Progress Report

2007 Canola Disease and Insect Survey for

North Dakota and Minnesota

Diseases in 2007 Canola Field Survey (Table 1)

Blackleg was the most common disease in the 2007 survey, with 11% of inspected plants in North Dakota showing penetrating lesions (Fig. 1) and 8% showing superficial lesions (Fig. 2). The superficial lesions usually represent the PG-1 strain of blackleg, which has low pathogenicity on most cultivars. The penetrating lesions might be due to infections by PG-2, PG-3, PGT or PG-4, all of which have been identified in North Dakota in recent years (Bradley, Chen and Fernando). Highest infection levels with penetrating lesions were in Towner (26%), McLean (23%), Ramsey (21%), Cavalier (18%) and Bottineau (16%) counties. The presence of PG-3, PGT and PG-4 in recent years is of concern since most blackleg cultivars released in the past were resistant to PG-2 and not the other races of blackleg.

Sclerotinia was present in 7% of plants surveyed, with the highest infection levels in Renville (29.5%), Bottineau (25%), and Burke (11%) counties (Fig. 3). Sclerotinia infections in 2007 were higher than in 2006 or 2005 and about the same as in 2004. Aster yellows occurred in over 5% of plants surveyed which was higher than in previous years (Fig. 4). The highest aster yellows infections occurred in Bottineau (16%) and Renville (10%) counties. Black spot on the pods was low in most counties, but was on 4% of pod area in Ramsey County and 2.6% of pod area in Foster County (Fig. 5).

Blackleg, Sclerotinia and aster yellows were not observed in Minnesota.

Insect Pests in 2007 Canola Field Survey

Canola Pheromone Trap Network (in-season)

A total of 18 pheromone traps in 14 counties were monitored for two Lepidopteran insect pests of canola in the major canola growing areas of North Dakota: Bertha armyworm *(Mamestra configurata*), and Diamondback moth (*Plutella xylostella*). Pheromone traps were monitored for mid-June to late July. The green bucket unitrap and winged sticky trap were used for ‘Bertha armyworm and Diamondback moth, respectively. Trap data provide growers, Ag consultants, Ag field researchers, and county extension agents/specialists with an “early” risk warning system of when these insect pests are active and their relative population levels.

Bertha Armyworm: Populations of Bertha armyworm were low and the peak flight occurred during early to mid-July. The highest trap catches were located at trap sites in the northern tier of North Dakota – Cavalier and Ramsey counties (Fig. 6). The majority of the trap sites, about 94%, had cumulative trap catches below 300 and was at “low” risk of larval

infestation. Overall, the 2007 trapping season showed a slight increase in cumulative trap catches from previous years. However, cumulative trap catches in 2007 marks the fourth year in a row with low risk for bertha armyworm infestations. Canola fields did not require any insecticide treatments for control of bertha armyworm in 2007. Trap monitoring efforts should be continued to track any potential increases in Bertha armyworm populations.

Diamondback Moths: Diamondback moth populations increased during late June to early July, probably representing the second generation. Field scouting is recommended when more than 100 diamondback moths are captured per trap per week for several weeks prior to the susceptible crop stage, bloom to early pod development. Sites with the highest trap counts per trap season included the north central and eastern regions of North Dakota (Fig. 7). Some canola fields were sprayed with an insecticide for control of diamondback moth in 2007.

Canola Swath Survey (post-harvest) (Table 1)

A total of 156 canola fields was surveyed in 24 counties in ND during 2007. This number represents approximately one field surveyed per 6,000 acres of canola. The survey was initiated on July 30 and continued through August 15, 2007. Crops were surveyed in the swath (mature) stage.

Flea beetles: Flea beetles were swept using a 15-inch sweep net in freshly swathed canola fields. Four sweeps at five different sites were used for a total of 20 sweeps per field. Flea beetles were found in 99% of the fields surveyed. Peak population densities occurred in the north central and northeastern regions of North Dakota. The average number of flea beetles per 4 sweeps was 24, with ranges between 0 and 94 (Fig. 8). These numbers are similar to the flea beetle populations that were found in swathed canola last year. Minnesota had average number of 18 flea beetles per 4 sweeps.

