Defusing Misconceptions About Thrips

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This article has been developed in response to a number of misconceptions and inaccuracies that have been promoted associated with thrips management on roses. As such, I wanted to address these inaccuracies and present the appropriate information. Below are five misconceptions and then the correct information.

1. Systemic insecticides will kill thrips in the soil and may be toxic to thrips feeding on plant leaves. No! Studies have shown that systemic insecticides such as imidacloprid (Merit) have no activity on thrips pupae, which typically reside in the soil. The pupae stage is a non-feeding stage that is very tolerant or immune to most insecticides commonly applied to the soil. Furthermore, most insecticides are not even labeled for drench applications to the soil for "control" of thrips pupae. One study demonstrated that imidacloprid applications to growing medium killed few thrips pupae (20 to 51% mortality), which was presumed to be due to minimal contact with the insecticide and the fact that the pupae stage is not affected by insecticides.

Although thrips have piercing-sucking mouthparts, they tend to puncture holes in the cell walls of leaf tissue using a single stylet in the mandible, and then insert a set of paired stylets, which are then used to withdraw plant fluids. As a result, they feed on many food types within plants. Since thrips are not primarily feeding in the phloem sieve tubes, they are less likely to be negatively affected by systemic insecticides during feeding because they may not ingest a lethal concentration of the active ingredient.

2. Diazinon is a systemic insecticide. No! Diazinon is an organophosphate insecticide that works primarily by contact and stomach-poison activity only. It is not a systemic insecticide. Diazinon has been almost totally removed from the homeowner market.

3. Conserve is a biological control. No! Biological control refers to the use of natural enemies such as parasitoids (parasitic wasps), predators, and beneficial nematodes. The active ingredient in Conserve is spinosad, which is derived from a microorganism or a species of Actinomycete bacteria, Saccharopolyspora spinosa, that when fermented creates metabolites called spinosyns; two are biologically active compounds responsible for the insecticidal properties—spinosyns A and D.

4. Conserve kills mites. No! Spinosad is generally not effective in controlling mites although control may be rate-dependent. The label states "Control of spider mites with Conserve SC in certain research trials has been variable. The variability between these evaluations is not well understood but may be due to late application timing when mite populations and webbing were severe, poor spray coverage of both the upper and lower leaf surfaces or interaction of the leaf surface with residues of Conserve SC."

Furthermore, the addition of a nonionic spray adjuvant may enhance control of spider mites. Studies have shown that spinosad has no activity on spider mites. The miticidal activity of spinosad may be associated with the adjuvants (e.g. Dyne-Amic) used. As such, any activity on mites may occur when an adjuvant is combined with spinosad, which may result in synergism (enhancement in "control" when two materials are mixed together).

5. Molasses and/or brown sugar attract thrips from blooms and encourage them to eat or come in contact with the insecticide. No! It has been proposed for many years that mixing a sugar such as white or brown sugar, or a soft drink (e.g. Mountain Dew) with a contact insecticide (in the spray solution) enhances efficacy of the spray application against thrips. In fact, it has been stated that molasses and brown sugar will act as a surfactant or attract thrips from flowers and encourage them to consume or come into contact with insecticides. Well, what are the components of white and brown sugar? White sugar is pure sucrose derived from either tropical sugar beet or sugar cane. In contrast, there are two types of brown sugar: free-flowing and sticky. Both types are obtained by adding syrup such as molasses to purified or refined sugar. However, it is difficult to assess how and why a plant-feeding insect such as thrips would be attracted to any type of sugar, particularly if it doesn't provide any essential nutrients (proteins and amino acids) for development and reproduction. Furthermore, there have been minimal quantitative studies designed to verify the actual benefits of using sugar or soft drinks with contact insecticides to enhance efficacy against thrips.

In one of our experiments, the addition of Mountain Dew, which contains 31 g of sugar (as high fructose corn syrup) per 20 fl oz, at the rate of 12 fl oz/50 gallons failed to enhance the efficacy of any of the treatments (including Conserve) in controlling thrips. For more information regarding this study refer to the following article: Cloyd, R. A. February 2009. Does dew do it? GrowerTalks 72(10): 76-79.

If thrips are noticeable then it may be prudent (and necessary) to apply an insecticide such as 1) potassium salts of fatty acids (Insecticidal Soap), 2) spinosad (Conserve), or 3) acephate (Orthene). Be sure to rotate insecticides with different modes of action in order to avoid the potential for resistance.

In conclusion, when presenting information pertaining to management of insect and mite pests of roses it is imperative to make sure the information is accurate even if this involves double-checking the original sources to make sure they are correct. This will avoid anyone making a mistake when dealing with insect and mite pests in the rose garden.

Editor's Note: Readers, please tell us your experiences, successes, and remedies for thrips.

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