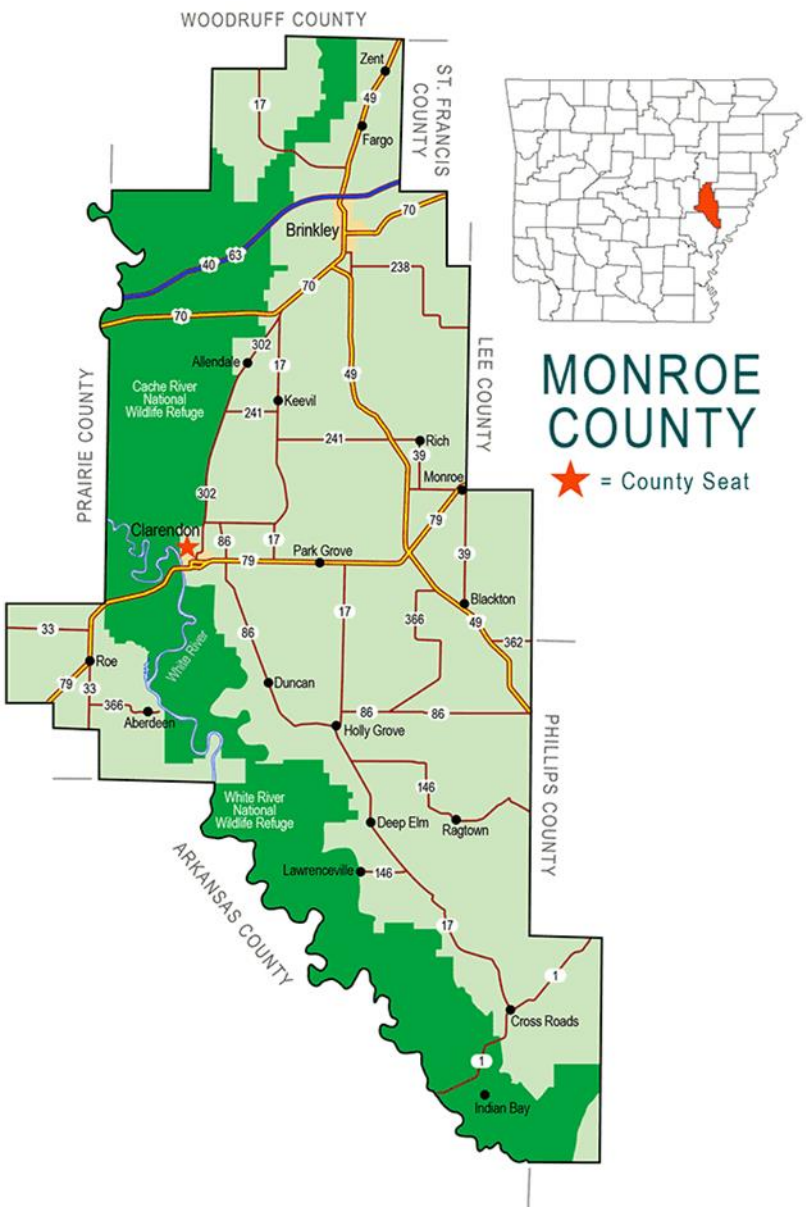
2021 Monroe County Crop Demonstrations

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System



Family & Consumer Sciences

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

MASTER GARDENER
Monroe County

Diane Cunningham – Administrative Specialist III

Valerie Turner – CEA Staff Chair

Andrew Sayger – CEA Agriculture

Monroe County
Cooperative Extension Service

609 Madison St • Clarendon, AR, 72029 • 870-747-3397 • www.uada.edu

The mission of the Cooperative Extension service is to strengthen agriculture, communities, and families by connecting trusted research to the adoption of best practices. We not only work in agriculture, but also in 4-H youth development, Family and Consumer Sciences, Community Development, Wildlife and Nature and much more. As county extension agents, we take our research recommendations combined with practical advice and strive to improve the lives of those in our communities. We work for YOU.

This demonstration booklet is tailored to the producers of Monroe County. We conduct these demonstrations and research trials every year with a goal of helping and strengthening our local producers and crops. As the county agriculture agent, I am here to serve you. I hope you find the information in this report helpful to your operations. If you have any questions, comments, suggestions or would like to discuss any information, please feel free to contact me with the information below. Please contact me anytime throughout the year if I can help.

We would like to say a very special thank you to everyone who supports our programs. Without constant support from producers and residents of Monroe County, it would be difficult to conduct these programs. We are sincerely grateful, and your support does not go unnoticed.

I would also like to point out that we send out ag updates via text, email, and paper mail throughout the year. We have a lot of contacts on these lists, and they find the information very useful. If you would like to be on the list, contact me with the information below.

Sincerely,

Andrew Sayger

Monroe County Extension Agent – Agriculture
870-747-3397
asayger@uada.edu
Twitter: @ASayger
Facebook: UAEX Monroe County

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Zinc Source Demonstration in Rice

Producer: Chad Hornsby
Agent: Andrew Sayger
Soil Instructor: Matt Fryer

Introduction

Zinc (Zn) deficiency in rice normally occurs on silt and sandy loam soils or on fields that have been precision graded. Plant available Zn is reduced when soil pH is increased either from calcareous irrigation water, over-liming and/or exposure to Zn deficient sub soils. Zinc fertilizer recommendations are based on soil texture, soil test Zn less than 4.0 ppm (approximately 8 lbs./acre), and soil pH greater than 6.0. Zinc deficiency symptoms are typically observed shortly after flooding but can appear on seedling rice. Zinc fertilizer is recommended as a precautionary measure on suspect soils at rates of 5-10 lbs./acre of actual Zinc. Zinc fertilizer sources should have a minimum of 50% water solubility for optimum effectiveness.

Background

A total of 6 demonstration sites with 3 treatments per site was established on three fields just North of Brinkley. These fields have a history of slightly lower than average rice yields over the past few years. The majority of management decisions such as nitrogen management, weed control, fertility practices with the exception of Zinc, have been applied according to recommended practices by the University of Arkansas. The majority of soil samples from these fields have a typical silt loam soil with soil test Zn in the low (1.6 - 2.5 ppm) or very low (<1.6 ppm) categories and pH above 6.0. MESZ has been the only Zinc source used on these fields at a rate of 1 pound of actual Zinc per acre which is well below the recommended 5-10 pounds per acre. It was suspected that there is just enough zinc in the soil available to the plant to mask any zinc deficiency symptoms but reduce yield potential.

