Development and Management of Canola for the Great Plains Region

Sure fire

Supplemental & Alternative Crop Program
Project Director Meeting
January 29, 2019

Planted Winter Canola Acres

Winter Canola Acres in the Southern Great Plains
Source: USDA-FSA Crop Acreage Data
2018/19 estimated
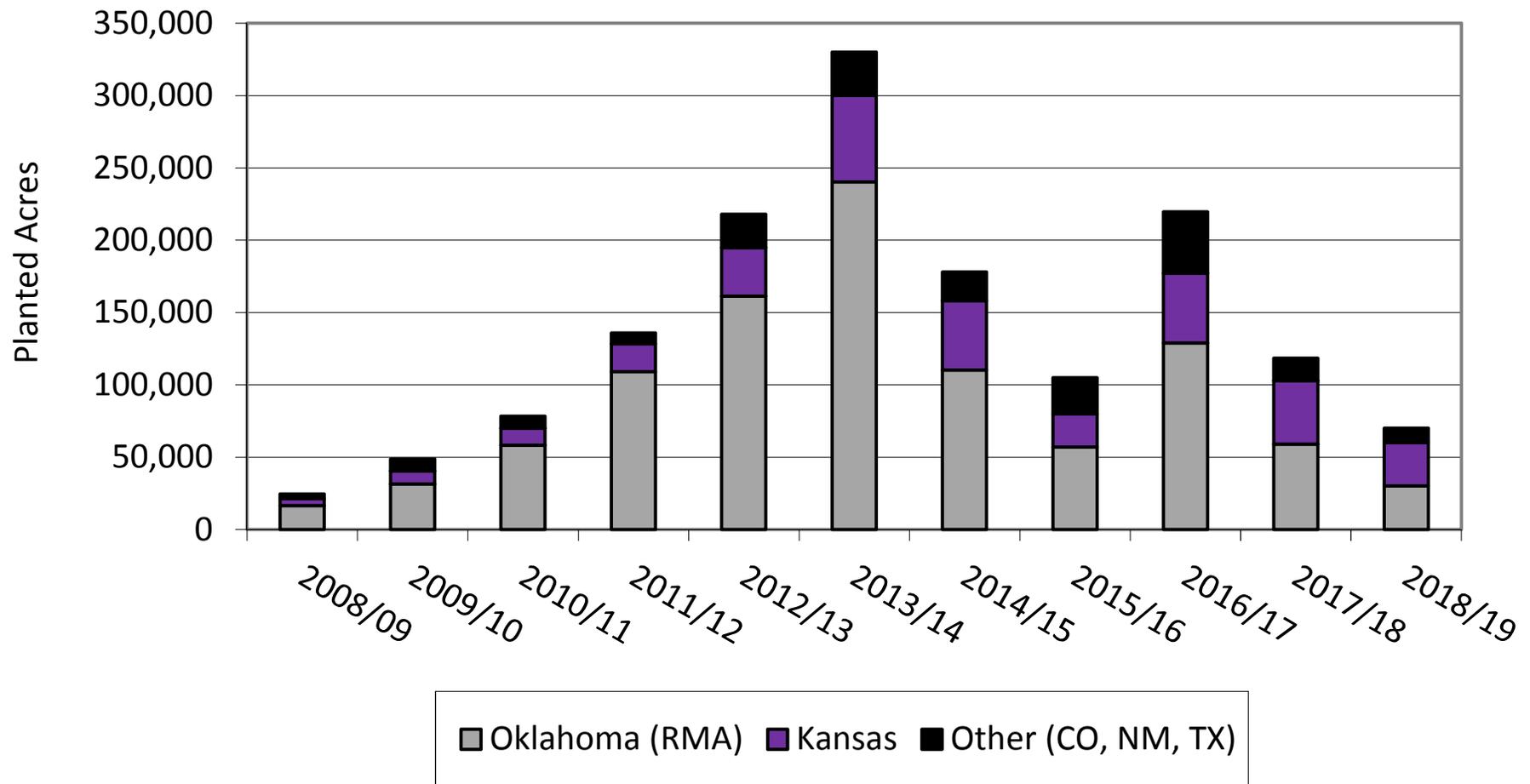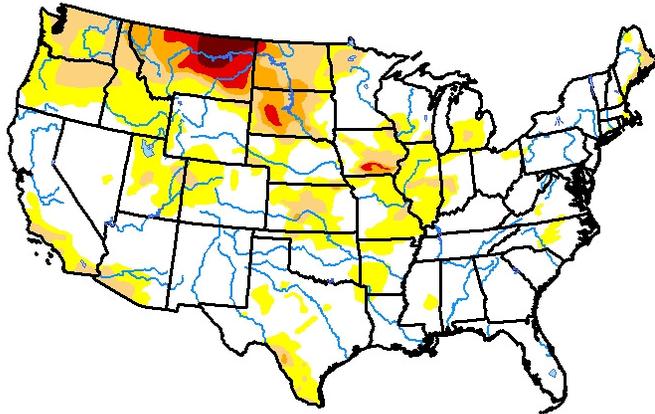
Intensity:

