

## Summary of ADF Sunola Demonstrations 1992

E. N. Johnson, Soils and Crops Agrologist, North Battleford

This paper summarizes the data from the following ADF demonstrations:

North West Sunola Demonstration	ADF-D-91-CD-1030
North East Sunola Demonstration	ADF-D-91-CD-1031
South East Sunola Demonstration	ADF-D-91-CD-1032
South West Sunola Demonstrations	ADF-D-91-CD-1033
	ADF-D-91-CD-1034
	ADF-D-91-CD-1036
	ADF-D-91-CD-1037

The following people were involved in managing the sites: Bruce Baumann, ADF; Eric Johnson, Roy Button, Jim Pratt, Pat Gerwing, Extension Service, Saskatchewan Agriculture and Food and Dr. Doug Cameron, Normac AES Ltd., Swift Current.

### I. Introduction

Sunola is an early maturing, miniature sunflower developed at the Agriculture Canada Research Station in Saskatoon. The breeding of the crop was done by Dr. Dave Hutcheson who presently manages Western Growers Seed Corporation in Saskatoon.

Sunola performed well in tests conducted in 1990 and 1991. The research was concentrated in the Dark Brown and Black soil zones of Saskatchewan because these areas have closer access to crushing plants. However, it has been anticipated that sunola will do well in the Brown soil zone due to it's drought and heat tolerance.

The Agriculture Development Fund funded the sunola demonstrations to provide information to farmers on the possibility of sunola as an alternate crop. Sunola has the potential to extend crop rotations in the south, and to provide an alternate oilseed for the north.

### II. Objective

The objective was to demonstrate the recently registered sunola varieties (Sierra and Aurora) in a stubble cropping situation. The project compared the sunola cultivars with *Brassica napus* (cv. Legend) canola in the north and with Katepwa hard red spring wheat in the south.

### III. Project Design

The two sunola varieties plus the control crop (canola or wheat) was seeded in 10 acre field plots. Plots were seeded in long narrow strips. All plots were seeded on stubble. Two sites were located in the northern extension region and 5 sites were located in the southern extension region.

The sunola was seeded at 10 lbs/acre. The control crops were seeded at recommended seeding rates. The cooperators used their own equipment to seed the plots.

Plots were monitored by Extension staff of Saskatchewan Agriculture and Food. Herbicides were donated by DowElanco and Cyanamid. Fertilizer was donated by the Saskatchewan Wheat Pool. Western Growers Seed Corporation supplied the seed.

Yields reported in this summary were taken by threshing the entire plot or by threshing a measured strip and weighing the grain in a weigh wagon.

### IV. Site Locations

Location	Project Cooperator	Legal Land Description
North Battleford	Ken Cubbon	SE28-45-13-W3
Tisdale	Garry Meier	SE17-47-15-W2
Pennant	Don Dodswell	NW9-18-17-W3
Wymark	Abe Wiens	SE7-13-13-W3
Glen Bain	Paul Semesock	NE9-11-8-W3
Cimax	Ian Shirley	NE32-2-18-W3
Regina	J.R. McAllister	SE4-16-19-W2

### V. Results

#### Northern Sites:

North Battleford Pea Stubble	Plant establishment		Yield	
	plants/m <sup>2</sup>	plants/acre	kg/ha	lb/acre (bus/acre)
Sierra	14	56655	981	785
Aurora	13	52609	815	728
Legend	63	254951	1717	1532 (30.6)

Tisdale Alfalfa dehy stubble	Yield	
	kg/ha	lb/acre (bu/acre)
Sierra	1097	980
Aurora	1143	1020
Legend	2017	1800 (36.0)

Plant counts were not available for the Tisdale site, however plant populations were considered adequate. The Sierra plot achieved a lower plant count than the Aurora plot.

