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Carinata Production Expansion Review and Analysis

2017 Carinata Summit - Quincy, FL

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Review topics…

- Global progress on production expansion
- SE US acre potential over the next 5 – 7 years
- 2016-17 SE commercial production review
- Value chain development and challenges
- Technology improvements for meeting and increasing feedstock demand
- Requirements for continuing crop adoption

Pursuing a Global Opportunity Through Targeted Markets

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Northern Tier

Large acres available, excellent infrastructure, strong carbon profile, opportunity to service both US and EU markets via established logistics

Commercial Production Started 2012

EU

World's biggest biofuel market, excellent infrastructure and partners, need for local Carinata production, forward thinking partners, excellent regulatory environment for biofuels

Commercial Production Scheduled 2019

Southeastern USA

Low to modest cost of production, strong infrastructure/logistics, excellent carbon profile

Commercial Production Started 2014

Australia

Specific demand for biojet identified, large available acres, engaged global partner and specific customers

Commercial Production Scheduled 2020

South America

Low cost production in rotation, excellent carbon footprint (even to carbon negative fuels), strong partners in place, massive opportunity for expansion

Commercial Production Started 2016

An aggressive, staged expansion to service an increasing industry demand curve

Geographic Regions – US/Canada

- **Summer production US: ND, SD, MT**

- **Current and forecasted winter Carinata production in Southern US:**

3rd year in production: **Alabama**, **Florida**, **Georgia**

1st year in demo production: **Tennessee**

1st year for demo production: 2017-18: **Mississippi**

1st year demo production: 2018-19: **S. Carolina**, **N. Carolina**

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Profitable with multiple product opportunities

Potential Winter Profit

- Average production cost of $275

Estimated Net Returns					
	Yield (bu/ac)				
Price ($/bu)	30	35	40	50	60
8.00	-35	5	45	125	205
8.50	-20	22.5	65	150	235
9.00	-5	40	85	175	265
9.50	10	57.5	105	200	295

Oil seed product

- High protein ~ 43% protein
- Approved for cattle in US
- Meal offtake agreements in EU
- Oil conversion to fuel in EU
- Near approval for dairy, poultry, and fish

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SE Row crop acre rotation options

	Acres in Production x 1000										
	Corn		Cotton		Peanuts		Sorghum		Soybeans		
State	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	
Alabama	280	330	300	320	215	175			490	460	
Florida	70	80	85	100	180	145	50	35	35	30	
Georgia	315	400	1100	1300	800	760			360	265	
SC	275	350	240	180	115	115			420	435	
Miss	490	750	315	435	42	38	115	11	2270	2040	
Combined	1430	1910	2040	2335	1352	1233	165	46	3575	3230	
Ave 2 yr Acres		1,670,000		2,187,500		1,292,500		105,500		3,402,500	**8,658,000**

Production revenue stream in a mature market with today's technology

Acre Reductions+A1:C8	Remaining Acres	
2 yr combined 5 summer crops	8,658,000	100%
less all other winter crops and fallow	4,329,000	- ~ 50% winter competition
less herbicide carry over ie., ALS Inhibitor Group 2	3,463,200	- ~15%
Less freeze zone tolerance validation	1,731,600	- ~20%
Less local grain elevator capacity - Total remaining	**865,800**	10% of avaiable acres
SE producer derived revenue stream before payout and value chain distribution ($275/ac)	**$238,095,000**	
Estimated carinata grain delivery 2024-25	**34.6M bu**	

Agrisoma's Commercial Program, 2016-17 season

- Demonstration production on 16 farms across AL, GA, FL, TN
- 1252 acres planted, majority on irrigated land
- Commercial variety: 'Avanza 641'
- Testing potential of 2 new varieties for high yield and cold tolerance
- Testing crop protection products
- Demonstration of crop potential and BMP's for 2017-18 commercial production

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2016-17 SE US Commercial Demo Program

