

Peanut Pod Maturity, Digging, Harvesting, and PGR

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General Production Practices

- Apply nutrients based on soil test (pH 5.8 to 6.2)
- Avoid excessive Mg and K
- Avoid fields with zinc
- Establish good rotations (cotton, corn, sorghum)
- Plant a disease-resistant variety in May
- 5 plants per foot of row on 36-inch rows at a 2-inch depth
- Conventional tillage
- Inoculate with *Bradyrhizobia* for BNF
- Apply calcium at pegging
- Apply boron and manganese as needed
- Dig based on pod mesocarp color
- Control pests using IPM practices

Table 10-1. Peanut Growth Stages and Descriptions

| Approximate Number of Days After Planting* | Growth Stage | Description |
|--|-------------------------|--|
| 7 | Emergence | Seedling "cracking" the ground and cotyledons visible |
| 45 | Flower (R1) | One-half of the plants with a bloom |
| 55 | Beginning Peg (R2) | First visible peg |
| 70 | Beginning Pod (R3) | Peg tip swollen to twice the peg diameter |
| 75 | Full Pod (R4) | Fully-expanded pod, to dimensions characteristic of the variety |
| 80 | Beginning Pod-Fill (R5) | Pod in which seed is visible in cross-section |
| 90 | Full Size Seed (R6) | Seed is filling the pod cavity |
| 130 | Beginning Maturity (R7) | Pods having interior hull color and orange to brown mesocarp |
| 150 – 160 | Harvest Maturity (R8) | 70% of harvestable pods have an orange, brown, or black mesocarp (scrape pod saddle with knife) and interior hull color (crack pod open) |
| 165 – 170 | Over-mature (R9) | Kernels in oldest pod develop tan-brown seed coat and pegs may have deteriorated; over-mature pods have coal-black mesocarp color. |

*Based on average of 30 Virginia market type peanut varieties planted on May 1 at Tidewater AREC. The numbers of days after planting increase for earlier and decrease for later plantings. If June is dry, these numbers are bigger from R1 through R4 and smaller afterwards.



Photo credits: David Jordan



Beginning peg (R2)



Pod fill (R4)



Beginning maturity (R7)

Approximately 70% brown/black mesocarp

Figure caption: peanut pods at various stages (top) and range of pod mesocarp colors (bottom)

Response of the Variety Gregory to Digging Date

Data are from 18 trials during 2003-2013

Percent of maximum

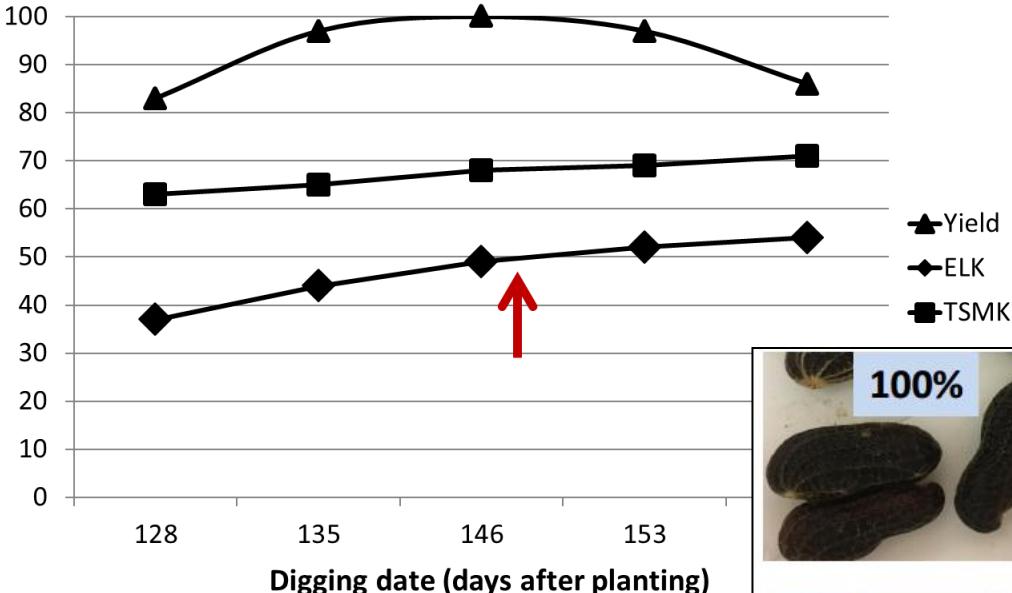
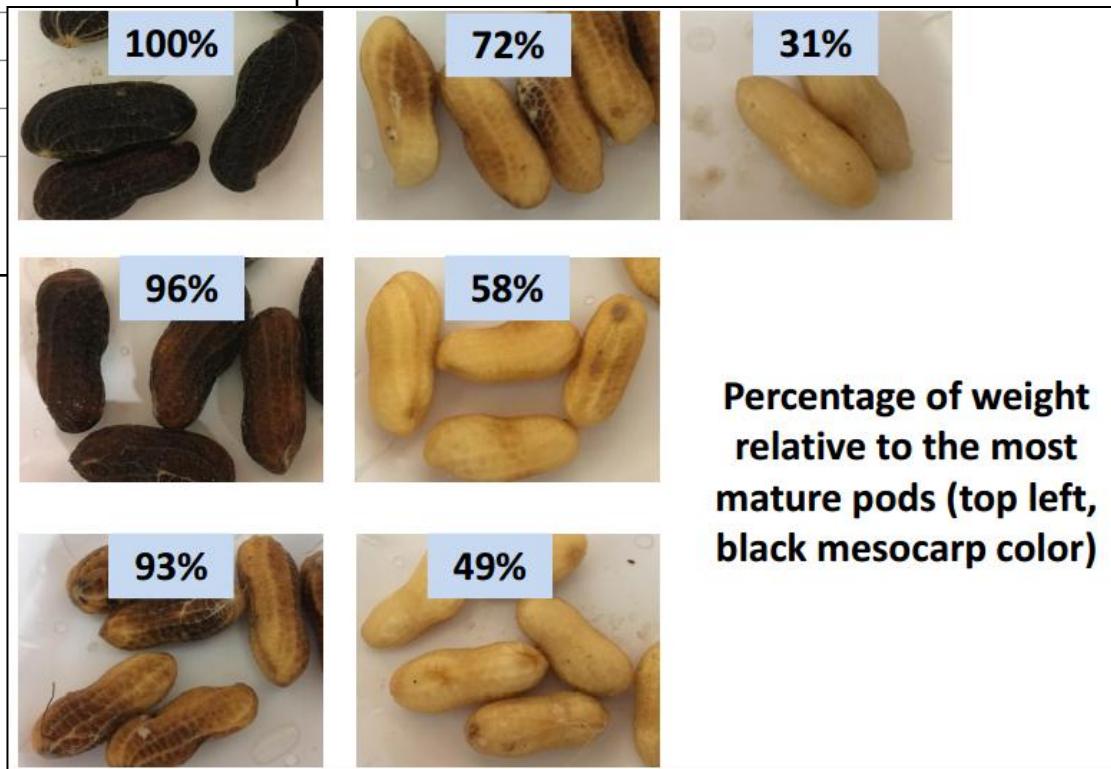


Figure caption: relationship of peanut yield and market grades with digging date (top left) and pod mesocarp color and pod weight (right)



Percentage of weight relative to the most mature pods (top left, black mesocarp color)

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Determining Peanut Pod Maturity and Estimating the Optimal Digging Date

Using Pod Mesocarp Color for Digging Virginia Market Type Peanut

Prepared by:
David Jordan, Barbara Shultz and
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Dawn Beale, Hilary Meier and Sally Saylor,
University of Georgia, University of Tennessee
and University of Mississippi

Using the Peanut Profile Board

Gather 150 harvestable pods from each field or from each variety within a field, collecting pods from four or five locations. Keep pods separate until pod blasting. Use a pressure washer equipped with a turbo nozzle to remove the outer hull and expose the mesocarp color layer. Your county Extension agent can assist with this procedure.

Using the images of pods at the top of each column, place pods on the profile board under the appropriate mesocarp color category. Lay pods loosely as shown here.

Lay pods on the chart and place them loosely within the appropriate mesocarp color category from the bottom line of the category upward. The percentage value on the right-hand side of the chart can be used to compare percentages of pods among color categories. In most cases, samples will resemble a bell-shaped curve. However, this occurs only when environmental temperatures promote pod growth. Under some weather conditions are unfavorable or when peanuts are damaged by pesticides, samples may not be uniformly distributed. This makes predicting the optimum digging date more difficult.

Use the percentage value on the right-hand side of the chart to determine if peanuts are at optimum maturity. When the percentages of both brown and black pods are at least 30 to 35%, peanuts are at optimum maturity.

The darker the mesocarp color, the more mature the peanut pod. Darker pods are heavier, will shrink less and will grade better than pods with a lighter mesocarp color.



Peanuts in the image below placed on a peanut profile board will reach optimum maturity in 10 to 14 days.



Sampling two or three times during the fall gives the best indication of the rate of peanut maturity. This is particularly important when examining pods that are black. These pods will eventually be lost and sampling only once does not give you enough information to determine when pods in the black category are likely to be lost. Using heat unit accumulations also can help you know when to begin determining maturity.

Note that when early morning temperatures are in high 40° F range for two days, pod maturity may not develop further unless there is a prolonged and unseasonal warming period.

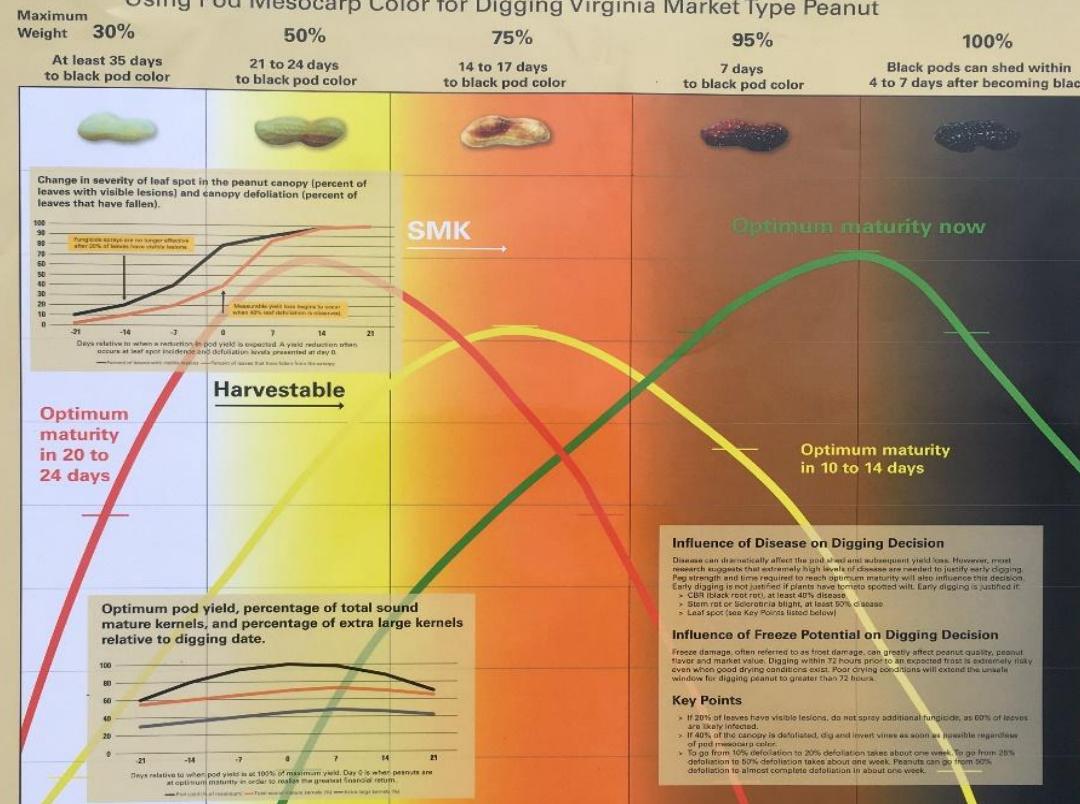


Figure caption: peanut pod maturity profile board used to decide when peanut will reach optimum maturity

