

AgricultureToday

AUGUST 2008

NSW Department of Primary Industries' research, advisory and management newspaper

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Yellow crazy ants gone; locusts coming

New tastes

Skills shortage solutions, LandLearn

Bridal creeper, blackberry, bio-control of Paterson's curse

Western Dorpers, reducing flystrike susceptibility



Organic rush

Nowra High students operating the school's farm have adopted organic principles to improve sustainability, with impressive results. They're in good company: new data shows nearly a doubling of organic farmgate sales – despite the drought. More p7.

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Waiting game as locusts mass

AUTHORITIES are gearing up for the possibility of a massive plague locust outbreak this spring.

NSW Department of Primary Industries and Rural Lands Protection Boards (RLPBs) and NSW Farmers Association are on alert following more than 900 reports of locust activity since the beginning of autumn.

More than 800 of these reports came from Central West and southern RLPB districts.

Landowners in these areas and elsewhere are being urged to report as soon as possible any locust activity they may have noticed in autumn, or since then.

"A map showing areas of NSW where there was locust activity in the autumn will play a key role in helping authorities prepare for spring," according to NSW Locust Commissioner Graeme Eggleston.

Mr Eggleston said the map painted a grim warning to farmers, particularly in the Central West and southern parts of the State, that locusts posed a significant threat this year.

"We are working hard with RLPBs and NSW Farmers Association to get an indication of potential locust activity come spring," he said.

"Chemical has been ordered and action plans have been developed

to help us be well placed to provide a comprehensive response to any outbreaks."

NSW Farmers Association president Jock Laurie, who sits on the Plague Locust Management Group, said government and industry were working closely together on response plans.

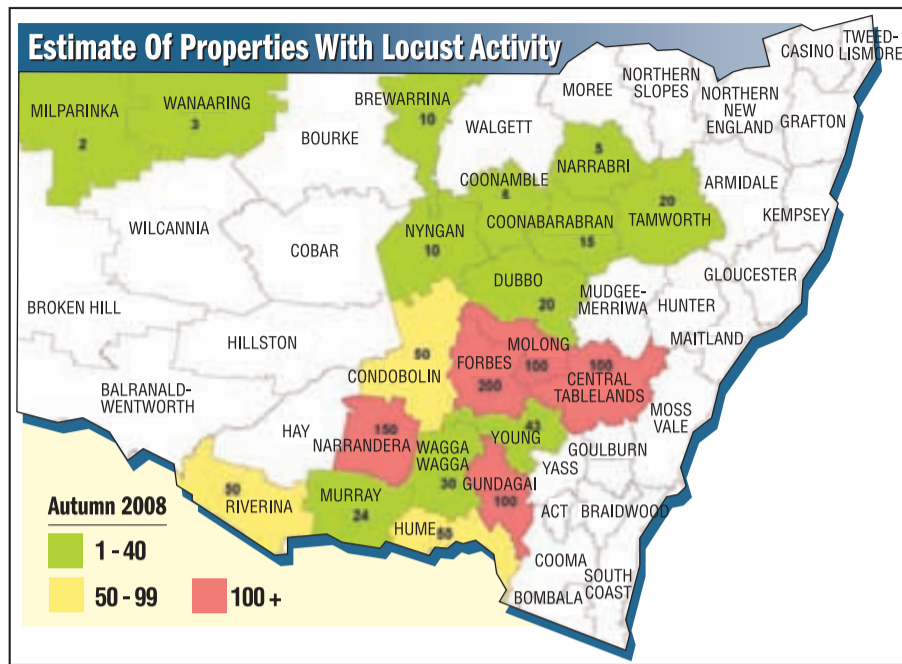
"If landholders noted any locust activity, even low density locust swarming or egg beds earlier this year, they should report this to their local RLPB as soon as possible," he said.

"And as soon as the weather warms up it is vital that farmers report any signs of locusts hatching or on the wing so swift action can be taken."

One of the biggest locust control efforts ever undertaken, costing in excess of \$21 million, occurred in the Central West in 2004-05.

■ For more information see www.dpi.nsw.gov.au

RIGHT: Emerging locusts, tiny in size relative to a five cent piece.



The yellow crazy ants' NSW exodus

YELLOW crazy ants – a highly invasive exotic pest that can build super colonies and devastate local fauna – have been eradicated from NSW.

Yellow crazy ants were first detected near Yamba in 2004. "An infestation of yellow crazy ants has been nipped in the bud at Goodwood Island wharf on the Clarence River near Yamba – the only known infection site in NSW," Primary Industries Minister Ian Macdonald said.

"A rapid early response by NSW Department of Primary Industries regulatory officers and two years of close surveillance without detecting the pest has enabled this pest-free declaration.

"This highly destructive ant can spread very quickly, causing dramatic consequences for the ecosystem it is invading."

They can attack and kill creatures like crabs and reptiles, using formic acid to overpower and destroy their prey very quickly.

The ants form super colonies with several queens and once a super colony is established, it can expand rapidly, in some cases doubling in size in 12 months.

Crazy ants are recognised by their pale yellow body colour, unusually long legs and antennae.

Their name is derived from their frantic movements and frequent changes in direction, especially when disturbed.

Yellow crazy ants have been a particular problem on Christmas Island, rapidly depleting populations of the iconic red land crabs, which are vital to the island's biodiversity.

They were last detected at Goodwood Island wharf in January 2006, in a pile of discarded telegraph poles.

A licensed pest exterminator treated the poles and the ground beneath them to kill all ants in their exposed nests.

The poles were then piled on site and burnt.

Two years of no detection since has met the benchmark for claiming eradication of the exotic pest.

The final detailed survey of the wharf area was done in March.

Food lures were placed at intervals of five metres, any ants were collected for identification and an old stockpile of logs inspected.

Avoid antibiotic residues in bobby calves

INVESTIGATIONS of antibiotic residues in bobby calves have identified several areas where the on-farm use of antibiotics can be improved.

These include animal identification and isolation, records of slaughter withholding periods for treated calves, prevention of cross contamination through calf feeders and observance of label directions that prohibit feeding milk from antibiotic-treated cows to calves.

NSW Department of Primary Industries veterinary officer based at Orange, Lee Cook, said dairy farmers should be aware that the detection of antibiotic residues in bobby calves would lead to a \$1000 penalty notice.

"Several NSW dairy farmers have received penalty notices following investigations of residues detected in bobby calves," he said.

"Dairy producers, and those selling bobby calves for slaughter, should use appropriate on-

farm quality assurance, and provide National Vendor Declarations (NVDs) when selling calves, to avoid such fines.

"Producers need to ensure their bobby calves are not treated with any medicines that require them to be withheld from slaughter as most bobby calves are sold for slaughter when they are five days old in accordance with animal welfare requirements.

"All the antibiotics used to treat calf diseases, particularly scours, require that the calves be withheld from slaughter for between 14 and 21 days."

Mr Cook said bobby calves slaughtered at export and domestic abattoirs are monitored for antibiotic residues through the industry-funded National Antimicrobial Residue Monitoring program.

State authorities undertake detailed investigations if residues exceed trigger levels – usually half the maximum residue limit



that is allowed under Australian food standards.

"In NSW, owners and managers of treated animals are legally required to advise any likely buyer if an animal is still within a withholding period," Mr Cook said.