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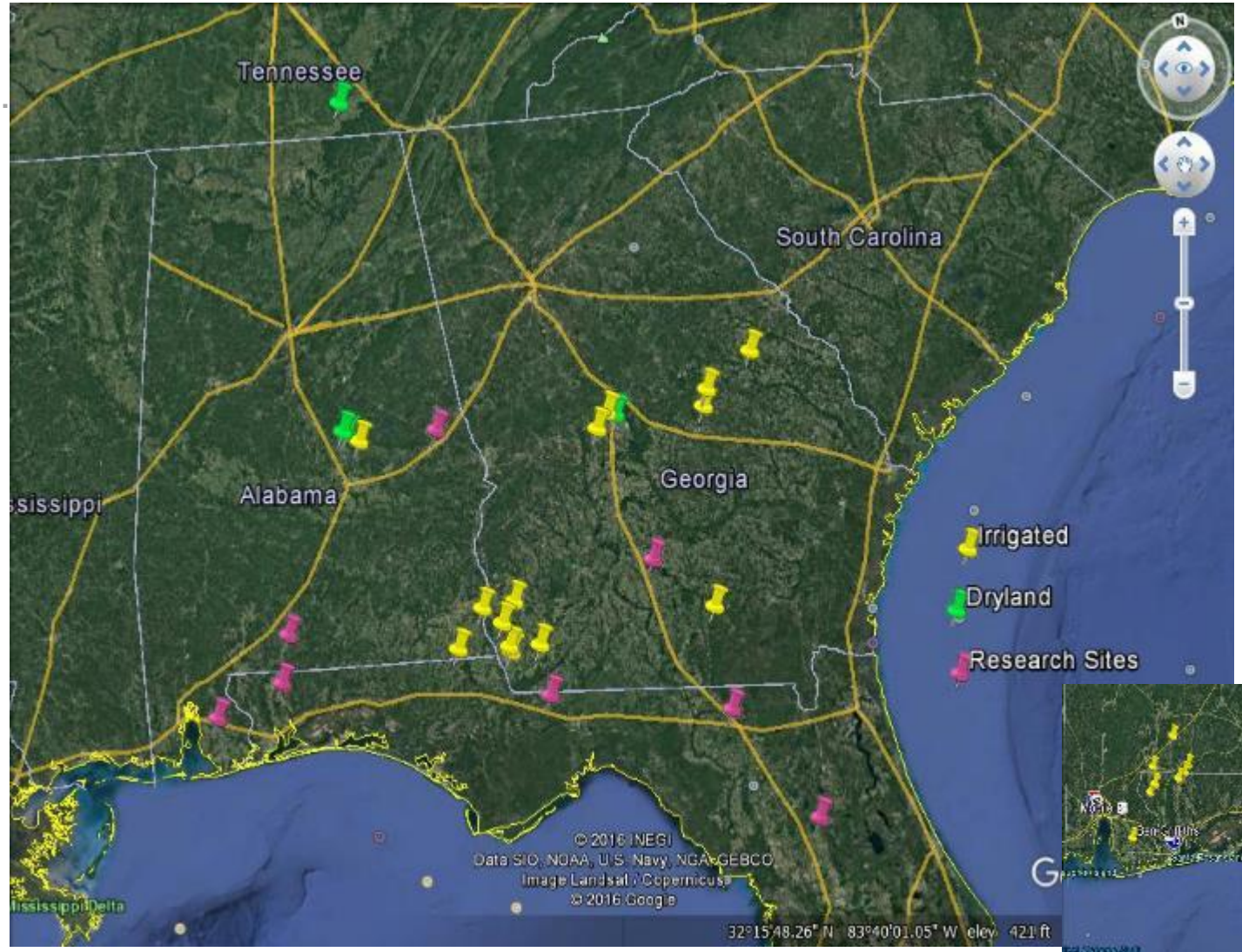
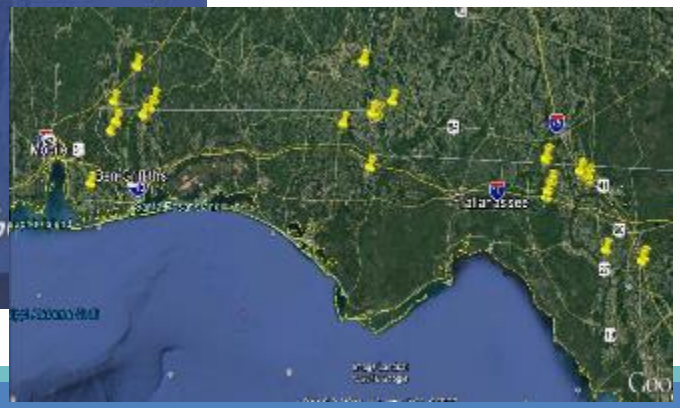


