

Who we are

We are Areawide Pest

Management for Wheat, a five-year project to demonstrate pest management practices for the Russian wheat aphid and greenbug. The project is one of several areawide projects developed by the USDA Agricultural Research Service.

Our project team includes specialists from the ARS laboratory in Stillwater, Okla., as well as scientists and extension specialists from these five land-grant universities: Colorado State University, Kansas State University, University of Nebraska, Oklahoma State University and Texas A & M University.

Our Goal

The main goal of AWPM for Wheat is to collaborate with wheat producers in evaluating and demonstrating non-chemical pest management techniques, with particular emphasis on the management of the Russian wheat aphid and the greenbug.

Demonstration Elements

- Crop Diversification
- Host Plant Resistance
- Biocontrol & Field scouting
- Other "best management practices," such as conservation tillage



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Demonstration Elements

Below are some of the elements that we include in our demonstrations. Other "best management practices" for wheat, such as conservation tillage, are also discussed.

Crop Diversification

- Diversifying cropping systems within a field or farm can have several desirable consequences for farmers
- Aids in the abundance and effectiveness of natural enemies to control Russian wheat aphid and greenbugs
- The typical diversified system in the arid parts of the Great Plains is a three-year rotation of winter wheat with additional crop such as sorghum, millet, corn or sunflower, followed by a fallow period for one growing season prior to planting wheat

Host Plant Resistance

- Producers have several options when choosing a cultivar with disease resistance and a few aphid resistant cultivars
- All cultivars support aphid infestations but at reduced levels and suffer less injury compared to susceptible cultivars

Biocontrol and field scouting

- Natural enemies play an important role in regulating greenbug populations in wheat in the Great Plains
- Field scouting includes a presence-absence technique that allows for a quick, yet accurate control decision based on greenbugs and parasitic wasps
- Learning about both helps determine the need for insecticide use or eliminates the need altogether

Economically important aphid pests

Russian wheat aphid



It can cause serious injury and yield loss because it injects a chemical that

affects plant growth. As it feeds, it causes the leaf to curl, creating an enclosure that protects it.

Greenbug



They cause yellowing on young wheat leaves. Damage frequently occurs as small yellow patches in the field. Can carry the virus causing Barley Yellow dwarf disease.

Other aphids and pests



There are several different varieties of aphid pests. You can find a complete list of aphid pests

as well as physical characteristics on our website.

Natural Enemies



Coccinellidae, or lady beetles, are one of many natural enemies of aphids. Increasing their numbers can help contain aphid infestations. Aphids can be the single food source for these predators.

Important facts about us

Focus groups and cost-of-production interviews provided information for baseline comparisons of regions and wheat cropping systems prior to our demonstration program. Future interviews and focus groups will provide information for measuring our program's success.

We completed a second year of cost-of-production interviews with producers. These interviews provided information about 2003 crop production practices and additional details about producers' use of integrated pest management practices.

Since the inception of our program:

- About 147 wheat producers provided information about their crop production practices and enterprise cost-of-production for their 2002 crop production year
- 138 of the 147 attended one of 20 focus group discussions, conducted between January and March 2003
- About 35 Cooperative Extension educators from a six-state area helped host the groups and provided feedback about producer decision-making and local pest management practices

Some Facts:

- These producers farmed nearly 400,000 acres in six states, with about 90 percent in dryland production
 - Over 168,000 acres of dryland winter wheat planted for harvest in 2002, with about 65 percent actually harvested
 - About 26,500 acres planted to Russian wheat aphid resistant varieties: Prairie Red, Halt, Prowers 99, and Yumar
 - An additional 9,500 were greenbug resistant varieties: TAM 110
- Our program also provides useful information in a quarterly update. Watch our updates for our new, updated website. For more information, please contact us at diane.varner@okstate.edu