

Comparison of commonly used peanut fungicides 2021

Fungicide oz/A ^z	Group	Strengths/Roles	Limitations
Abound (azoxystrobin) 12 to 24 oz	11	•Very good stem rot control •Excellent Rhizoctonia limb and pod rot control at 18 to 24 oz •Very good leaf spot and web blotch control where still effective	 •Many leaf spot populations are resistant. Higher rates will NOT help. •Must be mixed with an effective leaf spot fungicide such as Bravo (chlorothalonil) •Less effective against established stem rot infections than some other products •Rain or irrigation is needed to optimize stem rot control
Alto (cyproconazole) 5.5 oz	3	Systemic leaf spot control Good choice for first spray Very good leaf spot control when mixed with Bravo	•Mix with chlorothalonil •Little control of soil borne pathogens •30 day PHI
Approach Prima (picoxystrobin + cyproconazole) 5 to 6.8 oz	3 + 11	Systemic leaf spot control First spray is best niche, similar to Alto + Bravo Very good leaf spot control when mixed with Bravo	•Mix with chlorothalonil •Little control of soil borne pathogens •30 day PHI
Bravo (chlorothalonil) 1 to 1.5 pt (or generic)	М	Low cost Resistance management Very good leaf spot control Use for last spray	No control of soil borne pathogens Full season use can flare spider mites and make Sclerotinia blight worse Non-systemic with no curative action
Convoy (flutolonil) 16 to 32 oz	7	•Very good – excellent stem rot control •Long residual at high rates (see label)	NO leaf spot control MUST be mixed with a leaf spot fungicide Good option for tank mixing with Miravis for stem rot control do day PHI

^Z Recommended rates. The lowest label rate may not be shown.

Recommended number of applications or rotations are based on FRAC guidelines for a program with 5 to 6 sprays per season and may be more conservative than indicated on the label.



Comparison of commonly used peanut fungicides 2021 (cont)

Fungicide oz/A	Group	Strengths/Roles	Limitations
Elatus (benzovindiflupyr + azoxystrobin) 7.3 to 9.5 oz	7 + 11	•Very good – excellent stem rot, limb rot and pod rot control •Good systemic leaf spot control •Longer residual at high rates	Consider mixing with an effective leaf spot fungicide (e.g., chlorothalonil) for extra protection Government of the spot fungicide (e.g., chlorothalonil) for extra protection Government of the spot fungicide (e.g., chlorothalonil) for extra protection (e.g., chlorothalonil) for extr
Excalia (inpyrfluxam) 3 to 4 oz	7	•Very good – excellent stem rot control	 •NO leaf spot control •MUST be mixed with a leaf spot fungicide •Good option for tank mixing with Miravis for stem rot control •40 day PHI
Fontelis (penthiopyrad) 16 to 24 oz	7	•Very good to excellent stem rot control •Very good leaf spot control •Some suppression of Sclerotinia blight at high rate (24 oz)	 •No more than 2 applications of unmixed group 7 fungicides due to resistance risk •Alternate with fungicides from a different group (not group 7). Do not used in alternation with Miravis due to resistance risk.
Headline (pyraclostrobin) 6 to 15 oz	11	•Rapid uptake, good residual and wash–off resistance •Excellent systemic leaf spot and web blotch control in areas where still effective	 •Many populations are resistant. Higher rates will NOT help. •Must be mixed with an effective leaf spot fungicide such as Bravo (chlorothalonil) •High rates are needed for stem rot control and stem rot control can be erratic
Lucento 5.5 oz (Flutriafol + Bixafen)	3 + 7	•Very good systemic leaf spot and stem rot control	Moderate resistance risk. Rotate with fungicides in other groups Do not alternate with Miravis or Fontelis
Microthiol Diperss (sulfur) 5 lb.	М	May enhance performance of group 3 fungicides when mixed with them	•Provides very limited control when used alone. Must be mixed with a leaf spot fungicide



Comparison of commonly used peanut fungicides 2021 (cont)

