# Birdsong Buying Points Meeting

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NC COOPERATIVE EXTENSION

# Topics

Digging and harvesting survey
Prohexadione calcium (Apogee)
Chlorpyrifos registration
Herbicide resistance
Insecticide resistance
Fungicide resistance
Tomato spotted wilt
Bailey II

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# 2018 Rainfall and Heat Unit Accumulation ($DD_{56}$)†

| Parameter and time interval | Wakefield VA | Lewiston NC | Kinston NC | Whiteville NC | Florence SC | Orangeburg SC |
|---|---|---|---|---|---|---|
| ***Rainfall (inches)*** | | | | | | |
| May 15-August 27 | 25.9 | 30.9 | 23.0 | 19.5 | 19.2 | 18.9 |
| August 14-27 | 1.2 | 1.3 | 2.5 | 0 | 0 | 0.1 |
| ***Heat units ($DD_{56}$)*** | | | | | | |
| May 15-August 27 | 2268 | 2335 | 2406 | 2438 | 2650 | 2525 |
| May 25-August 27 | 2077 | 2140 | 2203 | 2244 | 2436 | 2327 |
| June 5-August 27 | 1852 | 1909 | 1960 | 2006 | 2175 | 2076 |
| June 15-August 27 | 1675 | 1722 | 1740 | 1799 | 1942 | 1850 |

†Data are from the State Climate Office of North Carolina - CRONOS Database (https://climate.ncsu.edu/cronos)

**Heat units suggest the earliest possible date. Any stress increases the length of time to optimum maturity. There is no substitute for the peanut profile board and pod blasting 2 or 3 times in the fall.**

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# 2018 Days from Planting to Possible Optimum Maturity†

| Parameter and time interval | Wakefield VA | Lewiston NC | Kinston NC | Whiteville NC | Florence SC | Orangeburg SC |
|---|---|---|---|---|---|---|
| ***Days*** | | | | | | |
| May 15-August 27 | 17 | 13 | 9 | 7 | -2 | 3 |
| May 25-August 27 | 29 | 24 | 21 | 18 | 8 | 14 |
| June 5-August 27 | 47 | 43 | 40 | 33 | 24 | 29 |
| June 15-August 27 | 103 | 88 | 72 | 67 | 51 | 58 |
| ***Calendar Date*** | | | | | | |
| May 15-August 27 | 14-Sep | 10-Sep | 6-Sep | 4-Sep | 25-Aug | 1-Sep |
| May 25-August 27 | 27-Sep | 21-Sep | 17-Sep | 14-Sep | 5-Sep | 10-Sep |
| June 5-August 27 | 14-Oct | 10-Oct | 7-Oct | 30-Sep | 20-Sep | 26-Sep |
| June 15-August 27 | 9-Dec | 1-Dec | 9-Nov | 3-Nov | 17-Oct | 25-Oct |

†Data are from the State Climate Office of North Carolina - CRONOS Database (https://climate.ncsu.edu/cronos)

**There are some major assumptions made in the predictions.**
**Every year is different.**

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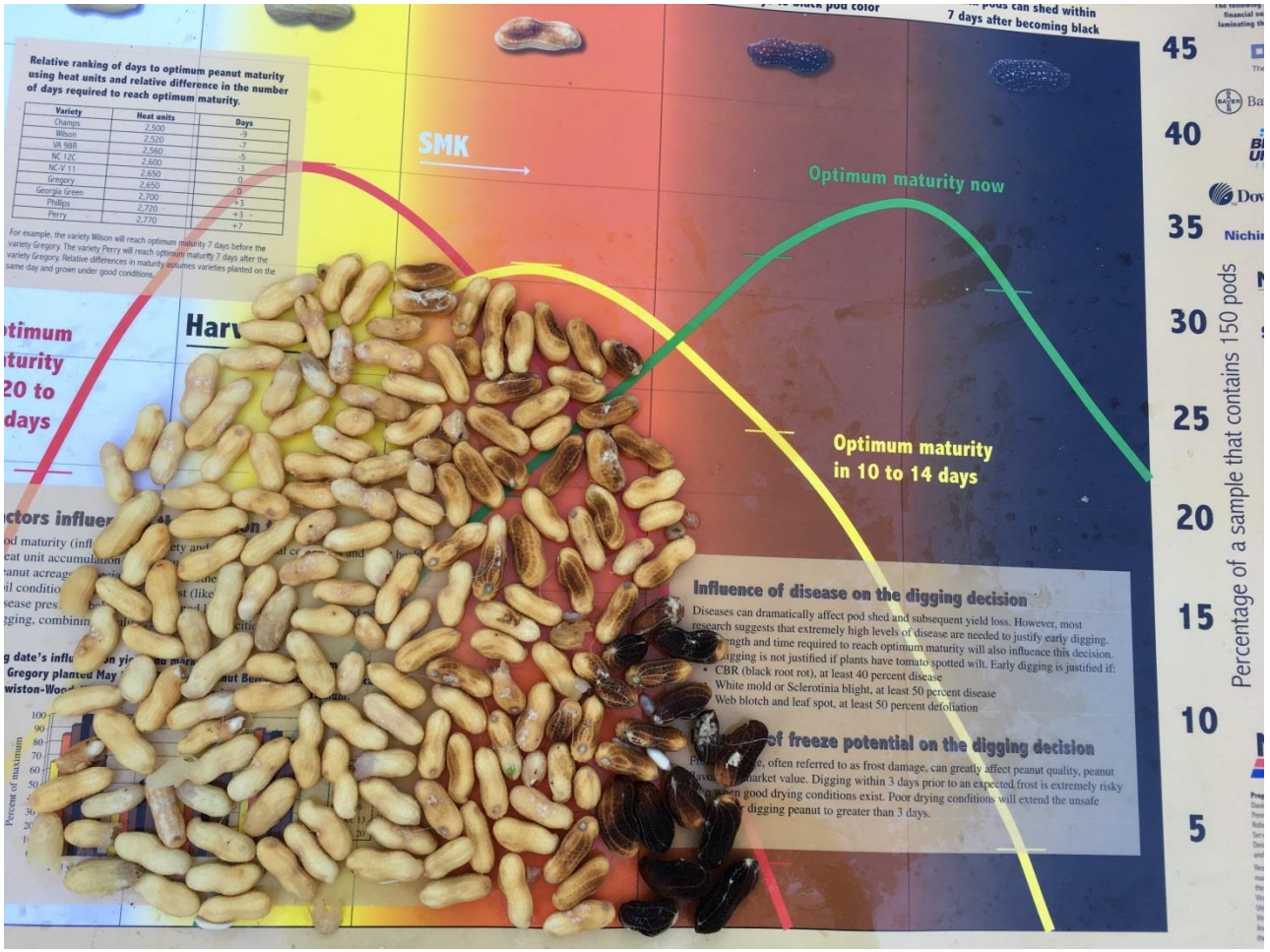
***Table 10-2. Approximate Number of Days Between Planting and Various Stages of Peanut Development***

| Development Stage | Calendar Date or Days after Planting | | | |
|---|---|---|---|---|
| | **May 1** | **May 15** | **June 1** | **June 15** |
| Emergence | May 10 (10) | May 22 (7) | June 6 (5) | June 20 (5) |
| Flower (R1) | June 15 (45) | June 25 (40) | July 13 (38) | July 23 (38) |
| Peg (R2) | June 25 (55) | July 5 (50) | July 23 (48) | Aug 3 (48) |
| Full pod (R4) | July 15 (75) | July 25 (70) | Aug 10 (65) | Aug 20 (65) |
| 65% brown/black mesocarp development | Sep 25 (145) | Oct 5 (140) | Oct 20 (140) | Nov 15 (150) |

Assumes adequate moisture and temperature throughout the season. Estimates are from timing of planting to 65% flowering, pegging, full pod, and brown/black mesocarp color. Cool night temperatures after October 5 could decrease the rate of maturation and negatively impact yield.

