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Non-potato host plants of potato psyllid in the Pacific Northwest: a year-round complication?

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The 2011 outbreak of potato psyllid and zebra chip disease in the Pacific Northwest led to disruption of established IPM programs, including often a shift by growers to calendar-based sprays of insecticides for controlling the psyllid. This shift has had several undesirable effects, including jumps in IPM costs, increases in quantities of insecticides applied annually, weakening of biological control, and potential for insecticide resistance. The shift away from previously established IPM practices is due to one primary factor: We cannot predict when and in what fields potato psyllid is likely to first arrive. A monitoring program initiated by WSU personnel in response to the 2011 outbreak shows this dilemma. Potato psyllid begins to slowly appear in potato fields of Washington State in late May and early June **(Figure 1)**. The initial arrival appears to be highly patchy, with psyllids first showing up in often widely

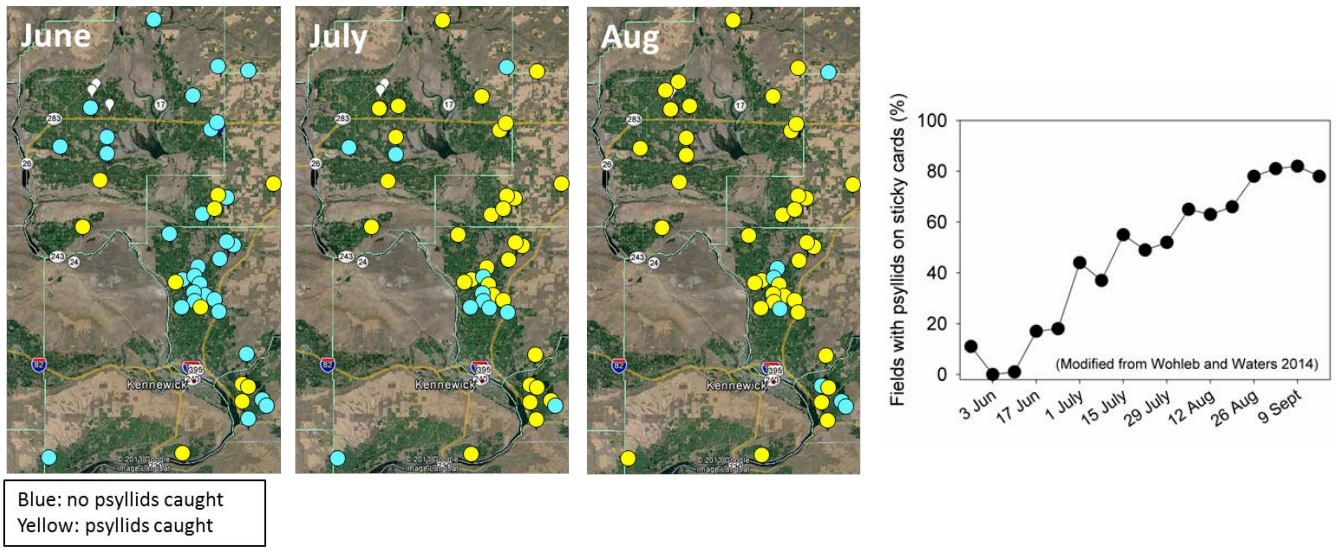

Figure 1. Results of trapping in central Washington potato fields. Each yellow or blue circle depicts a single field: blue – no psyllids captured on sticky cards; yellow – at least one psyllid captured at that location. Panel at right shows percentage of fields at which sticky cards captured at least one potato psyllid. Figures modified from Wohleb and Waters (2014).

ignores the idea that colonization of potatoes in the Pacific Northwest might include migrants from southern growing regions. Those colonists, if this indeed is a route of infestation, could hypothetically include psyllids that arrive directly in potato fields from southern regions, or migrants that first colonize host plants listed in **Table 1** before moving into fields. Finally, we have almost no information about the role of these non-potato hosts as sources of the zebra chip pathogen. There is some suggestion in the literature that weedy hosts of the psyllid may support the pathogen (Murphy et al. 2014, Thinakaran et al. 2015), but considerably more research is needed to determine whether these plant taxa are actual sources of infective psyllids moving into potatoes.

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