

2018 Soybean Agent Training: Agronomic Management

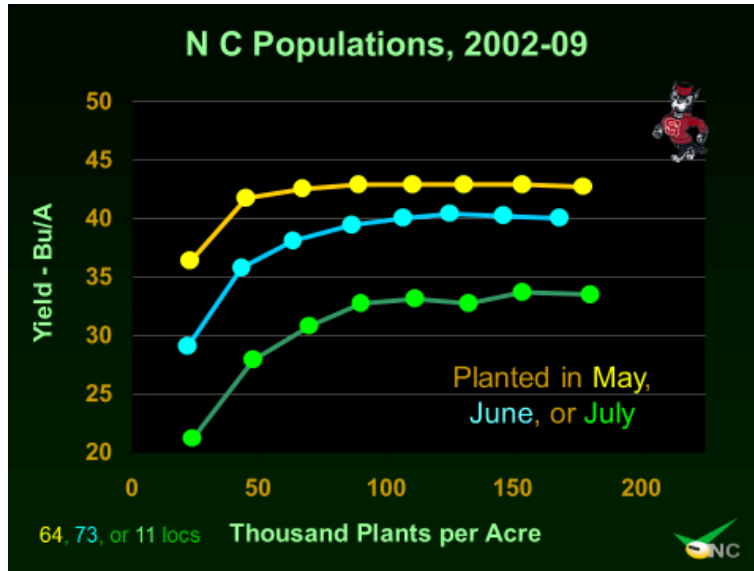
Dr. Rachel Vann and Dr. Jim Dunphy

Seeding Rate

*Soybean is a plastic crop that can yield well under a wide range of seeding rates

*Number of seed per pound between varieties varies considerably; population (seeds) per acre is more accurate than using pounds per acre for seeding rate recommendations

*We want to plant the minimum amount to save on seeding costs without compromising yield



*Consider seed germination and final desired stand when setting the planter for desired seeding rate

Seed Needed per Acre based on Germination			
% Germination	May Planting	June Planting	July Planting
	Target: (75,000 plants/A)	Target: (90,000 plants/A)	Target: (100,000 plants/A)
	Seeds/A		
90	83,333	100,000	111,111
85	88,235	105,882	117,647
80	93,750	112,500	125,000
75	100,000	120,000	133,333
70	107,143	128,571	142,857

So, let's say Dr. Dunphy recommended planting 100,000 seeds/acre in June when targeting a final stand of 90,000 plants/acre with 90% germination, but your grower wants to target 140,000 plants/acre. If you convince the grower to target 120,000 plants/acre on a 100-acre field- assuming \$60/140,000 seed bag- how much would the grower save?

Targeted Population	Seeding Rate/A	Cost/A	Cost/100 A
90,000	100,000	\$42.85	\$4,285
120,000	133,333	\$57.14	\$5,714
140,000	155,555	\$66.67	\$6,666

Row Spacing

*A wide range of row spacings have been used successfully for soybean production in NC

