

**THE WEED SOCIETY
OF NEW SOUTH WALES**

NEWSLETTER

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PRESIDENT	John Toth
SECRETARY	Mike Barrett
TREASURER	Geoff Jacobs
EDITOR	Deirdre Lemerle

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EDITORIAL

In the *Decade of Land Care*, our farmers have enthusiastically adopted the use of minimum tillage techniques for soil conservation. In doing so farmers have replaced weed control by tillage with greater dependence on herbicides. This creates a paradox for farmers and conservationists; balancing the obvious benefits of soil conservation against the costs of increased use of herbicides, such as pollution, expense and weed resistance. Farmers are asked to conserve the soil, make money and produce clean food without contaminating the environment with pesticides. The challenge to our Weed Society now is to help reconcile such conflicting interests and educate the community about the importance of weeds and the need to support integrated weed management.

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FEATURES

Future of Weed Science Research

Article by Prof Donald L. Wyse, Univ. Minn., St. Paul, USA (from *Weed Technology* Jan-March 1992)

Abstract. The discipline of weed science is entering a critical period in its development. Decisions made in the next few years will determine if weed science will remain weed control technology oriented or develop into a broad-based scientific discipline. Over the last 30 years the evolution of weed science has been based on the development of weed control methods. Currently, most crop production systems rely very heavily on one weed control technology, herbicides. Agriculture is now in a debate with society over how food and fibre should be produced. Society is asking weed science, because

of food safety and water quality concerns, to develop new methods to control weeds. To do this, weed science must put more emphasis on principles-based research that can provide the basic knowledge required to develop new weed control technology. Weed scientists must join forces with private citizens and organisations concerned with the effect of current agricultural practices on the environment, to obtain, through the political process, new resources for weed science research. These resources are needed to develop the basic principles that will support the development of new weed control technologies with reduced environmental impact. Weed scientists must decide if they are going to lead the direction of weed science research or be led reluctantly by others.

Background

The direction of weed science research has been influenced greatly by a single development; the introduction of highly effective herbicides into the production of all major crops produced in the world. The impact of this technological development has been so dominating that weed science is currently perceived by many to be the science of herbicides rather than the science of weeds and their interaction with activities deemed beneficial by society.

The weed science discipline was just developing when herbicides were first introduced. The agronomists who were studying weed problems at the time were searching for new methods to control weeds in all major crops. As more herbicides were developed, they provided the opportunity for agronomists to use modern scientific and chemical approaches in crop production. Also, herbicides represented to industry a new technology that was effective, had a

growing market, and was very profitable. University research and extension scientists were excited to be on the leading edge of agriculture expansion and were eager to develop these new chemical tools that had been invented to solve weed problems, increase food production, reduce labor inputs, and expand crop production to feed the growing human population.

As one looks back, the meshing of university research, university extension, industrial research, and crop producers to introduce chemical weed control, is a model for propelling new technology into the mainstream of society. At first glance, it appears that the development of herbicide technology had a positive effect on the development of weed science. But, because of the success of this technology, a large portion of the resources devoted to weed science have been devoted to herbicide research. Most of the resources devoted to herbicide research have been used to develop and evaluate herbicide effectiveness, and only a limited amount of resources has been devoted to research on the effect of herbicides on agriculture and the environment, non-chemical weed control, and weed ecology. This has slowed the development of weed science as a balanced discipline.

Now we face a society with goals that are different from those expressed 30 years ago when weed science was first developing. Today the public perceives that the cost of agricultural subsidies is unacceptable; that food though necessary, is not in any danger of being in short supply; and that the real crisis lies in the environmental arena. Society is demanding additional options for solving weed and other crop production problems. Currently weed science has few, if any, new solutions that are both

economically and environmentally viable. Weed science has concentrated on the development of a single method of weed control rather than taking a more balanced approach that would have encouraged the development of basic weed science principles. These principles could be used now to develop new methods of weed control for crop production systems with less effect on the environment.

The current concern over the effect of herbicides on water quality and the effect of biotechnology on herbicide resistant weeds has overshadowed the real problem in weed science; lack of adequate resources devoted to the development of basic weed science principles. If we are not careful, the increased level of resources devoted to weed science, as a result of food safety and environmental concerns, will continue to support the use of chemical technology and not toward expanding the knowledge base of weed science. Thus, resources devoted to weed science must be put into basic research that will support new, more environmentally benign, weed control technology.

