

## SUCTION TRAPPING OF RUSSIAN WHEAT APHIDS - WHAT DO THE NUMBERS MEAN?

Susan Halbert<sup>1</sup>, Leslie Elberson<sup>2</sup>, Thomas Mowry<sup>1</sup> and James B. Johnson<sup>2</sup>

1. University of Idaho, Parma R/E Center, Parma, Idaho 83660.

2. University of Idaho, Department of Plant, Soil and Entomological Sciences, Moscow, Idaho 83843

Suction traps are widely used throughout the western states to monitor flights of Russian wheat aphids. In some states, trap collections are used to warn growers who may be in high risk areas. In spite of their wide use as a monitoring and management tool, there is considerable debate as to what collections mean with respect to aphid biology. In Idaho, we now have five seasons of trapping at locations representing a wide variety of elevations and latitudes. We use these data, combined with field counts, to draw some conclusions about the biology behind suction trap collection counts.

Peak flights of many aphid species, including Russian wheat aphids, occur progressively later at higher elevations across southern Idaho. This has long been interpreted as evidence of aphid migration across the state. However, when peak collection dates are plotted against lilac bloom dates (an independent phenological indicator for which very detailed information is known for Idaho), the plot approximates a straight line. Thus, we think that trap collections reflect local crop phenology rather than migration.

Logarithms of weekly suction trap catches are highly correlated with local field populations of Russian wheat aphids (Fig. 1). Russian wheat aphids are collected in a trap before fields of spring grain in that area have surpassed the economic threshold. These observations suggest that traps reflect alate production from local crowded colonies, and that trap data are a reliable management tool for spring cereals.

In most cases, exceptionally early first collections of Russian wheat aphids in a particular trap occurred in regional outbreak years (Fig. 2). In no case was there an outbreak in spring cereals following a very late first collection of Russian wheat aphids. At locations where yearly totals for Russian wheat aphids have varied widely, there is usually a reasonably strong negative correlation between date of first collection and the logarithm of the total number taken in the year. An early trap collection is thus an indicator that growers in the area should be vigilant.

Figure 1. Comparison between trap collections and percent field infestation with Russian wheat aphid, Idaho, 1988-1991.

