



Integrated Pest Management for Schools

IPM 70-3

September 2002

Exterior Pests: Yellowjackets

by Mark H. Shour, Extension Entomologist, Iowa State University

Serious pests for school officials are stinging insects such as wasps, bees, and some ants. Their stings are painful and very dangerous to individuals who are allergic to insect venom. As the school year resumes, conflicts will arise between humans and a common stinging wasp, the yellowjacket.

Yellowjackets are wasps with bright yellow and shiny black bodies approximately 0.5 inches in length. Honey bees are often mistaken for yellowjackets because of their muted gold and dark brown bodies, but they are fuzzy and unrelated to yellowjackets.

Yellowjackets are predators, capturing large numbers of flies, caterpillars, other insects, and spiders to feed to their young. Unfortunately, they

also are scavengers, scouring their environment for sugar and protein sources. The ripening autumn tree fruits and the smorgasbord of picnic foods are very attractive to yellowjackets.

These wasps build their nests in protected locations (abandoned rodent burrows, logs, landscape timbers, rock walls, and various buildings), often in proximity to humans. In the fall, wasp colony numbers peak (more than 5,000 individuals per nest). Walking, mowing, playing sports, and other human activities can disturb the wasp colony, which often leads to aggressive behaviors such as swarming (a large group of wasps leaving the nest together) and the potential for repeated stinging.

Management of yellowjackets on school property may include several tactics, which can be adapted to meet your specific circumstances.



The German yellowjacket is the most common yellowjacket species in Iowa.

- **Minimize attractive food sources.** Pick up crabapples or other fruits present on property. Keep food and beverages covered until ready to be eaten. Place plastic liners in trashcans and empty them after outdoor functions. Locate trashcans and dumpsters away from high-traffic areas and keep them covered.
- **Avoidance.** Do not swat at a hovering yellowjacket because individuals foraging away from the nest are seldom aggressive. Wear white or dark clothing and minimize use of perfumes, hair sprays, and aftershave lotions when spending time outdoors in the fall. Use cups instead of cans to serve sweet beverages so you can see whether a wasp is in the cup before you take a drink!

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- **Repellants.** A dilute solution of household ammonia and water may be used to sanitize outdoor picnic tables and trashcans and to mask food odors. Mosquito repellants are ineffective in deterring wasps.
- **Destroy nests.** If a yellowjacket nest is on the school property, a registered insecticide may be applied. Pinpoint the nest opening during the day and place the insecticide (wasp and hornet spray or Sevin, Ficam, rotenone, or Drione dust) into the nest opening at night. Remember that because these wasps forage for food up to 0.5 mile away from the nest, it may be impossible to eliminate all the nests near the school campus.

- **Trapping.** Commercially available yellowjacket traps may be used to decrease wasp numbers. A sugary or meat bait lures wasps into the trap and the insects cannot escape. You may need to experiment to find the most effective bait. Sweet substances (for example, sugar water, honey, pancake syrup, grenadine) are most attractive in the fall, whereas meat (for example, cat or dog food, raw ground beef, fish) is more attractive during the summer. Position traps near the area to be protected and place them 3–8 feet above the ground. Traps placed in sunny areas seem to catch more wasps than those in shady areas. A 5-foot spacing of traps may be necessary in high-risk areas. Check and clean the traps each day, replacing the bait as needed.

Horticultural Tips: Athletic Fields

by Dave Minner, Extension Turfgrass Specialist, Iowa State University

Detailed turfgrass management programs for athletic fields are unique to the specific sport. However, the basic elements of a successful management program on intensely used areas revolve around cultivation, irrigation, seeding and sodding, and topdressing. Providing these four basic building blocks for proper athletic field management shows a commitment to safe and attractive playing fields for high school athletes.

Cultivation. It is inevitable that the grass will be completely removed by traffic on intensely used areas of the field. Exposed soils then become too compacted to establish a new layer of protective grass unless they are routinely cultivated. Aerification equipment that uses coring, slicing, or shattering tines should be routinely used to physically create voids in compacted soils. A field may need to be aerified two to eight times each year, depending on the use.

Cultivation not only reduces compaction and hardness but also improves air and water movement into the ground. When combined with seeding it creates essential spaces for new plants to establish.

Irrigation. Watering athletic fields is a necessity, not a luxury. Automated sprinkler systems are the most cost-effective and efficient means of supplying water. An irrigation system is not only needed to supply water for plant growth but also is required to soften hard fields, water-in and activate pesticides and fertilizers, germinate seed and establish new sod, and syringe—a light and frequent application of water to promote evaporative cooling of the grass surface during summer stress. Portable traveling sprinklers do not meet all of these irrigation needs; however, they can supply water to keep turf from dying when natural water resources are limited.



Routine sand topdressing is used to smooth the surface, provide a growing medium for new seeds, and amend the soil to reduce compaction.



An automatic irrigation system is preferred for sport fields, but portable systems also have been used when resources are limited.

