

Progress Report WA Oilseed Commission

Title: Winter Canola Variety Testing in Chemical Fallow Transitional Rainfall Zone

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Initiation: Summer, 2013 – Fall, 2014

Objective: Identify winter hardy winter canola varieties that can be seeded in chemical fallow and traditional fallow in the low to intermediate rainfall zones.

Progress: Included in this progress report is the winter canola stand establishment, winter/cold survival, and yield at Pomeroy, WA for 2013-2014 as well as stand establishment for the 2014-2015 season at Okanogan, Asotin, (Cloverland), and Pomeroy, WA. Conditions were very dry for planting in August 2013. Variety trial establishment was unsuccessful at Ralston, Bridgeport and Okanogan. We had a successful trial at Pomeroy and winter canola was seeded no-till on August 5, 2013. Fourteen varieties were planted and included: 1) Three from the University of Idaho (WC-1, 05.6.33, and Amanda); 2) Two from CROPLAN (HyClass 115 and 125); 3) Three varieties from Spectrum Crop Development (Largo, Falstaff, and Casino); 4) Three varieties from Kansas State University (Sumner, Claremore, and Griffin); 5) Two from Rubisco (Edimax and Safran); and 6) One variety, DKW 46-15 from DeKalb (Monsanto). CROPLAN varieties are resistant to glyphosate (as is DKW 46-15) and tolerant to sulfonylureas, while the U of I and Spectrum varieties are conventional varieties. Largo and Griffin are varieties with presumably winter hardiness traits. Sumner is tolerant to sulfonylurea herbicides and Claremore is tolerant to imidazolinone herbicides. In October, permanent crop stand counts were recorded in two, 1-m row lengths per plot at each location. Plants were recounted in the same areas to determine winter/cold survival. Stand establishment was determined 3 weeks after planting on a visual scale, from 1 to 5 with 1 being poor and 5 being excellent.

At Pomeroy in 2013-2014 (Table 1), winter canola establishment ranged from 2.3 (Casino and Safran) to 5.0 (Edimax). Both Falstaff and Amanda had very good (4.0) stand establishment in no-till as did both CROPLAN varieties (4.3 to 4.5). Several varieties had winter/cold survival of > 100% although the additional plants were spindly and probably did not survive the summer because of the late emergence and intraspecific competition (Table 1). Falstaff and Largo had survivability of > 90% while the remaining varieties were < 80%.

Approximately 7 to 10 days prior to harvest, a hail storm moved through the area, across the field and our plots. We had applied pod sealant before the hail storm and the canola lost 15 to 35% of the seed depending on the variety (based on our visual assessment). Winter canola yield ranged from 965 lbs/A (Largo) to 2445 lbs/A (Edimax). Falstaff and WC-1 produced > 2300 and 2400 lbs/A respectively. CP 115 and 125 yielded just over 1800 lbs/A and appeared to have more seed shattered from the hail.

During the winter of 2013-2014, we had Ag-Pro modify several items on the drill. We planted winter canola in 2014 no-till with the modified drill (Figure 1) on August 19 (Asotin/Cloverland), August 20 (Pomeroy), and August 26 (Okanogan).

We planted 14 varieties with Mercedes and Inspiration from Rubisco and CP 13-26 as additional varieties while not including Safran and Casino. Planting conditions were optimum at Asotin as reflected by establishment ratings of 4.6 to 5.0 for all varieties except Edimax and even that variety had a 4.0 rating. It is interesting that Edimax had the highest establishment rating in 2013-2014, and consistently one of the lowest rating at all three locations in 2014-2015. Ratings

at Pomeroy ranged from 3.4 to 4.6 with the majority of ratings slightly over 4. Fall rains increased establishment between when the ratings were recorded and fall freeze-up. The Okanogan site was drier with heavy standing winter wheat stubble with establishment ratings ranging from 3.0 to 4.5 but overall slightly lower than at the other two locations. Again, fall rains were timely and most varieties were well established going into the winter (Figure 2).

In the fall of 2014, Megan Reese, a graduate student at WSU began monitoring winter canola water use efficiency and N cycling at each variety trial site. At Asotin, the effect of planting date on winter canola water stress was very evident (Figure 3). Winter canola to the left in the picture was planted by the grower on July 18 and our much greener varieties were planted on August 19.

Future Research: We will continue to do winter canola varietal trials throughout the dryland, low-rainfall region of WA for the 2015-2016 growing season. In addition, we will establish a spring canola variety trial near Clarkston this spring (2015) in lieu of a winter trial because the site was too dry in 2014. Also this summer we will establish a time of planting winter canola with various mowing dates involved. We will follow N cycling in each treatment with labeled N, as well as yield, soil water, and economics. We will submit a detailed proposal if a formal RFP is requested.

Budget for 2015-2016: \$12,000 for travel and salary.



Figure 1: Ag-Pro drill used for no-till planting of winter Canola.



Figure 2: Winter Canola established in wheat stubble, Okanogan, WA, fall 2014.



Figure 3: Comparison of grower's mid-July planted winter canola and our research plots planted in mid-August. Photo taken 10/31/14.

Table 1. Winter Canola Establishment, Survival and Yield for 2013-2014 at Pomeroy

Variety	Establishment^a	Survival (%)	Yield (lbs/A)
Edimax	5.0	67	2445
Safran	2.3	109	2105
Casino	2.3	104	1765
Falstaff	4.0	92	2340
Largo	3.8	93	965
WC-1	3.0	108	2400
05.6.33	3.8	100	2295
Amanda	4.0	73	2235
Claremore	3.8	74	2215
Sumner	3.3	77	2020
Griffin	3.0	118	2055
CP 115	4.5	78	1810
CP 125	4.3	72	1840
DKW 46-15	3.5	75	2330

^a Establishment on a 1 to 5 basis

Table 2. Winter canola establishment^a Establishment on a 1 to 5 basis for 2014-2015 at Okanogan, Asotin and Pomeroy WA.

Variety	Okanogan	Asotin	Pomeroy
Mercedes	4.3	4.8	4.5
Edimax	3.0	4.0	3.6
Safran	3.5	4.5	3.4
Inspiration	4.0	4.9	4.0
Largo	3.9	4.8	4.4
Falstaff	4.3	4.5	3.6
CP115	4.3	4.8	4.0
CP125	4.5	4.8	4.3
CP13-26	4.0	5.0	4.3
Amanda	4.3	4.8	4.4
WC-1	3.9	4.8	-
05.6.33	3.6	4.6	-
Griffin	4.1	4.8	3.9
Claremore	4.1	4.8	4.6

^a Establishment on a 1 to 5 basis