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## New Products Help Meet DoD Pesticide Reduction Goals

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New Department of Defense (DoD) pesticide reduction goals have moved pollution prevention front and center. As a result, installation grounds personnel are looking for alternative to standard pesticides and pesticide application techniques.

Many new products have recently come on the market that help grounds personnel meet these goals. Dr. Jerry Lang, a pest management professional working for Woolpert LLP in Dayton, Ohio, highlighted several of these new technologies and materials in two papers he presented at recent joint service pollution prevention conferences. According to Dr. Lang, these products are all in various stages of field testing and development, and additional technical information should be obtained and reviewed before incorporating them into an installation's grounds program.

### **Patchen WeedSeeker**

A chlorophyll-identifying selective spray system adaptable to any type of boom sprayer. The system, which employs LED light sources and optical detectors connected to electronically controlled solenoid valves, rapidly controls the operation of each individual boom nozzle. Nozzles only operate when "something green" is detected. The system is ideal for spraying large areas with low-weed densities, such as airfield pavements and roadways. WeedSeekers are currently being used for roadside vegetation control, ditch bank weed control, and railroad right-of-way control. Herbicide use reductions of 40-50 percent are common when using the WeedSeeker. Besides being adaptable to existing spray systems, WeedSeekers also provide real-time recording of herbicide use, and the systems can be used at night when herbiciding will interfere less with operations and traffic.

### **Aqua Heat Vegetation Control System**

Provides an alternative to herbicides for control of weeds in industrial environments, on paved areas, and adjacent to structures. The system uses hot water (heated to 2,100 degrees Fahrenheit) to kill vegetation. The basics of the system include a water tank, a patented diesel-fire heated exchanger, and a low-pressure spray system with a variety of nozzles or spray heads. The manufacturer is currently developing a system that will apply a hot foam containing a vegetable oil that will hold heat on plants longer and better penetrate plant cuticles for a more complete kill. Advantages of Aqua Heat include use of non-toxic materials, fast killing action, ability to be used under all weather conditions, and availability for use by personnel not certified as pesticide applicators. Disadvantages include no residual weed killing action, the need to transport large volumes of water, and the requirement for a low vehicle speed (under 3 mph) when using the system. Aqua Heat has recently been evaluated and recommended for adoption for Air Force use.

### **Corn Gluten Meal (CGM)**

A non-toxic byproduct of wet milling. The material has pre-emergent herbicidal properties for both grasses and broadleaf weeds. Applications of this product at a rate of 10-20 pounds per 1,000 square feet provides significant control of crabgrass, a number of other weedy grasses, and over 22 pieces of broadleaf weeds including clover, dandelions, and purslane. Numerous private golf courses and professional sports turf managers are using the product. Besides being completely nontoxic, CGM's advantages include the slow release of nitrogen (fertilizer) as it decomposes and the fact that applicators do not need to be certified pesticide applicators. Disadvantages include the need for large quantities of the material, the availability of only solid formulations, a narrow, critical window of application timing to be effective, and a relatively high cost.

### **The Bioject System**

Another non-toxic material from EPA pesticide registration. The primary use of Bioject is for the control of fungal diseases attacking high-value turf grasses on golf courses. The system is based on the scientific knowledge that beneficial microbes such as those occurring in organic soils and compost can reduce or control pathogenic fungi such as Pythium in soil and on turf. The beneficial microbes compete for nutrients, release antibodies, and directly parasitize pathogens. Bioject takes advantage of the beneficial effects of the microbe in a closed-batch fermentation "bioreactor" and then downloading the batches at regular intervals into irrigation system water for use on greens and other high value turf. The system is usually leased. Bioject can accommodate the use of several other microbes that will improve turf nutrient levels as well as nematodes to control insect pests. Disadvantages include cost, the need for routine maintenance, and the short field life of the microbes once applied to turf.

*If you would like more information concerning these products and materials, contact Dr. Lang, Woolpert LLP, at 937-341-9258.*

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