Table 1. Summary of 2007 Canola Survey in North Dakota and Minnesota.								
		GrHpr	Flea	Blackleg		Sclerotinia/	Aster	Black
	#	Ave	Beetles	Penetrating	Superficial	White Mold	Yellows	Spot
County	**Fields**	4 sweep	Ave. 5 sweep	% plants	% plants	% plants	% plants	**% pod area**
North Dakota								
Cavalier	45	0.29	9.07	17.69	16.31	3.87	7.73	0.41
Nelson	4	X	X	0.00	0.00	2.00	0.50	X
Ramsey	9	0.00	2.09	20.89	11.56	3.56	0.00	4.09
Towner	19	0.29	25.35	26.21	14.74	3.05	5.58	0.20
NE Ave.		**0.25**	**13.25**	**19.25**	**14.52**	**3.53**	**5.92**	**0.82**
NE Sub Total	**77**							
Benson	9	X	X	6.00	18.89	1.44	1.78	0.09
Bottineau	14	1.29	22.80	16.43	1.71	24.57	16.14	X
McHenry	5	2.00	17.24	6.80	0.80	6.40	8.80	X
Pierce	7	X	0.40	6.00	6.57	0.00	4.29	0.07
Rolette	8	X	0.00	4.00	0.00	8.00	4.00	0.03
NC Ave.		**1.47**	**11.66**	**9.12**	**5.67**	**10.53**	**8.09**	**0.060**
NC Sub Total	**43**							
Burke	6	2.00	44.60	0.00	2.00	11.33	1.33	X
Divide	2	2.00	19.00	0.00	1.00	2.00	1.00	X
Mountrail	9	1.56	30.33	0.00	5.11	3.11	0.89	X
Renville	13	1.08	30.14	4.46	5.54	29.54	10.23	X
Ward	15	1.87	21.32	1.33	8.13	2.13	2.53	X
Williams	1	3.00	28.80	0.00	0.00	8.00	0.00	X
NW Ave.		**1.63**	**28.67**	**1.70**	**5.52**	**11.39**	**4.11**	**X**
NW Sub Total	**46**							
Foster	2	0.00	22.00	0.00	10.00	4.00	0.00	2.62
Sheridan	3	1.67	54.67	0.00	4.67	2.67	0.00	1.41
Stutsman	1	2.00	15.00	0.00	0.00	0.00	0.00	1.70
Wells	2	2.00	55.50	0.00	8.00	2.00	0.00	1.75
C Ave.		**1.38**	**41.75**	**0.00**	**6.25**	**2.50**	**0.00**	**1.84**
C Sub Total	**8**							
Dunn	1	0.00	25.80	0.00	0.00	0.00	0.00	0.06
McKenzie	1	1.00	22.80	0.00	0.00	8.00	0.00	X
McLean	9	2.22	31.11	23.44	2.00	7.33	8.22	X
Mercer	2	0.00	30.90	0.00	2.00	0.00	0.00	X
WC Ave.		**1.62**	**30.03**	**16.23**	**1.69**	**5.69**	**5.69**	**0.06**
WC Sub Total	**13**							
Morton	1	0.00	6.20	0.00	0.00	0.00	0.00	X
SC Sub Total	**1**							
SW: Hettinger	4	**0.00**	**22.15**	**4.50**	**0.50**	**0.00**	**0.00**	**0.03**
SW Sub Total	**4**							
ND Ave.		**1.00**	**20.15**	**11.36**	**8.79**	**6.99**	**5.56**	**0.69**
ND Total	**192**							
Minnesota								
Roseau	10	0.80	18.12	0.00	0.00	0.00	0.00	0.06

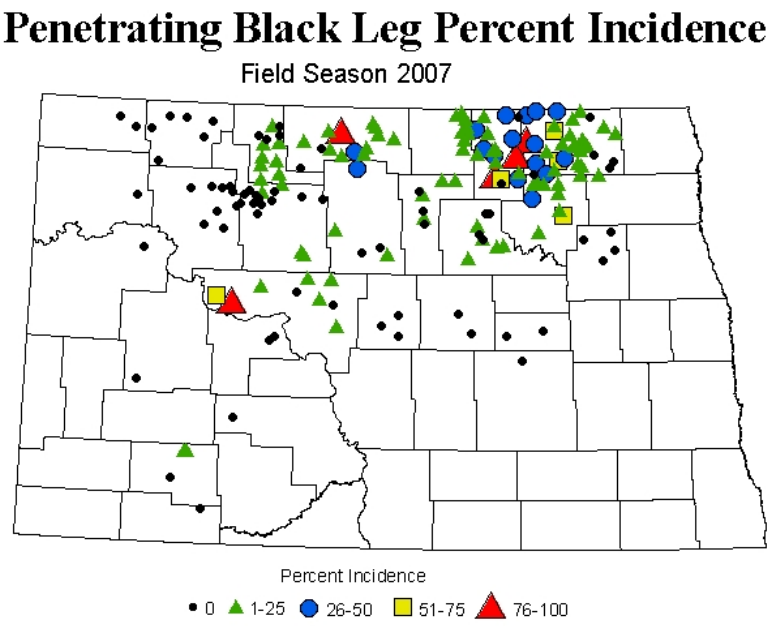

Figure 1. Penetrating Black leg in Canola.

