

BIOLOGICAL CONTROL OF PESTS BY ARTHROPOD NATURAL ENEMIES (INSECTS AND MITES)

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Three ways of utilizing natural enemies for biological control are presented: (i) importation of exotic species; (ii) conservation by manipulation of the environment; and (iii) augmentation of established species. Ten case histories of successful projects of biological control are described. Since it is practically impossible nowadays to evaluate with certainty the efficiency of an exotic natural enemy in its new habitat prior to importation, or the efficiency of a local one prior to augmentation - endeavors are made to develop and improve the criteria. The latter may be grouped into seven main categories: searching capacity; kill-rate potential; specificity; power to increase; host suitability; climatic adaptation; and good and inexpensive methods of rearing natural enemies.

The following elements, among others, are recommended to be included in biological control programs: (i) broader utilization of exotic and local natural enemies, of selective pesticides and of genetic improvement; (ii) development of methods for practical use of kairomones; (iii) enforcement of quarantine methods against exotic pests; (iv) improvement of extension services in biological control; (v) sound studies of the taxonomy, biology and population dynamics of pests and their natural enemies; and (vi) increase of government assistance, involvement and leadership in advancement of biological control, since its advantages are also, and mainly, at the environmental and health levels.

Key Words: Biological control, importation, conservation, augmentation, selection of natural enemy.