UGA extension

Ag Notes | Webster County and Stewart County | May 2016

Dates to Remember

Monday, June 13
Cotton Scout School
Tifton

Thursday, July 14
Sunbelt Ag Expo
Field Day
Moultrie

Saturday, October 15
Webster County 4-H
Fall Carnival

As Scheduled
One on one pesticide trainings

Vidalia Onions

$10 for 10 pounds

Pick up scheduled for Wednesday, May 11

We will have extras!!

Cotton Production Guides

By Dr. Laura A. Griffeth, *County Extension Agent*

The 2016 Cotton Production Guides are finally ready and in the Webster County Extension Office in Preston. Stop by and get your copy, or give us a call to reserve one for you. Or let me know, and I can bring you one.

Edible Bale Wrap?

By Dr. Laura A. Griffeth, *County Extension Agent*

Plastic bale wrap is not only a pain to deal with but can also be dangerous to cattle that ingest it. Three graduate students in England developed a patent pending BioNet biopolymer specifically to wrap hay and silage. Currently they are officially testing on livestock and even ate some themselves. It should be commercially available in 3 – 5 years. Imagine a future where you don't have to clean up plastic pieces!

Plant Tissue Testing

By Dr. Laura A. Griffeth, *County Extension Agent*

As our corn gets starting growing in this 2016 season, it's not too early to begin thinking about taking tissue tests. This is not a substitute for soil sampling that most everybody did earlier, but it is a great tool for growers to see where the plant is in terms on nutrient availability. We have a bad problem in this area for our nitrogen to sulfur ratio getting out of whack, which leads to yellow plants. Many times farmers add nitrogen but no added sulfur, which causes the ratio to change. If the nitrogen/sulfur ratio is less than 16/1, then it is sufficient, and no extra sulfur is needed. Other plant nutrients are analyzed and compared to the sufficiency ranges listed for that crop. The cost is $25 per sample, and it takes approximately 3 – 5 days to receive the results. And it's not just limited to corn; our Agricultural and Environmental Services Laboratory also analyzes most all agronomic, fruit, vegetable, and ornamental crops grown.

Corn Sampling Procedure – collect 15 – 20 plants

- At the seedling stage (less than 12 inches), collect the whole above ground portion.
- Prior to tasseling, collect the first fully developed leaf below the whorl.
- Between tasseling and shooting to silking, collect the entire leaf at the ear node.
- Sampling after silking is not recommended.

Cotton Sampling Procedure – collect 30 – 40 leaves

- Prior to or at first bloom or when first squares appear, collect youngest fully mature leaves on main stem.

Water Use of Corn and Irrigation Scheduling

From the 2016 Corn Production Guide

If you are targeting a yield of less than 150 bushels per acre or if you have a limited amount of water to apply, you should not irrigate until you see visual signs of stress or "leaf curl" at the tassel stage. At this point apply 2-2.5 inches of water every 14 days (1-1.25 inches back-to-back may be necessary) until you receive a heavy rainfall or run out of water.

Corn growers who are targeting yields of greater than 150 bushels per acre and have adequate amounts of water available may want to consider other methods to schedule irrigation that will help eliminate ALL periods of drought stress. To effectively schedule irrigation, soil moisture monitoring with remote data access is highly recommended. Devices such as soil water potential sensors can be used to monitor water use and increase water-use efficiency by more accurately helping to schedule irrigations. Irrigate whenever soil moisture falls below the desired level. This system allows efficient water use and high yield potential. Make soil moisture determinations daily during peak moisture use periods. During other periods, make readings frequently enough to detect irrigation needs before stress occurs. Usually three times weekly will be often enough for the first 50 to 60 days after planting.

Growers who take a “wait for the crop to tell me” approach never get the greatest benefits for their irrigation. In corn, irrigating too late causes yield loss, while irrigating too much wastes energy, water, and money and can leach nutrients beyond the root zone.

Laura’s Comments

I have heard many growers state, “I want my corn crop to stress a little for moisture so it will send its root down deep.” This is not the case. **Any** stress, such as moisture stress, on the plant between the 8th and 17th leaf stage **will** limit yields. No amount of irrigation following moisture stress during this stage of development will increase the number of rows of kernels or ear length. If you have irrigation capabilities, do so when it is needed!

Also included in this newsletter are the estimated corn water use and the soil series available water holding capacity tables, which can be used to determine the correct amount and how frequently to irrigate if you are using the checkbook or water balance method. See the example on the right that walks through an example. Most growers need twice as much water more often than they realize or put out. Remember that every bit of stress that corn plant has knocks another kernel off the ear or another ear off the stalk and reduces yield. Think of a corn crop as different from other crops. If you’re shooting for 250 bushels per acre, that’s the maximum you can get. The plant doesn’t have the ability to produce 300 bushels per acre if you’re only managing for 200 bushels per acre. And every bit of stress knocks off another bushel – water stress, weed pressure, insects, extreme heat during pollination – that yield is gone. Manage corn for the irrigation, fertility, and management limits that you have as a grower. Everybody is different.