"The fact that animals are mixed up, treated accidentally, or sold early, is not an excuse for sending an animal with residues to slaughter."

The dairy industry has a program to ensure bobby calves are included in farmers' quality

assurance programs, including the Livestock Production Assurance (LPA) program.

As part of this program, farmers are required to provide a declaration specific to bobby calves when they them.

These NVDs also help to make sure producers and carriers comply with welfare considerations relating to calf travel.

Complete information about managing bobby calves is on the Dairy Australia website at www.dairyaustralia.com.au/content/view/285/258/ under the heading Duty of Care for Calves – Information Kit.

In order to use the LPA bobby calf NVD, producers must be accredited with the LPA program.

Producers not yet accredited with LPA can call 1800 683 111 to complete the accreditation process.

■ Visit Meat and Livestock Australia's website, www.mla.com.au/lqs for information on how to obtain the NVD.

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Innovation, stewardship

Top farmers for 2008 take a bow

TRUDY GLASGOW
Orange

NIGEL Kerin's commitment to improving the environmental health of his mixed Merino sheep, cattle and cropping operation at Yeoval has earned him the NSW Farmer of the Year award for 2008.

Nigel and his wife Kate's use of holistic management tools such as cell grazing, pasture cropping and small paddock structure has resulted in significant productivity gains in spite of tough drought conditions.

NSW Primary Industries Minister Ian Macdonald said Nigel's ability to adapt from a traditional form of farming to a more regenerative approach was a great story to share with others in the industry.

"In addition to his environment initiatives, Nigel and his family adopted breeding principles with their merino sheep which has led to the production of high quality wrinkle free sheep that require less labour effort and no mulesing," Minister Macdonald said.

"His management shift now includes a strong focus on running the farm as a business, working with a board of other farmers, and as a result he and his family have been able to remain extremely productive - despite drought."

Tally Matthews, a vegetable and turf producer from Ebenezer in the Sydney basin, won the NSW Young Farmer of the Year award, at this week's award event in Sydney.

Tally, who also works as an agronomist, was recognised as an outstanding young leader across a range of farming enterprises, with a strong commitment to supporting others in the industry.

"Tally is an excellent example of what our young farmers are able to achieve today through gaining experience in a range of industries which helps them better cope with financial pressures," NSW Farmers' Association President Jock Laurie said.

"He is working hard to achieve his goals of acquiring farming land and remaining profitable in spite of pricing pressures in the vegetable industry and drought conditions," Mr Laurie said.

Judges in this year's awards, the fifth to be held in NSW, paid tribute to the three finalists who also demonstrated outstanding achievement in their farming operations, including:



The 2008 NSW Farmer of the Year, Nigel Kerin.

- Kim and Stephen Roberts (Farmer of the Year), who run a small piggery 'Bundawarrah Free Range Pork' and produce saltbush lamb, with established markets in Sydney, Canberra and the south coast;

- Chris Mirams (Farmer of the Year), who together with wife Jacinta manages 'Woomargama Station' near Holbrook with a sheep, cattle and grass production and is heavily involved in Evergraze and Landcare; and

- Ben Watts (Young Farmer of the Year) who with wife Fiona operates a sheep breeding operation near Molong, marketing their product as non mulesed EU-Eco label. Ben successfully led Australia's bid to host the 2010 World Sheep and Wool Congress.

"This year's finalists have impressive stories to tell about innovative ways to approach challenges like climate change, consumer demands and product marketing," judging panel Chair, Marie Russell, said.

"We look forward to working with our winners and finalists this year to promote the achievements in environment management and new farming practises that are happening [in] NSW."

The finalists were selected for their ability to demonstrate innovation, marketing and risk management skills, as well as involvement in industry groups and their local communities.



Young Farmer of the Year, Tally Matthews.

Nigel Kerin was awarded \$10,000, while Tally Matthews takes home \$5000, and the finalists \$1000 each, following the presentation at the NSW Farmers' Association annual conference dinner.

The annual awards are co-ordinated by the NSW Department of Primary Industries and NSW Farmers Association, and are supported by *The Land* and the Royal Agricultural Society.

Three DPI Eureka Prize finalists

THREE NSW Department of Primary Industries scientists are finalists in the prestigious Australian Museum Eureka Prizes.

Dr Peter Kirkland is a finalist in the CSIRO Eureka Prize for Leadership in Science with Dr Glen Saunders and Trudy Sharp in the running to win the Voiceless Eureka Prize for Scientific Research that Contributes to Animal Protection.

NSW DPI Director-General, Dr Richard Sheldrake, said it was recognition of their commitment to science.

"Dr Kirkland's nomination acknowledges his contribution to veterinary virology and the diagnosis, control and eradication of serious animal diseases, including the recent equine influenza outbreak in NSW and Queensland," he said.

Dr Kirkland is the current president of the World Association of Veterinary Laboratory Diagnosticians.

Dr Sheldrake said the nominations acknowledge the ground-breaking contribution Dr Saunders and Ms Sharp have made in developing the first best practice guidelines and decision-making tools to improve the humaneness of pest animal control at a national level.

"They have developed and published 43 standard operating procedures (SOPs) and seven codes of practice for the humane control of 10 pest animal species, including rabbits, foxes, wild dogs and feral pigs, which have been endorsed by RSPCA Australia and the NSW Pest Animal Council," he said.

"National adoption of their recommendations required an extremely thorough process of consultation, amendment and agreement between government and non-government agencies, animal welfare groups and technical specialists."

Dr Kirkland works at the Elizabeth Macarthur Agricultural Institute, Camden.

Dr Saunders and Ms Sharp are based at the Orange Agricultural Institute.

The 2008 Eureka Prizes will be presented at an award dinner in Sydney on August 19.

Preserving Southern Pygmy Perch

A THREATENED fish species, the Southern Pygmy Perch, has received help, with a creek rehabilitation project in the Upper Murray catchment.

In January 2007, a population of Southern Pygmy Perch was discovered in Copabella Creek, east of Holbrook.

When the fish were discovered, NSW Department of Primary Industries (DPI) staff were concerned that the creek might dry up because of the ongoing drought.

Before creek levels got too low, fisheries staff rescued 100 fish from a remnant pool, and the fish were kept at the Narrandera Fisheries Centre.

When the creek started flowing again the fish were returned to the creek.

NSW DPI senior conservation manager, Adam Vey, said to help protect this fish population, the Murray Catchment Management Authority (CMA), NSW DPI and Copabella Creek landholders started a rehabil-

itation project to improve the habitat of the creek with funds from the Murray CMA's Threat Abatement Program.

"Works undertaken on the creek banks include fencing to exclude stock from the creek and the provision of off-stream watering points," Mr Vey said.

"This has ensured that landholder's primary production activities can continue while the aquatic habitat is managed for the long-term survival of the threatened fish."

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Stripe rust is here already

CEREAL growers across southern NSW have been advised to begin monitoring their crops for stripe rust now, following increasing reports of infection over the past week.

Favourable weather conditions have enabled the disease to carry over from the previous season, allowing stripe rust to occur earlier than usual this season.

"Following the hardships caused by several years of drought many growers chose to rely on post emergent management of the disease," said NSW Department of Primary Industries (DPI) Temora district agronomist, Peter Matthews.

"Correctly timed post sowing fungicide application can be both cost effective and provide good protection for the crop. Now that stripe rust is showing up this is the time to begin monitoring."