**Southern Sites:**

Plant counts		Pennant Lentil stubble	Wymark Wheat stubble	Glen Bain Durum stubble	Climax Durum stubble	Regina CPSW stubble
Sierra	#/m <sup>2</sup>	12	5.2	12	13.6	11.6
	#/acre	48562	21042	48562	55037	46943
Aurora	#/m <sup>2</sup>	12.8	6.0	12	12.8	13.4
	#/acre	51800	24281	48562	51800	54227

Yields (kg/ha)	Pennant	Wymark	Glen Bain	Climax	Regina	Mean
Sierra	1344	347	361	168	829	610
Aurora	995	336	307	224	654	503
Katepwa	2352	1210	874	732	2957	1450

Yields (lbs/acre)	Pennant	Wymark	Glen Bain	Climax	Regina	Mean
Sierra	1200	310	322	150	740	544
Aurora	888	300	274	200	584	449
Katepwa (b/a)	2100 (35.0)	1080 (18.0)	780 (13.0)	654 (11.0)	2640 (44.0)	1450 (24.1)

## Oil content

	N.B.	Tisdale	Pennant	Wymark	Glen Bain	Regina	Mean
Sierra	46.0	43.0	44.4	44.7	46.3	45.5	44.9
Aurora	41.7	41.0	41.3	38.0	41.6	40.6	40.7
Legend	49.0	N/A	--	--	--		42.3*

\* Average oil content for canola for Saskatchewan (8.5% moisture basis) - Canada Grain Commission, 1992

## Gross Returns

	North Battleford	Tisdale
	\$/acre *	\$/acre **
Sierra	\$93.38	\$104.95
Aurora	\$78.33	\$104.95
Legend	\$173.11	\$155.00

\* based on sunola contract price of 10.5 cents/lb plus oil premiums and discounts. Legend canola graded 2 Canada - Nov.1, 1992 price. Net yields (less dockage) were used.

\*\* Legend canola graded 3 Canada - Nov. 1, 1992 price

## Southern sites \*\*\*

	Pennant	Wymark	Glen Bain	Climax	Regina	Mean
Sierra	\$131.04	\$33.85	\$36.51	\$16.38	\$83.17	\$60.19
Aurora	\$91.37	\$28.98	\$28.49	\$20.80	\$58.86	\$45.70
Katepwa	\$113.95	\$58.14	\$41.99	\$35.53	\$142.12	\$78.16

\*\*\* Wheat prices based on 3CWRS. Price arrived by discounting National Grains Bureau price projection for 1 CWRS for 1992-93 Crop Year.

## VI. Discussion and Conclusion

1992 was not a good year for crop production. Cool air temperatures were not favourable for sunflower production. Growing degree days for most of Saskatchewan were about 15% lower than the long term average.

Cool temperatures favoured canola production. Canola yields at the northern sites were higher than the long term average yields for canola on stubble. Crop Insurance long term average yields of canola on stubble are 19.0 b/a for the North Battleford site and 20.5 b/a for the Tisdale site. These yields would change the economic comparison drastically. Also, the gross returns would have been comparable had the canola graded sample, which was common for many *B. napus* fields in 1992.

In the south, the primary limitation to yield was a relatively dry June resulting in poor establishment and growth. Most of the sites had lower plant populations than the recommended 60,000 to 70,000 plants/acre. Yield depletion from volunteer crops was apparent at some sites. For the most part, competition from other broadleaf and grassy weeds did not present a problem. The Glen Bain site had a serious problem with antelope browsing causing 25% damage.

Bird damage was not a problem in 1992. Sclerotinia was reported at the Tisdale site. However, plant loss was less than 5%. Painted lady butterfly larvae was present at many sites, however no economic damage was reported.

Despite relatively low yields and returns in 1992, most of the cooperators are willing to try sunola again. It appears that gross returns from sunola could equal gross returns for wheat grown on stubble in the brown soil zones. Therefore, producers will have to produce sunola at costs in line with wheat production.

Sunola did not provide as good as gross returns as canola at the northern sites. However, in both cases canola yields on stubble were exceptional.

Detailed reports on each site are available from the Agriculture Development Fund.