A Good Weed

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In This Issue

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Photographs – Bridal Creeper [Weeds CRC], Lantana [Weeds CRC], Morning Glory [Eurobodalla Shire Council]

THE WEED SOCIETY
OF NEW SOUTH WALES INC.

Office Bearers for 2005/06

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CAWS Delegates	Rex Stanton [Wagga Wagga] Stephen Johnson [Orange]
Committee	Peter Harper [Ingleburn], Peter Dowling [Orange], Rex Stanton [Wagga], Bertie Hennecke [Richmond], Jim Dellow [Orange], Alec McLennan [Sydney], Luc Streit [Sydney].

Committee meeting dates have been set as follows;

June 16, 2006	Castle Hill Council	October 20, 2006	Forestry, West Pennant Hills
August 18, 2006	Katoomba	December 15, 2006	UWS, Richmond

All members are welcome at meetings; check with the Secretary for the final date, time and place as changes can be made to these arrangements.

Coming Events

- **See inside for coming Society functions in August, September and November.**
- **15th Australian Weeds Conference.** Adelaide Convention Centre, Adelaide, South Australia. 24-28 September 2006. Contact Plevin & Associates Pty. Ltd. 08 8379 8222.
- **16th Australian Weeds Conference.** Cairns, north Queensland. 19-22 May 2008. www.16awc.com.au/
- **13th Agronomy Conference.** Perth, Western Australia. 10-14 September 2006
- **13th Australian Cotton Conference.** Gold Coast, Queensland. 8-10 August 2006.
- **9th International Conference on the Ecology and Management of Alien Plant Invasions.** Hyatt Regency Hotel, Perth, WA. 17-21 September 2007. Organised by the Weeds Society of WA [WSWA]. www.congresswest.com.au/emapi9/.
- **5th International Weed Science Society Conference.** Vancouver, Canada, 2008.
- **NE NSW and SEQ Weeds Forum.** Twin Towers Resort, Tweed Heads. May 10, 2006.
- **9th Symposium of the Weed Society of Queensland.** June 3-6 2007. Gold Coast, Queensland.

The Olive industry and the feral olive issue

This one day forum will discuss the olive industry and the issues posed by feral olives. It has been organised by the Weed Society of New South Wales in cooperation with the NSW DPI, the NSW Olive Council and the Australian Olive Association. Information on the olive industry, the threats posed by feral olives, the identification of olive species, the interaction of local government and the management of feral olives will be presented. A facilitated discussion session during the afternoon will draw together the issues discussed and plan a cooperative direction forward.

WHO IS INVITED

Everyone who has an interest in the olive industry and/or the issues posed by weedy or feral olives.

In particular the forum will be of interest to

- Olive growers
- Local Council staff including those involved in noxious weed management and development applications
- State Government Authorities responsible for weed management and policy and
- Weed management companies.

WHERE

The forum will be held at the Conference Centre of NSW DPI's Orange Agricultural Institute, Forest Road, Orange. A map of Orange can be found at the website http://www.orange.nsw.gov.au/

Orange is a 3-4 hour drive from both Sydney and Canberra, and many parts of inland NSW. A number of direct flights from Sydney operate daily. Further information on accommodation, transport to, and attractions in Orange can be found at the above website.

WHEN

Wednesday 9 August 2006

9.00am (for a 9.30 am start) - 4 pm

THE WEEDS SOCIETY OF NEW SOUTH WALES Inc.

NSW DEPARTMENT OF PRIMARY INDUSTRIES

The NSW Olive Council on behalf of

AUSTRALIAN OLIVE ASSOCIATION LTD.

ISSUES

Olives are widely grown across much of southern Australia. Continued strong growth for olive products, particularly in NSW, should result in over 8000 hectares planted by 2010 with production worth in excess of $100 million.

Varieties of European olive are the mainstay of the olive industry today. In the past however, varieties of African olives have been planted. These have escaped from cultivation and become feral in NSW. Widespread escapes of European olives have not yet occurred in NSW but have occurred in other states. This forum examines the potential of olives to continue to become feral in NSW and explores what approaches may be needed to prevent this.

EXPECTED OUTCOMES

Participants will receive an overview of information on the following: -

- the current state of the olive industry and the many issues that the industry encounters;
- the impact of feral European olives in southern Australia;
- identification of, biology and current distribution of feral olive species;
- perspectives on local government decision making for planning;
- current management and legislation surrounding feral olives; AND
- participate in facilitated discussion to identify issues and plan a cooperative direction forward.

COST TO ATTEND

Weed Society/AIAST/NSW Olive council members* $60

Others $80

* Olive growers are encouraged to contact Mr Nelson Quinn, NSW Olive Council President to discuss payment.

This cost includes lunch, morning and afternoon teas and a printed summary of the proceedings.

REGISTRATION AND FURTHER DETAILS

For further information and to RSVP please contact Stephen Johnson, NSW DPI on (02) 6391 3146 or email stephen.johnson@dpi.nsw.gov.au by the close of business Wednesday 2 August 2006

THE WEEDS SOCIETY OF NEW SOUTH WALES Inc.

NSW DEPARTMENT OF PRIMARY INDUSTRIES

The NSW Olive Council on behalf of

AUSTRALIAN OLIVE ASSOCIATION LTD.