Weed Science and Technology Versus Weed Science Principles Research

Weed science research can be separated into two major categories. The first is weed control science and technology research, which included chemicals, tillage, biological control, and other methods of weed control. The second is weed science principles research, which is primarily weed biology and weed ecology research. A high percentage of the weed science effort has been devoted to the development and support of weed control methods. The early research on mechanical weed control gave way to an emphasis on chemical weed control technology has received most of the

resources available for weed science research over the last 25 years with only a limited emphasis on tillage and biocontrol. The amount of resources devoted to weed science principles (weed ecology, biology) research has been much less than that given to weed control technology. Weed science principles research must be enhanced to provide the ~~basic knowledge needed to understand the~~ bases of weed problems. This includes research on weed biology and ecology that would lead to the development of the basic principles needed to develop new weed control practices and improve the weed control practices that are already in place.

More resources must be put into the development and expansion of weed science principles to support the development of new weed control technology. These resources should be devoted to the development of basic principles that regulate weed demographics and competition. In Table 1, I have listed some examples of weed science research priorities that could lead to the development of alternative methods of weed control. The basic principles of weed science must be refined to improve current weed control technology and support the development of new weed control methods.

Table 1. Weed Science principles research priorities.

- Regulation of weed seed germination
- Regulation of bud dormancy
- Propagule development
- Propagule decay
- Weed population genetics
- Weed-crop competition
- Modelling of crop-weed systems

Non-chemical methods of weed control have not been researched extensively for almost 30 years. New weed control

methods must be considered if we are to answer societies concerns over food safety, water quality, and soil erosion induced by tillage practices. Table 2 lists several weed control science and technology research priorities that could result in the development of technology needed to reduce soil erosion, reduce surface and ground water contamination, as well as maintain a high level of weed control.

Table 2. Weed science control and technology research priorities.

- Development of smother plants
- Crop rotation research
- Biological weed control
- Herbicide development
- Environmental quality/water quality research
- Herbicide residues/food and soil
- Mechanical cultivation
- Predictive models for implementation of weed control practices

A New Opportunity for Weed Science

I have suggested that we need to support first, more weed science principle-based research and second, more research on non-chemical weed control technology. We currently have an opportunity to move weed science research in this direction. Weeds are perceived by crop producers and sustainable agriculture advocates to be the major deterrent to the development of new crop production systems. If we are to develop new crop production systems, new weed control technology, based on sound principle-based research, must be developed. Because weeds dictate crop production practices, weed science must become the new leader in agriculture if new crop production systems are to be developed that are less destructive to the environment and specifically designed to reduce soil erosion. Weed scientists cannot do it alone; they must, however,

provide the vision for crop breeding, crop ecology, crop genetics, and crop rotation research that will lead to the development of the tools for new crop production systems. To accomplish this, weed science must encourage ecologists, soil scientists, geneticists, plant pathologists, and molecular biologists to become actively involved in weed science research.

We can do this in the short term by co-operating with scientists trained in other scientific fields. To have a long term commitment to weed science in these areas, however, we must educate weed science students in these scientific disciplines. The weed scientist of the future will be weed scientists/ecologists, weed scientists/soil scientists, weed scientists/plant breeders, etc. This is not a new idea - weed science already has weed scientists/physiologists, for example - but rather an expansion of the concept. Rather than having the other disciplines as support groups for weed science, we need to have scientists trained in these fields working exclusively on weed science problems. This addition would allow weed science to expand and develop into a balanced scientific discipline. This would also add cultural, gender, and discipline diversity to weed science. This diversity would add a new dimension to many of the issues facing weed science. New approaches to old problems could result in rapid progress in weed science research.

Development of Support for Expansion

How will weed science develop the support to expand and enhance weed science research? It can be done only through citizen involvement in the political process. Many in society are concerned over the environmental and social effects of current agricultural practices. They have opinions about

agriculture and the processes used to produce food and fibre. They find it very difficult, however, to convey their opinions to those involved in setting the priorities for agriculture research. Many outside of agriculture perceive that agricultural research is a closed group that is not willing to listen to society's concerns.

Weed science must take the lead in the development of a mechanism for citizen involvement in the decision making process for agriculture's future. Why should weed science take the lead? Because current crop production systems are designed to ensure effective control of weeds. If crop production systems are to change, new weed management systems must be developed before the changes can take place. To make these changes possible, substantial new resources must be put into weed science research. We must invite farm organisations, concerned citizens, environmental groups, and food safety organisations to become involved in the development of our future research goals. This will result in the development of a partnership of concerned citizens and scientists with common goals and shared risks. This coalition could become a very strong voice for procuring support for the expansion of weed science research.

Currently there is no real mechanism for private citizens or organisations to make their concerns known to scientists in a constructive format; on the other hand, scientists are concerned with the level of understanding of science in society. The opportunity for organisations and individual citizens to become involved with scientists in setting joint research priorities, that result in shared risk, is an excellent educational tool for both scientists and citizens. To further this

interaction, the Weed Science Society of America should take the lead and develop a citizens' advisory board that will allow citizens to share responsibility for the future direction of weed science research and ultimately the direction of agricultural research.