Fungicide oz/A	Group	Strengths/roles	Limitations
Miravis 3.4 oz (Pydiflumetofen)	7	•Very long residual (21 to 28 days) •Excellent leaf spot control •Best fit is at 60 DAP	Does not control stem rot Protectant only Resistance risk is high if overused or used as a rescue treatment Alternate with a fungicide from a different group (not group 7). The NC control season usually is too short to allow for more than one spray of Miravis per season.
Priaxor (pyraclostrobin + fluxapyroxad) 6 to 8 oz	11 + 7	Good residual and wash–off resistance Very good systemic leaf spot control Stem rot control at 8 oz rate	Consider mixing with chlorothalonil for extra protection Resistance risk
Propulse 13.6 oz (prothioconazole + fluopyram)	3 + 7	Excellent leaf spot and stem rot control Suppresses nematodes when applied in early season (see label for details) Long residual	•Expensive •Resistance risk
Provost Silver 13 oz (Prothioconazole + tebuconazole)	3+3	•Very good stem rot, limb rot and pod rot control •Very good leaf spot control	Resistance risk; tank mix or alternate with other chemistry to prevent loss of efficacy Add sulfur to boost activity against leaf spots
Revytek 12 – 15 oz (Mefentrifluconazole + fluxapyroxad + pyraclostrobin)	3 + 7 + 11	•Very good leaf spot and stem rot control •Has some systemic activity •Faster uptake than other group 3's •Good rainfastness	Less systemic than some other group 3's -3-way mix limits choices of partners to use for mixing or alternating sprays
Tebuconazole 7.2 oz (generic)	3	•Very good – excellent stem rot, limb rot and pod rot control •Systemic and redistributes well •Inexpensive	Poor leaf spot control due to fungicide resistance in most locations; not effective against late leaf spot due to resistance Always mix with Bravo or other product for leaf spot control



Comparison of commonly used peanut fungicides 2021 (cont)

Fungicide oz/A	Group	Strengths/roles	Limitations
Topguard (flutriafol) 7-14 oz	3	Good systemic leaf spot control, some stem rot control Mix with Bravo for first spray	Most useful tank mixed with another a.i. Moderate resistance risk Add sulfur to boost activity against leaf spots
Topsin M 70 WP 8 oz dry wt (Thiophanate-methyl; many brands and formulations)	1	•Very good leaf spot control •Use in tank mixes	*Must be tank mixed with an effective leaf spot fungicide due to resistance risk *Very high risk of resistance development; use no more than once per season in a 5-spray program
Generic premixes of azoxystrobin + tebuconazole Variable rates	3 + 11	•Good stem rot and limb rot control	Probably ineffective against leaf spot in many locations Mix with Chlorothalonil Usually have less a.i. than rate recommended for the equivalent brand-name product
Omega (fluazinam) 1 to 1.5 pt	C5	Controls Sclerotinia blight. Level of control depends on rate and frequency used. Long residual (21 to 28 days) May control/suppress stem rot Use in addition to a leaf spot control program	•Expensive



Peanut leaf spot control calendar and objectives

Approx.								
Date	July 5	July 19	Aug 2	Aug 16	Aug 30	Sep 13		
Approx.						120 - 125		
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)		
Objective	Leaf spot	Leaf spot and	Leaf spot and	Leaf spot and	Leaf spot control	Leaf spot control		
	control, curative	stem rot control	stem rot control	stem rot control,	and resistance	and resistance		
	activity, and			curative activity;	management if	management		
	resistance			Sclerotinia blight	last planned			
	management			suppression	spray			
Objective		All sprays: alter	nate fungicide grou	ps to prevent resista	ance development			
			Critical periods for	r control				
Leaf spot	5 or 6 sp	orays total needed t	for control unless	advisories indicate	e otherwise			
Stem rot	Midseason: 1 to 3 sprays total needed for control							
Sclerotinia blight	Mid to late season: 1 to 3 sprays needed for control Follow advisories to determine critical times							

Dates are approximate. Dates can be earlier for early planted peanut and/or peanut planted in North Carolina's southern counties.

Assumes a good rotation and a history of normal disease pressure

- •Start no later than R3 (approx. 50 DAP) or July 10, whichever comes first
- •After the first spray, stay on a 14-day schedule or use advisory

Spray programs are **examples**. Other products that meet the objective for each spray and follow good resistance management practices can be used. See the fungicide sorting tool for other possible choices.