Photo credit: David Jordan, Source, NC State Extension Peanut Maturity Chart

Maturity and Estimating the Optimal Digging Time for Digging Virginia Market Type Peanut

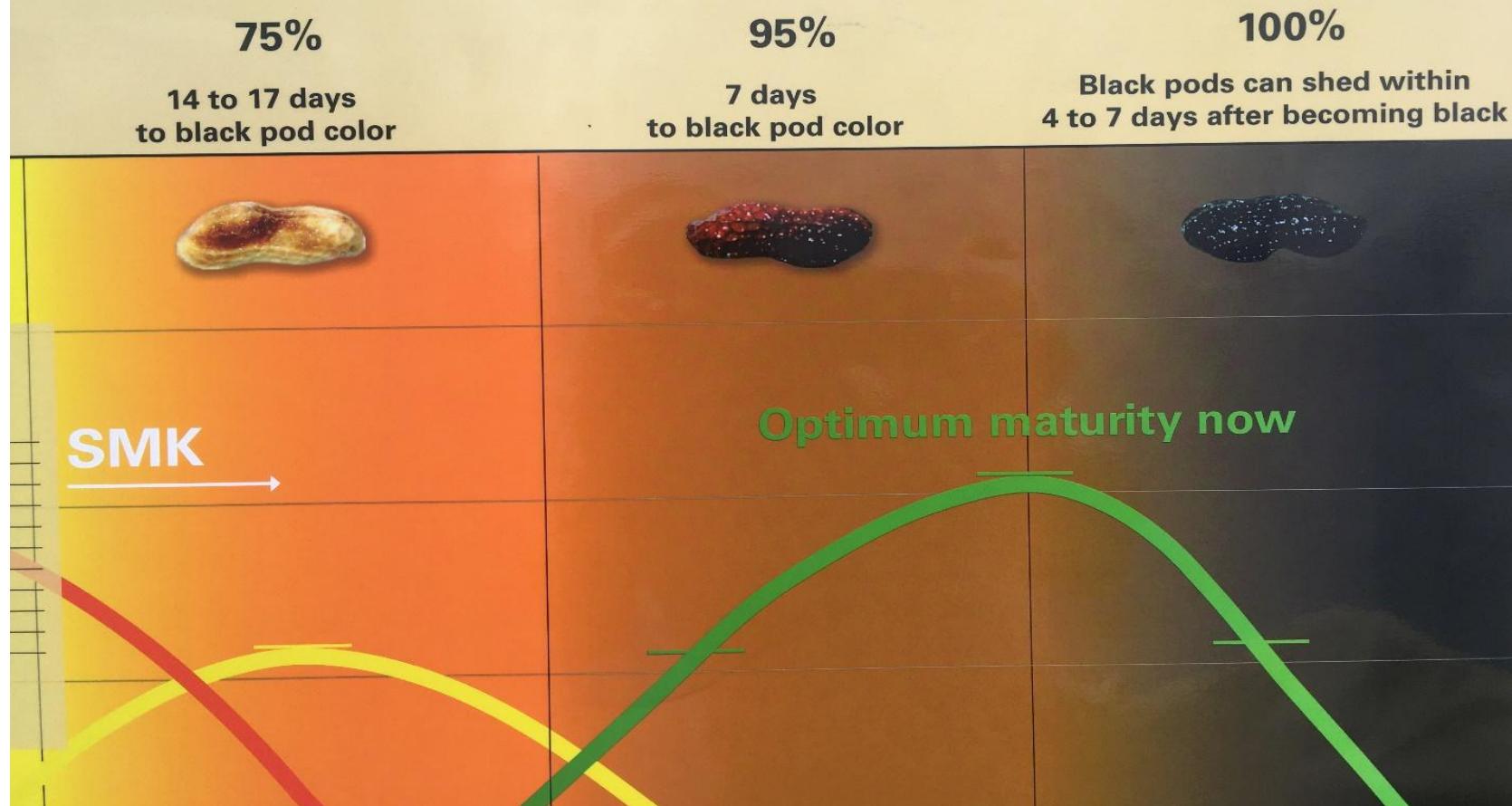


Figure caption: section of maturity profile board showing relative pod weight based on pod mesocarp color

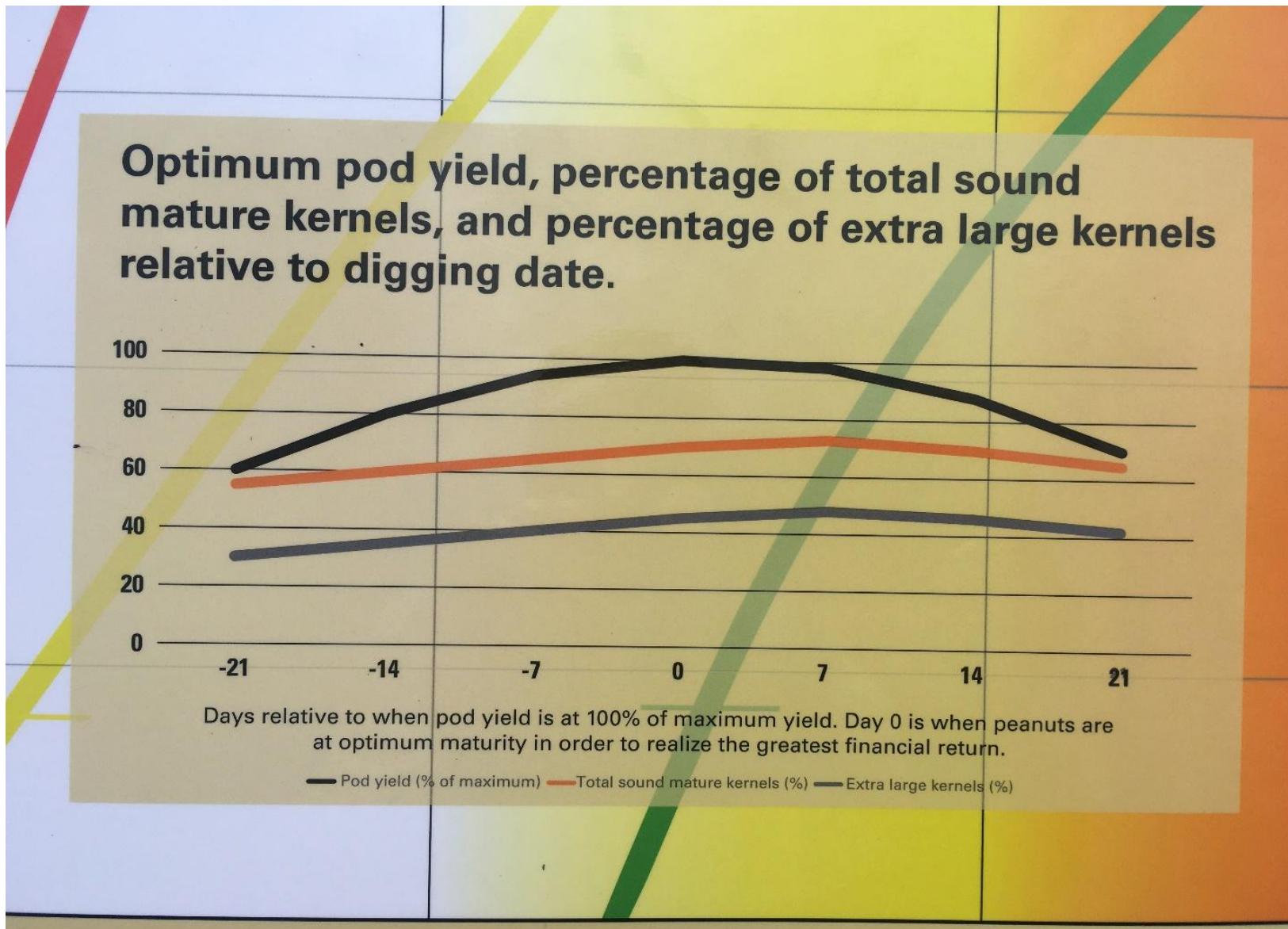


Figure caption: relationship of yield and market grades to digging date

Photo credit: David Jordan, Source, NC State Extension Peanut Maturity Chart



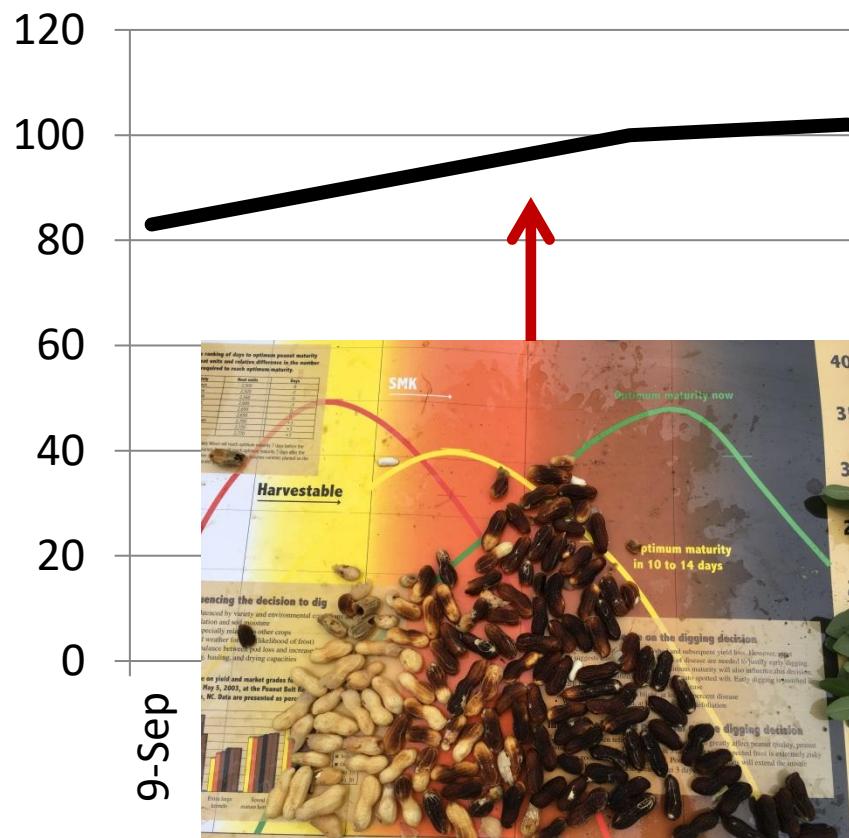
Figure caption: peanut pods expressing pod mesocarp color on maturity profile board

