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Plant extract offers potential as termite treatment

Associate Professor Robert Spooner-Hart, Director of the Centre for Plant and Food Science at the University of Western Sydney (UWS), is working with a team including Dr Albert Basta from UWS and staff of the Centre for Phytochemistry and Pharmacology at Southern Cross University (SCU), lead by Associate Professor David Leach, to investigate a revolutionary new natural anti-termite product extracted from a native plant found in southern Queensland. This research is being undertaken in partnership with Australian publicly listed company, BioProspect Limited, and has received funding support through AusIndustry.

The plant extract has been found to not only kill termites, but also repel them and prevent treated wood from infestation, in both laboratory and field trials. This anti-termite extract evolved from studies carried out by UWS and SCU on a lone fence post spared by termites in a paddock where all other surrounding posts had been devoured. The post was found to be from a native *Eremophila* species, known as false sandalwood. The extract from heartwood was shown to be effective in laboratory bioassays in causing direct toxicity to two common Australian termite species, *Coptotermes acinaciformis* and *Nasutitermes exitiosus*. In a separate series of trials, barriers of sand treated with the plant extract at 200ppm prevented penetration by both termite species for more than 12 months, and susceptible paper and wood impregnated with the extract was avoided and not attacked.

The team were able to pressure-impregnate *Pinus radiata*, a common building construction timber in Australia with the extract, and demonstrated in field trials that this impregnated wood was resistant to termite attack for at least 12 months. By fractionating the extract and testing efficacy of these different fractions, they have also been able to identify two highly active compounds.

The discovery of this extract and its anti-termite properties has come at a good time, given recent concerns over copper chrome arsenate treated pine and restrictions on use of treated pine products in areas such as children's playgrounds and patios (see: www.apvma.gov.au/chemrev/arsenic_summary.pdf). It also provides an alternative to some pesticides commonly used against termites around dwellings, including the organophosphate, chlorpyrifos, and the synthetic pyrethroid, permethrin.

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Above: Termite barrier trial (note tunnelling)
Top - Barrier mixed with extract
Bottom - Barrier untreated (control)

The team believes the extract has three beneficial uses: as a termite barrier under people's houses; as a method of killing termites directly when there are incursions; and to impregnate and protect wood used in new housing or other wood constructions.

While the results are very promising, the anti-termite extract is still some time off commercialisation, requiring further field, safety and environmental studies. The current trials will continue, to determine how long the anti-termite activity lasts. Another component of the research will be evaluating the product against the large tropical Australian termite, *Mastotermes darwiniensis*.

The research reported here is part of an ongoing collaboration between UWS and SCU, assessing biological activity of plant extracts.

For more information contact: Associate Professor Robert Spooner-Hart, Director of the Centre for Plant and Food Science at the University of Western Sydney (UWS). Email: R.Spooner-Hart@uws.edu.au

News, Publications, Commentaries & Events

News:

Property Tax Rebates and NRCS Payments for US farmers to convert to organics

Producers in Minnesota, Montana and Woodbury County, Iowa can now collect financial incentives to convert their operations to organic. In a move to revitalize rural communities, the Woodbury County, Iowa Board of Supervisors established the first real property tax rebate program for converting from conventional to organic farming practices. In Minnesota, the National Resource Conservation Service (NRCS) offers yearly incentive payments of \$45 per acre for cropland and \$25 per acre per year for the conversion of pasture to organic. The Montana NRCS annual payments for organic transition are \$35 per acre for crop and \$3.50 per acre for livestock production conversion. U.S. Senator Tom Harkin (D-Iowa) noted "Organic agriculture can increase farm income while diversifying our crop production and improving our environment. I applaud these efforts that support sustainable agricultural practices."

Reference sites:

http://www.pdiowa.com/index.php?option=com_content&task=view&id=53&Itemid=2

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<http://www.mn.nrcs.usda.gov/programs/eqip/006%20MINNESOTA%20EQIP%20DOCKET%2012.14.05.pdf>
<http://www.mt.nrcs.usda.gov/technical/organic/faq.html>

Publication reviews:

The use of herbs in pastures: An interview survey among bio-dynamic and organic farmers with dairy cattle

Authors: Smidt NW. Brimer L.

Abstract

Lack of knowledge about the effects of herbs in pastures and the frequency of their use by today's organic farmers has limited the development of new methods to improve animal health compatible with organic farming principles. Understanding farmers' agricultural practices is an early step in a participatory research process. With this in mind, we conducted a two-tiered, semi-structured survey of Danish organic farmers with dairy cattle to begin documenting their practices. Out of 350 farmers, 255 completed a mailed questionnaire - a response rate of 73%. Of these participating farmers, 66 (26%) confirmed their use of herbs in pastures. Caraway was sown at an average rate of 500 g of seed per hectare by 60 (91%). Of these, 32 used solely caraway, while 7 used it in combination with parsley. Twenty-one used caraway together with herbs other than parsley. Six used one or more herbs, not including caraway, such as chicory, chervil, dill, fenugreek, great burnet, and salad burnet. Further details concerning cultivation, convictions, observed effects, and information sources were obtained through telephone interviews. The results of this study would indicate that more research in this field is called for. [References: 41].