Mr Matthews said some previously resistant varieties were now known to be susceptible to stripe rust.

"So first step is to find out the status of your variety by checking the latest *NSW DPI Winter Crop Variety Sowing Guide*," he said.

"The next step in deciding if and when to apply fungicide is to determine if the disease is present in your crop.

"This involves monitoring the crop on a regular basis.

"Monitoring needs to be done repeatedly so that the level of disease and its rate of development in the crop can be determined.

"At the same time an assessment of the growth stage of the crop needs to be made, as this affects when you should apply the fungicide to gain the maximum benefit.

"Varying rainfall across the region means crop growth can be



Colin Fritsch, technical assistant at Temora, and district agronomist Peter Matthews.

anywhere between two leaf and early flag leaf emergence.

"Only once the variety's disease resistance rating, level of stripe rust in the crop and the correct

growth stage are known can growers make the best decision to protect their crops from stripe rust.

"If you're still unsure seek advice from your agronomic adviser.

"Spending time on getting the right advice can potentially save a lot of money and time."

■ Contact Peter Matthews, Temora, (02) 6977 3305.

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Little change in drought, locusts next front

OFFICIAL drought figures for NSW changed very little in the past month. A fraction more of the State is in drought, a fraction more is satisfactory, with slight shrinkage in the marginal area.

Sixty five per cent of NSW is in drought, 20.9pc marginal and only 14.1pc of NSW satisfactory.

If the continuing conditions aren't still challenging enough, it's expected our farmers could soon have another battle on their hands.

There's an emerging threat of locust plagues in spring. Most of the locust action is expected in central and south

Agriculture On The Move

Ian Macdonald
Minister for Primary Industries



west NSW, where the drought is biting hardest, where late sown crops are already struggling on minimal moisture.

The NSW Department of Primary Industries (DPI) is aware of at least 900 properties where it suspects locust egg beds may have been laid in autumn.

Farmers who noticed locust

activity in autumn should report it to their Rural Lands Protection Boards (RLPBs) if they haven't already done so.

This includes low density locust swarming activity, or egg beds.

Farmer of the Year

LAST night I announced the winners of the NSW Farmer of the Year and Young Farmer of the Year Competition.

Each year we have excellent entries - this year is no different.

The 2008 Farmer of the Year winner is Nigel Kerin, a wool producer from Yeoval.

Chris Mirams, who runs a mixed farming enterprise at

Holbrook, and Kim and Steve Roberts, free range pork and salt bush lamb producers from Temora, were the other finalists.

Young Farmer of the Year winner is Tally Matthews, a vegetable and turf farmer from Ebenezer, and the finalist was Ben Watts, woolgrower from Molong.

Both these men are outstanding young farmers who are making significant contributions to their industries.

Congratulations to the winners and the finalists, and thanks to all those who helped make this year's awards a success.

The facts on hormone growth promotants

A FIVE part Primefact series will help beef producers decide whether hormone growth promotants (HGPs) are a technology suitable for their enterprises.

"There has been a steady increase in the use of HGP products in the pasture fed sector of the NSW industry," NSW Department of Primary Industries beef products officer, Ian Blackwood, said.

The topics covering hormone growth promotants (HGPs) will be:

- Understanding HGPs
- HGPs available in NSW
- Requirements for HGPs purchases in NSW
- Implanting HGPs
- Using HGPs in NSW beef production systems

The Primefacts HGP series will soon be available from the NSW DPI website and district offices.

"The Primefacts series will emphasize the technical aspects of adopting HGP technology to increase turn off liveweight in pasture fed steers or heifers.

"Adopting HGP use in a beef business means following strict rules about purchase and usage records and permanently identifying cattle at the time of implantation.

"There are 19 registered HGP products and 18 of these are available to NSW producers over the counter at registered resellers.

"It is important to match the product with the sex of the cattle, the finishing time expected and whether the cattle are on pasture or in a feedlot.

"This can cause confusion. "While one of the Primefacts does address the selection of product we are developing a

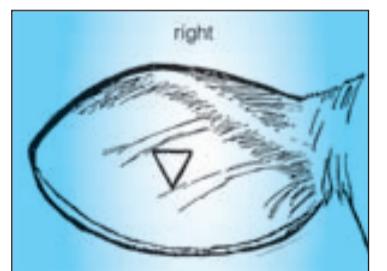


computer based selection tool to simplify the decision process.

"This will be available online and will provide producers with a list of products that would be suitable to use, based on the data they provide to the program questions.

"It is recognised that many producers do not support the use of HGP products in food production," Ian Blackwood said.

"The HGP Primefact series



recognises this and provides technical information as a basis for informed decision making," he stressed.

Griffith to host national cherry conference

GIVEN that it's not a cherry growing area, Griffith might seem an odd location for the 39th National Cherry Conference which runs from August 7-10.

But NSW Department of Primary Industries horticulturist, Jeremy Bright, said Griffith will give growers insights into a variety of horticultural industries that thrive in the MIA.

"This year's conference theme is 'Harvest and beyond - delivering high quality cherries to consumers' and there are definitely lessons to be learned from some of the top-end packing houses and exporters in the Griffith area," Mr Bright said.

The conference will feature international guest speakers and industry-focussed workshops as well as tours of

local farms and packing houses.

Mr Bright said Canadian horticulturist, Hank Markgraf, would reflect on his experiences as an advisor for more than 950 growers in British Columbia.

"Lynn Long from Oregon State University in the US will provide insights into world trends in production including Chile, South Africa, China, Central Asia, Europe, Turkey, New

Zealand and his home country."

Growers can register to attend the National Cherry Conference by contacting Joanne Wells at the NSW Cherry Growers Association, (02) 6384 3285.

The conference is supported by the Griffith City Council, NSW Cherry Growers Association, Cherry Growers Australia and Horticulture Australia Limited.

Cider apples added to barrel

A TOUR of apple orchards in France and England has led to the discovery of 15 previously unrecognised cider apple varieties in Australia.

NSW Department of Primary Industries (DPI) technical officer, David Pickering, said the study tour was supported by Horticulture Australia Ltd to confirm the identity of what appeared to be cider apple varieties in Australian collections.

"I had to visit the countries where the apples originated to positively identify the varieties which were growing here and confirm that they were true-to-type," Mr Pickering said.

"Now we have a total of 30 cider apple varieties which growers can find locally without importing budstock from overseas."

According to Mr Pickering, interest in cider is growing and the newly identified varieties could help boost production.

"With names like Antoinette, Belle Cauchoise, Blanchet, Clozette, French Crab, Frequin Rouge, Rousse Latour and Verite we clearly have a good

representation of French varieties for cider makers who want to explore French cider styles," he said.

"Cider makers could use this diverse range of apples to produce a variety of styles and flavours in much the same way as the wine industry uses different grapes and winemaking techniques.

"We now have cider varieties which could be used to expand the traditional range of sweet, bittersweet, sharp and bitter-sharp flavours, as well as filling gaps in the harvest calendar.

"Tannin levels vary and there are choices of varietal ciders and blends, oaked and unoaked ciders - it really depends on what the market wants."

Apple growers can contact David Pickering at the Orange Agricultural Institute, (02) 6391 3845.

■ visit www.dpi.nsw.gov.au/agriculture/horticulture/pomes/apples/additional-cider-varieties for updated information on cider apple production and varieties or contact your NSW DPI office.