Forum on the Olive Industry and Feral Olives

9 August 2006, Orange, NSW.

(Convened by the Weed Society of NSW and the Australian Olive Growers Association)

Draft Program

- 9.00 Registration and coffee.
- 9.30-9.40 Introduction and purpose outline.
- 9.40-10.20 Key note/Feral olive issues speaker – Dr Neville Crossman, CSIRO Land and Water, Adelaide, issues surrounding feral olives, biodiversity, control, disease and biosecurity.
- 10.20-10.30 Q and A session.
- 10.30-11.00 Olive industry speaker - Mr Nelson Quinn, President NSW Olive Council,
  - background and issues confronted by Olive industry (some focus on feral issues obviously but background on plantings, value of industry, future expansion, uses and other issues would be interesting.
- 11.00-11.10 Q and A session.
- 11.10-11.30 Morning tea
- 11.30-11.50 Olive identification and taxonomy – Dr Stephen Johnson, NSW DPI,
  - (co-authors Dr Peter Cuneo, Manager - Natural Heritage, Mount Annan Botanic Garden and Dr John Hosking, NSW DPI), how one can tell the difference between the subspecies, and others, what ecological conditions favour the growth of the species, where current distribution is and where future distribution may be.
- 11.50-12.00 Q and A session.
- 12-12.20 Feral olives and the situation with local government – Clr Reg Kidd, Orange
  - City Council and Chairman Noxious Weeds Advisory Committee (co-author Mr Geoff Hudson, NRM facilitator, Local Government and Shires Association of NSW), the issues surrounding local environment plans, general framework for decision making and the issues surrounding on-the-ground works at a council level.
- 12.20-12.30 Q and A session.
- 12.30-12.50 Olive management and legislation - Mr Jim Dellow, NSW DPI.
- 12.50-1 Q and A session
- 1-1.45 Lunch
- 1.45-2.30pm Brief general Q and A session to start moving into an issues identification
  - exercise.
- 2.30-4.00 Facilitation exercise where key information reviewed, gaps identified and the
  - future course chartered.
- 4.00 – 4.15 Concluding remarks followed by afternoon tea.

Contact: Dr Stephen Johnson, 02 69913146 or Mob: 0428215146 with any questions.

WEEDS SOCIETY OF NEW SOUTH WALES

SEMINAR SERIES: WEEDS WOE TO GO IV

"Poisonous and Allergenic Plants Where are they?"

Date: Wednesday 6th September 2006

Location: Metcalf Theatre, NSW State Library, Macquarie Street Sydney

Time	Topic	Speaker
9.00 – 9.30 am	Registration/Morning Tea	
Welcome & Chair 9.30 am – 11.20 am	Warwick Felton, Weed Society of NSW	
9.30 – 9.40 am	Welcome	
9.40 – 10.20 am 10.20 – 10.30 am	**Poisonous and Allergenic Plants** Questions 10 minutes	Rachel McFadyen CRC Australian Weed Management
10.30 – 11.10 am 11.10 – 11.20 am	**Risk Assessment and Risk Management** Questions 10 minutes	John Virtue CRC Australian Weed Management
Session 2 11.30 am – 12.30 pm	Mike Hood [10 minute break 11.20 to 11.30 am]	
11.30 – 11.45 am 11.45 – 11.50 am	**Parietaria – Education & Incentive Project** Questions 5 minutes	Sue Stevens Randwick City Council
11.50 – 12.05 am 12.05 – 12.10 am	**Pretty but Poisonous** Questions	Ros Shepherd Writer/Consultant
12.10 – 12.30 pm 12.25 – 12.30 am	**Over the fence** Questions 5 minutes	Andreas Glanznig WWF-Australia
12.30 – 13.45 pm	**LUNCH**	
Session 3 13.45 pm – 15.30 pm	Bob Trounce – Summary and thanks	
13.45 – 14.15 pm 14.10 – 14.15 pm	**Weed Assessment – Federal Government** Questions 5 minutes	Belinda Riddle Biosecurity Australia
14.15 – 14.45 pm 14.40 – 14.45 pm	**Weed Assessment – NSW State Government** Questions 5 minutes [Short Stretch Time]	Stephen Johnson NSW DPI
14.45 – 15.15 pm 15.10 – 15.15 pm	**Poisoning Statistics – Plants** Questions 5 minutes	Genevieve Adamo Poisons Information Centre
15.15 – 15.30 pm	**Summary**	Mike Barrett Weed Society of NSW

Annual General Meeting and Dinner

Pennant Hills Golf Club, Sydney

November 2006

Talks on bush regeneration and turf weeds including site visits will be held at the Club before the AGM. Further details later.

AXIAL – A New Selective Herbicide

Syngenta Crop Protection has launched a new generation post-emergent selective grass herbicide. Called AXIAL® it controls annual ryegrass, wild oats and Phalaris in wheat and barley.

AXIAL belongs to the new phenylpyrazolin class of compounds, which was discovered as a result of Syngenta's investments in research and development. It contains 100 g/L of the active ingredient **pinoxaden**, which has been formulated to combine robust weed control with flexibility and excellent crop safety. It also contains 25 g/L of cloquintocet-mexyl.

Australian field research has shown that AXIAL is the only herbicide that controls the three most economically important grass weeds in both wheat and barley.

Although AXIAL shares the same mode of action as "fops" or "dim" herbicides, it has a different chemical structure proposed for classification as a "den". AXIAL's mode of action is based on the inhibition of the synthesis of fatty acids, which are needed to maintain cell integrity and store energy. Susceptible species stop growing within 48 hours of treatment. Symptoms such as discolouration, necrosis and swelling are evident in 7–21 days. Plant death occurs in three to five weeks.

AXIAL 100 EC Selective Herbicide provides outstanding flexibility with a wide application window, excellent compatibility and crop safety, rapid rainfastness and robust control under a wide range of growing conditions and application methods. Additionally, AXIAL has a favourable environmental profile and has been tolerance tested in 61 varieties of wheat and 16 varieties of barley. There are no varietal or plant-back restrictions.