Such a joint effort may serve as the stimulus for a new focus for weed science, a focus on the ecology of weeds and the development of greater diversity in the methods of weed control that are available in crop production systems. It may be time for a citizen-scientist coalition to declare that the weed seed pool is the cancer of current crop production systems, and deserves to become a high priority research area for state and federal funding. This citizen-driven power base could result in substantial new resources becoming available for weed science research.

Conclusion

Weeds science is faced with new opportunity. Lack of weed control is perceived by most producers to be the major deterrent to the development of alternative agriculture systems. The sustainable agriculture movement is providing weed science with the opportunity to become a balanced scientific discipline. Society, through the sustainable agriculture movement, is asking weed scientists to expand their thought pattern beyond herbicide solutions to weed problems. We need to think beyond the current technology. We must remember that non-chemical methods of weed control have not been researched extensively for almost 30 years. Thus, it should not surprise anyone to realise that we do not have effective non-chemical weed control methods to replace or complement chemical methods. Weed scientists must break down the barriers that have

prevented a real discussion of alternative methods of controlling weeds. If this does not happen, weed science will miss the chance to expand research efforts in weed population genetics, seed and bud dormancy, competitive crops, allelopathic-smother crops and interference-modelling to mention a few. This research base is needed to develop weed science into a balanced and viable scientific discipline for the future.

CAWSS Submission to the National Weeds Strategy

By Dr. Marcus Blacklow, President of CAWSS

Weeds cost the Australian economy about \$3 billion each year; annual herbicide costs alone approach \$1 billion. It must be recognised that the management of weeds will be a continuous struggle. Some of our major weeds are out of control. Yet, the technologies for weed management are amongst the most important contributions to modern-day agriculture and are at the cutting-edge of science. Furthermore, they raise many contentious issues among those concerned with the quality of our environment and with human health.

The Council of Australian Weed Science Societies (CAWSS) commends the Government for the initiative to develop a National Strategy but finds it impossible to respond to the deadline with a comprehensive submission to influence the development of the Draft Strategy. (The difficulty with an organisation like CAWSS is that a response needs to be worked through its Member Societies and this takes some time. An individual, of course, needs only to co-ordinate themselves!) However, CAWSS will be keen to react to the Draft.

The activities of CAWSS and its Member Societies are self-funding. The viability of the CAWSS Structure depends upon running Conferences and Meetings at a profit, the goodwill of employer organisations, and the dedication of the committed few. All this is rather precarious and requires the encouragement of a National Strategy.

Some of the Member Societies of CAWSS have been operating effectively for 25 years. However, some States and Territories do not have Weed Science Societies; another State has seen the demise of its Weeds Society; and another State has changed its Weeds Society to a Plant Protection Society. Some advocate the formation of a Weed Science and Technology Society of Australia (WSTSA) to arrest the decline in the CAWSS Structure.

CAWSS, through its Member Societies, has convened National Conferences over many years. The next Australian Weeds Conference, the tenth, will be convened through the CAWSS structure. The earliest Conferences were convened by the Australian Weeds Committee of the Agricultural Council and a conscious decision should be made between these two alternatives. In my view the CAWSS Structure should be encouraged to continue as the Convenor of the Australian Weeds Conferences.

CAWSS would place high on the agenda of the National Strategy the development of people skills. We promote this through our interests in education at all levels. The National Conferences and meetings of Member Societies are among methods we use to influence the standards of those of us who work in the discipline.

The journal "Plant Protection Quarterly"

is assuming an important role among the Australian journals. CAWSS supports this journal, but is not in a position to do so financially. The existence of the Journal is precarious and there is a need to explore methods to ensure its development and viability.

Integrated Pest Management (IPM) is advocated by those who recognise there is much in common with the management of weeds, insects and diseases. Some practices advocated by one of the disciplines could be deleterious to the objectives of another. IPM should be encouraged by:

- a working relationship between CAWSS, the Australian Entomological Society and the Australian Plant Pathology Society;
- a review of the administrative structures of Government Departments;
- a review of the courses offered by Education institutions.

Methods that we use for the management of weeds have positive and negative benefits to the environment. Unless we are well researched and well prepared to answer the critics then we run the risk of losing the debates with an increasingly urbanised society. A National Strategy should see in place a method of working with the media and legislators to ensure sound treatment of contentious issues and decisions based upon sound knowledge. We can not do this with present structures and the continued erosion of people resources.

Clean Agriculture - A New Group's Background

By Bill Silvey, Chairperson, National Clean Agriculture Awareness Campaign Working Group.