# Bailey, Lewiston, Emerged May 16, Image on August 29



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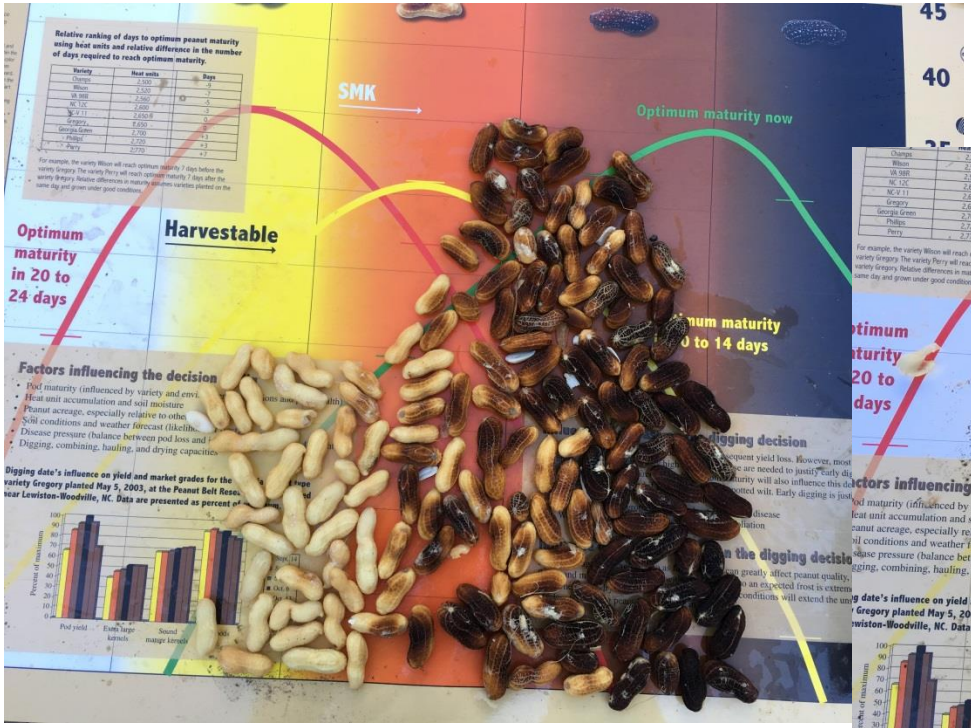
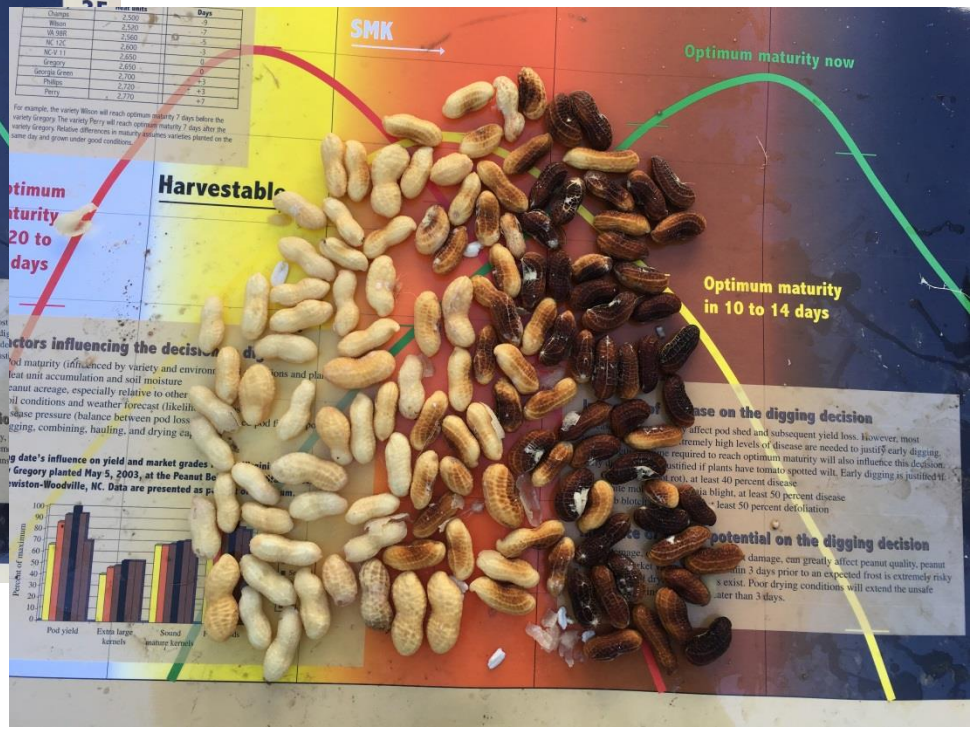
# Whiteville, Emerged May 16, Image on August 28

