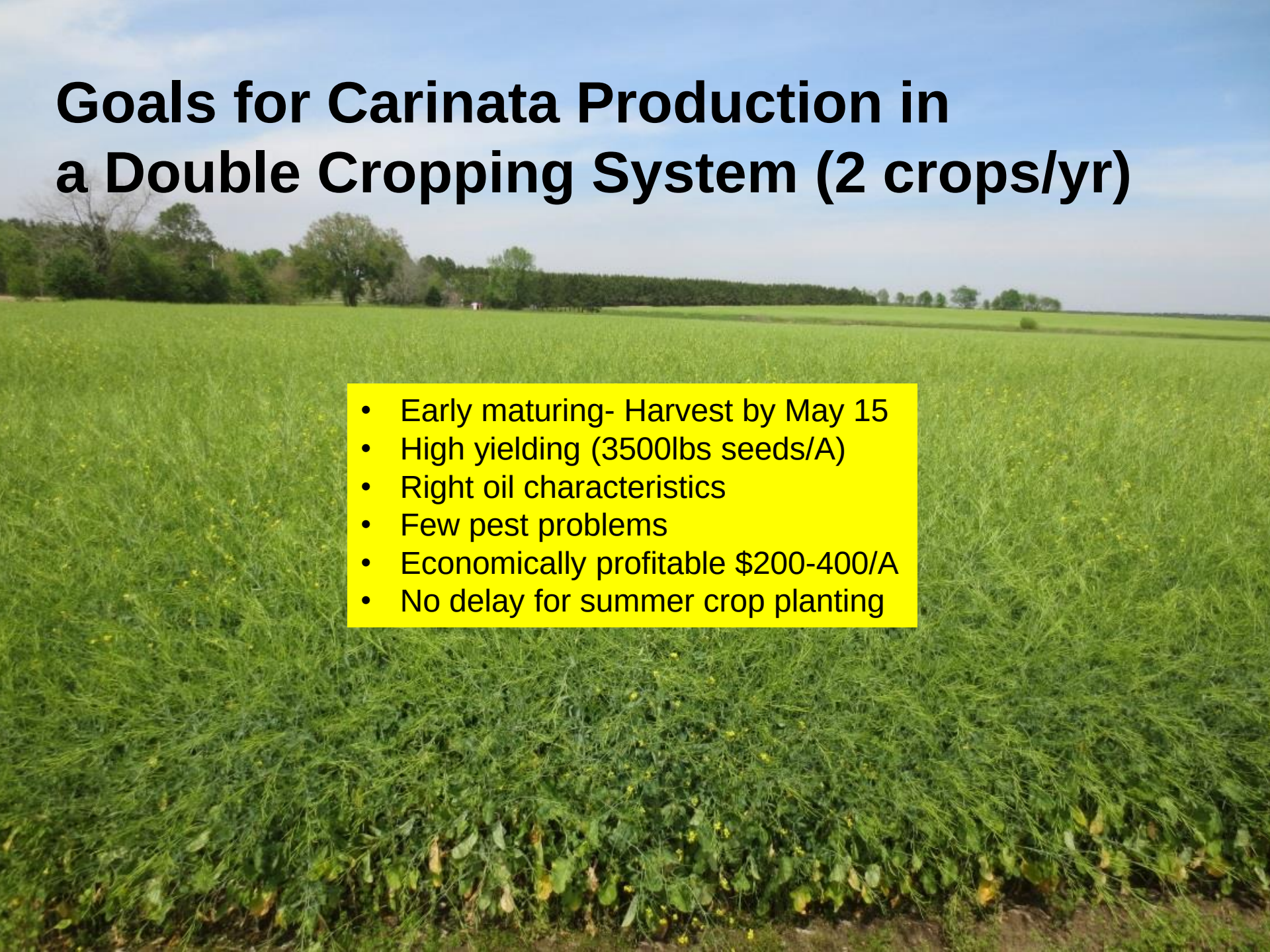
Carinata Fit into SE Cropping Systems

David Wright and Team

Brassica carinata Summit
March 30, 2017 | Quincy, FL

Goals for Carinata Production in a Double Cropping System (2 crops/yr)



- Early maturing- Harvest by May 15
- High yielding (3500lbs seeds/A)
- Right oil characteristics
- Few pest problems
- Economically profitable $200-400/A
- No delay for summer crop planting

Production Goal

Considerations for winter carinata production

- Will it impact the summer crop?
- Cost of production-budgets, returns?
- Is land suitable for the crop (soil type, pH/fertility, crop rotation, and pesticide residues?
- Suitable varieties available (short season, pest resistance, high yield, etc)?
- Can I plant, manage, and harvest on time with available equipment and not interfere with following crop?
- Are there local markets for handling?

