

Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel



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June 15, 2012 No. 14

Lime-Sulfur: A Multi-Use Pesticide

Lime-sulfur is a widely used pesticide with insecticidal, miticidal, and fungicidal properties labeled, in general, for control of insects, mites, and diseases of roses including scales (e.g., San Jose scale), mites [e.g., twospotted spider mite (*Tetranychus urticae*)], powdery mildew, black spot, and rust. It is used extensively on fruit trees to combat numerous diseases such as peach leaf curl (*Taphrina deformans*). It is interesting to note that lime-sulfur was first used as an insecticide in the USA in 1880, and was the first compound in which insecticide resistance occurred in 1908 with San Jose scale, *Quadraspidiotus perniciosus* developing resistance to lime-sulfur sprays.

The active ingredient is calcium polysulfides. Organosulfurs are useful because they have ovicidal activity or kill insect or mite eggs. The sulfur component of the formulated active ingredient is what is responsible for the miticidal activity, thus preventing the build-up of mite populations. Lime-sulfur is produced by boiling lime and sulfur together. The compound is strictly a contact pesticide with limited residual activity. Therefore, thorough coverage of all plant parts is important in order to obtain control of insect and mite pests, and diseases. However, lime-sulfur applications should never be performed when ambient air temperatures exceed 85°F (29°C). Applications should be made in spring prior to buds swelling and again in fall after leaves drop. Labeled rates vary from 1/2 fl oz/1 gallon to 4 fl oz/1 gallon with applications made at 10 to 15 day intervals in the summer. It is essential to avoid using horticultural oils (e.g., petroleum-based) for several weeks after applying sulfur because any sulfur residues may cause horticultural oil sprays to create phytotoxic reactions in plants. Many commercially available products contain a “Danger” signal word on the label. However, some formulations of lime-sulfur may be used in so-called “organic gardens.” Always be sure to read the label prior to using lime-sulfur or any pesticide, and wear the appropriate protective clothing (e.g., respirator).

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Raymond Cloyd

Oops! My bad! Eating crow! The Green Fruitworm That Wasn't!

Three weeks ago in Kansas Insect Newsletter #11, I reported on a green caterpillar feeding on a marigold. After comparing that caterpillar to images in several books, I stated that the caterpillar was a speckled green fruitworm. I also mentioned that that caterpillar was receiving special treatment ----- its own enclosed container and a fresh marigold leaf every day.

Number 1 that I sensed that something did not seem right ----- the caterpillar wasn't putting on much growth. Number 2, it had had stopped feeding after a couple of days – just sort of resting. Number 3, one day when I opened the container, the caterpillar had pupated, and the pupa was more chrysalid-like as opposed to that typical of a noctuid moth. And, Number 4, what emerged was a small butterfly (Figure 1).