## Bailey




## Sullivan



# Bailey, Whiteville, Emerged June 5, Image on August 28

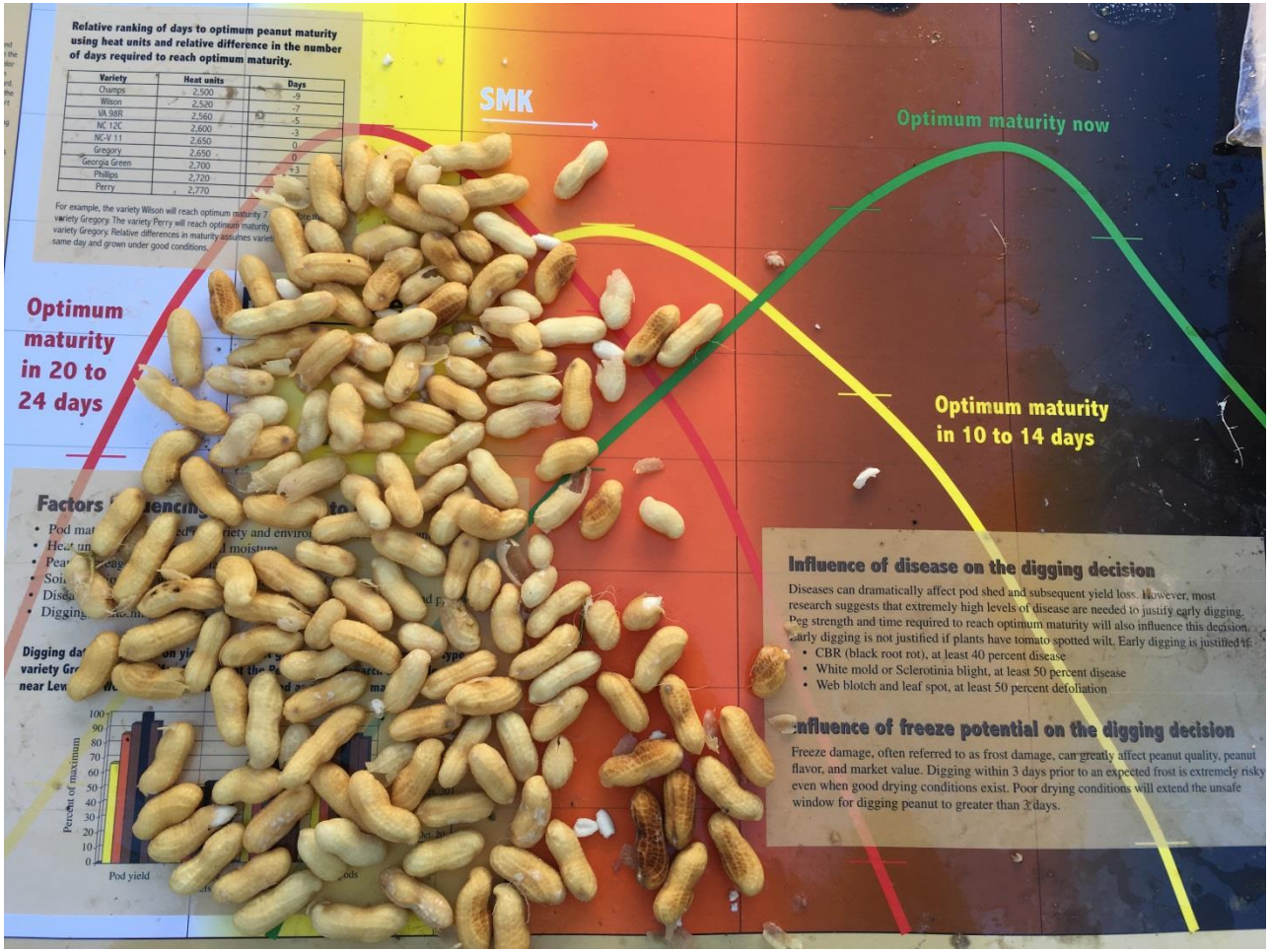


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***Table 3-14. Yield (lb/acre) of the Variety Bailey as Influenced by Planting Dates at Lewiston-Woodville from 2013 to 2017***

| Planting Date | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| May 3 – 4 | 4,955 | 5,114 | 4,816 | 3,848 | 5,868 |
| May 16 – 19 | 6,123 | 4,524 | 6,337 | 5,009 | 5,417 |
| May 28 | 6,352 | 3,898 | 4,001 | 4,481 | 5,198 |

***Table 3-15. Yield (lb/acre) of the Variety Bailey Planted in Early and Late May and Following Wheat Harvest in Mid-June at Lewiston-Woodville from 2013 to 2017.***

| Planting Date | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| May 2 | 3,340 | 3,660 | 5,590 | 3,640 | 4,173 |
| May 22 | 3,470 | 3,690 | 3,840 | 5,016 | 6,312 |
| June 20 | 3,070 | 2,930 | 2,030 | 3,045 | 3,273 |

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# Timely digging and harvesting

# Survey in January or February 2018

State peanut grower meetings in Virginia and South Carolina

County peanut grower meetings in North Carolina

Approximately 300 participants

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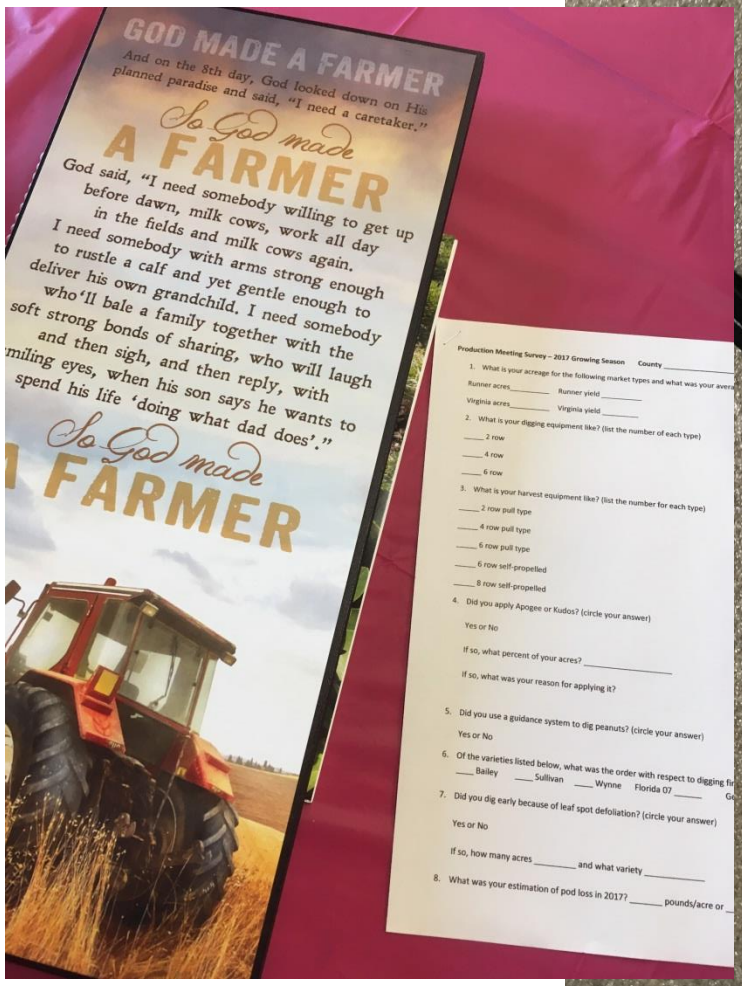
# Tool Raffle Print



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**Production Meeting Survey – 2017 Growing Season** **County** Edgecombe

1. What is your acreage for the following market types and what was your average yield?

Runner acres_____ Runner yield _____

Virginia acres 100 Virginia yield 4798

2. What is your digging equipment like? (list the number of each type)

32

_____ 2 row

__✓__ 4 row

_____ 6 row

3. What is your harvest equipment like? (list the number for each type)

_____ 2 row pull type

__✓__ 4 row pull type

1 week

_____ 6 row pull type

_____ 6 row self-propelled

_____ 8 row self-propelled

4. Did you apply Apogee or Kudos? (circle your answer)

Yes or (No)

If so, what percent of your acres? _____

If so, what was your reason for applying it?

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4. Did you apply Apogee or Kudos? (circle your answer)

   Yes or No

   If so, what percent of your acres? _____

   If so, what was your reason for applying it?

