



**Volume 1
Issue 8
August 2004**

Organic News.

ISSN 1449-325X

www.agric.nsw.gov.au

Soil Biology in Agriculture Workshop

Inside this Issue

Soil Biology in Agriculture workshop

Mid North Coast organic industry update

Storing organic grain

Vibrant Markets - first certified organic markets

Farming Women's organic field day

News, Publications, Commentaries and Events



Please direct correspondence to:

Robyn Neeson
NSW Department of Primary Industries
Yanco Agricultural Institute
Yanco NSW 2703

The ecology and biology of life in soils can have major effects on plant growth and the resilience of farming systems. Improved management of soil organisms can confer enormous benefits for little cost. However soil biological processes are complex and difficult to study. We need to do a lot more work to find out what is going on underneath the soil surface. Organic matter is vital to stabilise soil structure and as a source of recycled nutrients.

These are the key messages that participants took away after the soil biology in agriculture workshop in Tamworth last month.

More than 150 farmers, advisors and researchers filled the new Tamworth Sustainable Farming training centre to hear scientists from around Australia talk about their current research into soil biology in agriculture.

'The interest in the workshop was astonishing,' said Dr Peter Slavich, NSW DPI's soil research leader. 'Soil biology is obviously something that farmers want to know more about, so we are now looking at ways we can integrate soil biology in our research and extension.'



Above: Professor Lyn Abbott, from the University of Western Australia, gave one of the keynote addresses at the Soil Biology in Agriculture workshop at Tamworth in August.

The workshop was organised by NSW DPI and GRDC's Soil Biology Initiative which is funding research in five states to try and find some answers to how soil biology affects agricultural productivity, particularly in cropping soils.

'Farmers want information on how biota link with soil processes such as nitrogen mineralisation and disease suppression; how pesticides, fertilisers, cropping and grazing affect biota; how to measure soil biota; and the usefulness of soil biological products,' said Dr Slavich.

'Because of the workshop we now know that soil biology tests and microbial processes require more research and need to be regionally focused because soil biology varies so much according to soil, climate and season. We also need to translate research knowledge into practical action for farmers.'

The 18 speakers at the workshop covered soil biota activities, role of organic matter and soil structure, impact of cropping practices on different soils, impact of pesticides and fertilisers, and development of soil biological products to boost soil biota activity.

Proceedings of the workshop (150 pages) are available for \$22.50 (includes post and handling) from NSW DPI bookshop at 1800 028 374.

Mid North Coast Organics continues to grow

Organic Producers on the NSW Mid North Coast are continuing to work together to build production potential and enhance the success of organic agriculture business in the region.

The four commercially focussed organic networks, formed earlier this year, have held several successful farm visits and discussions into new and innovative product marketing techniques. These farm meetings are proving very popular and are an ideal forum to help producers share information.

Topics discussed range from controlling pest and disease, enhancing soil health, product quality screening and market management through to some very snazzy on-farm equipment innovations designed to reduce the labour load. It's all about producers sharing information to help each other and boost their ability to grow organic food on a commercially viable scale. Increasingly, these discussions are moving into finding more effective and streamlined ways to get regional organic produce to new and emerging markets. This aspect is particularly exciting as it has great potential to enhance farm profitability.

These events are organised by a newly formed group of commercial organic farmers who are interested in working together to better supply local and domestic markets. The organic Garlic, Livestock and Fruit and Nut networks each have events planned for September and October.

This program of activities is delivered by the Area Consultative Committee and the Development Board with funding support from the Department of State & Regional Development and the federal Department of Transport & Regional Services.

If you would like details on the next farm meeting please contact Lyndell Stone at the Regional Development Board 02 65835647.

Storing organic grain

Introduction

Many producers of organic grain make use of on-farm facilities for the storage of grain. Successful storage requires protecting grain from insect or animal pests, preventing contamination by moulds or physical contaminants, and maintaining the viability and its nutritional and manufacturing properties. Organic standards preclude the use of many of the chemicals traditionally used to preserve the quality and storage life of grain.

Organic certification and grain storage

If the farm and produce are to be certified 'organic' a farmer's methods of production and storage must comply with standards for organic farming. These standards constitute an organic quality assurance (QA) system. The farm is inspected by an organic certification organisation on a yearly and random basis to ensure that standards are being met. The certifier's standards cover all the requirements of the National Standard for Organic and Biodynamic Produce (1992, 1998, 2002).

Production, storage, transport, handling and packing facilities must conform to organic standards in order to maintain the organic integrity of the product.