Photo credit: David Jordan, Source, NC State Extension Peanut Maturity Chart

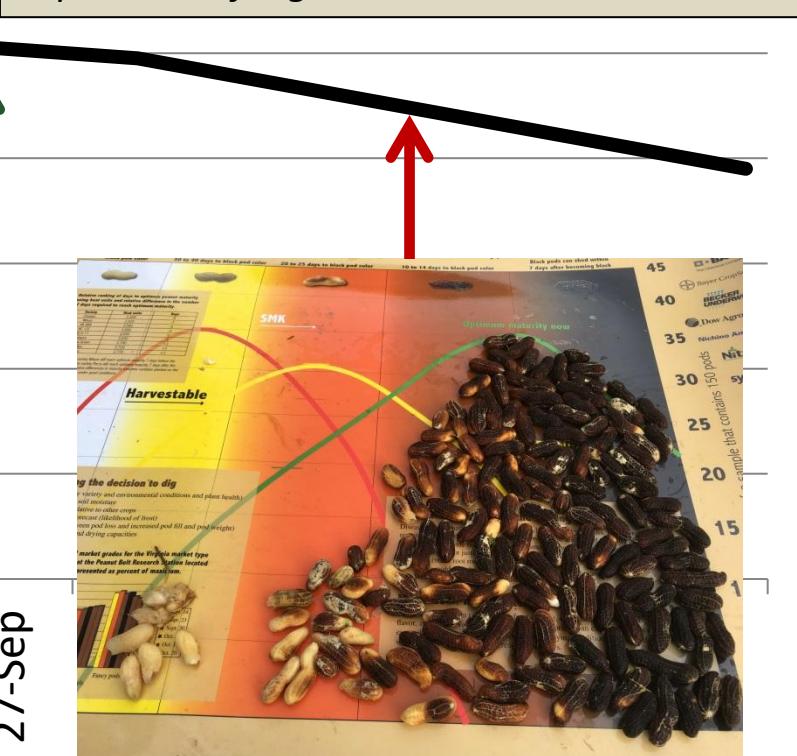
Figure caption. Relationship of peanut pod maturity and pod yield.

Peanut was planted May 16.

Pod yield (percent of maximum)



Maximum economic value per acre?
Maximum economic value for the entire farm?
Mature versus Ready?
Expression of high oleic trait?



September 18

Digging date

October 4

Heat Unit Accumulation

Adequate temperatures and moisture influence growth and development

Minor contribution from photoperiod

DD_{56} (Growing Degree Days) – Base 56, Ceiling, 95

Average temperature for the day – 56 = Heat Units for that day

Sum heat unit accumulation from emergence to a given point in time

Heat units will accumulate but if moisture is not adequate, growth and development will not occur or will occur at a rate slower than heat unit accumulation will suggest

Injury from abiotic and biotic stresses can affect growth and development

Heat unit accumulation is a good indicator of when to begin looking closely

Pod mesocarp color on a field-by-field basis is the most accurate estimate of maturity

Approximately 2600 DD_{56} needed for most Virginia market types

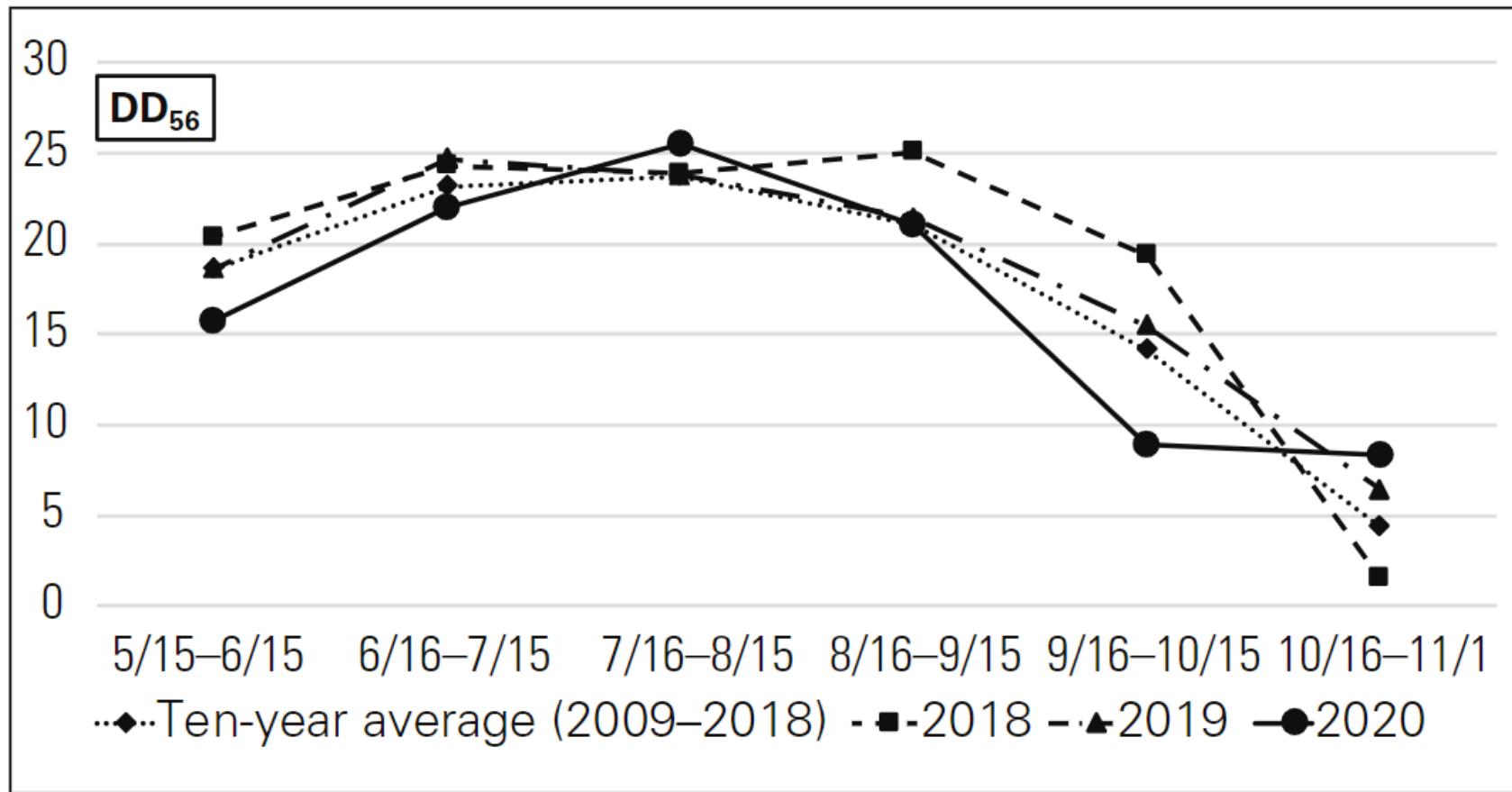


Figure 3-2. Heat Unit Accumulation (DD₅₆) at Lewiston-Woodville.

Source: David Jordan

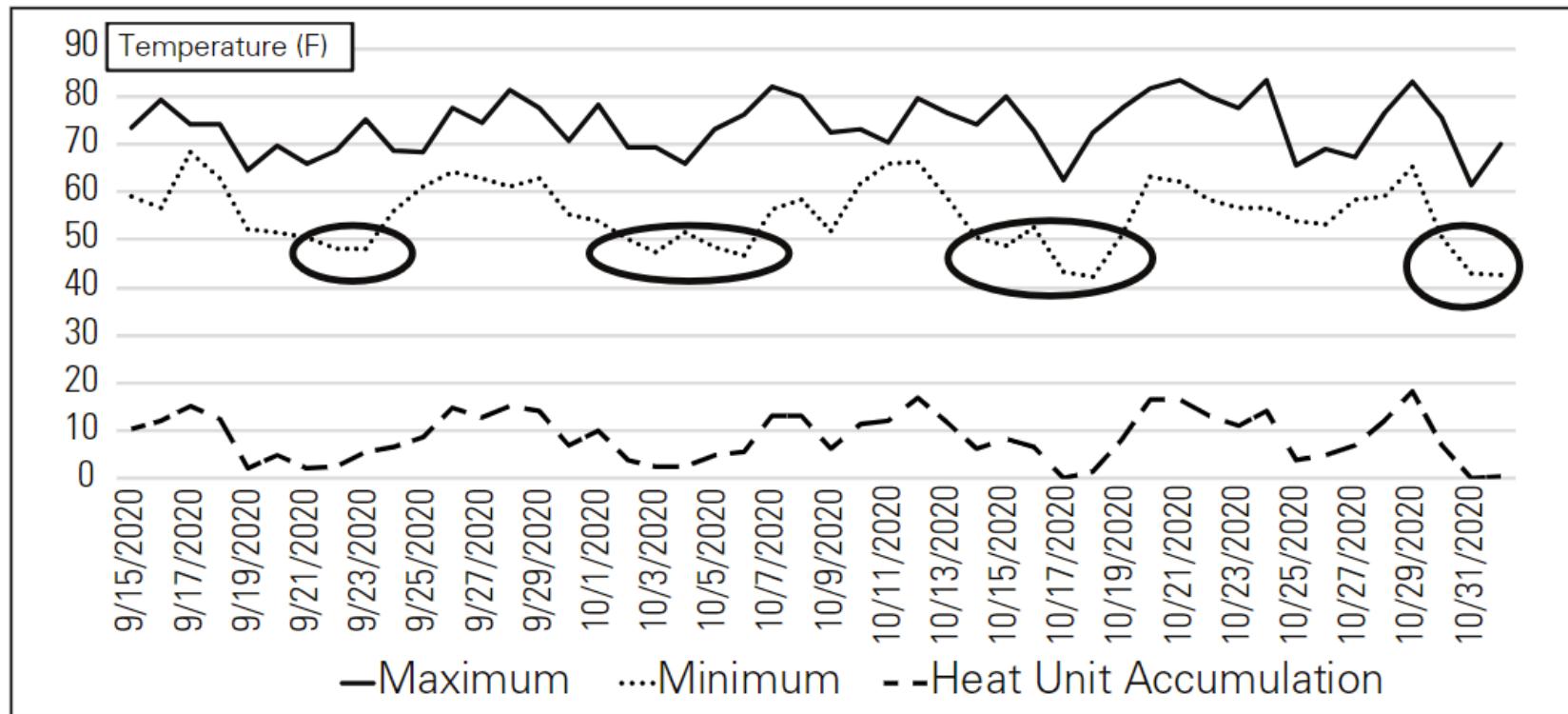
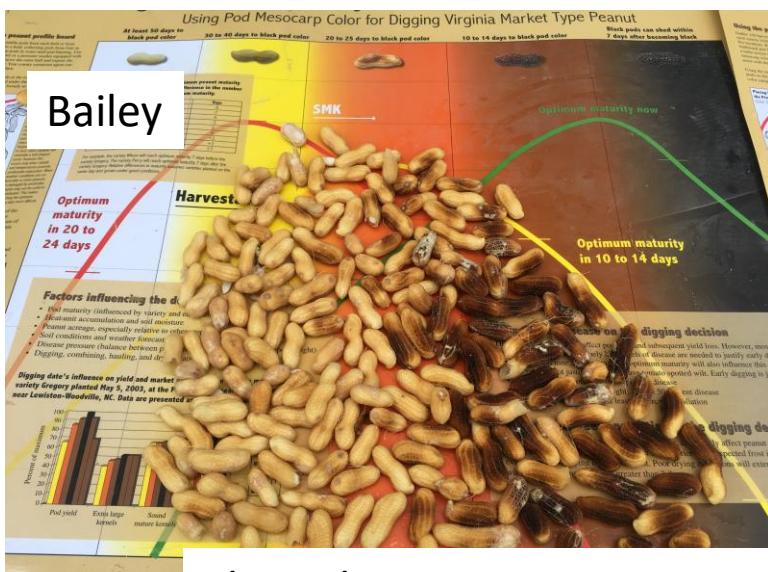
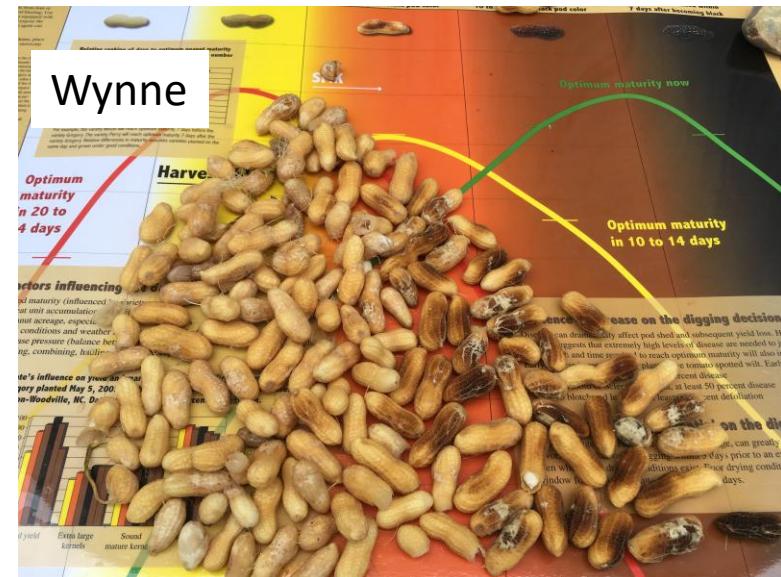
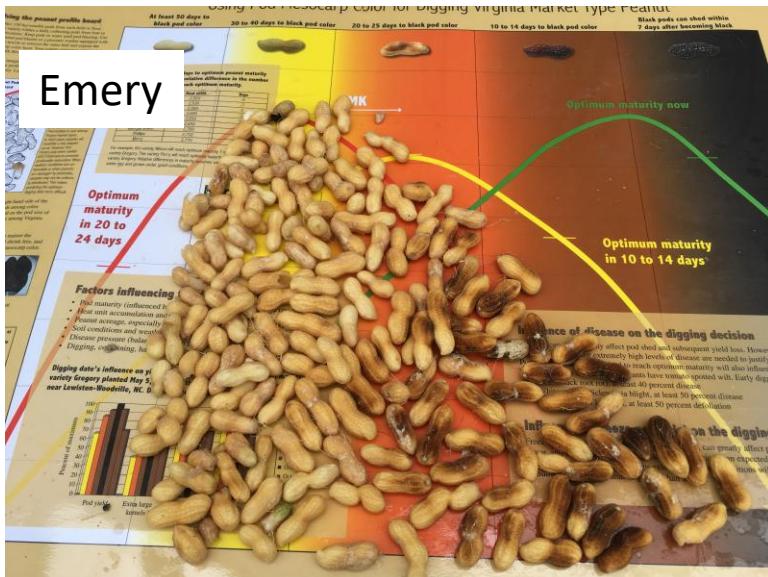