Irrigation Example

1. Soil – Tifton soil
   Assume 24 inch rooting depth
   Total available water – 2 inches
   (2 feet x 1.0 in/foot)

2. 65 days after planting
   Daily water use .31 inches/day

3. Use 50% of allowable soil water depletion
   Only 1 inch water needed to replace soil water used or lost

4. Determine amount of irrigation to apply by dividing amount of water replaced by irrigation efficiency
   Assume 75% irrigation efficiency
   1 inch/.75 = 1.3 inches

5. Determine frequency of irrigation to apply by dividing amount of water replaced by water use per day
   1 inch/.31 in per day = 3.23 days

6. Apply 1.3 inches of water every 3.2 days to maintain 50% available water for 65 day old corn on Tifton soils

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Estimated Water Use of Corn in Georgia

Growth Stage	Days After Planting	Inches Per Day
Emergence and primary root developing.	0-7 8-12	.03 .05
Two leaves expanded and nodal roots forming.	13-17 18-22	.07 .09
Four to six leaves expanding. Growing point near surface. Other leaves and roots developing.	23-27 28-32 33-36	.12 .14 .17
Six to eight leaves. Tassel developing. Growing point above ground.	37-41 42-45	.19 .21
Ten to twelve leaves expanded. Bottom 2-3 leaves lost. Stalks growing rapidly. Ear shoots developing. Potential kernel row number determined.	46-50 51-54	.23 .25
Twelve to sixteen leaves. Kernels per row and size of ear determined. Tassel not visible but about full size. Top two ear shoots developing rapidly.	55-59 60-64	.27 .29
Tassel emerging, ear shoots elongating.	65-69	.31
Pollination and silks emerging.	70-74 75-79	.32 .33
Blister stage	80-84	.33
Milk stage, rapid starch accumulation	85-89	.34
Early dough stage, kernels rapidly increasing in weight.	90-94	.34
Dough stage	95-99	.33
Early dent	100-104	.30
Dent	105-109	.27
Beginning black layer	110-114	.24
Black layer (physiological maturity)	115-119	.21

Available Water Holding Capacities of Soils in the Coastal Plain of Georgia

Soil Series	Description	Intake In/Hr for Bare Soil*	Available Water Holding Capacity In: In/Ft. Increments
Faceville	Sandy Loam, 6-12" Moderate intake, but rapid in first zone	1.0	1.3
Greenville			1.4
Marlboro			1.2 - 1.5
Cahaba	Loamy sand, 6-12" Loamy subsoil, rapid in first zone, moderate in second	1.2	1.0 - 1.5
Orangeburg			1.0 - 1.3
Red Bay			1.2 - 1.4
Americus	Loamy Sand, 40 to 60 inches Rapid permeability	2.0	1.0
Lakeland			0.8
Troup			0.9 - 1.2
Norfolk	Loamy sand, 12-18" rapid permeability	1.3	1.0 - 1.5
Ochlocknee			1.4 - 1.8
Dothan	Loamy sand and sandy loam 6-12", moderate intake	1.0	1.0 - 1.3
Tifton			0.8 - 1.0
Fuquay	Loamy sand, 24 - 36" Rapid permeability in first zone, moderate in second	1.5	0.6 - 8
Lucy			1.0
Stilson			0.9
Wagram			0.6 - 0.8

UGA Programs for Controlling Glyphosate-Resistant Palmer Amaranth in 2016 Cotton

A. S. Culpepper, A. C. York, J. Kichler, and J. Smith

Roundup-, Liberty-, or Roundup plus Liberty-based programs are provided below and are developed from years of research. However, keep in mind programs should be adjusted for each farming operation. In addition to these programs, Figure 1 provides the thoughts of 681 growers on the steps to success. Programs for dicamba or 2,4-D will be provided on a separate circular when those products receive registration. Generic products are available for Direx, Dual Magnum, Gramoxone, Liberty, Prowl, Reflex, Staple, Treflan and Valor. ***Read & follow all label requirements.***

STEP 1: Regardless of cotton technology, growers must ensure no pigweeds are emerged at planting.

CONSERVATION TILLAGE[1]	CONVENTIONAL	FOOTNOTES
1) Valor[2] + Roundup or Gramoxone[3] *Palmer <1" and over 10 d before planting*	**1) Reflex 10-12 oz/A + Prowl/Treflan** *incorporated 1 to 2inch deep; preferably within 7 d of planting.*	[1]Follow labeled plant-back intervals. Include adjuvant with Gramoxone. [2]If planting between 10 and 28 d after applying Valor, run strip-till after spraying and before planting. [3]Use Roundup if Palmer not up. [4]Avoid Direx PRE if used preplant.
2) Valor[2] + Direx[4] + Gramoxone *Palmer 1-5" and over 10 d before planting*	**2) Tillage:** pigweed larger than 3 inches often do not die.	
3) Direx[4] + Gramoxone *Palmer ≤ 5" and within 10 d of planting*	**3) Herbicides:** follow conservation tillage recommendations; different plant backs may apply.	

STEP 2: Regardless of cotton technology, select and apply 2 residual herbicides PRE immediately after planting.

PRE'S	HERBICIDE RATES	COMMENTS
1) Reflex + Warrant **2) Reflex + Direx** **3) Direx + Warrant**	**1) Reflex:** For most soils the ideal rate is 12 oz/A. Following Reflex preplant incorporated, 8-10 oz/A is more appropriate. **2) Warrant:** *Roundup system* likely needs 48 oz/A except on light soil textures or under intense irrigation where 32-40 oz/A is more appropriate. *Liberty+Roundup system* use 32-40 oz/A. **3) Direx:** For most soils the ideal rate is10-20 oz/A; lower rates on sands or under intense irrigation.	1) Reflex systems usually provide slightly better control (Figure 2). 2) Use Warrant for spiderwort. 3) Avoid more diuron if applied burndown within 14 days of planting. 4) Add paraquat with the PRE mixture if pigweeds are emerged.