Set-up

Three fields were identified according to the producer's soil test results as fields that could benefit from Zinc applications. The agent and Matt Fryer (Instructor in soil science for the University of Arkansas) then established 6 demonstration sites (two sites per field) with three treatments for each site. Each treatment was a 10'x10' square. The products used per treatment were Zinc Sulfate at 10 lb./acre, MicroMerge Zn at 10 lb./acre, and MicroMerge Zn at 2 lb./acre (Table 1.). The 10 lb./acre treatment of Zinc Sulfate has been the usual recommended application for Zinc deficiencies in the soil, MicroMerge Zn at 2 lb./acre is the typical recommended rate per company, MicroMerge Zn at 10 lb./acre would be the equivalent of Zinc Sulfate at 10 lb./acre. Soil samples were taken within the 10'x10' square of each treatment prior to applying any Zinc fertilizer source. The only exception is the "RR" fields had a blanket application of MESZ applied to the whole field supplying 1 lb. of Zn/acre. Thus, soil test results will reflect that application in both spring and fall analysis. Whole plant samples were taken with each treatment at midseason approximately 14 days after flood establishment as well as a "check" sample taken outside of the treatments. The "L field" did not have whole

plant samples taken due to the flood being delayed because of well mechanical issues. At harvest, soil samples were taken again within each treatment and a "check" taken outside of the treatments. Y-leaf tissue samples were also taken at panicle initiation over each entire field to determine the values of Zinc concentration in the plant.

Table 1. Product rates, zinc supplied, and costs.

Product	Product Rate	Actual Zn Supplied	Cost
	---------- lb /acre ----------		
Control	0	0	$0
Zinc Sulfate	28	10	$26.50
MicroMerge Zinc	100	10	$90.00
MicroMerge Zinc	20	2	$18.00

Discussion Soil Data

When fertilizer is applied for any nutrient, the amount of soil test variability for that nutrient across an area increases, therefore, soils data results for the 2 demo sites at the "RR" fields that received MESZ, will not be included in the following information.

At demo establishment in the spring prior to Zn fertilizer being applied, soil Zn varied as much as 0.4 ppm in a small 10ft x 40ft area. This shows that variation will only increase as the field area represented by a soil sample increases and shows the importance of collecting a proper soil sample to accurately represent a field.

Soil Zn concentration from spring to fall in the un-fertilized check areas across fields showed a difference of -0.1 to +0.6 ppm.

Spring to fall differences in soil Zn concentration from the 2lb Zn MicroMerge ($18/acre) application averaged across sites showed an increase of 0.75 ppm, while the 10 lb Zinc Sulfate application ($26.50) showed an average increase in soil test Zn of 2.5 ppm. The 10lb/acre of actual Zn application from MicroMerge ($90/acre) increased soil test Zn from spring to fall by 3.6 ppm but at a much greater cost.

Although true statistical differences could not be calculated from our data and replicated research is needed for sound agronomic recommendations, it would appear that Zinc Sulfate has a greater potential to increase soil Zn levels at a more reasonable cost when compared to MicroMerge Zinc fertilizer. Regardless of which Zn fertilizer was used for the 10 lb of actual Zn, soil test Zn levels were increased greatly by one or two soil test categories such as from "very low" category to the "optimum" category in one growing season. The Zinc Sulfate application would be the most economical choice. This application would usually not be applied every year but only when soil test levels drop to low levels again.

Discussion Plant Data

Table 2 shows plant tissue Zn concentrations at midseason growth stage (approx. 14 days post flood) averaged across the 4 of the 6 sites. Because there was difficulty flooding the field for 2 of the sites, midseason plant samples were not taken in those locations. The whole plant samples taken at midseason in each plot (including

the check outside the plots) did not show low zinc levels near the critical Zn concentration level of 20 ppm. Although nearly all treatments showed to be sufficient (including the checks), the Zinc Sulfate plots always showed much higher plant Zn concentrations when compared to the plots that received the same Zn rate as MicroMerge Zinc. Although no water solubility data is available for the MicroMerge Zinc product, Zinc Sulfate is relatively water soluble, so the plant tissue data suggests that MicroMerge Zinc may not be as water soluble (or plant available) as Zinc Sulfate. This is further supported with the lack of difference in tissue Zn concentrations when comparing the untreated control to the 2lb Zn and 10lb Zn applied as MicroMerge Zinc in Table 2.

Table 2. Midseason plant tissue Zn concentrations averaged across 4 locations including 2 sites where the fields received MESZ.

Product	Actual Zn supplied	Cost	Tissue Zn Concentration
	(lb/acre)		(ppm)
Control	0	$0	28.3
Zinc Sulfate	10	$26.50	35.0
MicroMerge Zinc	10	$90.00	28.7
MicroMerge Zinc	2	$18.00	27.4

The y-leaf tissue samples taken later in the season at panicle initiation showed Zn levels below the critical tissue concentrations for that growth stage of 33ppm on all fields. This was across the whole fields and not the trials. This includes the RR field where MESZ was applied to the whole field indicating the application did not raise soil Zn levels enough to have sufficient levels in the plant. The y-leaf tissue samples help confirm that Zn is a limiting nutrient in these three fields. MESZ at a rate of 1 lb Zn/acre has been the only source of Zn applied to these fields over the last few crop seasons.

Conclusion

The next step and goal for this information is to collect yield data comparing various Zn fertilizer sources. Although we do not have yield data this year, we still see a clear picture with the information collected this year and the years of data regarding Zn collected by the University of Arkansas System Division of Agriculture. Zinc is a vital nutrient in rice production, and it appears to be a limiting nutrient in many of our silt loam rice soils in Monroe County. According to this data, Zinc Sulfate at approximately $27 per acre would be the most economical choice to build soil test Zn levels. 2 lb./acre MicroMerge Zn at $18 per acre could be a cheaper option, but it did not raise soil test levels as high as Zinc Sulfate. It also did not appear as plant available as Zinc Sulfate. According to the information collected, it would take a $90/acre application of 10lb/acre MicroMerge Zn fertilizer to achieve the same results as 10lb/acre of Zinc Sulfate at $27/acre. A Zinc Sulfate application is not meant to be applied every year. Theoretically, Zinc Sulfate would be applied 1 or 2 years to build Zn soil levels enough to last for a “few” years. It’s hard to pinpoint exactly how many years. On another note, a foliar Zn product will cost about the same as Zinc Sulfate but only provide a “band aide”. A foliar product would need to be applied year after year since foliar applications barely supply the amounts of Zn needed by the plant and do not raise soil test zinc levels. The MESZ fertilizer mentioned throughout the study is a great fertilizer when used correctly. Although MESZ contains Zinc, it is not a Zinc fertilizer. It is a phosphorous fertilizer. MESZ is a good option for fields that have soil test Zinc levels of medium or higher. But MESZ does not provide enough

Zinc for fields with low Zn soil test categories to be the sole source of Zn. As a final point, the goal of this demonstration is to try to bring awareness of the importance of Zn in rice production and the importance of the correct source of Zn. Based on the information collected, it would benefit producers to have an option of Zinc Sulfate in Monroe County to help address these issues of low Zinc soil test in rice.