Figure 3-3. Maximum and Minimum Air Temperatures and Heat Unit Accumulation, September 15 to November 1, 2020, Lewiston-Woodville, NC



Planted May 17 at Lewiston-Woodville, image recorded August 30

Figure caption. Pod maturity images for peanut planted May 17 with images recorded August 30. Note that there are only minor differences in pod maturity for these varieties.

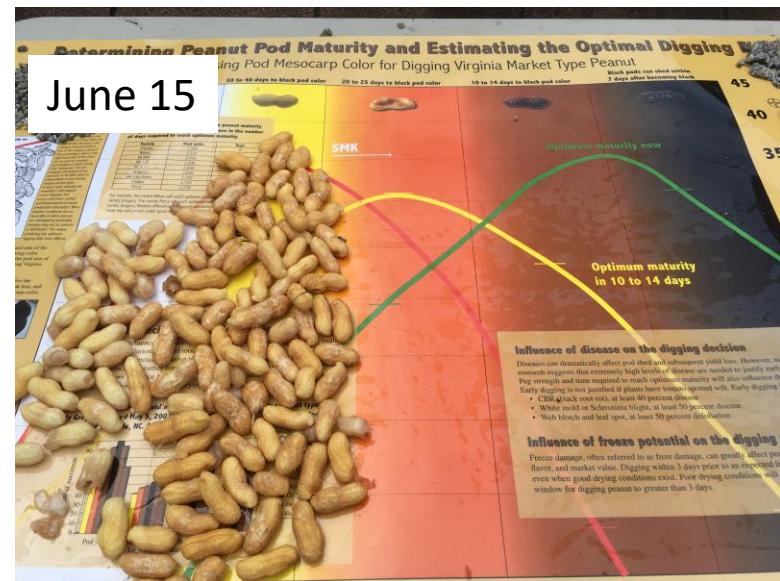
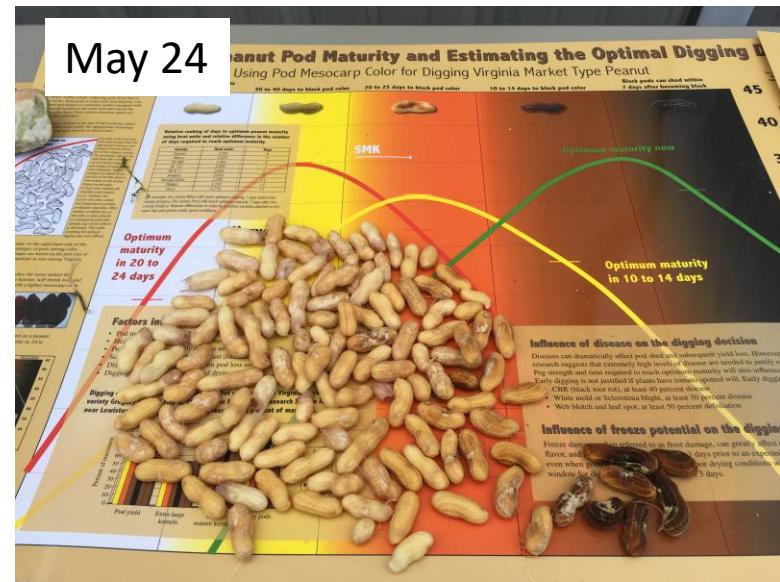
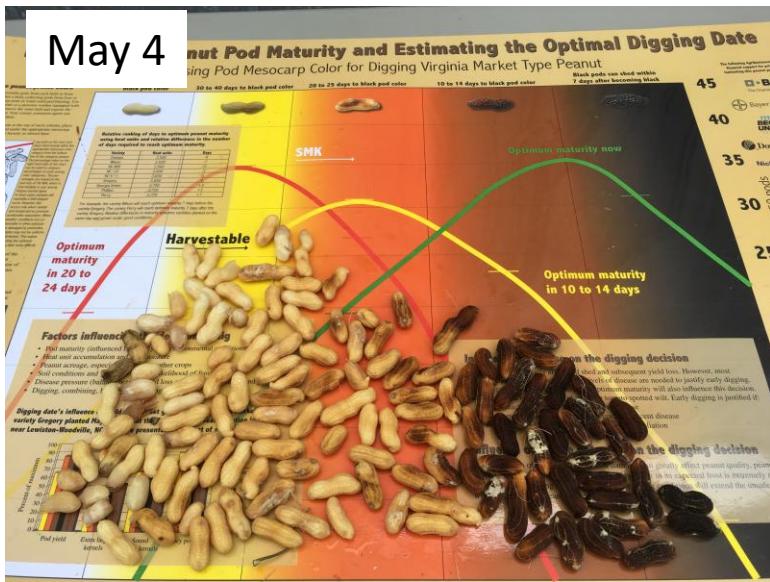


Figure caption. Pod maturity for the variety Bailey planted in strip tillage at Lewiston-Woodville at three planting dates (May 4, May 24, June 15). Image recorded August 30.

Bailey

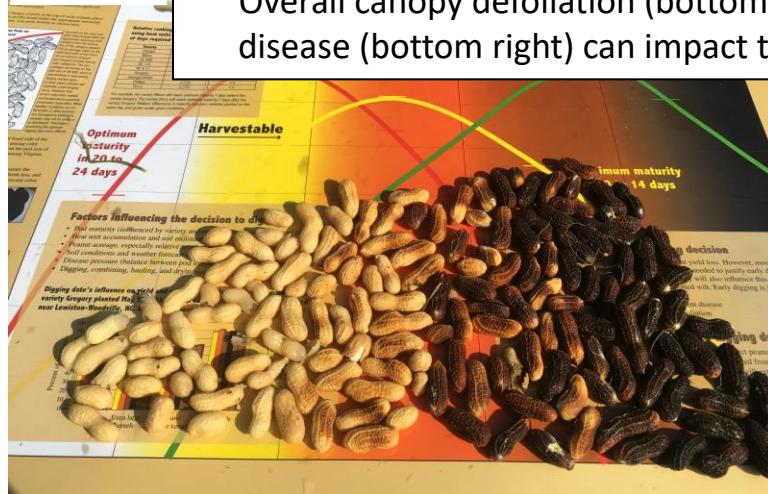


Figure caption. Pod maturity for varieties Bailey (top left) and Sullivan (top right) planted at Whiteville on May 12 with image recorded September 1.

Overall canopy defoliation (bottom left) and lesions caused by leaf spot disease (bottom right) can impact the decision on when to dig peanuts.