NSW Department of Primary Industries' David Pickering displays a range of cider apples at the Orange Agricultural Institute.

Investment tool hatched

A DECISION support tool will assist egg producers in their preliminary investigation of how or where to invest in egg production in the future.

Called EggInvest, the spreadsheet system has been developed by NSW Department of Primary Industries recently recruited industry livestock officer, Greg Mills.

"The system has been designed to quickly analyse investment options and identify those which warrant further detailed investigation," Mr Mills said.

"Recent changes to legislation could see egg producers considering new investment in the industry.

"EggInvest has been designed to help producers analyse all production systems and combinations, including caged, barn and free range hens."

Users can adjust lay rate, egg weight, feed intake and mortality figures from a selection of standard hen production curves to reflect their own individual production system.

The EggInvest production simulator uses this data to generate hen numbers, egg production, egg weights and feed consumption over a 20 year period.

It can simulate production for up to 20 different sheds or flocks.

■ Contact Greg Mills, (02) 6750 6312, greg.mills@dpi.nsw.gov.au

Vineyard compost mulch taste test

LOCAL grape growers will get the low-down on vineyard mulch when NSW Department of Primary Industries (DPI) presents findings from a three-year research project.

NSW DPI research scientist, Yin Chan, said the composting mulch trial was conducted on six vineyards, both conventional and organic, in the Cowra, Canowindra and Murrumbidgee areas.

"The trial compared berry yield and quality, water usage, weed control and wine quality from two mulch treatments with the grower's standard practice," Dr Chan said.

Trial data and cost benefit analysis results will be presented by NSW DPI researchers Dr Chan and Darren Fahey from the Department's recycling unit based at Richmond.

There will also be a mulch versus no-mulch wine taste comparison - growers will be able to rate the 2007 trial vintage of wine produced from mulch-treated and no-mulch vines.

The trial was funded through the Department of Environment and Climate Change (DECC) and a DECC representative will be on-hand to discuss commercial compost products.

Presentations will be made at Pokolbin, August 5, Mudgee, August 6 and Orange, September 3. Dates for Griffith and Cowra are to be confirmed.



LEFT: Mudgee winegrower Russell Roth and family members spreading mulch on a line of vines.

New vineyard identification system

THE introduction of a new vineyard identification system aims to better protect the State's wine industry from a serious disease outbreak.

The Vineyard Identification System will produce a more comprehensive record of vineyard locations throughout the State - and enable a quick and effective response to disease incursions.

The NSW Department of Primary Industries and Rural Lands Protection Boards

(RLPBs) are working with the NSW Wine Industry Association to help gather information about local vineyards.

The new scheme will be similar to existing systems used to identify and trace livestock, based on property identification codes (PICs) and RLPB annual returns of land and stock.

This year's RLPB land and stock return includes an additional question relating to total area of land planted to grapevines.

Returns are being sent in.

Small landholders with winegrapes, who are not already paying RLPB rates, can obtain a PIC free for a limited time from their local RLPB office.

NSW is the second largest wine producing State, representing more than 30 per cent of the \$5 billion Australian wine industry.

It produces about 26 per cent of the industry's wine grapes and a third of wine by volume.



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Making News

Fresh Connections

PRODUCE Marketing Association (PMA) will host its third annual Fresh Connections: Australia conference in Sydney on August 14-15.

The conference will address the global market and consumer trends affecting the Australian and New Zealand fruit and vegetable industries.

The conference's educational program on August 15 will feature presentations on regional consumer trends by Kris Walker, director of product leadership for AC Nielsen, and on cross promotion and packaging innovations by Dan'l Mackey-Almy, president and managing partner of DMA Solutions.

PMA's Lorna Christie, senior vice president of industry products and services, will explore the differences between marketing and selling, and how a shift in mindset could lead to increased consumer confidence and profits.

Michael Luscombe, chief executive officer of Woolworths, will be speaker at the closing dinner.

■ For more information or to register, visit http://www.cievents.com.au/events/freshconnections_australia_registration

Many benefits in Kuchels' NLIS

WITH six years experience in backgrounding cattle, Wagga Wagga district producers, Greg and Helen Kuchel, are grateful for key management tools that have helped them meet challenges and save money during the difficulties of drought.

Greg Kuchel credits their investment in electronic equipment linked with the National Livestock Identification System (NLIS) as providing the couple with office and cattleyard efficiencies and simplified their decision making process during these dry times.

Business and beef came together when Mr Kuchel took a new direction in life after a long career as a wool buyer.

The Kuchels lived in five States during Greg's 34 years as a wool buyer, then "a mid-life crisis" took them from the comfort of the Adelaide Hills to a 487-hectare property, "Massadon", at Borambola in the Wagga district.

"After spending all my life around farms and primary industry the next step was to put theories into practice," he said.

Mr Kuchel buys steers, usually Herefords, black baldies, and

Angus, aged 8-11 months, with the aim of adding at least 150 kilograms to their weight during about eight months on his property's pastures – improved perennial (phalaris and subclover), annual (subclover and ryegrass) and native (microlena and red grass).

He forward contracts to a feedlot and hedges the risks with cattle futures.

"Backgrounding is a business, farming and rural life is business," said Mr Kuchel.

The NLIS benefits start immediately with the purchase of livestock, as Mr Kuchel can identify all the factors that may contribute to his beef business.

"Ideally, we need to see each steer gain 180-200 kilograms to realise a reasonable return," he said. The vendors also benefit from his electronic record keeping because he can track the best results and happily return to buy again when they breed more stock.

Although Mr Kuchel believes "the greatest thing about NLIS is that it allows me to understand each animal and track the individ-



ual weight gain and performance", he said there were time saving benefits too.

The Kuchels have been selling between 500 and 600 steers a year resulting in some 3000 movements through the yards. The couple has spent about \$7500 on electronic equipment including a weigh platform, Ruddweigh collector, a panel reader, computer, and cattle-management software.

"Each animal is weighed about six times and the incorporation with the NLIS database using readers, makes the time spent weighing animals a good return on investment," he said.

"NLIS and the electronic reader allow me to work cattle through

the yards efficiently if Helen is not available to help me.

"If one person can do these things, it means a 60 per cent increase in efficiency."

Mr Kuchel sees his purchase of NLIS related equipment as an investment in his business, rather than a cost, and he said the labour savings alone easily balance with the expenditure.

"The NLIS is fantastic – I absolutely love it," he said. "You have to run your operation as a business. NLIS just makes you run a better business."

■ Visit www.dpi.nsw.gov.au/nlis or contact the NSW Department of Primary Industries on 1300 720 405.

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Glomalin is the soil's super glue

IN A recent column about the benefits of organically farmed soil I mentioned that soils with higher carbon stored more moisture.

The mechanism for this interaction is glomalin, a sugar protein that was only identified and named in 1996.

Studies by US researcher Kristine Nicols have found that glomalin levels were higher in soils under native grasses than soils under introduced species, and that shifting cattle before they over-grazed an area helped to raise soil glomalin levels.

Her cropping study found that cultivation and fallowing lowered glomalin levels because cultivation destroyed the hyphae, and fallowing starved them.

Glomalin is produced by mycorrhizal fungi that live inside plant roots and extend hairlike filaments or hyphae into the

Environmental Agriculture

with Rebecca Lines-Kelly

NSW DPI Extension
Co-ordinator, Wollongbar



surrounding soil to obtain more nutrients.

