

National Multistate Research Guidelines

SAES-422

Format for Multistate Research Activity Accomplishments Report

Note: This report is submitted each year of an activity's duration and is due 60 calendar days following the annual meeting. The SAES-422 is forwarded electronically by AAs to their Executive Director. Annual Reports for MRF projects are then forwarded to CRIS by the Executive Director.

Project/Activity Number: NCDC 227

Project Title: Advancement of Brassica carinata

Period Covered: Sept 1, 2013-April 1, 2014

Date of This Report: April 1, 2014

Annual Meeting Dates: February 10-12, 2014

Participants:

List of Attendees:

Daryl Males-Agrisoma	Pete Desai-Mustard 21	Kevin Falk-Agrisoma
Eric Johnson-Agrisoma	Yantai Gan-Agrisoma	Rick Bennett-Agrisoma
Patrick Crampton-Agrisoma	Steve Fabijanski-Agrisoma	Eric Eriksmoen-NDSU
Daniel Scholl-SDSU	Kathleen Grady-SDSU	Nathan Mueller-SDSU
Emmanuel Byamukama-SDSU	David Vos-SDSU	Yang Yen-SDSU
Jose Gonzalez-SDSU	Bill Gibbons-SDSU	Kasi Muthukumarappan-SDSU
Derek Brake-SDSU	Jill Anderson-SDSU	Lisa Elliott-SDSU
Stephen Gent-SDSU	Jim Stone-SD School of Mines & Technology	Russ Gesch-USDA-MN
Brett Allen-USDA-MT	Mack Alexander-Florida Department Agriculture Consumer Services	Tony Wise-Precision Renewable Energy
Canan Balaban-UF	Scott Dees-Florida grower	David Wright-UF
Jim Marois-UF	Sheeja George-UF	Ramdeo Seepaul-UF
Christine Bliss-UF	Maynard Douglas-UF	Chuck Dickson-UF
Kelly O'Brien-UF	Nicolas DiLorenzo-UF	Ramon Leon-UF
Nick Dufault-UF		

Brief summary of minutes of annual meeting:

Annual meeting highlights:

Visit to ARA, Panama City, FL

Visit to Feed Efficiency Unit, UF, Marianna, FL

Field visits-Scott Dees farm, Wivahitchka, FL and experimental sites at NFREC, Quincy, FL

New SOP for carinata trials was distributed. Carinata production guide was distributed.

Presentations:

1. *B. carinata* agronomy
2. *B. carinata* crop improvement and molecular tools
3. *B. carinata* breeding
4. *B. carinata* trials-Quincy
5. *B. carinata* markets and utilization value chain

Some of the main things discussed to guide future direction were:

1. From a weed control point of view-concentrate on post-emergence herbicide rather than pre-emergence herbicide; need alternatives for water-activated herbicides for water-limited areas; weed specialist need to discuss priorities so that relevant genetics may be developed and made available, look at weed priorities in FL
2. Carinata and cropping systems: 90% barrier to renewable fuel development is feedstock related while 10% is oil conversion related. So much focus needs to be on feedstock development. Look at cropping systems incorporating oilseeds (carinata already introduced as winter cover crop into the sod-based rotation with perennial grasses and row crops at UF- FREC, Quincy), focus on agricultural practices where oilseed crops can be incorporated into existing infrastructure, quantify benefits of oilseed crops when in a rotation, develop regionally viable cropping systems, focus on efficient extension network to disseminate information and promote adoption. Continue talk on carbon credits-there is no validated method to assess carbon credits
3. Carinata production guide-Introduction to BMP: This document needs to be modified and an efficient strategy to modify the document needs to be finalized
4. Salt tolerance and disease resistance: need to screen varieties for salt tolerance; also focus of alternaria black spot and resistance to aphids etc., increase spectrum of diseases being screened. Other traits of interest include seed oil content, earlier maturity, yield, glucosinolate reduction, frost tolerance, plant architecture
5. Value chain status-develop strategy based on geographies-3 distinct geographies identified for the US: northern border states with proximity to canola, spring production areas, winter production, evaluate critical success factors.