Sullivan



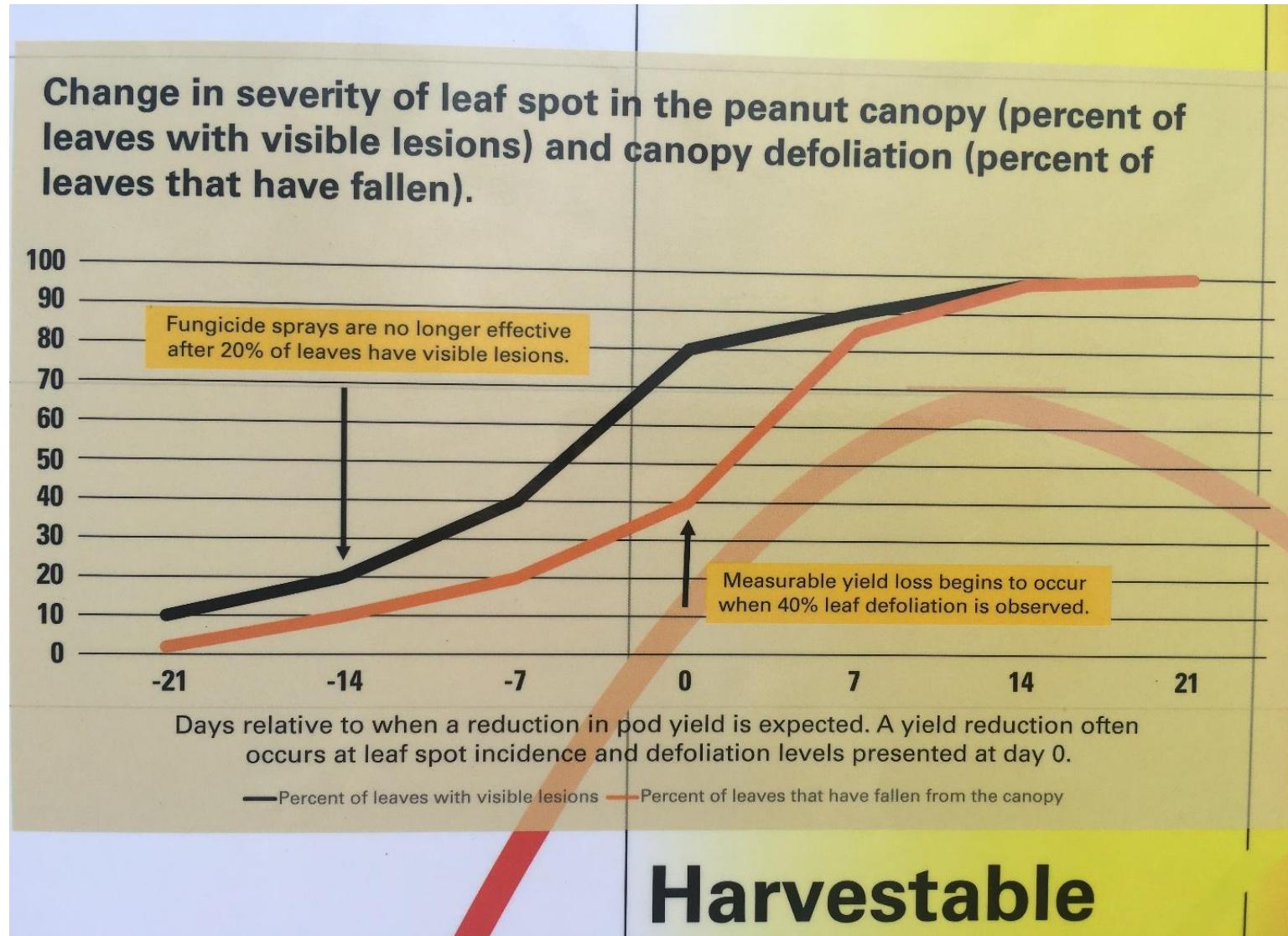


Figure caption: section of peanut profile board showing relationship of diseases incidence, defoliation and peanut yield for leaf spot

Influence of Disease on Digging Decision

Disease can dramatically affect the pod shed and subsequent yield loss. However, most research suggests that extremely high levels of disease are needed to justify early digging. Peg strength and time required to reach optimum maturity will also influence this decision. Early digging is not justified if plants have tomato spotted wilt. Early digging is justified if:

- > CBR (black root rot), at least 40% disease
- > Stem rot or Sclerotinia blight, at least 50% disease
- > Leaf spot (see Key Points listed below)

Influence of Freeze Potential on Digging Decision

Freeze damage, often referred to as frost damage, can greatly affect peanut quality, peanut flavor and market value. Digging within 72 hours prior to an expected frost is extremely risky even when good drying conditions exist. Poor drying conditions will extend the unsafe window for digging peanut to greater than 72 hours.

Key Points

- > If 20% of leaves have visible lesions, do not spray additional fungicide, as 60% of leaves are likely infected.
- > If 40% of the canopy is defoliated, dig and invert vines as soon as possible regardless of pod mesocarp color.
- > To go from 10% defoliation to 20% defoliation takes about one week. To go from 25% defoliation to 50% defoliation takes about one week. Peanuts can go from 50% defoliation to almost complete defoliation in about one week.

Figure caption: section of maturity profile board describing proper decisions

Peanut Digging Evaluation Tool X +

peanut.ces.ncsu.edu/peanut-digging-evaluation-tool/ ☆ D

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Determining when to dig peanut is one of the most important steps in maximizing yield, quality, and profitability. To assist peanut producers and extension personnel, a Microsoft Excel workbook has been developed to evaluate potential yield gain by harvesting at the optimal time based on information from pod sampling prior to harvest. The user starts by enter the number of samples they have collected and projected

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Figure caption. Main page for NC State Extension peanut portal

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A B C D E F G H I J K L M N O P

1 INSTRUCTIONS

2 1. Enter number of samples and expected peanut price in the cells below.

3 2. For each sample, enter sample name, date, field size, potential yield, and days before optimal digging.

4 3. Once data has been entered for a sample, remaining sample row column values will be calculated.

5 4. After data from all samples has been entered, click the "Sort Samples" button to sort samples by optimal digging date (earliest to latest).

6 5. Click on the "Clear Table" button to clear existing sample data and enter new sample data.

7

| Number of Samples | 5 | | | | | | | | |
|----------------------|-------------|--|-----------------|---------------------|----------------------|-------------------------|----------------------|---------------|---------------------|
| Peanut Price (\$/lb) | 0.22 | | | | | | | | |
| | | <input type="button" value="Sort Samples"/> <input type="button" value="Clear Table"/> | | | | | | | |
| Sample Name | Sample Date | Field Size | Potential Yield | Days Before Optimal | Optimal Digging Date | Percent Potential Yield | Potential Yield Gain | Economic Gain | Field Economic Gain |
| Back 20 | Sep 05 | 20 | 4800 | 3 | Sep 08 | 3.0% | 144 | 32 | 634 |
| Back 19 | Sep 05 | 30 | 4500 | 6 | Sep 11 | 6.0% | 270 | 59 | 1,782 |
| Front 40 | Sep 05 | 40 | 4200 | 8 | Sep 13 | 8.5% | 357 | 79 | 3,142 |
| South 45 | Sep 05 | 45 | 4600 | 10 | Sep 15 | 11.5% | 529 | 116 | 5,237 |
| West 60 | Sep 05 | 60 | 4300 | 14 | Sep 19 | 17.5% | 753 | 166 | 9,933 |
| Summary | | 195 | 4431 | 9.5 | | | 483 | 106.29 | 20,727 |

18

19

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Digging Report Yield Loss Data +

Ready Accessibility: Investigate

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Figure caption. Decision tool demonstrating the financial value of digging peanuts at optimum maturity

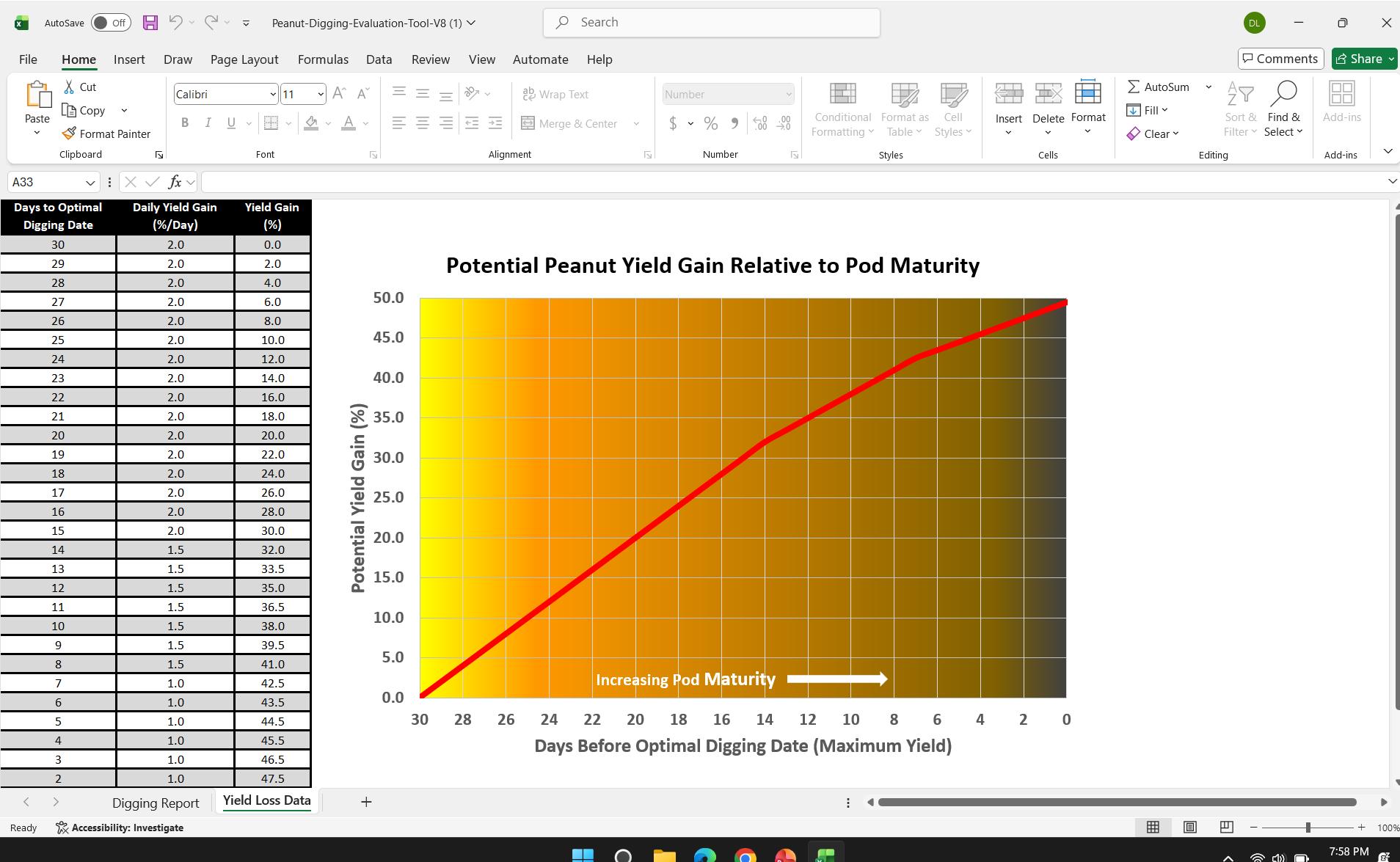


Figure caption. Figure demonstrating yield gain by delaying digging until pods and kernels reach optimum maturity