Minimizing Injury from PRE Herbicides: ***1.*** **Plant high vigor seed into moist soil (preplant irrigation often needed).** ***2.*** **Shallow planting depth increases injury potential.** ***3.*** **Apply proper residual herbicides within 24 hr of planting.** ***4.*** **If feasible, irrigate between 30 hr after planting and prior to 24 hr before emergence but then do not irrigate again until at least 5 d after emergence.** ***5.*** **Irrigate to develop a perfect cotton stand; however, limit irrigation events during the first 2 wks after planting to as few as possible after activating residual herbicides.**

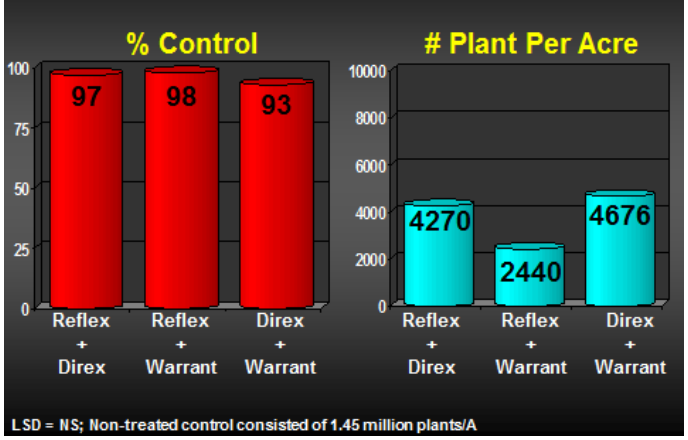
Fig 1. Growers Share Factors Helping Them Improve Palmer Amaranth Control

Top Six

1. Timely herbicide applications
2. Hand weeding
3. Residual herbicides
4. Extension
5. Start clean, stay clean
6. Different herbicide modes of action

Results are from a survey conducted during the "Using Pesticides Wisely" trainings in 2015. Responses are from 681 growers and are in order from most to least common; growers were asked what has been the most important factor helping them with the management of Palmer amaranth in cotton.

Figure 2. Palmer Control by PRE's at 21 Days



LSD = NS; Non-treated control consisted of 1.45 million plants/A

STEP 3: Regardless of cotton technology, sequential POST applications must be timely!!

ROUNDUP SYSTEMS	
POST 1 at 13 d after PRE [1,2]	**POST 2 at 13 d after POST 1 [1]**
Non-ALS resistant pigweed up to 1 inch: **Roundup + Staple[3]** ---------- *No emerged pigweed:* **Roundup + Warrant or Dual Magnum**	*No emerged pigweed:* **Roundup + Dual Magnum or Warrant** ---------- *Non-ALS resistant pigweed up to 1 inch:* **Roundup + Staple[3]**

LIBERTY + ROUNDUP SYSTEMS[1]	
POST 1 ~17 d after PRE[2]	**POST 2 ~ 13-17 d after POST 1[2]**
Pigweed less than 3 inches: **Liberty + Roundup + Dual Magnum or Warrant[3,4]** *or* **Liberty + Dual Magnum or Warrant** ---------- *No pigweed emerged:* **Roundup + Staple, Dual Magnum or Warrant**	*Pigweed less than 3 inches:* **No 3-way mixture suggested** **Liberty + Dual Magnum or Warrant** ---------- *No pigweed emerged:* **Roundup + Staple, Dual Magnum, or Warrant**

Considerations:

[1]Day interval assumes PRE herbicides were ideally activated.

[2]Palmer present at harvest often emerge within 17 d of planting, hence timeliness of POST 1 herbicides is critical. Pigweeds usually break through PRE herbicides between 13 and 17 day after application and activation (Figure 2).

[3]Avoid using Staple more than once a season if any way possible.

Considerations:

[1]Glytol LibertyLink Cotton or XtendFlex Cotton Cultivars Only; LibertyLink cotton is more tolerant to Liberty than XtendFlex and both technologies are more tolerant to Liberty than Widestrike cotton.

[2]Day interval assumes PRE residual herbicides were ideally activated.

[3]Mixtures of Liberty + Roundup + residual will be more injurious than Liberty+ residual or Roundup + residual; experiment on limited acres. Injury of 25% with leaf shed has been observed.

[4]Tank mix can provide less grass control than Roundup alone, especially for goosegrass. Use full rate of Roundup (i.e. 32 oz/A of WeatherMax). Base Liberty rate on pigweed size but suggest not exceeding 32 oz/A (rate ideal for 3" or smaller pigweed).

Reducing the potential for POST herbicides to negatively impact yield: 1) Research suggests cotton injury near or during fruit set is more likely to be detrimental as compared to early season injury. Therefore, one should make all topical applications before the 8-leaf stage of cotton growth; programs above provide application intervals between PRE, POST1, and POST 2 applications to assist with this objective. After 8-leaf cotton, make sloppy directed or precision directed applications according to herbicides applied. 2) Research in 2015 suggested greatest negative impact from POST herbicide applications occurred when significant injury was observed for several weeks. Thus, it is important when making sequential POST applications to minimize injury with the 2nd POST application.

STEP 4: Directed layby herbicide applications are needed for nearly all acres.

LAYBY Options[1,2]	COMMENTS
1. Direx + MSMA	If soil type allows, apply 1 qt Direx + 1 qt of MSMA + 1 qt of crop oil concentrate.
2. Roundup + Direx	Direx + MSMA is a far better option for pigweed control; however, if grasses are a significant issue then Roundup + Direx (1.5 pt/A) after cotton is at least 12 inches tall is in order.

[1]For both layby options. ***To improve morningglory control consider adding:*** Envoke 0.1-0.15 oz/A. ***To improve spiderwort, pigweed, and grass residual control consider adding:*** 1) Dual Magnum 1 pt/A; 2) Warrant 2 pt/A; 3) Zidua 1 oz/A; or 4) Outlook 12 oz/A. [2]See the pest control handbook for cotton stages of growth required for applications of various herbicides.

STEP 5: Hand-weed any escaped pigweed prior to seed set.

The Georgia Cotton Commission, Cotton Incorporated, and Industry are primary funding sources!

THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

Peanut Pointers
May 2016 – Volume 53 Number 5
Dr. Scott Monfort, editor

Earlier Season Issues
Dr. Scott Monfort, Extension Agronomist

Growers began planting peanut several weeks ago making use of the above average temperatures and moisture. For the most part, early planted peanuts are up and look good so far. What about peanut planted last week during the cool snap? Luckily, soil temperatures were in the mid 70's before this weather event thus helped buffer the effects of the cool temperature. Temperatures quickly bounced back into the mid 60's at night and upper 80's during the day this past weekend helping to warm soil temperatures back into the low 70's. This does not mean stand problems have not occurred. I have received several calls so far regarding stand issues and replant decisions. Replanting is not an easy decision nor is it always economical. The biggest issue I see right now is the disappearing soil moisture. Please remember not to plant in fields with poor soil moisture.

Replanting a Poor Stand of Peanut
Dr. R. Scott Tubbs, Extension Cropping Systems Agronomist

I am informed that there have been a number of calls this year already regarding replanting a poor stand of peanut, so I am updating this article to reemphasize the topic. There were some mixed results in the research depending on the objectives of the various trials, but below is a condensed version of some of the major take-home points.

Replanting did not improve yield over leaving an initially poor plant stand alone as often as I would have anticipated. Combined over multiple trials and multiple years, the only consistent result for improving yield at a point that it would be economically viable to justify the cost of replanting (because of the additional cost of seed and fuel/labor/equipment expenses to move across the field again) was when plant stands were as low as 1.0 plant per foot of row. Although some of the individual year data showed the potential for yield improvement when plant stands were 2.0 plants per foot of row or less. Hence, if plant stands are at least 2.5 plants per foot of row (whether twin row or single row; strip-till or conventional tillage; and the stands are relatively uniform without large gaps in the field), the chances of gaining a return on the investment of replanting a field is very low.

The method of replanting the field does matter as well – there were essentially no circumstances where burning down the original stand of peanuts with herbicide and starting over with a complete replanting of peanut was worthwhile. Any instances where replanting showed the potential for a benefit, it was when the originally poor plant stand was left in the field and peanut was replanted by offsetting the planter a couple inches to the side of the original row and placing supplemental seed in the ground. Additional experiments are being conducted to determine the effect of less uniform plant stands with varying gap sizes within the row, and also the timing of determining optimum maturity when the original plant stand and a replanted plant stand are growing together in the field.

One thing that was clear in our data was that if the decision to replant a field was made, that decision needed to occur within 2-3 weeks after the original planting date. Waiting until 4 weeks after the original planting was unsuccessful in gaining an advantage over leaving the original plant stand alone. Once the original plant stand has gained a significant advantage in terms of size, it will outcompete the replanted plants attempting to become established, and the replanted plants become inconsequential to improving yield.

In addition, when choosing a replanting seeding rate, we used a rule-of-thumb by setting our replant seeding rate with a sliding scale depending on the remaining stand in the field from the original planting. This was essentially a formula where we subtracted the current estimated plant population from the optimum plant stand, and then doubled that amount. So, if the original stand was 1.5 plants per foot of row, our replant

seeding rate was set as (4.0 – 1.5) * 2 = 5.0 seed per foot of row (assuming quality seed were being used for the replant, with germination above 80%, and knowing that 100% efficiency of seed drop is not possible – see adjoining article on "Tractor Speed Effect on Plant Stand"). This was based on theory, not on any research trial backing, although I do have plans to address this question in the next phase of my replant research.

Tractor Speed Effect on Plant Stand

Dr. R. Scott Tubbs, Extension Cropping Systems Agronomist

I planted my first research trials of the season during the last week of April, and an ugly reminder surfaced once again. When the research assistant started planting in his normal gear/speed, I observed numerous skips on the plate. I asked him to slow down, one gear at a time, until the farm manager and I were satisfied with the efficiency of the seed output and number of observed skips. It took three gear changes to reach the speed where I was satisfied for the purposes of the research trial (establishing specific plant populations). I will be presenting data collected over several years in several locations at the American Peanut Research and Education Society Annual Meeting this summer about this very topic.

Tractor speed significantly affects the ability to place the appropriate number of seed in the ground. No matter what planter/seeding rate you are geared to achieve, it is only possible to reach this goal if you are dropping one seed for every hole on the plate as it spins. The faster the planter moves through the field, the more skips that occur, hence reducing plant stand. My data showed a 15-17% improvement in plant stand and a statistical improvement in yield by using a slow speed (around 2 MPH) compared to using a faster speed (about 4 MPH). While I realize that it is unrealistic to expect growers to cover the ground they need to cover while traveling at 2 MPH, the take-home message from this research is that the slower you travel at planting, the closer your plant stand will be to your targeted seeding rate, and the potential for higher yield to be achieved. Simply gearing the planter for an increased seeding rate does not mean that more seed are going to be dropped in the furrow – the tractor speed still needs to be at an appropriate operating level for the planter to function correctly and eliminate unacceptable error with skips.

Ag Forecast Update

Pam Knox, Agricultural Climatologist

As expected, El Nino continues to decline and is likely to disappear in the next couple of months. Most climatologists believe that the atmospheric conditions will swing to the opposite phase, La Nina, by late summer. That would likely bring hot and dry weather to most of the Southeast later in the growing season, although lingering rains from El Nino may still continue across the area for the next two to three months. The hot and dry conditions could increase the possibility of aflatoxin infection this year, and producers should watch for that carefully. A La Nina also means a more active Atlantic tropical season. If a tropical storm comes across your fields, it could cause localized flooding, especially in low-lying areas. Fungal disease pressure could also increase in those areas. Otherwise, it would not surprise me to see an expansion of drought conditions from northern Georgia southward over the next few months. If the La Nina develops as expected, next winter is likely to be warmer and drier than normal, which could lead to even drier conditions in 2017.