Causes of grain quality losses

Some storage problems result from conditions before or at harvest. Some are caused by conditions during storage. Grain with quality loss prior to storage is more difficult to store well than sound, clean grain.

Grain quality losses after harvest can include moulding and mould toxin contamination, loss of viability and processing quality and gross loss of product. Grain quality loss after harvest results primarily from high storage temperature and moisture content.

Organic grain storage strategies

Retaining grain quality during storage involves satisfactorily monitoring the condition of the grain, maintaining hygiene levels, knowing when and what pest control methods to use, and controlling temperature and moisture levels in the grain.

Under Australian storage conditions, storing only dry grain and keeping it dry readily controls moulds. The principal pests of dry grain are insects, the main ones being beetles, moths and booklice (*Psocids*). These may be controlled by reducing the temperature in grain storage to 20°C or less, but a disinfestation stage is typically required to meet trading standards.

A number of organic-compatible practices are useful in maintaining the quality of stored grain. These include: harvesting strategies, ensuring good hygiene before and during storage, monitoring pest incidence, storage design and layout, controlled atmosphere storage, heating and cooling treatments, and inert atmosphere vacuum packaging.

Harvesting strategies

Harvesting at the correct time can avoid yield losses and minimise post-harvest storage problems. Grain testing before harvest allows quality control of the product grade, leading to a better understanding of the on-farm storage requirements. If drying and conditioning facilities are not available, grain should be harvested at or below normal receival limits for moisture. Oilseeds should be aerated using well-controlled aeration if they will be stored more than one month.

Ensuring good hygiene before and during storage

Good hygiene within grain handling and storage premises is a primary goal to ensure the quality of the product is not compromised through contamination by insects, rodents or any other noxious or objectionable

matter as described in the 'Grains, Plants and Plant Products Orders' (*Export Control Act, 1982*). These Orders are complimentary to The National Standard for Organic and Biodynamic Produce. Infestation in cereal grains is usually obvious within 2-3 months.

Good hygiene in grain storage facilities can be achieved by ensuring:

- easy cleaning and inspection of storages;
- regular equipment maintenance;
- removal of grain residues in sheds, around silos, in headers, augers, field bins, trucks, animal troughs and in silos after emptying;
- *rotation of stocks* to ensure that they do not become sources of infestation and *destruction of old stocks* that are likely to be heavily infested;
- proper training of staff in safety and hygiene;
- the establishment of a system for recording and checking hygiene procedures (such as a HACCP based management system), and development of action strategies should contamination occur.

High-pressure air is often the most suitable method for cleaning equipment, but high-pressure water and vacuum cleaning is also suitable under certain conditions. Plan the cleaning sequence so that cleaned areas cannot be re-contaminated and use suitable personal protection with high-pressure air.

Reducing harbour around storage areas, such as rubbish and long grass, will minimise mice problems. A clear area exposes mice to their natural predators.

The potential for insect infestation can be greatly reduced by keeping the grain temperature as low as possible from harvest, and by storing grain as soon as possible in a sealed, white-painted silo.

Never add freshly harvested grain to silos retaining the previous years' grain unless it has been effectively treated by controlled atmosphere disinfestation. Otherwise, thoroughly clean out silos and preferably leave them empty for a time before storing new season's grain.

Monitoring pest incidence

For most storage pest species the use of insect traps in storages and surroundings can detect the presence of insects at lower population levels than is usually possible by visual inspection, providing an early warning that control measures are required.

Various types of insect traps are available including: pitfall traps, which trap insects as they fall into a container; crevice traps which provide a physical environment into which insects crawl and remain; or bait traps containing food or bait attractive to the insect. Simple and effective insect traps can be made from items found in most homes.

Storage design

Poor storage design and on-farm layout of storages may affect the quality of stored grain. A planned layout of storages will allow segregation and short-term holding of grain for blending of product to meet quality and grade specifications.

The only organic-compatible disinfestation process that is currently available is the use of sealed storages. Sealed storages allow controlled atmosphere (CA) such as carbon dioxide or nitrogen to be applied for insect elimination. A sealed silo prevents re-entry of insects, providing it stays sealed. Seals should be checked regularly and replaced every two years. Silos can be checked for leaks by using a farm compressor. The silo superstructure as well as pressure relief valves should be regularly checked.

An effective method for the mid- to long-term storage of grain is the use of underground storages and bunkers. Bunkers can be sealed with tarpaulins and filled with carbon dioxide to kill insects.