D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brad Rippey
U.S. Department of Agriculture

USDA

http://droughtmonitor.unl.edu/

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Author:
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Author:
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NCEI/NOAA

USDA

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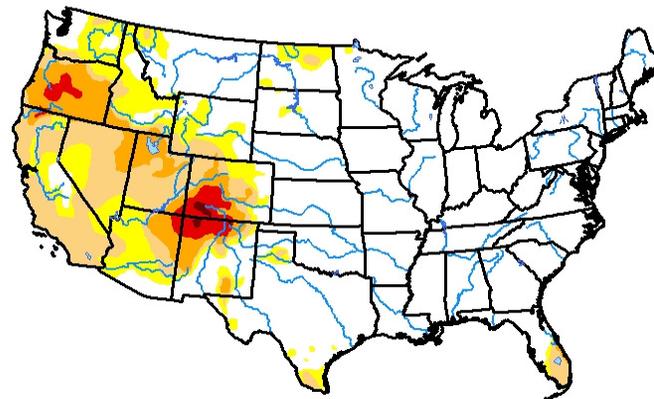
Departure from Average 2018
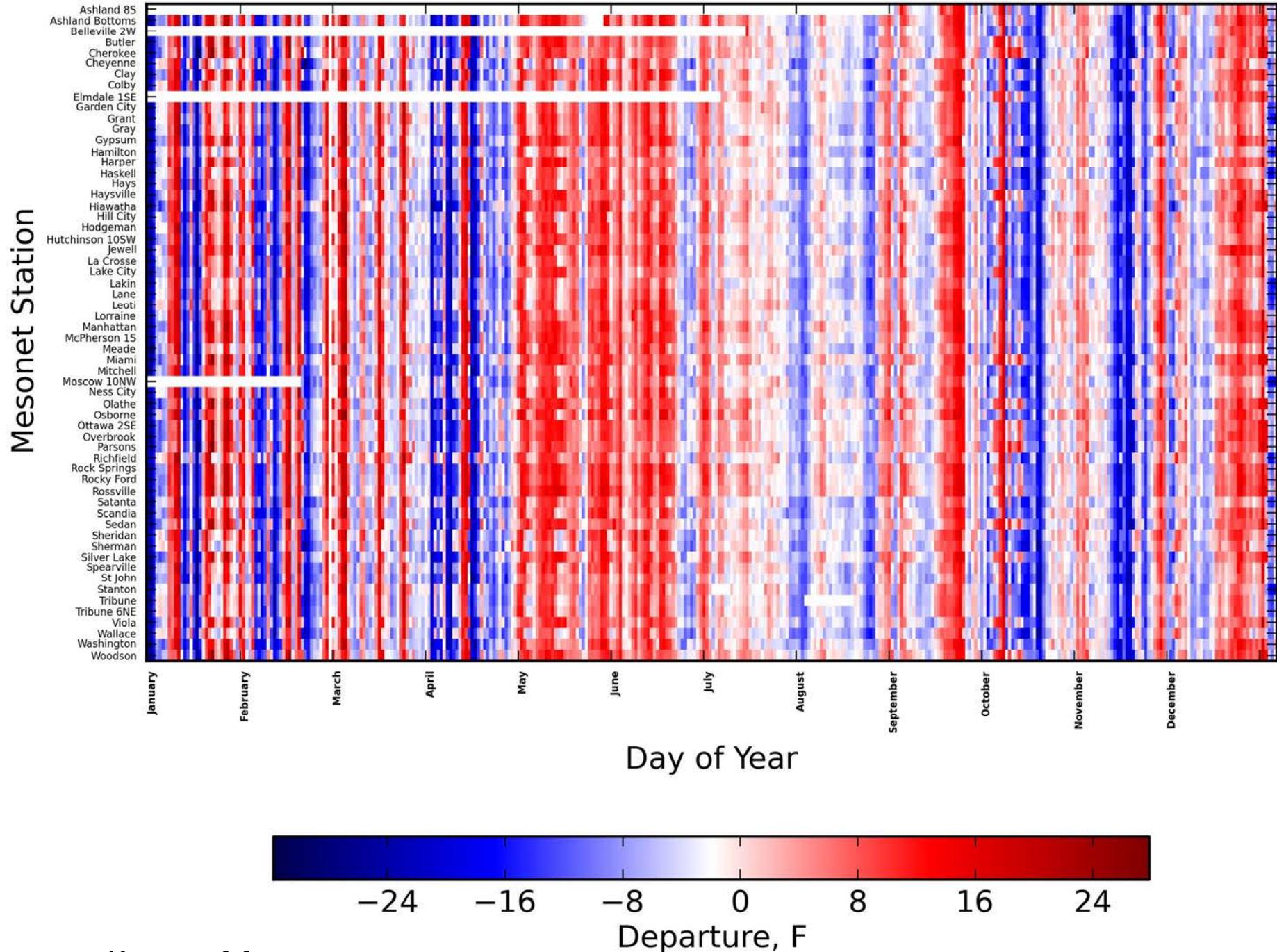
Source: Kansas Mesonet