To enhance performance Syngenta has developed ADIGOR - a new adjuvant to significantly increase the foliar uptake of AXIAL, and incorporated a safener to optimise crop tolerance in wheat and barley. It is rainfast in 30 minutes when used with ADIGOR. AXIAL and ADIGOR are sold in a combi-pack containing 1 x 5 litres of AXIAL and 3 x 5 litres of ADIGOR.

AXIAL can be applied to control grass weeds at any stage from 2-leaf to early tillering or end of tillering, depending on the weed species. AXIAL has excellent compatibility with most common broadleaf herbicides for one pass control of grass and broadleaf weeds.

Syngenta maintains that AXIAL is the first choice for the control of stand alone or mixed infestations of Phalaris, Wild Oats and Annual Ryegrass in both wheat and barley in most situations. TOPIK remains the first choice for the control of stand alone infestations of Wild Oats in wheat.

Australia is among the first countries in the world to register AXIAL, and it will be progressively launched around the world in the years ahead.

The following information has been extracted from the Australian label or Material Safety Data Sheet.

AXIAL 100 EC SELECTIVE HERBICIDE

Active Constituents: 100 g/L PINOXADEN
25 g/L CLOQUINTOCET- MEXYL
Solvent: 559 g/L LIQUID HYDROCARBONS
For the control of key grass weeds in Wheat and Barley

GENERAL INSTRUCTIONS

AXIAL should be applied to weeds that are actively growing. Weeds under stress are more difficult to control. Under the influence of low level stresses weeds may still be controlled, but a higher rate of AXIAL is required. As stress becomes more severe weed control may fail. Stress can be caused by a range of factors including dry conditions, waterlogging, cold or nutrient deficiency.

Resistant Weeds Warning

AXIAL 100 EC Selective Herbicide has the inhibition of fat (lipid) synthesis, (or inhibitors of acetyl CoA carboxylase) mode of action. For weed resistance management AXIAL is a Group A herbicide.

Mixing order: Some products may react with other products if they are not mixed in the correct order. The general mixing order of products should be:

1. Water conditioners or buffers
2. Water dispersable granules (WG)
3. Wettable powders (WP)
4. Flowable or suspension concentrates (SC)
5. Emulsifiable concentrates (EC)
6. Water based or soluble concentrates
7. ADIGOR

It is important to ensure that each individual component of the tank mix is fully dissolved and in solution before the next product is added to the tank mix, otherwise mixing problems may occur.

Application

Ground application: Ensure good spray coverage is obtained. Apply using a minimum of 50 L of water/ha. Ideal droplet size is 200 to 300 microns VMD, to achieve a fine to medium spray quality.
Aerial application: Apply using a minimum of 20 L water/ha and spray at 2 to 3 m above the crop. Ideal is a medium spray quality, droplet size is 250 to 350 microns VMD. Avoid applying if wind speeds are greater than 18 km/hr. For aerial application use ADIGOR at 500 mL/ha.

Compatibility

When AXIAL is applied alone or with other compatible products always use ADIGOR. AXIAL is compatible with most common broadleaf herbicides. ADIGOR is a blend of surfactant and methylated canola oil required for use with AXIAL. ADIGOR improves the reliability of weed control.

ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to fish, aquatic invertebrates and green algae
Rainbow Trout (*Oncorhynchus mykiss*)
LC_{50} (96 hours) = 5.6 mg/L
Water Flea (*Daphnia magna*)
EC_{50} (48 hours static) = 3.2 mg/L
Green Algae (*Pseudokirchneriella subcapitata*)
EBC_{50} (72 hours) = 4.6 mg/L
Green Algae (*Pseudokirchneriella subcapitata*)
EC_{50} (72 hours) = 9.7 mg/L
Moderately toxic to fish and aquatic invertebrates

Persistence and Degradability

Cloquintocet-mexyl is not persistent in soil or water . Pinoxaden is not persistent in soil or water

Mobility

Cloquintocet-mexyl is immobile in soil
Pinoxaden has medium mobility in soil

Environmental Fate [Exposure]

Cloquintocet-mexyl and pinoxaden are rapidly hydrolysed to primary metabolites that degrade by photolysis and microbial activity leading to mineralisation

Bioaccumulative Potential

Cloquintocet-mexyl does not bioaccumulate
Pinoxaden has low potential for bioaccumulation

AXIAL

DIRECTIONS FOR USE

Restraints: DO NOT apply if rainfall is expected within 30 minutes.
DO NOT apply to weeds under stress from factors including very dry, waterlogged, cold, frosty conditions, nutrient deficiency or the use of pre-emergent herbicides.