5. Did you use a guidance system to dig peanuts? (circle your answer)

   Yes or No

6. Of the varieties listed below, what was the order with respect to digging first (1 = earliest maturing)

   ____ Bailey ___1___ Sullivan ____ Wynne Florida 07 _____ Georgia 09B ____

7. Did you dig early because of leaf spot defoliation? (circle your answer)

   Yes or No

   If so, how many acres ___50___ and what variety ___Sullivan___

8. What was your estimation of pod loss in 2017? ___50___ pounds/acre or _____ % of yield

## Amended Survey

How long did it take to:
a) dig your peanuts _____
b) harvest your peanuts _____

| State | Average acres | Average yield |
|---|---|---|
| | | lbs/acre |
| North Carolina | 252 | 4,649 |
| South Carolina | 188 | 4,139 |
| Virginia | 228 | 4,711 |

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# Pearson Correlation Coefficients Pooled Over All States

## (Except 2017 days to digging and days to harvest for South Carolina)

## *indicates significance at p ≤ 0.05

| Factor | Acreage | Yield |
|---|---|---|
| 2017 days to dig | 0.40* | 0.07 |
| 2017 days to harvest | 0.48* | 0.0 |
| Prohexadione calcium | 0.03 | 0.41* |
| Guidance system | 0.25* | 0.08 |
| Maturity estimate | 0.01 | 0.11 |
| Total digging capacity | 0.59* | 0.07 |
| Days to dig based on total capacity | 0.72* | 0.05 |
| Total harvesting capacity | 0.58* | 0.09 |
| Days to harvest based on total capacity | 0.69* | 0.01 |

Acreage and yield were not correlated
Correlations need to be taken with a grain of salt

| Assumptions on Digging | |
|---|---|
| **Digger size** | **Acres/10-hour day** |
| 2 Row | 12 |
| 4 Row | 24 |
| 6 Row | 36 |

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| Assumptions on Harvesting | |
|---|---|
| **Picker size** | **Acres/10-hour day** |
| 2 Row Pull Type | 8 |
| 4 Row Pull Type | 12 |
| 6 Row Pull Type | 16 |
| 6 Row Self Propelled | 16 |
| 8 Row Self Propelled | 20 |

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# Days Required to Accomplish an Operation

| Operation | NC | SC | VA |
|---|---|---|---|
| Digging capacity | 7.0 | 5.3 | 6.2 |
| 2017 digging requirement | 15 | - | 12 |
| Harvesting capacity | 11.9 | 9.6 | 9.5 |
| 2017 harvest requirement | 25 | - | 18 |

Buying Point and hauling bottlenecks?
10-hour work day is very optimistic across many days
2017 field conditions were near perfect

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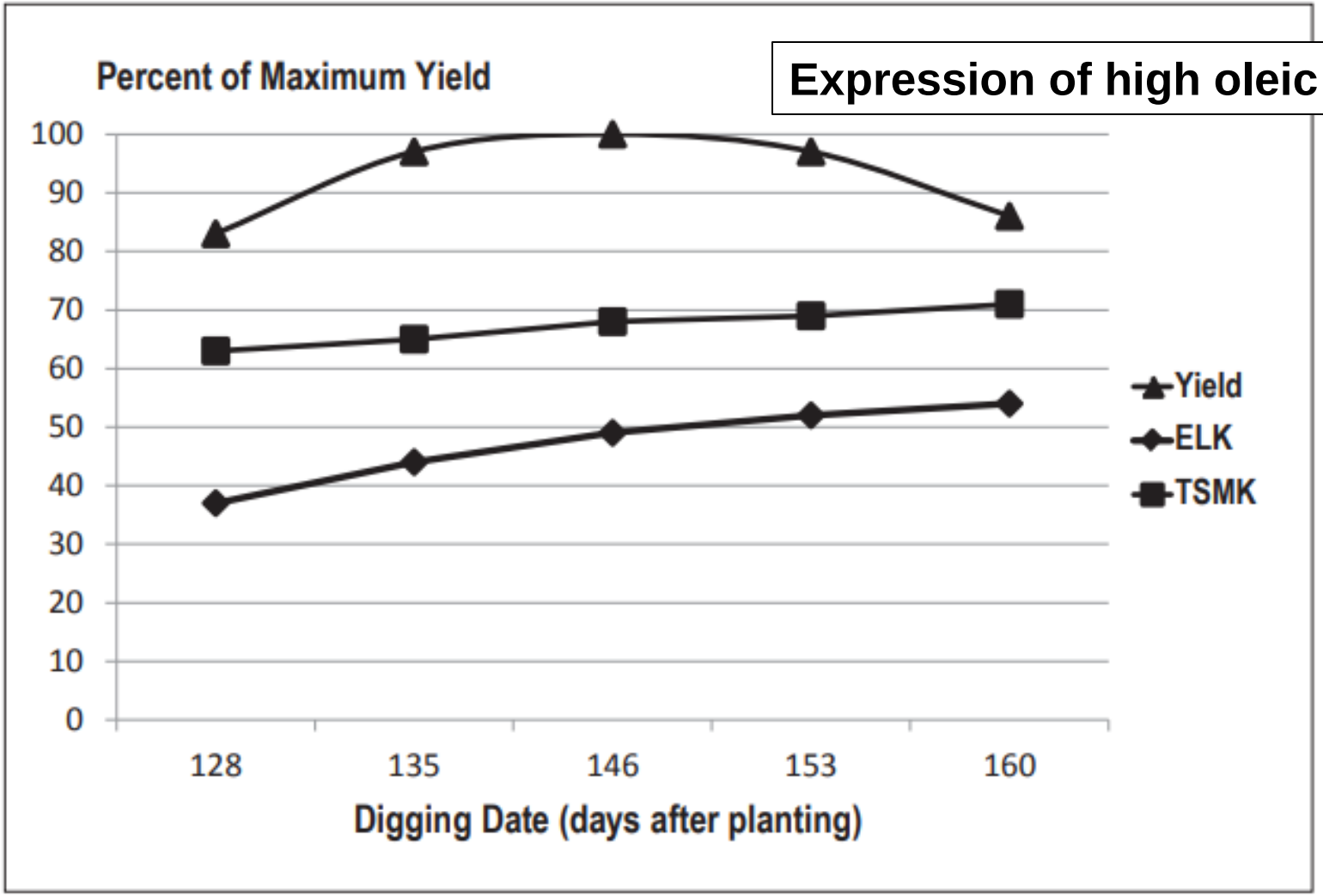
**Figure 3-4. Pod yield (lb/acre) and percentages of extra large kernels (ELK) and total sound mature kernels (TSMK) for the variety Gregory to digging date. Data are from 18 trials during 2003 – 2013.**