Source: Agriculture & Human Values. 22(3):355-363, 2005 Fal. <http://www.springerlink.com/1dtrzoava0wcuufbsiqqdhjru/app/home/contribution.asp?referrer=parent&backto=issue,11,15;journal,2,35;linkingpublicationresults,1:102841,1>

The 'Conventionalisation' Thesis Reconsidered: Structural and Ideological Transformation of Australian Organic Agriculture

Authors: Stewart Lockie and Darren Halpin

In contrast with the uncritical optimism of popular narratives on organic food and agriculture, social scientists have debated at length the potential for the organic food sector to 'conventionalise'; that is, to transform from an oppositional social movement promoting fundamentally different agroecologies and social relationships into a highly regulated and capital intensive food industry differing little from its conventional counterparts. Often, this is argued to result in a 'bifurcation' between industrial organic producers and a residual of small, artisanal social movement activists. Data from surveys of 397 certified organic and 434 conventional farmers in Australia call into question, however, the tendency of the bifurcation model to dichotomise small and large producers in this manner. Despite considerable polarisation in the economic scale of organic producers, there was no evidence that larger organic producers held significantly different values and beliefs to smaller organic growers. Nor were larger organic growers poised to capture greater market share through faster rates of expansion, or any less likely to support local consumption through sales direct to consumers.

Source: Sociologia Ruralis, Volume 45 Page 380 - October 2005, Volume 45 Issue 4.

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New book: Microbiological methods for assessing soil quality

This book reviews the theory and practice of a range of the various microbiological methods used within these programmes. The first section gives an overview of approaches to monitoring, evaluating and managing soil quality. The second section provides a practical handbook with detailed descriptions of the methods. The methods are described in chapters on soil microbial biomass and numbers, soil microbial activity, soil microbial diversity and community composition, and plant-microbe interactions and soil quality. Finally, a census is given of the main methods used in over 30 European microbiological laboratories. More information at www.cabi-publishing.org/bookshop. From: *NRM Update 24 January 2006, Rebecca Lines-Kelly(Ed.)*

Events:

Promoting Perennial Pastures for Long Term Farming System Sustainability - A one day workshop and field tour

Program

- Establishing perennial pastures in your farming system
- Grazing management - principles and practices
- 'Pasture cropping' - retaining native grass pastures whilst cropping
- Field inspections of organic perennial pastures
- Bus tour to Tarrawingee for native grass management

Presenters

- Colin Seis and Sue Rahilly, STIPA Native Grasses Association
- Jerry and Terry Browning, Browning Pastoral Company
- Tim Ekberg DPI Wangaratta, Catchment Agriculture Services
- Meredith Mitchell DPI Rutherglen, Native Grasses
- Viv Burnett DPI Rutherglen, Organic Farming Systems

When and where: Thursday 16TH March 2006, 9:00 - 5:30, DPI Rutherglen Centre. For more information or to RSVP by Thursday 9th March 2006, contact: Viv Burnett or Meredith Mitchell on 02 6030 4500.

"EcoV - The Global Organics & Sustainability Show". Bendigo Exhibition Centre, 5 – 7 May 2006

EcoV will be the largest ever eco-living show to be held in regional Victoria. As well, it will be the most comprehensive Organic and Bio-dynamic promotion in the state. It also will be the biggest sustainable farming expo in Victoria.

The exchange of ideas in the seminar program will be directed at organic and biodynamic producers and the wider farming community in general. Department of Primary Industry Victoria will present the latest findings on their continuing research program into organic cereal and oil seed crops, perennial pastures, lamb production, viticulture, citrus and vegetable growing.

At least three machinery manufacturers have also expressed an interest in exhibiting at EcoV.

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David Holmgren, the co-originator of Permaculture, will be on hand to explain his belief that Permaculture could reinvigorate Organic farming. In another challenging presentation Peter Kramer from Cairns will argue there is a better way to do agriculture rather than just replacing chemical input with certified organic ones.

Other seminars will focus on climate change and farming, biodiversity on farms, irrigation and river health, a health check to sustain the sustainable farmer, and the Gippsland experience with the national Environment Management System (EMS.) There's bound to be something among all the ideas that will circulate at EcoV that can be adopted or adapted to any farming situation.

Two major certifiers, the National Association of Sustainable Agriculture Australia (NASAA,) and Australian Certified Organic (ACO) along with the Organic Federation of Australia are Gold Sponsors of EcoV.

UNESCO has recognised EcoV role as an educator and given permission for EcoV to use the UN logo for the Decade of Education for Sustainable Development.