When concerns about rural chemicals in Australia escalated some five years ago, agricultural organisations acted independently. Perhaps we thought the problem would go away and so dealt with each situation as it confronted us. The issues are still with us...albeit at a global level. It is not only a technological issue but also one with social, economic and political implications. With this background, the idea of a National Clean Agriculture Campaign was conceived, under the auspices of the Australian Agricultural and Veterinary Chemicals Council.

All government agencies associated with agriculture have dealt with farm chemical issues in a variety of ways. However, there are goals, messages and activities common to all of us. By pooling our efforts we can help raise the level of community understanding about Clean Agriculture issues.

The aim of the group is essentially:

Responsible, minimal use of farm chemicals will lead to a plentiful supply of clean and safe primary produce for both domestic and international markets.

Working Party

The working party, formed from representatives of state departments of agriculture, convened in Sydney in September to determine terms of reference. The ten members are joined by four corresponding members from other Government organisations with an interest in Clean Agriculture.

Goals

The aims of the working party are to:

- promote:
 - a positive National Clean Agriculture theme
 - clean agriculture practice and production
 - community understanding and confidence about rural chemicals
 - the functions of the Council
- place rural chemicals in perspective
- complement the efforts of other organisations with similar aims, both local and overseas
- act as an information exchange agent for resources (human, material and financial) on joint national communication and promotion projects.

Projects

Priority projects include:

- Produce the newsletter, Clean Ag Link
- Provide a list on information resources on rural chemicals
- Target defined audiences for a Clean agricultural promotion strategy
- Develop a code of Practice for farm chemical use in agriculture
- Liaise with primary industry groups.

Further information

For those interested in a more detailed report of the working party meeting and outcomes contact me at the Queensland Department of Primary Industries on 07-2390468.

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IN BRIEF

Those Incredible Weeds!

By L.W. Mitich, University of California, Davis, USA. Summary of a paper presented at the 1992 WSSA Meeting.

Most weeds are fascinating plants. While they flourish where they are not wanted, they are plants with a long and fascinating relationship with man. When did weeds first become a problem? How did our ancestors utilise weeds? How did they receive their names? Why were some weeds able to infest thousands of square kilometres within a decade after they were introduced into the U.S.? Some examples of interesting tidbits were shared. The name lambsquarters is a corruption of "Lammas Quarter", an ancient English festival. Stinging nettle (*Urtica dioica* L.) is a morsel to tickle the palate and long has been valued as a vegetable in Europe. French explorers in the early 1800s observed Indians using Jerusalem artichokes (*Helianthus tuberosus* L.) and found them so palatable and artichoke-like they sent specimens to France where they became popular as *pommes de Canada*. *Xanthium*, the name the Greeks gave cocklebur, is their word for yellow; they used the weed's thick yellow sap for a hair dye. English farmers had to grow hemp or be thrown into prison. Henry VIII required farmers to grow hemp (*Cannabis sativa* L.), and in Elizabethan times there was such a demand for hemp fibre for ropes that marijuana cultivation was encouraged in the New World.

Plant Protection Quarterly Subscriptions

Introductory price for the remainder of 1992 for new subscribers - three issues for \$30.00. Normal Subscription rates

are: \$48.00 Personal
\$75.00 Full (libraries, companies and multiple users).

Plant Protection Quarterly is Australia's only journal in the area of plant protection. Papers are published on all aspects of the protection of economic plants from weeds, pests and diseases and include the protection and ecology of vegetation on public land such as roadsides, railways, gardens, reserves and national parks. Scientific papers, review articles and technical articles that have undergone peer review are published along with book reviews, conference reports, conference dates, news items and letters to the editor. The notable review series "Biology of Australian Weeds" is also published in this journal. If you are a research worker, field officer, agricultural adviser, pest controller, chemical reseller, equipment manufacturer or anyone working in agriculture, land management and allied areas, then read PPQ and keep up to date. Send your subscription to Plant Protection Quarterly, 18 Koornalla Cres. Mt. Eliza, Vic. 3930.

A New Allelopathy Journal

The *International Journal of Allelopathy* will begin publication in January, 1993. Editor-in-Chief is Patrick Tauro, Dean, Post Graduate Studies, CCS Haryana Agricultural University, Hisar-125 004, India. There will be two issues a year, one in January and one in July. The Journal will publish original scientific papers, review articles, reports and conferences and meetings, and book reviews.