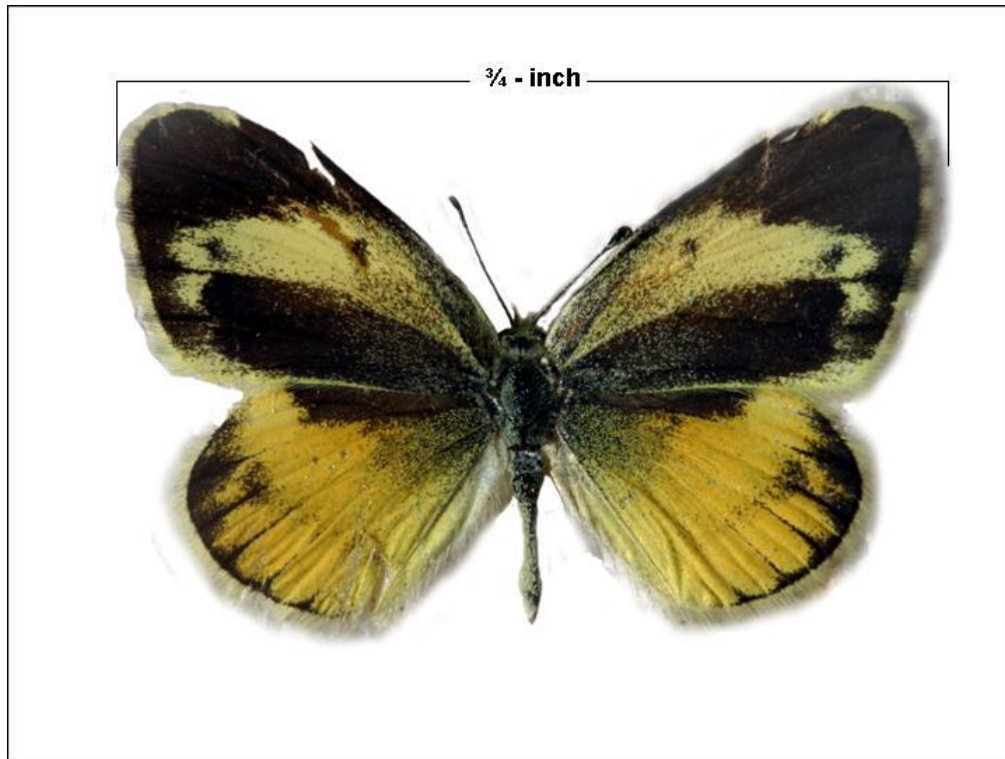


Figure 1

So do I go out on a limb and try to ID the butterfly? Well, why not ---- the most that I could be is “wrong again”!

The butterfly is definitely 1 of the 63 North American species of butterflies in the taxonomic family Pieridae (butterflies commonly referred to as “whites and sulfurs”). There is great diversity in color patterns, even within the same species, as well as differences between males and females of a particular species. While none of the available images exactly matched the color pattern of that in Figure 1, based on the pattern of wing markings, my one single “green caterpillar” turned out to be that which became a male **dainty sulfur butterfly**.

The listed preferred host of dainty sulfur butterfly caterpillars? *Dyssodia papposa* – Prairie dogweed ----- also called, Fetid Marigold. Not a hard stretch, then, to find the butterflies attracted to commercial marigold varieties upon which to deposit their eggs.

“Poodle pine” ---- a new pine variety?

People are familiar with a variety of common pine species grown in Kansas: Scotch, Austrian, white and ponderosa trees, and mugo pine (species of which can be either treelike or dwarf/spreading varieties). The “poodle pine” happens to be (in this instance) a modified mugo.

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Poodle dogs with a “full coat” appear as in Figure 2.



Figure 2

However, many owners take a shears to their poodle resulting in the “poofy poodle-appearance” (Figure 3).



Figure 3

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A normal-looking Mugo pine might be as appears in Figure 4.

