Implementing biological control – How the Animal and Plant Health Inspection Service may help

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An important obstacle to greater utilization of biological control agents is lack of well-organized action programs to insure efficacious use patterns in the field. Through its Plant Protection and Quarantine (PPQ) arm, the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) is helping increase field use of biological control agents by implementing action programs against selected plant pests. Through mass production, distribution and evaluation of natural enemies, these programs often provide the link needed between research and field utilization. Current APHIS implementation projects are directed against biological control of the alfalfa weevil, Mexican bean beetle, citrus whitefly, silverleaf nightshade, Colorado potato beetle, and diffuse and spotted knapweeds.

APHIS participation in biological control has developed around either regulatory or grower management needs. In regulatory programs such as cereal leaf beetle and citrus blackfly, biological control tactics are used to suppress newly introduced pests of economic importance. In these instances, APHIS and the State agencies involved can assume overall leadership for mass-producing and distributing biological control agents. They can also cooperate with research, extension and grower groups for the necessary back-up.

As a part of a grower management project, overall management and policy making can reside in a coordinating group composed of members representing each active participating agency. The roles of the various agencies are as follows:

1. Federal and State agencies will identify the potential of biological agent for the management program and participate directly in devising project plans and procedures.

2. APHIS and State Departments of Agriculture, as the action agencies, will assume field leadership and be responsible for production and distribution of the biological agents. Industry involvement will be encouraged.

3. Research agencies and institutions will be solicited for back up and will assist action agencies in execution and evaluation at the field level.

4. Growers will participate by cooperating in field aspects and by sharing costs as the project develops.
5. Extension services will be solicited for an information education program so that growers and the general public understand the project and its contributions.

PPQ line personnel and cooperators will play a major role in survey and control procedures. Survey is needed to determine distribution and extent of targeted pests. Data will also be gathered on the presence or absence of control agents.

Control operations will center on the production and distribution of natural enemies. When feasible, field collection sites will be established and used as a source of natural enemies for redistribution. Use of alternative control strategies may be considered when and if circumstances dictate.

An APHIS-sponsored Biological Control Technological Review Group (BCTRG) is established to help select new biological control projects for implementation. The BCTRG is composed of representatives from PPQ, the Agricultural Research Service, Cooperative States Research Service, Extension Service, and the Economic Research Service of the U.S. Department of Agriculture and the Environmental Protection Agency, and National Plant Board. The objectives of the group are:

1. Evaluate and advise on the selection of biological control agents for cooperative biological control action projects.

2. Identify areas where agencies represented on the advisory group can contribute to the implementation of those pest projects selected.

3. Identify areas where additional research or development work on candidate pests is needed before the project can be implemented.

4. Provide a sounding board for outside agencies on the development of biological control action projects.

5. Advise on the degree of Federal participation and general time frames for phasing in and out of selected cooperative biological control projects.

Government and private agencies and institutions are encouraged to submit biological control preproposals to APHIS for evaluation as possible implementation projects. Preproposals should not exceed two pages and are used to summarize candidate projects. If further development appears promising, APHIS will request a formal proposal.

The following basic criteria must be addressed when preparing proposals:

1. Potential effectiveness and safety of organism demonstrated.

2. Methodology available for rearing, release, and recovery of natural enemy, and estimated cost.

3. Methodology available for evaluation of organism’s impact.

4. Economic impact of the pest.

5. Other crop management practices likely to impact project.

6. Positive and negative factors likely to affect program implementation i.e., grower interest, pesticide resistance, rearing problems, mobility of natural enemy.

Proposals are then evaluated by the BCTRG in light of the following factors:
1. Significance of involved crop to U.S. agriculture.

2. Present or potential impact of the pest species and the extent of information available on the biology and economics of the pest.

3. Level of participation by cooperating agencies and groups.

4. Potential for project being carried on by State agency or user group following APHIS withdrawal.

5. Availability and acceptance of other control measures.


7. Project implementation costs.

8. Potential for program success.

Preproposals may be submitted to the agency at any time. Formal proposals, however, must be received by December 15 of any given year to be considered at the subsequent BCTRG meeting.

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