Project Personnel

Name	Affiliation	Title – Job Description
Michael Stamm	KSU	PD, Agronomist – Canola Breeder
Ignacio Ciampitti	KSU	Assoc. Professor, Cropping Systems/Crop Production*
Johnathon Holman	KSU	Professor, SWREC Crop Production*
Kraig Roozeboom	KSU	Professor, Cropping Systems
Jerry J. Johnson	CSU	Professor, Extension Specialist – Crops Testing Leader*
Dipak Santra	UNL	Assoc. Professor, Dept. of Agronomy & Horticulture, Alt. Crop Breeding
Cody Creech	UNL	Asst. Professor, Dept. of Agronomy & Horticulture, Dryland Cropping*
Sangu Angadi	NMSU	Assoc. Professor, Dept. of Plant and Envi. Sci., Crop Physiology
Calvin Trostle	TAMU	Professor, Extension Agronomist*

*Indicates extension appointment

Akron, CO
10/12/2018

2018 Project and NWCVT Locations

KANSAS STATE
UNIVERSITY
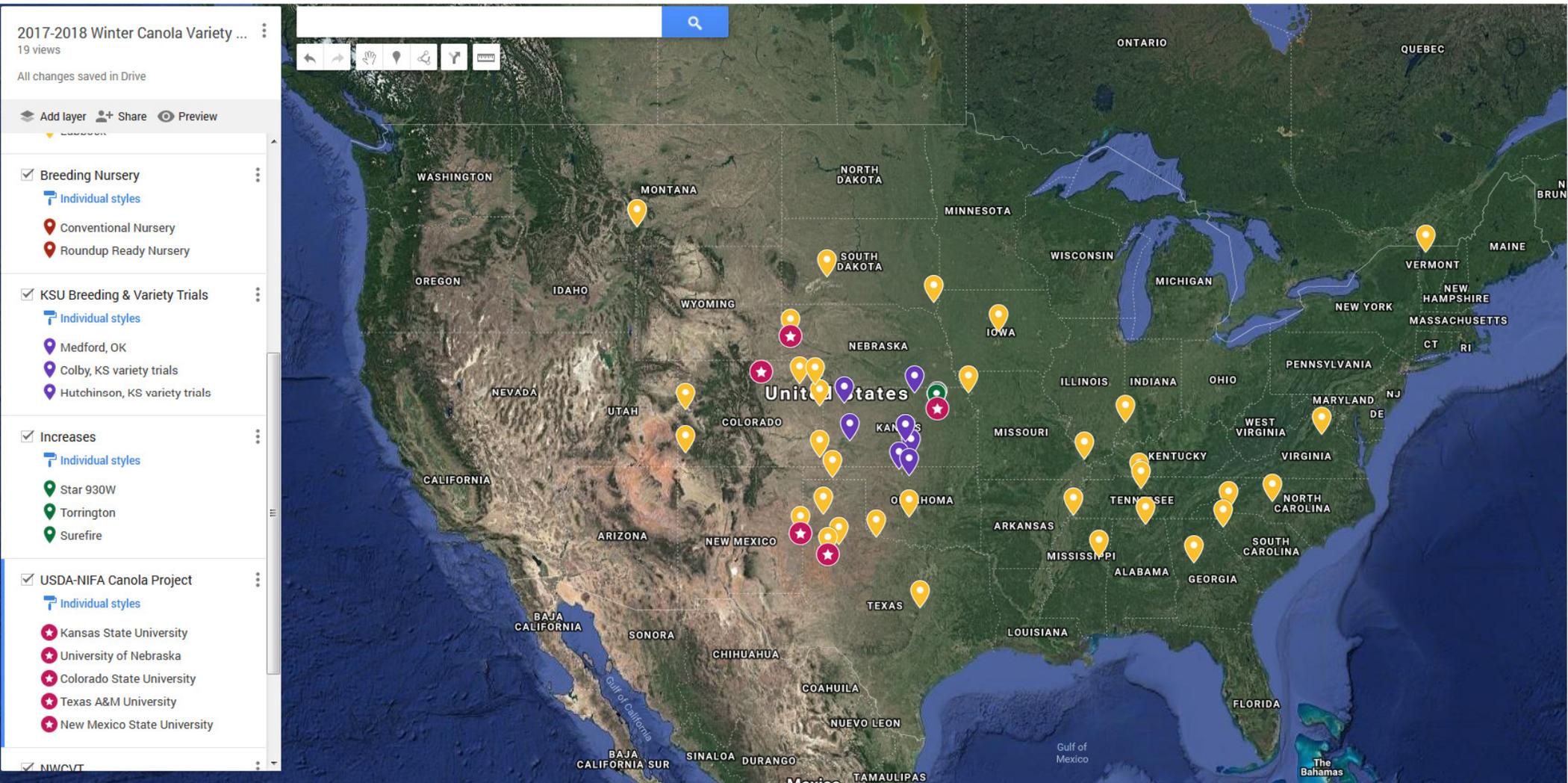
Varieties released by the K-State canola breeding program and current licensees.

