

Section V
Biological & Cultural Controls

MASS PROPAGATION, RELEASE AND RECOVERY OF RUSSIAN WHEAT APHID
PARASITOIDS

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The Washington State University's biological control insectary currently maintains 18 different species or biotypes of RWA parasitoids for mass release purposes. As of October 5, releases for 1992 totaled 605,410 wasps for the State of Washington. Releases were distributed among 12 central and eastern Washington counties. A total of 87 different sites were targeted for parasitoid establishment. Fifty-five percent of all releases were made in wheat, sixteen percent in barley and twenty-nine percent in refugia situations. Refugia included CRP grasslands, national wildlife refuges and Army Corp of Engineers habitat management units. The latter two being important because they are commonly sown with grains to provide food for migrating Canadian geese.

Large numbers of Aphelinus sp. nr. varipes (N. Caucasus) were released in close proximity to Anatone, WA (Asotin Co.) in 1991 and were tentatively established by late summer. Recoveries since early July through August of this year, indicate that this biotype may have successfully colonized and established in the area. Approximately 75% of all RWA at the Anatone trap site were parasitized by A. nr. varipes in the August 27 sample. This biotype has been recovered at two other trap sites in Washington, but at much lower numbers.

Similarly, the French biotype of Aphelinus asychis appears to be established in the Dusty (Whitman Co.) and Central Ferry (Garfield Co.) areas, though to a less obvious extent. The RWA population at these sites was never as substantial as the Anatone site and subsequent recovery efforts have been hampered here as well as at other sites.

Research will be continued on refining mass production protocols for our multiple insectary reared lines of parasitoids and the prevention of cross-contamination. We will apply the RAPD PCR technique to our biotypic strains of Aphelinus nr. varipes as well as A. asychis, Diaeretiella rapae, Aphidius colemani and A. martricarae. The systematic 'fingerprinting' of our natural enemy accessions will potentially enable us to genetically track them after their release into the field and for subsequent field assessment and impact evaluation. Considerable emphasis will be placed on applying several methods to evaluate RWA natural enemies.