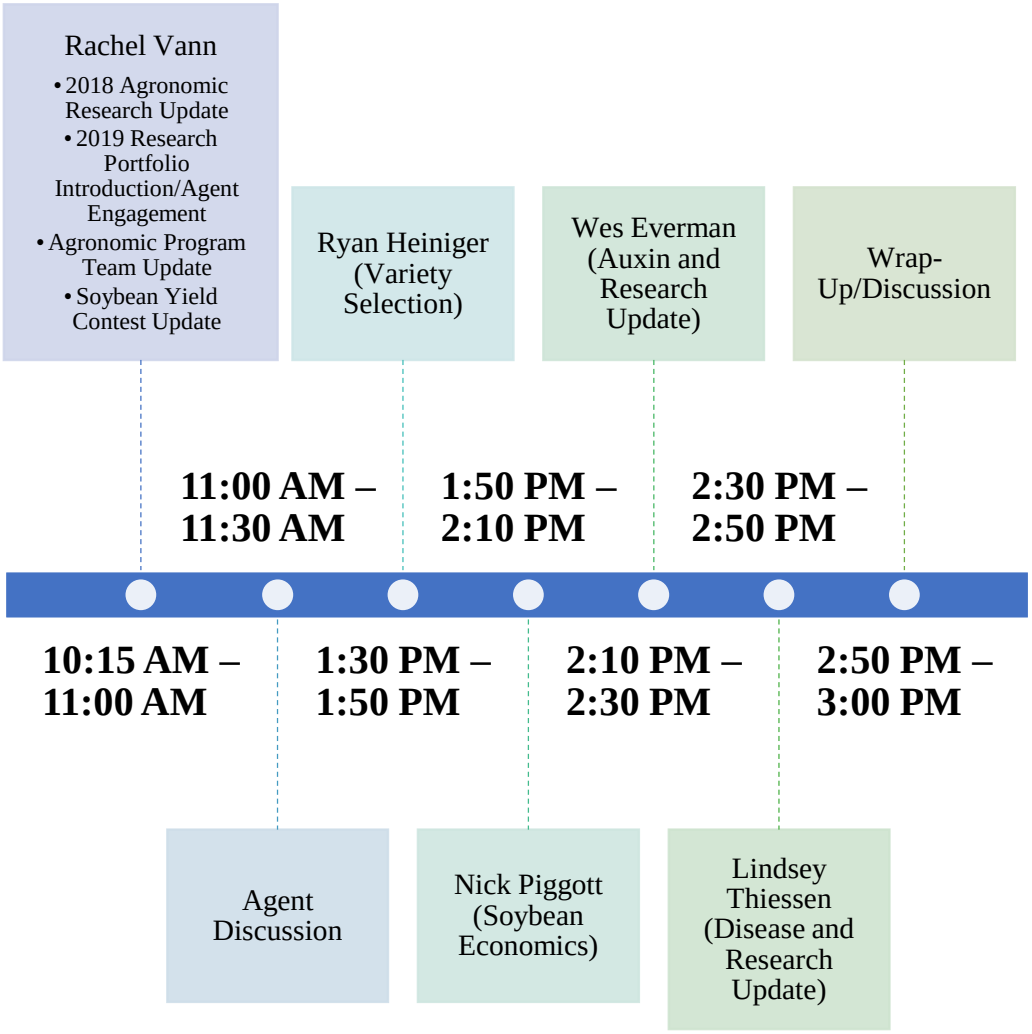
Soybean Production

2018 State Extension Conference

NC STATE EXTENSION

Agenda


Rachel Vann
• 2018 Agronomic Research Update
• 2019 Research Portfolio Introduction/Agent Engagement
• Agronomic Program Team Update
• Soybean Yield Contest Update
Ryan Heiniger (Variety Selection)
Wes Everman (Auxin and Research Update)
Wrap-Up/Discussion
10:15 AM – 11:00 AM
11:00 AM – 11:30 AM
1:30 PM – 1:50 PM
1:50 PM – 2:10 PM
2:10 PM – 2:30 PM
2:30 PM – 2:50 PM
2:50 PM – 3:00 PM
Agent Discussion
Nick Piggott (Soybean Economics)
Lindsey Thiessen (Disease and Research Update)

2018 Agronomic Research Update

Following through for Dr. Dunphy

- Maximum dryland yield
- Foliar yield enhancement
- Non-foliar yield enhancement
- Uniform emergence
- Variety demonstrations

Early Maturing Soybeans in North Carolina

Management of Early Maturing Soybeans in North Carolina

What controls flowering in soybeans?

