

Evaluation of the effect of chemical treatment on the development of pod lesions on sugar snap pea, 2001.

A field trial was planted May 9 at the Hancock Agricultural Research Station to evaluate the effect of chemical treatment on pod lesion symptoms. Seeds of cultivar Sugar Prince were planted using a drill at approximately 267 lb per acre with 7-inch row spacing. The experimental design was a randomized complete block with four replications. Each plot consisted of one, 6-foot-wide bed with ten 25-foot-long rows planted in it. Soil type was a Plainfield loamy sand with pH 6.0. Fertilizer consisted of 0-0-61 broadcast at 250 lb/A on 16 Apr, prior to planting. Basagran, 1.5 pt/A + Poast Plus, 1.5 pt/A + Crop Oil, 1.0 pt/A was applied June 8 for weed control. Chemical treatments were applied with a tractor-mounted boom pressurized with an air compressor. Treatments were applied June 21 and 28, and July 5 and 12, according to treatment protocol, at a rate equivalent to 35 gal water/A at 40 psi, using Tee Jet D3-23 nozzles (8 nozzles at 8-inch spacing). On July 10 and July 16, 50 mature pods were picked from the center rows of each plot. Pods were divided into severity classes according to the number of lesions seen on one side of each pod: 0 – no lesions; 1 – 1 lesion; 2 – 2-5 lesions; 3 – 6-10 lesions; 4 – 11-20 lesions; 5 > 20 lesions. Rainfall recorded for this field during the growing season (inches) was 3.33 May (9-31), 4.1 - June; 2.73 - July; 4.57 - August and 4.59 - September. An additional 5.04 inches of water was applied as overhead sprinkler irrigation in nine applications (June 26 – July 16).

Symptoms were most severe on the mature pods harvested on July 10. Pods that matured during the next week and were harvested on July 16 exhibited much lower symptom severity and fewer lesions per pod. Four applications of Champ Formula 2 containing copper hydroxide did not affect disease severity or the number of lesions per pod. Isolations from individual pod lesions yielded isolates of *Alternaria alternata*, but subsequent inoculation of healthy immature pods with *Alternaria* and maintaining them in a humid environment at room temperature did not lead to development of similar pod lesions. Given the unknown nature of this problem and our inability to complete Koch's postulates, it is possible that the pod lesions are related to environmental conditions during pod development. However, temperature (maxima and minima) and rainfall data from 2001 do not appear to be abnormally high or low.

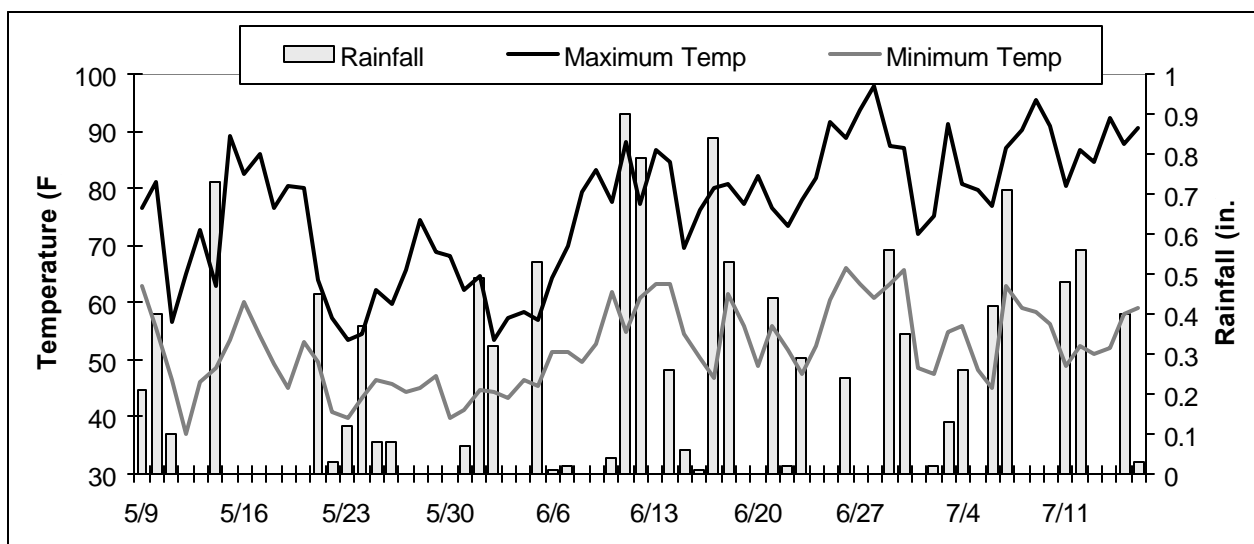


Table 1. Effect of foliar chemical treatment on pod symptoms.

Treatment	Rate/Acre (Formulated Product)	Schedule summary	Disease Severity ^{1,2}		Avg. lesions/pod ^{1,3}	
			7/10	7/16	7/10	7/16
Untreated Control			30.4	3.1	31.2	3.1
Champ Formula 2	2 pt	Bud stage (June 21), Full bloom (June28), Full bloom + 1 week (July 5), Full bloom + 2 weeks (July 12)	32.7	3.4	32.1	3.3
Pr > F ⁴			0.65	0.67	0.74	0.72
LSD ⁴			NS	NS	NS	NS

1. 50 mature pods were harvested from each plot. Pods were divided into severity classes according to number of lesions seen on one side of each pod: 0 – no lesions; 1 – 1 lesion; 2 – 2-5 lesions; 3 – 6-10 lesions; 4 – 11-20 lesions; 5 > 20 lesions.
2. Severity was calculated by summing the number in each class times the class number x 100 / 5 times the total number of pods rated. The maximum value for this index (if all pods were rated 5) is 100.
3. Average number of lesions/pod was calculated by summing the number in each class times the mean number of lesions for that class / total number of pods rated. Mean lesions/class used in this calculation were: class 1 – 1, class 2 (2-5 lesions) – 3.5, class 3 (6-10 lesions) – 8, class 4 (11-20 lesions) – 15.5, class 5 (> 20 lesions) 21.
4. Analysis of variance was performed on data, and Fisher's protected least significant difference (LSD) was calculated. NS = not significant at $P = 0.10$.