

Section VII  
Foliage & Seed Feeding Pests

PEA APHID, SPRING DRY PEA, AND THE PALOUSE

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Dry pea, *Pisum sativum* L., is a major spring crop grown in rotation with cereal crops in eastern Washington and northern Idaho (Palouse region of the Pacific Northwest). The primary benefit of growing peas in a cereal-based cropping system is that wheat yields are higher after a spring pea crop. The major insect pests of spring dry pea in this region are the pea leaf weevil, *Sitona lineatus* (L.), pea aphid, *Acyrtosiphon pisum* (Harris), and pea seed weevil, *Bruchus pisorum* (L.) (Young et al., 1994; Clement et al., 2000). These insects also attack pea germplasm nurseries maintained by the Western Regional Plant Introduction Station in the Palouse (Clement 1999). Insecticide sprays are used to control these pests (Young et al., 1994; Clement et al., 2000; Clement 1999).

An insect outbreak is an “explosive increase in the abundance of a species that occurs over a relatively short period of time” (Berryman 1987). In the Palouse, dry peas were devastated by pea aphid-vectored pathogenic viruses and by aphid feeding damage during the ‘outbreak’ years of 1983, 1990, and 1996 (Klein et al., 1991; Clement et al., 2000). With high year to year variability in the occurrence of the pea aphid, it is important to track this aphid’s occurrence so pest managers and farmers have lead time to make chemical control decisions. Currently, decisions to chemically control the pea aphid are not based on research-derived economic injury level and action threshold estimates. By contrast, these estimates have been derived for the aphid on green peas in western Washington (Yencho et al., 1986).

This report updates inter-year variability of pea aphid occurrence in the Palouse. To date, outbreaks have occurred every seven (1983 to 1990) and six (1990 to 1996) years. It has been six years since the last outbreak (Fig. 1), so one could argue that the Palouse is due for another pea aphid outbreak. I have not attempted to associate these outbreaks with abiotic (temperature, wind, rainfall) and biotic (action of biocontrol agents) factors.



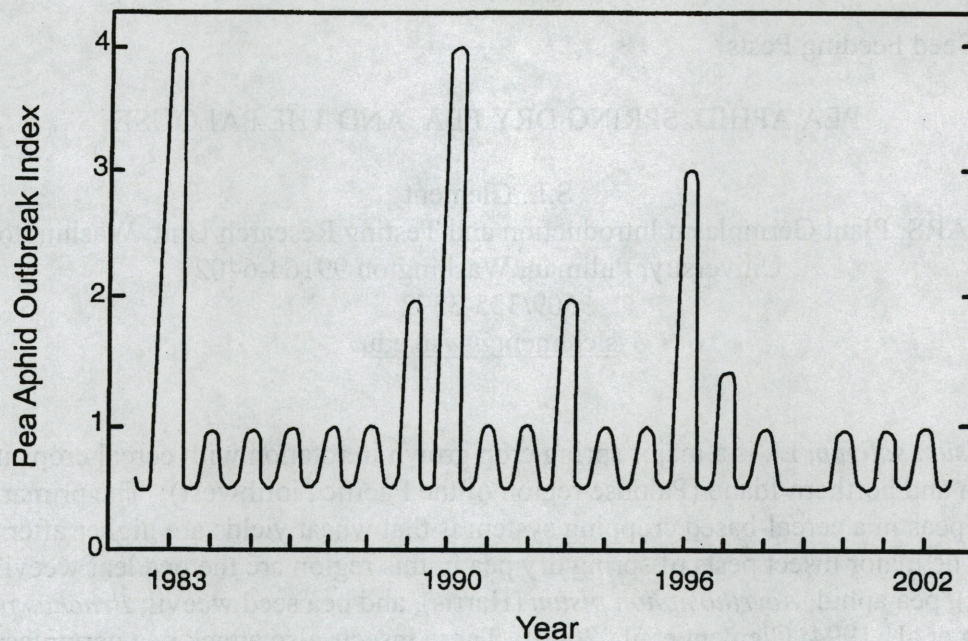


Fig. 1. Year to year variability of pea aphid occurrence in the Palouse. An outbreak index of 0-1 = 'high' pea aphid populations in 0-25% of commercial pea fields, 1-2 = 26-50%, 2-3 = 51-75%, and 3-4 = 76-100% of the fields. Index derived from aphid suction trap counts, field sampling, incidence of pea aphid vectored viruses and virus epidemics in dry peas, and farmer contacts.

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