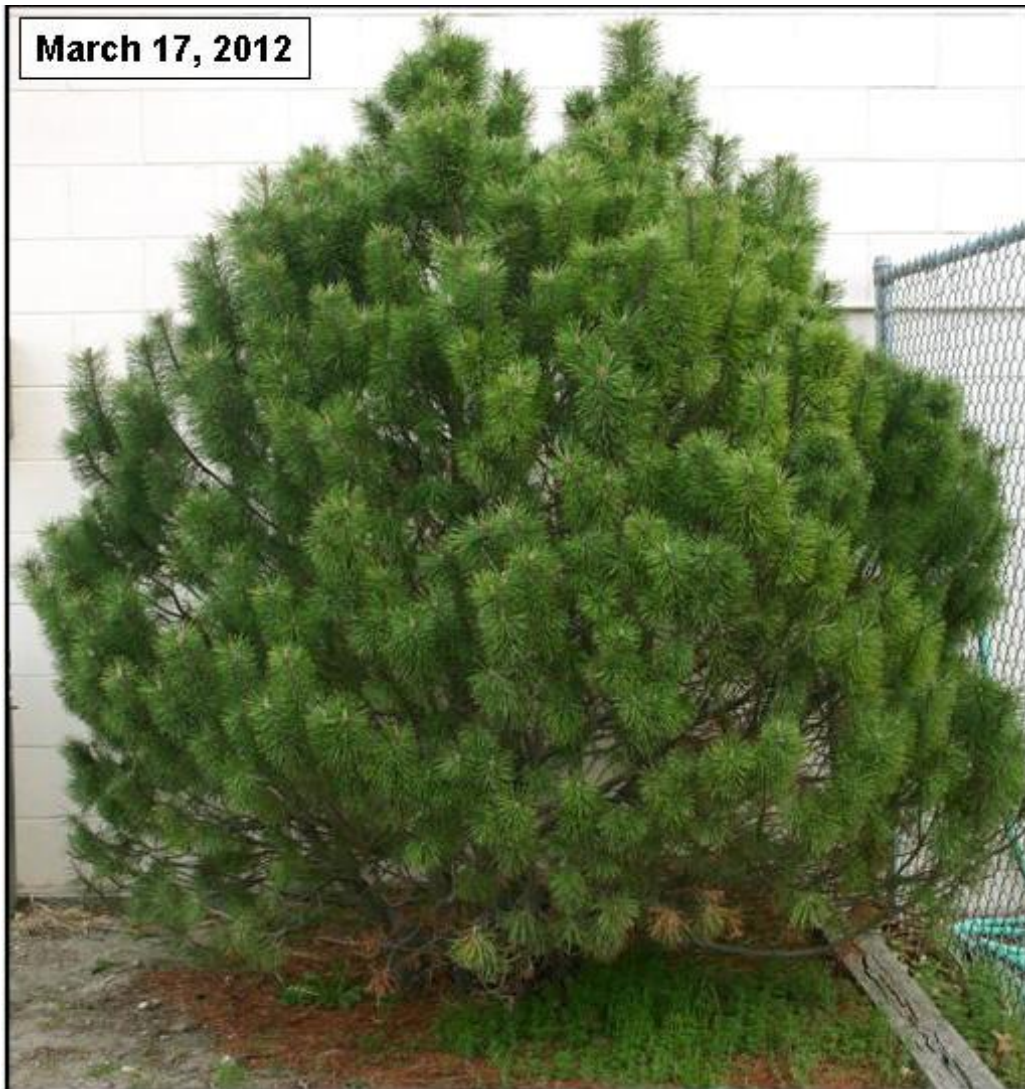


Figure 4

The “shears” in this instance were the larvae of European pine sawflies which (as we saw in a previous Kansas Insect Newsletter) had (in a month’s time) reduced the Figure 4 Mugo to its needleless state (Figure 5).



Figure 5

While the Mugo might have appeared brown/dead, it is very much alive. Because European pine sawfly larvae already have completed their 2012 feeding cycle, the ongoing unimpeded production of 2012 needles from the terminal candles accounts for the Mugo's "poofy poodle current appearance" (Figure 6).



Figure 6

A person might ask, “Will this Mugo” ever look “full” again?” The answer is “Yes ---if over the next couple of years, European pine sawfly larvae are controlled”. Like a poodle whose hair grows back and fills in the bare “shaved areas”, two years worth of needle production will fill in the “bare areas” and restore a full look of this particular Mugo, which has gone through this process in the past.

Bagworm Control Considerations

The normal recommended “treatment window” for applying insecticides to control bagworms is during the last week of June and first week of July. The rationale for this recommendation is that all overwintered eggs will have hatched, and all larvae will be relatively small and therefore extremely susceptible to insecticides.

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People are aware that March, April and May of 2012 were abnormally warm. Thus, bagworm hatch began earlier than usual. This moves treatment window forward by several weeks. If there are concerns about bagworms, especially on coniferous trees and shrubs, now is a good time to visually inspect for their presence. Bagworms currently are of sufficient size for easy detection. Again, it is best to treat bagworms while still small and most vulnerable to insecticides, **AND BEFORE THEY RAPIDLY INCREASE IN SIZE AND CAUSE INCREASED AMOUNTS OF FEEDING DAMAGE.**

People often ask, “Which insecticide is best for killing bagworms?” There are various active ingredients contained in numerous products available at retail outlets. All will provide acceptable control.

More important than selecting a particular product is **HOW SPRAYS ARE APPLIED.** The two important keys for bagworm control are: (1) the timeliness of sprays (again, after all eggs have hatched and while bagworms are small); and (2) **thoroughness of spray coverage.** The amount of coverage achieved with quick hastily applied spray treatments tends to be inadequate, resulting in less-than-desired control. The main reason for failure is that merely applying an insecticide in a mist-like manner affects only those bagworms feeding on the periphery of the tree/shrub. Bagworms in the more dense areas remain unscathed. It is important to very deliberately thrust the sprayer wand into the inner foliage and branch areas. While this requires additional effort, and likely also require refilling sprayers, the resultant is a more **THOUROUGH TREATMENT APPLICATION** --- and achievement of desired bagworm control.

Bob Bauernfeind

Sincerely,

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