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Soil Moisture Sensors in Corn

Producer: RP George
Producer: Kourtney Gray
Agent: Andrew Sayger

Introduction:

Soil moisture sensing is an invaluable tool for understanding agronomic practices and improving irrigation water management. Soil moisture sensors provide a measure of plant available water. Sensor trends can also provide information about irrigation efficiency problems, infiltration, deep percolation, and water stress. Sensors will not always save water or save irrigations. At times we discover that we should irrigate more often to maximize crop potential.

We used the Watermark sensors in these field demonstrations. Sensors are placed in the root zone of the crop at various depths such as 6",12",18", and 30". The sensors measure the soil moisture that is available to the plant in the soil profile at the various depths. Sensors should be placed 2/3 down the row from the water source in the soil that is most representative of the field. These sensors were manually read with a handheld device every week or when necessary. Readings from each sensor are then averaged based on the percentage of roots at each depth. This can easily be done by hand, but the Soil Moisture Sensor Calculator App developed by the Division of Agriculture was used to determine these values.

Demonstrations: RP George

There were four corn fields with sensors that were monitored by the agent. The first two fields were with R. P. and Ronnie George. The first field was located on Highway 17 north of Holly Grove. Sensors were placed in the field near the end of May and read weekly. Sensors were placed 2/3 down the row and in the most common soil profile which was a sandy loam. A total of 6 irrigations were triggered on this field beginning June 17th and ending August 5th. This light soil typically needed irrigating 2-3 days earlier than a silt loam. A large percentage of roots never reached the 30" sensor depth so average readings were weighted heavily in the top 18" of soil. Stress would occur on the plant above 70 cb on this soil type so our typical trigger point for irrigation was about 40cb at peak irrigation needs based on the amount of time it took water to get across the farm. The trigger would vary depending on growth stage. We determined irrigation termination at 50% starch line with adequate soil moisture. There was only .5" of water available to the crop on August 5th with an estimated 1" needed to finish the crop without stress. The final irrigation was initiated based on the information provided by the sensors. Rainfall totals for the whole growing season on this field was approximately 26.9" while rainfall from June 17 through August 5 (approximate time of irrigation needs) was 15.6".

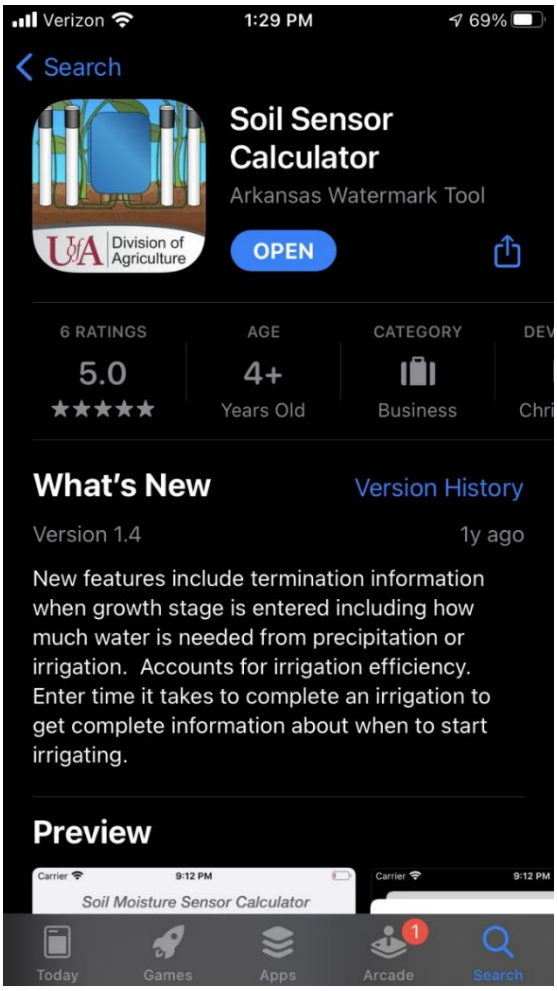
The second field was located with the Georges at Crossroads. Sensors were placed in the field at the desired location about the end of May and read weekly. This field was a silt loam soil type. A total of 4 irrigations were triggered on this field beginning June 20th and ending July 28th. Readings indicated that the roots were in the top

18” of soil through June but the first reading in July showed that roots were starting to pull water from 30”. According to the Soil Moisture Sensor Calculator app, stress would occur on the plant at 123 cb. Our trigger for irrigations typically occurred at 80cb from emergence-tasseling, 65cb from tasseling-dent, and 90 cb from dent-black layer. We determined irrigation termination at 50% starch line with adequate soil moisture. A reading on August 5th indicated that there was 2.8” of moisture available in the soil profile to the plant and only 1” of moisture was needed to finish the crop. Therefore, irrigation was terminated. Rainfall totals for the whole growing season was approximately 30.4” while rainfall from June 20th-August 5th (approximate time of irrigation needs) was 7.3”.

Demonstrations: Kourtney Gray

Two more demonstrations were established with Gray Farms just northwest of Roe. The first field was located on Highway 33 and was a silt loam soil. Sensors were placed about 2/3 of the way down the row from the water source. A total of 3 irrigations were triggered on this field from June 17th through July 15th. There were two big rain events that helped with irrigation needs at this location. The roots established early at 30” inches and used a lot of moisture from that depth most of the season. The Soil Moisture Sensor Calculator app indicated stress would occur at about 123cb. We initiated irrigation depending on soil moisture and growth stage of the corn. From emergence-tasseling was 80cb, tasseling-dent was 65cb, and from dent-black layer was 90cb. We determined irrigation termination at 50% starch line adequate soil moisture. A reading on July 28th indicated that there was 2.5” moisture available in the soil profile and 2.2” moisture was needed to finish the crop. To be sure another reading was taken on August 6th. Sensors and the calculator indicated the crop needed 1” of moisture to finish and there was 2” available in the soil profile. Irrigation was terminated based on these readings. Rainfall totals for the whole growing season was approximately 27” while rainfall from May 28th-August 6th (approximate time of irrigation needs) was 16.3”.

