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Thrips in Cotton

Below is information from Dr. Phillip Roberts, UGA Cotton Entomologist, in reference to manging thrips in cotton. Thrips Infestations are generally higher in April and early May planted cotton. Seedlings become more tolerant of thrips feeding as they develop; Small seedlings (<2 leaf) are more sensitive to thrips injury in terms of yield loss compared to 3-4 leaf seedlings.

Seedling Thrips

- Predictable insect pest (infest near 100% of cotton annually).
 - Damage includes leaf distortion, stunted plants, delays in maturity, loss of apical dominance, reduced yield potential, and in severe cases stand loss.
 - Susceptibility to thrips feeding
cotyledon > 1-leaf > 2-leaf > 3-4 leaf
 - **Slow seedling growth results in increased injury symptoms and plant damage.**
 - Preventive treatments used at planting:
 - Consistent yield response.
 - Neonic seed treatments
 - In-furrow liquids
 - In-furrow granules



Thrips Feeding

High percentage of thrips eggs laid on cotyledons. Thrips initially feed on underside of cotyledons (silvery in appearance); when terminal available, feeds on unfurled leaves (crinkled malformed true leaves).



Thrips Damage



No Damage

Economic damage rarely occurs once seedlings reach 4-leaf stage and is growing rapidly.

Thoughts on cotton weed control...

BURNDOWN: Palmer amaranth must not be emerged when planting, regardless of cotton cultivar planted.

Standard programs using Valor (before Palmer emergence), Direx, and Gramoxone + Direx are advised. Dicamba or 2,4-D would be beneficial for primrose, horseweed, and radish (2,4-D is much more effective on radish). All weeds and cover crops with the exception of cereal grains should be killed > 10 d before planting. No plant back interval exists for XtendiMax or Engenia in XtendFlex cotton; other cultivars may be planted 30 d after 1" of rainfall. No plant back interval exists for Enlist Duo or Enlist One in Enlist cotton; other cultivars may be planted 30 d after application, and 0.5" of irrigation between application and planting is beneficial.

Preemergence (PRE) applications: Include 2 active ingredients for better control, less crop injury, and less herbicide resistance development. Below are some choices of preemergence treatments.

1) Brake + Reflex 2) Brake + Warrant 3) Direx + Warrant 4) Reflex + Direx 5) Reflex + Warrant

HERBICIDE RATES ASSUME TIMELY SEQUENTIAL POST APPLICATIONS AND DIRECTED LAYBY

1) Brake contains fluridone; 1 pt/A is an effective rate in mix with other herbicides. Fluridone requires significant rain/irrigation to become fully active.

2) Warrant: For most soils, 32-40 oz/A is in order. Effective on most grasses, pigweeds and is essential for spiderwort.

3) Direx: For most soils the ideal rate is 10-20 oz/A; lower rates on sands or under intense irrigation. Avoid diuron PRE if it was applied within 14 d of planting as a burndown.

4) Reflex: For most soils, ideal rate is 10-12 oz/A when in these tank mixtures. Reflex mixtures are the most effective option for Palmer.

NOTE: Add paraquat if pigweed is emerged; a jar test is strongly advised if mixing with Brake.

How many pounds of peanut seed do I need to plant? I get this question as we start planting peanuts. Below is information from the 2019 UGA Peanut Quick Reference about peanut seed size and how seeding rate impacts pounds of seed planted per acre.

PEANUT SEED SIZE

VARIETY	SEED WEIGHT g/seed	SEED COUNT seed/lb	PLANTED, 5 SEED/FT. lbs/A	PLANTED, 6 SEED/FT. lbs/A	PLANTED, 7 SEED/FT. lbs/A
Large Seed Size*					
*TUFRunner™ '297'	0.74	615	118	142	165
Georgia-06G	0.72	632	115	138	161
*TUFRunner™ '511'	0.71	637	114	137	160
Tifguard™	0.71	643	113	135	158
*TifNV-High O/L™	0.71	644	113	135	158
*Georgia-16HO [∞]	0.70	650	112	134	156
Georgia-07W	0.68	668	109	130	152
*Florida-07	0.66	685	106	127	148
Medium Seed Size*					
Georgia Greener	0.65	694	105	126	147
*Georgia-09B	0.65	703	103	124	145
Georgia-12Y	0.64	710	102	123	143
Small Seed Size*					
Georgia Green [§]	0.59	769	94	113	132
*Georgia-13M	0.57	800	91	109	127
*Georgia-14N™	0.55	827	88	105	123

* There is no official standard to define the classifications of "Large, Medium, or Small" for runner peanuts. Category limits are not an official classification.

† Indicates a high-oleic variety. ‡ Denotes resistance to the Peanut Root-Knot Nematode (*Meloidogyne arenaria*). ∞ Data only available for 2015-2016. § Data from 2011-2013. Data in table is the average of UGA Statewide Variety Testing irrigated trials at 3 locations from 2015-2017.