2015-16
Production sites



Established Carinata Value Chain

Develop, test and introduce Carinata to farmers

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Seed | **Farming** | **Logistics** | **Crush**

50%+ Stable Gross Margin

- Significant IP controlling product
- Effective Inventory Management
- Low working capital
- Low capex requirements

30% Highly Variable Gross Margin

- Highest Risk portion of Value Chain
- Net Return to Farmer impacted by weather
- Upside is 30% GM , downside can be negative
- Farmers look for crop options to mitigate commodity swings

5-8% Gross Margin

- Relatively stable GM, Volume Dependant
- Established Significant infrastructure & working capital investment
- Multiple locations and service
- Commodity business, low technology

11% Gross Margin

- GM variable, can go negative
- Meal value key component in crush equation
- Significant Capex investment
- Large established capital infrastructure
- Low differentiation

Oil

Meal

Biofuels: 18% Gross Margin

- Low carbon markets driving margins
- Significant Capex required
- Feedstock costs & Regulatory key determinants of GM

Biofuels Customers



Meal Customers

Feedlots: 5-20% Gross Margin

- Commodity feedlots low GM%
- Speciality (e.g., Dairy) can drive to higher GM%
- Differentiation is key: Sustainable, non-GMO

Breeding Funnel – Product Pipeline

Year 1: Single row nurseries

Years 2 – 4: Replicated yield trials

Years 5 – 6: Commercial introduction

Double Haploid (DH) pipeline - Model

Year 1: **6,000 – 8,000 DH lines** per year field evaluated from approximately **20 – 35 crosses**

Year 2: Approximately **150 – 200 lines** selected based upon Agrisoma breeding objectives – to enter preliminary yield trials at **3 – 6 sites**

Years 3 & 4: Approximately **15 – 25 lines per year** will be selected for advanced yield testing at **8 or more sites** in commercial geographies

Year 5: **New and improved variety** selected from within every **1 – 2 years** breeding cycle

Commercial Product

Seed Production

Year 1: Self pollinated seed made in each selected row

Year 2: Small pollen control tents of selected lines

Year 3: Larger tents or small isolation seed increases

Year 4: Large isolation fields in the next cycle (utilize both winter and summer seed increases)