The sticky glomalin proteins sit on the hyphae like small gobs of chewing gum.

Together, the hyphae and glomalin form a sticky net that traps particles of sand, silt, clay and organic matter and holds them together to form lumps or aggregates of soil.

On the surface of these lumps or aggregates, the glomalin forms a waxy coating to stop water pouring into the aggregate and breaking it up.

Aggregates are important in soils because they allow water infiltration, hold water for plant

use, and provide organic carbon for soil organisms to feed on.

At the same time, the aggregates also store carbon deep inside the aggregate that microbes cannot access.

Glomalin has other benefits as well.

It coats the fungal hyphae to protect them from decomposition and microbial attack and to ensure that water and nutrients reach the plant.

Scientists are now thinking that glomalin also helps hyphae stay rigid enough to extend into the soil and span the air spaces between soil particles.

So how do you know how much glomalin is in your soil?

Basically, the more you have, the better your soil texture and structure.

If you'd like to read more about glomalin and Kristine Nichols' work go to www.ars.usda.gov/Research/docs.htm?docid=15971.

Next Month:

Agriculture Today's September 2008 edition, to publish on August 28, will carry features on vegetables and intensive cropping, plant health and biosecurity, and kangaroos. Future food security could rely heavily on locally-based community production in urban areas. In the western rangelands, advocates are saying it's time to recognise kangaroos as a farming resource, not a pest.

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Organics boom proven despite drought

THE first official Australian organic data in four years reveals nearly a doubling of farm gate sales and suggests the organics industry is hugely resilient in drought.

Biological Farmers of Australia (BFA) commissioned the University of New England's Organic Research Group to independently come up with an industry snapshot.

The findings, presented in the Australian Organic Market Report (AOMR) are based on industry-wide survey data and build upon research published by the Federal Department of Agriculture, Fisheries and Forestry (DAFF) in 2004.

"While most agriculture has suffered in recent years from drought and floods, many sectors of the organic industry have recovered to be able to consolidate and expand," Dr Andrew Monk, BFA director and standards chair, said.

"For an industry which has

somewhat been restricted by a lack of relevant and accessible information in recent years, the [report] is a benchmark research document which promises to assist the industry's future monitoring and planning."

According to Dr Monk, the report will help potential and existing organic producers and marketers make better decisions.

He said it would also offer "reference points for government, media and interested parties [to get] a better understanding ... of the nature, size and structure of the organic industry in Australia".

"Such rapid growth is likely to be attributed to a combination of consumer-driven interest in purchasing organic products in line with overseas trends, as well as possibly the ... more resilient nature of organically well-managed soils, enabling faster recovery following



A supermarket organic chocolate brand makes its pitch for the perfect image.

extreme dry or wet weather periods alike."

The AOMR reports on farm gate value by sector; estimated

retail, import and export values; the reported unit price range for each sector; numbers of organic farmers and operation growth; area of organic production in Australia; and demographic information on organic stakeholders and consumers.

Dr Monk says it is intended to commission research every two years from 2008, underwritten by BFA with matching support from industry and governments.

The 2008 key funding entities include the BFA, Westpac, all six State governments and eight supporting organic businesses, representing the diversity of the supply and value chain of organic production and marketing in Australia.

■ Visit www.bfa.com.au for the report or contact Dr Andrew Monk, 0429 960 044, standards@bfa.com.au, or Scott Seaman, NSW DPI, Bathurst, (02) 6330 1209.

Key Organics Findings

SINCE the last Federal Department of Agriculture, Fisheries and Forestry (DAFF) report in 2004:

- Retail value (imports and exports) above \$0.5b
- Farm gate values up 80 per cent past \$230m
- Australia has the most certified organic farmland in the world, mainly extensively grazed
- Major retailers carry more than 500 different organic lines in fresh and grocery categories
- Certified operators increased an average 5.2pc to 2750 – farmers, processors and marketers – in 2007
- Average age of an organic producer in Australia is lower than a non-organic producer
- Average size of organic farms increased
- Horticulture is a mainstay; two thirds of organic farmers make up this sector, producing almost half the national total farm gate value
- 40pc of consumers buy organic food at least occasionally



LEFT: The school chose small Dexter cattle, suited to the coast.

LEFT: Nowra High School teacher, Trevor Newman, with Year 10 students at the school's organic farm.

Natural high students are getting the rush

WHILE the nature of suburban land use by residential neighbours prevents Nowra High School's farm from gaining organic certification, students have adopted organic principles to improve sustainability, with impressive results.

Located on the floodplains of the Shoalhaven River the school farm was subject to flooding for many years and often received a top dressing of soil until a levee was constructed along the river bank.

"Practising traditional farming methods, it became a closed system and the soil, though naturally fertile, was becoming depleted," said teacher Trevor Newman.

"So a conscious decision was made to convert the farm to an organic production system.

"Richard Pike, the school's new farm attendant, brought an organic ethos with him and his enthusiasm saw an incredible change to the productivity of the farm."

Adopting the methods of Pat Coleby, the author of *Natural Farming – A Practical*

Guide and other publications, he and the students tested the soils and remineralised them with powdered basalt and lime and dolomite, to levels recommended by the test analysis.

A combination of winter active lucerne and mixed pasture paddocks are rotated with sweet corn each year.

Green manure crops are an important part of the rotation, being the cornerstone of ecological sustainable agriculture.

Excess lucerne is harvested for hay production and there are no failed crops, only an alternative end product.

Spoilt hay is used as garden mulch or converted into compost.

In the search for a small animal suited to coastal conditions, the school decided to establish a Dexter cattle stud.

The cattle are a manageable size for students and are ideal for the school farm's small acreage.

The farm also has a small egg laying enterprise of Isa brown hens, sustained by certified organic feeds.

In the student garden

beds, summer green manure crops are sown during the school vacation and dug in, as preparation for the next school year.

Soil is disturbed only to sow these crops.

At other times, the school composts and employs no dig methods with lucerne mulches and compost.

The students sow winter green manure crops of lupins, vetch, dun peas and rye corn following the first vegetable rotation each school year, then rotated these into freshly composted beds, similar to Peter Cundle's garden bed rotation (as seen on ABC's *Gardening Australia*).

NSW Department of Primary Industries agronomist, Amanda Mather, was "impressed by the work put in by staff and students and the farm was a wonderful opportunity to learn about and experience organic based agriculture" as a sustainable alternative to conventional farming practices.

■ Contact Trevor Newman, Nowra High School, (02) 4456 1462, or Amanda Mather, Berry, (02) 4464 6007.



NSW DPI's bookshop 1800 028 374

Home fruit growing guide

This book was written especially for home gardeners. It has detailed entries on more than 60 species of fruits. The book also includes information on planning your home orchard, soils, general plant care, and fruit pests and diseases. B273 \$19.95

Weeds: the Ute Guide

Designed to be used in the paddock, this guide helps you identify the most common weeds

in southern Australia. It includes descriptions and photographs of the seeds and seedlings as well as the mature plant. This is an identification tool and does not cover control measures. B333 \$27.50

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Indigenous training at Murrumbidgee campus

THE Aboriginal Rural Training Program at Murrumbidgee Rural Studies Centre specialises in delivering vocational ticket training to members of indigenous business and community organisations, unemployment scheme participants, prisoners and juvenile detainees.

