

LBAM Eradication and Suppression Techniques **That are under consideration for use by CDFA/USDA**

Sterile Insect Technology (SIT): This involves the mass rearing of insects that are sterilized and then released into the wild populations. Mating that occurs between the sterile male moth and a wild female moth does not produce offspring. Eventually the population of wild moths is depleted resulting in eradication. This technology has been used successfully on Mediterranean fruit fly, pink bollworm and other exotic organisms. Mass rearing of light brown apple moth is underway and field trial releases are expected later in the summer of 2009. Mass eradication-type releases are not anticipated until 2010 or 2011 due to the lead time required to build up the moth colonies that will sustain such releases. *The California Department of Food and Agriculture (CDFA) and USDA intend for this to be the primary long term method used for eradication of LBAM.*

Male Moth Attractant Technique (MMAT): This technique involves strategic spraying of “dots” of pheromone bait mixed with an insecticide (pyrethroid based) on tree trunks and telephone poles. The pheromone mimics a perfume-like scent that female moths emit to attract male moths. The dots are two to four inches in diameter, placed at least six feet above the ground. They are applied at a rate of approximately 4,000 dots per square mile. The male moth is attracted to the pheromone in the dot and when he contacts it, the male is killed by the insecticide. This method breaks the breeding cycle. It is used very effectively on Oriental fruit fly as well as some other exotic fruit fly infestations.

Trichogramma Wasps: These are very tiny wasps that are smaller than the period at the end of this sentence. There are two species native to California that may be used against LBAM. Both species lay eggs on many types of Lepidoptera (moth and butterfly) eggs. The wasp parasitizes the egg, causing it not to hatch. These wasps are used in many agricultural situations, especially by organic growers. The anticipated release rate is one million wasps per square mile. The wasps are only capable of flying a couple hundred yards so they stay very close to where they are released. They naturally die out when there is a lack of food in the area. This method may be used to knockdown LBAM populations in areas of very high infestation.

Bacillus thuringiensis (Bt): This is a naturally occurring bacteria that is used for Lepidoptera and mosquito larva control. It is commonly used in agriculture, on organically grown crops, and by homeowners. It is applied as a spray. When ingested by larvae, it causes them to stop feeding and die within a couple of days. *Bt* does not affect organisms other than Lepidoptera. This method may be used in smaller areas in order to reduce very high populations of LBAM.

Twist Ties: These are pheromone infused plastic “ties” that are placed at a rate of 400 per acre. The ties are a little larger but similar to that used to close a plastic bag. The pheromone is a synthetic mimic to the perfume like chemical that the female moth emits to attract the male moth. Pheromones are used by organic agriculture and homeowners to control codling moth and some other moth pests and are used in insect traps as a way to monitor moth populations. The twist tie method has been used to eradicate very small satellite-type infestations of LBAM. In Contra Costa County they were used successfully in Oakley and in Danville in 2007. Very unfortunately LBAM has since spread by natural progression back into these two areas. Though the twist ties have been effective they are extremely labor intensive. 16,977 were placed by hand in an area about two hundred by three hundred yards in Oakley in 2007. They had to be collected and replaced after 90 days. This method will not work in areas where there is an endemic populations are close by because reinfestation will eventually occur.

Aerial Spray of Pheromones: This method will not be used over populated areas. CDFA and USDA may opt to use the method over open areas that are not populated.