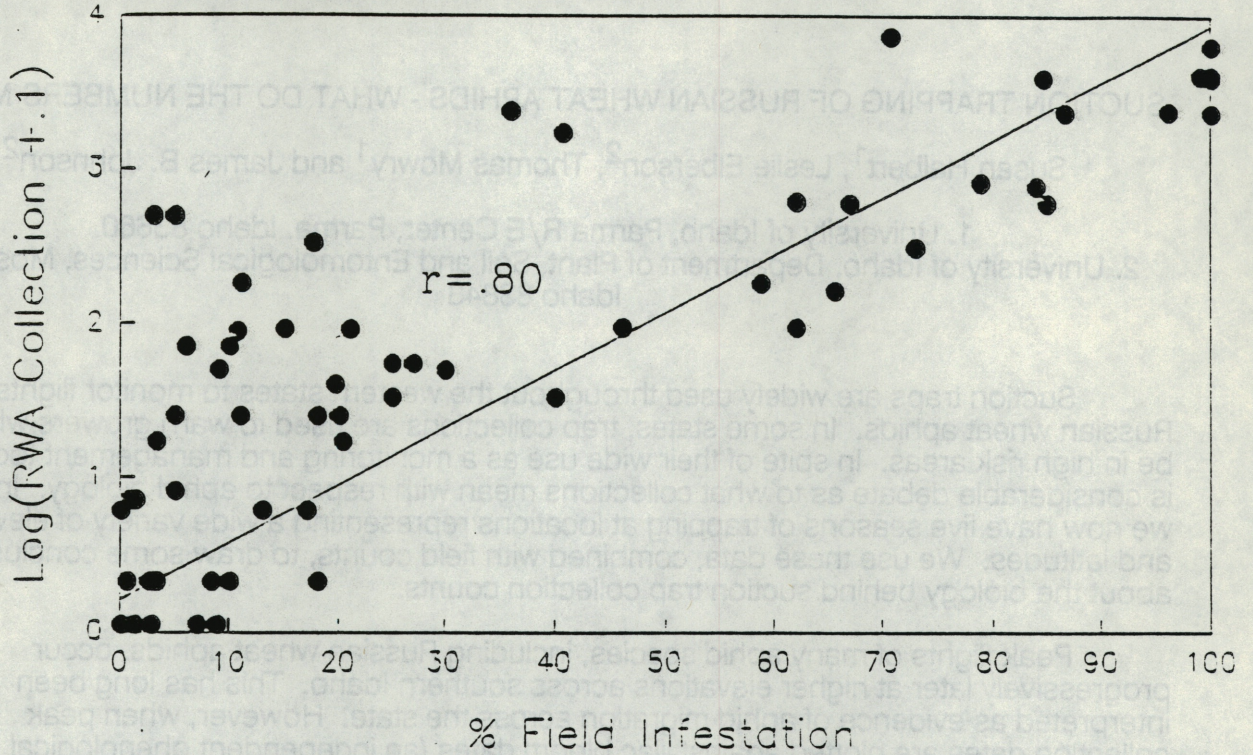
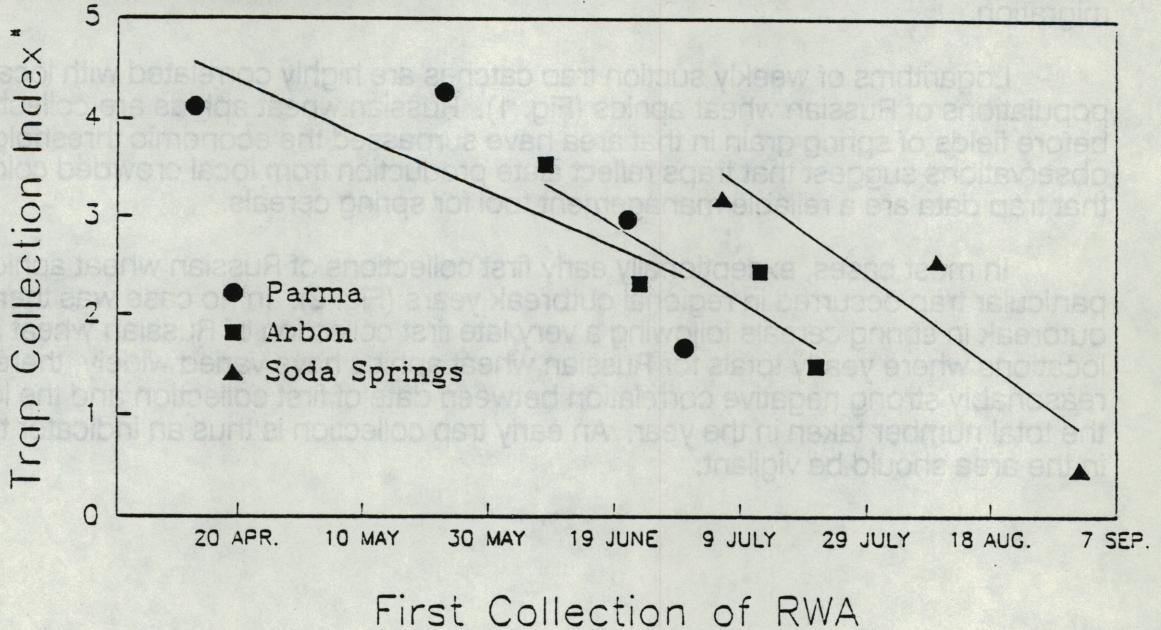


Figure 2. Relationship between outbreaks and first collection of Russian wheat aphids, Idaho, 1988-1991.



\* Log(Total RWA Collected in the year)