Stripling Irrigation Research Park

September 2020

Cotton bolls opening up.

This Month

UNIVERSITY OF GEORGIA
College of Agricultural & Environmental Sciences

C.M. STRIPLING IRRIGATION RESEARCH PARK

From the Superintendent

Ah the 'dog days' of summer in southwest Georgia! To say August was hot and humid would be an understatement, yet again. In August, the Park received 5.28 inches of rain over 12 events (2 were over an inch each). That gives us a total of 36.69 inches for the year, just ahead of last year - 34.44 inches at this point in 2019. Our daily high temps ranged from 99.1F to 81.6F, with an average high of 92.4F. Our low temps ranged from 76.7F to 69.2F with an average of 73.0F. The long term historical averages for us are 91.9F (high), 70.7F (low), 4.92 inches rain and 11 rainy days. But the kicker for us humans has been the brutal humidity. On August 28th, I noticed on our Davis Instruments weather station app that the combination of 91F temp and 68% humidity combined for a heat index of 120F!!!

The staff at Stripling Park (BJ, Mandy & Kyle) was very busy in August with a number of field activities, including irrigating cotton, peanut, and soybean plots; spraying cotton with herbicides, insecticides and foliar fertilizer; spraying fungicides on peanuts; spraying insecticides on soybeans; spraying alleys; preparing plot land for 'ultra late' soybean study; and mowing non-cropped areas/grass. We harvested corn in three studies for Drs. Porter, Vellidis and Sintim. We assisted the SWVT team as they planted a 90 plot ultra late soybean study. We also assisted Cale Cloud, SW District water agent, as he applied peanut fungicides via chemigation. We even harvested some green peanuts for staff and friends to enjoy a southern delicacy – boiled peanuts.

With the Covid-19 restrictions continuing, visitors to SIRP have continued to be necessarily few and far between. Our non-UGA visitors included Jason Arnold, Technical Sales Specialist for Brake herbicide with SEPro, Wilson Faircloth, Agronomy Services Rep with Syngenta, and Marty Saylor, Fieldnet Sales Specialist with Lindsay Irrigation. We were pleased to have Dr. Simer Virk, newly hired assistant professor in UGA Crop & Soil Science, to drop by and discuss equipment and projects. Simer will be working on various precision ag topics.

Cale Cloud and I met with David Hall, SE District Water educator, and Chris Tyson, Superintendent of the UGA Vidalia Onion Research Farm near Lyons, GA. Chris invited us over to discuss options for his research farm to replace older solid-set irrigation hardware with more modern systems, such as linear-move or center pivot systems.

