

Computer-based information/expert systems on noxious and nuisance plant management

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The widespread use of biological control is highly dependant on the ability of operational personnel to readily and efficiently gain access to pertinent information on its use. Toward this goal, several computer-based information/expert systems have been developed that deal with various aspects of noxious and nuisance plant management emphasizing biological control techniques. The systems are PC-based and operate under Windows® ensuring a high degree of portability for a wide variety of different computer configurations. The systems contain large amounts of textual information as well as numerous photographic quality diagrams and images. Information covered is system dependant but all operate using sophisticated programming algorithms developed by the U.S. Army Corps of Engineers researchers that allow for easy identification of either the target plants or available management options. Identification procedures closely simulate the interaction between non-technical personnel and the expert. Two systems are dedicated entirely to biological control and contain much general and specific information on the active use of biological control including underlying concepts of biocontrol, the integration of both biological and chemical control techniques, specific information on available management options, as well as historical aspects. The systems were demonstrated in conjunction with the poster presentation.

Biocontrol of tropical weeds: an intensive two-week course in Brisbane, Australia

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The Cooperative Research Centre for Tropical Pest Management (CTPM) in Brisbane runs a two-week intensive course on the Biocontrol of Tropical Weeds, taught by staff from the CTPM, from the CSIRO, the University of Queensland and the Alan Fletcher Research Station. The course aims to give participants a balanced understanding of the theory and practice of weed biocontrol, together with a practical exposure to procedures followed in all stages of a weed biocontrol programme. On completion of the course, participants are equipped to carry out biocontrol programmes in their own countries and to assess programmes proposed by other agencies. Brisbane is a centre of active weed biocontrol, with two quarantine facilities importing and host-testing three or four new species of insects and pathogens each year. Staff include scientists actively involved as biocontrol programme leaders and with experience in all phases of weed biocontrol. The course offers a unique opportunity for hands-on experience in host-testing, quarantine procedures, rearing and release methods. Field excursions are used to demonstrate biocontrol in action, both successful programmes against *Salvinia* species and *Xanthium* species and ongoing programmes against water hyacinth, lantana, annual ragweed and many other weeds. Course participants are experienced agricultural or weed scientists from countries in Asia, Africa and Oceania, where weed biocontrol programmes are planned or in progress and there is a consequent need for specialist training. The course

has been run annually since 1993 and will continue while there is a demand. Participants have been sponsored by the Australian Centre for International Agricultural Research, the Crawford Foundation, GTZ, the United Nations Development Program, the Commonwealth Science Council and the South Pacific Commission.

A European programme for the biological control of weeds in crops: objectives and present status

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Based on a Swiss proposal, a concerted European research programme on Biological Control of Weeds in Crops officially started in February 1994. The main objectives of this COST action (European Co-operation in the Field of Scientific and Technical Research) are to: (i) co-ordinate present national and European activities in the field of biological weed control; (ii) initiate new research projects in Europe; (iii) elaborate a general protocol for biological weed control in Europe; (iv) strengthen basic research for a better understanding of herbivore/pathogen-weed interactions; and (v) propose realistic solutions for the biological control of target weed species of economic importance. At present, five principal weed species in European crops, that are economically important and suitable targets for biological control, have been selected for detailed studies. These are: (i) *Amaranthus* species (Amaranthaceae) (*A. retroflexus* L., *A. hybridus* L., *A. cruentus* L. and *A. bouchonii* Thell.); (ii) *Chenopodium album* L. (Chenopodiaceae); (iii) *Convolvulus* spp. (*C. arvensis* L. and *C. (Calystegia) sepium* L.) (Convolvulaceae); (iv) *Senecio vulgaris* L. (Asteraceae); and (v) *Orobanche* spp. (Orobanchaceae). Five working groups were constituted, centred around these five target-weed complexes. Presently, eleven European countries (Belgium, Denmark, Germany, Croatia, Italy, Hungary, Netherlands, Slovakia, Spain, Switzerland, United Kingdom), representing some 25 institutions, have joined this COST action, extending over an initial five-year period. Workshops and Working Group meetings are being held at least once per year and the results are summarized in Annual Reports.

Impact of *Apion ulicis* (Coleoptera: Apionidae) on gorse, *Ulex europaeus* (Fabaceae), in an agricultural habitat in Chile

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The efficacy of the seed weevil, *Apion ulicis* Forster, a biological control agent of the weed gorse, *Ulex europaeus* L., was examined under field conditions in southern Chile from 1990 to 1993. The purpose of the study was to assess gorse seed-production and colonization in the presence or absence of the bioagent in an agricultural habitat. It was hypothesized that *A. ulicis* might significantly impair weed spread and invasiveness and that it might act in a synergistic manner with plant competition to affect gorse