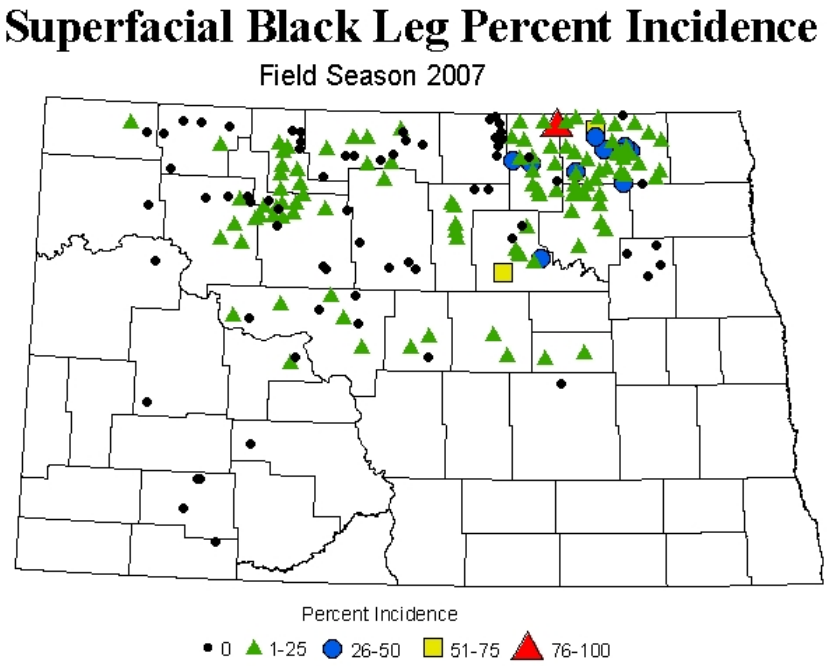

Figure 2. Superfacial Black leg in Canola.

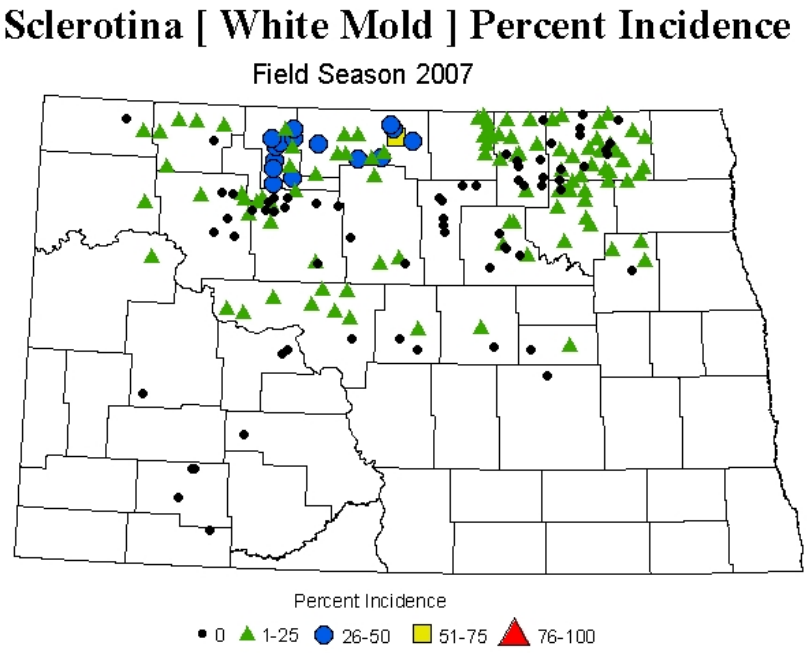

Figure 3. Sclerotinia (white mold) in Canola.