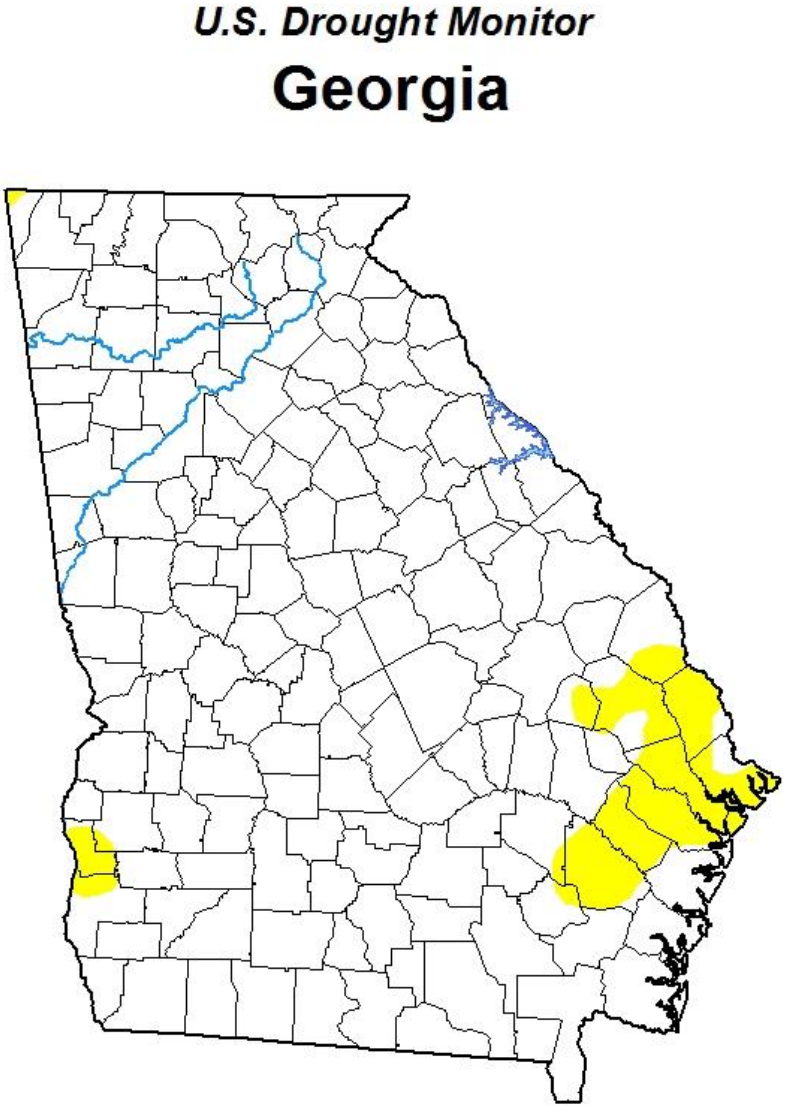
Like many of you, I had a couple webinar meetings of interest last month. I was invited to participate in a discussion of rural broadband and precision agriculture with the "Connectivity Working Group" task force, a part of the FCC's Precision Agriculture Advisory Committee. I also coordinated a meeting between several UGA scientists and a start-up company, Nitricity, that is using solar energy to produce nitrogen fertilizer on-site (though in small amounts).

As most of you are aware, Dr. Sam Pardue stepped down as our dean of UGA's College of Agricultural & Environmental Sciences at the end of June. Last month, four candidates interviewed (via Zoom) to be our next dean. The candidates were from New Mexico State, University of Delaware, University of Florida, and Virginia Tech. Each brought unique strengths but it has just been announced that Provost Hu has selected **Dr. Nick Place** from UF as our new Dean. By the way, Dr. Joe West is interim dean.

Finally, a reminder that our new website is live, though periodically undergoing enhancements. As I noted last month, near the bottom right, in a bright red banner, is a "Donate Now" button. If you would like to make a donation to our College and have the donation directly help our facility, please take advantage of this opportunity. The website is at https://striplingpark.caes.uga.edu/.

Calvin Perry

Drought Conditions



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	93.42	6.58	0.00	0.00	0.00	0.00
Last Week 08-25-2020	97.26	2.74	0.00	0.00	0.00	0.00
3 Months Ago 06-02-2020	97.58	2.42	0.00	0.00	0.00	0.00
Start of Calendar Year 12-31-2019	96.00	4.00	0.00	0.00	0.00	0.00
Start of Water Year 10-01-2019	0.00	100.00	61.58	28.35	4.49	0.00
One Year Ago 09-03-2019	72.08	27.92	7.27	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

droughtmonitor.unl.edu

Drought Monitor map for Georgia as of Sept 1st. A very different map compared to last month! Currently, 93% of the state of Georgia is considered in no drought condition. There is 6.58% of the state, mostly in SE Georgia, in Abnormally Dry status.