- Photoperiod sensitive plant
- Day length is primary driver
- Temperature is also an important driver
- Maturity group and growth stage will influence flowering

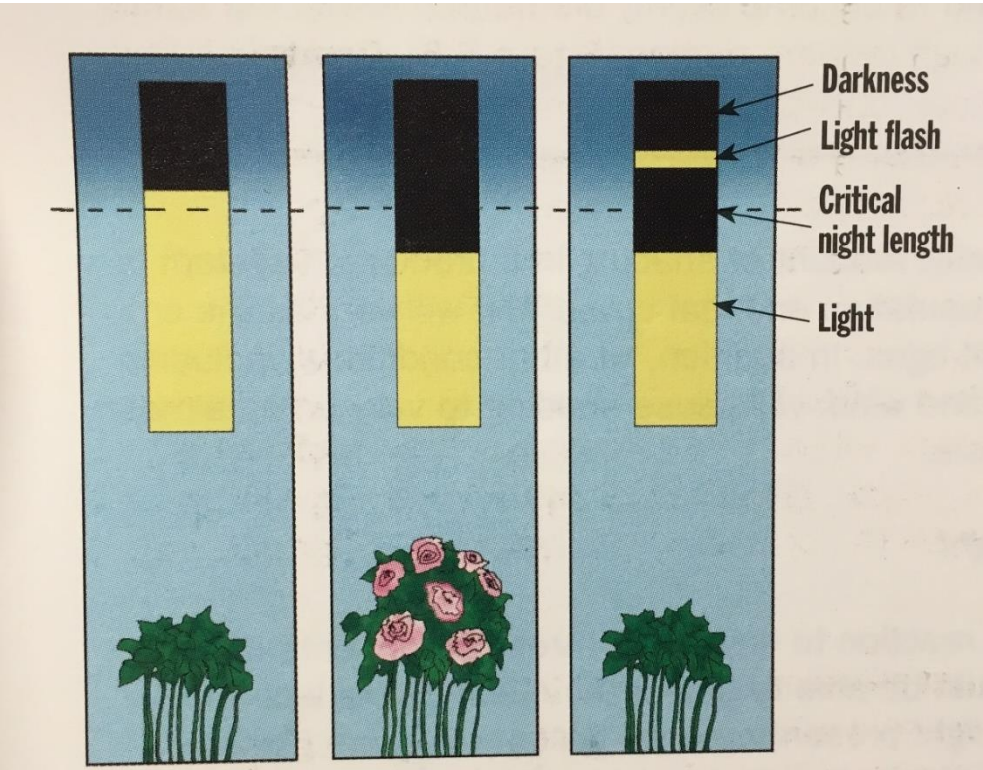


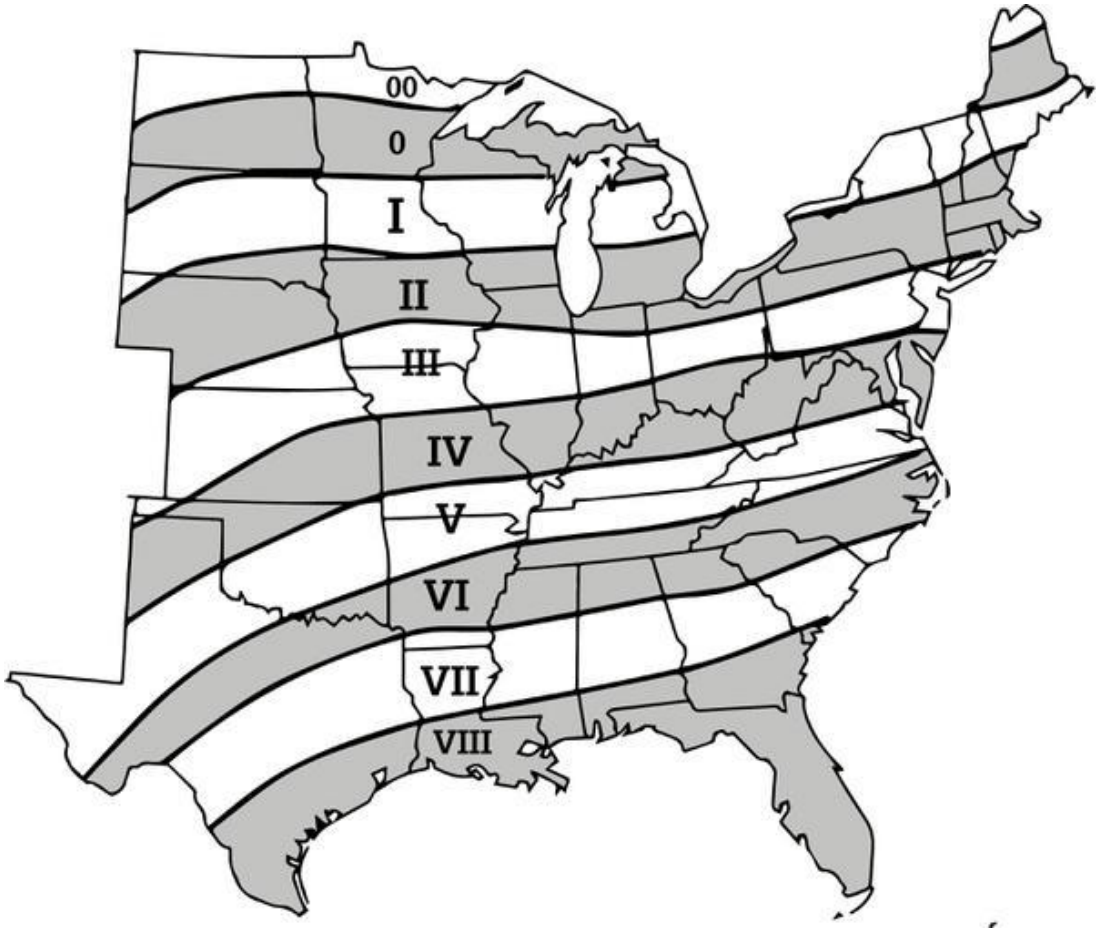
Figure 6.4. Flowering responses of long and short day plants.