Variety	Licensee	Trait[1]	Release	Sales[2]
Riley	Johnston Seeds	Conventional	2010	2012
Torrington	Ohlde Seed Farms	Conventional	2016	2018
CP45-25W[3]	CROPLAN by WinField	RR/SURT	2013	2015
CP225W	CROPLAN by WinField	RR/SURT	2014	2016
CP320W	CROPLAN by WinField	RR	2017	2018
Star 930W	Star Specialty Seed	RR	2013	2019
Griffin	Spectrum Crop Dev. / Griffin Seeds	Dual Purpose	2011	2016
Surefire	Spectrum Crop Dev.	SURT	2017	2019

[1]RR = Roundup Ready; SURT = Sulfonylurea herbicide carryover tolerant
[2]First year of seed sales
[3]Formerly DKW45-25 licensed by Monsanto

Outputs and Outcomes

- Two varieties granted PVP certificates: Griffin (201500335) and HyCLASS225W (201600400)

- KSR4723 (RR) approved for increase in 2018
  - Foundation seed increase in 2018-19
  - Release pending 2019 performance data

- CP320W, CP45-25W, and Torrington sold for the first time in 2018

- 2017 sales equivalent of 62,750 acres and 2018 sales equivalent of 50,090 acres
  - Sales decreased of 20%

- For two years, K-State genetics have impacted roughly 50% of the canola acres in the southern Great Plains

2018 NWCVT – Great Plains

City	State	OP Average	OP CV	Hybrid Average	Hybrid CV
		bu/a	%	bu/a	%
Manhattan	KS	35.9	18.4	37.5	14.9
Norwich	KS	28.9	10.6	31.4	13.8
Akron	CO	25.9	39.7	37.3	37.2
Clovis	NM	56.6	18.5	67.3	8.1

Norwich, KS
5-18-2018

Manhattan, KS
6-15-2018

Fate of 2018 Regional† Variety Trials and the NWCVT

City	State	Comments
Belleville	KS	Establishment
Colby†	KS	Hail at harvest
Garden City	KS	Hail at harvest
Hutchinson†	KS	Establishment
Kiowa	KS	Establishment
Troy	KS	Establishment
Eckley	CO	Armyworms
Yellow Jacket	CO	Drought/poor yields
Scottsbluff†	NE	Winterkill
Medford†	OK	Too much rain
Floydata	TX	Establishment
Whiteface	TX	Harvest problems

Medford, OK
11-7-2017

Hutchinson, KS
10-27-2017

Yield (bu/acre) for the 2018 NWCVT (OP varieties) in Kansas.

Name	Source	Manhattan	Norwich	Average
KSR4723	K-State	**36.9**	**28.7**	32.8
Surefire	K-State	**46.4**	**32.8**	39.6
Riley	K-State	**38.9**	**33.7**	36.3
Torrington*	Ohlde	34.4	**32.2**	33.3
QUARTZ	Photosyntech	22.2	**30.4**	26.3
HyCLASS115W	CROPLAN	32.8	16.3	24.5
CP225W*	CROPLAN	**35.3**	**30.3**	32.8
CP320W*	CROPLAN	28.2	**32.6**	30.4
CP45-25W*	CROPLAN	**38.2**	**31.0**	34.6
Star 915W	Star Specialty	27.2	17.8	22.5
Star 930W*	Star Specialty	**39.9**	**29.7**	34.8
Mean		35.9	28.9	
LSD		11.5	6.4	

Bold = superior LSD group. LSD calculated at 0.1 probability for Manhattan and 0.05 for Norwich. Due to field variability, analysis of 2 replications only at each location. *Developed by K-State.