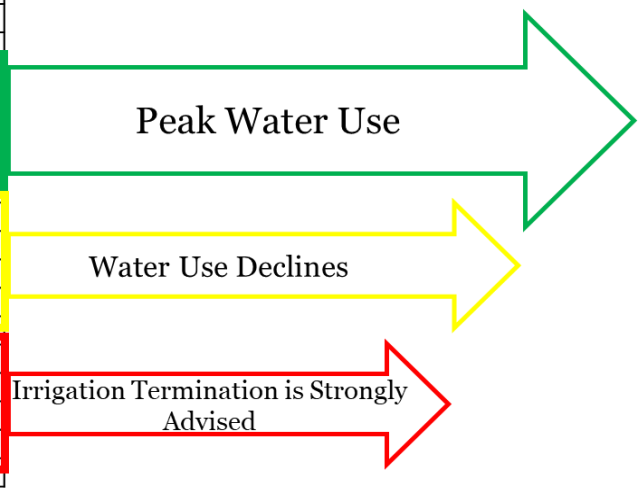
For more info:
http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?GA

Cotton Irrigation

Finalizing Cotton Irrigation and Cotton Irrigation Termination Decisions
David Hall, Cale Cloud, Wesley Porter

Unlike during July, the environmental conditions across the state have become very wet and rainy with high humidity. As we approach the end of the growing season we are around 12 to 16 weeks after planting at the beginning of September based on a May 1 to June 1 planting. On average, we will be around 14 to 18 weeks after planting throughout the month of September. This will put our water usage just past peak and beginning to decline. UGA Extension cotton irrigation scheduling guidelines, like all other guides, must be used in conjunction with field and atmospheric conditions. That means boots on the ground or moisture sensors to assist you in determining available moisture in the soil. September is historically dry with low humidity leading to soils drying out faster. Although cotton plant moisture uptake is small, there still is a need for some moisture in the soil to add in finishing out those last harvestable bolls.

Growth Stage	DAP	Weeks after Planting	Inches/Week	Inches/Day
Emergence	1 - 7	1	0.04	0.01
Emergence to First Square	8 - 14	2	0.18	0.03
	15 - 21	3	0.29	0.04
	22 - 28	4	0.41	0.06
	29 - 35	5	0.56	0.08
First Square to First Flower	36 - 42	6	0.71	0.10
	43 - 49	7	0.85	0.12
	50 - 56	8	1.08	0.15
First Flower to First Open Boll	57 - 63	9	1.28	0.18
	64 - 70	10	1.47	0.21
	71 - 77	11	1.52	0.22
	78 - 84	12	1.48	0.21
	85 - 91	13	1.42	0.20
	92 - 98	14	1.30	0.19
	106 - 112	16	0.88	0.13
	113 - 119	17	0.69	0.10
First open boll to >60% Open Bolls	120 - 126	18	0.51	0.07
	127 - 133	19	0.35	0.05
	141 - 147	21	0.12	0.02
	148 - 154	22	0.05	0.01
	155 - 161	23	0.02	0.00
Harvest	162 - 168	24	0.00	0.00
	169 - 175	25	0.00	0.00



As water use declines, it is necessary to closely monitor your fields for cotton bolls that are beginning to open. UGA's official irrigation termination recommendation for cotton is at an average of 10% open boll across a field. 10 percent open is not a high number of bolls that are open to start considering irrigation termination. A plant with 12 harvestable bolls means you need to be looking at the available soil moisture if 1.2 bolls are open. September 2019 was abnormally hot and dry. Bolls were beginning to open but our available water "banked" in the soil was depleted. Due to dry soils, hot temps and long term dry weather

Cotton Irrigation

forecasts, one last irrigation event(s) was needed to help finish the crop. The low humidity and sunny conditions helped to prevent open bolls from being damaged. If you remember last fall we had very little boll rot last year, this year if you follow Dr. Kemerait's daily disease update we are currently facing up to four different types of boll rot in 2020 (seems typical for 2020 right??).

Currently, we are totally 180 degrees from last year. At the time of this writing, we just dodged bullets from two hurricanes while our soils, especially in Southwest Georgia, are saturated. As we continue to receive rainfall and have high humidity environments, boll rot is a major issue occurring across this area now. This time of season extending leaf wetness period is going to make disease issues worse on both cotton and peanuts, so do everything you can to reduce these periods of wetness. Recently we've had high instances of heavy dew every morning keeping this plants wet, so don't make the problem worse by adding irrigation when it is not needed.