What is a soybean maturity group?

- Maturity group zones were developed to define where a soybean variety is best adapted
- A variety is classified into maturity group according to the length of period from planting to maturity. This is controlled by photoperiod and temperature
- 13 major groups ranging from MG000 to MGX
- Graduations in each maturity group by adding a decimal to the maturity group number (i.e. 3.8, 5.6, etc.)

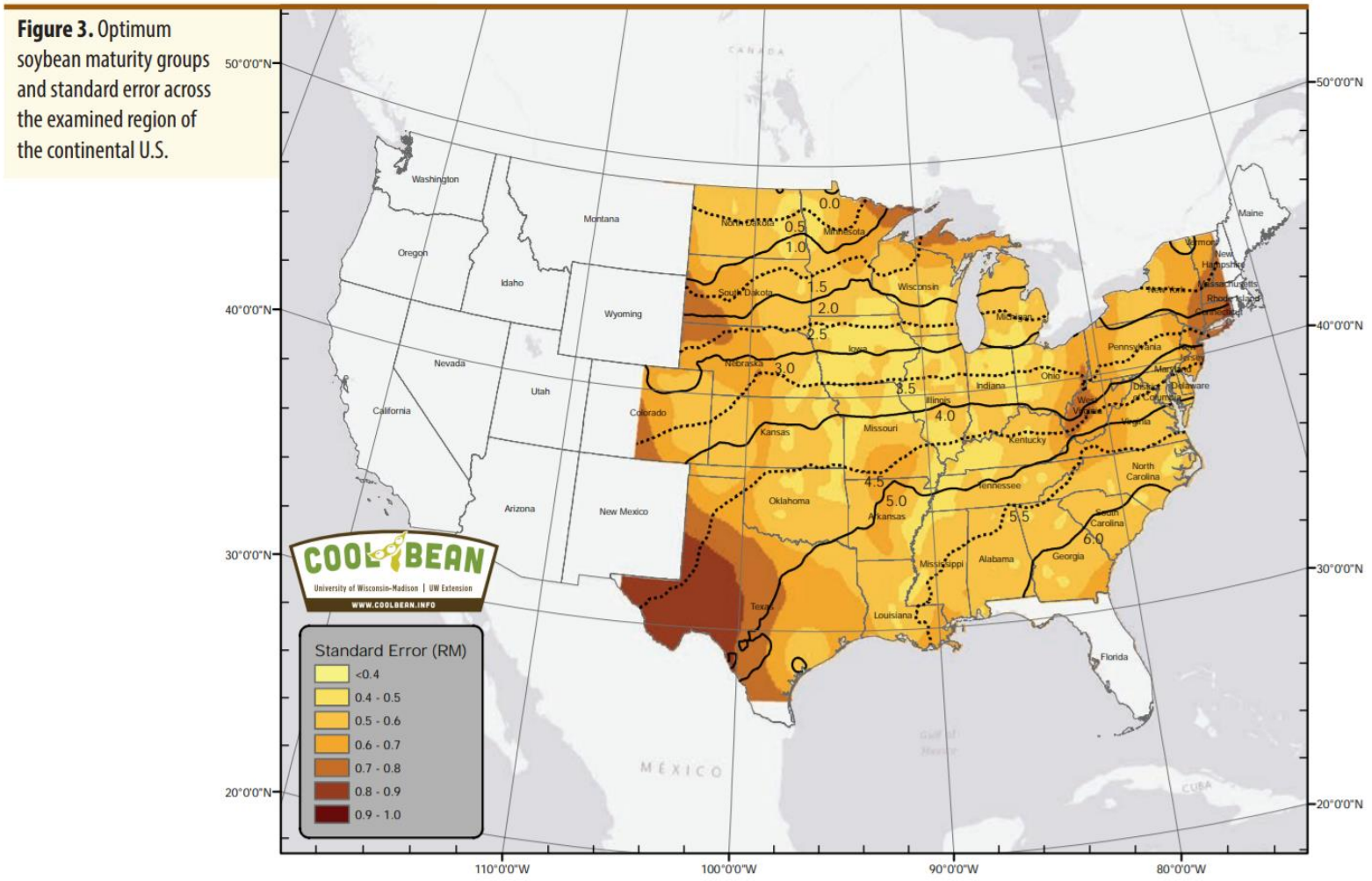
As you move up in maturity group the soybean plant has more time for vegetative growth to feed seed production. This should help increase yield. Why don't growers in the Midwest plant higher maturity groups?