New Executive Director of AVCA

The Board of the Agricultural and Veterinary Chemicals Association

(AVCA) recently announced the appointment of Mr. Claude Gauchat as its new Executive Director. Mr. Gauchat (B.Sc.Agr., MBA) has 18 years experience in the agricultural chemical industry and has held senior positions in applied research and development, marketing and corporate management. He has played an active role as a director of AVCA affiliates in Venezuela and Hong Kong. His most recent position was as regional head of the Agricultural Division of Ciba-Geigy, based in Hong Kong. Mr. Gauchat was born in Switzerland, but spent most of his school years in Australia, where he began his career in agriculture with an Agricultural Science degree at the University of Sydney. He subsequently worked for the NSW Department of Agriculture until he left Australia to join a medical research institute in South Africa. He later resigned to study for his MBA in Switzerland, and joined Ciba-Geigy as Product Manager in 1974. Since then he has held senior positions in Argentina, Venezuela and Hong Kong in both the animal health and plant protection divisions. Mr. Gauchat replaces Mr. Allen Morley who has left AVCA after eight years to manage Adam Environmental, an environmental management consultancy.

Co-operation Between CAWSS and Other Weed Societies

The President of CAWSS has received a letter from Prof P.C. Nel, President of the Southern African Weed Science Society seeking closer liaison between our Societies in the future. To start this he suggests an exchange of newsletters. The President replied that closer liaison was a desirable aim, and he would do what he could to promote it. He explained that CAWSS does not produce a newsletter but the member societies do,

and perhaps these could be forwarded to the Southern African Society.

Membership of the International Weed Science Society

Now is the time to join the IWSS. Yearly membership costs \$7.50 and life membership is \$150. Both new and renewing members should send their subs to Dr Leon Smith, Vice President IWSS, at 8 Darwin Drive Lapstone, NSW 2773. The second IWSS Congress will be held in Copenhagen, Denmark.

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RESEARCH & ADVISORY NOTES

Weeds Research At University of New England

By Prof John Lovett, Department of Agronomy, UNE, Armidale

Studies of the weed biology and ecology of weeds have included species which represent problems in crops (eg *Salvia reflexa* [mintweed]), and in pastures (eg *Carduus nutans* [nodding thistle]). A major current project, supported by the Australian Wool Corporation, is examining the ecology of *Vulpia* spp. (silvergrasses) in pastures. Early results suggest that, as is true of most weed problems, once the biology and ecology of the species concerned are properly understood long-term management solutions can be developed. In contrast to this project are studies of the aquatic macrophyte *Alisma lanceolatum* (water plantain), a weed of rice.

Early studies of allelopathy in the Department focussed on chemical interactions of weeds with crops. A good understanding of the mechanisms concerned was developed with, for example, *Datura stramonium*

(thornapple), which liberates alkaloids into the environment as an adjunct to its competitive ability. In a project supported by the Barley Research Council, studies of the barley crop are tending to confirm the hypothesis that allelopathic ability exists in crops but has been attenuated in consequence of selection for other agronomic traits. The possibility of enhancing allelopathy as a means of "self defence" in crops is intriguing, particularly as barley allelochemicals have a wide biocidal range. The expanding context of allelopathy, exemplified by this work, takes it into the ambit of biological control, which is represented also by two projects involving insect pests.

Brassica spp. are known to contain glucosinolates. These sulphur-containing compounds may be involved in allelopathic responses reported with stubbles from *Brassica* crops (e.g. rapeseed/canola). The present work has identified glucosinolate breakdown products as likely agents in the inhibition of germination of a number of plants including wheat, linseed, ryegrass and sub-clover. Aqueous leachates from Canola stubbles were seen to be inhibitory in the most recent work, as were pure forms of some glucosinolate breakdown products. HPLC analysis of both the leachates and known breakdown products have been carried out to identify and quantify compounds present. The work may have implications for crop rotations, weed control strategies or as leads for herbicidally active compounds.

Plant-produced chemicals have long been used in medicine and veterinary science. The ecological significance of these compounds has, however, remained contentious. The availability of modern analytical equipment has facilitated identification and quantification of

secondary metabolites, and techniques such as electron microscopy are enabling their modes of action to be determined. The significance of this project is that secondary metabolites may contribute to the defence of the plant which produces them, against micro-organisms, insects, mammals and other plants. Better understanding of the roles of secondary metabolites offers potential for improved management of pest organisms:

- (a) by using these compounds as the basis of "environmentally-friendly" natural pesticides; and
- (b) by genetic manipulation via conventional plant breeding and/or genetic engineering.

The occurrence of tannins in some forage legumes attracts serious attention since it may have both beneficial and detrimental effects on ruminant performance. At moderate levels (3% or lower) tannins may prevent bloat and protect protein from rapid degradation by rumen bacteria. On the other hand, at a higher level tannins tend to depress the nutritive value of forage legumes by reducing voluntary feed intake and digestibility.