Multiple summer crops for southeast- cotton, peanut, soybean to be planted May 1-21, optimum planting date. (1200 acre farmer has 400 acres carinata/yr and harvests May 10-15th, leaves a week to plant summer crops)

Carinata Crop Rotation

- Three years preferable between carinata crops
- Fields that have carinata every second year will need frequent scouting
- Sclerotinia white mold risk increase with short rotations in the same field
- Use normal weed control for carinata volunteers before spring planting- non hard seed, no weed problem for summer crop or fall crop
- Fours years of strip tilling summer crops into harvested carinata residue has given good results

2015/2016 Yield Performance lbs/A: Top 5 Carinata Performers Highlighted

Genotype	Jay	Citra	Live Oak	Quincy	Mean
3A2B	2322	2822	4358	5384	**3722**
M-06	1042	3698	4828	5308	**3719**
M-04	1482	3624	4839	4858	**3701**
312E	2003	2802	4911	4908	**3656**
3B1	2114	2576	4515	5336	**3635**
3A21	2540	2456	4143	4848	3497
W-01	1286	2945	4879	4711	3455
HP-06	901	3322	4485	4866	3393
M-01	1085	2551	5132	4788	3389
3B2	1985	2436	3422	5553	3349
HP-10	989	2678	5426	4138	3308
3111	2157	2296	3472	5131	3264
HP-11	1420	2569	4639	4258	3222
LR-04	1399	2283	4867	4234	3196
HP-15	1181	2890	4218	4357	3162
AACA120 (Check)	886	2562	4862	4299	3152
E-05	1262	2034	4453	4593	3086
AACA110 (Check)	1050	3174	4237	3667	3032
E-04	1473	1933	3904	4680	2998
HP-09	1295	2111	3340	4274	2755
Grand Mean	**1466**	**2652**	**4379**	**4639**	

Management decisions for high carinata yield

- Variety selection
- pH of 5.8-6.2 and med. or higher soil test levels (follow rec.)
- B and also Mn if pH is high
- Plant fields that have 35 bu/A yield potential
- Plant population and row spacing, 4-6 seed/ft. in 12-14”rows
- Plant between November 1 and December 1
- Vertical tillage to break compaction layer and no-till planting
- Split applications of N and S, 1-2 more splits needed on deep sands
- Proper rotation (be careful about residual chemicals)
- Early weed control, later weeds will be shaded out
- Water stress will result in lower yields, irrigation can help in pod fill and is more critical on deep sands
- Control insects, diamondback moth, etc.
- Apply fungicide, on fields that have a history of foliar diseases or when needed with scouting
- Timely harvest when seed are 8-10% moisture

Estimated cost of production per acre

Variable Costs	Lower range	Upper range	% of Total Cost Lower range	% of Total Cost Upper range
Establishment			*18*	*14*
Land preparation	15	20		
Seed	20	30		
Crop Maintenance			*53*	*59*
Fertilizer	100	140		
Irrigation	0	30		
Crop Protection	5	35		
Fuel and harvesting			*22*	*19*
Fuel	4	7		
Harvest	40	50		
Delivery	0	10		
Insurance	*15*	*25*	*8*	*7*
Total	199	347		
Average	**$273**			

Net returns per acre

Function of yield and price

- 2015/2016 contract price is $0.17 cents per pound flat price or $8.50 per bushel or $340.00 per ton, net of dockage.
- Anticipate dockage at 3-4% from historical production
- Maximum moisture is 10%, >10% can cause heating issues.