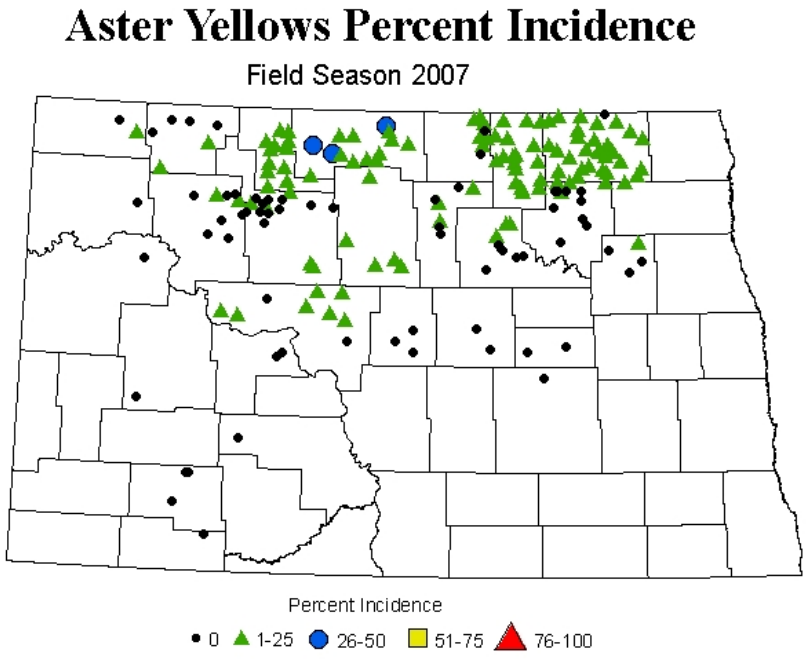

Figure 4. Aster Yellows in Canola.

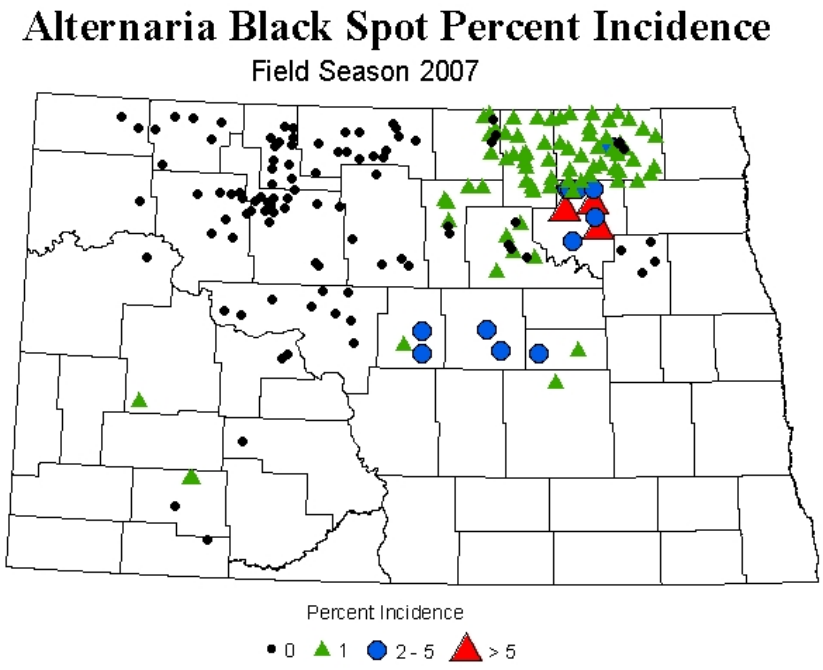

Figure 5. Alternaria Black Spot in Canola.