Year 5: Initial commercial introduction

Year 6: Full commercial sales, large acreage

Agrisoma commercial variety

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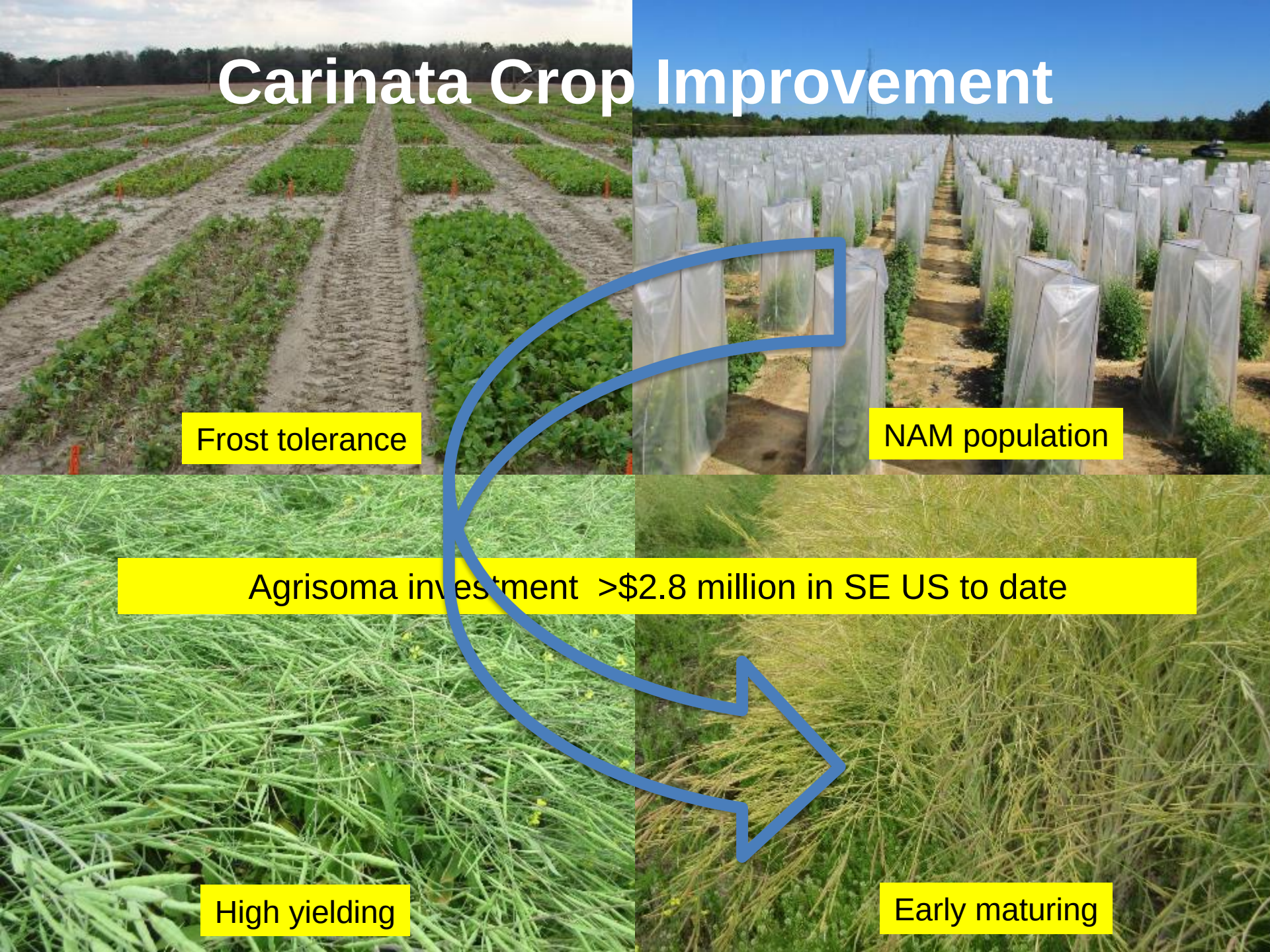
Carinata Crop Improvement



Developing near term technology to increase acre potential

- Crop maturity and planting date fitness
- Cold tolerance at different stages of growth
- Herbicide tolerance and resistance derived from native trait introgression and obtain approvals for crop protection products

Production:

- Timely contracting in alignment with good crop rotation practices
- Continue demonstration of beneficial environmental impacts

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Crop adoption requierments

- Continue to grow the involvement from extension support for crop management and education about the oil seed crop industry.
- Continue to develop network of delivery locations, and increase stakeholder involvement.
- Ensure timely application of crop insurance, and production contracting with producers.
- Improve scouting for optimum field selection in rotation with summer cropping systems.
- Identify best varieties, and BMPs across the region.


Thank you!