**Expression of high oleic trait**

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

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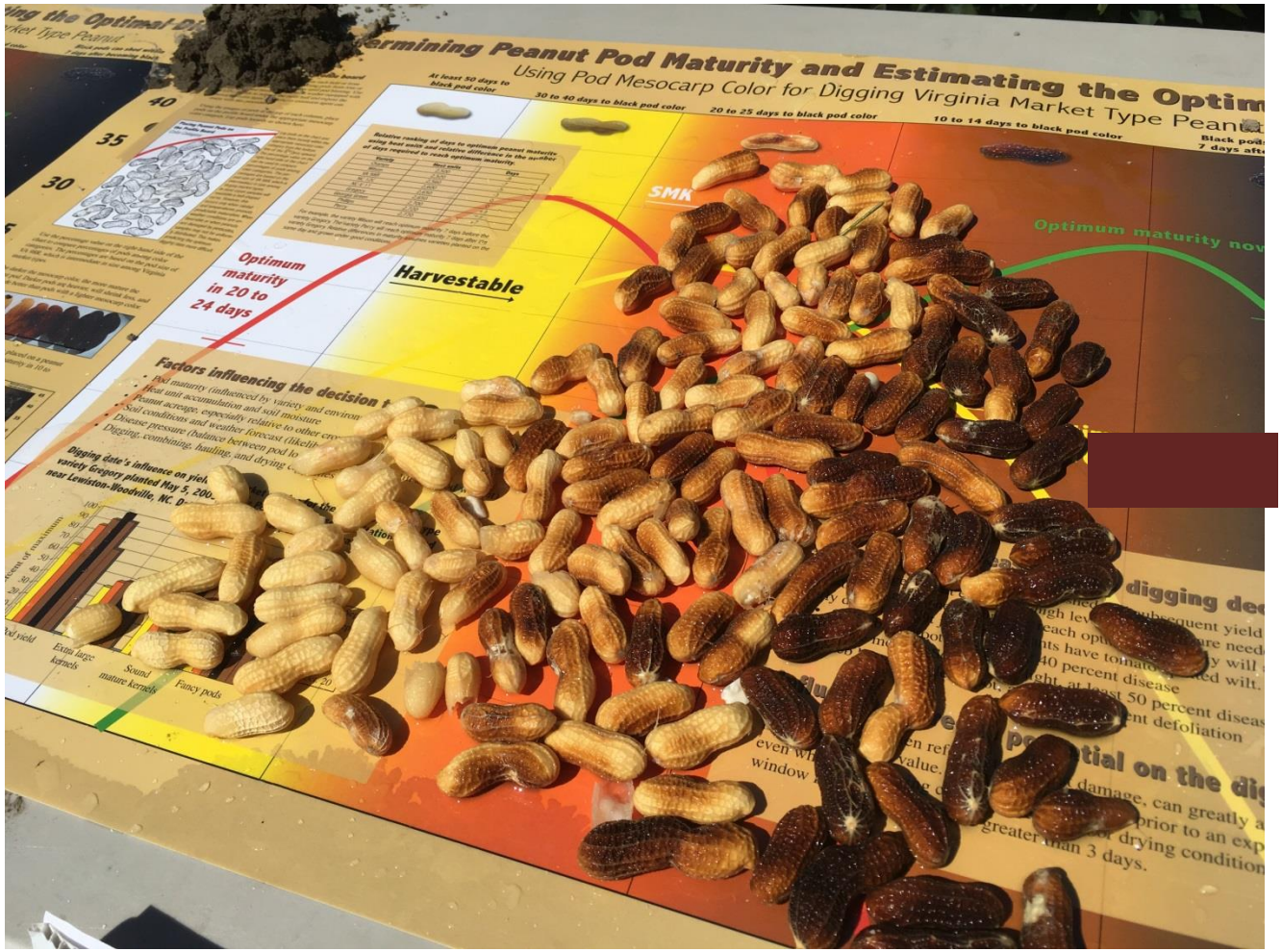


# How many days from digging?

**Assume soil is in good shape, no hurricanes and little to no leaf spot**

# Write the number on the survey sheet

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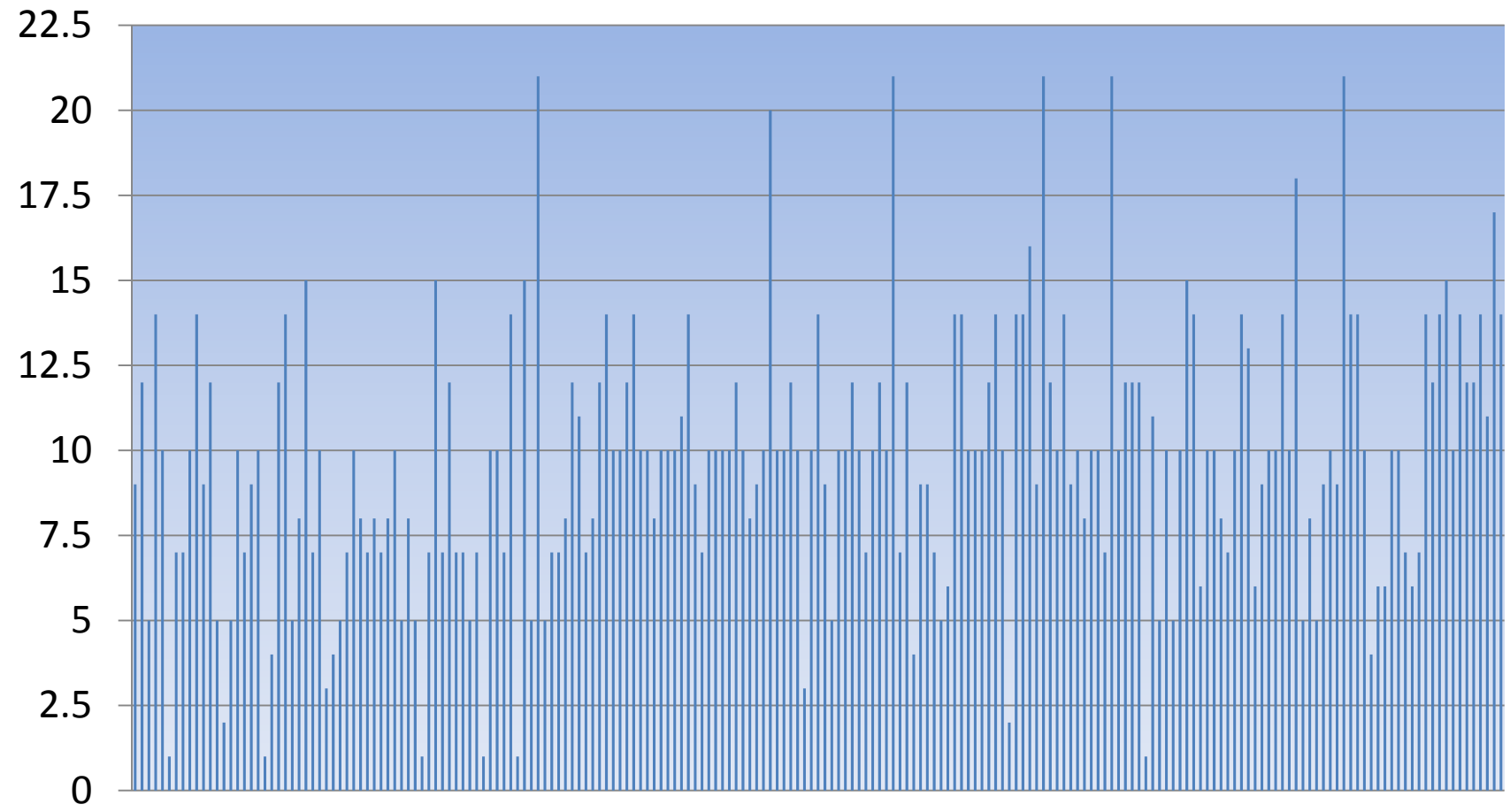
# Number of Growers from All States Stating that Peanut will be at Optimum Maturity in a Certain Number of Days Based on the Pod Blasting Sample



