

IPM Programs for Insect Management

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Integrated pest management (IPM) is a philosophy of dealing with pests. One definition is: *IPM is a sustainable approach to reduce pests to a tolerable level by using the best balance of cultural, physical, biological, and chemical methods while minimizing economic, environmental, and health risks.* Additionally, IPM is a decision making process that uses knowledge of pests and plants to make targeted, site specific management. It is a proactive philosophy that focuses on long-term results. It is a dynamic ongoing process. A wide variety of strategies are used. Pesticides have a role in IPM although if non-chemical methods are effective, then it is not necessary to use them. When it is necessary to use a pesticide, consider effective, low impact products first.

There are four insects that were seen in 2016 that are worth discussing.

Cankerworms and **forest tent caterpillars** were common this spring. The key to effective management of caterpillars is to treat them when they are less than ½ full grown size. That means that they must be detected soon after they hatch while feeding is still minimal. They are easier to kill then and have inflicted less damage to trees and shrubs. A couple of effective low impact products are *Bacillus thuringiensis* and insecticidal soap. *B. thuringiensis* must be consumed to be effective; insecticidal soap has no residual and may need to be repeated. There are residual insecticides, such as permethrin, that are also effective.

Scale insects live under waxy coverings. Different species have different biologies, and therefore different management methods. **Lecanium scales** were particularly common this year. If management is necessary, use contact insecticides when the immature crawlers are active (June and July) as applications directed at the adults are not effective. Horticultural oil can also be sprayed on them during late winter as a dormant application. Systemic insecticides applied in the fall or spring can also be effective.

Japanese beetles have taken a lot of people by surprise by their abundance this summer. They were numerous in the early 2010's but a series of very dry summers reduced their populations. Japanese beetle eggs and recently hatched grubs do not survive very well in dry soils. However, we have had more normal precipitation the last few years which has allowed Japanese beetle numbers to rebound. When appropriate, physical removal can be effective, especially in areas where pesticides should be kept to a minimum. Low impact products, like pyrethrins and neem oil, are effective but will need to be reapplied. Contact insecticides with longer residuals, such as permethrin and carbaryl, are also a good option (they may still need to be reapplied). Systemic insecticides can also be effective but need to be applied before damage is severe.