Crop	Weeds	State	Rate/ha	Critical Comments
Barley, Wheat 2 leaf to flag leaf (GS 12-39)	Canary Grass *(Phalaris minor)*, Paradoxa Grass *(Phalaris paradoxa)* (Annual phalaris) 2 leaf to end of tillering (GS 12-29)	All States	200 to 250 mL plus 500 mL ADIGOR® / 100 L water	**DO NOT apply more than once per crop.** **Rate Selection:** Use the lower rate when weeds are actively growing without stress, small in size and of low density. Use the higher rate when growing conditions are not ideal and weeds are under minor stress, larger in size or in high density. Low level or minor stress can be caused by factors including dry conditions, waterlogging, cold or nutrient deficiency, providing they are not severe or of prolonged duration. **Mixtures:** Apply in mixtures for broadleaf weed control only when weeds are actively growing. Mixing with some broadleaf weed herbicides can result in a reduction in grass weed control. Use the higher rate of AXIAL when applying mixtures. **Resistance Management:** DO NOT make more than 1 application of a Group A herbicide to a crop in the same season. For suspected Group A resistant populations refer to the Resistant Weeds Warning.
	Wild Oats (Black Oats) (*Avena* spp) 2 leaf to end of tillering (GS 12-29)	Stn NSW, Vic, Tas, SA, WA only	150 to 200 mL plus 500 mL ADIGOR® / 100 L water	
		Qld, Nth NSW only	200 mL plus 500 mL ADIGOR® / 100 L water	
	Suppression of Annual Ryegrass (*Lolium rigidum*) 2 leaf to early tillering (GS 12-22)	All States	250 to 300 mL plus 500 mL ADIGOR® / 100 L water	DO NOT apply more than once per crop. To get best results apply only to actively growing Annual Ryegrass until the start of tillering. DO NOT apply under poor growing conditions or to weeds under stress. **Rate Selection:** Use the lower rates when weed density is light and weeds are small in size. Use the higher rate when weed density is moderate and weed size is large. Preferably apply in a program with a pre-emergent herbicide and avoid applying Group A herbicides to high densities of Annual Ryegrass. **Mixtures:** Mixing with some broadleaf herbicides may reduce Annual Ryegrass control. Use the higher rate of AXIAL when applying mixtures. **Resistance Management:** DO NOT make more than 1 application of a Group A herbicide to a crop in the same season. For suspected Group A resistant populations refer to the Resistant Weeds Warning.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIODS
Barley, Wheat: **Harvest: NOT REQUIRED WHEN USED AS DIRECTED**
Grazing: DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 21 DAYS AFTER APPLICATION

LIVESTOCK EXPORT INTERVAL (EI): Not required when AXIAL is used as directed

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

ADIGOR®

SPRAY ADJUVANT

Active Constituent: **440 g/L METHYL ESTERS OF CANOLA OIL FATTY ACIDS**

Solvent: **222 g/L LIQUID HYDROCARBONS**

To assist in the performance of AXIAL® 100 EC Selective Herbicide and other crop protection products

APVMA Approval No: 60114/5/0306 Pack size: 5 L

GENERAL INSTRUCTIONS

ADIGOR is a blend of surfactant and methylated canola oil required for use with AXIAL. ADIGOR improves the reliability of weed control. ADIGOR is also suitable for use as a spray adjuvant with a range of crop protection products including Flowable Gesaprim® 600 SC Liquid Herbicide, Gesaprim® Granules 900 WG Herbicide, Logran® 750 WG Selective Herbicide, Logran® B-Power Herbicide and Topik® 240 EC Selective Herbicide according to recommendations on the specific crop protection products labels.

Important: Prior to use, read all directions on this label and on the label of the crop protection product being used. Any specific usage or restriction on the crop protection product label has precedence over directions for use referred to on this label.

Mixing

Follow the directions on the label of the crop protection product being used.
Thoroughly clean the sprayer prior to and following use. For appropriate cleaning instructions, refer to the label of the product sprayed previously.
Fill the spray tank to half full with clean water. Start agitation. Add the crop protection product by pouring it into the stream of incoming water and continue filling. Add the required amount of ADIGOR just before the tank is full and continue agitation. Ensure spray solution is applied as soon as possible after mixing.

Compatibility

ADIGOR can be applied in combination with a range of crop protection products. However, some products can result in crop yellowing or crop injury when applied with crop oils including ADIGOR. Always refer to the label of mixing partners to determine if they can be used with crop oils. For example Brodal®, Paragon®, Sniper® and Tigrex® may cause crop injury when used with crop oils including ADIGOR. For the latest information on compatibility of ADIGOR, refer to your local reseller, Syngenta Territory Manager, Syngenta website www.syngenta.com.au or technical advice line Freecall 1800 067 108.
ADIGOR is compatible with the following products, always refer to the specific product labels for detailed instructions.

Product	ADIGOR Rate/100 L spray volume	Comments
AXIAL	500 mL	Refer to AXIAL label
Gesaprim 600 SC	500 mL to 1 L	For post-emergent use in TT-Canola
Gesaprim Granules		
Logran 750 WG	1 L	Refer to Logran label
Logran B-Power	500 mL	For all applications where Logran B-Power is used
Topik		Refer to Topik label

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

STORAGE AND DISPOSAL

Keep out of reach of children. Store in the closed, original container in a cool, well ventilated area. DO NOT store for prolonged periods in direct sunlight.
Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. DO NOT dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

SAFETY DIRECTIONS

Avoid contact with eyes and skin. When using the product wear:
- cotton overalls buttoned to the neck and wrist (or equivalent clothing)
- elbow-length PVC gloves
- goggles

When using with other chemicals consult their Safety Directions.

FIRST AID

If poisoning occurs contact a doctor or Poisons Information Centre. Phone 131 126.

MATERIAL SAFETY DATA SHEET

If additional hazard information is required, refer to the Material Safety Data Sheet. For a copy phone 1800 067 108 or visit our website at www.syngenta.com.au

MANUFACTURER'S WARRANTY AND EXCLUSION OF LIABILITY

Syngenta has no control over storage, handling and manner of use of this product. Where this material is not stored, handled or used correctly and in accordance with directions, no express or implied representations or warranties concerning this product (other than non-excludable statutory warranties) will apply. Syngenta accepts no liability for any loss or damage arising from incorrect storage, handling or use.

DIRECTIONS FOR USE

When using with AXIAL, add to spray tank at the rate of 500 mL/100 L water. If using low water volumes (50 L water/ha or less) use a minimum of 250 mL ADIGOR/ha. For aerial applications use 500 mL ADIGOR/ha.

