

ASK LAURA
Light Brown Apple Moth Management in Nursery Stock
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Between the Furoughs

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Question: What are the latest research findings on the management of Light Brown Apple Moth (LBAM) for nurseries?

We have just completed the first insecticide trial with the goal of determining the efficacy and residual action of many of the CDFA officially approved treatments and other new insecticides. We applied insecticides before or after LBAM eggs were deposited on plants and evaluated efficacy based on whether the eggs hatched and developed into adults. Ultimately these experiments will aid in the development of an insecticide treatment strategy, with rotating chemical classes, to manage LBAM and prevent insecticide resistance in crops. This trial is currently being repeated this summer to strengthen our findings.

Question: What briefly are the results of those findings?

The data shows that several insecticides can target egg laying adults and subsequent development into adults. These include several of the commonly used insecticides Bacillus thuringiensis and spinosad. The efficacy and longevity of methoxyfenozide was even better. Contrary to the recommendations of the officially approved list, adding horticultural oil did not improve control or longevity of Bacillus thuringiensis, spinosad, or methoxyfenozide. Lambda-cyhalothrin was highly effective and long lasting, probably by affecting egg deposition of adults by some mechanism, either by killing adults or inhibiting egg laying. This phenomenon will be investigated in the next experiment. There were also other effective and relatively long lasting treatments, including newly registered insecticides, chlorantraniliprole and indoxcarb, emmamectin benzoate (however not yet registered for ornamental nursery stock). Our data or specific experimental conditions cannot explain the apparent ineffectiveness of difluobenzuron.

For nursery stock producers, Bacillus thuringiensis and methoxyfenozide would provide the most selective control of the current registered insecticides in this study since they are active specifically on Lepidoptera larvae. This may be important in some production systems, because field monitoring studies using sentinel LBAM eggs have revealed that at least two naturally occurring species of the *Trichogramma* wasp (*T. platneri* and *T. fasciatum*) in California have an active role in parasitizing LBAM eggs within infested coastal areas. In addition, *T. platneri* is being reared on a large scale and is being tested for efficacy as augmentative releases in the landscape and commercial

nurseries, and might be used in the future as part of an integrated management program.