The second field was on Saunders Road with a silt loam soil type. Many of the details were the same as the first field with the Gray’s. This field was planted a little later and a total of 4 irrigations was triggered from June 17th-July 28th. A reading on August 6th indicated there was 1.5” moisture available in the profile. The Soil Moisture Calculator indicated that the crop would need 1” moisture to finish the crop. Irrigation was terminated based on this information. Rainfall for this field was the same as well.


Verizon
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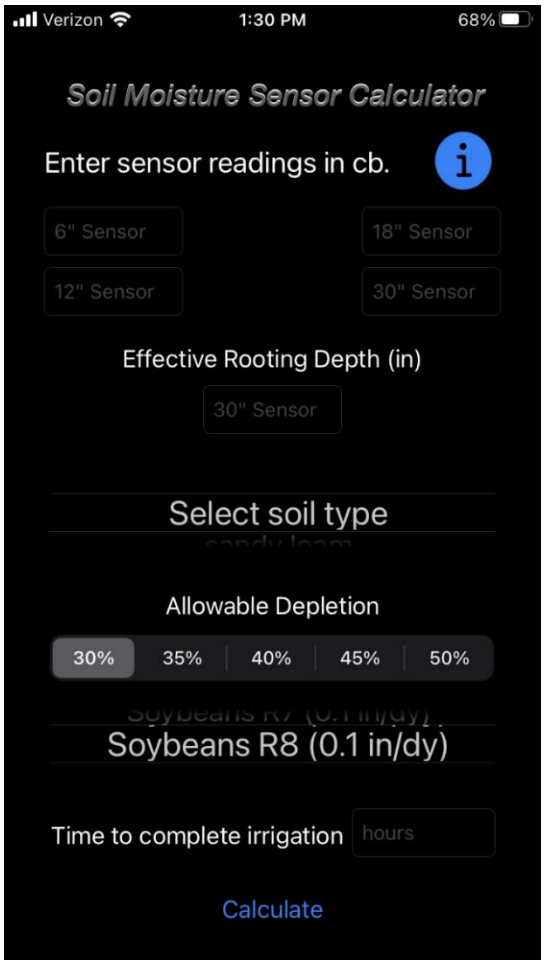
Search
Soil Sensor Calculator
Arkansas Watermark Tool
OPEN
6 RATINGS
5.0
AGE
4+
Years Old
CATEGORY
Business
What's New
Version History
Version 1.4
1y ago
New features include termination information when growth stage is entered including how much water is needed from precipitation or irrigation. Accounts for irrigation efficiency. Enter time it takes to complete an irrigation to get complete information about when to start irrigating.
Preview
Soil Moisture Sensor Calculator
Today
Games
Apps
Arcade
Search


Verizon
1:30 PM
68%
Soil Moisture Sensor Calculator
Enter sensor readings in cb.
6" Sensor
18" Sensor
12" Sensor
30" Sensor
Effective Rooting Depth (in)
30" Sensor
Select soil type
Allowable Depletion
30%
35%
40%
45%
50%
Soybeans R8 (0.1 in/dy)
Time to complete irrigation
hours
Calculate

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Corn Research Verification Program

Producer: Kevin Thompson
Agent: Andrew Sayger
Coordinator: Chuck Capps

The 30-acre CRVP field was located at Fargo. The soil type in this field is a Grenada Silt Loam and the previous crop was soybean.
After field preparation was complete, a preplant fertilizer blend of (43-93-75-23-2.3) (N-P-K-S-Zn) was applied and bedded. On April 5 the field was planted to Dekalb 65-93 RR2 at 36,000 seeds/acre on 30" row spacing. The field emerged on April 15, with a final plant population of 33,800 plants/acre. On May 14 the grower applied Halex Gt at 3.6 pints/acre + Atrazine at 1.5 quarts/acre + Permit at 1 oz/acre for pigweed, morninglory, sickle pod and yellow nutsedge. 1 gallon/acre of chelated zinc was also applied with the herbicide due to soil test zinc levels being in the very low category (<1.8 lbs./acre) and not having a zinc fertilizer available to apply 10 lbs. of zinc/acre to the soil. On April 15 200 lbs. urea + 150 lbs. ammonium sulfate was applied at V5. On June 16, the pre-tassel nitrogen application was made of 100 lbs./acre urea with NBPT. Total fertilizer for the field was 212-93-75-59-3.3). Trivapro was sprayed on July 8 at 13.7 oz/acre due to southern rust. Irrigation was terminated approximately July 26 at 50% starch line.

The field was harvested on September 3 yielding 150 bu/acre. There was estimated 30% damage from greensnap, twisted stalks, and goosenecked stalks throughout the field that contributed to the yield drag. Stalk samples were collected prior to harvest for nitrate testing.

The field received approximately 33.7" of rain from planting to irrigation termination. Irrigations were determined using soil moisture sensors at 6", 12", 18", and 30" along with the irrigation scheduler and irrigated 5 times.

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Rice Research Verification Program

Producer: Lance Gray
Agent: Andrew Sayger
Coordinator: Ralph Mazzanti

The Monroe County furrow-irrigated rice (FIR) field was located southeast of Henderson Corner on Hwy 49 on a silt loam soil. The field consisted of 29 acres and the previous crop grown was soybean. The cultivar was Gemini 214 CL treated with the company's standard seed treatment. The field was drill-seeded at 20 lbs/acre and planted on April 6. Emergence was observed on April 27th at 7.3 plants/sqft. According to the soil test, an (0-50-60) was applied just before planting. 12.8 oz/acre Command + 2 oz/acre Sharpen was applied after planting on April 7. Command at 12 oz/acre + Prowl at 33 oz/acre was applied on May 14. N-STaR (Nitrogen Soil Test for Rice) was pulled in the spring and utilized for nitrogen recommendations on this field. Three applications of 100 lbs./acre of Urea + NBPT. The first and second Urea applications was made one week apart on May 15 and May 22. The third Urea application was made June 5 due to the field being too wet. Urea applications were flushed in by irrigation or rainfall. Regiment + Loyant was applied by ground as a border application only on June 1. A late boot nitrogen application was made on July 16 with 70 lbs/acre Urea. Sheath blight was present in the field but never reached levels to be a concern. No other diseases were noted. Rice stink bugs reached above threshold and Lambda-cy + COC was sprayed on August 6 at 2.5 oz/acre. Stink bugs reached above threshold the following week and 1 quart Malathion + 1.8 oz/acre Lamba-cy + COC was sprayed on August 14. The field was harvested August 31 yielding 187 bu/acre dried. Milling yield was 47/68. Total rainfall for the growing season was 19.85 inches. Total irrigation was estimated at 30 inches.

