PROJECT TITLE: Evaluation of Spring Canola with Different Seeding Rates under Dryland Conditions near Huntley, Montana. (Exp. 01SCSR08).

PROJECT LEADERS: Kenneth D. Kephart, Agronomist, SARC, Huntley
Perry R. Miller, Agronomist, LRES, Bozeman

PROJECT PERSONNEL: Peggy F. Lamb, Research Associate, SARC, Huntley
Jeffrey A. Holmes, Research Associate, LRES, Bozeman
Tom A. Fischer, Research Specialist and Farm Foreman, SARC, Huntley

OBJECTIVES: This continued investigation is comparing recommended seeding rates of spring canola with reduced seeding rates under dryland conditions in south central Montana. This information should help spring canola producers in south central Montana determine seeding rates best suited to their particular growing conditions.

METHODS: The 2001 spring canola seeding rate trial was established using ‘Hyola 357 Roundup Ready’ canola. Test plots consisted of a 30-foot, 7-row plot with 6-inch row spacing. Seeding rates were 800,000, 400,000, 200,000 and 100,000 seeds per acre (9.87 to 1.23 lb/ac). The trial was planted using a randomized complete block design with four replications. Emergence date was recorded in Julian days (number of days from January 1) for statistical purposes and the corresponding calendar dates are also presented. Stand counts were taken when the canola reached the 1 to 2 true leaf stage of development. Flowering date was noted when 50% of the plants in a canola plot had at least one open flower, and were recorded in Julian days (number of days from January 1) for statistical purposes. Corresponding calendar dates also are presented. Canola plant height was measured in inches from the soil surface to the top of the plant at maturity. Reported values have been rounded to the nearest inch. All rows of each test plot were trimmed 60 inches and harvested using an experimental-plot combine. Recorded seed yields were adjusted to 10% grain moisture content, and are reported in pounds per acre. Test weight (pounds per bushel) and percent seed moisture content were obtained for each plot using a Dickey-john GAC 2100 grain analyzer. Oil content (%) and thousand kernel weight (grams) was determined for each entry in all replications.

RESULTS and SUMMARY: Crop establishment, productivity and quality from different seeding rates of Hyola 357 Roundup ready canola are presented in Table 1. As expected there was a significant difference in crop stand densities between the different seeding rates. Stand counts ranged from 134 plants/m² for the 1.0 x-seeding rate to 20 plants/m² for the 0.125 x-seeding rate. Seeding rate influenced yield with seed production averaging 409 lb/ac and ranging from 501 lb/ac for the 1.0x rate to 328 lb/ac for the 0.125x rate. No reduced seeding rate produced a seed yield equal to the yield produced by the 1.0 x-planting rate. At harvest time, there was very little difference in canopy appearance between seeding rates because of the plants ability to utilize available growing space. Across two years, there was no significant difference in seed production between any of the seeding rates.

FUTURE PLANS: At this point, there are no plans for further spring canola seeding rate evaluations under dryland conditions during 2002 at Southern Agricultural Research Center.
Table 1. Performance and grain quality of uncoated ‘Hyola 357 RR’ spring canola established with four seeding rates under dryland conditions near Huntley, Montana during 2001. (Exp. 01SCRS08).

| Planting Date | Grain Yield 1/ | Test Weight | Grain Moisture | Oil Content | TKW | Harvest Index | Stand Count | Flowering Date  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
<td>2000-2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Julian Calendar</td>
</tr>
<tr>
<td>1.000 x</td>
<td>501.0**</td>
<td>681.3</td>
<td>51.9</td>
<td>4.5</td>
<td>26.2</td>
<td>2.7</td>
<td>18.8</td>
<td>133.7</td>
</tr>
<tr>
<td>0.500 x</td>
<td>440.8</td>
<td>728.8</td>
<td>52.5</td>
<td>4.4</td>
<td>26.0</td>
<td>2.8</td>
<td>17.9</td>
<td>58.2</td>
</tr>
<tr>
<td>0.250 x</td>
<td>367.0</td>
<td>680.2</td>
<td>52.9</td>
<td>4.3</td>
<td>26.0</td>
<td>2.6</td>
<td>16.9</td>
<td>31.2</td>
</tr>
<tr>
<td>0.125 x</td>
<td>328.6</td>
<td>627.6</td>
<td>53.0</td>
<td>4.4</td>
<td>26.0</td>
<td>2.7</td>
<td>17.1</td>
<td>19.7</td>
</tr>
</tbody>
</table>

Average: 409.3 | 679.5 | 52.5 | 4.4 | 26.1 | 2.7 | 17.7 | 60.7 | 158.6 | Jun 06 |

LSD (p=0.05): 52.3 | ns | ns | ns | ns | ns | ns | 15.5 | 1.3 |

CV%: 8.0 | 15.7 | 1.6 | 3.0 | 0.8 | 4.9 | 5.8 | 16.0 | 0.2 |

1/ Yields are adjusted to 10.0 percent moisture content.
** Indicates highest yielding cultivar.
ns Indicates no significant difference between cultivars within a column based on Fisher's protected LSD (p=0.05).

---

**Spring Canola Seeding Rate Trial (Exp. 01SCSR08)**

Planted: April 19, 2001
Harvested: August 7, 2001
Fertility: 18-46-00, 100 lb/a preplant incorporated, September 1, 2000
Herbicide: Assure II, 8 oz/a; 17% COC, 1% v/v, May 4, 2001
Insecticide: Sevin SLR Plus, 1 qt/a, May 15, 2001
Previous Crop: summer fallow
Precipitation: 7.95 inches