

**DEVELOPMENT OF A NEW EXTENDED-RELEASE PHEROMONE LURE FOR THE BOLL WEEVIL**

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**Abstract**

Operation of pheromone traps constitutes the greatest expense in boll weevil eradication programs. One way programs have reduced trapping costs is by extending the trap servicing interval from a weekly or biweekly schedule to a three-week interval during post-eradication. The extension of the trap service interval was made possible by the development and adoption of the “Extended-Release” (ER) lure. In contrast to standard lures which contain 10 mg of grandlure (synthesized pheromone) and last up to two weeks, the ER lure contains approximately 25 mg of grandlure and 30 mg of eugenol, and is effective for up to three weeks. In order to further reduce trapping costs, some programs are considering a four-week trap service interval during post-eradication. However, this extended interval will require a longer-lasting lure than is currently available. Although increasing the grandlure content of lures would likely prolong the lures’ longevity of effectiveness, the cost of grandlure has increased by 50% over the past two years. Consequently, this approach is no longer an economical option for increasing a lure’s duration of effectiveness. Instead, development of a lure dispenser that releases 25 mg of grandlure and 30 mg of eugenol uniformly or in a controlled manner over time may be a more efficient and cost-effective approach. In collaboration with Scentry Biologicals, Inc., efforts were initiated in 2012 to develop a lure dispenser that is effective for up to four weeks under a wide range of environmental conditions. Two prototype lures, based on the company’s patented controlled release technology, were developed in 2013 and were evaluated against the current ER lure by examining the weekly rate of pheromone and eugenol released from lures aged up to four weeks in traps. Evaluations were conducted at College Station, TX, on three separate occasions (April 22-May 20, July 1-28, and Aug. 22-Sept. 19) in 2013 to cover a range of environmental conditions. Both prototypes released more pheromone and eugenol than the standard ER lure, particularly during the third and fourth weeks of aging. The rate of grandlure released from both prototype lures was linear throughout the first evaluation period and met our targeted release rate of at least 4 mg per week during the first three weeks of aging and a minimum of 2 mg released during the fourth week. However, the rates of pheromone released during the last two weeks of aging in each of the last two evaluation periods were below our targeted rates. Consequently, slight modifications to the polymer matrix of both prototypes are underway to improve the performance of lures during the warmer summer months. The new prototypes will be similarly evaluated in conjunction with trapping studies in South Texas and/or Tamaulipas, Mexico, in 2014 to ensure lures are effective for up to four weeks under a wide range of field conditions.