Yield (lb/acre) for the 2018 NWCVT (hybrids) in Kansas.

| Name	Source	Manhattan	Norwich	Average
HIDYLLE	KWS-MOMONT	30.1	28.2	29.1
HAMOUR	KWS-MOMONT	**46.1**	**35.8**	40.9
Edimax CL	Rubisco	**40.5**	25.8	33.2
Inspiration	Rubisco	**40.0**	**31.4**	35.7
Mercedes	Rubisco	**40.4**	**36.4**	38.4
Popular	Rubisco	**42.1**	**37.0**	39.5
Phoenix CL	DL Seeds	35.0	24.0	29.5
Plurax CL	DL Seeds	**43.8**	**38.0**	40.9
Mean		37.5	31.4	
LSD		9.2	7.3	
Bold = superior LSD group; LSD calculated at 0.05 probability for Manhattan and 0.05 for Norwich.				

Harvest Management

Measure the effects of optimum time of swathing on yield and oil content in 2016/17 and 2017/18

- Two OPs (Riley & DKW46-15) and two hybrids (Mercedes & Hekip)

- Swathing treatments included green seed, 10% SCC, 50% SCC, 80% SCC, and direct cutting

Two-year yield and oil content means for direct cut and swathing at different stages of seed color change, 2017 and 2018.
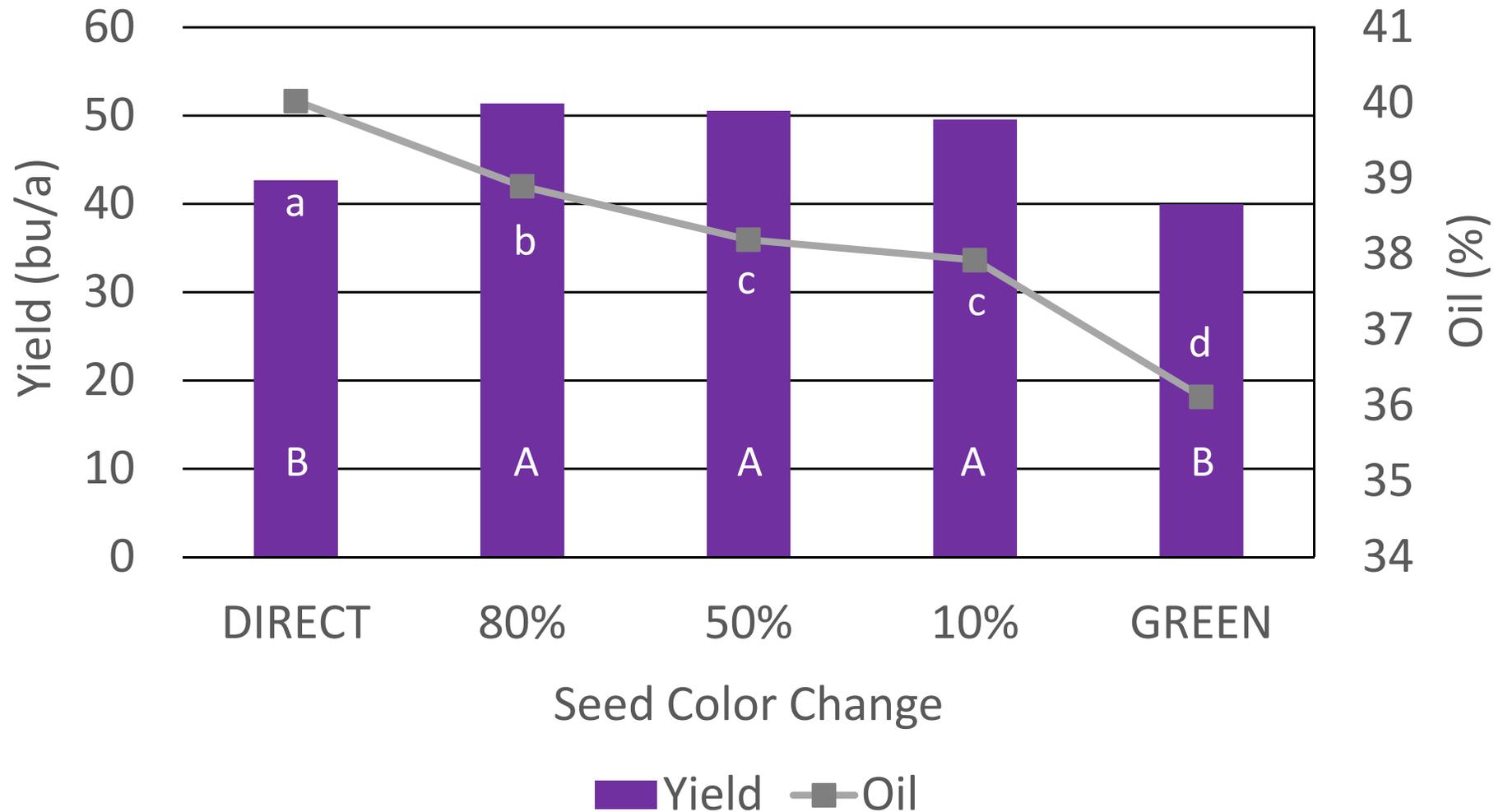
Managing Fall Growth in Canola

