EXPLORATION FOR NATURAL ENEMIES AND SURVEY OF RUSSIAN WHEAT APHID IN THE SOUTHERN U.S.S.R.

Susan Halbert, Ivan Kirijak[1] and Françis Gruber[2]
University of Idaho, SW Idaho R/E Center, 29603 U of I Lane, Parma, ID 83660

Introduction

Russian wheat aphid (RWA) [*Diuraphis noxia* (Mordvilko)] is indigenous to the middle east and the southern part of the Soviet Union, where it is not considered a pest. It is thought that natural enemies native to the Soviet Union may play an important part in keeping this pest under control. The primary purpose of our expedition was to collect natural enemies of RWA. Parasites and predators which are active in the autumn may have particular benefit in the Pacific Northwest where RWA is abundant in fall crops. A secondary purpose of our expedition was to learn as much as possible about the biology of RWA in Moldavia and the southern part of the Ukraine.

Methods

We surveyed fields of winter wheat and barley and volunteer grain in southern Moldavia and the Ukraine (including the Crimean Peninsula) for RWA and its natural enemies in October and November, 1989. All mummies (regardless of aphid host), predators and diseased cereal aphids were collected. The mummies and diseased specimens were held in small vials and refrigerated each night. The predators were kept in plastic cages provided with *Rhopalosiphum* spp. for food. All RWA were kept alive on fresh wheat plants in plastic containers for observation to see if mummies developed. As the RWA became adults, the numbers of each morph were counted and recorded.

Results and Discussion

RWA was not common in Moldavia and the Ukraine. The infestations we observed were limited to isolated plants or patches up to 2m in diameter. RWA was most common in volunteer grain. In winter wheat, infestations were most common near borders or in places where plants were sparse. Each damaged plant typically had one or two RWA. Other cereal aphids, especially *Rhopalosiphum padi* (L.), *Rhopalosiphum maidis* (Fitch) and *Sitobion avenae* (Fabricius), were common.

Of the 161 RWA collected in the Soviet Union, to date 10 have been found to be parasitized. In contrast to this, only three parasitized RWA were found among the more than 400 similarly collected RWA in the Treasure Valley this season. Mating pairs of *Aphidius* sp. and *Aphelinus* sp. from the Soviet Union are in culture at the USDA European Parasite Lab.

---

1 All Union Research Institute for Biological Methods in Agriculture, Kishinev, Moldavia, U.S.S.R.
2 USDA European Parasite Lab, Behaust, France

Five species of predators were found including *Coccinella septempunatata*, *Adonia variegata*, *Hippodamia 13-punctata*, *Thea 22-punctata* and *Propylea 14-punctata*. These have been sent to the USDA lab at Newark for rearing.

Diseased aphids are at EPL where fungi will be identified and propagated by Dr. Tad Poprawski.

No alatae or alatoid nymphs were found in the Soviet Union (Table 1). In Moldavia virtually all the *D. noxia* collected were sexual forms. In the Ukraine many sexual forms were also found, especially in the Crimean collections.

Table 1. Morphs of *Diuraphis noxia* (Mordvilko) found in the southern Soviet Union.

		morphs found				
Location	Number of sites	alate[1] viviparae	apterous viviparae	Oviparae	Males	Undifferentiated nymphs
Moldavia	2	0	0	26	0	1
Crimea	4	0	6	21	3	6
Ukraine[2]	5	0	89	9	0	0

[1] includes alatoid nymphs
[2] fields near and between Odessa and Kherson