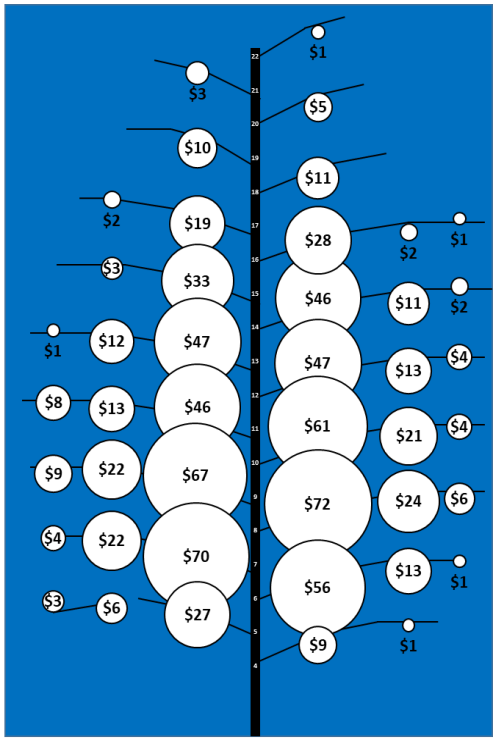
Photo courtesy of Dr. Bob Kemerait

Mother Nature cannot be controlled but your irrigation applications can be. Two weeks from now we could be very dry, which would be very good for reducing new boll rot instances. The main point for irrigation termination on cotton is upon reaching that 10% open boll stage, do not over irrigate and exacerbate more boll rot, observe the current and long term weather forecast, know your soil moisture content and use good judgement on terminating irrigation. Good moisture in the soil and 10% open bolls means the end of another irrigation cotton season!

Cotton Irrigation

Unfortunately, a good many acres have been affected by boll rot, and it occurs on our most valuable bolls in the lower canopy. An updated boll positioning value has been produced by Jared Whitaker (below) showing the importance of those lower and first position bolls.

Fruiting Location	Value
1st Positions	72%
2nd Positions	18%
3rd Positions	5%
Vegetative	5%
Nodes ≤10	60%
Nodes 11-15	31%
Nodes ≥ 16	9%



This new value tree really emphasizes the importance of first setting those high dollar bolls early in the season with proper management. Nearing the end of the growing season, overwatering and irrigating your crop with a higher than 10% open boll in an effort to make young upper position low value bolls open in the top will lead to losing or damaging your most valuable bolls and reducing yield and profitability. Not to mention, those young bolls probably will not mature enough to be harvested.

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Cale Cloud, UGA Extension Water Agent, SW District (jackson.cloud@uga.edu)
Wesley Porter, UGA Crop & Soil Science, Associate Professor (wporter@uga.edu)

