Minimum Standards
for
Boll Weevil Post-Eradication

As adopted by
Boll Weevil Action Committee
Memphis, TN
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INTRODUCTION

Nationwide, as boll weevil eradication moves steadily toward a successful conclusion, a shift in the model for program activities must be developed. Initially, this involves a change in the organizational mind set, namely, moving from an active to post-eradication viewpoint, from routinely dealing with a common, pervasive pest to one that is rare and seldom, if ever, encountered. Paramount in importance in this transition is the implementation of a system which applies minimum standards to the process of post-eradication program management, while simultaneously providing the flexibility necessary to accommodate the diversity of growing conditions, risk exposure levels, management structures, funding levels, etc. across the cotton belt. The purpose of this document is to provide a template for boll weevil post-eradication activities.

I DEFINITION OF POST-ERADICATION

A zone (or state operated as a single zone) will be in post-eradication when it no longer has reproducing boll weevils in the zone.

II MAPPING

Accurate knowledge of the location of cotton grown each year in all post-eradication areas is essential to an effective surveillance system. Necessary reductions in funding and staffing during the post-eradication phase of the program will require long-term commitments to share the information that is needed to locate and map cotton fields. The continued availability of USDA's Farm Service Agency (FSA) crop certification information will be critically important in this effort. Program personnel must cooperate with FSA and other entities to utilize satellite photographs, digitized field maps, and other remote sensing technology to be able to accurately map cotton fields with the limited resources that will be available. To this end, a firm commitment from the administration of FSA to provide such resources is imperative and should be pursued.

III TRAP DEPLOYMENT AND DENSITIES

During the post-eradication phase of the program, there will be a need to establish and maintain minimum standards for detection surveys involving boll weevil pheromone traps. In the context of federal quarantine regulations and possible cost-share funding, program managers will be required to comply with the established minimum standards.

Program managers may, at any time, adopt trapping protocols that are more rigorous than the established minimums, although any additional costs must be covered by local non-federal sources of funding.

Post-eradication detection traps should be placed predominantly within the cotton-producing areas of each state. In low-density, post-eradication trapping, equidistant "grid trapping" may be used, although traps should be placed in or near cotton whenever possible.

Based on 15 years of successful post-eradication surveillance in Arizona, a minimum trap density of 1 trap per section (1 square mile, or 640 acres) of cotton is sufficient if the nearest weevil infestation is at least 200 miles away. The minimum trap density for cotton fields between 50-200 miles from an infestation is 1 trap per 160 acres. Within 50 miles of a boll weevil infestation, 1 trap per 40 acres of cotton is the minimum standard for post-eradication zones.

Depending on program history, or geographical setting, individual post-eradication organizations may view some sites as high hazard or high-risk (i.e. seaports, railways, international borders, truck stops on highways connecting with areas known to be infested, etc.). Additional trapping may be appropriate if there is evidence that regular trapping densities are not sufficient at these locations. In any event, traps are best placed at or near cotton fields in high-risk areas.

Traps should be inspected and serviced on an interval of not longer than three weeks. Weekly release of pheromone must be comparable to the standard 10 mg lure over 2 weeks, or the eugenol enhanced 25 mg lure over 3 weeks. Kill strips should be used to contain suspect weevils, and to prevent their predation within the trap.

In fields at least 200 miles from the closest infestation, traps must be installed before peak bloom, with the first servicing completed before cotton plants begin to "cut-out." The Southeast has employed a successful strategy for many years in which traps are serviced until at least seventy-five percent of the crop has been harvested. A more conservative approach would be to service traps until the crop is no longer hostable to boll weevils. This would be particularly important in areas where crops can re-grow and add additional fruiting structures late in the season as well as during the early stages of post-eradication program activities.

IV TRAPPING QUALITY CONTROL

Failure to operate an effective program of trapping quality control has, in the past, been a serious threat to zones in late stages of eradication. Weaknesses in quality control of trapping have resulted in expensive, large scale boll weevil re-infestations.

Zones in post-eradication must maintain sufficient quality control of trapping. Quality control programs must be in place to assure that traps are being inspected and serviced with fresh lure and kill strip in accordance with post-eradication protocol. Programs must conduct sufficient quality control to assure that traps are being kept clean and functional. Programs must maintain a practice of routinely placing marked, dead boll weevils in traps to be sure that program personnel are finding and reporting each weevil capture.

V LABOR FOR TRAPPING

Post-eradication trapping has been done by both contract trappers, and by seasonal and permanent program personnel. Each labor system has advantages and disadvantages. Program managers should have the flexibility to use the system that works best within their local operation.