Please refer to our uaex.uada.edu website under the farm and ranch tab. Or the Arkansas row crops blog in early 2022 for a complete economic analysis of the Rice Research Verification Program report.

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Rice IPM Multiplier

Producer: Larry Greene

Agent: Andrew Sayger

Season Review:

The two fields were contour levee and located near Keevil in Monroe County off Highway 17. The two fields had the same management practices applied and together totaled 228 acres. The fields are a jackport silty clay loam. After field preparation was completed, CLL16 was planted at 80 lbs/acre on May 24th with standard seed treatment on 7.5" row spacings. At planting, 48 oz/acre Roundup power max + 16 oz/acre Command + 6 oz/acre Newpath was applied for emerged grass and residual grass control. Emergence was observed on May 30th with a final plant stand of 15 plants per sq/ft. 100 lbs/acre of AMS was applied on June 17th in front of a large rain chance. On June 23 Newpath at 6 oz/acre was applied along with the preflood nitrogen application of 290 lbs/acre Urea with NBPT on dry ground according to DD50 timing. Flood was established by June 30 and maintained. On July 28 Ultra Blazer at ½ pint/acre was applied to control coffee bean. The GreenSeeker handheld device was used to determine if midseason nitrogen would be necessary. Readings were taken from reference plots and then divided by averaged readings from the rest of the field. It was determined that there was a greater than 50% chance of response from a midseason nitrogen application. 100 lbs/acre of Urea was applied on July 28 into the flood. Armyworms were observed through July but never reached threshold levels to spray. Variable heading was observed on August 24. Rice stink bugs reached threshold in September and was sprayed with Endigo ZC at 5 oz/acre with crop oil on September 7. Fields were drained on September 22. No diseases were observed during the growing season. The fields were harvested during the second week of October. It was estimated the two fields averaged 150 bu/acre by measuring the grain bins.

Corn Standardized County Hybrid Trials Information Sheet

County:	Monroe		Crop:	Corn	
Grower:	Shaun Bennett				
County Agent:	Andrew Sayger, Robert Goodson				
Location of Field:	Palmer	GPS:	(34.6018510, -91.0802959)		
Soil Type:	Grenada Silt Loam, Foley Calhoun Bonn				
Previous Crop:	Soybean				
Planting Date:	April 22, 2021				
Row Width:	30"				
Planting Population:	35,000				
Harvest Date:	September 3, 2021				

Fertility: (lb/ac)	N	P	K	S	Zn	B
--- Preplant	151			27		
--- Sidedress	36	115	120		0.25	0.25
--- Pretassel	70					
Total Fertility:	257	115	120	27	0.25	0.25

Irrigation Type:	Furrow	Number of Times:	5

Hybrid	Adj. Yield[1]	Area	Weight	Yield	% Moisture	Plant Stand[2]	Lodging Score[3]	Test Weight
Pioneer P1731YHR	198.31	0.309	3,258	188.28	11.0	31,000	2	60.3
Progeny 2015VT2P	195.38	0.309	3,228	186.55	11.5	31,000	2	58.1
Dekalb 68-69	201.38	0.331	3,560	192.06	11.4	31,000	2	61
Dyna-Gro 54VC34	171.86	0.331	3,028	163.36	11.1	31,000	4	59.2
Agrigold 66-59RIB	197.53	0.331	3,488	188.17	11.3	32,000	3	60.5
Local 1307TRE	128.84	0.331	2,270	122.46	11.1	32,000	6	58.5
Pioneer 2042VYHR	179.63	0.331	3,172	171.13	11.3	33,000	2	59.8
Progeny 2118VT2P	186.38	0.331	3,280	176.95	11.0	33,000	2	60.7
Dekalb 65-99	175.30	0.331	3,092	166.81	11.2	34,000	2	59.4
Dyna-Gro 55VC80	188.01	0.331	3,320	179.11	11.3	33,000	2	59.4
Agrigold A645-16RIB	202.40	0.331	3,570	192.60	11.2	32,000	2	59.2
Local 1898TRE	212.07	0.331	3,728	201.12	10.9	34,000	1	59.9
Dekalb 70-27	215.94	0.331	3,826	206.41	11.6	33,000	1	60.7

[1] Yield is adjusted to 15.5% moisture.

[2] Plant Stand is given as plants per acre.

[3] Lodging score - 1 is no lodging, 10 is completely lodged.

2021 Arkansas Corn Hybrid Demonstration Program Summary

Contact: Dr. Jason Kelley, jkelley@uada.edu

Delta District Summary

County	AgriGold 645-16VT2	AgriGold 6659VT2	DKC 65-99	DKC 68-69	Dyna-Gro 54VC34	Dyna-Gro 55VC80	Local 1307TRE	Local 1898TRE	Pioneer 1731YHR	Pioneer 2042VYHR	Progeny 2015VT2	Progeny 2118VT2
	----------Corn Yield (Bu/Acre)----------											
Ashley	227	216	241	229	223	224	227	226	206	198	208	233
Clay	222	216	215	234	228	231	217	213	205	222	225	238
Clay II	252	260	--	--	265	269	--	--	273	261	254	260
Cross	238	244	252	254	256	255	242	241	221	241	224	254
Desha	227	254	250	240	228	226	225	229	237	227	221	235
Desha II	220	221	233	221	208	190	203	222	164	180	192	209
Greene	248	261	257	274	263	245	264	257	254	237	250	259
Jefferson	240	242	267	231	244	238	258	243	--	--	--	--
Lawrence	248	276	275	270	255	269	266	269	246	261	252	266
Lee	208	202	228	214	207	197	183	206	204	191	182	225
Lee 2	235	236	238	241	234	232	223	233	240	223	228	231
Monroe	202	198	175	201	172	188	129	212	198	180	195	186
Poinsett	214	202	203	186	213	213	192	203	186	195	203	215
Prairie	233	229	234	255	198	232	215	235	217	196	217	240
White	251	265	277	273	267	279	272	239	275	271	279	259
Woodruff	231	242	253	236	248	247	177	213	244	242	225	239
Delta Average*	**229**	**233**	**238**	**238**	**229**	**231**	**217**	**228**	**221**	**219**	**222**	**235**

*Average across delta counties where all hybrids were evaluated.