When using with other crop protection products, refer to specific product label for the recommended rate.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

Mechanised Spot Spraying

Warwick Felton
Formerly Senior Research Scientist NSW Agriculture, Tamworth.

Weeds are a major problem costing the Australian economy billions of $'s each year in lost production and cost of control. Furthermore, weeds pose extensive health and environmental problems.

Spot spraying can reduce the amount of herbicide required by targeting only the weed and not areas where they are not present. For example, fallow weeds, in row crops, vineyards, orchards, roadsides, railway lines, and other industrial situations.

A project to develop an automated system that consists of a sensor to identify the presence of weeds and turn a nozzle on just for a brief period was undertaken by the New South Wales Department of Agriculture (NSWA). Keith McCloy and Warwick Felton were the researchers responsible for this work. A successful prototype was assembled that utilised the unique spectral properties of green plants. The chlorophyll in plants absorbs red light in the electro-magnetic spectrum and reflects near infra-red wave-bands. The reflectance information from these two wave-bands is used to determine either the NIR/R ratio or the normalized vegetation index (NDVI).

$$NDVI = (NIR - R)/(NIR + R)$$

A green plant increases the NIR/R and NDVI ratios and either of these can be used to differentiate green plants from a non-green background such as soil or stubble.

The target area or field of view (FOV) of each detector can identify a green plant occupying as little as 5% of the FOV. Therefore, a smaller FOV for each detector can result in smaller weeds being targeted.

The technology was assigned to an Australian company in July 1989 to develop a commercial prototype and to market the technology. Provisional patents were obtained.

The commercial prototype consisted of a Toyota Landcruiser with an 18 m boom with 37 sensors and nozzles fitted with solenoid valves. Each sensor had a red and near infra-red narrow wave-band optical filter from which the radiance energy was determined and compared to the red and near infra-red irradiance from an incident detector mounted on top of the vehicle. This was done at a rate of 100 readings/second allowing spot spraying to be done at 15-20 kph. A weed of 5-10 cm could be detected and sprayed. The prototype was tested on about 3000 ha in 1990-91 with the average area treated being only 10% compared to broadacre spraying.

The company requested approval to manufacture the system in North America. This however, resulted in negligible interaction between the researchers and the manufacturers and an inadequate ongoing product development program and the agreement was terminated.

Using reflectance sensors to measure crop development.

At that time a group in California recognised the potential for the spot spraying technology and with their expertise in opto-electronics and computing built a system that used artificial light. The Patchen Weedseeker resulted and it was a significant improvement to the original prototype built in Australia.

NSWA undertook an inter-row shielded sprayer project with the WeedSeekers and demonstrated excellent control of scattered

weeds could be achieved in row crops with adequate crop safety even with a non-selective herbicide like glyphosate.

Patchen was taken over by Deere & Co. who marketed the WeedSeeker in the US in row crops, railways and roadsides, rather than for broadacre fallow situations.

Deere & Co. decided that spray technology was not their core business so sold Patchen to John Mayfield who had several John Deere agencies in California. He also developed the sidewinder technology that used the WeedSeeker sensors to spot spray roadsides.

Spot spraying with a shielded sprayer in mung bean

The initial WeedSeeker was designed only to operate 16 sensors so was not suitable for wider boom-sprays as there were some problems with the power supply. The high cost of the WeedSeeker and the declining price of glyphosate also made broadacre spot spraying less attractive at that time.

However, changes in weed problems and a greater need to manage weed populations will mean that spot-spraying will be more widely used as a valuable and cost saving option in the future. It is imperative that less reliance is put on herbicides just for short-term control of weeds.

NSWA role also has focused on new uses for reflectance techniques in crop development. These include identifying genotypes with greater seedling vigour, predicting weed competition, incidence of crop disease, and nutrient responses. The NIR/R and NDVI reflectance ratios have been shown to be a quick and non-destructive measure of crop growth that will have many applications in research and precision agriculture.

Weeds in the Media Seminar

Recently the Cooperative Research Centre for Australian Weed Management invited weed workers to attend the 'Weeds in the Media' seminar.

The seminar Proceedings have now been published and the document is available free of charge. It is a valuable record of many aspects of the issues surrounding invasive garden plants including summaries of State and Territory and National legislative frameworks.

Andreas Glanznig [WWF], Mike Barrett, and Rachel McFadyen [Weeds CRC] attended the Seminar. Andreas and Rachel were speakers. Mike is a consultant and a member of this Society.

The seminar Proceedings are available on-line and may be downloaded as a PDF version of the document from: http://www.weeds.crc.org.au/publications/index.html There are many excellent papers within the Proceedings

Have You Paid Your Subs Yet?

The subs are necessary to:-

- Confirm you membership status
- Help fund the Society
- Allow the holding of seminars
- Finance the newsletter
- Pay the overhead costs that any society has to meet if it is to function

$30 is not a large amount, less after you claim a tax deduction and nothing if you can claim it from your employer.

OBITUARY – Nelson Johnston (1911 – 2006)

One of the founders of the Weeds Society and its first President, Arthur Nelson Johnston, a leader in agricultural science education and a pioneer in agricultural chemical research and development in Australia, died peacefully in Bowral on 9th July, aged 94.

Born into a family of dairy farmers at Gerringong, Nelson obtained a degree in Agricultural Science in 1933 and then a Diploma of Education from Sydney University. After teaching at Hurlstone Agricultural High School for 2 years, Nelson was appointed Senior Lecturer in Botany and Entomology at Hawkesbury Agricultural College remaining in this position for 15 years. During WWII his teaching career was interrupted by serving with the armed forces between 1942-45 as Commanding Officer of the 2/5th Australian Entomological Research Unit in charge of malaria control research in northern Australia and New Guinea. In later years this work provided him with many an anecdote.