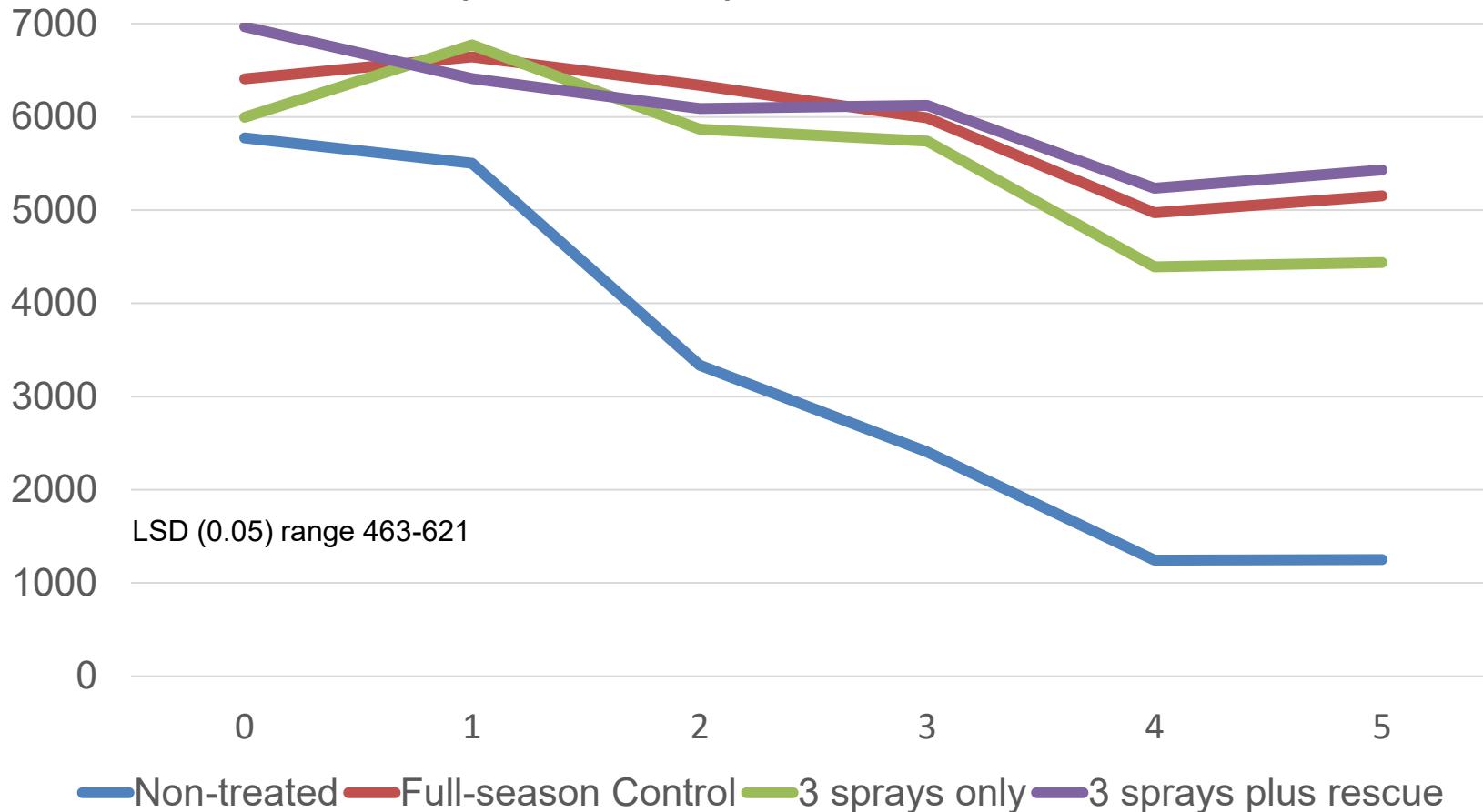
Peanut Yield in 2023

Pounds per Acre

Full-season Program: CHL, Miravis + Elatus, CHL + TEB, CHL

3 Spray Program: CHL, CHL + TEB, CHL

Provost Silver plus Microthiol Disperss as rescue with 10-15% incidence



Weeks After Optimum Maturity (0 = optimum maturity)

Figure caption. Relationship of peanut yield and fungicide programs when digging is delayed past optimum pod maturity.

USDA Farmers' Stock Peanut Inspection x +

ams.usda.gov/grades-standards/farmers-stock-peanut-inspection-instructions

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A close-up photograph of several peanuts in their shells, showing their natural, textured appearance.

Farmers' Stock Peanut Inspection Instructions

HOME > GRADES AND STANDARDS > FARMERS' STOCK PEANUT INSPECTION INSTRUCTIONS

Grades and Standards

- Beef
- Cotton
- Dairy Products
- Eggs
- Fish & Seafood
- Flowers & Plants
- Fruits

These instructions are a guide for certification of farmers' stock peanuts. The term "Farmers' Stock Peanuts" means picked or threshed peanuts which have not been shelled or otherwise altered (except for removal of foreign material, loose shelled kernels, and excess moisture) from the form customarily marketed by producers. There are no current standards covering farmers' stock peanuts.

Visual Aids

- [Unofficial Virginia Type Peanuts in the Shell Visual Aid \(pdf\)](#)

Official Visual Aids are available for Purchase. See [How to Purchase Visual Aids](#)

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Figure caption. Screenshot of USDA peanut inspection instructions



Not Damage

Damage

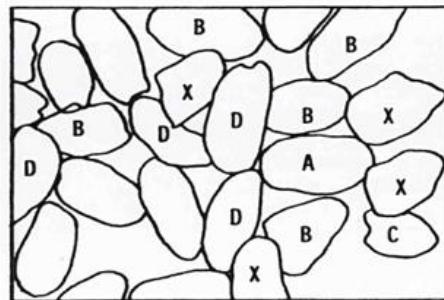
Not Damage

Damage

PEANUT KERNELS SHOWING CHARACTERISTICS OF FREEZE DAMAGE

Freeze damaged peanuts have a slightly dull and faded skin color with the veins often becoming dark and conspicuous. The flesh has a glassy or an abnormal dull appearance and may also show a noticeable yellow, brown or gray discoloration on the oval side of the kernel.

The kernels must be split, the skins removed, and both the flat and round sides examined when determining freeze damage. The flesh of the half kernel must have an indication of freeze damage to be scored. Do not confuse surface discoloration not penetrating the flesh with freeze damage. Any peanut with a definitely rancid flavor is damaged, regardless of skin or flesh color.



PEANUT KERNELS – FREEZE DAMAGE
Pen-CP-6
(Revised 9/89)

X Indicates kernels not having definite characteristics of freeze damage and are not scorable.

Remaining kernels show one or more of the following definite characteristics of freeze damage and are scorable.

- A Vein discoloration with glassy appearance.
- B Yellow to mustard discoloration accompanied by glassy appearance.
- C Yellow to brown discoloration accompanied by glassy appearance.
- D & Unmarked kernels – Kernels which have a glassy appearance but do not have the discoloration as described in A. B & C shall be scored as damage only if hard, brittle and/or have a distinctly objectionable taste.

Figure caption. Images from USDA peanut inspection manual showing freeze damage

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Frost Advisory Available Peanut Notes No. 234 2023

— Written By [David Jordan](#)

› [en Español / em Português](#)

The frost advisory for the region will be available starting on Monday, October 2. There are 3 ways to obtain the information. The 800 number remains the same as in the past (800-795-0700). The frost advisory can be reached directly on the [North Carolina State Climate Office website](#). Finally, the information will be on the [cotton-peanut infonet \(Virginia Tech\)](#).

For growers in North Carolina, the state website is the best option.

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Figure caption. *Peanut Notes* comments and frost advisory tool designed to assist growers in reducing risk for freeze damage to kernels based on digging date

Virginia Carolina Peanut Frost Advisory
Monday, November 3, 2025

| Location | Variable | Mon AM | Tue AM | Wed AM | Thu AM | Fri AM | Sat AM | Sun AM | Mon AM | Tue AM |
|---------------------|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | 7PM Sun to 9AM Mon | 7PM Mon to 9AM Tue | 7PM Tue to 9AM Wed | 7PM Wed to 9AM Thu | 7PM Thu to 9AM Fri | 7PM Fri to 9AM Sat | 7PM Sat to 9AM Sun | 7PM Sun to 9AM Mon | 7PM Mon to 5AM Tue |
| | | 11/3 | 11/4 | 11/5 | 11/6 | 11/7 | 11/8 | 11/9 | 11/10 | 11/11 |
| CAPRON VA | Min Temperature | 50°F | 40°F | 36°F FROST | 47°F | 38°F | 53°F | 45°F | 40°F | 31°F FREEZE |
| Map | Prob. of Precip | 100% | - | - | - | - | 30% | 10% | 20% | 0% |
| SKIPPERS VA | Min Temperature | 50°F | 41°F | 37°F FROST | 47°F | 38°F | 52°F | 45°F | 40°F | 31°F FREEZE |
| Map | Prob. of Precip | 100% | - | - | - | - | 30% | 10% | 20% | 0% |
| SUFFOLK VA | Min Temperature | 54°F | 43°F | 40°F | 50°F | 42°F | 56°F | 49°F | 43°F | 35°F FROST |
| Map | Prob. of Precip | 100% | - | - | - | - | 20% | 10% | 20% | 0% |
| WAKEFIELD VA | Min Temperature | 51°F | 41°F | 38°F | 48°F | 39°F | 54°F | 46°F | 41°F | 33°F FROST |
| Map | Prob. of Precip | 100% | - | - | - | - | 30% | 10% | 20% | 0% |
| WAVERLY VA | Min Temperature | 50°F | 41°F | 38°F | 48°F | 39°F | 54°F | 45°F | 40°F | 33°F FROST |
| Map | Prob. of Precip | 100% | - | - | - | - | 30% | 10% | 20% | 0% |
| GREENVILLE NC | Min Temperature | 55°F | 42°F | 38°F | 49°F | 40°F | 57°F | 50°F | 45°F | 35°F FROST |
| Map | Prob. of Precip | 100% | 0% | - | - | - | 20% | 10% | 20% | 0% |
| LEWISTON NC | Min Temperature | 53°F | 42°F | 37°F FROST | 49°F | 40°F | 55°F | 47°F | 42°F | 34°F FROST |
| Map | Prob. of Precip | 100% | - | - | - | - | 20% | - | 20% | 0% |
| LUMBERTON NC | Min Temperature | 53°F | 43°F | 39°F | 48°F | 44°F | 56°F | 52°F | 45°F | 36°F FROST |
| Map | Prob. of Precip | 50% | 0% | - | - | - | 10% | 0% | 10% | 0% |
| ORANGEBURG SC | Min Temperature | 46°F | 44°F | 40°F | 47°F | 48°F | 56°F | 52°F | 45°F | - |

Figure caption. Frost prediction for various locations in NC, SC, and VA found in the frost advisory

Percent moisture 14 hours prior to a hard freeze and freeze damage.^a**Lewiston and Rocky Mount**

| Digging date (hours before freeze) | Moisture (Wednesday) | Freeze damage (highest of the range) |
|---|---------------------------------|---|
| Monday (60) | 30 to 36 | 1.8 (3.8) |
| Tuesday (48) | 36 to 40 | 3.1 (5.1) |
| Wednesday (14) | 40 to 46 | 4.0 (6.0) |
| Thursday (day after) | - | 2.5 (8.8) |

^aDrying conditions on Tuesday and Wednesday were not ideal (rain and clouds) freeze on Thursday and Friday mornings