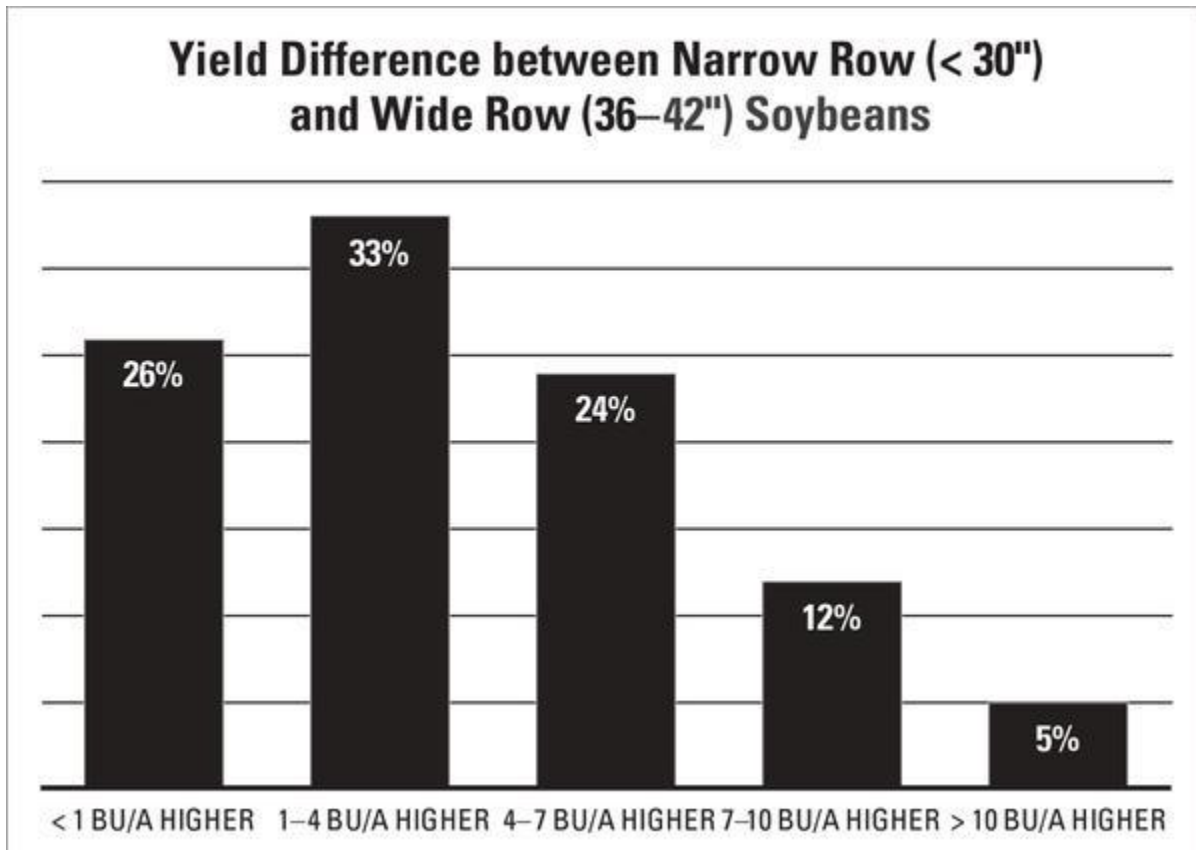
*Narrow rows (<20 inches) generally increase soybean yields, leading to greater light interception, enhanced weed suppression, and minimize direct sunlight to soil contact, thus reducing moisture loss through evapotranspiration

*Narrow rows may be more beneficial in high yielding environments

*Recent data indicates that 15 inch row spacing generally out-yielded 30 inch row spacing in NC

*As planting date is delayed, the benefits of narrow row spacing are more abundant

*Recently several growers have been discussing their success on ripped, wide-row soybeans