In either system, rigorous and ongoing quality control procedures are critical to the long-term success of post-eradication surveillance activities.

Beyond the program organization, reports of boll weevils and/or damage being reported by growers, Extension Agents, crop consultants, or other interested parties can be an important part of post-eradication surveillance. Program managers for each state or region should develop protocols for responding to such reports. These protocols should include clearing reports through the program's organization as a central source with prescribed rapid response on the part of post-eradication program personnel.

VI IDENTIFICATION OF SUSPECT WEEVILS

As the boll weevil is eliminated from ever-increasing portions of the Cotton Belt, and as field staff undergoes natural attrition, fewer program personnel will retain the ability to properly identify a boll weevil. For the foreseeable future, program personnel must be able to correctly identify a single boll weevil, anywhere or anytime it occurs in a trap. Experience has shown that one of the best ways to maintain the identification capability of field staff is through the continual use of dead boll weevils, placed in random traps across the program area. When these dead weevils are inconspicuously marked to confirm their intended use, and carefully inventoried to monitor their placement and recovery, they can be a valuable component of an effective post-eradication surveillance program. A reliable source of dead, marked boll weevils—reared, marked, and shipped from a secure lab well north of cotton producing areas—is considered a high priority in detecting and preventing reinfestation. The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (USDA-APHIS) will be responsible for identifying an acceptable source for high-quality marked weevils.

USDA-APHIS maintains a staff of trained "certified identifiers." After the boll weevil has been eradicated from the United States, it will be considered an "exotic plant pest." Identification of exotic pests by certified personnel is required when federal regulations such as the Boll Weevil Quarantine, and federal cost-share funding, are involved.

Certified identifiers, including APHIS staff or others trained by them, should be available to respond to post-eradication program needs. Multiple identifiers will be needed to provide redundancy, so that occasional leave or illness of personnel will not delay the confirmed identification of a trapped boll weevil or other life forms.

Program managers will contact certified identifiers by telephone when a suspect insect has been trapped or field-collected to arrange for timely identification. Electronic images of suspect weevils will be e-mailed to the identifier for initial identification. USDA-APHIS will provide instructions to ensure that images obtained and submitted are of proper magnification and clarity, and that the specimen is positioned in a manner that allows proper identification.

Pre-addressed overnight mailing containers will be used for shipping insect specimens to identifiers for confirmation. USDA-APHIS will provide these as part of its role in identification coordination. The need for confirmation within 24 hours is critical because treatments will be applied only in response to confirmed boll weevil captures. In addition to adult captures, the presence of boll weevil life forms (larvae or pupae) would also satisfy treatment criteria. USDA-APHIS will develop a manual to train employees on how to contact the identifiers, obtain electronic images of a specimen, e-mail the images for tentative identification, and process and ship the specimen for confirmation.

There also will be an ongoing need for resources and personnel to conduct DNA analysis on boll weevil specimens. In this regard, USDA-APHIS should also coordinate the development and transfer of this technology. The information obtained from this analysis will aid in determining the likely origin of re-introduced boll weevils and in developing strategies to prevent subsequent re-introductions.

VII MINIMUM STANDARDS WHEN BOLL WEEVILS ARE DETECTED

When a suspect boll weevil is trapped, a certified identifier must quickly confirm that it is a boll weevil. Within 24 hours, trapping will be increased to at least the density used during the first full year of active eradication in that area, on all cotton fields within a 1-mile radius of the positive trap. Traps within this intensively trapped area will be inspected daily for at least three days, then weekly until crop termination.

The minimum treatment threshold during the post-eradication phase requires that ultra-low-volume (ULV) malathion be applied at a rate of 12-16 oz. per acre when two or more weevils are detected during a hostable crop stage (pinhead square to non-hostable plants). Fields where boll weevils are detected, and any adjoining cotton fields, will be treated within 24 hours of confirmation of a second adult boll weevil or alternate life forms.

Each time a weevil is detected and confirmed, a 1-mile circle of intensified trapping is established around the positive trap. After the initial detection, subsequent captures trigger treatment of all positive fields and all adjoining cotton fields. In addition, detection and confirmation of a boll weevil larva or pupa (reproductive forms) in a field will trigger the intensified trapping protocol described above and treatment of that field and all adjacent cotton fields.

Once treatments are initiated, they will be applied weekly using malathion ULV against boll weevil. Treatments will be made using aircraft and/or ground equipment, and will continue until all traps are negative for three weeks or until the treated cotton fields become non-hostable for the year.