In 1952 Nelson took up the position of Technical Director with Agricultural Services Industries [Agserv], a young Australian company with good connections with a number of overseas principals including the Swiss company Geigy and Amchem of the USA. Agserv was later taken over by Geigy. Nelson retired in 1969 just before the Ciba-Geigy merger. During this 17 year period, Nelson was directly involved with the introduction of a number of important herbicides including 24-D, 245-T, amitrole, fenatrol and bromoxynil herbicides, and indirectly through the Geigy association with simazine, atrazine, prometryne and ametryne herbicides. This further developed his strong life-time interest in botany, weeds and their control. At the same time Nelson was able to work with his other life-time interest, entomology, working on the development of diazinon in ectoparasite control for sheep and cattle, in public health and horticulture. This work involved much travel around Australia and Nelson developed a reputation as a fine speaker at conferences, company meetings and field days, always inserting a little humour, even a little 'bossiness' to make his point and to entertain and instruct the audience. You could tell why his ex-students at Hawkesbury would rank him as their best lecturer.

It was during this time [1966] that the Weed Society of NSW was founded, after Nelson and a number of others including Alan Mears and Kelvin Green, felt that there was a need for a common forum for company and government research and extension staff to meet and discuss issues about weed control and agronomy. Nelson was an enthusiastic member of this Society and besides serving a term as President, also served on the Committee for many years. Nelson was the CAWSS medallist in 1984.

In 1970 Nelson formed his own consulting company, Nelson Johnston & Associates, with the help of his wife Margaret. One job he undertook was to rewrite the Department of Agriculture's field book 'Weeds of New South Wales'. From 1972-80 he was a shareholder and director of Agrisearch Services Pty. Ltd. a consulting company set up by Michael Hood in 1970 to offer contract R&D services in agriculture and related industries, the first such company to establish in Australia. Nelson enjoyed helping develop this business and kept in touch for the rest of his life. His other commercial interests included serving as a director of the Australian Wool Testing Authority from 1974-84.

Professionally he was involved in many other associations; some of these included the Australian Institute of Agricultural Science of which he was Federal President in 1964 and subsequently appointed a Fellow and the

Consultants Section of the AIAST of which he was made an Emeritus Member.
Among his appointments in agricultural education, Nelson was Deputy Chairman of the Institute of Rural Studies in the Department of Agriculture, was a member of the Higher Education Board in NSW, and at various times was on the committees and councils of Hawkesbury, Orange and Tocal Agricultural Colleges and the University of Western Sydney. He was appointed a Fellow of Hawkesbury Agricultural College in 1979.

Nelson was a keen lawn bowler and for many years a member of Lane Cove West Bowling Club, and of course a member of the Greens Committee. In later years, as a member of Probus, he enjoyed giving talks to his fellow members on agriculture and especially on "weeds, pests and diseases".

A number of Weed Society members attended Nelson's funeral in Bowral.

Sas Douglas, Jim Swain and Michael Hood

Sydney University Presentations

On 12 April 2006 at the Faculty of Agriculture, Food and Natural Resources scholars reception, President Warwick Felton and Life Member Dr. Peter Michael presented awards.

Warwick Felton presents Rebecca Haling with the Weed Society Prize

Warwick presented the Weeds Society prize for proficiency in weed science to student Rebecca Haling, whilst Peter presented the Dick Jackson award for excellence in teaching to horticulture lecturer Dr. Robyn McConchie.

Congratulations, especially to our weed prize recipient Rebecca.

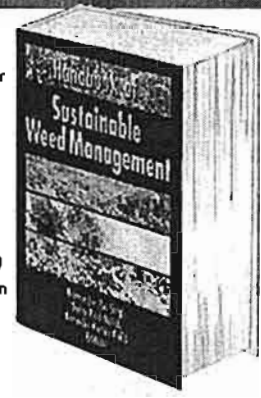
Peter Michael presents Robyn McConchie with her award.

Sydney University Faculties to Merge?

While on the subject of Sydney University, have you hear about the plan to merge all the faculties into four? Agriculture of course goes, being merged into Science.

Balloon Vine Cardiospermum sp.

ABOUT THE **HANDBOOK OF SUSTAINABLE WEED MANAGEMENT**



The **Handbook of Sustainable Weed Management** presents the latest international strategies for controlling weeds while preventing dangerous chemicals from endangering the ecosystem or human lives. This compendium focuses on designing future weed management strategies that reduce herbicidal usage, restore ecological balance, and increase food production. This book provides new insights and approaches for weed scientists, agronomists, agriculturists, horticulturists, farmers, extentionists, teachers and students. Tables, figures, and over 125 illustrations—including a color photo section!—make complex information easy to access and understand.

In the **Handbook of Sustainable Weed Management**, experts from Asia, Europe, North America, and Australia organize in one resource the scattered information related to weeds and their management from different ecosystems around the world. The text captures the multifaceted impacts of and approaches to managing weeds from field, farm, landscape, regional, and global perspectives. Generously illustrated with tables and figures, this book not only describes the various techniques for weed management but shows you what methods work best for a given site, invasive weed, or invaded crop.

The **Handbook of Sustainable Weed Management** includes different aspects of weed management relevant to the scope of modern weed science such as:

- cultural practices
- cover crops
- crop rotation designs
- potential of herbicide resistant crops
- bioherbicides
- allelopathy
- microorganisms
- integrated weed management

In spite of advancement in technologies and procedures, weeds continue to pose a major ecological and economical threat to agriculture. The **Handbook of Sustainable Weed Management** takes a broad view of weeds as a part of an agricultural system composed of interacting production, environmental, biological, economic, and social components all working together to find balance. This comprehensive book is a vital addition to the debate of how global weed management is changing in the twenty-first century.