Peanut Irrigation

End of Season Irrigation for Peanuts
Cale Cloud, David Hall, Wesley Porter

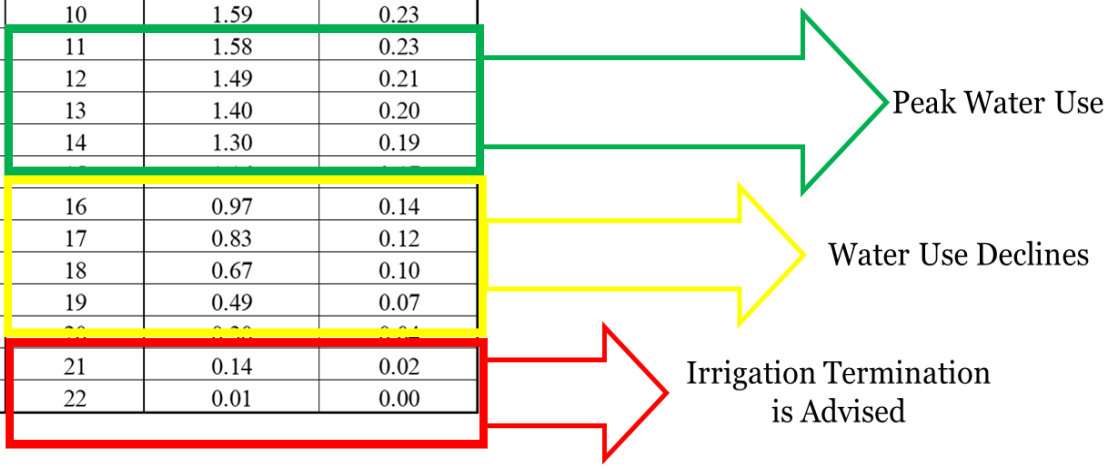
August started out brutal at Stripling Research Park with maximum temperatures ranging from 94-99 degrees the first 10 days of the month. To make matters worse, we had 2 & 4 inch soil temperatures ranging anywhere from 88-95 degrees on those days with ET rates of up to 0.24 inches per day. It should be noted that ET rates are not equal to water requirements either. During peak water use periods the crop coefficient is close to 1.2, meaning that you multiply 1.2 times the ET rate for water requirements. So this means that the crop would need 0.29 inches per day. Irrigating in situations like these may be near impossible to keep up with the water requirements, especially for crops that are at peak crop demand during this time. With ET rates that high, even if you are applying half an inch of water through irrigation for example, you are losing that 0.24" to ET that day. So when accounting for efficiency, and water requirements very little of the irrigation water actually makes it to the crop and in many cases by the time the pivot finishes its application, it'll be time to start irrigating again. Fortunately, we have recently been receiving substantial amounts of rain all throughout the state the last couple of weeks. The rain bands we received on August 24 from Tropical Storm Marco most likely helped finish up watering for early planted peanuts.

The month of September is when the majority of our peanuts are dug and most of them are now well past the peak water demand and need less than an inch of water per week. However, there are still plenty of later planted peanuts that were planted in early June that are still near peak demand, so do not get behind on water on your later planted peanuts! Now is a good time to start thinking about irrigation termination for earlier planted peanuts planted in mid-April to early May.

Unlike corn and cotton, we do not have a physiological irrigation termination trigger for peanuts. Once you reach 140 DAP or 2500 GDD's, digging should be considered based on maturity board checks. One of the biggest concerns with digging peanuts is that too much moisture can cause excessive soil on the shell, especially in heavier soils and too little moisture can making digging difficult. Please refer to the figure on the next page for irrigation requirements, and when to start thinking about terminating irrigation.

Peanut Irrigation

Peanut Irrigation Schedule			
Days after Planting	Weeks after Planting	Inches per Week	Inches per Day
1 - 7	1	0.08	0.01
8 - 14	2	0.26	0.04
15 - 21	3	0.39	0.06
22 - 28	4	0.55	0.08
29 - 35	5	0.76	0.11
36 - 42	6	0.95	0.14
43 - 49	7	1.08	0.15
50 - 56	8	1.29	0.18
57 - 63	9	1.49	0.21
64 - 70	10	1.59	0.23
71 - 77	11	1.58	0.23
78 - 84	12	1.49	0.21
85 - 91	13	1.40	0.20
92 - 98	14	1.30	0.19
99 - 105			
106 - 112	16	0.97	0.14
113 - 119	17	0.83	0.12
120 - 126	18	0.67	0.10
127 - 133	19	0.49	0.07
134 - 140			
141 - 147	21	0.14	0.02
148 - 150	22	0.01	0.00



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David Hall, UGA Extension Water Educator, SE District (david.hall1@uga.edu)
Wesley Porter, UGA Crop & Soil Science, Associate Professor (wporter@uga.edu)

At the Park

Above: Finally got the rear rims on the Grain Combine repaired so B.J. could finish the corn harvesting in the “Newton” Lateral south field.
Below: B.J. harvesting corn in the “Access” field.