- Warm fall temperatures and early planting can lead to excessive growth and winterkill

- Evaluate the effects of applying triazole fungicides and plant growth regulators on winter survival and yield

- Year 2 was carried out at the Ashland Bottoms Research Farm near Manhattan

- Products evaluated on one Roundup Ready variety (DKW45-25)

# Plant growth regulator use to manage fall growth

Yield: Bars labeled with the same letter are not significantly different at α=0.3.
Survival: No significant difference.
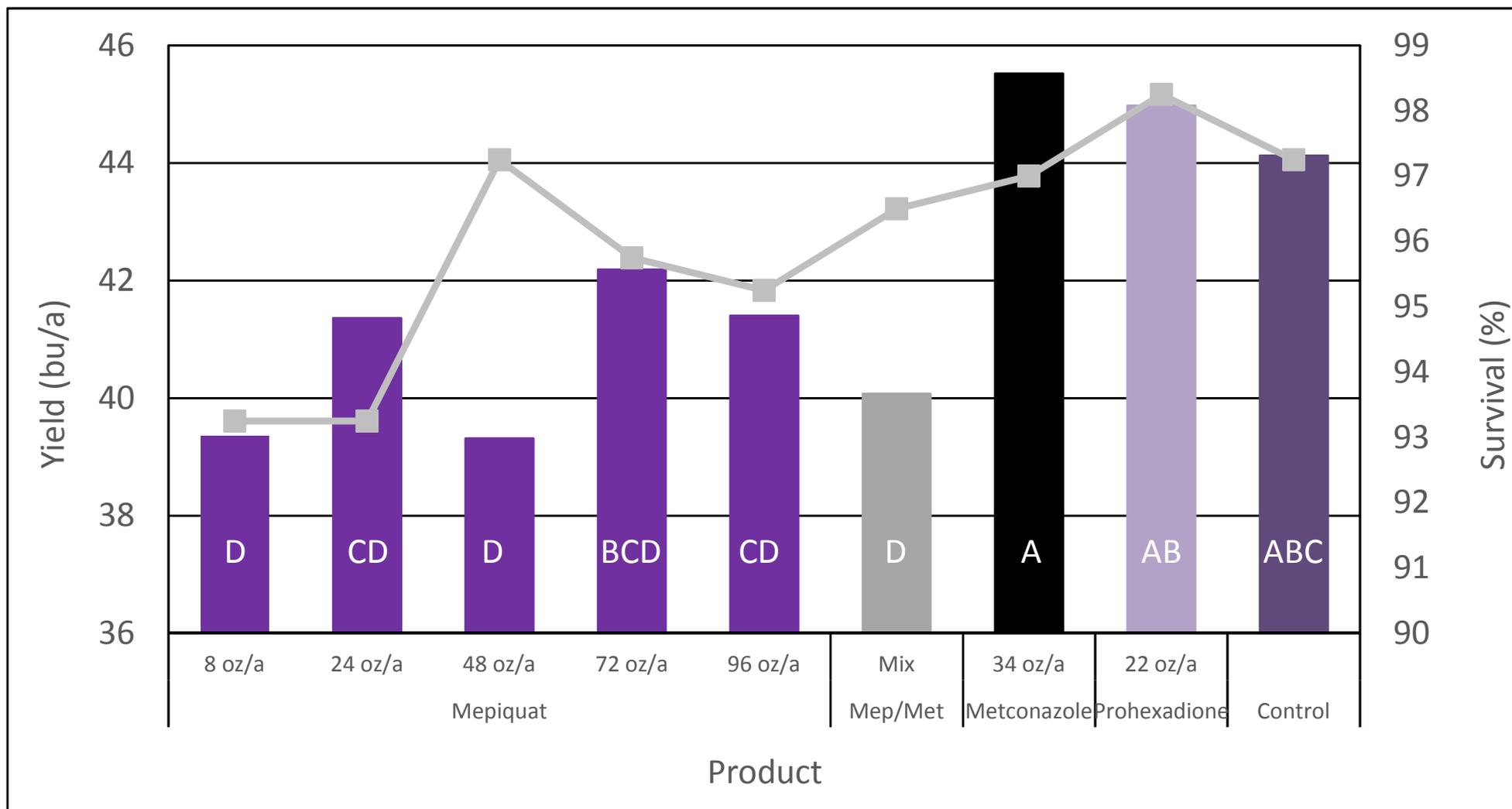
Stage Based Irrigation Management