CONTENT HIGHLIGHTS

Chapter 1. Weeds and Their Management: Rationale and Approaches (R. K. Kohli, Daizy R. Batish, and H. P. Singh)
- What Are Weeds? • Why Are Weeds Successful? • Impact of Weeds • Weed Management • Integrated Weed Management • Herbicide-Resistant Crops: Benefits and Harms • Herbicide Antidotes and Synergists • Weed Management—Some Alternate Approaches • Future Directions • *more*

Chapter 2. Weed Management: A Basic Component of Modern Crop Production (Ricardo Labrada)
- Integrated Pest Management • Components of Integrated Pest Management • Control Strategies • Economic Areas Affected by Weeds and Their Management • Suggestions for Improved Weed Research Management • *more*

Chapter 3. Contributions to Weed Suppression from Cover Crops (M. L. Hoffman and Emilie E. Regnier)
- Management Issues • Evidence for Weed Suppression • Weed Suppression Mechanisms • Economics • *more*

Chapter 4. Utilizing Brassica Cover Crops for Weed Suppression in Annual Cropping Systems (Rick A. Boydston and Kassim Al-Khatib)
- Mechanisms of Weed Suppression with Brassica Cover Crops • Integrating Brassica Cover Crops into Cropping Systems • *more*

Chapter 5. Grass-Legume Mixed Cover Crops for Weed Management (Nilda R. Burgos, Ronald L. Talbert, and Yong In Kuk)
- Benefits of Mixed Cover Crops • Management of a Mixed Cover Crop • Efficacy of Mixed Cover Crop for Weed Control • Crop Yield Following Mixed Cover Crops • *more*

Chapter 6. Rye As a Weed Management Tool in Vegetable Cropping Systems (John B. Masiunas)
- The Advantages of Rye Cover Crops • The Disadvantages of Rye Cover Crops • Effects of Rye Cover Crops on Weed Populations • Managing Rye Cover Crops • Mechanisms Explaining Rye Effects on Weeds • The Effects of Weed Control and Rye on Vegetables • *more*

Chapter 7. A Rotation Design That Aids Annual Weed Management in a Semiarid Region (Randy L. Anderson)
- Crop Production in the Great Plains of the United States • Impact of Rotation Design on Weed Dynamics • A Rotation Design That Aids Weed Management • Cultural Practices That Improve Crop Competitiveness • Ecologically Based Weed Management in the Semiarid Great Plains • *more*

Chapter 8. Examining Tillage and Crop Rotation Effects on Weed Populations in the Canadian Prairies (R. E. Blackshaw, A. G. Thomas, D. A. Derksen, J. R. Moyer, P. R. Watson, A. Légère, and G. C. Turnbull)
- Multisite Project • Weed Community Associations • *more*

CONTENT HIGHLIGHTS - CONTINUED

Chapter 9. Potential of Allelopathy and Allelochemicals for Weed Management (Daizy R. Batish, H. P. Singh, R. K. Kohli, and G. P. Dowra)
- Allelopathy, Allelochemicals: A Brief Background • Allelopathic Interactions and Their Scope for Weed Management in Agroecosystems • Cultural Practices, Allelopathic Crops, and Weed Management • Screening of Cultivars with Greater Allelopathic Potential and Their Role in Crop Improvement • Allelochemicals As Herbicides • *more*

Chapter 10. Progress in Developing Weed-Suppressive Rice Cultivars for the Southern United States (David R. Gealy and Karen A. Moldenhauer)
- Rice in the United States • The Concept of Weed-Suppressive Rice • Optimum Period for Maximum Weed Suppression • Dynamics of Rice-Echinochloa Interference • Red Rice • Integrating Suppressive Cultivars with Reduced Herbicide Rates in Arkansas • Rice Genetics and Crossing Considerations • Rice Breeding Efforts in Arkansas and Some Potential Screening Methods • *more*

Chapter 11. The Ecology of Weed Seed Predation in Herbaceous Crop Systems (Fabián D. Menalled, Matt Liebman, and Karen A. Renner)
- Weed Seed Predation in Herbaceous Crop Systems • Impact of Seed Predation on Weed Population and Community Dynamics • Herbaceous Crop Fields, Noncrop Habitats, and Weed Seed Predation • How Can We Conserve Seed Predators in Agroecosystems? • *more*

Chapter 12. Mowing for Weed Management (William W. Donald)
- Reporting Mowing Practices in Weed Science • Mower Equipment • Preconditions for Mowing • Goals of Mowing in Different Farming Systems • Integrated Weed Management Systems Including Mowing in Combination with Other Weed Management Methods • What Scientific Knowledge Is Needed to Better Use Mowing to Achieve Several Goals at Once? • *more*

Chapter 13. Herbicide Fate Under Conservation Tillage, Cover Crop, and Edge-of-Field Management Practices (Martin A. Locke, Robert M. Zablotowicz, and Mark A. Weaver)
- Effects of Conservation Management Practices on Organic Matter, Microbiological Characteristics, and Soil Structure • Herbicide Sorption and Movement in Conservation-Managed Systems • Herbicide Degradation in Conservation-Managed Systems • Herbicide Retention and Degradation in Plant Residues • *more*

Chapter 14. Strategies for Developing Bioherbicides for Sustainable Weed Management (S. M. Boyetchko and E. N. Rosskopf)
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Chapter 15. Developing Microbial Weed Control Products: Commercial, Biological, and Technological Considerations (Karen L. Bailey and Edmund K. Mupondwa)
- Commercial Considerations • Biological Considerations • Technological Considerations • *more*