Painting silos white to reflect sunlight and much of the heat, or in hot and humid grain-growing regions or with larger storages (greater than 100 t capacity), cooling grain by aeration, can reduce quality losses due to high temperatures.

Use of mineral dusts

Mineral dusts based on diatomaceous earth products are acceptable as grain treatments against storage insects under organic standards. Diatomaceous earth comprises the remnants of tiny fossilised diatoms, which occur as mine deposits in various parts of the world. Diatomaceous earth is registered as a food additive in many countries. These products work by adhering to and absorbing the waxy coatings on insects causing death by dehydration, rather than by chemical action.

Two products which are non-toxic to mammals' Dryacide® and Permaguard®, are currently registered for application to grain at rates of 1g/kg (0.1%). Either product can be applied by a pickle applicator to whole grain to give protection from insect attack for 1-2 years provided the grain remains dry. Bulk handlers and grain traders do not accept grain treated with Dryacide or Permaguard because it slows grain movement through augers.

Dryacide and Permaguard can be used effectively to disinfest empty storages. Either product can be applied as a dust using a hand bellow or power duster. Application to large areas is achieved by using a power duster and operators should wear disposable dust masks. Dryacide may be applied as a slurry, which is more useful in sheds, where the deposit dries to a light coating without being obviously caked.

Controlled atmosphere disinfestation

Some organic growers have used carbon dioxide for many years to assist with storage of bulk grain. These have commonly been larger 50 tonne silo lots such as those found in small farm bins. A well-sealed bin, preferably painted white externally, is required, and the bin should be checked for gas-tightness, ensuring the pressure halving time exceeds three minutes.

The concentration of carbon dioxide must remain above 35% for 14 days at all points in the grain bulk to ensure all stages of the insect life cycle are killed. The amount of carbon dioxide needed to achieve this is about 1 kg per tonne of grain if the bin is full. More gas is needed if the bin is partially filled with grain. The carbon dioxide is introduced to the base of the silo from gas cylinders.

Employers and their staff should comply with Australian Standard AS 2865 'Safe working in a confined space' when using controlled atmosphere disinfestation.

Grain management by temperature

Grain aeration (aeration cooling) is the practice of moving air through stored grain to reduce the rate of deterioration and prevent storage losses. Aeration minimises moisture migration and keeps grain temperatures low to minimise deterioration by preventing insect development as well as reducing microbial growth, which can spoil grain, cause off-odours and increase grain temperature.

Heat disinfestation offers a rapid chemical-free process for the disinfestation of grain. While other techniques represent cheaper alternatives, heat disinfestation may become a useful strategy as technological advances are made, but is not yet available commercially.

Vacuum packaging

Some organic farmers' process and package grain for direct sale, adding value to the raw product. This market requires grain to be stored in retail outlets, often for a significant time, and still retain freshness and quality and the exclusion of pests.

Inert atmosphere or vacuum packaging offers an alternative packaging for small retail quantities of grain. With this method of packaging the product must be dry. Coffee is often packaged using this system.

The packaging process involves filling a laminate/ polythene package with a carbon dioxide / nitrogen mixture to kill insect pests, and then sealing the package. The packaging must have very low oxygen permeability ('barrier' film) to retain the insecticidal atmosphere and be well sealed to prevent insects laying eggs through the smallest of breaks. Another approach is to pack the product in barrier film and include a sachet of Ageless®, which removes the oxygen from the air in the pack to leave a nitrogen atmosphere.

Adapted from NSW Agriculture Agfact P3.5.1. On-farm storage of organic grain, by R. Neeson, NSW DPI and Jonathan Banks, ex CSIRO, Canberra. For more information contact: Robyn Neeson, Organic Farming Liaison Officer, NSW DPI Yanco Agricultural Institute Yanco NSW 2703. Phone: (02) 6951 2735; E-mail: robyn.neeson@agric.nsw.gov.au

"ALWAYS READ THE LABEL

Users of agricultural or veterinary chemical products must always read the label and any permit, before using the product, and strictly comply with the directions on the label and the conditions of any permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or not made in this publication."

Sydney's Vibrant Markets, the first certified organic market

Located in Sydney's northern suburb of Balgowlah, Vibrant Markets has become Australia's first certified organic market.

Started in May this year by Danielle Neill, the market only sells certified organic produce.