Since 1989 the Centre has designed, developed and delivered training in agriculture, horticulture, conservation and land management, and corporate governance to numerous communities, unemployment schemes and Indigenous Land Corporation properties.

General training for forklift and chainsaw licences, first aid, OH and S white card and industry specific skills are offered regularly.

Training covers agriculture, horticulture, conservation and land management, viticulture, and skills such as tractor driving, tree planting, machinery maintenance, irrigation and pruning.

The Centre has a history of employing and developing indigenous staff members and employs people for project specific activities.

Staff are trained in workplace training and assessment, offered skills recognition pathways to Certificate IV and Diploma level and offered other professional development opportunities.

Staff member, Mark Morgan, an indigenous Bundjalung man, co-ordinates the training program.

In 1998 the program won the inaugural National Indigenous People's Training Award.

In 2004 it was runner-up in the Training Initiative Award at the NSW DET State Training Award Ceremony.

The Centre's programs were also included as a case study in the Commonwealth's "What Works" Indigenous Education support package for schools following successful pilot programs with at risk Indigenous students from high schools.

Riverina students' ag intro

ABOUT 80 high school students from 14 schools throughout the Riverina got an introduction to agricultural science at a recent Agriculture Enrichment Day at the EH Graham Centre for Agricultural Innovation at Wagga Wagga.

The day gave students access to some of the State's leading agricultural and veterinary scientists.

"It's the third year the event has been held and it's growing in popularity," convenor Gordon Murray said.

"Students have an opportunity to see science in action, giving them an appreciation of the further studies and work options available to them in the agricultural and veterinary science fields."

Students from Year 9 to 11 were able to choose between a variety of hand-on applied research activities, including selecting wheat for disease resistance, sheep breeding, vegetable oil quality assurance and laboratory experiments to detect fungi on ryegrass seed.

The EH Graham Centre's director, Professor Deirdre Lemerle, hoped the day would encourage students to consider a career in agricultural science.

"Recent studies have shown that agricultural industries are suffering



Finley High School students Amy McAllister, Renee Thompson and Clare McNamara in the laboratory during the Ag enrichment day at Wagga Wagga.

from a shortage of graduates," she said.

"Now, more than ever, we need highly skilled people to tackle challenging issues like water scarcity

and climate change so that agricultural industries and the rural communities they support can continue to make a positive contribution to our future."

LandLearn pitch to urban kids

NSW teachers and students will have better access to information about the State's primary industries production following the launch of an education program called LandLearn NSW.

The program gives urban-based school students an insight into food production, and other factual information about primary industries.

It aims to encourage and support the incorporation of studies of primary production and natural resource management into classroom teaching.

LandLearn NSW will make it easier for teachers and students to find information, classroom resources and face to face services offered by industry, government and community groups.

The strengths of LandLearn NSW are the programs, products and resources it draws together.

Schools can now connect with programs about fisheries, forestry, agriculture and minerals from one source.



Primary school students visiting the LandLearn NSW stand at Tocal Field Days were amazed to discover that wild sheep once roamed the earth alongside mammoths. The group is listening to NSW DPI's Schools Education Co-ordinator, Carmen Perry.

The LandLearn program originated in Victoria more than 10 years ago and has earned a solid reputation among Victorian teachers and school students.

Victoria's LandLearn staff shared their classroom resources and models for teacher professional development with NSW.

NSW Farmers Association president, Jock Laurie, says it is important to take every opportunity to improve the knowledge and understanding of primary industries among young people.

"We look forward to seeing a greater connection between city students, teachers and rural communities through the resources and programs LandLearn NSW will offer," he said.

LandLearn online offers a quarterly update about the latest programs, products and services, which the LandLearn team can also provide by email at landlearn.enquiries@dpi.nsw.gov.au

The website, www.landlearn.nsw.org.au includes information about resources, courses and excursion venues or classroom resources.

■ **Contact Carmen Perry, Maitland, (02) 4931 6540.**

Wagga hosts Science in the Bush

MORE than 1200 school children attended Science in the Bush at Wagga Wagga recently.

The program, run by the Australian Museum with funding from the Federal Department of Innovation, Industry, Science and Research, was hosted by Charles Sturt University.

NSW Department of Primary Industries' (DPI) Wagga-based biological weeds officer, Barry Sampson, presented Weed Warriors workshops.

Mr Sampson gave three workshops where children in Year 3 to 6 met a few friendly insects and learnt about biological controls and how they are used to control weeds.

"It was good to be able to reach out to a lot of children and let them know more about the benefits of biological control over traditional chemical methods," he said.

"They were particularly interested in Paterson's curse because there is a lot of it around here. Other weeds



Koorinal Public School students Erin Rutherford, Lachlan Kendal, Lachlan Thompson and NSW DPI weeds officer Barry Sampson at Science in the Bush.

with biological agents available that were on display included horehound, St John's wort and thistle.

"They asked a lot of questions and really made me think.

"It reinforced the value of my work

because they are the ones who will benefit in the future."

The Australian Museum's Science Communications Operations Co-ordinator, Ellen McCormack, said the number of students who attended the two-day program for primary and secondary school children in the Riverina far exceeded the organiser's expectations.

As well as the Weed Warriors workshop there were presentations on bioscience, science, pharmacy and other scientific based activities.

"The aim is to show children how science is present in their everyday lives and to promote further scientific study as they progress in their education," Ms McCormack said.

Science in the Bush will be heading to Albury in October. For details please contact (02) 9320 6389.

■ **Contact Barry Sampson, Wagga Wagga, (02) 6938 1955.**

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	POULTRY CARE FOR THE HOME FLOCK Paterson ¹ 13 Sept

CONTACT NUMBERS
 1. CB Alexander campus, Tocal College, Paterson – 1800 025 520
 2. Elizabeth MacArthur Agricultural Institute, Camden – 4640 6333 or 0408 492 039
 3. Murrumbidgee Rural Studies Centre, Yanco – 1800 628 422 or 6951 2775
 4. Tamworth Agricultural Institute, Tamworth – 6763 1100

TL1665351

 NSW DEPARTMENT OF PRIMARY INDUSTRIES

Answering the skills shortage

THE traineeship program at Tocal College is helping answer the skills shortage faced by agriculture in NSW by training the next generation of young farmers.

Feedback from recent student surveys and discussions with employers have shown the vocational training at Tocal is highly valued by raw recruits and by employers who realise it can improve the skills, knowledge and development of even "farm-bred" workers.

A significant number of Tocal students come from family farms eager for them to receive the latest industry training as preparation for future management roles.

The Tocal traineeship program offers Certificate in Agriculture training from Level II to IV for young people working on cattle and other grazing properties.

Entry level is determined by previous experience and by assessment and recognition of current skills.

Each certificate is a nationally recognised qualification, normally

requiring one year of part time study at Tocal.

Progression to subsequent qualifications is possible with continued training, including Diploma level by home study.

Students are aware of the value of filling any "skills gap" and recognise the importance of credentialing.

It has been estimated that about 70 per cent of new jobs in the future will require the equivalent of a Certificate III or higher.

Employers include sole operators, family businesses and large companies.

Moxey Farms, which recently expanded to milk 4000 cows near Forbes, in the Central West, has enrolled several employees at Tocal as part of its training and retention program.

Tocal is involved in several activities aimed at encouraging young people into farming careers and helping employers to retain them.