Chapter 16. Implementation of Weed Biocontrol in Forest Vegetation Management for Conifer Production (Simon F. Shamoun)
- Nature of Competing Forest Vegetation: "Forest Weeds" • Methodology Used for Development of Fungal Plant Pathogens As Mycoherbicides for Forest Weeds • History and Current Status of Research and Development of Mycoherbicides for Management of Forest Weeds • Development and Commercialization of Mycoherbicide Products for Use in Forestry • Constraints in the Development of Mycoherbicides for Management of Forest Weeds • *more*

Chapter 17. Characterization of Phytotoxins from Phytopathogenic Fungi and Their Potential Use As Herbicides in Integrated Crop Management (Antonio Evidente and Mohamed A. Aboureid)
- Some Phytotoxins from Weed Pathogenic Fungi • Ascochyta rouliae Phytotoxins • *more*

Chapter 18. Applications of Soil and Rhizosphere Microorganisms in Sustainable Weed Management (Robert J. Kremer)
- Deleterious Rhizobacteria • DRB in Integrated Weed Management • Soil and Rhizosphere Bacteria in Sustainable Agriculture • *more*

Chapter 19. Herbicide-Resistant Crops and Weed Management (Krishna N. Reddy and Clifford H. Koger)
- Herbicide-Resistant Crops and Their Adoption • Impact of HRCs on Weed Management • Benefits and Risks of HRCs As Weed Management Tools • *more*

Chapter 20. Strategies for Managing Herbicide-Resistant Weeds (Hugh J. Beckie and Gurjeet S. Gill)
- Herbicide Strategies • Nonherbicide Strategies • Integrating Herbicide and Nonherbicide Strategies: Case Studies • *more*

Chapter 21. Recent Advances in Parasitic Weed Research: An Overview (Jamal R. Qasem)
- Parasitic Species: An Introduction • Orobanche Species (Broomrapes) • Cuscuta Species (Dodders) • Viscum Species (Mistletoes) • Loranthus Species (Mistletoes) • Osyris Species • Cistanche Species • Cynomorium Species • *more*

Chapter 22. Management of Weeds in Pasture Systems (Brian M. Sindel)
- Impact of Pasture Weeds • Why Are There Weeds in Pastures? • Strategies for Control • Integrated Management of Pasture Weeds • *more*

Chapter 23. Integrated Turfgrass Weed Management (Rakesh S. Chandran)
- Identification and Threshold Levels • Cultural Methods • Mechanical Methods • Biological Methods • Chemical Methods • *more*

Chapter 24. Approaches to Integrated Weed Management (Douglas D. Buhler)
- Weed Management • Weed Control Science and Principles of Weed Population Dynamics • Approaches to Developing Integrated Weed Management Systems • *more*

Chapter 25. Learning Groups for Implementation of Integrated Weed Management: Principles and Practical Guidelines (N. Jordan, H. Niemi, S. Simmons, R. Becker, J. Gunsolus, and S. White)
- Approaches for Developing Site-Specific IWM • A Conceptual Model of Coordinated Innovation in Support of IWM Implementation • Results from Experimental IWM Learning Groups • Recommendations for Professional Roles and Practices in IWM Learning Groups • *more*

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Treasurers Report Regarding Membership Subscriptions

The Society has a nominal membership of 200.

There are 24 who have not renewed their membership for the past 3 years including this year and 12 who have not paid their subscriptions for 2005 and 2006

A reminder will again be sent out to these members advising them that if they do not renew their membership shortly or advise that they do not wish to continue as members, then their names will be removed from the membership list which means that they will not receive A Good Weed or notification of seminars and events that the society organises. The society relies on members subscriptions to carry out may of its activities and it cannot continue to provide that service to those who are not financial members.

There are still 33 members who are yet to renew their 2006 membership and you are also asked to forward your payment as soon as possible or advise that you wish to resign as a member.

Jim Swain. Hon Treasurer.

Some Useful Weeds Websites *(Source www.nationalparks.nsw.gov.au/npws)*

The Water Weeds of NSW website gives photos and information on the legal status of aquatic weeds.
The CRC Weed Management website lists what not to plant for your chosen region and links to information on those plants and, where available, native plant alternatives.

Northern NSW

The North Coast Weeds Advisory Committee website provides weed resources from Nambucca Shire to the Queensland border
The North West Weeds website offers weed information for Barraba, Bingara, Inverell and Yallaroi shires
The Far North Coast Weeds website lists 187 weeds and gives information about the Bushland Friendly Nursery Scheme
The Queensland Environmental Weeds Management Group website has strategies, weeds lists, newsletters, weed information sheets and assorted information useful to weedbusters in Northern NSW.

Central NSW

The Sydney Regional Weeds Committees website contains information on noxious and environmental weeds, community involvement, and regional weed strategies
The Bushland Weeds of the Sydney Region website contains commonly cultivated plants that invade native bushland, listed by common and scientific names
The Parramatta City Noxious Weed Information website has simple explanations of noxious weed regulations Warringah Council's Weed Control website has common weeds in the northern Sydney area The Weeds of Blue Mountains Bushland website shows how weeds spread, and has good photos, descriptions, native alternatives and control information. The Weeds of the Olympic Catchment website gives good, clear photos and descriptions.

Southern NSW

The South Coast Weeds website covers Bega, Eurobadalla, Illawarra and Shoalhaven shires
'Are your garden plants going bush?' is a great colour brochure from the ACT

A Good Weed

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