Recommend stopping digging 96 hours or more prior to a frost or freeze event

Digging Pods and Inverting Vines

Assume 10 hours per day at 3.0 mph

30 acres per day with 4-row digger

40 acres per day with 6-row digger

250 acres with one 6-row digger – 7, 10-hour days

500 acres with one 6-row digger – 14, 10-hour days

750 acres with one 6-row digger – 21, 10-hour days

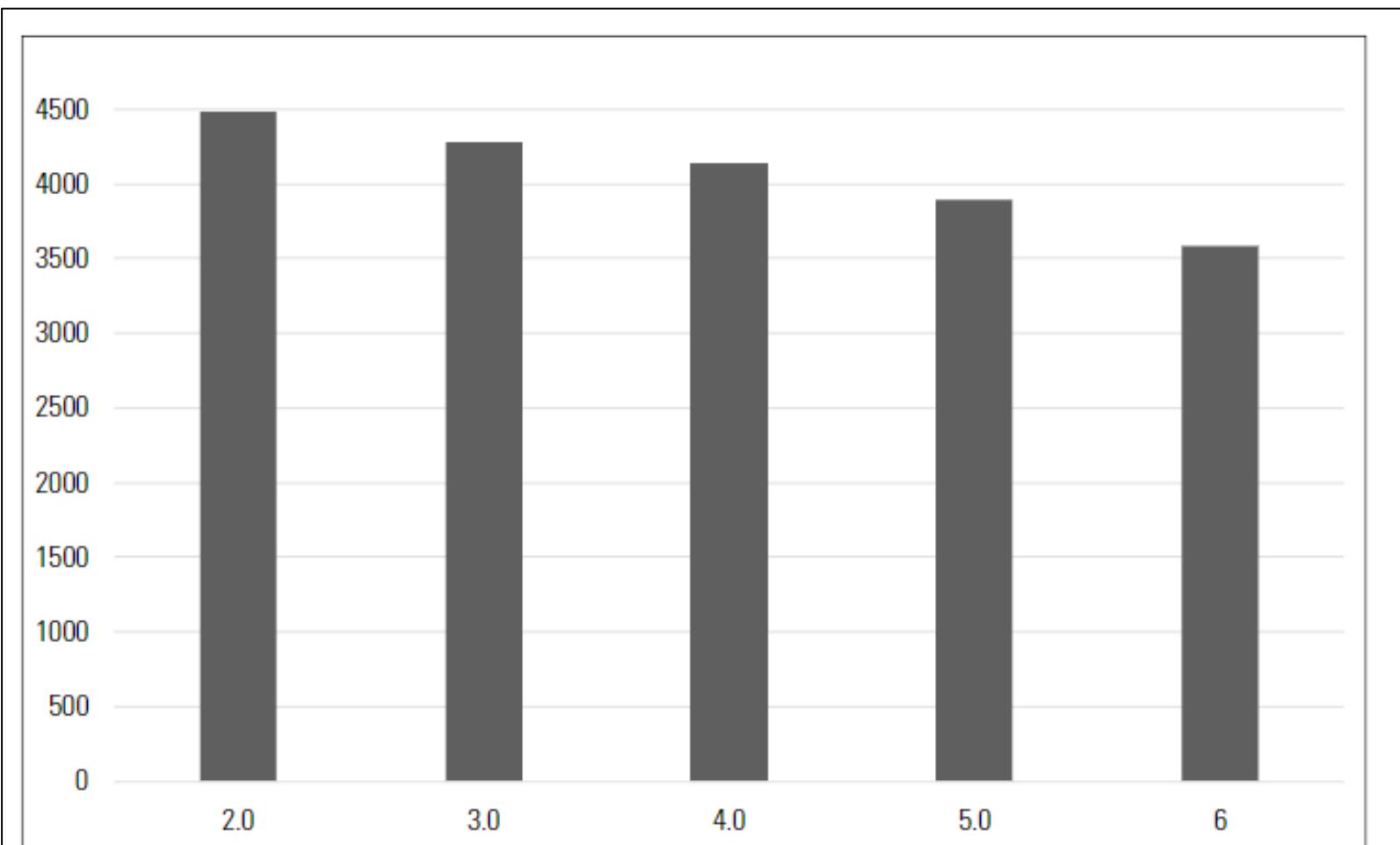


Figure 3-6. Influence of digging speed (mph) on peanut yield (lb/acre) for the variety Bailey at Lewiston-Woodville during 2018.

Harvesting

Eight-row self-propelled (SP) – 25 acres per day

Six-row self-propelled – 20 acres per day

Six-row pull type – 20 acres per day

Four-row pull type – 15 acres per day

250 acres with one 6-row SP – 13, 10-hour days

500 acres with one 6-row SP – 25, 10-hour days

750 acres with one 6-row SP – 38, 10-hour days

Drying and Hauling Capacity?

Buying Point Challenges (trailer turn around)?

Photo credit: David Jordan



Prohexadione Calcium (Apogee, Kudos, Cryova)
Row visibility, Inversion of vines, Pod retention
RTK System for Digging



Figure caption. Peanuts with a deep green color and more defined row architecture were treated with prohexadione calcium. Peanuts in the center of the image with a pale green color were not treated.



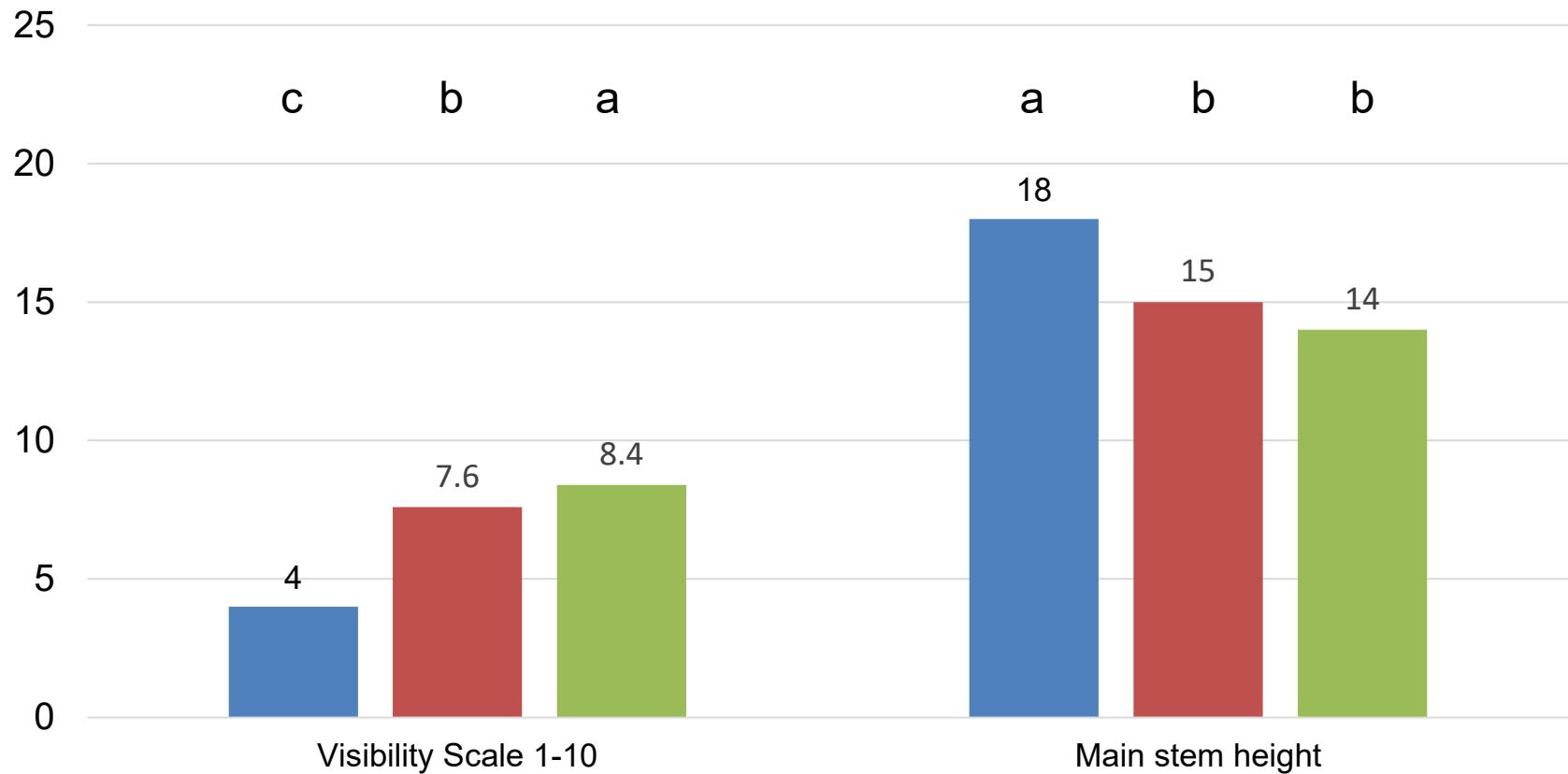
Figure caption. Peanuts on the left of both images were not treated with prohexadione calcium. Peanuts on the right side of the image were treated with prohexadione calcium.





Figure caption. Peanuts in top image were not treated with prohexadione calcium. Peanuts in bottom image were treated with prohexadione calcium.

Peanut Row Visibility (1-10 scale) and Height (inches)
2024 and 2025 Average from 10 Trials in NC and VA
Kudos OD Rates