The full report can be found at: https://www.uaex.uada.edu/farm-ranch/crops-commercial-horticulture/corn/

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Enlist Variety Trial

Crop:	Soybeans	**Producer:**	Todd and Tyler Smith
Location:	East of Clarendon	**GPS:**	(34.7070634, -91.1745035)
Soil Type:	Foley Calhoun Bonn	**Row Width:**	30
Previous Crop:	Corn	**Planting Rate:**	140,000
Planting Date:	6/1/21	**Harvest Date:**	10/23/21
Irrigation:	Furrow		

Pesticide Rate per Acre and Product	Fertilizer (N-P-K-S-Zn)
1 Quart Roundup + 1 Quart Liberty + 1 Pint Enlist (twice)	Preplant (0-100-100-0-0)

Variety	Plant Stand k's	Adjusted Yield (Bushels/Acre)[1]	% Moisture at Harvest	Lodging Score[2]	Shatter Score[3]	Plot Size acres
Stine 47E23	102	49.95	14.6	1	1	0.362
Delta Grow 47E20	108	61.31	13.9	1	1	0.362
Dyna Gro S45ES10	115	60.17	13.9	1	1	0.362
Go Soy 481E19	122	62.12	13.7	1	1	0.362
Pioneer P47T39SE	97	57.15	13.3	1	1	0.362
Delta Grow 45E10	110	63.22	13.4	1	1	0.362
Progeny P4775E36	97	58.98	13.6	1	1	0.362
Dyna Gro S46ES91	122	64.13	13.4	1	1	0.362
Pioneer P45T88E	124	60.25	13.1	1	1	0.362
Stine 48EB20	110	58.47	13.0	1	1	0.362
Delta Grow 48E49	107	58.59	12.5	1	1	0.362

[1] Yield adjusted to 13% moisture	[2] 1 is no lodging, 10 is completely lodged	[3] 1= 0% 2=1-3% 3=4-8% 4=9-19% 5=20%+

Notes:	These are non-replicated demonstration plots. For a better picture of a varieties potential, growers are encouraged to compare this data with data collected from University of Arkansas System Division of Agriculture replicated tests. This research data is printed annually and is available on-line at http://arkansasvarietytesting.com/

Nitrogen Source Trials in Bermudagrass Hay

Discussion:

The Nitrogen source trial demonstration was a multi-county cooperation of agents in the central to northeast central part of the state of about nine counties. The goal was to see what nitrogen fertilizer source that is common and available to forage producers, provided the most economical yield increase in dryland Bermuda hay production. These were replicated four times across trials and averaged together for an overall yield. The second cutting was lowest across all plots due to a lack of rain during that period. The harvest dates were as follows: 1st (June 11th) 2nd (July 9th) 3rd (August 13th) 4th (October 13th). The first fertilizer application was applied May 7th while the other nitrogen applications were applied after each harvest. The 4th cutting was a simulated stockpiled Bermuda harvest or what the cows would have been allowed to harvest themselves instead of cutting for hay.

Results Dry matter yield in pounds is shown in the table below. Urea at 60 lbs./acre was the most economical application or what would give you the most "bang for your buck". Urea performed as good or better as other nitrogen sources even when a rain did not incorporate the nitrogen within 7 days after application. Again, urea showed to be a great choice even when rain was not expected for incorporation.

White County								
Nitrogen source trial								
				Forage DM Yield (lbs) per harvest				
Trt #	**Treatment**			**1st**	**2nd**	**3rd**	**4th**	**Total**
1	Control			1537	162	658	556	2913.1
2	Ammonia nitrate - 30 lbs/a			3143	671	2266	1563	7641.7
3	Ammonia nitrate - 60 lbs/a			3250	806	2587	1830	8472.2
4	Ammonia nitrate - 90 lbs/a			3791	1128	2848	2126	9893.2
5	Urea - 30 lbs/a			2686	582	2325	1516	7109.5
6	Urea - 60 lbs/a			3546	1057	2910	2417	9930.8
7	Urea - 90 lbs/a			3648	1230	3103	2369	10350.1
8	Urea + NBPT - 30 lbs/a			2953	635	2212	1347	7146.8
9	Urea + NBPT - 60 lbs/a			3623	908	2930	2103	9563.8
10	Urea + NBPT - 90 lbs/a			4349	1281	3213	2242	11085.1
11	Urea + ANVOL - 30 lbs/a			2982	661	2356	1652	7651.4
12	Urea + ANVOL - 60 lbs/a			3622	1149	3010	2338	10118.7
13	Urea + ANVOL - 90 lbs/a			3975	1514	3189	2575	11252.9
14	UAN - 30 lbs/a			3192	741	1840	1391	7163.1
15	UAN - 60 lbs/a			3838	1211	2299	2218	9566.5
16	UAN - 90 lbs/a			4478	1473	2739	2379	11069.2