At the Park

Above: Irrigating Dr. Porter's cotton in the "Camilla" lateral field.
Below: Our local Game Warden had to come by and tend to an injured owl that was on SIRP's property. Did you know it is illegal to care for sick, injured, or orphaned wildlife in Georgia unless you have a permit from GaDNR?

At the Park

Above: B.J. & Kyle measuring peanut plots in the “VRI” field.
Below: B.J. & Dr. Simer Virk discussing precision ag technologies that could help SIRP accomplish its goals.

At the Park

Above: Cale & Dr. Kemerait rating peanut disease in the “VRI” plots.
Below: Check out these tall cotton plots. Dr. Snider has intentionally NOT applied any PGR.

At the Park

Above: Cale Cloud, SW District Extension Water Agent, applying peanut fungicidies via chemigation on the “VRI” peanuts.

Below: Kyle working on Lindsay lateral VRI valves.

At the Park

Above: Calvin, B.J., Mandy & Kyle harvesting Dr. Kemerait's corn by hand.
Below: Dr. Kemerait's crew had 52 bags of corn to shuck.

Events

Past events	

Upcoming events	

All events have been cancelled or delayed until further notice due to the COVID-19 virus.

We hope that everyone is practicing ‘Social Distancing’, and that you all stay safe, happy and healthy!

In the News

Summer 2020 Generally Wetter and Warmer Than Normal

Researchers build app to monitor irrigation water quality

Lindsay Unlocks Customized Crop Water Usage Insights for All FieldNET Customers

Big-Data Project Detects Plant Diseases Faster

Onset Announces New Wireless HOBOnet Multi-Depth Soil Moisture Sensor

Irrigation initiative funds flow in North Alabama

SW Georgia conservation district receives Clean 13 Water Heroes Award

Valley Irrigation Acquires PrecisionKing

Gov. Kemp signs broadband bill focusing on rural Georgia

Georgia Peanuts: Abundant Numbers of Velvetbean Caterpillars

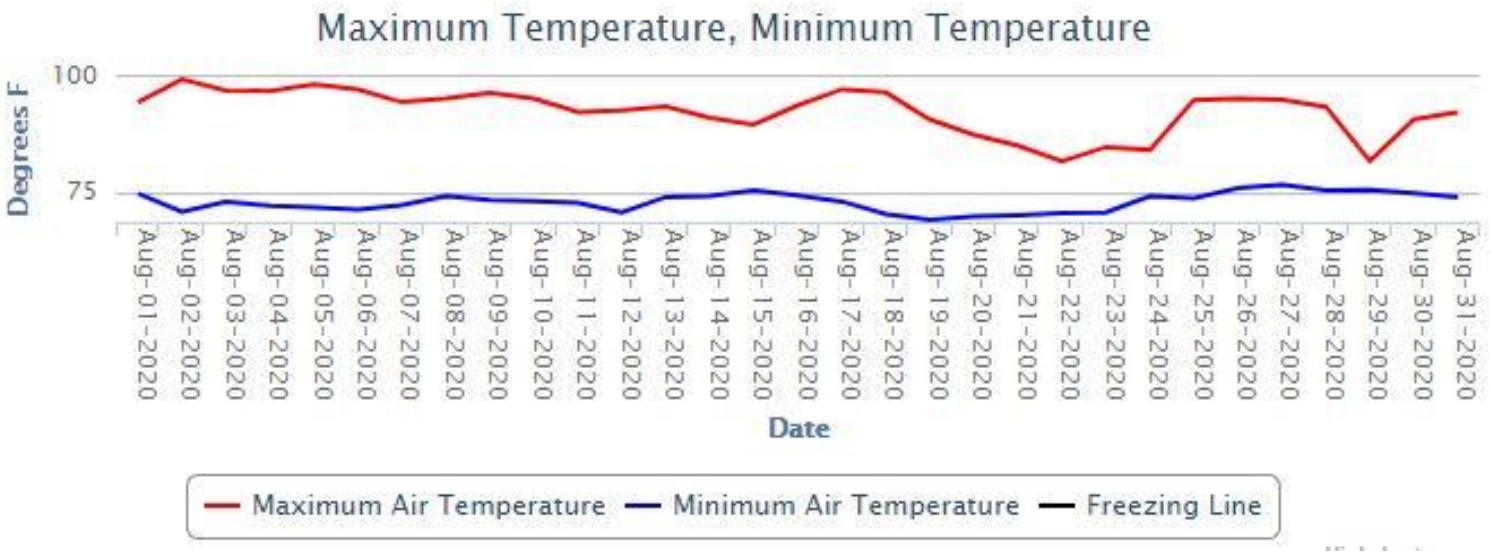
Shurley on Cotton: Is The Market Tapped Out?
https://agfax.com/2020/09/08/shurley-on-cotton-is-the-market-tapped-out/