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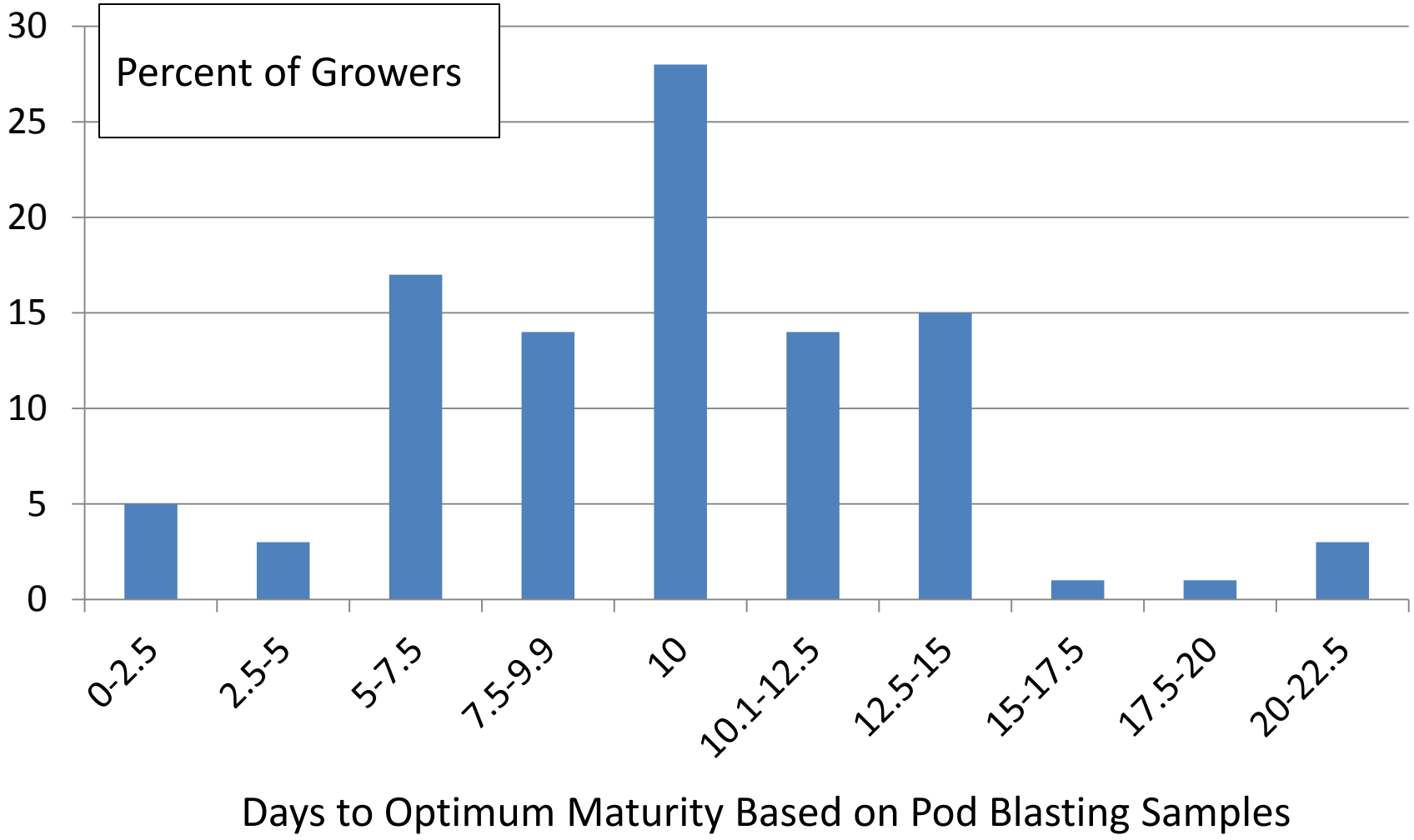
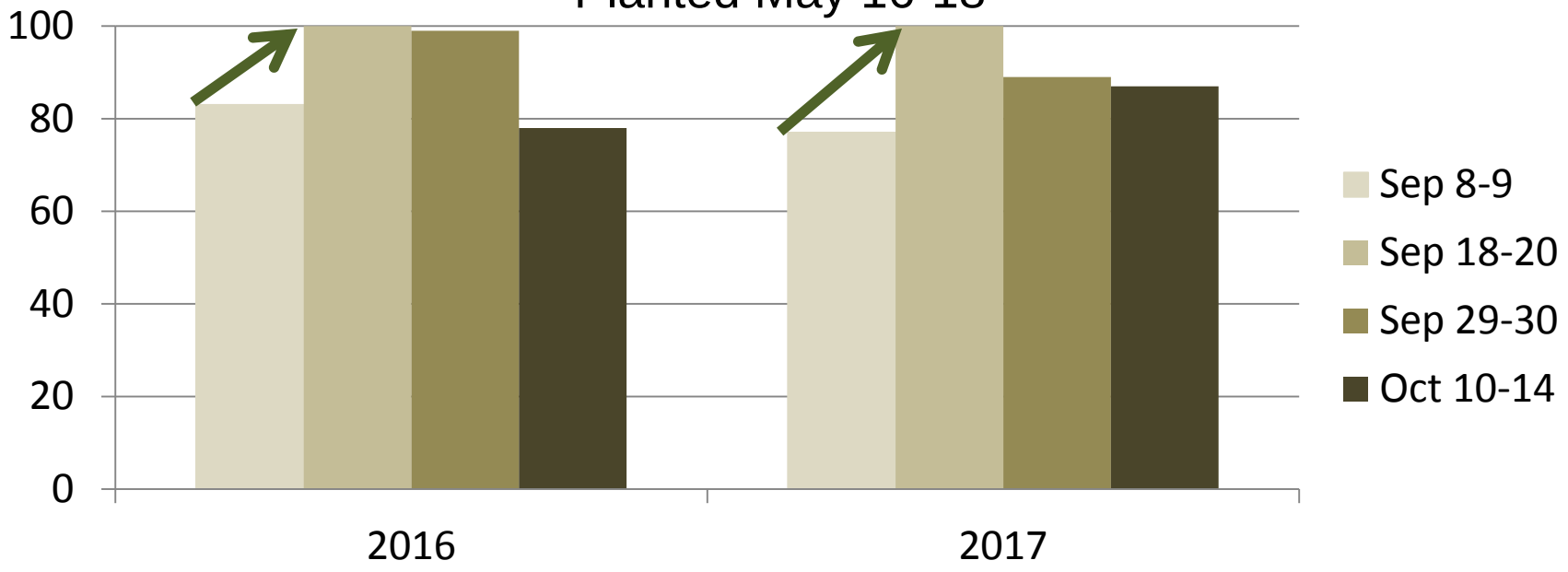
**Number of Growers from All States Stating that Peanut will be at Optimum Maturity in a Certain Number of Days Based on the Pod Blasting Sample**

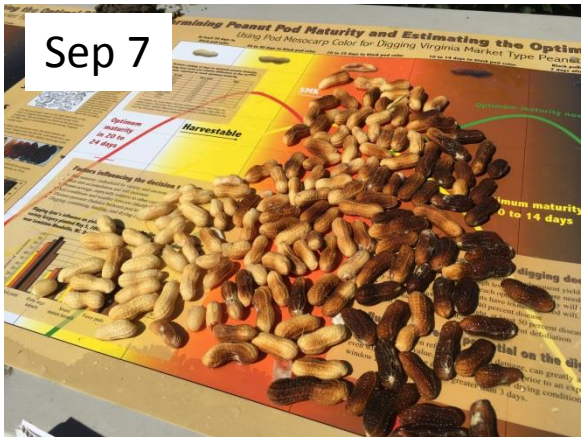


# Peanut Yield (percent of maximum) and Digging Date

## Data are pooled over varieties and seeding rates

Planted May 16-18



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# Percentage of Farmers

| Practice | NC | SC | VA |
|---|---|---|---|
| Prohexadione calcium | 56 | 13 | 51 |
| Guidance | 38 | 79 | 32 |
| Both | 19 | 10 | 8 |

# Summary

Farmers predicted the optimum digging date very well

Differences in prohexadione calcium (PC) and guidance system use were noted in NC and VA versus SC (PC and yield positively correlated)

Requires about 1.5 times longer to harvest than to dig

Even in a year that was favorable for digging and harvesting, delays were noted beyond capacity

What are the bottlenecks?