SPRAY PROGRAM EXAMPLE

Scenario: Sullivan, good rotation, some stem rot, leaf spot control good last time, a little Sclerotinia blight

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Approx.									
Date	July 5	July 19	Aug 2	Aug 16	Aug 30	Sep 13			
Approx.						120 - 125			
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)			
Objective	Leaf spot	Leaf spot and	Leaf spot control	Leaf spot and	Leaf spot control	Leaf spot control			
	control, curative	stem rot control	and stem rot	stem rot control,	and resistance	and resistance			
	activity, and		control	curative activity	management if	management			
	resistance				last planned				
	management				spray				
	Alto 5.5 oz +	Revytek	Bravo 1.5 pt	Revytek	Bravo 1.5 pt	Bravo 1.5 pt (M)			
	Bravo 1.5 pt	12 – 15 oz	(no stem rot	12 – 15 oz		(depending on			
	(3 + M)	(3 + 7 + 11)	activity)	(3 + 7 + 11)		advisory and digging			
	OR	OR	(M)	OR		date)			
	Approach Prima	Provost Silver 13		Provost Silver					
	6.8 oz + Bravo	oz		13 oz					
	1.5 pt	(3 + 3)		(3 + 3)					
	(3 + 11+ M)			OR					
				for Sclerotinia					
				blight					
				suppression:					
				Fontelis 16 – 24					
				oz (7)					
	Critical periods for control								
Leaf spot									
Stem rot		Midseason: 1 to	3 sprays total nee	eded for control					
Sclerotinia blight				on: 1 to 3 sprays no					



SPRAY PROGRAM EXAMPLE

Sullivan, 4 year or more rotation, some stem rot, leaf spot control good last time, no Sclerotinia blight; low cost program

Approx.		, some stem for, lea		,					
Date	July 5	July 19	Aug 2	Aug 16	Aug 30	Sep 13			
Approx.						120 - 125			
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)			
Objective	Leaf spot	Leaf spot and	Leaf spot and	Leaf spot and	Leaf spot control	Leaf spot control			
	control, curative	stem rot control	stem rot control	stem rot control,	and resistance	and resistance			
	activity, and			curative activity	management if	management			
	resistance				last planned				
	management				spray				
	Alto 5.5 oz	Tebuconazole	Tebuconazole	Alto 5.5 oz	Bravo 1.5 pt	Bravo 1.5 pt (M)			
	+ Bravo 1.5 pt	7.2 oz + Bravo	7.2 oz + Bravo	+ Bravo 1.5 pt	(M)	(depending on			
	(3 + M)	1.5 pt	1.5 pt	(3 + M)		advisory and digging			
		(3 + M)	(3 + M)			date)			
Alternate	As above	Bravo 1.5 pt +	As above	Provost Silver	As above	Bravo 1.5 pt (M)			
choices for		Convoy 16 oz		13 oz		(depending on			
each spray		(M + 7)		(3 + 3)		advisory and digging			
above		OR		OR		date)			
		Bravo 1.5 pt +		Revytek					
		azoxystrobin		12 -15 oz					
		18 oz		(3 + 7 + 11)					
		(M + 11)							
			Critical periods fo	r control					
Leaf spot	5 or 6 sp	orays total needed	for control unless	advisories indicate	e otherwise				
Stem rot		Midseason: 1 to	3 sprays total nee	eded for control					
Sclerotinia blight		Mid to late season: 1 to 3 sprays needed for control Follow advisories to determine critical times							

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Irrigated and/or high risk of leaf spot and stem rot pressure; 21-day Miravis application

Approx.	-	← 21 d	ays→							
Date	July 5	July 19	Aug 9	Aug 23	Sept 6	Sep 20				
Approx.						120 - 125				
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)				
Objective	Leaf spot control,	Leaf spot and stem	Leaf spot and stem	Leaf spot and	Leaf spot control	Leaf spot control and				
	curative activity,	rot control	rot control;	stem rot control	and resistance	resistance				
	and resistance		systemic with		management if	management				
	management		some curative		last planned spray					
			activity							
Program	Alto 5.5 oz +	Miravis 3.4 oz +	Provost Silver	Tebuconazole 7.2	Bravo 1.5 pt	Bravo 1.5 pt (M)				
with 21 day	Bravo 1.5 pt	Tebuconazole	13 oz + 5 lb sulfur	oz + Bravo 1.5 pt	(M)	(depending on				
interval after	(3 + M)	("Folicur") 7.2 oz	(3 + M)	(3 + M)		advisory and digging				
Miravis		(7 + 3)				date)				
Alternate	Substitute for	Substitute for	Substitute for	Substitute for	Add tebuconazole	Bravo 1.5 pt (M)				
choices	Alto:	tebuconazole:	sulfur:	Bravo +	7.2 oz (3)	(depending on				
(examples)	Approach Prima	Convoy 24 - 32 oz	1 pt Bravo	tebuconazole:	if stem rot still	advisory and digging				
` ' '	6.8 oz	(7)	(M)	Fontelis 16 oz +	active	date)				
	(3 + 11)	OR	, ,	Bravo 1 pt		·				
		Elatus 9.5 oz		(7 + M)						
		(7 + 11)		OR						
		OR		Revytek 12 oz						
		Excalia (7)		(3 + 7 + 11)						
		3 – 4 oz								
			Critical periods for	control						
Leaf spot	5 or (6 sprays total needed	for control unless a	dvisories indicate o	therwise					
Stem rot		Midseason: 1 t	o 3 sprays total need	led for control						
Sclerotinia blight		Mid to late season: 1 to 3 sprays needed for control Follow advisories to determine critical times								