Soybean Maturity Groups: Traditional Model



Scott and Aldrich, 1970

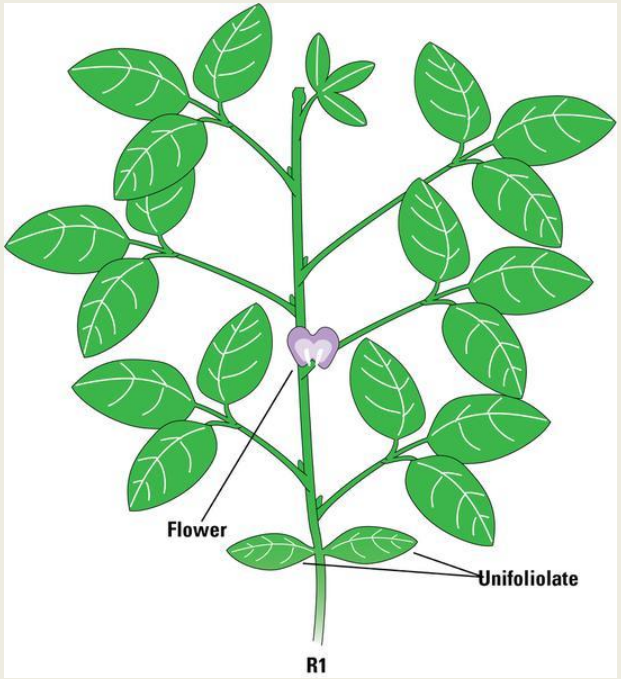
Soybean Maturity Groups: New Model?



Determinate vs Indeterminate

- Terminate most vegetative growth when they start flowering
- Generally MGVI or greater
- Traditionally most soybean varieties in the South

- Start flowering several weeks before they quit growing vegetatively
- Generally MGIV or less
- Most soybean varieties in the Midwest



Soybeans flower for up to 5-6 weeks in the Midwest, or 4-5 weeks in the South, and up to 2 weeks longer if necessary.

How do indeterminate MGIII and MGIV soybeans fit in North Carolina?

Recent Trends Across the South with Early Maturing Soybeans

- Shift in the Mid-South to earlier maturing varieties resulting in increased soybean yield
- Growers successfully producing these varieties in North Carolina
- Experience and regional adaption will continue to improve chances of success

2017 North Carolina Soybean Contest Yield Results

Entry Name	County	Region	Yield	$/Bu	Double Cropped?	Variety	Pounds of Seed	Row Width
MATTHEWS FAMILY FARMS	DAVIE	4*	107.4	$4.43	no	P46A93X	47	20
MATTHEWS FAMILY FARMS	DAVIE	4	100.9	$4.67	no	P48A60X	47	20
DOUG & BILLY MERCER	PASQUOTANK	1*	100.2	$4.20	no	P38T42	37	15
STEVE MEADS	PASQUOTANK	1	97.7	$4.31	no	P38T42	42	20
LOCKLEAR BROTHERS FARM	ROBESON	3*	91.9	$4.75	no	P 4757 RY	50	30
MATTHEWS FAMILY FARMS	DAVIE	4	91.8	$5.08	no	P46T21R	47	20
LOCKLEAR BROTHERS FARM	ROBESON	3	91.5	$4.63	no	P49T80R	40	30
MATTHEWS FAMILY FARMS	DAVIE	4	91.0	$5.11	no	P46A16R	47	20
MATTHEWS FAMILY FARMS	DAVIE	4	90.1	$5.05	no	P38T42R	47	20
POPLAR NECK FARMS	CHOWAN	1	89.4	$4.82	no	P46T30X	47	7.5
W4 FARMS	SURRY	4	89.0	$4.33	no	S48RS53	40	15
JASON SMITH	ROWAN	5*	88.9	$4.51	no	AG4934	47	15
LOCKLEAR BROTHERS FARM	ROBESON	3	88.6	$4.75	no	P49T80R	40	30
COX BROTHERS FARMS	UNION	5	88.4	$2.70	yes	USG 7447 XTS	53	20
JOHN & HUNTER LANGDON	JOHNSTON	2*	88.3	$6.57	no	USG 74A74RS	70	7.5
ROSE FARMS	NASH	2	88.1	$5.35	no	P 4757 RY	46.5	20
MATTHEWS FAMILY FARMS	DAVIE	4	87.1	$5.21	no	P38T42R	47	20
BOEREMA FARMS	HYDE	1	86.2	$4.04	no	AV 41B1RR	38	20
JOHN & HUNTER LANGDON	JOHNSTON	2	85.9	$6.72	no	USG 74A74RS	70	7.5
JASON SMITH	ROWAN	5	84.6	$4.70	no	AG4934	47	15

