FIELD TESTS OF WINTER RAPESEED RESISTANCE TO THE CABBAGE SEEDPOD WEEVIL

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We intiated studies in 1989 to discover any host plant resistance in winter rapeseed (Brassica napus L.) to the cabbage seedpod weevil (Ceutorhynchus assimilis Paykull). In August of 1988 a field 1 mile N.W. Moscow, Idaho was planted with 422 lines of winter rapeseed for a USDA germplasm winter hardiness trial by Prof. Dick Auld of the Univ. of Idaho. There were two replicates for each line in non-random design. Three seperate assays were conducted; 1) adult cabbage seedpod weevil (CSPW) counts, 2) adult CSPW feeding punctures, and 3) CSPW larvae exit holes. Parathion was sprayed on June 9 of 1989, thus complicating the exit hole assessment.

CSPW adult counts were made on June 5,1989 by dislodging the weevils into a 5 gallon bucket with one beat of a hand at each end of the sampled plot. The temperature was about 85 degrees F. and the skies clear.

The CSPW feeding puncture assay was started on June 6, 1989 by removing 6 pods from each of 4 plants (total of 24 pods/ plot) at different locations in the plot. Two pods were removed from the main raceme at basal, middle and distal points for each plant sampled. Collected pods were stored in a cold room (6 degrees C.) Over the next week pods were removed as needed and examined under a microscope to count and record the number of CSPW feeding punctures on each pod.

The CSPW larvae exit hole assay was started on June 29, 1989 by removing 6 pods from each of 4 plants (total of 24 pods/ plot) at different locations in the plot. Two pods were removed from the main raceme at basal, middle and distal points for each plant sampled. Collected pods were stored in paper bags to allow the pods to dry and not mold. Exit hole counts were not started for about 4 weeks because larvae exited from the pods in the bags for at least two weeks after collection. After 4 weeks, exit holes were counted and recorded.

Means were calculated for adult counts, feeding punctures per pod, feeding punctures per mm. of pod, exit holes per pod, and exit holes per mm. of pod. The top 9 to 12 lines (resistant and susceptible) for each respective assay are presented in the following tables.

'Resistant'

Line	Country	Mean weevil count/plot
PI 432395	Bangladesh	5.0
Kuju 56	R. Korea	5.0
Mopko #4	R. Korea	6.5
PI 311728	Poland	7.0
Chun-King	P.R. China	7.0
Crop	France	7.0
Kuju 57	R. Korea	7.0
PI 284859	Poland	8.0
Lesira	F.R. Germany	8.0
Kinki #20	R. Korea	8.0
Mopko 19	R. Korea	8.0
Rang	R. Korea	8.0

'Susceptible'

Line	Country	Mean weevil count/plot
PI 323939	U.K.	44.0
Mopko 7	R. Korea	32.5
Aomori-1	R. Korea	30.5
Tsukushishu	R. Korea	28.5
Yuche Tac nan	R. Korea	28.0
Norin #3	Japan	28.0
Iwao natane	R. Korea	28.0
Tandem	Canada	28.0
Mopko 18	R. Korea	27.0
Gry	Norway	27.0

Line	Country	Mean # feeding punctures /pod
PI 169083	Turkey	3.38
PI 176876	Turkey	4.35
PI 324507	Brazil	6.67
Janetzki	R. Korea	6.90
PI 305282	Sweden	7.19
Shuang P. K.	P.R. China	7.44
Calder Swede	New Zealand	7.50
Buk Wuk 16	R. Korea	7.60
Laura	F.R. Germany	7.69
Eragi	F.R. Germany	7.71

Line	Country	Mean # feeding punctures /pod
Kuju 58	R. Korea	26.1
Mopko 7	R. Korea	25.9
Buk Wuk 17	R. Korea	24.4
Mopko 14	R. Korea	24.0
PI 311727	Poland	24.0
Gan You #5	P.R. China	23.6
Kuju 9	R. Korea	23.7
PI 284859	Poland	22.9
Mopko 6	R. Korea	22.8
Gan You #2	P.R. China	22.8

Line	Country	Mean # feeding punctures /mm pod
PI 169083	Turkey	.092
PI 176876	Turkey	.110
Janetzki	R. Korea	.112
PI 305282	Sweden	.127
PI 324507	Brazil	.141
Eragi	F.R. Germany	.149
Lisora	F.R. Germany	.160
Lisira	F.R. Germany	.162
Laura	F.R. Germany	.166
PI 171521	Turkey	.167

Line	Country	Mean # feeding punctures /mm pod
Kuju 9	R. Korea	.535
Kuju 55	R. Korea	.533
Kuju 37	R. Korea	.479
Kuju 29	R. Korea	.479
Gan You #5	P.R. China	.478
Mopko 14	R. Korea	.478
Buk Wuk 23	R. Korea	.472
Kuju 58	R. Korea	.464
Kuju 33	R. Korea	.460
Kuju 54	R. Korea	.452

'Resistant'

Lines	Country	Mean # exit holes /pod
Mopko 7	R. Korea	.056
PI 169081	Turkey	.125
PI 311728	Poland	.167
Norin 5	Japan	.167
Buk Wuk 20	R. Korea	.188
PI 432391	Bangladesh	.208
Norin #25	Japan	.229
Gulle	Sweden	.234
Buk Wuk 13	R. Korea	.271
PI 458979	U.S.	.271
PI 470086	R. Korea	.271
Bridger	U.S.	.280

'Susceptible'

Line	Country	Mean # exit holes /pod
Amori	R. Korea	2.00
Amori-1	R. Korea	1.77
PER	U.S.	1.73
Giant Rape	R. Korea	1.71
PI 470079	R. Korea	1.69
Dong Hae 18	R. Korea	1.69
Dong Hae 24	R. Korea	1.63
C73/1262	R. Korea	1.63
Mulchower	R. Korea	1.57
Englu	R. Korea	1.56

Line	Country	Mean # exit holes/ mm pod
Mopko 7	R. Korea	.00106
PI 169081	Turkey	.00228
PI 311728	Poland	.00355
Norin 5	Japan	.00367
Buk Wuk 20	R. Korea	.00458
Gulle	Sweden	.00474
PI 458979	U.S.	.00490
PI 432391	Bangladesh	.00510
Buk Wuk 13	R. Korea	.00526
Bridger	U.S.	.00532
PI 470086	R. Korea	.00558

Line	Country	Mean # exit holes/ mm pod
Amori	R. Korea	.0358
Dong Hae 18	R. Korea	.0342
PER	U.S.	.0335
Dong Hae 24	R. Korea	.0327
Giant Rape	R. Korea	.0319
Shuang P. K.	P.R. China	.0318
Amori-1	R. Korea	.0317
PI 470079	R. Korea	.0312
Dong Hae 10	R. Korea	.0312
C73/1262	R. Korea	.0306
Mulchower	R. Korea	.0281