A series of experiments is being conducted to investigate the effects of environmental factors on tannin level in *L. pendunculatus* Maku and *L. corniculatus* Dewey, comprising five subtopics.

A joint study programme with Vetsearch International aims to improve the efficiency of herbicide activity by the incorporation of a number of new wetting agents. This programme has examined the influence of the wetters on herbicide activity in pasture weeds and, more recently, with weeds relevant to crop situations (wild oats).

Training Course For Farm Chemical Users

By John Kent, School of Agriculture, Charles Sturt University - Riverina

A training and accreditation program for all users of farm chemicals has recently been launched in NSW through a co-operative effort involving NSW Farmers Association, NSW Agriculture, NSW TAFE, Charles Sturt University, Rural Training Council NSW and the NSW Education and Training Foundation.

The program is part of the National Farm Chemical User Training Program initiated by the National Farmers Federation and the Rural Training Council of Australia. The program, which is competency based, is designed to meet the needs of all those who use farm chemicals. Competencies have been established at the National level and courses offered in each state are designed to comply with these competencies. All successful participants are awarded a certificate of competency.

The NSW, course involves a 2 day workshop covering the areas of Integrated Pest Management, Personal Safety, Environmental Safety, Legislation, Farm Chemical Formulations, Farm Chemical Application, Animal Health Products, Record keeping and Product Label Interpretation. Workshop participation is aided by a Workbook and further reference material is provided in a Reference Manual. This comprehensive 175 page Reference Manual is also available separately at a cost of \$25. Workshops will be conducted by Trained and Accredited Instructors in centres around the State at a cost of \$165, which includes manuals, instruction, assessment and administration. Assessment at an appropriate level is conducted to

determine whether or not participants meet the competencies set. For those who feel they are already competent, provision is made for a "Challenge Test". A correspondence mode is planned for the future.

In NSW, the Program is organised by a Management Committee with the Secretariat based at Murrumbidgee College of Agriculture, Yanco (Phone: John Murray 069-530296). All enquires should be directed to the Secretariat.

This training program is probably the most significant innovation ever introduced for users of farm chemicals in Australia because of its competency base, co-ordinated, approach, support from many organisations, and suitability for all users of farm chemicals. Great interest in the program is already being shown by farmers, nursery industry workers, local governments and government organisations. It is highly recommended that all farm chemical users undertake the course.

Biological Control of Fireweed

AQIS and the Australian National Parks and Wildlife Service have given permission for the importation into quarantine of the pyralid moth *Homoeosoma stenotea* by the Queensland Department of Lands' Alan Fletcher Research Station. This follows consultation with all State agriculture and conservation authorities. The larvae of the moth attack the flower heads of variable groundsel, or fireweed, reducing the viability of the plant and the amount of seed it sets. After the moth is imported it will be tested in quarantine to ensure that it is free of parasites and disease and is specific to the target weed.

AWARDS

Student Prizes for 1991

There were two recipients of the NSW Weed Society Prize for 1991, Ms Phillipa Mae Brock and Ms Noni Fenwick; both will complete their BScAgr degrees this year.

Phillipa Mae Brock from the University of Sydney received the prize for her outstanding performance in the weed component of the Crop Protection Course. Phillipa attended Newcastle Grammar School and currently lives at Maitland. Before going to the University of Sydney, where she is in Wesley College, she gained a Certificate in Agriculture with Merit from Total Agricultural College. She hopes to have a career in some aspect of crop protection.

Noni Fenwick from the University of New England was awarded the prize for her excellent Crop Protection project. She studied the effects of nitrogen fertiliser on the yield and quality of barley. As part of the coursework for Crop Protection. She undertook a small "spray it and see" trial on her home property. The trial looked at the effects of several herbicides on Rock fern (*Cheilanthes tenuifolia*), which is not normally a problem weed in NSW but had become so on the family property. The Rock fern is toxic to most stock and causes death by thiamine deficiency, internal haemorrhage and multiple tumours. Results showed that glyphosate (360 g/L) and paraquat (200 g/L) gave some measure of control. Ms Fenwick hopes to obtain employment as an agronomist (research or advisory) in north-eastern New South Wales or Queensland after she graduates this year.

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FUTURE EVENTS OF THE WEED SOCIETY

Urban Bushland Regeneration/Weeds Field Day - Friday, September 25th

The Society will hold a field day in which we will visit three sites within Sydney to discuss the work going on there. At each site, the organiser of the project will explain the approaches being taken and the problems encountered. It is anticipated that people from various urban bushland and other organisations will be on hand to introduce themselves and to describe what they do. The day is being organised by Judie Rawling (Urban Bushland Management) and Roger Cousens (Univ. of Sydney). The program and meeting places are as follows:

Site 1: Ku-ring-gai Bat Colony at the end of Edward Street Gordon (UBD map 28) at 10.00 am with Elizabeth Hartnell as guide.