Seeding and sodding. On most of the playing field area, grass acts like a perennial and generally only needs to be established once. Intensely used areas of the field may require seeding one to four times each year, or complete resodding, to keep a protective grass cover over the field. It is important to include annual overseeding and sod replacement in the school budget each year. Worn goalie boxes in soccer can be resodded each year at a reasonable cost. The center 10,000 square feet of a football field should receive enough overseeding with Kentucky bluegrass and perennial ryegrass to reestablish a dense carpet of grass at the beginning of each season.

Topdressing. Well-maintained fields have sand or a combination of sand and organic amendments applied over the established turfgrass. This practice keeps the playing surface smooth and supplies a medium for the new grass growth. Fields that are routinely topdressed have less compaction, more grass cover, and fewer depressions that hold water and become muddy. An aggressive topdressing program would apply 0.5 inches of material each year for a 3-year period combined with core aeration.

Interior Pests: Cockroach Management

by Donald R. Lewis, Extension Entomologist, Iowa State University

Pest management of cockroaches requires attention to a variety of details and a thorough understanding of nonchemical and chemical control alternatives. Sanitation (removing available food and water) and structural changes (eliminating pest harborage, or shelters) are essential first steps in cockroach management. Without these efforts all other cockroach treatments are ineffective or disappointing. However, neither cleaning nor structural modification, if used alone, eliminates an ongoing cockroach problem.

Effective cockroach management starts with inspection. A flashlight, hand mirror, and magnifying lens can be used to detect cockroaches, harborage, droppings, or egg cases. Cockroach problem areas should be noted on your service records and building floor plan as a way to track problems over time and to facilitate communication among employees and administrators. Sticky traps aid in monitoring cockroach population size but are not an elimination method (as with mousetraps). Make sure you include incoming food and paper products in your inspection because many cockroach problems in a structure are inadvertently initiated from individuals brought in on these products.

Maintaining a clean, sanitary facility is an important part of cockroach prevention and control. Cleanliness includes not only daily tasks such as sweeping, mopping, and trash removal but also longer term maintenance such as eliminating grease buildup

under vent hoods and other areas, deep cleaning of kitchen equipment in the summer, and wiping down facility walls.

Building maintenance is another part of cockroach prevention. Eliminate water leaks and drips, caulk around pipes, and other potential cracks and crevices and repair defects such as loose floor tiles and baseboards.

Under certain circumstances, mechanical controls may be used to reduce cockroach populations. Professional pest managers give a quick and certain knockdown of the population by using specialized vacuum machines with HEPA filters.

Insecticides should be the last resort in cockroach management. Traditionally, dust, liquid, or aerosol insecticide formulations are applied to places where cockroaches hide. Residual insecticide label directions



Cockroaches are one of the most difficult pests to manage in schools.

specify crack-and-crevice treatment should be used in commercial food handling areas. As the name implies, a crack-and-crevice treatment is the application of a small amount of insecticide directly into the structural gaps, cracks, and crevices. Treatment sites include expansion joints, openings to wall voids or hollow spaces, narrow openings along or beneath appliances or equipment, and hollow equipment legs and bases. A pin stream nozzle or a nozzle extension tube is required for a crack-and-crevice treatment so that there is no deposition of insecticide on exposed surfaces.

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Return Service Requested

In the past 7 to 10 years, baits have become the industry standard for cockroach control. Baits may be in the form of pastes, gels, particles, or enclosed stations. These products have the advantages of low toxicity to people, very effective control, and suitability for sensitive areas such as schools, extended care facilities, hospitals, and office buildings. Baits may be more expensive to purchase

and precise (and effective) placement can be time-consuming, but they result in greater selectivity to cockroaches than insecticide sprays. Baits are available for use in food-handling establishments, assuming label directions are followed. It is critical to make sure bait granules do not contaminate food or food-handling surfaces and that baits remain inaccessible to children and pets.

Special Offer for Iowa Schools

Iowa State University Extension is offering a video set *The ABC's of IPM* at a reduced cost to all school districts in Iowa. These professionally produced videos provide instruction, content, illustrations, and examples of integrated pest management for school facilities. The material is applicable to school staff, faculty, and administrators.

The five-video set and accompanying user guides are available for \$75 plus \$5 for shipping and handling (a savings of \$75). If you are interested in purchasing this resource for your district, contact Dr. Mark Shour by fax at (515) 294-8027 or e-mail mshour@iastate.edu

Integrated Pest Management for Schools is published by Iowa State University Extension, with funding support from the Iowa Department of Agriculture and Land Stewardship through a grant from the U.S. Environmental Protection Agency. To subscribe write to School IPM, 109 Insectary, Ames, IA 50011-3140 or call 515-294-1101. Please indicate that you are inquiring about *Integrated Pest Management for Schools*. Mark Shour, Department of Entomology, is executive editor of the *Integrated Pest Management for Schools* newsletter; Julie Todd, Department of Entomology, managing editor; and Beth Kroeschell, freelance production designer.

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