Early Maturing Soybeans in NC

ADVANTAGES

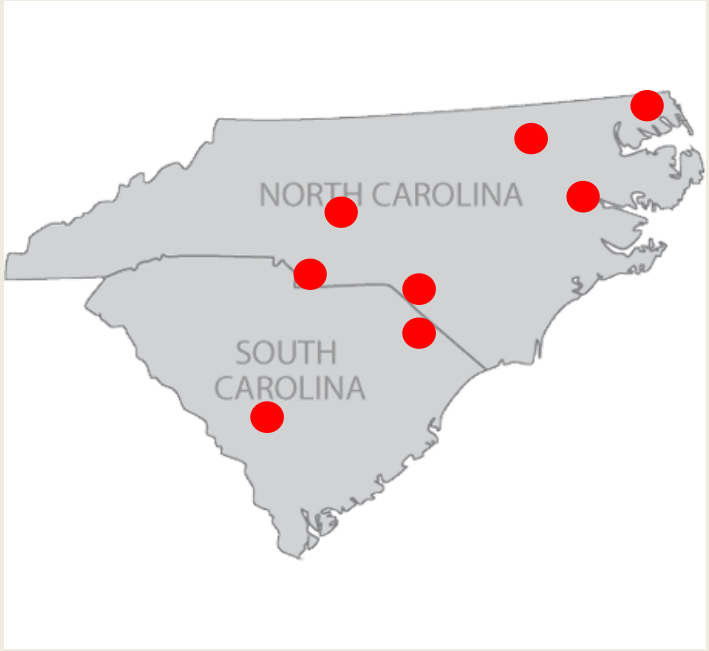
- Better genetics?
- Price premium
- Earlier harvest window

DISADVANTAGES

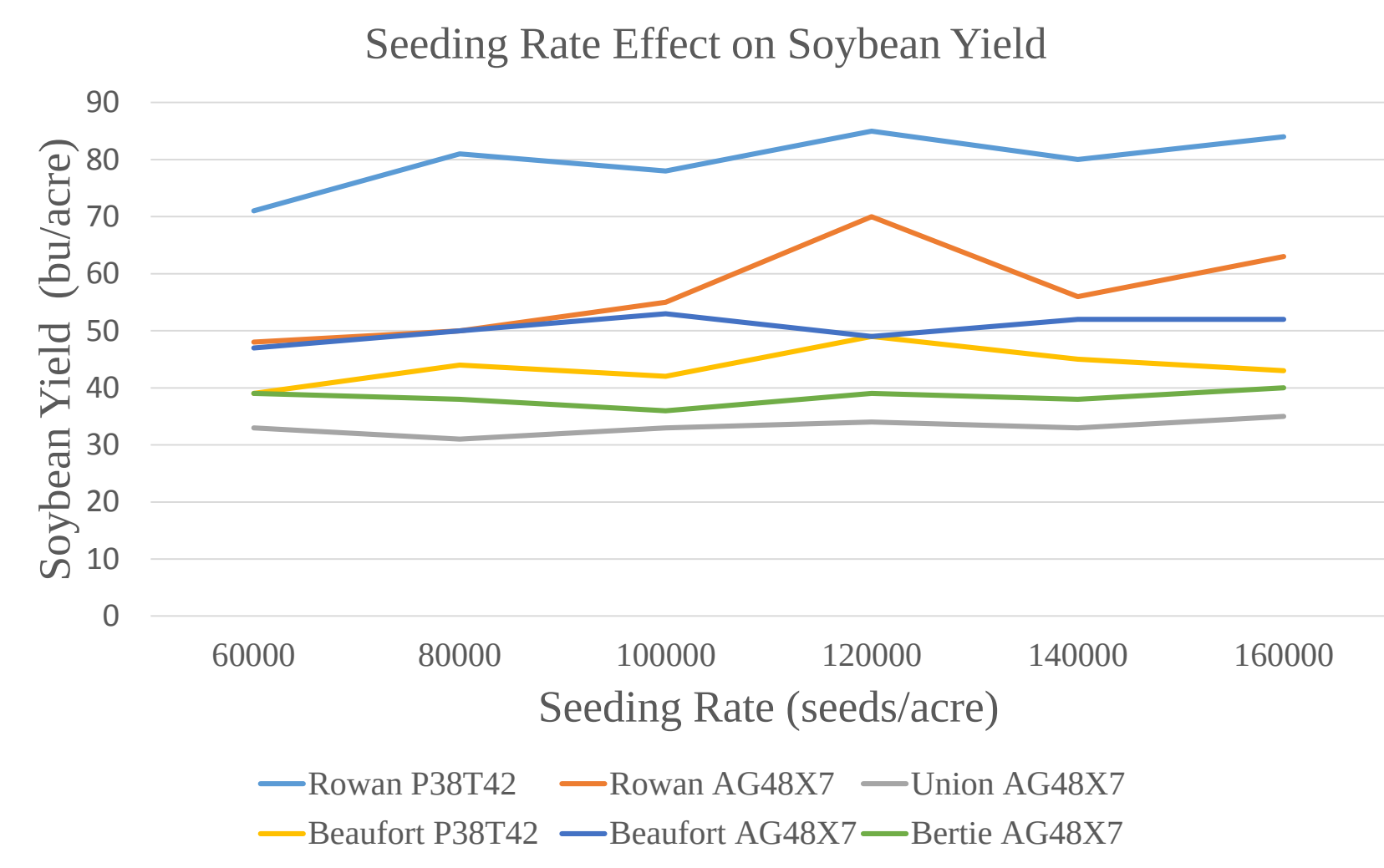
- Drought stress – pod abortion
- Seed quality (mature during hot, humid summer)
- Green stem issues?
- Harvest timing
- Hurricanes