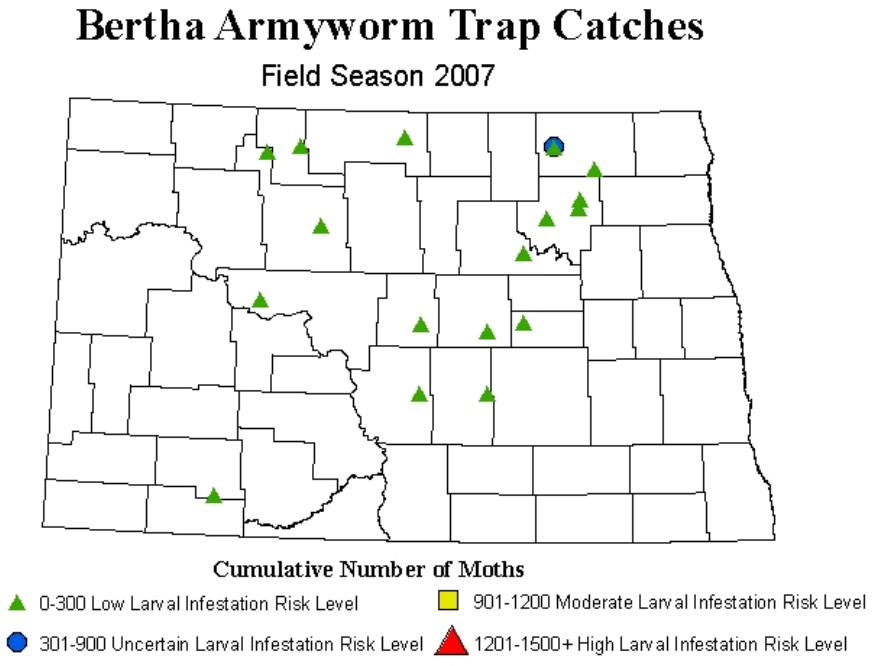

Figure 6. Bertha Armyworm in Canola.

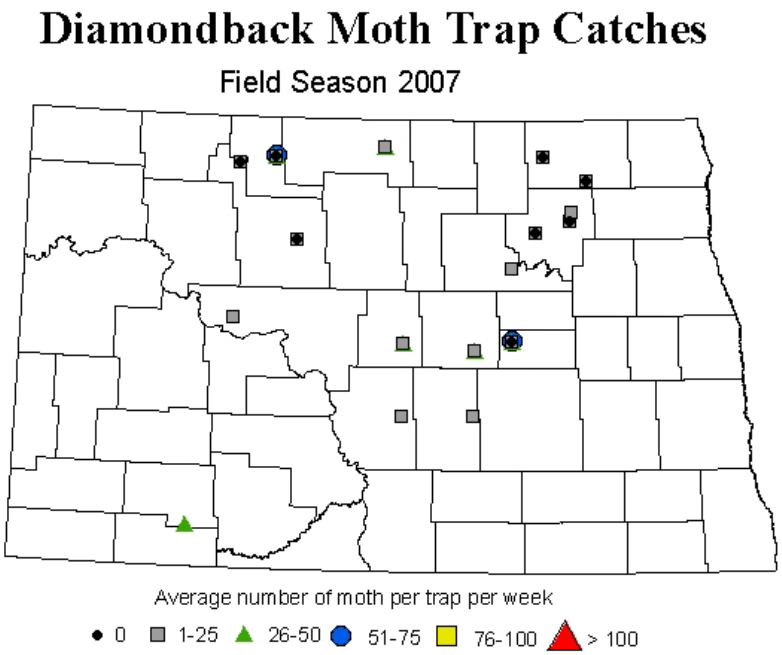

Figure 7. Diamondback Moth in Canola.

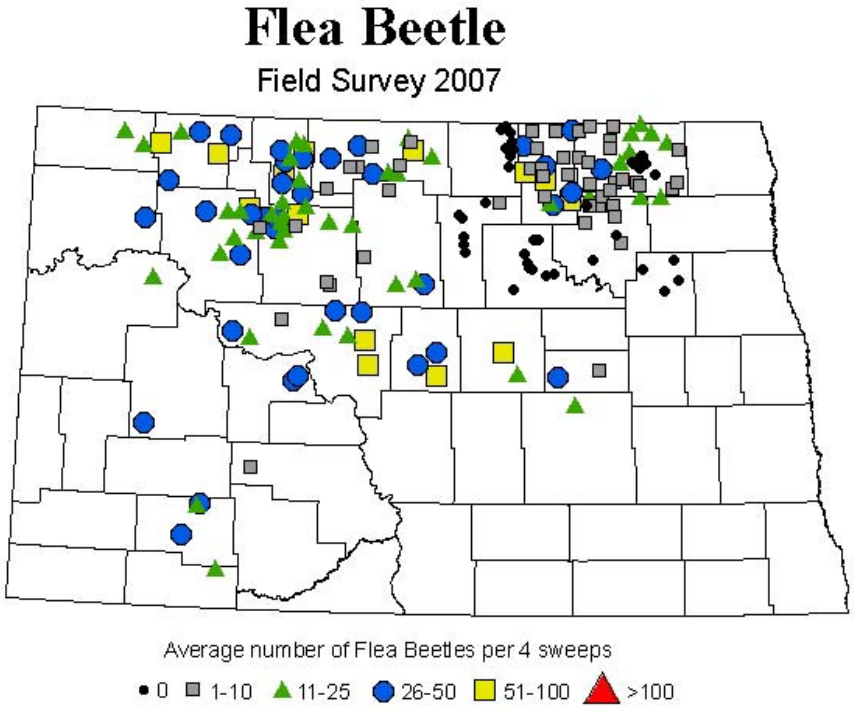

Figure 8. Flea Beetles in Canola Swath.