Strongarm/Peanut Questions (Prostko) Had a few questions about Strongarm (diclosulam) use in peanuts yesterday that I thought might be interesting to all:

1) In general, what application method is more effective for weed control in peanut (PPI or PRE)?

When averaged over 7 weed species, there was little difference in weed control between PPI and PRE applications of Strongarm (Table 1). However, in dryland production fields with minimal future rain predictions, PPI applications would be preferred.

Table 1. Application Method Effects on Residual Weed Control with Strongarm 84WG @ 0.45 oz/A in Peanut.¹

Weed	Control (%)	
	Application Method	
	PPI ²	PRE ³
sicklepod	54	44
Florida beggarweed	78	87
bristly starbur	94	97
purple nutsedge	59	73
yellow nutsedge	78	78
morningglory sp. (<i>Ipomoea</i> sp.)	89	99
smallflower morningglory	94	96
All (average)	78	82

¹Source: Grey et al. 2003. *Peanut Science* 30:27-34.

²PPI = preplant incorporated.

³PRE = preemergence.

Also very important to remember that Strongarm provides a much broader spectrum of weed control when applied PPI or PRE when compared to POST applications. However, the following 7 weeds are sensitive to Strongarm when applied POST: tropical spiderwort/Benghal dayflower; common cocklebur; common ragweed; bristly starbur; horseweed/marestail; morningglory sp.; and eclipta.

2) What application method is more effective for the control of tropical spiderwort/Benghal dayflower?

Data collected a few years ago in Grady Co. indicated that POST applications were more effective than PRE applications for the control of tropical spiderwort/Benghal dayflower (Table 2).

Table 2. Application Method Effects of Strongarm 84WG @ 0.45 oz/A on Benghal Dayflower/Tropical Spiderwort Control in Peanut.¹

Application Method	Control (%) ²		
	46 DAP ³	69 DAP	114 DAP
PRE ⁴	75 cd	68 b	11 e
EPOST ⁵	97 a	90 a	75 abc
LPOST ⁶	88 ab	78 ab	60 c

¹Source: E.P. Prostko and J.T. Flanders, 2003, PE-24-03, Unpublished data.

²Means in the same column with the same letter are not significantly different according to DMRT (P=0.05).

³DAP = days after planting.

⁴PRE = preemergence.

⁵EPOST = early-postemergence, 17 days after planting (2" tall, 3 leaf stage).

⁶LPOST = late-postemergence, 31 days after planting (6" tall).

PLANTING TIPS

Scott Tubbs, Cropping Systems Agronomist

Planting Date: The ideal planting window is between late April and late May in regards to yield potential. A good peanut crop can be grown outside of this planting window, although, the risk of reduced yield is greater because of the weather and risk of disease problems. Please keep these points in mind before and as you plant.

- **Planter Maintenance** – Clean seed tubes, metering units, vacuum system, inoculant tubes, insecticide hoppers and tubes.
 - Calibrate liquid and dry applicators (inoculant, insecticide, herbicide, etc.)
 - Check and replace worn parts that may affect seed placement.
 - Make sure seed meters are applying correct amount of seed.
 - **Soil Temperature** – The soil temperature at the 4" depth needs to be greater than 68 Degrees F for 3 consecutive days without risk of a cold front after planting.
 - **Tractor/Planter Speed** – Plant at appropriate speeds to allow for more precise placement of seed. As speed increases, planter efficiency and number of seed dropped in the furrow both decrease. This leads to increased gaps between plants which increases TSWV risk, especially if you plant before May 10.
 - **Seeding Rate** – To reduce the impact of TSWV, growers need to plant enough seed to provide at least 4 plants/ft of row. Therefore, seeding rates of 6 seed/ft on singles and 6 to 7 combined seed/ft on twins (3 to 3.5 seed/ft per twin furrow) are recommended. Seeding rates also need to be adjusted for % germ of the seed being planted to ensure you have the desired plant population.
 - **Seed Depth** – Check your planter in each field for adequate down pressure to ensure ideal planting depth. Seed depth is typically 2.0 to 2.5" deep. You can plant shallower with good moisture but risk losing moisture before germination and injury from Valor herbicide is increased. Peanut can emerge from depths up to 3" as long as the seed has good germ and vigor.
 - **Soil Moisture** – Planting peanut in subpar moisture can result in poor germination and erratic emergence causing less than optimum plant population and increased risk of TSWV.
 - Peanut seed is too expensive to plant in dry conditions.
 - Irrigated fields –planting in dry and hot conditions followed by irrigation with cold water can shock the seed and cause erratic emergence. Irrigate 1/3 to 1/2" and then plant.
 - **Pre-Plant Herbicides and Irrigation** – Water pre-plant/at-plant herbicides into the soil before peanut emerge to improve weed control.
 - **TSWV Risk** – To reduce TSWV risk on peanut - plant after May 10, apply phorate for thrips control, and use twin row configuration
 - **Inoculants** – apply inoculants in fields that have been out of peanut for more than 5 years. However, it's a good practice to apply inoculants each year, especially following years of extreme weather like prolonged hot and/or dry periods, or extended water-logged soils.
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Peanut Fertilizer Questions -- Glen Harris We have had several call on soil samples coming back and calling for P and K in a few fields. Usually peanut soil test do not call for any additional fertilizer. Every year we get the question: Do I need to fertilize my peanut crop? So below Dr. Glen Harris (UGA Crop & Soil Science) put together a Peanut Fertility Checklist:

<u>Component</u>	<u>Soil Test Sufficiency Level</u>	<u>Recommendations</u>	
		<u>Comments</u>	
P.H.	6.0 – 6.5	<ul style="list-style-type: none"> - Below 6.0 risks Zinc and Aluminum Toxicity. - Above 6.5 risks Manganese Deficiency. - Grid Soil Sampling and Variable rate Liming is Recommended. 	
Nitrogen (N)	Not Tested in Soil Sample	<ul style="list-style-type: none"> - Consider using a Commercial Inoculant, preferably liquid, especially if field is out of Peanut Production for 3 or more consecutive years. 	
Sulphur (S)	Not Tested in Soil Sample	<ul style="list-style-type: none"> - Sulphur is not a limiting factor on Coastal Plain Soils due to: <ul style="list-style-type: none"> · Peanuts Deep Tap Root · Gypsum use · Subsoil Sulphur. 	
Phosphorus (P)	30 Lbs. per Acre Sufficiency level is lower than for other crops since the peanut plant is a deep tap rooted plant and a good scavenger of P.	Soil Test P (Pounds per Acre)	P Recommended (Pounds per Acre)
		< 15	80
		16 - 30	50
		>30	0
Potassium (K)	60 Lbs. per Acre Sufficiency level is lower than for other crops since the peanut plant is a deep tap rooted plant and a good scavenger of K.	Excess K in the pegging zone (<u>Top Four Inches</u>)	
		Can interfere with Calcium uptake by pods and cause pops (<u>Peanut Hulls without peanuts</u>).	
		Soil Test K (Pounds per Acre)	K Recommended (Pounds per Acre)
		< 30	80
		31 - 60	50
>61	0		

Calcium (Ca)	500 Pounds per Acre & Ca : K Ratio a Minimum 3:1	<ul style="list-style-type: none"> - If Either of these levels are not met, then apply 1000 pounds of Gypsum per acre at early bloom to runner type peanuts. - All Peanuts saved for seed should receive 1000 pounds of Gypsum per acre at early bloom regardless of the Ca levels in the soil.
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MANAGEMENT OF SORGHUM INSECT PESTS IN 2019

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Seed/Seedling Pests: Lesser cornstalk borer: Larva of a moth that feeds on and may kill seedling plants. It is favored by conventional tillage under hot, dry conditions, sandy soils, double-cropping behind cereal grains, and planting into burnt cereal grain stubble. Best control is at-planting use of chlorpyrifos (Lorsban, others). Seed treatments provide suppression. Rescue treatments, once damage is detected, often are ineffective.

Chinch bugs: can infest sorghum at any stage, but is most damaging during the seedling and early vegetative stages. Adults are about 1/8-inch-long, black with a white to silver 'X' marking on the back. Chinch bugs suck plant sap and feed mostly on the stem and large leaf veins. Feeding causes red/yellow leaf discoloration, wilting and stunted growth. Chinch bugs prefer hot dry conditions. Treat when 50% of plants are infested OR five or more chinch bugs per plant are present.



Whorl worms usually fall armyworm: Sorghum is very tolerant of defoliation. Insecticide control seldom is justified. Treatment should be considered when 50% or more of the whorls are being damaged and larvae are present, OR one or more worms per whorl are present.

Sorghum midge: Sorghum midge is a tiny, fragile-looking, orange-colored gnat-like fly. Eggs are laid singly in sorghum flowers during pollination. The larva is an orange maggot that feeds on the developing seed. Early plantings often avoid serious midge infestations. Control of sorghum midge requires control of egg-laying adults. Sample 20 heads with a 1-gal plastic freezer bag for adult midges. Treatment threshold is one 1 adult per panicle (head) at about 25-30% bloom. Re-inspect fields within three (3) days and continue to sample until 90% bloom and re-treat if needed. Pyrethroid insecticides are very effective but may flare sugarcane aphid. Use Blackhawk or Chlorpyrifos (1 pint per are) for low to moderate infestations. Pyrethroids can be tank mixed with Sivanto prime (Do not use Transform WG during bloom).