EcoV hopes to see you in Bendigo in May. Further details on EcoV can be found on the website www.ecov.net.au

Workshop by soil microbiologist Dr. Elaine Ingham ***“True Fertility - combining soil biology, chemistry & structure”***

Date: February 27th & 28th, 2006. 8:30am to 5:00pm

Location: Ellinbank DPI Dairy Research Centre, Ellinbank, Victoria

Program:

- *What is biological farming and some cost benefits?*
- *Why a healthy soil offers disease suppression and water savings?*
- *Nutrient cycling — what form of nutrient do plants need from soil?*
- *Soil structure – who builds what parts naturally in the soil?*
- *Fertiliser, pesticide and chemical use - and farm run off*
- *System-by-System approaches, including pasture improvement*
- *Compost and its application*
- *How to return the health to your soil and best management practices*

Registration/enquiries: Gerhard Grasser Ph. 03 5627 8663 Email seagrow@dcsi.net.au

Exhibit at Organic Expo 2006

21st, 22nd and 23rd July 2006 at Sydney Exhibition Centre, Darling Harbour

- * Over 8,000 enthusiastic and qualified attendees expected
- * Celebrity endorsements and appearances booked
- * Key industry speakers and involvement
- * Premier location at the Sydney Exhibition Centre
- * Creative layout and exciting interest features
- * Organic Cafe
- * Incorporating the Australia/New Zealand Organic Wine Show
- * This is a highly successful and proven show

BOOK NOW! Phone - 02 9451 4747 Email: exhibitors@organicexpo.com.au

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Workshops on Permaculture & Sustainable Living

The following workshops and courses are being offered by Northey Street City Farm, 16 Victoria St, Windsor, Brisbane, QLD in 2006:

Introduction to Permaculture	- Feb 18th 9-12
Permaculture Design	- Feb 18th 1-4
Water-Wise Gardening	- Feb 25th 9-12
Re-using Water in Your Garden	- Feb 25th 1-4
Improving Your Soil	- Mar 4th 9-12
Making Good Compost	- Mar 4th 1-4
What to Plant Where	- Mar 11th 9-12
Propagating Your Own Plants	- Mar 11th 1-4
No-Dig Gardening	- Mar 18th 9-12
Growing Healthy Vegetables	- Mar 18th 1-4
Managing Weeds and Pests	- Mar 25th 9-12
Seed Saving	- Mar 25th 1-4
Growing a Backyard Food Forest	- Apr 1st 9-12
Caring for Your Trees	- Apr 1st 1-4
Re-using Water in Your Garden	- April 8th 9-12
Growing Bushfoods	- Apr 22nd 9-12
Sustainable City Living Tour	- May 6th 8-12
Building Garden Structures	- May 13th 9-12
Keeping Chooks and Ducks	- May 13th 1-4
Reducing Our Energy Use	- May 20th 9-12
Preserving the Surplus	- May 20th 1-4
Building Community Enterprises	- May 27th 9-12
Sustaining Community Enterprises	- May 27th 1-4
Thinking of a 'Tree Change' Tour	- June 3rd 8-5
Building a Cob Oven	- June 10th 1-4
Permaculture Cooking Class	- June 17th 1-4

More details about the workshops can be found at: www.northeastcityfarm.org.au

Also on offer, the following Qualifications in Permaculture:

PERMACULTURE DESIGN CERTIFICATE

If you attend all the workshops listed above plus two extra workshops on permaculture design, and complete a group design project as well, you can obtain a Permaculture Design Certificate.

ACCREDITED PERMACULTURE TRAINING (Level 3) - Internship

If you complete five hundred hours of supervised internship over 6 to 12 months in addition to the Permaculture Design Certificate, you can obtain a Level 3 certificate in Permaculture. This new, nationally accredited form of permaculture training can be undertaken either at Northey Street City Farm or, if appropriate, at least partly on your own property.

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FEES: (variable, depending on income):

Workshops (each) - \$25 to \$45; Permaculture Design Certificate: \$650 to \$950; Accredited Permaculture

Training (Level 3) Internship: \$800 (at Northey Street City Farm), \$1600 (on your own property)

Booking deposit for courses: \$150; Discount for full payment for courses by 31st Jan - 10%; Member's discount - 5% on workshops, \$30 on courses.

For Enquiries, contact Dick Copeman on 07 3857 8775 or 0439 728 992

To Register for workshops or courses, phone 07 3857 8775 or email: nnorthey@bigpond.net.au Northey Street City Farm, 16 Victoria St, Windsor, Brisbane, QLD 4030, Australia. Ph (+61) 07 3857 8775, Fax (+61) 07 3857 8108

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Do you have any research results, field day reports or other information that may be of relevance to organic agriculture? If so, let us hear about it! Send your contributions to:

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Yanco Agricultural Institute
YANCO NSW 2703

Email: robyn.neeson@dpi.nsw.gov.au

Note: Electronic format is preferred. Text - Times New Roman 11 point.

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The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

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