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# Russian Wheat Aphid - Preliminary Studies

Annual Report
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J. T. Schulz - Principal Investigator
W. F. Burr - Research Specialist II

Cooperators:

Thomas J. Conlon, Dickinson
Karlyle Erickson, Carson
Tim Faller, Hettinger
Charles Soiseth, Ft. Yates
Mike Zook, Beach

Sincere thanks is extended to these cooperators for their assistance
in maintaining the traps and forwarding all collections to the
PI during the 15 weeks of sampling.

## I. Introduction:

The Russian wheat aphid (RWA), *Diurophis noxia* (Mordvilko) was initially found in the United States in Bayley County, Texas in 1986. Since that time this aphid has been recorded in every state and province except North Dakota and British Columbia, from Texas to Saskatchewan and west to the Pacific Coast. Winter wheat losses in some areas of the winter wheat belt were severe in 1987. While the drought of 1988 reduced RWA impact in many areas, growers in the central region of Montana found it necessary to apply insecticide in October 1988 to protect winter grains from high infestation levels of this aphid.

This insect is of such significant potential impact that major resources have been committed to the research effort on RWA in many states as well as USDA-ARS and USDA-APHIS.

Since the RWA was reported in two western counties in South Dakota in 1987, formal procedures for surveillance and detection of this species in North Dakota were deemed critical and established in 1988.

## II. RWA Surveillance Program in North Dakota - 1988:

Since the movement and migration of the RWA was generally viewed in 1987 as involving both northward and westward movements, the region of North Dakota that was perceived to be most vulnerable to possible establishment of this species was SW North Dakota.

The surveillance program was undertaken by two means.

A. Trapping program with use of the Allison-Pike suction traps. This facet was handled by the Department and cooperators who made the trap collections.

B. Selected field sampling. Periodic sampling was conducted by personnel employed by the State Department of Agriculture, David R. Nelson, Plant Protection Specialist, Coordinator.

While the acute drought severely hampered field sampling, suction traps were positioned at 5 locations on May 1-2 and kept in continuous operation through September 10. Locations utilized were Ft. Yates, Carson, Hettinger, Dickinson and Beach, a continuum from South Central to Western North Dakota. Trap samples were collected weekly by cooperators at each trap location with samples shipped immediately to the principal investigator. Thus samples for each week were received by the following Monday or Tuesday and immediately reviewed to determine presence or absence of the RWA.

## III. Trap Collections & Results:

Total aphid collections for each location for the period May 1-2 through September 10 are presented in Table 1. Despite the acute drought low to moderate numbers of aphids were collected. While a number of these specimens were species of the aphid complex we routinely encounter on cereal grains, no Russian wheat aphids were collected.

These results compare favorably with that obtained in Eastern Montana, as no RWA's were collected from a trap maintained at Sidney. In fact the Eastern three tiers of Montana counties also remained free from infestations of this species in 1988.

## IV. Plans for 1989:

The potential adverse impact this species poses for cereal grains in this region dictates a need for continued surveillance for the presence of this aphid. The suction traps will again be maintained in SW North Dakota in 1989. Additionally, since infestations have been confirmed in Western Saskatchewan and Northern Alberta, additional traps will be established in NW North Dakota.

No major studies of this aphid species will be commenced as long as the RWA has not been found in the state.

**Table 1. Aphids Trapped / Allison-Pike Suction Trap, North Dakota 1988 a/**

| | Week | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Trap Site** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **Season Total** |
| Ft. Yates | 0 | 0 | 0 | 0 | 817 | 111 | 10 | 15 | -58- | | 182 | 5 | 42 | 36 | 88 | 1364 |
| Carson | 0 | 0 | 0 | 17 | 11 | -58- | | 33 | -30- | | 32 | 7 | -27- | | 20 | 235 |
| Hettinger | 0 | 0 | 0 | 83 | 3 | 12 | 10 | 9 | 15 | 16 | 3 | 9 | 18 | 125 | 269 | 572 |
| Dickinson | 6 | 0 | 137 | 38 | 5 | 24 | 7 | 0 | 15 | 36 | 18 | 5 | 69 | 98 | 42 | 495 |
| Beach | 0 | 1 | 1 | 0 | 148 | 13 | 0 | 2 | 6 | 2 | 1 | 11 | 7 | 29 | 31 | 252 |

**Total Aphids Collected: 2918**

a/ Trapping Period, May 1-2 through September 10.