Early-season Disease Management: Seed Treatments, In-furrow Fungicides and Early-emergence Fungicides

Dr. Bob Kemerait, Extension Plant Pathologist, Dr. Albert Culbreath, Plant Pathologist, and Dr. Tim Brennamen, Plant Pathologist

Disease management on peanut begins long before the first seed is planted. Critical components to any disease management plan for the 2016 peanut crop begins with a) the length of time since peanut was last planted in this year's field, b) selection of a more (or less) disease-resistant variety, and c) planting date. Cooler, wetter soils increase the risk of seedling disease caused by Rhizoctonia solani and also infection by the pathogen that causes Cylindrocladium black rot (CBR). Early plantings often increase the risk for Tomato spotted wilt disease; planting during periods of hot and dry soils increases the risk for Aspergillus crown rot and Diplodia collar rot.

The next step in a disease management program is to protect the seed and young seedling from disease.

Seed Treatment. All commercial seed will (as of now) be treated with Dynasty PD. Dynasty PD is a combination of fungicides to include azoxystrobin, fludioxonil and mefenoxam. Dynasty PD provides very good control of most of the fungal pathogens that affect peanut seed and seedlings.

In-furrow Fungicides. Growers who plant quality seed treated with Dynasty PD typically do not need to use an in-furrow fungicide for management of seedling disease; the seed treatment alone is adequate. Growers who plant un-treated seed (highly discouraged!), seed where low vigor may be an issue, or in conditions very favorable for disease (e.g., cooler and wetter soils) may want to consider use of an in-furrow fungicide for extra protection. Abound (azoxystrobin) (3.0 – 6.0 fl oz/A) is the fungicide most often recommended for management of seedling diseases.

Proline (5.7 fl oz/A) is applied in-furrow for management of CBR and also offers some (limited) activity for early-season management of white mold. Proline likely offers additional protection for seedling diseases as well, but not at the same level as Abound would. Proline applied in-furrow offers some benefit to leaf spot control as well. For growers planting a leaf spot-resistant variety in a well rotated field, use of Proline in-furrow should allow the grower to delay the first leaf spot application until 45 days after planting, regardless of the fungicide that will be applied. Growers planting a more susceptible variety (like Georgia-13M) will get benefit, but not enough to omit fungicide applications.

Velum Total is applied in-furrow for management of nematodes affecting the peanut crop. While Velum Total may offer some limited benefit against fungal pathogens as well, such a benefit is not well-documented and should be considered simply as a possible “bonus” against seedling diseases. However, Velum Total applied in-furrow is at least as good as Proline (in-furrow) for the benefit of early-season leaf spot control (see above).

Early-season Fungicide Applications. Application of fungicides with activity against white mold can be an effective way to protect the crop and to reduce yield loss to disease. Factors where growers should consider a more aggressive white mold program, often with the use of an early-emergence banded application, include:

1. Peanuts are planted on a short rotation.
2. Susceptible varieties are planted.
3. Soil conditions are unusually warm during the early season, thus favoring early development of white mold.
4. The field has a history of losses to white mold.

Proline (5.7 fl oz/A banded over the row) is the most well-known fungicide for early-season white mold control; however, others can be used as well. Caution should be taken to check the fungicide label before other fungicides are applied in a concentrated band as this may not be an approved application. For early-season management of white mold, Proline is typically applied 20-30 days after planting. At this time, plants are still small enough to allow a significant amount of fungicide to be placed around the lower stem for maximum protection against white mold. When conditions are very warm early in the season, growers may apply near 20 days after planting. Otherwise, delaying until 30 days after planting may be more advantageous.

Growers who do not make early-season banded fungicide applications can still benefit from applying broadcast applications for management of leaf spot and soilborne diseases approximately 30 and 45 days after planting.

An early-season banded application of Proline replaces one of the first leaf spot applications (i.e., 30 DAP) on susceptible varieties or where peanuts are planted in short rotations. Where varieties with great leaf spot resistance are planted, an early-season application of Proline will provide approximately 30 days of protection; hence another application may not be needed until a formal soilborne program is initiated at 60 DAP.

A Mid-Course Cotton Farm Bill Discussion

Don Shurley
University of Georgia

As we get the 2016 cotton crop planted, it's hard to believe but we now enter the third crop year of the new five year farm bill. The 2014 farm bill, although referred to as a 2014 piece of legislation, did not actually get put in place on farms until just last year with the 2015 crop. Producers and landowners had to make base, yield, and program elections in 2015 that were then retroactive to the 2014 crop year.

So here we are beginning the third year of a farm bill that will end with the 2018 crop year. This means that discussions on changes and what should be in the next farm bill will likely begin as early as next year in 2017. In fact, I'm quite sure that some thought and discussion within industry, commodity groups, and with legislators has already begun.

For cotton, this present farm bill has been criticized for essentially providing no "safety net" when compared to the previous 2008 farm bill. This may be an unfortunate but accurate assessment but reality is that the cotton program had to change due to losing the WTO case with Brazil. STAX was considered the best way to provide a safety net and still be WTO compliant.

What makes this an even more bitter pill to swallow is that while the DCP program was eliminated for all crops including cotton, for all other crops except cotton (now called Covered Commodities) a new ARC/PLC program was established. As it ends up, compared to the 2008 farm bill, the only change in other crops was giving up the Direct Payment. Yes, the CCP program was also eliminated but replaced with what appears to be a better PLC/ARC program.

We now have 2 ½ years to consider whether or not this current farm bill provides the type of safety net needed, and if not, look for ways to make improvements. We need to look at the subsidies being provided in other countries and make sure US agriculture is provided a level playing field. We need to look across all commodities and make sure that the farming interests in all parts of the country are treated fairly and programs in place to benefit farms of all types.

In terms of farming management and acreage flexibility, the Generic Base provision is good. Due to more competitive returns from corn and soybeans in recent years, farms especially in the Mid-South had shifted acres out of cotton. Generic Base allows farms with cotton base ability to continue to plant these and other Covered Commodities and be eligible for ARC/PLC.