Site 2: Lane Cove Valley, Bush Regeneration Project at the southern of Kissing Point Rd, South Turrumurra (UBD map 39) at 11.30 am with Judie Rawling and Margaret Mathers as guides.
Lunch: picnic lunch on the track (bring your own).

Site 3: Ferndale Park, West Chatswood at the end of Beresford Ave, West Chatswood (UBD map 41) at 2.30 pm with Judie Rawling and Kerry Heatly as guides.

Anyone interested in more detail should contact Judie on (02) 4134722 or Roger on (02)6922946.

AGM and Annual Dinner - Thursday, November 26

This year the Annual Dinner will be held on 26 November 1992 in Sydney. The

AGM of the Society will be held on Friday 27 followed by a seminar (possibly on the National Weeds Strategy). We look forward to a large turn out, and to elect bright new members to the Executive Committee for 1993. Further details will be given in the next Newsletter.

There is considerable diversity in the interests that members of the Society have in weeds and the Committee aims to represent most of these. But the future effectiveness of the Society requires greater participation and support from members.

Warwick Felton, NSW Agriculture,
Tamworth.

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LETTERS TO THE EDITOR

Dear Editor

The Weed Society of NSW has an important role in educating the community on the significance of weeds and their control. *Weeds awareness* is to be discussed at the next Annual General Meeting and contributions from members of the society on this topic are sought.

Clearly, many members are unable to attend the various functions that are organised each year. However, the Newsletter provides a forum for your comments and suggestions that can be shared. The Committee can respond to these in formulating future society activities.

Weeds are as important as *Landcare*, however they are not receiving the same attention. The Society can and should do more in both urban and rural areas to make people more aware of the importance of weeds. How can members contribute to this objective? How can we improve participation and the impact of Society activities? Should we increase our effort in secondary and tertiary education? TAFE is an extensive educational network that could be targeted. What potential is there to link more with the Landcare programs? Is it appropriate for the Society to collaborate more with other professional groups?

Please send newsletter correspondence to: Deirdre Lemerle, Agricultural Research Institute, PBM, Wagga Wagga 2650. The next issue will be in September.

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NEW BOOKS

Australia's Environment - Issues and Facts.

A new reference publication produced by the Australian Bureau of Statistics. Call the Greenline on 008 813939 from 9 am to 5 pm Monday to Friday to order copies, which cost \$35.00 per copy (including postage and handling). This book consolidate information on all the major environmental issues into one comprehensive publication. It presents the facts as they have been gathered, to give you a clear picture of the problems facing our unique environment. The book contains over 350 pages, with more than 300 diagrams, tables, colour maps and figures. The information is easy to read and presented under the broad headings: Framework for Environment Statistics; Flora and Fauna; Atmosphere; Water; Land and Soil; Human Settlements; and Where to From Here - issues for the future. It is a factual reference for those people with a genuine interest in our environment.

The Leaf Surface of Major Weeds

Price SFr.78. - ISBN - #3 - 9520208 - 0 - X Sandoz Crop Protection, Unit 3, Pymble Grove, 33 Ryde Road (P.O. Box 405), Pymble, NSW 2073. Phone (02) 4981799, Telex AA72474, Fax: (02)4988920. This book deals with 30 species of plants. The leaf surface plays a major role in physiological exchange processes as well as in host-pathogen and host-parasite relationships. The leaf surface is the place where pesticides and foliar fertilisers are deposited and where decomposition of these applied materials occur. And it is the leaf surface that many of the materials applied must pass in order to be effective. A thorough and systematic description of the morphological and physio-chemical nature of the leaf surface of many species would further the understanding of the significance of this important interface. Such an approach should help not only the weed scientist but also the plant pathologist, the entomologist, the plant physiologist, and the agronomist to better understand the signification of the leaf surface for their endeavours.

IWCC Proceedings

On 17th to 21st February 1992 the first International Weed Control Congress was held at Monash University in Melbourne Australia. Some 53 invited papers, over 100 submitted papers and approximately 50 poster displays were presented. This material is now published in two volumes of the *Proceedings of the Congress*. *Volume 1 "Invited Papers"* is 341 pages. *Volume 2 "Submitted Papers and Poster Summaries"* is 602 pages.