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# Southern Corn Rootworm

# Lorsban

Uses will (likely) be eliminated within the next 6 weeks

No consistent alternative to Lorsban for southern corn rootworm control

Prevathon, Admire Pro, and Bifenthrin have been evaluated to some degree but control is inconsistent

Thimet is no longer registered

Damage has not been as high in recent years

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# Thrips

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# Interactions with Herbicide Injury

# Control Options

**Systemic insecticides at planting**

Acephate
Phorate/Thimet
Admire Pro/Generics
Velum Total

**Foliar applications**

Acephate

# Concerns

Acephate and delayed peanut emergence

Imidacloprid increasing spotted wilt

Velum Total expense and unpredictable and erratic nematode populations

Thimet injury to peanut

Acephate and Thimet MOAs and registrations

Potential resistance to imidacloprid

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# Pyrethroid resistance
# Tobacco budworm

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# Concern over PPO resistance

# Herbicides in Peanut

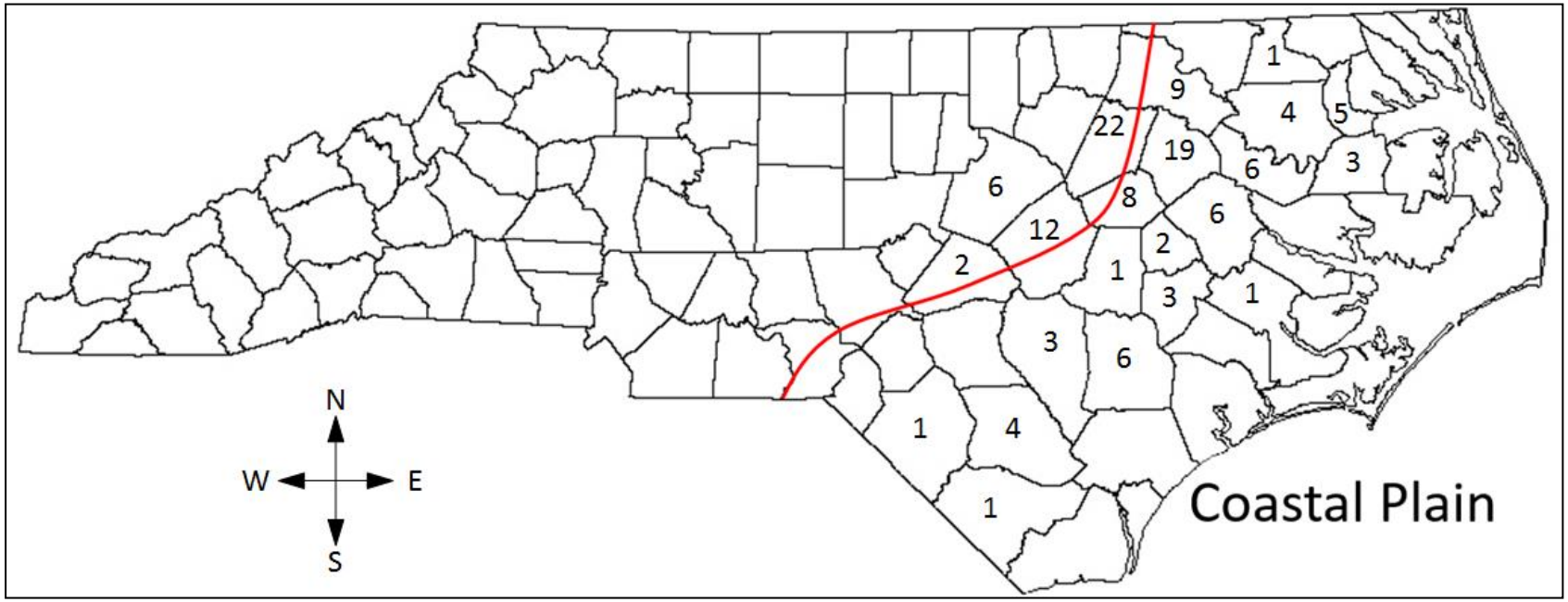
## ALS/PPO Resistance

- Prowl, Sonalan
- Metolachlor products, Outlook, Warrant, Zidua
- ~~Valor SX~~, ~~Strongarm~~
- Paraquat
- Basagran
- ~~Cadre/Impose, Pursuit~~
- ~~Cobra, Ultra Blazer, Storm~~
- 2,4-DB
- Clethodim products, Poast

Palmer amaranth populations (125) were collected from the NC Coastal Plain, the state's primary peanut producing region