Managing Early Maturing Soybeans in North Carolina

- Seeding Rate
- Row Spacing
- Planting Date
- R1 Fertility



Seeding Rate Trials



Population Effect on Soybean Yield NS: Bertie AG48X7, Beaufort AG48X7, Rowan P38T42, Rowan AG48X7, Union AG48X7

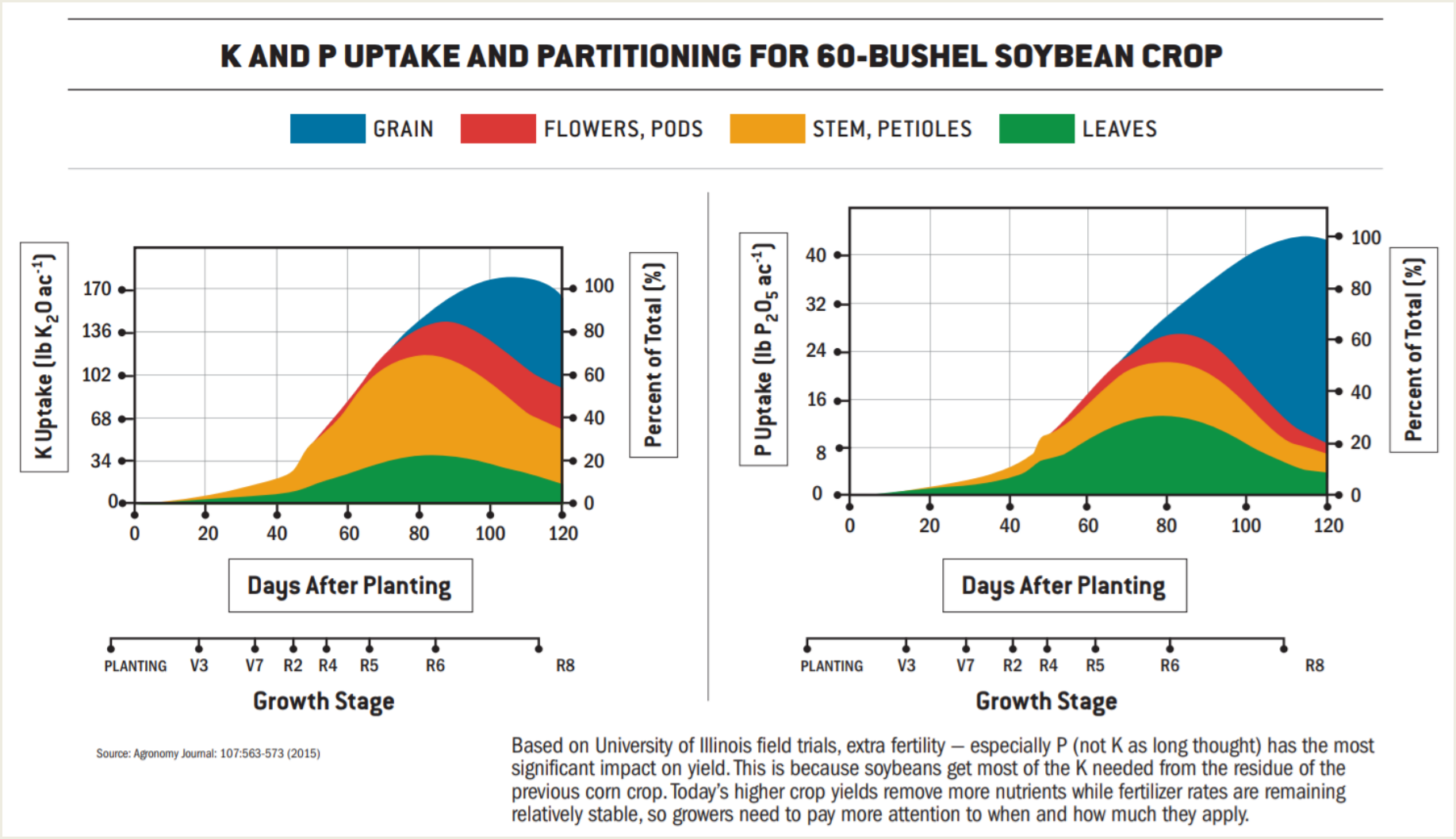
Row Spacing Trials

Location	Variety	Row Spacing (in)	Yield (bu/acre)
Beaufort Co.	P38T42	15	45A
Beaufort Co.	P38T42	30	41A
Beaufort Co.	AG48X7	15	50A
Beaufort Co.	AG48X7	30	45A
Bertie Co.	AG48X7	18	42A
Bertie Co.	AG48X7	36	40A
Robeson Co.	P38T42	15	34A
Robeson Co	P38T42	30	34A
Robeson Co.	AG48X7	15	48A
Robeson Co.	AG48X7	30	40A
Rowan Co.	P38T42	15	95A
Rowan Co.	P38T42	30	80B
Rowan Co.	AG48X7	15	59A
Rowan Co.	AG48X7	30	56A
Union Co.	AG48X7	15	30A
Union Co.	AG48X7	30	30A

