

Bug-Wise

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Spinosad: Spinosad is one of the newer insecticides available in the market today. It first entered the row crop market as Tracer in 1997, where it gained quick approval for its excellent control of caterpillar pests. Within a few years it was also being widely sold as Spintor for use in commercial vegetables, and during the past few years it has reached the ‘homeowner market’ where it is available in several different formulations.

Spinosad is a unique insecticide. It is produced as metabolic by-products of a soil borne microbe. *Saccharopolyspora spinosa*, the microbe that produces spinosad, was discovered in the soil, at the site of an old rum distillery on the Caribbean island of St Thomas. However, it is the chemical spinosad, and not the microbe, that is packaged and sold as an insecticide. The microbes are cultured in vats, and the active metabolites are harvested and packaged. Actually spinosad consists of two active ingredients, spinosyn A and spinosyn D.

Spinosad is primarily a caterpillar and sawfly product and has little activity against most other insects, including most beneficial insects. However there are some exceptions. Spinosad is effective against thrips and leaf miners, including citrus leafminer, which has recently become an important pest on dooryard citrus grown in the coastal area of the state. Although it does not control most beetles, it does control Colorado potato beetle and a few other leaf-feeding beetles. Spinosad is also effective against fire ants. Although spinosad works both as a contact insecticide and as a ‘stomach poison’, it is relatively slow acting, and it can take several days to see the full benefit of a spinosad treatment. Its relatively narrow spectrum of activity is one of the advantages of spinosad. It provides very effective control of caterpillar pests, without destroying beneficial insects. A few of the more common formulations of spinosad currently available for homeowner use are discussed below.

Fertilome Bore, Bagworm, Leafminer, & Tent Caterpillar Spray: This product is sold as a liquid concentrate (0.5% spinosad). It is labeled for control of caterpillar pests, as well as thrips, leaf miners, and sawflies, on both herbaceous and woody ornamentals. It is also labeled for use as a mound drench to control fire ants. Despite the name, this product is also labeled for use on many vegetable crops, including tomatoes, leafy vegetables, cole crops, and many others. It provides effective control of hard to control caterpillar pests such as: tomato fruitworm, cabbage loopers, diamondback moth, and many others. Because of its broad label, which allows use on most ornamental plants as well as most vegetables, this is a very useful product for home gardeners.

Monterey Garden Insect Spray and Conserve Naturalyte Insect Control: These are two other 0.5% spinosad liquid concentrates that have similar labels to the previous product.

Entrust: Entrust is an 80% wettable powder formulation of spinosad that is acceptable for use in organic food production (It is the ‘inert ingredients’ in the liquid concentrate formulations that disqualify them for organic production). Entrust is labeled for use on a large number of vegetable, fruit, and nut crops. Because of its ‘speciality use’ Entrust can be somewhat difficult to locate, but many suppliers can special order it, if given enough notice.

Come and Get It! and Justice Fire Ant Baits: These two products are granular fire ant baits containing 0.015% spinosad. They are labeled for use as individual mound treatments or as broadcast applications to control fire ants in lawns and other turf areas and provide a level of control similar to that of Amdro and other granular fire ant baits. All fire ant baits work best when applied as broadcast treatments, rather than as individual mound treatments.

Eastern Lubber Grasshoppers: This critter is often referred to as the Texas grasshopper, but its approved common name is the eastern lubber grasshopper (*Romalea guttata*). This seems to be somewhat of an ‘outbreak’ year for this insect; at least they are more common than normal in the Starkville area. This is one insect that people tend to notice, and remember, when they encounter it. The adults are large, clumsy-moving grasshoppers, measuring up to three inches in length. Most adults are primarily dirty yellow to tan-colored and are heavily marked with black and a little red or pink, but there are color variations. The adults have wings, but they are too short to carry their heavy bodies in flight. Because they are flightless, this insect has a very sporadic distribution, appearing year after year in one area, while being absent just a few blocks away. Groups of eggs are deposited in the soil, one to two inches deep, and this is the stage in which the insect overwinters. Eggs hatch in the spring and groups of small nymphs are seen at this time. Young nymphs are primarily black, marked with red and/or yellow. There is only one generation per year, with adults being most common during mid-summer.

Homeowners often become alarmed when they encounter these large grasshoppers in their lawns or gardens. While these large grasshoppers are capable of eating significant amounts of plant tissue, they actually eat less, for their body weight, than most other grasshopper species. This is because they use less energy because they are flightless and slow moving. Still, concentrations of these grasshoppers do occasionally occur in gardens and in ornamental plantings, and they can cause damage in such situations. When control is needed, hand picking and foot stomping, are often all that is necessary. Hand picking and relocating also works for more squeamish or gentle natured gardeners. These grasshoppers can also be controlled with insecticides such as carbaryl (Sevin), permethrin, cyfluthrin, or cyhalothrin, but it often takes a thorough, direct spray coverage to control large nymphs and adults. When treating vegetables be sure that the product being used is labeled for use on the vegetable crop being treated and be sure to observe pre-harvest intervals.

How do these klutzy, flightless insects manage to survive in a world full of birds and other predators? Chemical defenses. Black, red and yellow or orange coloration is often a warning of toxicity in nature. Some species, such as the viceroy butterfly, have adopted these colors as a bluff; they are not really toxic. But this is no bluff on the part of the eastern lubber. These grasshoppers contain toxins that can actually kill or sicken birds or mammalian predators that eat them. Eastern lubbers are also capable of exuding an evil-smelling foam from their spiracles, along with a hissing sound, when they are disturbed. Adult grasshoppers often spread their wings when performing this defensive maneuver, exposing the bright pink color on their hind wings.

Time for More Fire Ant Bait: Homeowners who made timely **broadcast** applications of fire ant baits this spring have probably been enjoying the results of their effort for many weeks now. However, fire ants have been actively swarming since early spring, and lawns are constantly becoming reinfested with newly settled fire ant queens. Initially, these new colonies are so small that they go unnoticed, but by now queens that settled in early spring probably have a small force of foragers that are actively working to build a bigger colony. By applying another **broadcast** application of fire ant bait in mid-summer, homeowners can control these budding fire ant colonies before they become well established. Homeowners who didn’t get around to applying fire ant bait in the spring can still benefit from a mid-summer application. Because baits are slow acting, it can take up to a month to see the full benefit of bait applications, but, when properly applied, they are quite effective in reducing fire ant problems in the home lawn. When necessary, broadcast bait treatments can be supplemented with individual mound treatments, either drenches or powders, to hasten control. Just put the baits out first and wait a few days before treating individual mounds. Treatments recommended for control of fire ants in home lawns are listed in Extension Publication 2331, Control of Insect Pests In and Around the Home Lawn.

The brand names mentioned in this publication are used as examples only. No endorsement of these products is intended. Other appropriately labeled products containing similar active ingredients should provide similar levels of control. This information is for educational and preliminary planning purposes only. Always read and follow the insecticide label.