Generic Base and Cotton Acres Planted [1]

	Generic Base [2]	Cotton Acres Planted [3]		
		2014	2015	2016
Alabama	657.23	350	315	320
Arizona	406.93	165	107	135
Arkansas	1,148.58	335	210	330
California	775.15	212	164	210
Florida	105.31	107	85	90
Georgia	1,456.95	1,380	1,130	1,150
Kansas	19.79	31	16	22
Louisiana	995.81	170	115	150
Mississippi	1,623.89	425	320	450
Missouri	440.02	250	185	270
New Mexico	98.09	48	42	48
North Carolina	866.64	465	385	290
Oklahoma	589.03	240	215	270
South Carolina	347.71	280	235	190
Tennessee	743.85	275	155	235
Texas	7,204.32	6,217	4,817	5,322
Virginia	103.42	87	85	80

1/ Thousand acres.
2/ SOURCE: USDA-FSA
3/ SOURCE: USDA-NASS. 2014 and 2015 are actual. 2016 are intentions.

I fully understand why cotton leadership moved to establish this provision. For future legislation, hopefully it will still be considered cotton base or the Generic Base continued. Under the current farm bill it at least gives land some value where it otherwise would have none.

Under the new farm bill, the Loan Rate is allowed to float between 52 and 45 cents. The Loan Rate must be announced by October 1 and will be the average AWP (Adjusted World Price) for the most recently completed 2 crop years but cannot be above 52 cents or less than 45 cents. The base Loan Rate for the 2016 crop will remain at 52 cents but this may not hold for 2017.

The AWP averaged just under 50 cents for the 2014 crop year and is currently averaging about 47 cents for the 2015 crop. The AWP appears to be on track to average less than 50 cents for the 2014 and 2015 crop years—which will be used to determine the Loan rate for the 2017 crop.

Average AWP and Established Loan Rate By Crop Year

	Preceeding Crop Year Average AWP[1]					
	2012	2013	2014	2015[2]	Avg[3]	Loan[4]
2015	66.97	69.12			68.05	52.00
2016		69.12	49.89		59.51	52.00
2017			49.89	46.90	48.40	?????

1/ Average of weekly prices. Source: USDA-FSA.
2/ 2015 crop year to-date, 40 weeks
3/ 2-year average
4/ Lower of the 2-year avg or 52 cents; but not less than 45 cents.

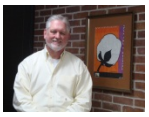
Assuming a 2 to 3 cent drop in the Loan Rate combined with the recent 2 cent reduction in the transportation adjustment from the FE Price to the AWP, this effectively cuts an LDP or MLG by 4-5 cents from what it otherwise would be—all other things being equal.

Worth noting, however, the reduction in the transportation cost adjustment, should it remain in effect for an extended period of time, will raise the AWP used for consideration in future Loan Rate calculations. It's unfortunate, however, that basing the Loan Rate on the AWP eventually works to provide less protection to the grower during a period of sustained low prices. If prices rebound by 2017 and 2018, all this become moot.

Especially in the Southeast and Mid-South where farm operations can be highly diversified, this new farm bill has many moving parts and this can make annual planning and budgeting more difficult. I've recently had opportunities to meet with bankers and Farm Credit lenders and have presented the following "template" or format for how to organize the annual farm plan and budget.

It's important to not try to combine too many things. Treat things separately, otherwise it can be confusing. There are a lot of different acres, yields, and price components in the mix and some things are based on acres planted and others are not. Keep bases separate and don't try to mix crop income with payments income.

ALL ACRES PLANTED	ACRES PLANTED/ASSIGNED TO GENERIC BASE	PERMANENT BASES	TOTAL
Crop Income	Expected ARC and PLC on 85%	Expected ARC and PLC on 85%	
Variable/Operating Costs			
Fixed Expenses ---------->			
NET INCOME ---------->			



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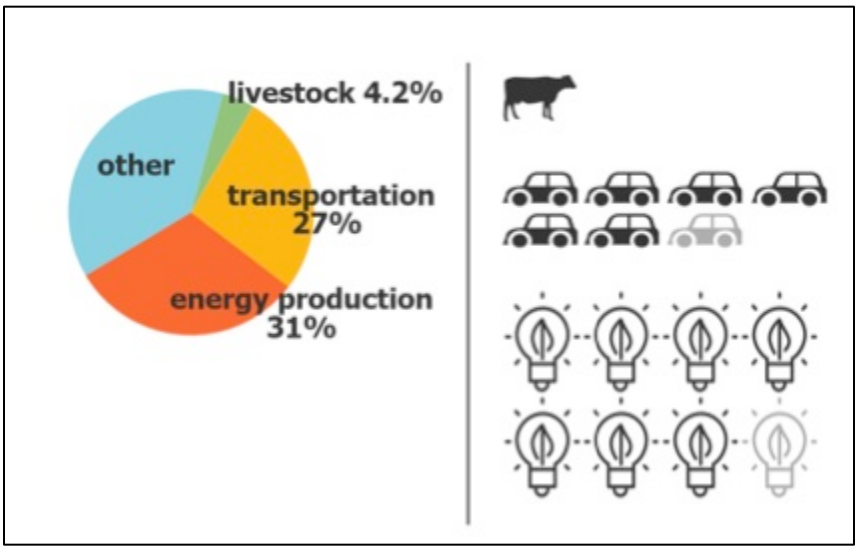
Livestock and Climate Change: Facts and Fiction
By Frank Mitloehner

As the November 2015 Global Climate Change Conference COP21 concluded in Paris, 196 countries reached agreement on the reduction of fossil fuel use and emissions in the production and consumption of energy, even to the extent of potentially phasing out fossil fuels out entirely.

Both globally and in the U.S., energy production and use, as well as the transportation sectors, are the largest anthropogenic contributors of greenhouse gasses (GHG), which are believed to drive climate change. While there is scientific consensus regarding the relative importance of fossil fuel use, anti animal-agriculture advocates portray the idea that livestock is to blame for a lion's share of the contributions to total GHG emissions.