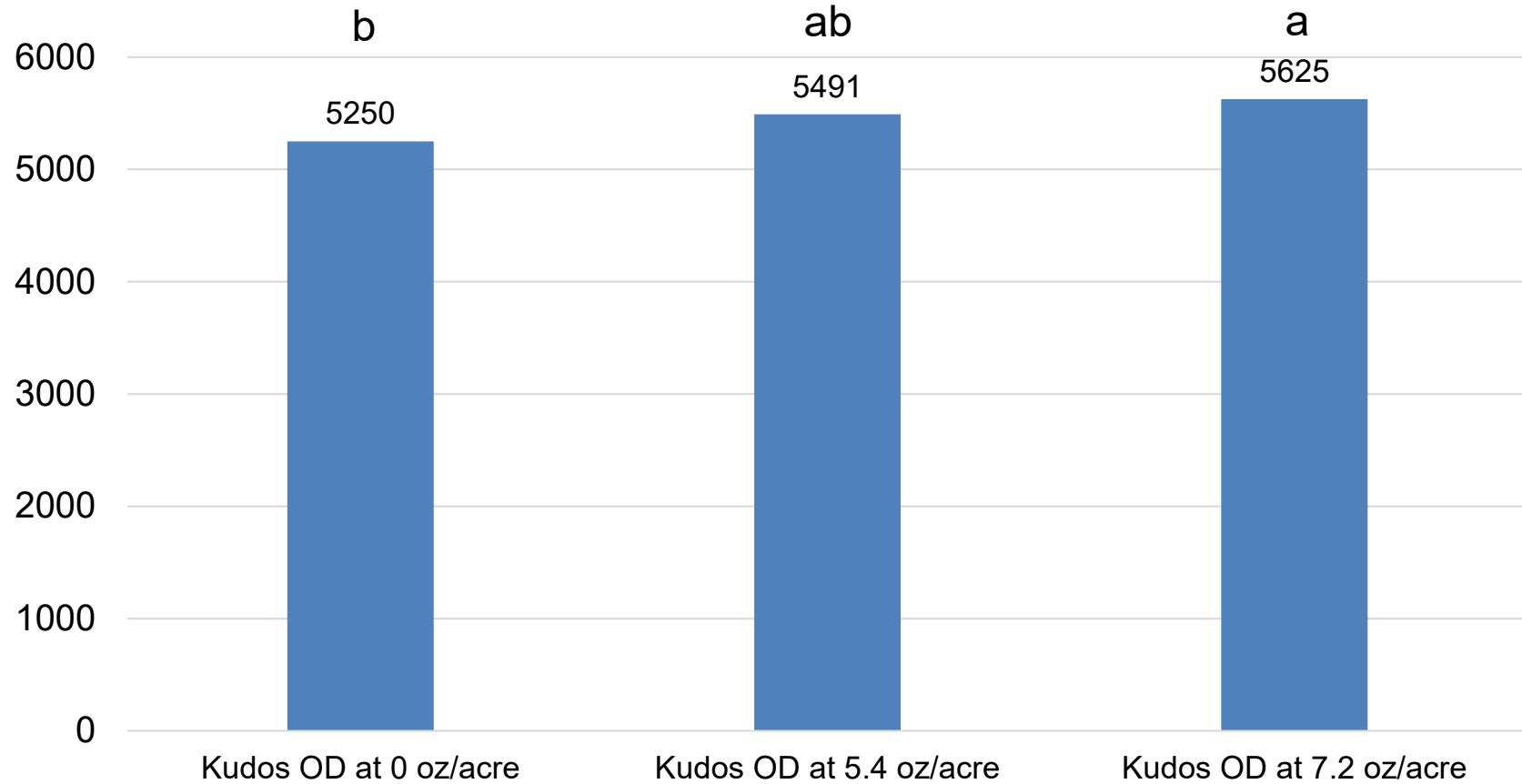


Blue Bar = non-treated, Red Bar = 5.4 oz/acre, Green Bar = 7.2 oz/acre

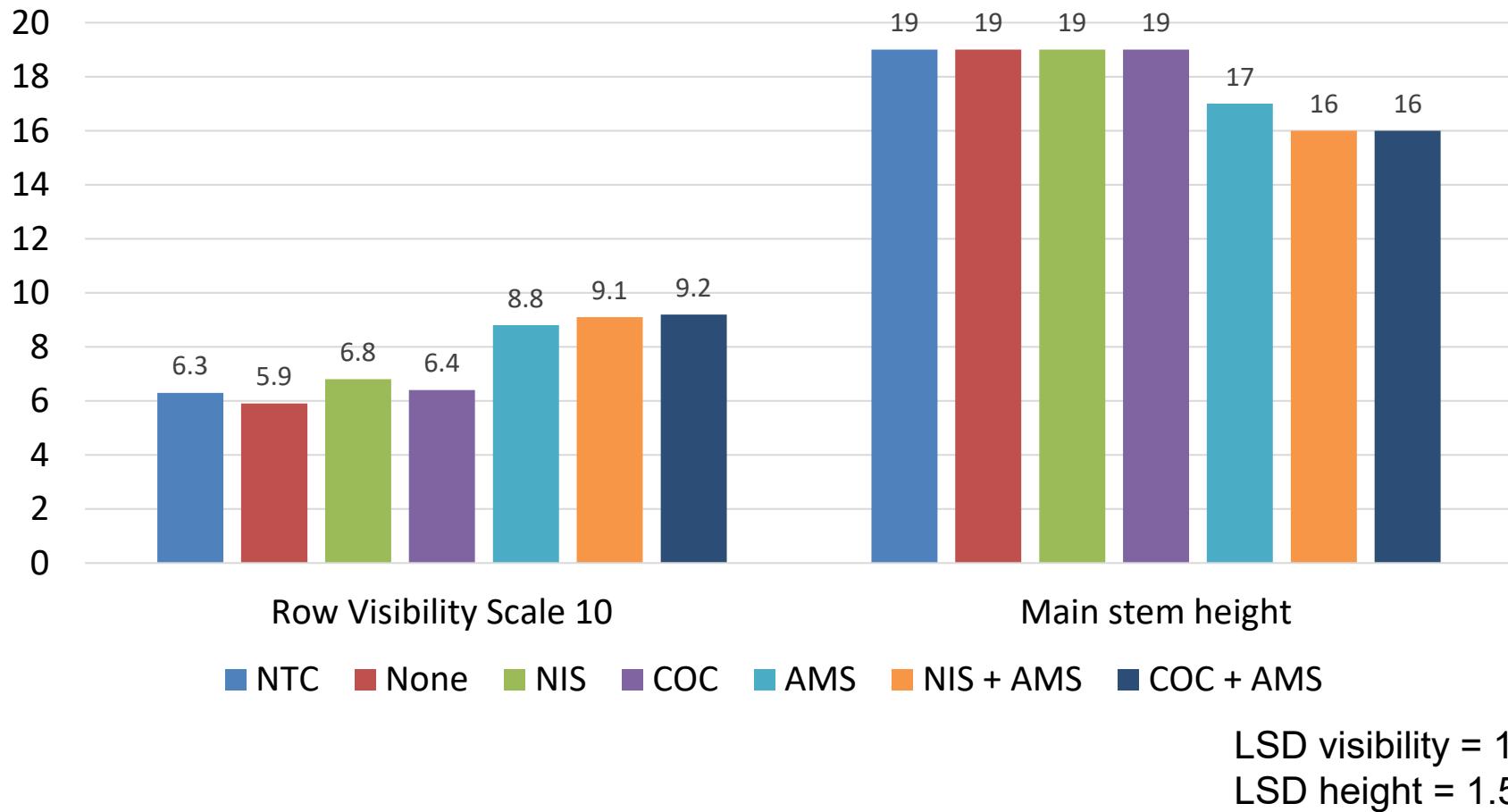
Peanut Yield (pounds per acre) in Large-Plot Trials

2024 and 2025 Average from 10 Trials in NC and VA

Kudos OD Rates



Peanut Row Visibility (1-10 scale) and Height (inches) 2024 and 2025 Average from 3 Trials (NC and VA) *Kudos OD Adjuvants*



Peanut Yield (pounds per acre) in Small-Plot Trials

2024 and 2025 Average from 3 Trials (NC and VA)

Kudos OD Adjuvants

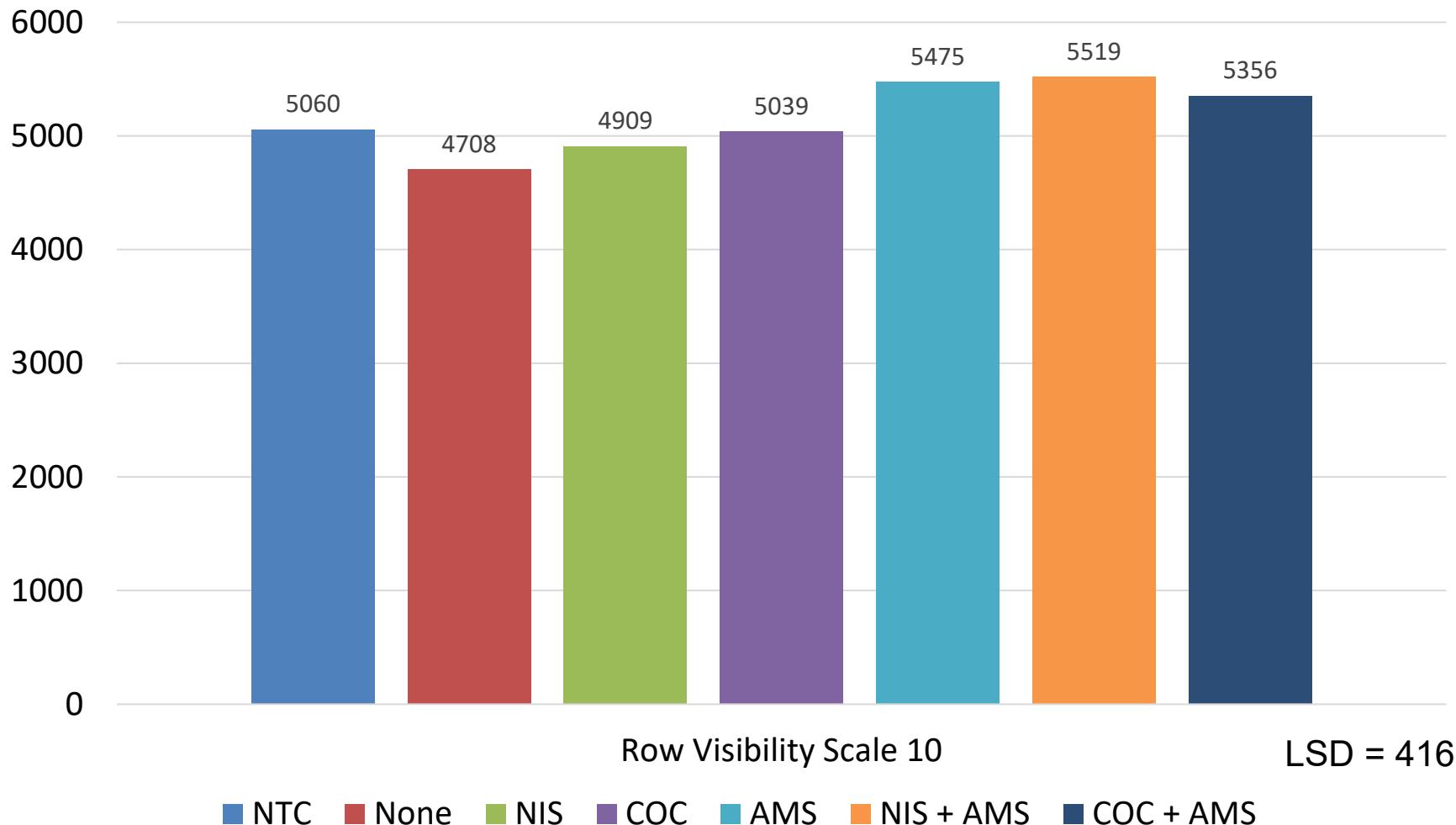


Table 1. Peanut pod yield when one or two applications of prohexadione calcium was made when 50% of vines from adjacent rows were touching followed by the second application 2 to 3 weeks later in small-plot and large-plot research.^a

| Number of prohexadione calcium applications ^b | Row visibility | All experiments | Peanut yield | |
|--|----------------|-----------------|------------------------------|------------------------------|
| | | | Experiments with small plots | Experiments with large plots |
| Scale 0-10 | | | | |
| No prohexadione calcium | 4.3 c | 5,220 a | 5,590 a | 4,680 b |
| One application of prohexadione calcium | 5.5 b | 5,400 a | 5,660 a | 5,020 a |
| Two applications of prohexadione calcium | 7.2 a | 5,320 a | 5,520 a | 5,100 a |
| P > F | <0.0001 | 0.1846 | 0.6091 | 0.0025 |
| Coefficient of variation (%) | 35.4 | 22.3 | 23.6 | 15.9 |
| Number of observations | 17 | 24 | 15 | 9 |

RTK GPS and Automatic Steering for Peanut Digging

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Authors: Gary T Roberson, David L Jordan

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Peanut harvesting is a two-stage process. In the first stage, a digger-shaker-inverter implement is used to plow peanut from the ground. In the second stage, a combine is used to thresh peanut pods from the vines. Yield loss can be significant, especially during the digging stage where the implement may not be properly aligned over the rows of peanut. In this study, RTK-based automatic steering was compared to manual steering to determine the potential for reduced yield losses. In addition, peanut response to the plant growth regulator prohexadione calcium was compared to a non-treated peanut to determine if reduced yield losses were obtainable. Prohexadione calcium regulator did not improve yield significantly. However, use of RTK based automatic steering was significant, increasing harvested yield by 510 kg/ha or 11%.

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Figure caption. Abstract from journal article revealing the value of precision digging using the RTK system.