Price ($/bu)	Yield (bu/ac)			
	40	50	60	70
8.0	45	125	205	285
8.5	65	150	235	320
9.0	85	175	265	355

Crop Rotation

Effects of winter-grown carinata on yield of row crops, Quincy, FL

Crop History	Peanut	Cotton	Soybean
	lb/acre		bu/acre
	2014		
Carinata-	6140 a	1333 a	60 a
Fallow -	5600 b	1284 a	58 a
LSD	276	442	8
	2015		
Carinata-	5924.2 a	1055.8 a	41.0 a
Fallow -	5812.9 a	1055.0 a	40.7 a
LSD	783	141	11

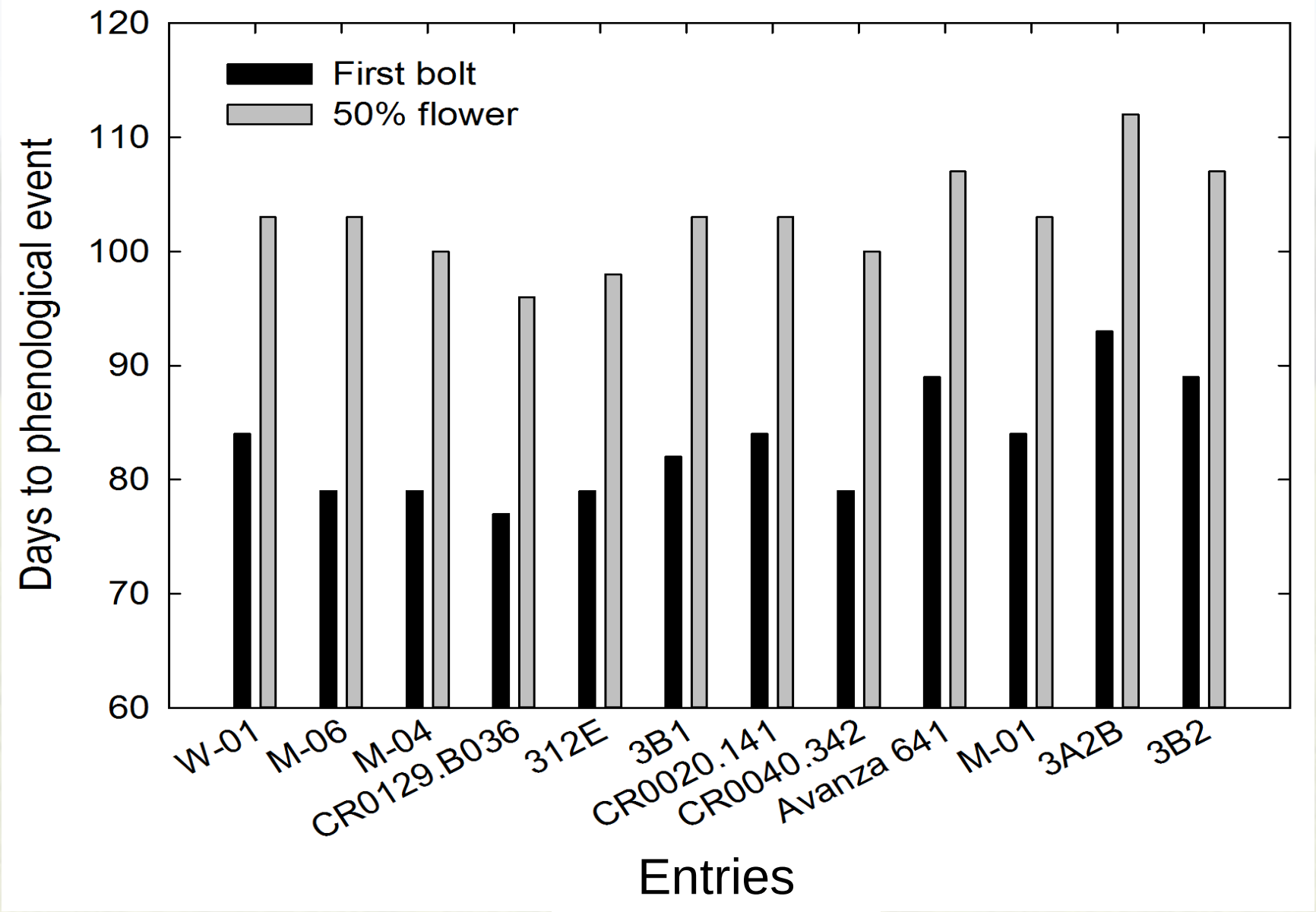
Crop Rotation

