

# On-going Fungicide and Growth Regulator Research in Louisiana Peanut

Trey Price, Boyd Padgett, Myra Purvis, Dustin Ezell, Bruce Garner, R. L. Frazier, and Dennis Burns – LSU AgCenter

## Initiative

At the request of growers and with funding from the National Peanut Board, we are investigating fungicide application timing and efficacy as well as growth regulator effects in Louisiana peanut.

## Project Background

In a given production season, Louisiana has anywhere from 2,000 to 3,000 acres of peanut production. Peanut is typically grown in an every-third-year rotation with cotton and corn. Occasionally, rotational schemes do not go as planned, and peanut may follow soybean. Southern stem rot (locally referred to as white mold) is the major disease constraint in Louisiana. Early and late leaf spots are exceedingly rare and not a production concern. Most peanut farmers do not follow fungicide spray schedules and rely on scouting and reactive management strategy for stem rot. In the past, farmers would usually apply two applications of tebuconazole for stem rot management during the growing season. More recently, SDHI products such as Elatus and others have been recommended for stem rot management.

There has been recent interest in applying a plant growth regulator (Apogee, also sold as Kudos) in Louisiana peanut with thoughts of direct yield benefit. Typically, farmers would apply the growth regulator at canopy lapping with an additional application two weeks thereafter.

The goals of this project are to: 1) determine fungicide efficacy of popular commercial products on stem rot and 2) determine the effect of the PGR on yield and other parameters. Field research is conducted in small plot trials at research stations and large plot trials on farms.

## Procedures

- On-farm fungicide and PGR efficacy trials
- Multiple farms and farmers involved (Barham, Shackelford, Mabry, Shaw, Jordan)
- Parishes (Ouachita, Morehouse)
- Small-plot replicated research trials (St. Joseph, Winnsboro)
- Labeled commercial fungicide options tested in small plot trials
- Treatments applied with a compressed air- or hydraulic-powered self-propelled applicator (MudMaster, Bowman, Newport, AR)
- Minimal impact to growers' fields
- Plots rated for disease and row definition 2 to 3 times over the season
- Yields estimated by hand harvest or determined with a cotton boll buggy weigh system

## Results

Five peanut producers in northeast LA (Ouachita and Morehouse Parishes) allowed us to conduct large plot replicated trials on their farms. Treatments were applied after canopy lap and at first sign of white mold. Treatments were as follows: Tebuconazole (7.2 fl oz/A) applied twice, Elatus (9.5 oz/A) applied once, Elatus applied once plus Kudos (5.4 fl oz/A) applied twice, and Kudos applied twice. Significantly lower disease incidence was observed in fungicide-treated and Kudos-only treated plots compared to the non-treated control. Plots treated with Kudos had significantly higher row definition compared to the non-treated and Elatus only. Plots with no treatment yielded the lowest, and plots that were treated trended higher yields. Plans are to continue this work during 2023.



Research plots at Macon Ridge Research Station near Winnsboro, LA.

Typical signs of “white mold” (Southern stem rot) in Louisiana peanut production.



Treatment (rate) application no.	Yield (lbs/A)	Disease Incidence (# hits/30 row feet) <sup>1</sup>	Row Definition (0-9) 0=none; 9=best
<b>Non-treated</b>	<b>5191 a<sup>2</sup></b>	<b>3.0 a</b>	<b>5.3 b</b>
<b>tebuconazole (7.2) 2 apps</b>	<b>5277 a</b>	<b>1.1 bc</b>	<b>5.8 ab</b>
<b>Elatus (9.5) 1 app</b>	<b>5502 a</b>	<b>1.5 bc</b>	<b>5.3 b</b>
<b>Elatus (9.5) 1 app + Kudos (5.4) 2 apps</b>	<b>5656 a</b>	<b>0.9 c</b>	<b>6.6 a</b>
<b>Kudos (5.4) 2 apps</b>	<b>5818 a</b>	<b>1.9 b</b>	<b>6.9 a</b>

<sup>1</sup>A total of ten areas consisting of 3 row ft were randomly checked per plot. Infection loci within checked areas constituted as “hits”.

<sup>2</sup>Means followed by the same letter are not significantly different (Tukey's HSD, P=0.10). Combined means from 5 location-years.



Fungicide and PGR treatments applied on-farm (far left photo).

No-PGR (left) vs PGR (right) (middle photo).

Weighing plots with a combine, peanut buggy, and cotton boll buggy (right photo).

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