Planting Date Trials

Location b	Variety	PD	Yield (bu/acre)
Bertie Co.	AG48X7	May	42A
Bertie Co.	AG48X7	June	38A
Pasquotank Co.	P38T42	May	85A
Pasquotank Co.	P38T42	June	77A

Union Co. 9/26/2018



Source: Below, University of Illinois

R1 Fertility Trials

Location	Variety	R1 Fertility	Yield (bu/acre)
Beaufort Co.	P38T42	N (50 lbs/acre)	34AB
Beaufort Co.	P38T42	P (75 lbs/acre)	36AB
Beaufort Co.	P38T42	K (75 lbs/acre)	37A
Beaufort Co.	P38T42	S (15 lbs/acre)	36AB
Beaufort Co.	P38T42	All	32B
Beaufort Co.	P38T42	Untreated	36AB
Beaufort Co.	AG48X7	N (50 lbs/acre)	51A
Beaufort Co.	AG48X7	P (75 lbs/acre)	51A
Beaufort Co.	AG48X7	K (75 lbs/acre)	49A
Beaufort Co.	AG48X7	S (15 lbs/acre)	49A
Beaufort Co.	AG48X7	All	50A
Beaufort Co.	AG48X7	Untreated	51A
Bertie Co.	AG48X7	N (50 lbs/acre)	43A
Bertie Co.	AG48X7	P (75 lbs/acre)	40A
Bertie Co.	AG48X7	K (75 lbs/acre)	41A
Bertie Co.	AG48X7	S (15 lbs/acre)	38A
Bertie Co.	AG48X7	All	42A
Bertie Co.	AG48X7	Untreated	39A

Harvest Aids for Indeterminate Soybeans

Herbicide	Rate/A (oz)	Adjuvant	Time of Application		PHI (days)
			Determinate	Indeterminate	
Gramoxone 2SL Generic 3 lb/gal	16 10.7	NIS @ 0.25% v/v	Fully mature 50% leaf drop Yellow leaves	<30% moisture 65% of pods mature brown	15
Sharpen 2.85SC	1-2	MSO @ 1% v/v	Fully mature 50% leaf drop Yellow leaves	➢ 65% mature brown pods ➢ 70% leaf drop ➢ < 30% moisture	3

*Glyphosate and Aim are also labeled (more for weed control than crop dessication).

Source: Noland, University of Georgia

Important Soybean Stages for Harvest Aids

or later

Source: Noland, University of Georgia

Questions/Comments on Early Maturing Soybeans in North Carolina

Stakeholder Feedback on Applied Research Priorities

Foliar Micronutrients

Early Maturing Varieties (MG III and IV's)

Revisiting Fertility Recommendations

Rotations

Cover Crops

Planting Dates

Seeding Rate

On-farm strip trials

Fungicides (products and application timing)

Row Spacing

Maximizing Yield

2019 Agronomic Research Plans

- Maturity Group x Planting Date x Seeding Rate
- Management of Early Maturing Soybeans
- Foliar Nutrient Feeding
- Planting Date x Fungicidal Seed Treatment
- Rotational Study
- Cereal Rye Study
- Soybean Strip Trial Variety Program

- Can agents run replicated strip trials on subsets of treatments of specific interest to their growers with statistical support from our program?

County Based Mini-Proposals

- Available in 2019!
- $1000/maximum per County
- Call for proposals in January
- Funding decision by late February