Effect of planting date on summer crop yields, Quincy, FL

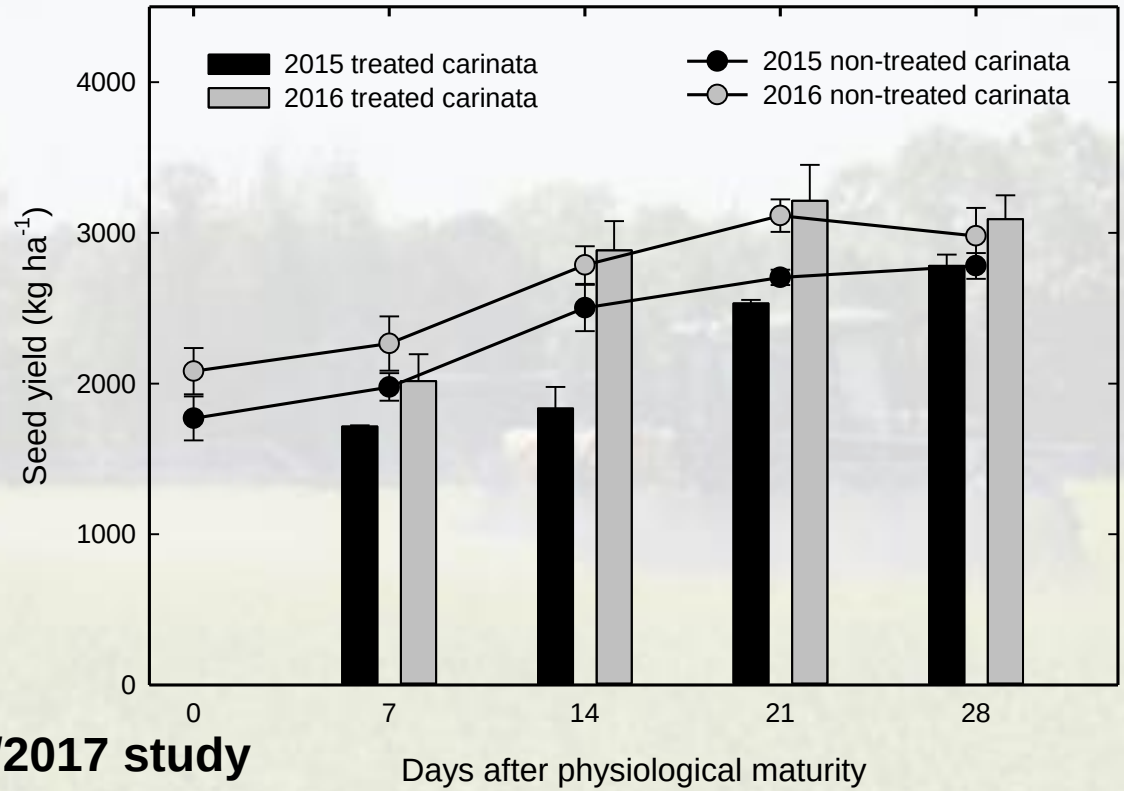
Planting date	Peanut	Cotton	Soybean
	lb/acre		bu/acre
	2014		
Optimum time	6500 a (126)†	1260 a (118)	–
Late planted‡	5870 b (168)	1309 a (168)	59 (168)
	2015		
Optimum time	6500 a (126)	1422 a (112)	43 a (168)
Late planted	5869 b (167)	1055 b (168)	41 a (169)

† Numbers in parentheses are the Julian days of the corresponding year
‡ Mean of fallow and carinata predecessor crop

