to a stand of 29 plants/ ft². An initial early spring fertilizer application of 75 pounds/acre urea plus 50 pounds/acre ammonium sulfate was aerially applied on March 14, 2025. A broadleaf weed herbicide application of .9 ounces/acre Harmony Extra and an insecticide application of 1.92 ounces/acre lambda cyhalothrin for aphid control was made on March 14, 2025. The final nitrogen application of 100 pounds/acre urea was aerially applied on March 21, 2025. The total spring nitrogen applied was 91 pounds/acre. Prosaro Pro SC fungicide was aerially applied at flowering on April 29, 2025, at 13.6 ounces/acre for Fusarium Head Blight suppression and leaf rust control. The field was harvested on July 2, 2025, after several rain delays, and yielded 66.4 bushels/acre adjusted to 13.5% moisture.

Table1. General Agronomic Information of Verification Fields in 2024-2025.							
County	Variety	Acres	Planting Method	Seeding Rate lb/a	Planting Date	Previous Crop	Yield Bu/a
Clay	Dixie Brown	75	Broadcast	120	10/24/24	Soybean	77.3
White	Progeny Colt	28	Drilled	100	10/10/23	Fallow	66.4
Average		52		110	10/17/24		71.9 bu/A

Table 2. Soil Type and Fertilizer Inputs for 2024-2025 Wheat Verification Fields.				
County	Soil Type	Fall Fertilizer	Spring Fertilizer	Total Spring Nitrogen
Clay	Collins & Falaya Silt Loam	0-36-72	1 st , 75 # ammonium sulfate + 100 # urea 2 nd , 75 # ammonium sulfate + 100 #urea	124
White	Calloway Silt Loam	1.5 ton Poultry litter	1 st , 75# urea + 50# ammonium sulfate; 2 nd , 100 # urea	91
Average				108 lbs N

Table 3. Pesticide Information for the 2024-2025 Wheat Verification Fields.			
County	Herbicide	Insecticide	Foliar Fungicide
Clay	Spring: .75 oz. Harmony Extra + Axial Bold	1.92 oz. Lambda Cyhalothrin	4 oz. Tilt; 6 oz. Azoxystrobin
White	Fall: 3.25 oz. Zidua Spring .9 oz. Harmony Extra	1.92 oz. Lambda Cyhalothrin	13.6 oz. Prosaro Pro SC

Economic Analysis of the 2025 Wheat Research Verification Program

This section reports information on costs and returns for the 2025 Wheat Research Verification Program (WRVP). Records of field operations on each field are the basis for estimating these costs. The field records were compiled by the WRVP coordinator, county Extension agents, and cooperators. Production data from the 2 fields were applied to determine costs and returns above operating costs, as well as total specified costs. Operating costs per bushel and total costs per bushel indicate the commodity price needed to meet each cost type.

Production expenses are those expenditures that generally require annual cash outlays and would be included in an annual operating loan application. Actual quantities of all production inputs as reported by the cooperators are used in this analysis. Input prices are determined by data from the fall 2024 Crop Enterprise Budgets published by the Cooperative Extension Service. Fuel and repair costs for machinery are calculated using a budget calculator based on parameters and standards established by the American Society of Agricultural and Biological Engineers. Machinery repair and maintenance costs should be regarded as estimated values, and actual cash outlays could differ as producers utilize employee labor for equipment maintenance.

Ownership costs of machinery are determined by a capital recovery method, which determines the amount of money that should be set aside each year to replace the value of equipment used in production. Machinery costs are estimated by applying engineering formulas to representative prices of new equipment. This measure differs from typical depreciation methods, as well as actual annual cash expenses for machinery.

Operating costs, total costs, costs per bushel, and returns are presented in Table 4. Costs in this report do not include land costs, management, or other expenses and fees not associated with production. Budget summaries for wheat are presented in Table 4. The price received for wheat grain was estimated to be \$5.70/bu. and is determined by the Arkansas average cash price during the reported harvest period of the WRVP fields. Average wheat yield was 71.9 bu. per acre.

Average operating costs for wheat in Table 4 are \$364.95 per acre. Table 5 indicates that fertilizers and nutrients are the largest expense category at \$147.50 per acre, or 40% of total production expenses. Seed cost is the second largest expense category at \$44.00 per acre, or 12% of total production expenses.

With an average yield of 71.9 bu. per acre, average operating costs are \$5.10/bu. Operating costs range from a low of \$350.97 per acre in White County to a high of \$378.93 per acre in the Clay County field. Returns to operating costs average \$44.60 per acre. The low is \$27.51 in White County, and the high is \$61.68 in Clay County. Average fixed costs are \$65.20 per acre, which leads to average total costs of \$430.14 per acre. Returns to total costs average -\$20.60 per acre with a low of -\$47.86 in White County and a high of \$6.67 in Clay County. Total specified costs average \$5.87/bu.

Table 4. 2025 Operating Costs, Total Costs, and Returns

County	Operating Costs	Operating Costs per Bushel	Returns to Operating Costs	Total Fixed Costs	Total Costs ¹	Returns to Total Costs	Total Costs per Bushel
Clay	378.93	4.90	61.68	55.01	433.94	6.67	5.61
White	350.97	5.29	27.51	75.38	426.34	-47.86	6.42
Average	364.95	5.10	44.60	65.20	430.14	-20.60	5.87

¹Does not include land costs, management, or other expenses and fees not associated with production.

Table 5. 2025 Revenue and Expenses per Acre

	Field		
Revenue	Clay	White	Average
Yield (bu.)	77.3	66.4	71.9
Price (\$/bu.)	5.70	5.70	5.70
Total Crop Revenue	440.61	378.48	409.55
Expenses			
Seed	48.00	40.00	44.00
Fertilizers & Nutrients	169.50	125.56	147.53
Chemicals	26.42	47.51	36.97
Custom Applications	42.50	40.00	41.25
Diesel Fuel	9.52	12.42	10.97
Irrigation Energy Costs	0.00	0.00	0.00
Input Costs	295.94	265.49	280.72
Crop Insurance	27.00	27.00	27.00
Repairs & Maintenance ¹	10.58	15.31	12.95
Labor, Field Activities	4.86	6.53	5.70
Scouting/Consultant Fee	5.00	5.00	5.00
Production Expenses	343.38	319.33	331.36
Interest	15.45	14.37	14.91
Post-harvest Expenses	20.10	17.26	18.68
Total Operating Expenses	378.93	350.97	364.95
Returns to Operating Expenses	61.68	27.51	44.60
Capital Recovery & Fixed Costs	55.01	75.38	65.20
Total Specified Expenses²	433.94	426.34	430.14
Returns to Specified Expenses	6.67	-47.86	-20.60
Operating Expenses/bu.	4.90	5.29	5.10
Total Specified Expenses/bu.	5.61	6.42	6.02