NC SOYBEAN PRODUCERS ASSOCIATION

Soybean Strip-Trial Variety Program

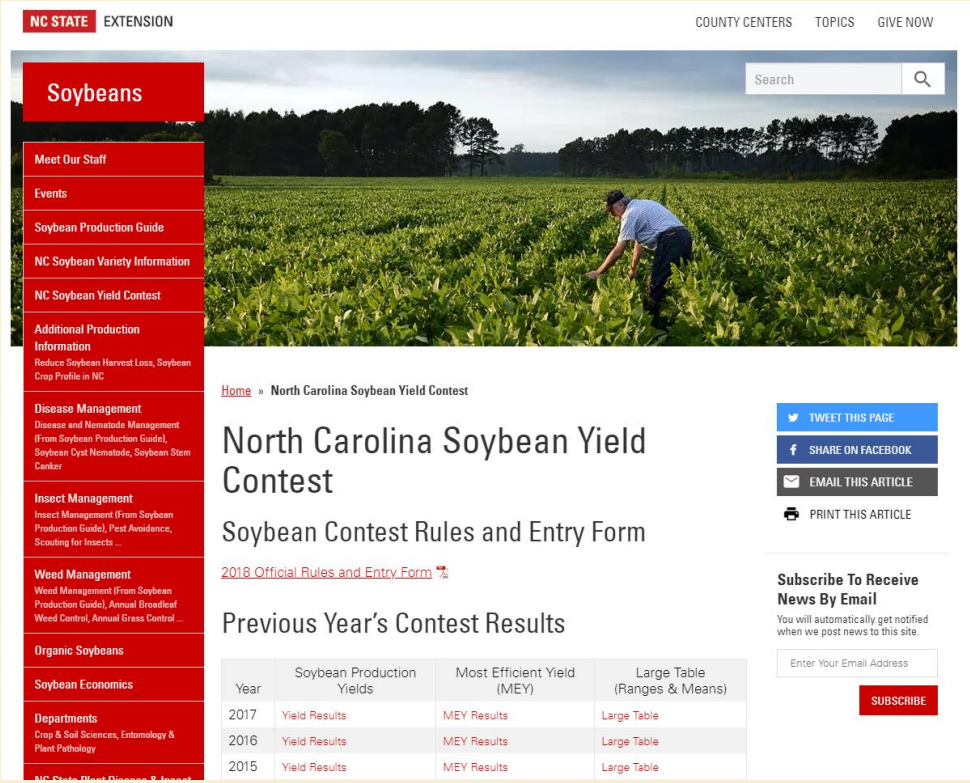
- Collaboration between NC OVT and Soybean Extension
- For any 2018 strip trials, please send Ryan Heiniger and I your data and we will get it analyzed
- Stay tuned for details at the North Carolina Joint Commodity Conference in January

Agronomic Program Team Update

- Based on your feedback in July 2018, the grains team committed to the following:
  - Monthly Zoom Updates (8:00-9:00 AM, 3rd Monday/Month)
  - Video Production
  - Winter Meeting Presentations Available in Advance
  - App Development
- Ideas on how the remainder of the Soybean $$$ should be spent?

Soybean Yield Contest

- **DUE DATE DECEMBER 10TH!!!!!!!!!!!!**
- Changes coming in 2019 that will be announced at the 2019 North Carolina Joint Commodity Conference
- Informational video to come in 2019 on how to appropriately measure a soybean yield contest plot



Soybeans

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Events

Soybean Production Guide

NC Soybean Variety Information

NC Soybean Yield Contest

Additional Production Information
Reduce Soybean Harvest Loss, Soybean Crop Profile in NC

Disease Management
Disease and Nematode Management (From Soybean Production Guide), Soybean Cyst Nematode, Soybean Stem Canker

Insect Management
Insect Management (From Soybean Production Guide), Pest Avoidance, Scouting for Insects ...

Weed Management
Weed Management (From Soybean Production Guide), Annual Broadleaf Weed Control, Annual Grass Control ...

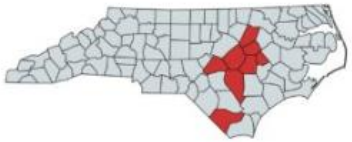
Organic Soybeans

Soybean Economics

Departments
Crop & Soil Sciences, Entomology & Plant Pathology

NC State Plant Disease & Insect

News and Updates



Impact of Guava Root Knot Nematode Internal Quarantine on Tobacco and Field Crops in NC

Meloidogyne enterolobii Internal Quarantine from NCDA On Friday, October 5, 2018, the N.C. Department of Agriculture and Consumer Services released a press ...

— *1 month ago,* *Extension Plant Pathology*

2018 Regional Insecticide Efficacy Survey Now Available - Cotton, Corn, Soy

Each year the Cotton Belt entomologists are polled concerning insecticide efficacy. You can find these by going to the ...

— *1 month ago,* *Cotton*

Soybean Rust Update, October 1, 2018

Many of the soybeans in North Carolina are past the critical growth stages for impact by soybean rust, but ...

— *1 month ago,* *Extension Plant Pathology*

Velvetbean Caterpillar Defoliating Soybeans in Piedmont

I've had several reports of velvetbean caterpillar out of the Piedmont area. This is a migratory insect that we ...

— *1 month ago*

Extension Jobs

» Why Work in Extension?

Nov 12 Extension Agent, FCS
YADKIN COUNTY

Nov 07 Extension Agent, Ag-Field Crops
DUPLIN COUNTY

Nov 07 Extension Agent, Ag-Horticulture
BLADEN COUNTY

Nov 07 Extension Agent, Ag - Livestock
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Dr. Dominic Reisig
Associate Professor and Extension Specialist

Dr. Rachel Vann
Assistant Professor and Extension Soybean Specialist

About Extension

NC State Extension is the largest outreach program at NC State University. Based in the College of Agriculture and Life Sciences, we reach millions of North Carolina citizens each year through local centers in the state's 100 counties and with the Eastern Band of Cherokee Indians.

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Let's Stay In Touch

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Questions?