# Results from Sampling in 2016

## Palmer amaranth – 125 samples



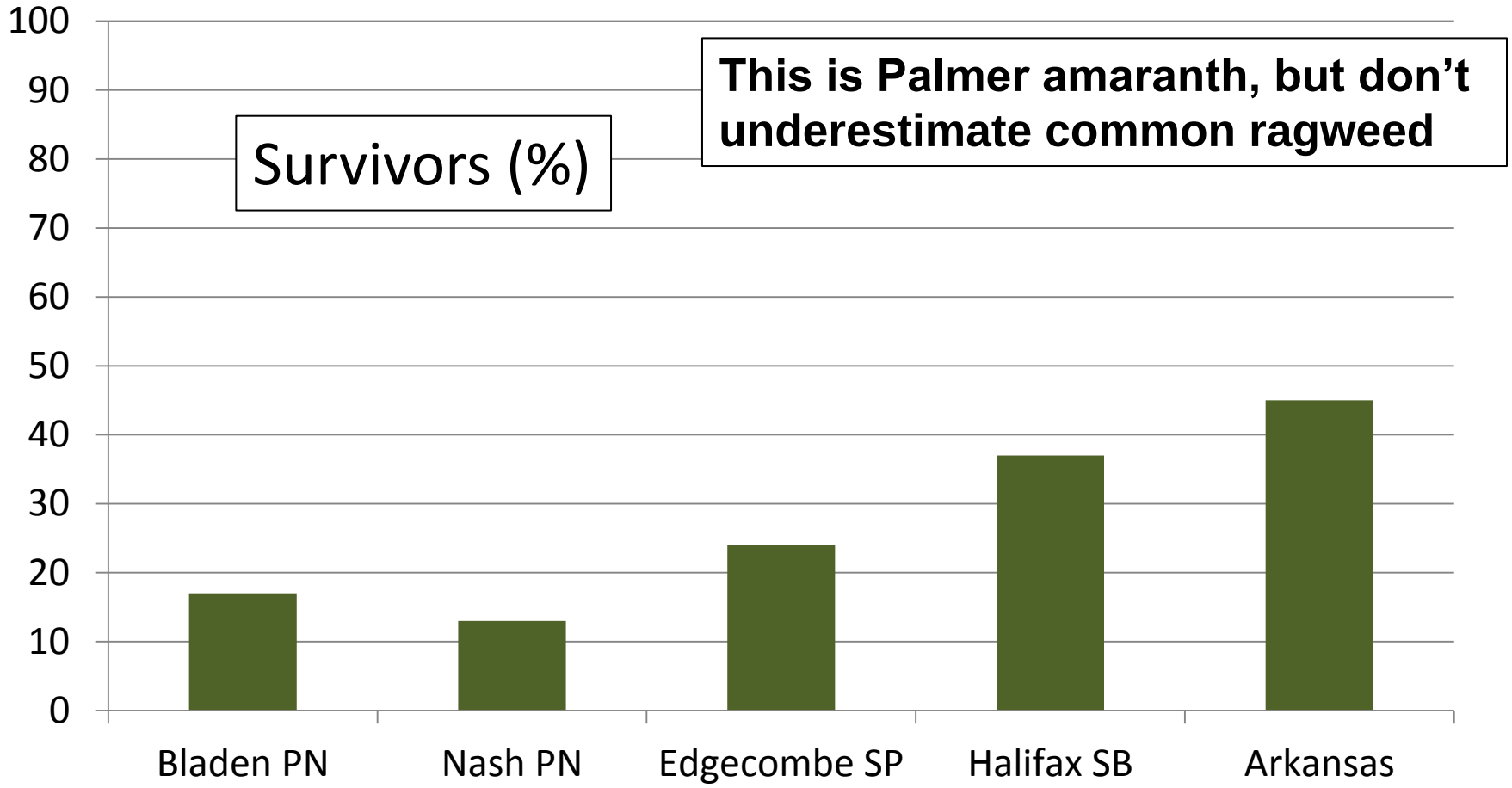

**<u>Number denotes collections in that county</u>**
**Collections: cotton (12), peanut (34), soybean (58), sweetpotato (21)**
**Possible PPO-resistant/tolerant populations (4)**

DJ Mahoney, graduate student

# Palmer Amaranth Screening for PPO Resistance

## 125 Samples Collected Across the NC Coastal Plain in Fall 2016

Fomesafen (Reflex) at 16 oz/acre in greenhouse



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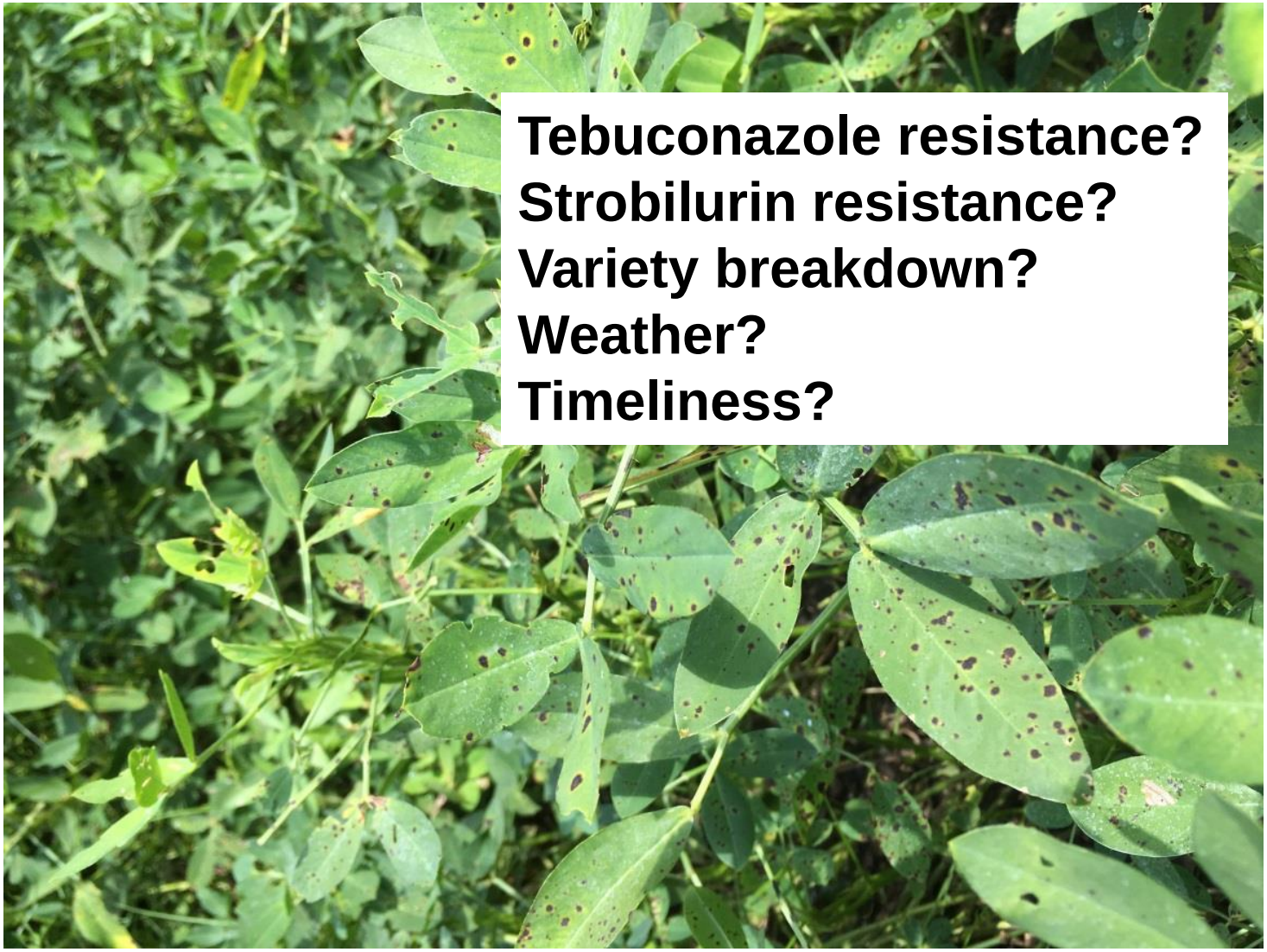
# Sclerotinia Blight

# Leaf Spot


Tebuconazole resistance?
Strobilurin resistance?
Variety breakdown?
Weather?
Timeliness?

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# Tomato Spotted Wilt

# Minimizing Risk with Variety Selection

## Including runner market types

***Table 3-1. Percentages of FP, ELK, SMK, and Total Kernels and Pod Yield for the Major Virginia Market Type Varieties***

| Variety | % FP | % ELK | % SMK | Total Kernels (%) | Yield (lb/acre) |
|---|---|---|---|---|---|
| Bailey | 83 | 32 | 63 | 67 | 4,631 |
| Bailey II | 85 | 35 | 64 | 68 | 5,045 |
| Emery | 90 | 33 | 64 | 67 | 4,527 |
| Sugg | 84 | 32 | 62 | 66 | 4,341 |
| Sullivan | 85 | 30 | 62 | 65 | 4,615 |
| Wynne | 90 | 30 | 61 | 65 | 4,420 |

*Data are from Balota et al. (PVQE Director) from eight trials during 2014 to 2016.