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2002-2003 Kentucky Canola Variety Performance Test

Greg Schwab
University of Kentucky

Lloyd W. Murdock
University of Kentucky, lmurdock@uky.edu

James H. Herbek
University of Kentucky, james.herbek@uky.edu

Chad Lee
University of Kentucky, chad.lee@uky.edu

David Van Sanford
University of Kentucky, dvs@uky.edu

UK COOPERATIVE EXTENSION SERVICE
University of Kentucky – College of Agriculture

LEXINGTON, KY 40546

Agronomy *notes*

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Greg Schwab, Lloyd Murdock, Jim Herbek,
Chad Lee, and David Van Sanford

INTRODUCTION

Winter canola is a crop that is well suited for Kentucky's climate and crop rotation, but production peaked at 20,000 acres in 1989 and has since declined mainly due to winter hardiness concerns. Changes in the 2002 farm bill have once again caused farmers to consider converting some of their wheat acreage to canola production. For the past several years, plant breeders have been working to improve canola's winter hardiness and have released several varieties that seem to be better suited for Kentucky's variable winters than the varieties grown in the late 1980s. A study was initiated in the fall of 2002 to evaluate emergence, winter hardiness, and yield of 10 canola varieties thought to have characteristics well suited for production in Kentucky. Results presented in this paper are for the first year of the study and do not reflect variety performance over a wide range of climatic conditions. Results from the University of Missouri's canola variety trials are available at http://www.psu.missouri.edu/cropsys/Alternative_Crops/ and should also be consulted before deciding on a variety.

MATERIALS AND METHODS

Field studies were established in the fall of 2002 at the Spindletop Research Farm (near Lexington, KY) and at the UK West Kentucky Research and Education Center (near Princeton, KY). Both locations had a randomized complete block design with four replications. Plots were 4 x 15 feet and were harvested with a small plot combine. A defoliant was used at both locations after all plots had reached physiological maturity in order to accelerate dry down in the later maturing varieties and reduce shattering losses and bird damage in the earlier maturing varieties. Other agronomic practices are listed in Table 1. Agronomic practices were performed at the optimal time due to favorable weather. Precipitation during the growing season was 4.75 and 5.28 inches above normal for Lexington and Princeton, respectively. Winter temperatures were slightly colder than normal at both locations, but freeze damage was not observed at either location.

Table 1. Agronomic practices used at each location.

Study Location	Soil Series	Tillage	Planting Date	Seeding Rate lbs/ac	Herbicide
Lexington	Maury	Conventional	9/25/2002	6.4	None
Princeton	Pembroke	Conventional	9/24/2002	6.4	Treflan Pre-plant

Study	--- Fertilizer ---			---------- Fungicide ----------		Harvest
Location	N	P_2O_5	K_2O	Product	Timing	Date
Lexington	120	0	0	Benlate	Early to mid-bloom	6/23/2002
Princeton	120	90	40	Benlate	Early to mid-bloom	6/6/2002

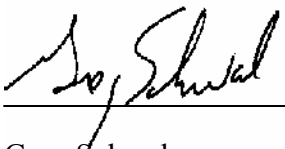
RESULTS AND DISCUSSION

Approximately three weeks after planting, a visual assessment of plant emergence was conducted at both locations using a scale from 1 (poor emergence) to 3 (excellent emergence), and those assessments are shown in Tables 2 and 3. The varieties Abilene, Plainsman, and Wichita received the lowest scores at both locations due to slow and nonuniform emergence. All other varieties had good to excellent emergence characteristics. Seed germination varied considerably for the 10 varieties. The low stand counts of Abilene, Plainsman, and Wichita may have been due, in part, to older seed that was supplied for this trial. The older seed may have had lower viability than the other entries in this trial.

Significant yield differences were observed (Tables 2 and 3). Many varieties yielded significantly more than the Ceres variety, which was one of the better varieties in the 1990's. The varieties Jettan and Banjo had high yields at both locations. Wichita was able to overcome the poor emergence and low plant stand by branching to produce the second highest yield at Princeton. However, Wichita did not have as many branches and was the lowest yielding variety in the study at Lexington. Plainsman, Casino and Ceres were low yielding at both locations. The performance of Abilene, Plainsman, and Wichita may have been due, in part, to older seed that was supplied for this trial.

CONCLUSIONS

Since this is the first year of the study, one cannot draw definite conclusions as to which variety is best suited for Kentucky. Results from this year show that the varieties Jettan and Banjo preformed well at both locations. A review of results from trials conducted in Illinois and Missouri (2002 data) also show that Jettan and Banjo were among the highest yielding varieties. The study will be repeated in 2003-2004.



Greg Schwab
Extension Specialist, Soils

Table 2. Emergence, stand, yield and test weight for the Lexington location.

	Emergence	Stand Count**	Yield	Test Wt
Variety	Rating*	Plants/ac	Bu/a	Lbs/bu
Jettan	3.00 a***	488,000	56.9 a	50.8 c
KS 8200	2.75 a	331,000	54.9 a	51.5 b
Banjo	3.00 a	348,000	54.0 a	52.2 a
Celsius	3.00 a	348,000	53.4 ab	51.2 bc
KS 7436	3.00 a	401,000	44.7 bc	52.1 a
Casino	2.75 a	174,000	44.6 c	52.1 a
Ceres	2.00 b	366,000	41.2 c	52.5 a
Abilene	1.75 b	279,000	39.8 c	51.4 b
Plainsman	1.00 c	105,000	27.7 d	51.1 bc
Wichita	1.00 c	139,000	26.3 d	50.9 c

* Visual rating of emergence and vigor taken on 10/14/02 (3 = best and 1 = worst rating)
** Stand counts taken 3/14/03
*** Means within a column followed by the same letter are not significantly different ($p<0.10$).

Table 3. Emergence, stand, yield and test weight for the Princeton location.

	Emergence	Stand Count	Yield	Test Wt
Variety	Rating*	Plants/ac **	Bu/a	Lbs/bu
Banjo	3.00	521,000	59.0 a	51.3 a
Wichita	1.00	245,000	54.6 ab	48.8 b
Jettan	3.00	579,000	53.6 ab	48.4 bc
Abilene	1.75	327,000	50.7 bc	48.4 bc
KS 8200	2.75	567,000	48.8 bc	49.4 ab
Celsius	3.00	576,000	47.3 cd	49.8 ab
Ceres	2.00	430,000	46.7 cd	47.9 bc
KS 7436	3.00	627,000	45.7 cd	49.7 ab
Casino	2.75	490,000	41.2 de	49.0 b
Plainsman	1.00	318,000	36.5 e	46.7 c

* Visual rating of emergence and vigor taken on 10/03/02 (3 = best and 1 = worst rating)
** Stand counts taken 10/28/03
*** Means within a column followed by the same letter are not significantly different ($p<0.10$).

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U.S. Department Of Agriculture
University Of Kentucky
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Lexington, Kentucky 40546

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