Selecting early maturing varieties to fit winter production in the southeast



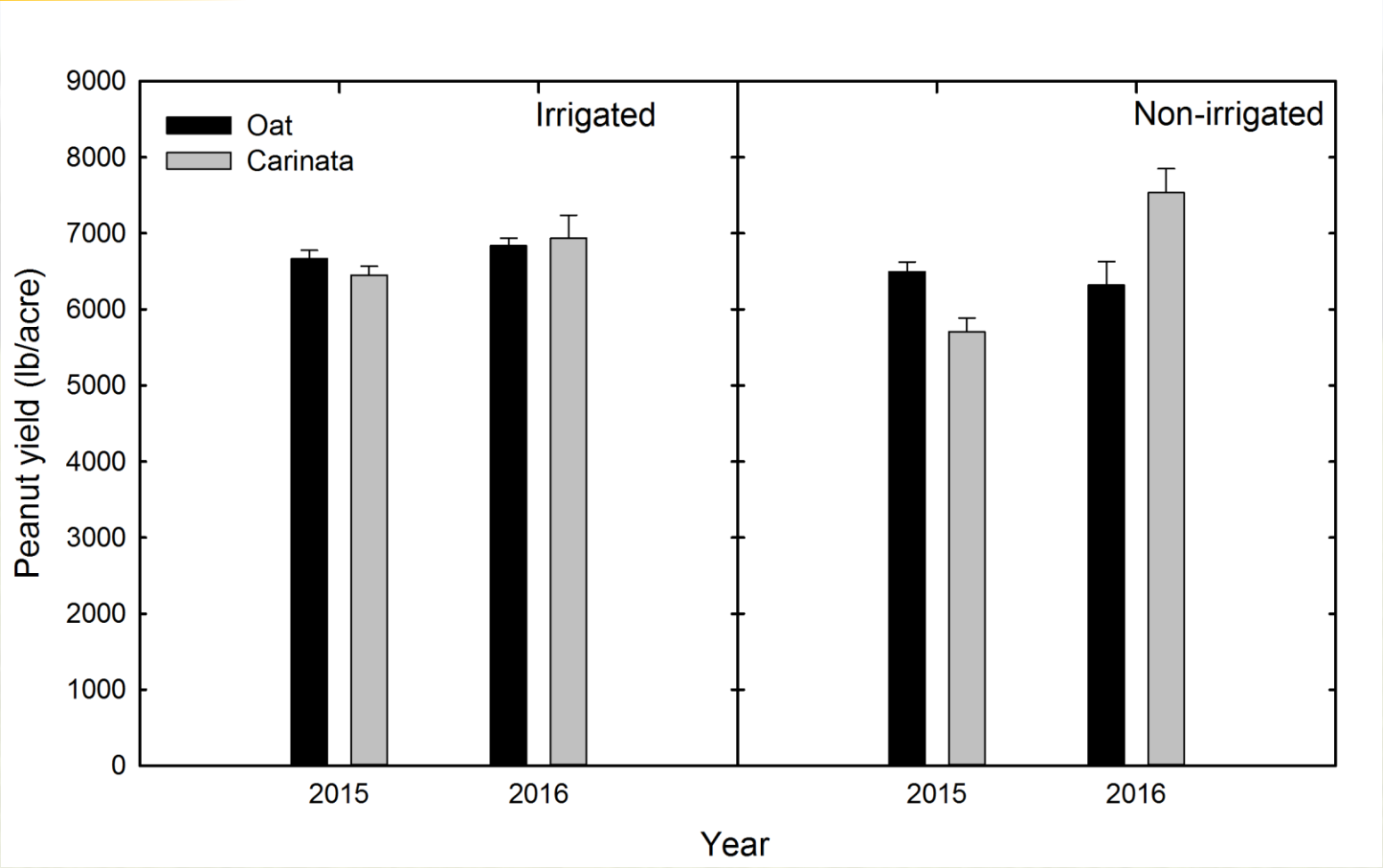
Enhancing harvest maturity and cropping systems through harvest aids



2016/2017 study

- 2 contact desiccants (diquat dibromide, paraquat)
- 2 systemic desiccants (saflufenacil and glyphosate)
- applied at 1x and 2x label rates
- 7, 14, 21 and 28 days post physiological maturity

Peanut productivity following killed oat cover crop vs. carinata seed harvest – peanut was planted about 10 days earlier into killed cover crop



Strip tilling summer crops into stubble in May.
We have seen no difference than other cover crops.
Excellent potential for double cropping with carinata.


Potential for a cash crop in winter months vs. planting cover crops and killing them out which is done if not grazed. More economic return for growers.