Some of the stallholders currently operating at the markets include:

- Sam the Butcher - certified organic meat, poultry and dairy
- Be Organic - certified organic fruit, vegetables and packaged foods
- La Tartine - certified organic sourdough breads
- Organic Delights - certified organic jams, honeys, spreads, confectionary etc
- Olive Green Organic - certified organic wheat - gluten free, sugar free & yummy pasta, condiments and pastries
- Cornucopia Farm - certified organic eggs
- Mi Essence - Certified Organic skin care
- Toby's estate - certified organic coffee (packages and on tap)
- Healthy Habitat - certified organic baby clothes, bed linen and bath towels.



Above: Sam the butcher at Sydney's Vibrant Markets

Vibrant Markets will celebrate its recent certification as a supplier of organic products with an official open day on Saturday September 18 at Manly West Public School, Hill Street, Balgowlah.

During the official opening ceremony Danielle will be presented with the market's organic certification (NASAA R9296) by NASAA (National Association of Sustainable Agriculture Australia) Chairman, George Devrell. The Mayor of Manly will also be in attendance to present prizes to school children in the "Design a Logo for Vibrant Markets" competition.

For further information contact: Danielle Neill, on 0412 879 923, danielle.neill@vibrantmarkets.com.au

Farming Women's organic field day

The Leeton Farming Women's group were recently treated to a tour of Peter Randall's organic rice and livestock enterprise at Murrami in south-western NSW.

Coordinated by NSW DPI Yanco based agronomist Mary-Anne Lattimore, the Farming Women's group regularly visits district farming enterprises and hold information and discussion forums. The aim of the group is to provide information, skills and confidence to the women in a supportive environment, so that they can participate more in the farming business.

The Murrami field day featured a talk on alternative sheep breeds by NSW DPI Sheep and Wool Research Officer, Geoff Duddy. Geoff concentrated his talk on meat breeds that are gaining increasing popularity in organic farming such as the South African, Dorper and Damara breeds.

The group was then taken on a tour of Peter's farm where he described his organic management of the farm's livestock, pastures, rice and cereal enterprises, and NSW DPI Organic Farming Liaison Officer Robyn Neeson gave an overview of the organic industry and the requirements for organic certification.

Contact: Mary-Anne Lattimore, District Agronomist Yanco. Phone: (02) 6951 2695



Above: Organic farmer Peter Randall discusses his organic management techniques with Chris Douglas (centre) and Karen Bartram (right) at the recent Women in Agriculture field day at Murrami.

News, Publications, Commentaries and Events

Plague locusts are coming

Widespread spring hatchings of Australian Plague Locust are expected as a result of large areas of egg beds being laid across NSW last autumn. Landholders should monitor their properties and provide accurate information on the location, stage of growth and density of plague locusts to their local Rural Lands Protection Board (RLPB).

Under the *Rural Lands Protection Act 1998*, landholders are **required to report** the presence of plague locusts on their land to their local Rural Lands Protection Board (RLPB). They are also required to use insecticide to **control locust nymphs** when the nymphs band together.

Insecticide is provided free of charge to RLPB ratepayers from local RLPBs. The biological insecticide metarhizium is a fungal agent for use in environmentally sensitive areas, including organic farms. This product takes about two weeks to kill locusts and therefore is best applied as soon as possible on locust nymphs once they congregate into bands. Organic farmers should contact their RLPB and inform them of their organic status and possible requirement for metarhizium. For further information contact your local RLPB at http://www.rlpb.org.au/Contact_Us/contact_us.html

For information on plague locusts, including the current situation, location of known and suspected egg beds, hatching forecasts and locust control operating procedures and strategies, go to the NSW DPI website at <http://www.agric.nsw.gov.au/reader/pe-locust>

4th Annual Olive Harvest Workshop

The 4th Annual Olive Harvest Workshop will be held at Rylstone Olive Press in Rylstone NSW on Thursday 9th and Friday 10th September 2004.

The industry development workshop, titled 'Developing the Olive Value Chain' will feature:

- Market & Industry Developments
- Sustainability
- Integrated Crop Management
- Olive Oil Quality
- Harvest Technology
- Crop Protection
- Table Olives
- Trade Displays

For registration & more information contact: Rylstone Olive Press. Phone (02) 6379 1485 Fax: (02) 6379 1632 or NSW DPI Ph (02) 6372 4700 Fax:(02) 6372 6870

15th IFOAM Organic World Congress in Adelaide in September 2005

Call for submissions

Submissions to the 15th IFOAM Organic World Congress are invited from all sectors: researchers, farmers, processors, traders, certifiers, policy makers, advisers and consumers.