- <u>Dormant Period Irrigation</u>
  - Yes **(D-Irr)**
  - No **(No D-Irr)**

- <u>Stage Based Irrigation</u>
  - Fully Irrigated **(Irr)**
  - Stress at Vegetative Stage **(VStss)**
  - Stress at Reproductive Stage **(RStss)**
  - Rainfed **(RD)**

- <u>Cultivars</u>
  - Riley (OP conventional)
  - DKW-46-15 (OP RR)
  - Hekip (Hybrid conv.)

Table 1. Amount of irrigation (mm) applied in each treatment.		
Treatment	2016-17	2017-18
Dormant period irrigation		
- Yes	140	152
- No	0	0
Stage-based irrigation		
- Fully irrigated (Irr)	196	238
- Stress at vegetative stage (VStss)	86	111
- Stress at reproductive stage (RStss)	107	127
- Rainfed (RD)	0	0

Seed Yield and Oil Content

- D-Irr at VStss and RStss showed a 4% and 32% yield reduction from Irr, respectively.

- No D-Irr at VStss and RStss showed 42% and 47% yield reduction from Irr, respectively.

- In both seasons, Irr produced the highest yields, followed by VStss. RD was the lowest.

- Irr had significantly greater oil content in 2016/17.

- No significant difference in oil between RStss and VStss.