Headworms: Usually Corn earworm, fall armyworm or sorghum webworm. Sample 25-50 heads over a bucket and count larvae. Treat if 1 or more larvae (1/2 inch or longer) are present or 5 or more webworms are present. Use Prevathon, Blackhawk, or Lannate for headworms. Beseige is a mix of Prevathon and lambda cyhalothrin.

Stink bugs on grain heads: Southern green, green and brown stink bugs. Also leaf-footed bugs. Treat if combined numbers of all stink bugs (large nymphs and adults) exceeds 3 bugs per head during milk stage or 6 bugs per head during soft dough stage.



Photos (left to right): Sorghum midge, sugarcane aphid infestation and close up, sorghum webworm on grain head, and fall armyworm in whorl.

Management Practices for Sugarcane Aphid (SCA)

Plant early to avoid very large infestations before heading and grain fill.

Plant a tolerant Variety. Some hybrids have been shown to have tolerance and partial resistance to the aphid. But all tolerant variety may still have aphid infestations and need to be monitored and treated if infestations exceed treatment threshold listed below. Tolerant grain types are listed:

Company	Variety	Maturity	SCA Tolerance	Comment
Alta Seeds	AG1201	Med-Early	Fair-Good	
Alta Seeds	AG1203	Med-Early	Good	
Alta Seeds	ADV G3247	Med-Early	Good	
Dekalb	DKS 3707	Medium	Good	
Dekalb	DKS 2907	Early	Fair-Good	Cream colored seed
Dyna-Gro	M74GB17	Med-Full	Good	
Dyna-Gro	M73GR55	Med-Full	Good	
Pioneer	86P20	Med-Full	Good	
Pioneer	83P17	Med-Full	Fair	
Sorghum Partners	SP73B12	Med-Full	Good	
Sorghum Partners	SP78M30	Med-Full	Good	
Sorghum Partners	SP7715	Med-Full	Good	
Warner	W-7051	Full	Good	Tall

An insecticide seed treatment limits seedling infestations for 30 – 35 days after planting. All registered neonicotinoid insecticides are effective; thiamethoxam (Cruiser), clothianidin (Poncho, NlpsIt Inside), and imidacloprid (Gaucho, others). Most useful on susceptible hybrids planted late.

Scout early and treat when aphids reach threshold levels. The current threshold is **50 or more aphids per leaf on 25% pf plants** preboot stage through dough stage. Once threshold is reach do not delay application because infestations can increase very quickly

Use an effective insecticide. PYRETHROID INSECTICIDES ARE NOT EFFECTIVE and may flare infestations by killing all the aphid predators. Foliar insecticide options for SCA in Georgia are:

- **Sivanto prime** (Bayer Crop Protection) @ 4 to 10 fl. oz. per acre. Sivanto prime at 4-5 fl. oz. provides control usually lasting 21 days or more. PHI = 21 days.
- **Transform WG** (Dow AgroSciences) @ 0.75 to 1.5 oz. per acre. 2 applications per season. PHI = 14 days. Use rates of 1.0 and 1.5 oz. per acre, but use the 1.5 oz. rate if aphid populations are increasing rapidly. A Section 18 emergency exception has been requested for Transform WG use on sorghum in Georgia in 201(. **Transform cannot be used during bloom.**
- **Chlorpyrifos** (Lorsban Advanced, Nufos, other) @ 1-2 pint per acre. Use 2-pint rate which gives 60-90% control for about 7-10 days. At the 2 pint rate it cannot be used after the boot stage due PHI = 60 days.

DO NOT USE CHLORPYRIFOS ON SWEET SORGHUM.

Good coverage is important for effective control. Use tips and GPA for maximum coverage especially lower in the canopy. A minimum of 10 gpa by ground and 5 gpa by air is highly recommended.

Check fields before harvest for infestations. A treatment may be needed if large numbers are in the head to prevent interference with harvest and damage to combines. Transform WG can be applied up to 14 days before harvest.

Silage/forage sorghum control. Currently we are using similar recommendations for silage and forage sorghum as for grain sorghum. Only a small number of forage/silage types have some tolerance to SCA as summarized by Dr. Dennis Hancock (UGA forage agronomist) (next table) : <http://www.caes.uga.edu/extension-outreach/commodities/forages/species-and-varieties/warm-season/sorghums.html>

Both Sivanto prime and Transform can be used on silage and forage type sorghums. Grazing / hay interval is 7 days for both products. Spray coverage is difficult when plants get tall. If aphids are present but below threshold consider a spray application as late as possible before the crop gets too tall.

Sweet sorghum. Transform WG and chlorpyrifos **cannot** be used on sweet sorghum. A Section 18 label has been requested for use of Sivanto prime on sweet sorghum in Georgia in 2019.

Thank you for your time,

Jeremy Kichler

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