SPRAY PROGRAM EXAMPLE

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Sullivan, excellent rotation, some stem rot, leaf spot control good last time, no Sclerotinia blight; 28 day Miravis application

Approx.		·	-						
Date	July 5	July 19	Aug 2	Aug 16	Aug 30	Sep 13			
Approx.						120 - 125			
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)			
Objective	Leaf spot	Leaf spot and	Leaf spot and	Leaf spot and	Leaf spot control	Leaf spot control			
	control, curative	stem rot control	stem rot control	stem rot control,	and resistance	and resistance			
	activity, and			curative activity	management if	management			
	resistance				last planned				
	management				spray				
	Alto 5.5 oz +	Miravis 3.4 oz +	skip	Provost Silver	Bravo 1.5 pt	Bravo 1.5 pt (M)			
	Bravo 1.5 pt	Elatus 9.5 oz		13 oz	(M)	(depending on			
	(3 + M)	[7 + (7 +11)]		(3 + 3)		advisory and digging			
						date)			
Alternative	Substitute for	Substitute for	skip	Substitute for	As above	As above			
choices to	Alto:	Elatus:	·	Provost Silver:					
the above	Approach Prima	Convoy 32 oz		Tebuconazole					
	(3 + 11)	(7)		7.2 oz + Bravo					
	, ,	OR		1.5 pt					
		Tebuconazole		(3 + M)					
		7.2 oz – 2 weeks		OR					
		of activity		Azoxystrobin					
		(3)		18 oz + Bravo					
				1.5 pt					
				(11 + M)					
		-	Critical periods for	r control	-				
Leaf spot	5 or 6 sp	5 or 6 sprays total needed for control unless advisories indicate otherwise							
Stem rot		Midseason: 1 to 3 sprays total needed for control							
Sclerotinia blight				n: 1 to 3 sprays no					



SPRAY PROGRAM WORKSHEET

Scenario:

Approx.						
Date	July 5	July 19	Aug 2	Aug 16	Aug 30	Sep 13
Approx.						120 - 125
DAP	45 - 50	60 - 65	75 - 80	90 - 95	105 - 110	(see advisory)
Objective	Leaf spot	Leaf spot and	Leaf spot control	Leaf spot and	Leaf spot control	Leaf spot control
	control, curative	stem rot control	and stem rot	stem rot control,	and resistance	and resistance
	activity, and		control	curative activity	management if	management
	resistance				last planned	
	management				spray	
			Critical periods for	control		
Leaf spot	5 or 6 sp	orays total needed	for control unless	advisories indicate	e otherwise	
Stem rot		Midseason: 1 to	3 sprays total nee	ded for control		
Sclerotinia blight				n: 1 to 3 sprays no ories to determine		

Fungicide selection tool

Use the tool to sort fungicides by the disease controlled, efficacy, FRAC group, PHI, and timing. To use the tool, click on the arrow at the top of the column of interest. The Excel file and more information are at

https://peanut.ces.ncsu.edu/2020/07/fungicide-selector-tool-peanut-notes-no-116-2020/