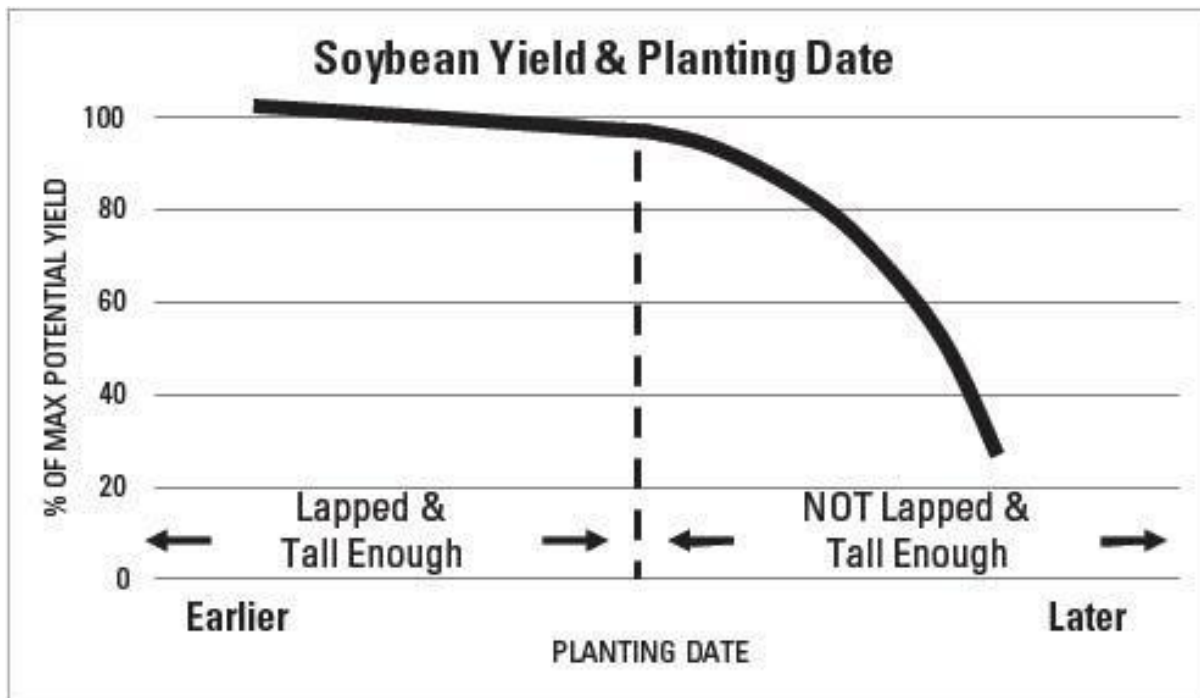


Row Spacing used in the 2017 Soybean Yield Contest

Row Spacing (in.)	% of total entries
7	3
7.5	13
15	41
18	10
20	24
30	8
36	1

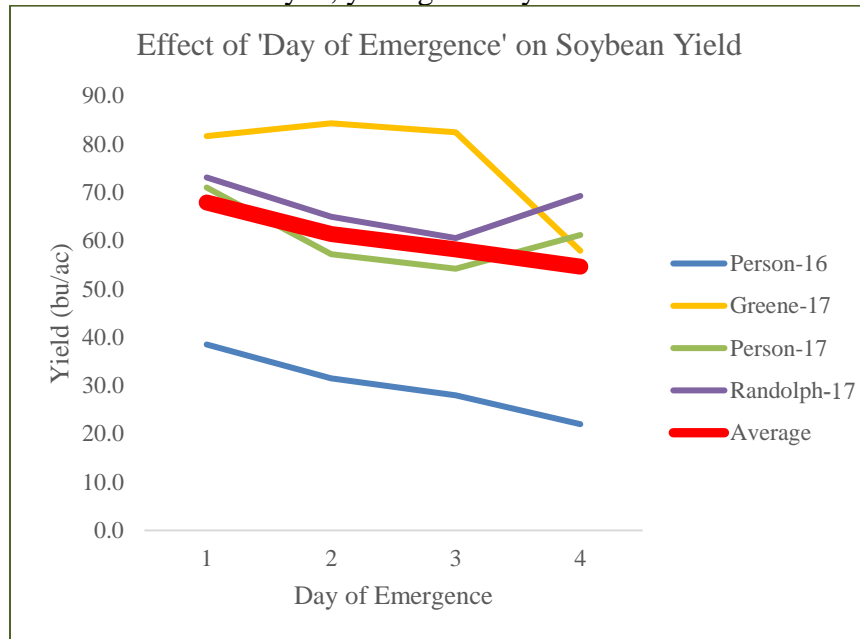
Planting Date

- *Soybean planting generally occurs from mid-April through mid-July in North Carolina, but soybeans are also planted outside that window in the state
- *Crop rotation drives soybean planting date AND weather as we know well from this year!
- *Soybeans are photoperiod sensitive and therefore planting date has a direct impact on the number of days of vegetative growth prior to R1 (beginning flowering)
- *Generally as soybean planting is delayed into late June and July, soybean yields decline
- *Generally as planting is delayed, a later maturing variety is recommended, however frost damage during reproductive development must be considered
- *An assumption is that for any planting date, as maturity group increases, it will take 10 days longer to get to R1(beginning flowering)
- *Of the 2017 soybean yield contest entries, only 10% were double cropped



Uniform Emergence

- *We have learned from Dr. Heiniger that uniform emergence of corn seedlings has a large impact on corn yield. How important is uniform emergence in soybeans?
- *Studies have been conducted over the past two growing seasons and are being conducted this year in an effort to answer this question
- *Results from four environments in 2016 and 2017 indicate that as soybean emergence is delayed, yield generally declines



- *If uniformity of soybean emergence does affect yield, how can we achieve more uniform soybean emergence?
- *Planting date, seed treatment, seeding depth, population, planting equipment, and weather at planting are all possible factors influencing uniform emergence

How does seeding depth effect uniform emergence? Preliminary Results from Clayton 2018					
Seeding Depth (in.)	% Emer. Day 1	% Emer. Day 2	% Emer. Day 3	% Emer. Day 4	% Emer. > Day 4
½	30	54	9	3	4
1	10	41	36	10	3
1½	14	54	22	9	1
2	VERY POOR EMERGENCE				