Divorcing Political Fiction from Scientific Facts

One argument often made is that U.S. livestock GHG emissions from cows, pigs, sheep and chickens are comparable to all transportation sectors from sources such as cars, trucks, planes, trains, etc. The argument suggests the solution of limiting meat consumption, starting with "Meatless Mondays," to show a significant impact on total emissions.



When divorcing political fiction from scientific facts around the quantification of GHG from all sectors of society, one finds a different picture. Leading scientists throughout the U.S., as well as the U.S. Environmental Protection Agency have quantified the impacts of livestock production in the U.S., which accounts for 4.2 percent of all GHG emissions, very far from the 18-51 percent range that advocates often cite.

Comparing the 4.2 percent GHG contribution from livestock to the 27 percent from the transportation sector, or 31 percent from the energy sector in the U.S. brings all contributions to GHG into perspective. Rightfully so, the attention at COP21 was focused on the combined sectors consuming fossil fuels, as they contribute more than half of all GHG in the U.S.

GHG Breakdown by Animal Species

Breaking down the 4.2 percent EPA figure for livestock by animal species, shows the following contributors: beef cattle, 2.2 percent; dairy cattle, 1.37 percent; swine, 0.47 percent; poultry, 0.08 percent; sheep, 0.03 percent; goats, 0.01 percent and other (horses, etc.) 0.04 percent.

It is sometimes difficult to put these percentages in perspective, however. If all U.S. Americans practiced Meatless Mondays, we would reduce the U.S. national GHG emissions by 0.6 percent. A beefless Monday per week would cut total emissions by 0.3 percent annually. One certainly cannot neglect emissions from the livestock sector but to compare them to the main emission sources would put us on a wrong path to solutions, namely to significantly reduce our anthropogenic carbon footprint to reduce climate change.

Replace Incandescent with Energy Star bulbs = 1.2 percent GHG savings

In spite of the relatively low contributions to total GHG emissions, the U.S. livestock sector has shown considerable progress during the last six-plus decades and commitment into the future, to continually reduce its environmental footprint while providing food security at home and abroad. These environmental advances have been the result of continued research and advances in animal genetics, precision nutrition, as well as animal care and health.

U.S. Dairy and Beef Production Carbon Footprint Reduced

Since the 1950s, the carbon footprint of the U.S. beef and dairy sector has shrunk as production increased or stayed the same.

Dairy:
- 1950: 22 million dairy cows produced 117 million tons milk
- 2015: 9 million dairy cows produced 209 million tons of milk.

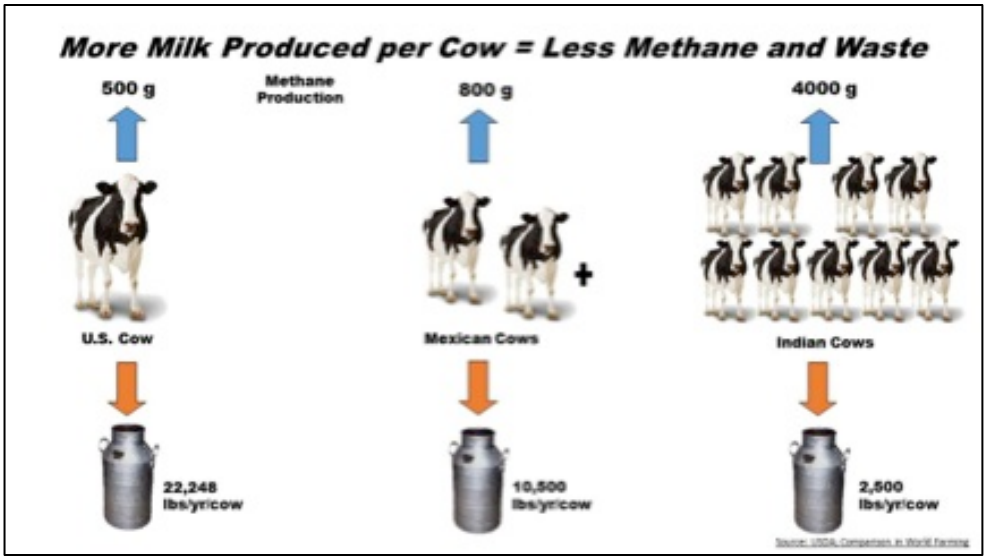
Fifty-nine percent fewer cows produced 79 percent more milk than they did in 1950.

Beef:
- 1970: 140 million head of cattle produced 24 million tons of beef
- 2015: 90 million

36 percent fewer head of cattle produce 24 million tons of beef.

Globally, the U.S. is the country with the relatively lowest carbon footprint per unit of livestock product produced (i.e. meat, milk, or eggs). The reason for this achievement largely lies in the production efficiencies of these commodities. Fewer animals are needed to produce a given quantity of animal protein food, as the following milk production example demonstrates:

- The average dairy cow in the U.S. produces 22,248 lbs. milk/cow/year. In comparison, the average dairy cow in Mexico produces 10,500 lbs. milk/cow/year, so it requires more than two cows in Mexico to produce the same amount of milk as one cow in the U.S.



- India's average milk production per cow is 2,500 lbs. milk/cow/year, increasing the methane and manure production by a factor of nine times compared to the U.S. cow. As a result, the GHG production for that same amount of milk is much lower for the U.S. versus the Mexican or Indian cow.

Production efficiency is a critical factor in sustainable animal protein production and it varies drastically by region. Improvements in livestock production efficiencies are directly related to reductions of the environmental impact. Production efficiencies and GHG emissions are inversely related—when the one rises, the other falls.

The 2050 challenge to feeding the globe is real. Throughout our lifetime, the global human population will have tripled from three to more than nine billion people without concurrent increases of natural resources to produce more food.