Example:
Click here to find
fungicides that control
stem rot

NC STATE										
EXTENSION					Recommended no.					
			Residual		apps in a 5 to 6 spray	y	Leaf spots (early			
Product and recommended rate	Active	Group ■	activity (days	PHI 💌	program	Recommended timin	and late) 🔼	Stem rot 📔	Scle rotinia blight	Rhizoctonia limb rot
Abound (and generic azoxystrobin) 12 to 24 oz	Azoxystrobin	11	14	14	1 to 2	m id-late	Poor	V.Good	None	V. Good/Ex.
Alto 5.5 ounces + Bravo 16 to 24 oz (tank mix)	Cyproconazole + Bravo	3 + M	14	30	1 to 2	early-mid	V.Good	Poor	None - may increase	Poor?
Approach Prima 6.8 oz + Bravo (tank mix)	Cyproconazole + picoxystrobin +Bravo	3 + M	14	30	1 to 2	early-mid	V.Good	Poor	None - may increase	Poor?
Bravo (and generic chlorothalonil) 16 to 24 oz	Chlorothalonil	М	14	14	2 to 3 alone or tank mixed	early-mid-late	V.Good	None	None - may increase	None
Convoy 16 oz	Flutolonil	7	14	40	1 to 2	mid	None	V.Good/Ex.	None	V.Good
Convoy 32 oz	Flutononil	7	28	40	1	mid	None	V.Good/Ex.	None	V.Good
Elatus 9.5 oz	Benzovindiflupyr + azoxystrobin	7 + 11	21-28	30	1 to 2	early-mid	Good	Ex.	Suppression	V.Good
Endura 8 to 10 oz	Boscalid	7	14	14	1 to 3	by advisory	Fair	Poor	V.Good	?
Fontelis 16 oz	Penthiopyrad	7	14	14	1 to 2	early-mid	V.Good	Ex.	Suppression	Good
Fontelis 24 oz	Penthiopyrad	7	14	14	1	m id-late	V.Good	Ex.	Fair	V.Good
Lucento 5.5 oz	Bixafen + flutriafol	7 + 11	14	14	1 to 2	mid	V.Good	V.Good	None	?
Miravis 3.4 oz	Pydiflum etofen	7	21-28	14	1 to 2, not consecutive	e 60 DAP	Ex.	None	None	None
Omega 16 oz (or Lektivar)	Fluazinam	29	21	30	1 to 3	by advisory	Suppression	Good	V.Good	Fair/Good?
Omega 24 oz (or Lektivar)	Fluazinam	29	21-28	30	1 to 2	by advisory	Suppression	V.Good	Ex.	Fair/Good?
Priaxor 4 to 6 oz	Fluxapyroxad + pyraclostrobin	7 + 11	14	14	1 to 2	early-mid	V.Good	Fair	None	Fair/Good?
Priaxor 8 oz	Fluxapyroxad + pyraclostrobin	7 + 11	14	14	1 to 2	early-mid	V.Good	Good	None	Good
Proline 5.7 oz	Prothioconazole	3	14	14	1 to 2	IF, band, early-mid	V.Good/Ex.	V.Good/Ex.	None	V. Good
Propulse 13.6 oz	Fluopyram + prothioconazole	7+3	14	14	1 to 2	early-mid	Ex.	Ex.	Suppression	V.Good
Provost Silver 13 oz	Prothioconazole + tebuconazole	3+3	14	14	1 to 2	mid	V.Good	V.Good	None	V.Good
Revytech 12 to 15 oz	Mefentrifluconazole + fluxapyroxad + pyraclostrobin	3+7+11	14	14	1 to 2	mid	V.Good	V.Good	None	?
Tebuconazole (generic) 7.2 oz	Tebuconazole	3	14	14	1 to 2	mid	Poor	V.Good	None	V.Good
Topguard 7 to 14 oz	Flutriafol	3	14	14	1 to 2	mid	Fair	Good	None	?
Topsin 8 to 10 oz (in tank mix only)	Thiophanate-methyl	1	14	14	1 to 2 (tank mix only)	see tank mix partner	V.Good	None	None	None

Tank mix suggestions

For stem rot control, mix Miravis (group 7) with one of the following:

Elatus (7 + 11) at 9.5 oz/A - 21 to 28 days

Convoy (group 7) at 32 oz/A – 28 days

Fontelis (group 7) at 16 oz/A 14 days

Tebuconazole (group 3) - 14 days of protection

To enhance leaf spot control by some group 3 fungicides such as Provost Silver or Topguard mix with:

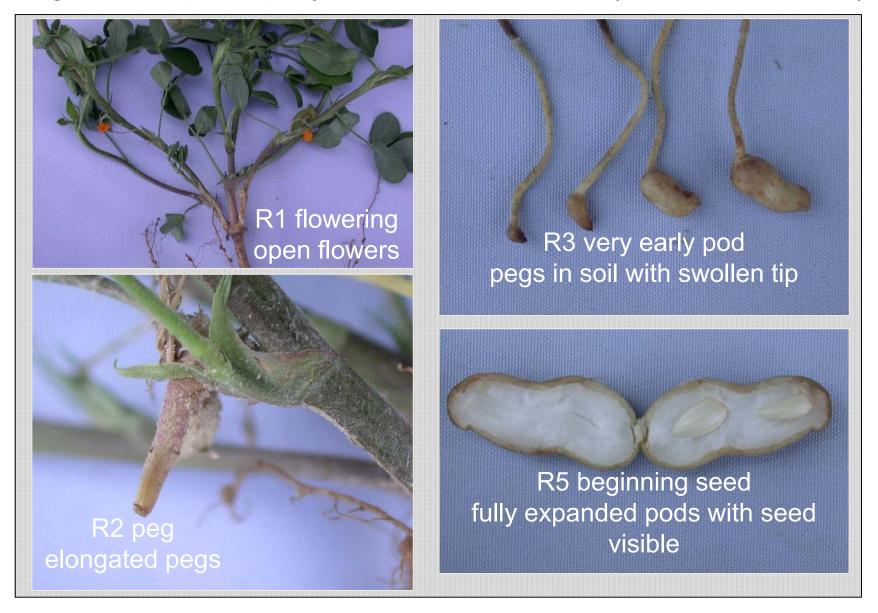
Sulfur 5 lb/A

To enhance leaf spot control by any group 3, 7, or 11 fungicide (or premix of these), mix with:

Bravo 1 pt/A (most formulations; check label).

Mix Bravo with any product that has underperformed in previous years at your location

Peanut reproductive stages Begin leaf spot sprays no later than R3 (around 50 DAP)





Peanut Leaf spot advisories

The North Carolina peanut leaf spot advisory is a cooperative effort by the State Climate Office of North Carolina and the Department of Entomology and Plant Pathology at NC State University. The advisory is a safe way to minimize fungicide applications by spraying only when weather conditions favor disease.

July 10, 2020 PEANUT LEAF SPOT ADVISORY FOR ROCK

Upper Coastal Plain Res Stn (Rocky Mount, NC)

setDate = 2020-07-06 07:00:00

lethal conditions = false favorable hours = 59 LESD = 2020-06-26

ROCK Advisory: spray today

Growing degree days (base 56) since LESD = 354.2 Growing degree days (base 56) since May 1 = 1111

Records count: 96 out of 97

Most recent db ob to 8am EDT: 2020-07-10 07:00:00

In well-rotated fields, the first fungicide spray should be applied by the very early pod stage (R3), but no later than July 10. After the first spray, apply fungicides according to the leaf spot advisory.

Each day's advisory: "spray today" or "do not spray today" can be found on the 7th line for each location. A spray should be applied if it has been 14 days since the last spray.

Advisory information:

lines 1 & 2 – Date, name location of station. ECONET stations are indicated by an abbreviated name; airport stations are indicated by call letters. Check advisories the two stations nearest you.

line 3 – Set date. This is used to calculate the advisory.

line 4 – Lethal conditions. A temperature of 99°F or higher for 5 straight hours OR humidity less than 40% for 8 straight hours will kill the pathogen. If lethal conditions = true, favorable hours (below) are reset to 0.

line 5 - Favorable hours. An hour is favorable for leaf spot development when the humidity is at least 95% and temperature is between 61°F and 90°F during that hour. A spray is advised when there have been at least 48 favorable hours since the set date.

line 6 – LESD (Last Effective Spray Date). A fungicide spray is assumed to protect for 14 days. You do not need to spray if you have sprayed since the LESD even when the advisory says "spray today."

Example: LESD = 2020-06-26 means you need to spray today if your last spray was applied **before** June 26.

line 7 – Today's advisory. If the advisory is "**spray today**" conditions are favorable for leaf spot and you should spray if no fungicide has been applied in the past 14 days. If the advisory is "do not spray today" a spray is not required.

lines 8 & 9 - Growing degree days for peanuts (base 56) since the LESD and since May 1.

line 10 – Records count. The number of hourly weather observations out of the total possible observations. The advisory may not be reliable if there are several missing records.

line 11 – Most recent hourly observation. This should be 7:00:00 (7 a.m.) on the date of the advisory.