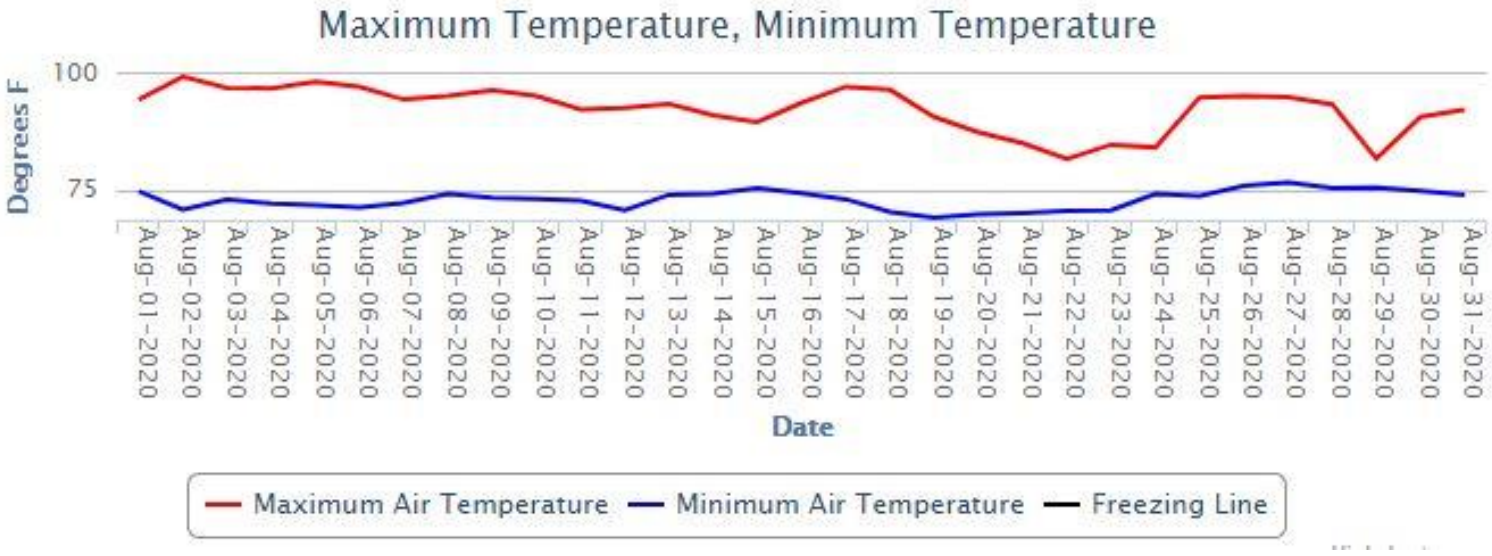
Save Fuel, Labor And Equipment Costs With Conservation Tillage

Video / Podcast / Radio:

Georgia Peanuts: Through the Eyes of a Farmer – Ross Parrish – Video

SIRP Weather





For August, SIRP had 5.28 inches of rainfall, compared to 4.28 inches in July, 2.18 inches in June, 2.03 inches in May, and 9.10 inches in April.

To explore weather information, visit www.georgiaweather.net.

Contact Information

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Trivia:
What is the number one seller at Walmart?

Answer: Bananas