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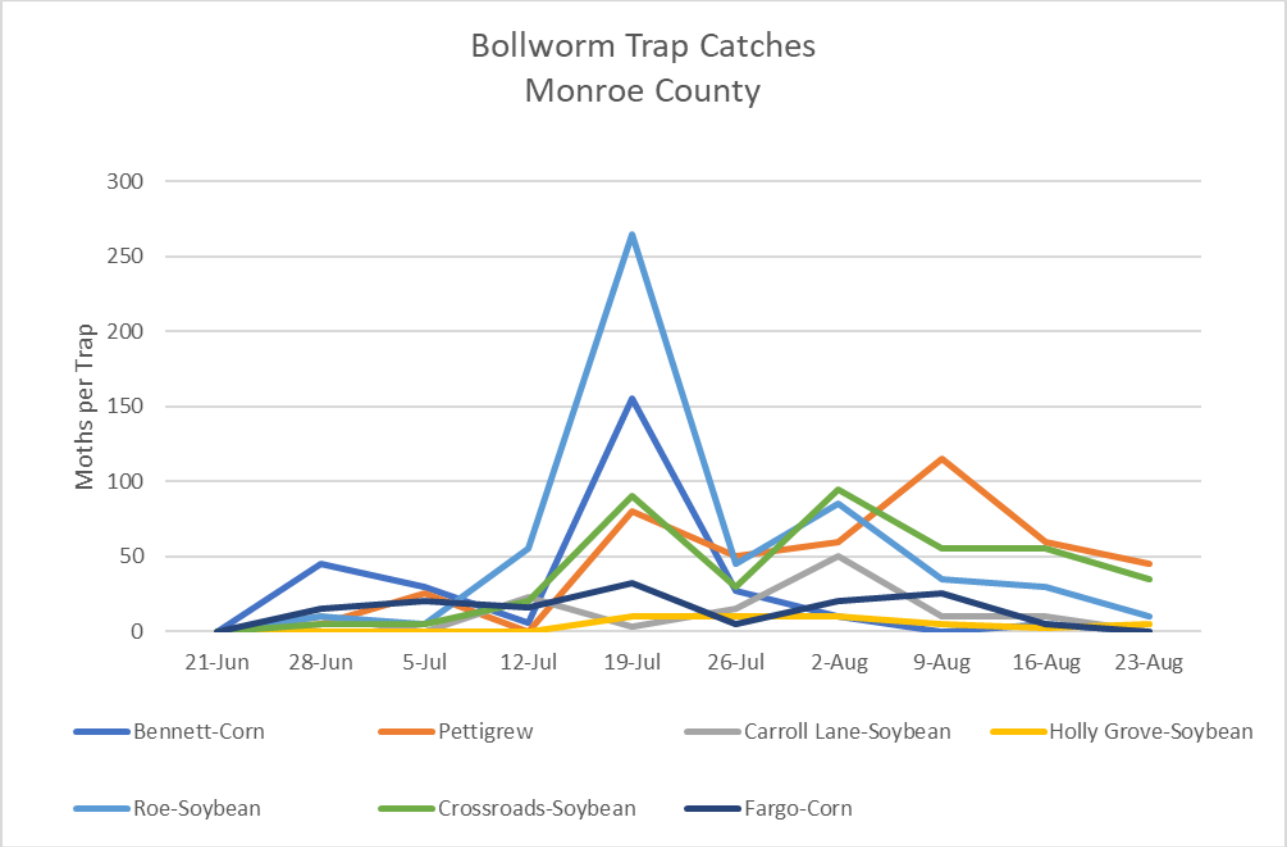

Bollworm												
Location	21-Jun	28-Jun	5-Jul	12-Jul	19-Jul	26-Jul	2-Aug	9-Aug	16-Aug	23-Aug	30-Aug	6-Sep
Bennett-Corn	0	45	30	6	155	27	10	0	5	0	0	
Pettigrew	0	5	25	0	80	50	60	115	60	45	15	85
Carroll Lane-Soybean	0	10	0	23	3	15	50	10	10	0	10	0
Holly Grove-Soybean	0	0	0	0	10	10	10	5	2	5	10	5
Roe-Soybean	0	10	5	55	265	45	85	35	30	10	5	30
Crossroads-Soybean	0	5	5	20	90	30	95	55	55	35	40	70
Fargo-Corn	0	15	20	16	32	5	20	25	5	0	0	5

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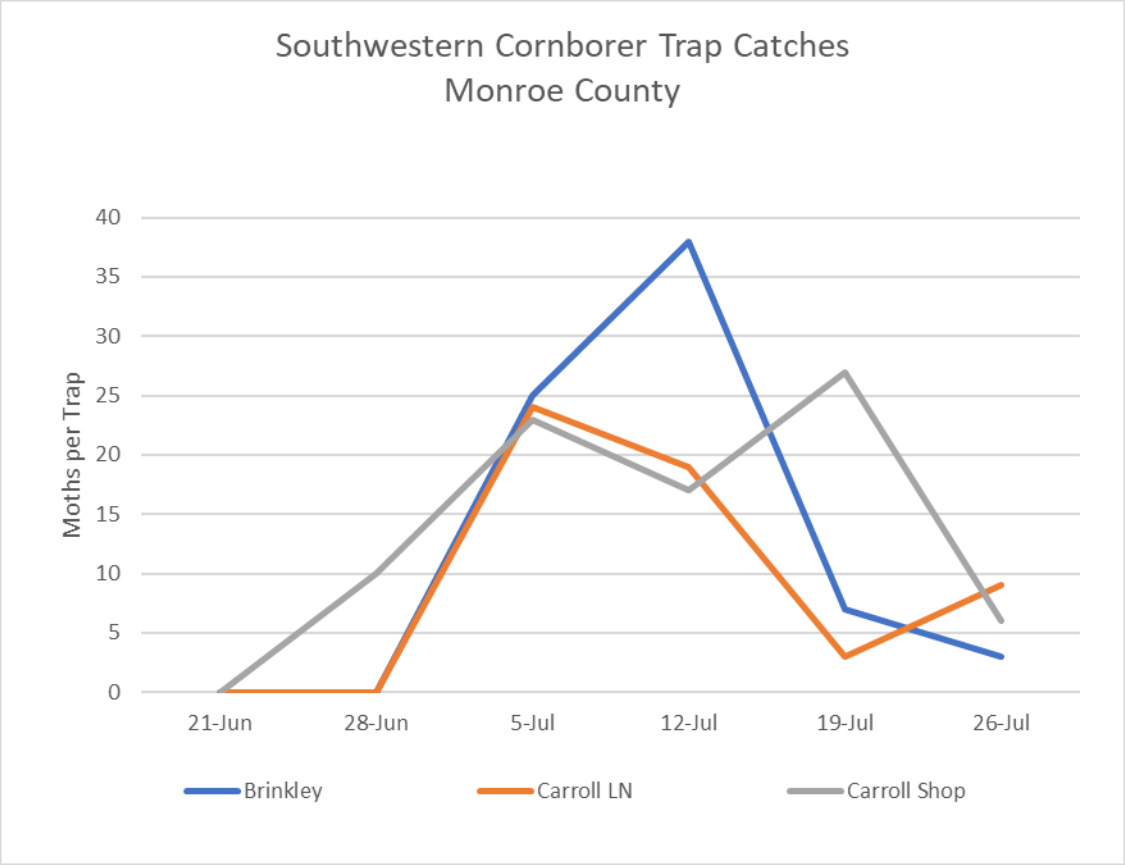