Submissions are sought for:

- Oral presentations (15 minutes)
- Interactive workshops (5 minutes)
- Poster presentations
- Innovative/alternative presentations

Closing date for submission: 15 December 2004. More information can be found at: www.nasaa.com.au/ifoam2005



Organics for Interest and Profit

A new course being offered by Murrumbidgee College of Agriculture, Yanco hopes to encourage new entrants into the organic farming industry.

Titled 'Organics for Interest and Profit' the course will provide information to those considering organic conversion, or to those just wishing to know more about organic farming.

Topics to be covered during the 2-day course include:

- Organic industry structure
- organic conversion & certification,
- organic markets and marketing,
- providing crop nutritional requirements organically,
- organic management of insects, diseases and weeds, and
- irrigation management

These topics, presented by key NSW Department of Primary Industry staff, will be supported by presentations from practising organic farmers Jan Denham (organic citrus and stonefruit), and Gina and Neil Wiseman (organic onions, soybeans, linseed and pumpkins). Organic certifying organisations have been invited to present an overview of their requirements for certification.

For more information and registration contact: Simone Fuller, course coordinator on (02) 6951 2544; Email: simone.fuller@agric.nsw.gov.au

Sapphire Coast Field Days

The Sapphire Coast Producers Association (SCPA) is planning a small farms field days (the Sapphire Coast Field Days) at Bega on the weekend of 30-31 October. The theme is "Sustainable Living, Sustainable Farming, and Sustainable Production in the 21st Century".

The target audience is small landholders looking for alternative types of crops and animal enterprises such as bush foods, native flowers and other types of cut flowers, organically grown vegetables, rabbits, goats, ducks, alpacas, olives, wine grapes, etc. and organic systems of farming.

Contact: Graham Savage, phone: (02 6493 2169; E-mail: ellwood.savage@bigpond.com

Annual Rutherglen Field Day, Thursday October 21st.

Theme for the day is: Perennials for Profit and Preservation. Rutherglen's Organic Prime Lamb experiment will be one component of the day and we will be talking about the perennial species mix that has been established on the in-conversion experimental site. Contact: Viv Burnett, Rutherglen. Phone: (02) 6030 4500

New Crops 2004

New Crops 2004 is being structured to appeal to all participants in the new crops industry both within Australia and overseas. Such participants will include primary producers, researchers, facilitators, marketers or potential marketers of new crops, manufacturers, wholesalers and retailers, consumers and more. The conference will be held from Tuesday 21 September 2004 until Friday 24 September 2004 at the University of Queensland Gatton. More information: <http://www.newcrops.uq.edu.au/nc2004/index.html>

News, Publications, Commentaries and Events

The Organic Directory 2004/05 now available

The 2004/05 edition of 'The Organic Directory' is now available. Published annually since 1997 by Catriona Macmillan of Heaven and Earth Systems, the NSW directory provides contact details for organic farmers, processors, retailers, wholesalers, food specialists, bakeries, stockfeeds, certified organic inputs, organic fibres, cafes and restaurants, body care products, organic education, organic real estate, organic project development and management and organic certifiers. The Directory is an excellent resource for organic consumers, for organic farmers seeking outlets for their produce, and for other participants in the organic industry. For copies of the Directory contact Catriona Macmillan, Heaven and Earth Systems. Phone (02) 9365 7668 or E-mail: catrionamac@optusnet.com.au

Organic Market News

For the latest world market trends and other news on organic produce go to: <http://www.statpub.com/statorga.html>

Small farms non-chemical pest management on-line

The German branch of Pesticide Action Network (PAN) has developed a web-based information service focused on non-chemical pest management for crops grown on small-scale farms in the tropics. Known as OISAT (online information service for non-chemical pest management in the tropics), and freely available from the website <http://www.oisat.org>

The system "presents preventive and curative methods of managing pests with the overarching goal of increasing the self-regulatory mechanism within agricultural systems, and reducing the use of synthetic pesticides," according to an OISAT news release.

The service is said to be directed primarily towards agricultural trainers and extensionists in developing tropical countries who, in turn, interact with farmers. Users (with computer access) can choose, download, and edit relevant elements of the OISAT menu—crops, pests, management schemes, and more.

Back issues of Organic News

Back issues of Organic News are available on-line at: <http://www.agric.nsw.gov.au/reader/news-organic>

Do you have any Organic News?

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:

Robyn Neeson

Editor, *Organic News*

NSW Department of Primary Industries

PMB Yanco Agricultural Institute

YANCO NSW 2703

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

Note: Editorial copy to be received by first Tuesday each month. Electronic preferable, Word format, Times New Roman, 11 point.