Accomplishments and Impacts:

One of the principle accomplishments of the meeting was a listing of the various technical need areas for carinata development, along with a prioritization of these areas and potential collaborators. We also included whether other on-going research projects by other groups were addressing these issues. This information is in the table below

Priority Level	Topic area	Ag Canada Agrisoma	ARS BRDI	NC Carinata DC	Participants (name/state)	People to Invite (name/state)
med	Row spacing	No	No	Yes in marginal areas	UF/Eric-ND	
High	Seeding rate	Yes	1 rate/loc	Yes	Eric-ND/UF/SDSU	other ND REC's
Low	Seeding depth	Yes	No	????		
High	Fertility	Nit, Sulfur	No	Nit	Eric-ND/UF/SDSU	
High	Planting date	???	No	Winter vs spring	Eric-ND/UF/SDSU	other ND REC's
high	Weed control	Yes	No	Yes, esp post	Eric-ND/UF/SDSU	other ND REC's
med	Seedling vigor	Some	Yes	Yes	Eric-ND/UF/SDSU	
Med ; high for FL	Diseases	Yes, observ	Yes, observ	Obser. Testing also ?	Eric-ND/UF/SDSU	
med	Insects/pollinators	???	No	Yes	ARS/SDSU	
low	Volunteer issue	yes	No	???		
high	Cropping systems	Starting sequence study	No	Yes, where are H2O and nutrients removed	UF/ND/SDSU/MT	
High	Breeding : winter var	Yes (selection only)	No	Yes	Yang Yen	
high	Breeding : oil yield	Yes	No	???		
high	Breeding : oil composition	Yes	No	???		
high	Breeding: disease resistance	Yes	No	Yes		
High	ID optimal varieties for locations	Yes	No	Yes	Eric/ND	other ND REC's
high	Salt tolerance	Starting	No	?	Eric/ND	other ND REC's
high	Drought tolerance	Yes	No	Yes		
med	Short term impacts on soil quality-microbial diversity, nutrient cycling enzymes,	No	No	No	UF, SDSU, Emmanuel (SDSU)	

	“allelopathic” effects, C and N pools					
high	Mid and long-term impacts on soil quality-C pools 4 to 6 years	No	No	Yes	SDSMT, Sandeep (SDSU), MT, UF	Peggy Lamb (Haver,MT)
	Molecular biology	Genotyping	Genotyping on napus	Winter tolerance	Yang Yen/SDSU	
high	Phenotypic observations & marker discovery	NAM population development; Oil content, maturity, yield, low GSL, cold tolerance, plant architecture, disease resistance		Phenotype NAM population lines?? Looking for 2 US sites. 5 Ac per site	Eric-ND, SDSU, UF	
high	Outreach, field scale evaluations	Yes	Yes	Yes	Eric-ND/UF/SDSU	
high	Profitability, insurance, risk	???	Yes	Yes	Eric-ND/UF/SDSU	
High	Meal conversion	No	???	Yes	SD/UF	ND
High	Beef feeding	Some	???	Yes		
High	Dairy feeding	Some	???	Yes		
high	Aquaculture	No	???	Yes		
Med	Oil recovery	No	Yes	Yes		
Low	Oil quality	???	???	Yes		
low	Oil conversion	ARA process	UOP process	ARA process		
high	LCA	No	Yes	Yes	MT/SD/UF	
	BMP documents	Yes	???	Yes		
	Std research protocols		Yes			

Another key outcome of the meeting was to develop several small partnerships within the larger group that could collaborate on securing future funding on research questions identified during the workshop. Several items identified as items of stakeholder interest were identified and outlined above, and are being pursued for funding from USDA NIFA:

1. Plant breeding for agricultural production. Yen (SDSU) is a PI in a grant in this area. Grady, Yen, and Gonzalez will also submit
2. Plant-associated insects and nematodes. A team from SDSU and UF will look at pollinator management.
3. Animal nutrition, growth and lactation: A team from SDSU and UF will apply in the beef area. A team led by SDSU will apply in dairy.
4. Nitrogen and phosphorus cycling: A team from UF will apply

5. Agroecosystem management: A team from UF and FAMU will lead, with potential partners from SD, ND, and MT
6. Small and medium sized farms: A team from SD and ND will lead, with collaborators from UF and FAMU.

Publications: List the publications for current year only (with the authors, title, journal series, etc.).

NA, this is the first year of the project

Authorization: Electronic signature of the Administrative Advisor, with the date.

Signed: Daniel Scholl, Dir AES, SDSU.