Southwestern Cornborer		21-Jun	28-Jun	5-Jul	12-Jul	19-Jul	26-Jul
Brinkley		0	0	25	38	7	3
Carroll LN		0	0	24	19	3	9
Carroll Shop		0	10	23	17	27	6

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Monroe County Crop History					
	2017	2018	2019	2020	2021
Rice					
County Acres	36,000	45,900	34,000	45,900	39,304
County Avg yield	168.4	166.6	155.3	164.8	na
State Acres	1,104,000	1,422,000	1,126,000	1,441,000	1,198,000
State Avg yield	166.4	167.1	166.2	166.6	168.8
Corn					
County Acres	29,000	26,500	30,600	20,600	34,789
County Avg yield	182.1	173.2	169.6	169.7	na
State Acres	595,000	645,000	735,000	605,000	830,000
State Avg yield	183	181	175	184	183
Cotton					
County Acres	2,712	5,260	15,400	14,100	11,091
County Avg yield	na	na	1,184	1130	na
State Acres	438,000	480,000	610,000	520,000	470,000
State Avg yield	1,177	1,133	1,185	1,200	1,226
Soybeans					
County Acres	118,500	97,100	72,000	78,200	92,892
County Avg yield	47.2	47.3	47.7	49.6	na
State Acres	3,500,000	3,210,000	2,610,000	2,780,000	3,010,000
State Avg yield	51	50.5	49	50	50
Wheat					
County Acres	5,500	4,900	na	1,010	4,890
County Avg yield	63.1	59	na	61.4	na
State Acres	125,000	95,000	50,000	75,000	155,000
State Avg yield	52	55	52	55	51

Source: NASS, USDA

Your Monroe County Cooperative Extension Service

www.uaex.uada.edu/counties/monroe

UofA DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System

Annual Update

2020 Monroe County Extension Education Outreach

Total Educational Contacts: 649,492
Total County Volunteer Hours: 2,206
Value of Volunteer Time (# of Hours X $28.54): $62,959.24

Agriculture & Natural Resources

Overview of Programs:

- 7,807 Total Educational Contacts
  - 4,549 were Direct Contacts
- 823 Farm / Site Visits
- 11 On-Farm Demonstrations
- 384 Volunteer Hours at a $10,959.36 Value to County
- 23 Master Gardeners
- 2 Master Gardener Projects
- 1,161 Volunteer Master Gardener hours at a $33,134.94 value to County

Key Programs & Activities Conducted:

- 19 producers adopting crop best management practices representing 63,500 acres
- 27 producers adopting Integrated Pest Management practices

Monroe County 4-H

Overview of Program:

- 614,559 Total Educational Contacts
  - 158,852 were Direct Contacts
- 25 4-H Members
- 3 4-H Clubs
- 8 4-H Volunteer Leaders
- 625 Volunteer Hours at a $17,837.50 Value to the County

Key Programs & Activities Conducted:

- 6 Ross Photo Contest Participants
- 2 State Camp participants
- Shooting Sports- BB Team – 8 shooters, 2 State Matches
- County Monthly Service Projects

Your Monroe County Annual Update

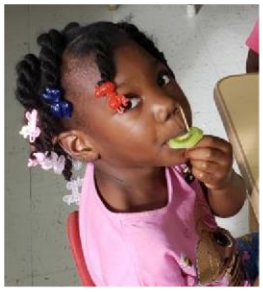
UofA DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System

- State Rice is Nice Contest 2nd place winner (5 county participants)
- State BBQ Contest Participant (5 County, 2 District)
- **3** Dairy Foods Contest Participants
- Bass Fishing Group Started

Family & Consumer Science

Overview of Program:

- 13,856 Total Educational Contacts
  - 1,845 were Direct Contacts
- 16 Volunteer Hours at a $456.64 Value to the County
- 1,430 SNAP-Ed Contacts
  - 433 were Direct Contacts
- 12 Community Partnerships



Key Programs & Activities Conducted:

- Preschool & Elementary Nutrition Education
  - 416 Direct Contacts
- Adult Nutrition Education
  - 1,014 Contacts
- Monthly FCS Newsletter
  - 71 mailing list & 90 Meals on Wheels participants
- ServSafe Manager Certification
  - 11 Certifications Earned

Community & Economic Development

Overview of Program:

- 6,432 Total Educational Contacts
  - 1,394 were Direct Contacts
- 20 Volunteer Hours at a $570.80 Value to the County

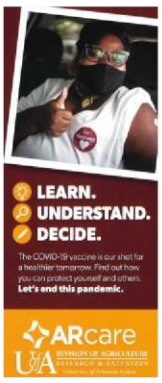
Key Programs & Activities Conducted:

- 2020 Voter Education – displays, handouts
- Dissemination of information pertaining to Funding Opportunities, Tax Schools, & training opportunities related to all aspects of Community & Economic Development
- Leadership opportunities with 4-H members

Time & Effort Related to COVID-19

Overview of Program:

- 77 Agent Hours
- 5,409 Total Educational Contacts
- Multi-County Grant funded projects
  - Vaccinate with Confidence and Immunity in AR Community
  - Information in English & Spanish - social media posts, displays & pamphlets



As I have mentioned, demonstration work in the county is the backbone of our agriculture program. I want to say thank you to everyone that participated in this year's work. Thank you to all the state agronomist and their research crews, the verification coordinators, state specialist, irrigation specialist, ANR educators and many more. Their help is much appreciated to make these programs possible. Thank you to Diane Cunningham for helping assemble the demonstration book and distributing information throughout the year.

I want to say a very special thank you to our area producers. Thank you for allowing us to conduct research and trials on your farms. Our work would not be possible without your assistance. I hope our work benefits you as much as you help us.

2020 Demo Cooperators

Chad Hornsby	Larry Greene	Derrick Young	Kourtney Gray
Lance Gray	Todd Smith	Tyler Smith	R.P. George
Kevin Thompson	Jonathan Thompson	Shaun Bennett	Roger Bennett
Jon Carroll	Jim Carroll		

Thank you!!

DIVISION OF AGRICULTURE

RESEARCH & EXTENSION

University of Arkansas System