The following season, to confirm eradication, all cotton fields in the intensively trapped area will be trapped season-long at the density used during the zone's original, first full year of eradication.

VIII SUPPLIES

Program managers and APHIS staff will maintain regular contact with suppliers of pheromone, kill-strips, pheromone traps, and reeds, rods, or stakes, to ensure that adequate supplies of these critical program components are available each year. Program managers and APHIS staff will develop appropriate strategies for coping with occasional changes in the availability of these program components.

It will not be practical or necessary to have ULV malathion on hand at all boll weevil eradication offices or airports that were used during active eradication. During post-eradication, limited quantities of chemical will be available in central locations across the Cotton Belt. These chemical supplies will be within a two-day trucking distance from all cotton-producing areas.

Program managers will rely on ULV malathion as their standard product for control of any boll weevil re-infestation. Although much of the capital equipment will have been liquidated at the conclusion of the active phase of eradication, a sufficient number of mistblowers, vehicles, and modified high-clearance ground sprayers capable of delivering ULV malathion, and the staff to service this equipment, must be maintained to provide an adequate response to a detection or reinfestation.

In the longer term, centrally-located facilities will be needed for storing and maintaining ground spray equipment. To accomplish this, APHIS coordination will be needed so that storage and maintenance depots can serve all of the program areas within a region. These facilities must be able to supply properly functioning equipment to any U.S. cotton field within 48 hours.

Despite the fact that ULV malathion is the overwhelming product of choice for weevil control, the Post-Eradication Technical Advisory Committee should provide a listing of potential alternative insecticides in the event that ULV malathion is not available.

Quality assurance standards are essential for both lures and insecticides available for post-eradication activities. To this end, analyses by either USDA-APHIS or independent certified laboratories must be performed regularly to verify adequate levels, quality and release rates of active ingredients.

IX AERIAL AND GROUND APPLICATION

Program managers will contract or otherwise arrange for aerial treatment of cotton fields where boll weevils are detected. Aerial application is required to eliminate larger boll weevil re-infestations. For smaller re-infestations, local cotton producers or other resources may be hired if they possess the ability to apply ULV malathion. Aerial applications will be tracked using global positioning systems, and program personnel will observe all treatments and use dye cards in treated fields to ensure adequate coverage.

Programs must have contingency plans for applying aerial and ground treatments of ULV malathion. Strategies for the use of insecticides other than ULV malathion would be employed only in the event that ULV malathion ceases to be available.

In this case, the use of any other insecticides must comply with the list of alternatives developed and approved by the Post-Eradication Technical Advisory Committee. Also, program managers must immediately contact local offices of the U.S. Fish and Wildlife Service to discuss the proposed treatment area, relative to species or habitat of concern, prior to application.

(The following section has been referred to a work group of producer leadership to develop workable protocols. Chairman Parker will name the members at a later date. - FC 10-11-06)

X FUNDING TO ELIMINATE RE-INFESTATIONS

Each program zone (or state operated as a single zone) will establish a two-part Contingency Fund. The primary portion of the fund will include an amount equal to one year of post-eradication operating expenses for the zone. These funds will be used to overcome any unexpected interruption in program funding, providing the program the means to complete an entire season without new funding.

The second portion of the Contingency Fund will include an additional 10 percent of the annual post-eradication operating expenses for the zone. These funds will be used to provide "first response" resources to ensure that intensified trapping and timely insecticide applications are implemented on re-infested fields within the zone.

Concerns about the availability of sufficient resources to deal with large re-infestations and legal limitations on sharing grower assessment dollars across zone and state lines have highlighted the need for a Federal Emergency Fund. Pending appropriate congressional action, this Emergency Fund would initially be $10 million in no-year, federal funds, administered by APHIS. This fund will provide secondary support for the purchase and application of insecticide in the event of significant re-infestation. Zones (or states operated as a single zone) will be eligible to receive funds from the Federal Emergency Fund only after they have expended an amount equal to 10 percent of their annual budget in responding to a re-infestation. However, it is important to note that only those zones which have met or exceeded the minimum standards for detection and control, described earlier in this plan, will have access to the Federal Emergency Fund.

As funds are drawn from the Federal Emergency Fund, it is expected that funds will be restored through the federal appropriation process. Based on circumstances, and actual versus projected need and re-infestation history, the amount of the Federal Emergency Fund could gradually be reduced in future years to a target amount of $5 million.

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