Virginia Cooperative Extension

Integrated Pest Management

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Commercial Small Grain IPM

Donna M. Tuckey

Insects[1]

Aphids:

- Signs of aphid infestation include stunted, yellow plants (reddened wheat), though these symptoms may also be caused by other stresses.
- Scout fields each week starting in the fall or early spring, counting the number of aphids per linear row foot at several different locations. Treat if aphid counts exceed 150 per linear foot of row. Although an insecticide application is usually not necessary, one exception is areas at risk for barley yellow dwarf virus (BYDV).
- Aphids transmit BYDV. Treatment thresholds in the case of BYDV are as follows: in the fall from planting until spring growth begins, 15-25/row-foot and yellowing areas scattered throughout the field; after spring growth resumes until hard-dough stage 100/row-foot, plants 3-6 inches tall, 200/row-foot, plants 7-10 inches tall, 300/row-foot, plants 11+ inches tall; at heading, 20-25/grain head.
- Natural enemies (predators, parasites, and fungal diseases) usually hold grain aphids in check.

Armyworm:

- Armyworms generally attack fields with lush growth from mid-may to harvest.
- Scout fields once each week starting the 2nd week of May. If small armyworms are present, obtain 10-20 worm counts at 50-pace intervals throughout the field. Barley should be treated if the number of worms exceeds one per linear foot between rows and most of the worms are greater than 3/4-inch long. Wheat should be treated if 2-3 worms per linear foot between rows are found (this may increase to 3-5 worms for wheat planted in 4-inch rows).

Cereal Leaf Beetle (CLB):

- Infestations are worse in fields with poor stands or sparse leaf growth; avoid this if at all possible.
- Scouting for CLB should occur when populations are composed roughly of half larvae and half eggs. Count the number of CLB larvae and eggs per 100 tillers (10 tillers from 10 different sites). Treat when 25 eggs and/or small larvae, total, are found per 100 tillers (prior to dough stage).

Consult the Field Crop PMG (456-016) for insecticide recommendations.

Diseases[2]

Seed and Seedling: (Loose smut, Covered Smut, Barley Stripe, Stinking Smut, Powdery Mildew, Common Root Rot Complex, Leaf Rust)

- Fungicide treated seed will provide control and should be utilized whenever possible.
- Consult the Field Crop PMG (456-016) for seed treatment recommendations and instructions.

Foliar: (Powdery Mildew, Leaf and Glume Blotch, Tan Spot, Leaf Rust, Barley Scald, Net Blotch)

- Wheat varieties differ in their resistance to foliar diseases. Use the information available in the PMG to choose adapted, high yielding varieties with good disease resistance.
- If a susceptible variety is grown, scout wheat and apply foliar fungicides according to the economic thresholds provided in the Field Crop PMG (456-016).
- Additional cultural practices which may provide disease control include limiting excessive nitrogen fertilizer and plowing under diseased wheat stubble if possible. No-till plantings are encouraged; however, this practice increases the risk of scab and scab-caused toxins in the grain.

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Note: BYDV can affect both seedlings and more mature plants. Aphid presence may increase risk. One of the most effective ways of controlling BYDV is to plant insecticide treated seed. Currently available wheat cultivars have very little resistance to this virus. The wheat spindle streak virus (WSSV) also affects both seedlings and more mature plants. This virus is vectored by a fungus associated with certain grass species. Once established, it will remain in a field as long as these grass hosts are present. If a field is diagnosed with the virus, WSSV-resistant wheat cultivars are recommended.

Weeds[3]

- Scout each field and keep records of the weed species present, their location and population density.
- Design a control program based on weed records for the specific problems in each field.
- Herbicides are useful weed control tools, but cultural practices are also important.
- ALWAYS control existing vegetation at or prior to planting.

Consult the Field Crop PMG (Publication 456-016) for herbicide recommendations.

References

(1) Herbert, D.A., Jr. INSECTS (Small Grains) in *The Pest Management Guide (PMG)-Field Crops*. 2000. Virginia Cooperative Extension (Publication 456-016), pg. 156-159.

(2) Stromberg, E.L., Phipps, P.M., Grybauskas, A.P., and Mulrooney, R.P. DISEASES and NEMATODES (Grain Crops, Soybeans, Forages). *The Pest Management Guide (PMG)-Field Crops*. 2000. Virginia Cooperative Extension (Publication 456-016), pg. 85-96.

(3) Hagood, E.S., Swann, C. W. Wilson, H.P., Ritter, R.L., Majek, B.A., Curran, W.S., Chandran, R. WEEDS (Grain Crops, Soybeans, Forages) in *The Pest Management Guide (PMG)-Field Crops*. 2000. Virginia Cooperative Extension (Publication 456-016), pg. 331-336.

Note: The Pest Management Guide is available online at http://www.ext.vt.edu/pubs/pmg.

For further information, contact your local Extension agent.