Our natural resources of land, water and minerals (fertilizer) necessary for agricultural production have not grown but in fact decreased. As a result, agriculture will have to become much more efficient worldwide and engage in an efficient path similar to the one it has traveled down in U.S. livestock production in recent decades.

UN's FAO Committee Develops Global Benchmarking Method

How can emissions accurately and fairly be assessed to lay ground for a path for solutions?

In its quest to identify a sustainable, scientific path toward fulfilling the future global food demand, the Food and Agriculture Organization of the United Nations (FAO) has formed an international partnership project to develop and adopt a "gold standard" life cycle assessment (LCA) methodology for each livestock specie and the feed sector.

The 'Livestock Environmental Assessment and Performance Partnership' (LEAP) engaged with more than 300 scientists from the world's most prestigious academic institutions in this unprecedented effort to develop a global benchmarking methodology. The first three-year phase project was finalized in December 2015 with six publically available LCA guidelines. This globally harmonized quantification methodology will not only allow the accurate measurement by livestock species and production regions across the globe today, but will also identify opportunities for improvement and the ability to measure that progress in each region going forward.

Efficiency and Intensification Key to Low-Carbon Livestock Sector

Addressing the 2050 challenge of supplying food to a drastically growing human population can sustainably be achieved through intensification of livestock production. Indeed, intensification provides large opportunities for climate change mitigation and can reduce associated land use changes such as deforestation. Production efficiencies reduce environmental pollution per unit of product. The U.S. livestock, poultry and feed industries are one of the most efficient and lowest environmental impact systems in the world. The research, technologies and best practices that have been developed and implemented over time in the U.S. can also be shared with other production regions around the world.

It is important to understand that all regions have unique demands and abilities, and so require regional solutions. However, the advances in the U.S. agriculture and food system can be adapted within these regional solutions. These significant environmental advances and benefits are in addition to the well-documented human health and developmental value of incorporating animal protein in the diets of the growing population.

The livestock sector is committed to continuous improvement of their environmental impact in North America, and to doing its part in transferring knowledge, technologies and best practices to enhance global environmental livestock impact by region.

Now is the time to end the rhetoric and separate facts from fiction around the numerous sectors that contribute emissions and to identify solutions for the global food supply that allow us to reduce our impact on the planet and its resources.

Frank Mitloehner is a professor of Animal Science and Air Quality Specialist at UC Davis. He recently concluded chairing a Food and Agriculture Organization of the United Nations committee to measure and assess the environmental impact of the livestock industry.

AG COMMITTEE CHAIRS:
EVERY DAY IS EARTH DAY ON THE FARM

NOTE: Below is the text of an editorial written jointly by House Agriculture Committee Chairman Mike Conaway (R-Texas) and Senate Agriculture Committee Chairman Pat Roberts (R-Kan.) in recognition of Earth Day on April 22.

We've all heard it said: farmers are the original environmentalists. We say that because American farmers and ranchers were taking care of their land long before anyone told them to do so. Why? They have the most at stake. If they do not take care of their land, the land will not take care of them. They also know that leaving the land in better shape than they found it is the key to passing their farms and ranches down to the next generation.

While farmers and ranchers have an innate desire and natural incentive to conserve, it's also true that they have been called on to feed an ever-increasing population. We are under no illusions: feeding the 7 billion people that currently inhabit this planet places tremendous stress on our environment that will only grow as we add another 2-3 billion people over the next few decades.

In response to this reality, we are faced with two choices: we can work with our nation's farmers and ranchers in helping them meet this challenge by funding innovative research and sharing in the cost of both time-tested and cutting edge conservation practices, or we can thank them for feeding the world by regulating them into oblivion.

The Agriculture Committees, the U.S. Department of Agriculture, and numerous farm groups and conservation organizations have long chosen the first option. For decades, they have worked collaboratively with our nation's farmers and ranchers to implement voluntary, incentive-based conservation practices that have drastically reduced soil and water erosion and provided critical wildlife habitat among a host of other environmental benefits.

In a bewildering contrast, the Environmental Protection Agency (EPA), along with a few extreme environmental groups, continue to take the latter approach, undermining the hard work of USDA and others while denigrating our farmers and ranchers in the process. While USDA continues the work of stabilizing stream banks and incentivizing conservation tillage practices, a sampling of the thousands of practices they deploy each year, EPA continues churning out more unfunded regulatory mandates while deploying illegal lobbying tactics to generate support.

If that weren't bad enough, they recently stooped to new lows, funding billboards that attack farmers and ranchers. Their actions are adding tremendous financial strain to our producers while driving up the cost of food for our nation's most vulnerable citizens. Their actions are shameful and do a disservice to the proud conservation legacy of this country.

While we were both blessed to grow up in rural America, neither of us grew up on a farm. But in our years of working with American farmers, we have learned that they are natural allies in the fight to preserve the natural resources of this land we love. They are not our enemies and it's time that our nation's regulatory agencies stop treating them as such.

Despite all the daily regulatory challenges, farmers continue to do amazing things and with less resources. Those accomplishments should be celebrated, not demonized.

The importance of conserving our natural resources and maintaining the productive capacity of our nation's farms and ranches should be areas where lawmakers can find consensus. We're proud to represent farmers and ranchers every day in our nation's capital. Keep up the good work this Earth Day and every day.

If you are planting any Georgia 14-N peanut variety, please let me know. I would like to follow this variety more closely to provide large farm case studies to our specialists. Any information, assistance, and even pictures would be appreciated and of course confidential.

Give me a call at 229.828.2325
or send me an email at lgriffet@uga.edu.

The United States is only 4th in the world in number of cattle, behind Brazil, India, and China, with 6% of the world's cattle.

One pound of wool makes 10 miles yarn.
There are 150 yards of wool yarn in a baseball.