These include:

- Cows Create Careers – a program that targets young people in schools and seeks to motivate them towards cattle-related jobs



Tocal student, Katrina West, receiving instructions on safe tractor use.

by demonstrating the clear career pathways available

- Working closely with Dairy Australia and the National Centre for Dairy Education in Australia to promote dairy training and careers.

- Establishment of Dairy Farmers and Norco scholarships for Tocal Trainees.

- Involvement of industry mentors and farm visits during training to improve confidence, industry self image and networking.

- Referral to Australian Apprenticeship Centre representatives to ensure access to government entitlements and allowances.

■ Contact James Hooke, Tocal, (02) 4939 8960, james.hooke@dpi.nsw.gov.au

Dairying brothers' lives after Tocal

SOUTH Coast brothers Brad and Adam Gavenlock didn't let a temporary absence from dairying deter them from establishing solid careers in the industry.

Instead they made the most of their opportunities, including Rural Skills traineeships provided by Tocal College.

Despite the closure of the Gavenlock family farm while the boys were still young, their father kept their interest in dairy cattle alive.

"Dad always kept some cows and calves for us kids to muck around with and take to the shows," Brad recalls.

Adam remembers leading cows from the age of five or six – his father having to hand milk them for the sake of their hobby.

The timing of Brad's training was fortuitous as he became a casualty of industry deregulation.

He says it was his training at Tocal that put him in good stead in his current position as NSW and Queensland territory manager for Agri-Gene.

"Because of what I learnt at Tocal I can go onto a place and hold a conversation with farm-

ers about almost anything, not just cow genetics."

His perceptiveness in cattle breeding won him the 2002 RAS Rural Achiever Award and later a State Jersey's Scholarship.

This scholarship allowed him three months travel through North America, which he describes as the most exciting thing he's ever done.

"For example, one minute I'm at Almem Farms, California, and the next I'm at the respected Rapid Bay stud in Quebec, Canada, milking 30 of the industry's most elite."

Brad's career path has led him in a full circle.

He now helps to continue the tradition of vocational skills training offered by Tocal College by regularly guest presenting, and assists with Tocal Dairy's AI sire selection as a part of Agri-Gene's herd evaluation service, Agri-mate.

Not to be outdone, Brad's younger brother Adam is beginning to make a name in the dairy industry after recently graduating as Dux from the Certificate IV Rural Traineeship at Tocal.



"It's been great," he said.

"We've been able to work through problems from the home farm and the block release system makes it easier for the employer to plan around."

Adam appreciates the support of his employer, Garth Chittick, and hopes to repay him by continuing to supervise the successful return of Chittick Holsteins to the stud arena after a 40 year absence.

New Graham Centre students for PhDs

PREDICTIONS of a looming skills shortage in agriculture are being met in part with 12 new students starting PhD courses this year with the innovative agricultural research group, the EH Graham Centre in Wagga Wagga.

The centre sees post graduate education as vital in training the next generation to be ready to meet the research and development needs of Australian agriculture.

The new group of students brings the total in post graduate courses to 36.

They are focused on the big issues facing Australia today

such as food security and biosecurity in the face of climate change and water scarcity.

Their research projects focus on aspects of animal and crop production, pastures, socio-economic issues relating to the adoption of new technologies and the impact of agriculture on the environment.

Director of the EH Graham Centre, Prof Deirdre Lemerle, said the centre's agricultural research in mixed farming – in both plant and animal sciences – aimed "to generate new knowledge to underpin the capacity of farmers to manage risk in a changing environment".

"The skills shortage can be overcome by training undergraduate, postgraduate and, in this case, more PhD students who will generate new knowledge and technology to keep ahead of rapid changes.

"The students are working in an established agricultural research environment – in the real world with real researchers – but they also have access to academic support.

"Being located at the same place is a unique opportunity for the PhD students as they have access to networking opportunities, research support and potential for employment."

Most of the students are based at Wagga where the EH Graham Centre is located.

The PhD is a three year full time course of study.

Students focus on one specific research topic, with the intended outcome being a new and innovative contribution to the body of research.

Many PhD students are funded by research and development corporations and some receive a stipend.

The EH Graham Centre is a partnership between Charles Sturt University and the Department of Primary Industries.

Making News

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WEEDS Attack! is a new web-based resource aimed at enabling students to investigate a local weed of national significance.

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WEEDS

Primary Industries

The creeper is a choker

BRIDAL creeper, a pretty garden creeper commonly used in hanging pots and floral arrangements, is twining its shiny green leaves and tendrils around our native bushland plants, choking and smothering them.

This is why it has been identified as one of 20 Weeds of National Significance in Australia.

The bridal creeper vines we see are only the tip of the iceberg.

More than 87 per cent of the plant is below ground, forming an invasive tuberous, rhizomatous root mass.

Vines begin to twine their way through our native bushland in early March, flowering in August and September.

Red berries are mature by December when the vines and leaves die back over summer.

Bridal creeper (*Asparagus asparagoides*) is spread by birds eating the red fruit, gardeners dumping garden rubbish in bushland and waterways and by the movement of people and machinery.

Jenene Kidston and Peter Proctor of the NSW Department of Primary Industries and Arthur Mulholland and Wendy Bushell of the Mid Western Regional Council are fighting the battle against bridal creeper in the Mudgee district by spreading the rust fungus *Puccinia myrsiphylli*, a selective disease of the plant.

The rust kills bridal creeper over a



Biocontrol officer, Peter Proctor, introduces rust fungus into a bridal creeper infestation near Mudgee.

couple of seasons by building up and weakening the plant over spring. In summer the foliage is damaged and destroyed.

The disease survives over summer on dead foliage.

Autumn rain and cool weather triggers the production of new infective

spores which invade the new foliage. The rust happily produces new spores whenever there is moisture for at least eight hours a day and temperatures are between 10 and 20 degrees.

■ **Contact Jenene Kidston or Peter Proctor, Mudgee, (02) 6372 4700.**

Blackberry species are identified

MORE than 100 weeds professionals participated in a series of nine blackberry identification workshops held nationally during the 2007-08 summer.

The workshops, run by NSW Department of Primary Industries and Weeds CRC education team with Defeating the Weeds Menace Program funding, were held to improve the skills of weeds professionals in identification of blackberry species.

The one-day workshops focused on the use of the CD *Blackberry – an identification tool to introduced and native Rubus in Australia*, and also included segments on blackberry rust fungus, how to collect and submit blackberry samples to herbaria for formal identification, and the correct application of chemicals for effective blackberry control.

Participants found the most useful aspects of the workshops were the use of the computerised identification key, the variation between



LEFT: Participants in blackberry workshops have identified several species not already mapped on an identification CD.

blackberry samples that were displayed, and the discussions on blackberry rust and chemical controls, especially on effectiveness and rates.

They identified a number of species which had not been mapped on the blackberry identification CD and intend to send samples to the herbaria for confirmation of their identification.

The CD, by Robyn and Bill Barker, from the State Herbarium of South Australia, can be purchased from the University of Queensland website, www.cb.it.uq.edu.au/software/blackberry

■ **Visit the Weeds CRC website, www.weedscrc.org.au/publications/factsheets_guidelines.html under integrated weed management, for a series of fact sheets.**



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Pasture is a perennial key to weed control

MICHAEL Nott and his brother Craig wage the same war against weeds on their property "Talarah" as everybody else in the Gulgong district.