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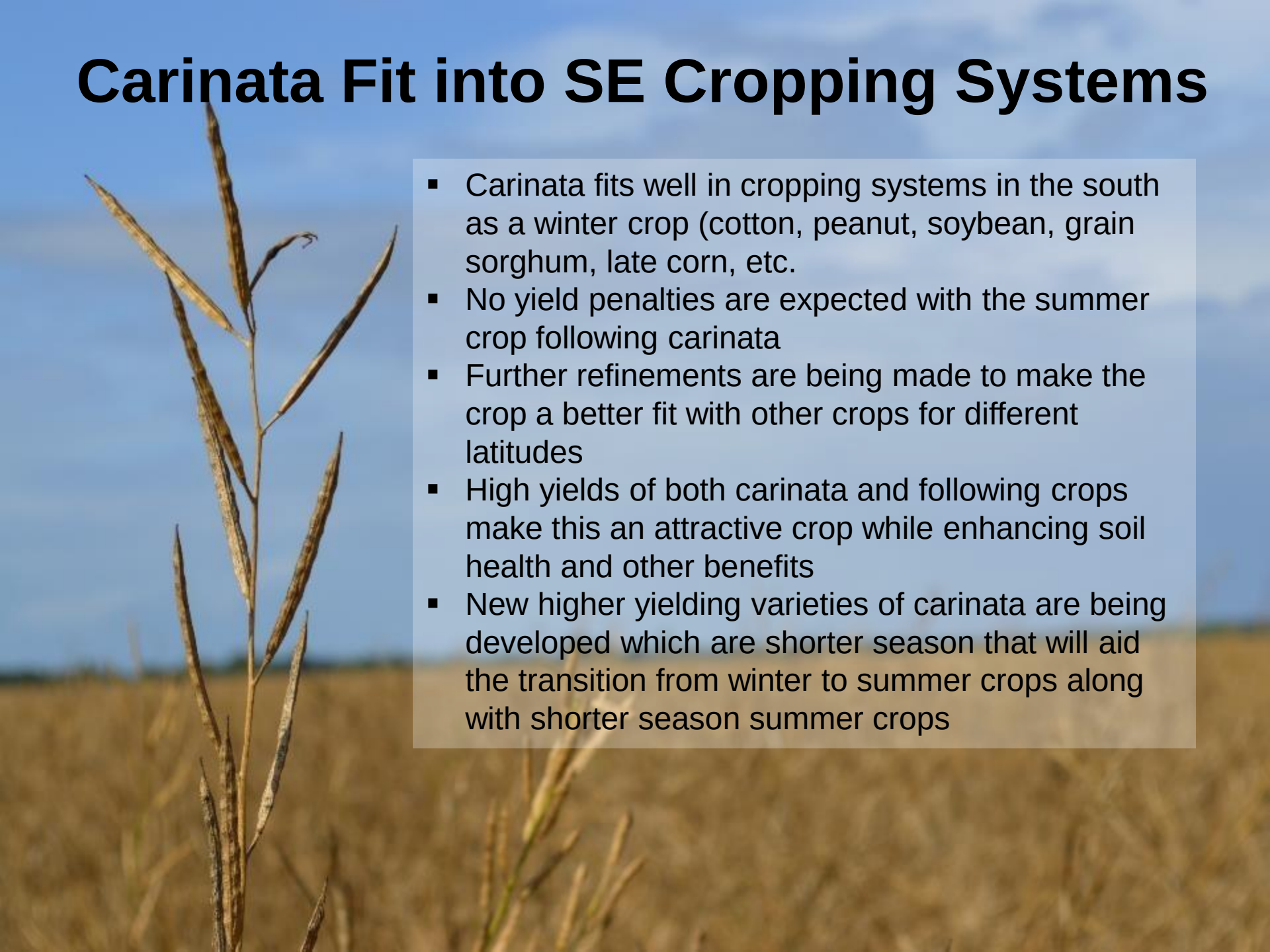

- Carinata fits well in cropping systems in the south as a winter crop (cotton, peanut, soybean, grain sorghum, late corn, etc.
- No yield penalties are expected with the summer crop following carinata
- Further refinements are being made to make the crop a better fit with other crops for different latitudes
- High yields of both carinata and following crops make this an attractive crop while enhancing soil health and other benefits
- New higher yielding varieties of carinata are being developed which are shorter season that will aid the transition from winter to summer crops along with shorter season summer crops

Thank you! Questions/comments?

Regional Production Meetings

Research and Production Summits

Plot Tours

Field Days/Tours