Means followed by the same letter are not different at α=0.05
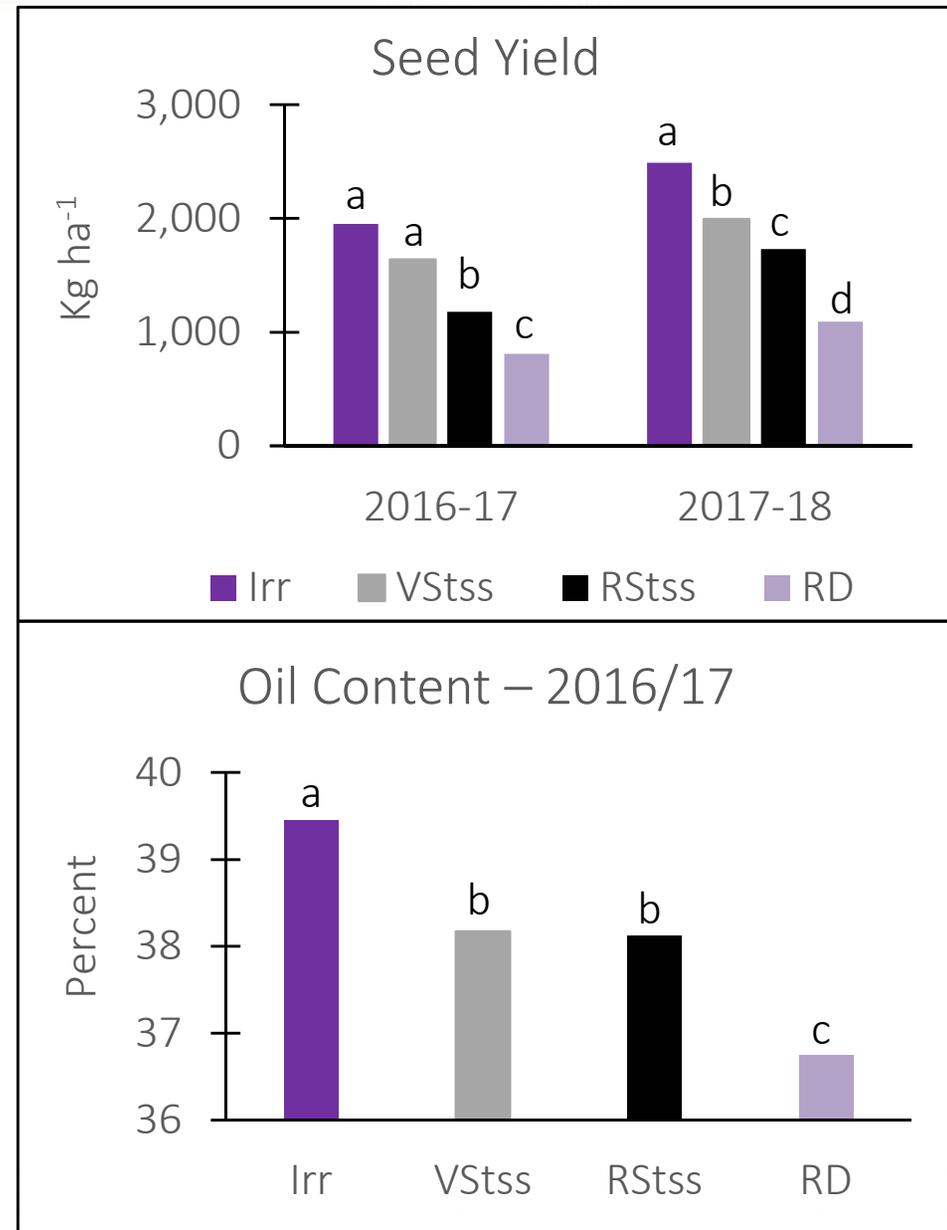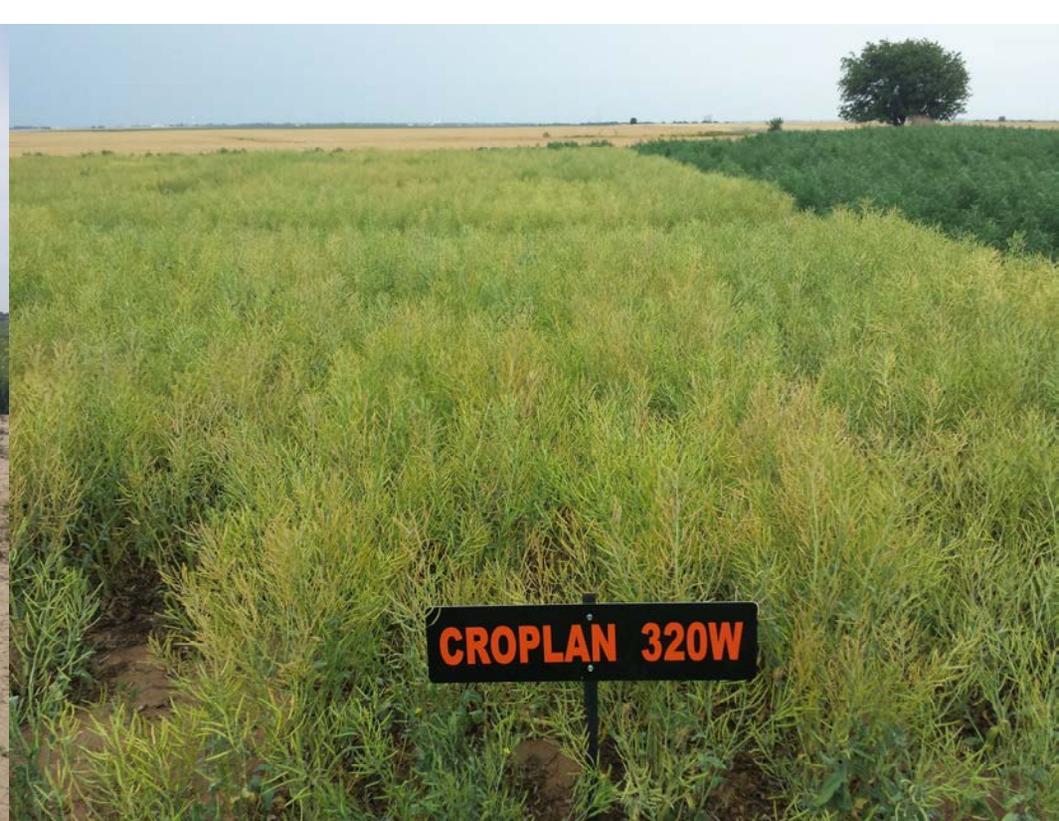
Outreach

- Revised the *Great Plains Canola Production Handbook*

- 7 abstracts supported by this project were submitted to the 2018 US Canola Research Conference

- 11 KSU Department of Agronomy Extension eUpdates

- 8 field days and production seminars

Questions?

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