Australian Weed Control Handbook

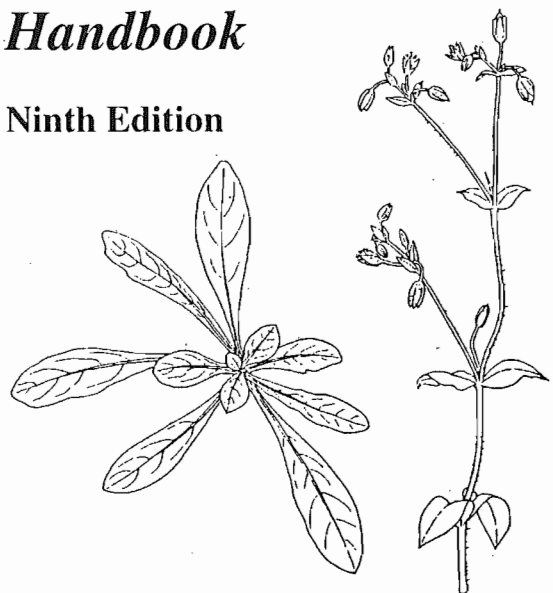
240 mm x 170 mm 512 pages Limp 1992 ISBN 0 909605 73. Price \$49.95. The substantially updated ninth edition of the *Australian Weed Control Handbook* brings together the essential facts for an

understanding of the problems that weeds present and the Information necessary for the development and implementation of effective weed control systems for different situations. Introductory chapters include: methods of weed control; planning effective weed control systems; herbicides and their application; herbicide safety and disposal. The section on products gives a detailed treatment of each herbicide available from the major agricultural chemical companies in Australia, as well as a list of products grouped according to their active ingredient(s).

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Australian Weed Control Handbook

Ninth Edition

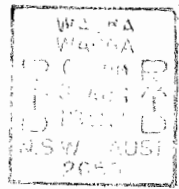


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Lorraine Merelli

THE WEED SOCIETY OF NSW NEWSLETTER

If undelivered please return to:
PO Box K287
HAYMARKET 2000



ADDRESS MAIL TO:
PRIVATE BOX NO.
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DELIVERY



14th Asian-Pacific
Weed Science Society



10th Council of Australian
Weed Science Societies

CONFERENCE

WEED ECOLOGY AND IMPACT

- ★ agronomic crops (horticulture, tree and broadacre crops)
- ★ environmental
- ★ national parks and conservation
- ★ urban
- ★ pastures
- ★ rangelands
- ★ forestry
- ★ woody weeds

WEED BIOLOGY

- ★ herbicide resistance
- ★ biology and ecology
- ★ vegetation succession
- ★ weed spread
- ★ plant physiology
- ★ taxonomy
- ★ genetic engineering and manipulation

EFFICIENT UTILISATION OF CONTROL METHODS

- ★ herbicide technology, use, application and safety
- ★ new herbicides
- ★ plant growth regulators
- ★ biological control
- ★ mycoherbicides
- ★ physical control methods
- ★ cultural control methods
- ★ organic weed control
- ★ revegetation and rehabilitation
- ★ integrated weed anagement

PUBLIC AND POLICY ISSUES

- ★ extension
- ★ awareness
- ★ education
- ★ training
- ★ media and public relations†
- ★ public health
- ★ environmental effects of control practices
- ★ urban weeds
- ★ herbicide safety
- ★ regulation and policy†
- ★ noxious weeds
- ★ introduction of weeds
- ★ land degradation
- ★ economics of weed management†

†Possible workshops

There will be a mid-week field tour to look at weeds in agricultural systems around Brisbane.

English is the official language for the conference.

If you have already received a copy of this flyer, please pass it on to a colleague.

Mailing Address:

14th APWSS & 10th CAWSS Conference
PO Box 1237
MILTON QLD 4064
fax 07367 1471

**14th APWSS AND 10th CAWSS CONFERENCE
BRISBANE SHERATON HOTEL & TOWERS
MONDAY 8th – FRIDAY 10th SEPTEMBER 1993**

Weed Management – Towards Tomorrow

PLEASE FORWARD FURTHER INFORMATION ON THE ABOVE CONFERENCE TO:

Title:

Surname/Family Name:

Given Name:

Company/Institute:

Address:

..... Postcode:

Phone: Fax:

Please circle as applicable

I am interested in attending as a:

Delegate Sponsor Trade Show Exhibitor

Please circle as applicable:

I am interested in presenting a	Paper	A	B	C	D
	Poster	A	B	C	D
	Video	A	B	C	D
	Computer Program	A	B	C	D

TITLE:

SYMPOSIA: A: Weed Ecology & Impact
 B: Weed Biology
 C: Efficient Utilisation of Control Methods
 D: Public and Policy Issues

Please indicate the Symposia to which your presentation relates.

Information on the required format will be provided with the next notice to be mailed out in October 1992.

See over for mailing/fax information.