One of the most important weapons in their arsenal is strong healthy pastures providing full groundcover most of the time.

"We use our best pastures to finish steers so good quality and plenty of it is a must," Michael said.

Local NSW Department of Primary Industries agronomist, Jenene Kidston, agrees.

"Top quality perennial pasture provides better quality feed for a longer growing season than oats and other annual crops," she said.

"The paddock is not out of production for two or three months of the year while the crop is young and it doesn't have to be locked up before harvest."

The most productive and persistent perennial pastures are those that don't have to compete with weeds or other plants during establishment.

"Getting on top of the weeds

before we sow the pasture is the most important thing.

"We usually sow a couple of crops of oats so we can clean up the weeds before we sow pasture but it depends on the paddock and the season," Michael said.

Well established pastures are permanent pastures.

"If you look after your pasture it will last for a long time. We still have a phalaris pasture that my father sowed in the 50s. We lime and fertilise our paddocks which is expensive but it is cheaper than re-sowing," Michael said.

In established pastures the Notts still use a number of management tools to keep on top of weeds, the main ones being groundcover, livestock and herbicides when necessary.

They don't like to make their animals eat weeds which are generally not as nutritious as other pasture plants.

They use stock to manage the pasture so they have good groundcover, perennial grasses that are green and vegetative, and clovers and lucerne are able to



Gulgong farmer, Michael Nott, takes an integrated weed management approach, with groundcover, grazing and, when necessary, herbicides. He and his brother Craig still have a phalaris pasture which their father sowed in the 1950s.

establish and thrive between the grasses.

"This is what integrated weed management is all about. Using all of the tools you have at hand to ensure that weeds don't become a

major problem," Ms Kidston said.

"The Notts are delivering a lot of community benefits at the same time.

"They are delivering a quality product into the market place.

"They are also sustaining deep rooted perennial pastures; reducing soil salinity, acidity and weed seed banks in their environment."

■ **Contact Jenene Kidston, Mudgee, (02) 6372 4700.**

Using bio-control for Paterson's curse

SEVEN biological control agents for Paterson's curse, all insects, have been released in NSW.

One of the first releases was the leaf-mining moth (*Dialectica sculariella*) in 1988 which is now distributed widely.

While the moth can be found in most districts causing damage to Paterson's curse, it does not provide sufficient control on its own to drastically reduce the weed populations, but nevertheless places additional stress on them.

Perhaps the three most promising releases are the crown weevil (*Mogulones larvatus*), root weevil (*Mogulones geographicus*) and the flea beetle (*Longitarsus echi*).

These insects appear to have expanded their territories significantly from their release sites and can be found across much of the southern and Central Tablelands and South West Slopes.

Both weevils survive summer as adults, living off body reserves until the following autumn when they seek germinating curse plants from February to April to feed on and start laying eggs.

Crown weevil larvae feed inside leaf petioles and head towards the crown

of the plant and top of the root.

Larval damage is often seen as a dead growing point with black ooze.

Because the crown weevil feeds above ground it is susceptible to damage by grazing animals.

Late breaks, low rainfall, and hard grazing do not favour this insect and it may not be the dominant bio-control agent in closely grazed sheep pastures.

A newer strain of the crown weevil, the Portuguese strain emerges from its summer "sleep" about four weeks later than the original and widely dispersed French strain of the crown weevil and is more suited to areas that experience late and unreliable rainfall.

Root weevil larvae feed inside the root about three to five centimetres below the crown.

Larval damage is not seen unless the plant is dug up and the root inspected for tunnelling larvae.

Because the root weevil feeds in the root of Paterson's curse it is less susceptible to damage from grazing animals.

The root weevil also emerges from its summer "sleep" about six weeks



Dead and dying Paterson's curse after crown weevil activity.

later than the French crown weevil and is also better suited to areas that experience late and unreliable rainfall than either strain of crown weevil.

The larvae of both weevils can often cause significant damage to Paterson's curse resulting in plant death with 10-20 larvae per plant being capable of killing rosettes up to 20cm in diameter.

The flea beetle survives for up to six months over summer as pupae, emer-

ging in early winter as adults.

The adults feed on leaves, causing small holes on the surface.

This feeding damage on Paterson's curse is readily observed at present in many pastures.

The larvae hatch in winter and begin feeding on the taproot, slowing plant growth. Because much of the beetle's lifecycle is below ground it is far less susceptible to grazing damage.

The over-summering ability and grazing tolerance makes this agent useful in years with late breaks and situations with heavy grazing. It is not surprising that it is dominant in many pastures.

Bio-control agents are unlikely to wipe out Paterson's curse altogether but some of them can cause significant damage to weed populations and will be an important component of an integrated weed control programme.

■ **Visit www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/profiles/patersons-curse - NIGEL PHILLIPS and PAUL SULLIVAN**

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Making News

Do mushrooms combat cancer?

THE role of mushrooms in reducing the risk of breast and prostate cancers and in stunting the growth of these cancers will be tested shortly with the start of human clinical trials in California.

Laboratory studies have used a mushroom extract to slow breast cancer growth in mice and lower the level of male hormones involved in prostate cancer.

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Gardeners can halt weeds

PEOPLE with a passion for beautifying the landscape are set to play a key role in reversing the growing weed problem under a national initiative that is attacking the problem at its roots.

Much of our unique flora and fauna at iconic places like Kakadu National Park and the Blue Mountains is threatened by invasive plants commonly found in the home garden.

In fact 65 per cent of Australia's weeds have escaped from parks and gardens.

Workshops called 'What does your garden grow?' have been designed to educate the community about garden plants that have another life as a weed.

NSW Department of Primary Industries and the Grow Me Instead program have combined forces to deliver the workshops in NSW.

The workshops use the short course developed for home gardeners and community groups by the Co-operative Research Centre for Australian Weed Management (Weeds CRC).

In addition to knowing which plant to avoid, workshop participants will go away with the techniques to manage those pesky weeds in their own garden.

A 'What does your garden

grow? CD has been produced for trainers.

It includes a participant's workbook, more than 150 PowerPoint slides, trainer's guide, fact sheets and a range of other useful resources.

NSW Department of Primary Industries (DPI) education officer, Annette Beer, said the project was about empowering citizens to protect the environment as they garden.

"The workshops are delivered in a non-threatening way, with a strong emphasis on informing the community about the growing issue of weeds in Australia without blaming them for the problem," Ms Beer said.

There are examples of weeds from every State, with additional materials and photographs added to make 'What does your garden grow?' more relevant to specific regions.

The first stage of the program has been the role out of a series of Train the Trainer workshops.

Feedback from trainers indicates this approach will deliver the maximum benefit for participants – and the environment.

"We find that trainers quickly familiarise themselves with the materials and discuss how they can adapt them for use in their local situation," Annette Beer said.



Weed workshop participants are told 65 per cent of Australia's weeds have escaped from parks and gardens.

"With eight Train the Trainer workshops already conducted there are 150 weed experts and trainers ready to deliver these workshops across NSW."

Train the Trainer workshops are in the planning stage for Tamworth, Dubbo, Nowra and Western Sydney.

More workshops will be scheduled on demand.

Among the trainers are nursery and garden industry representatives, garden centre managers, conservation volunteers, council weed officers, public servants, private trainers,

TAFE and community college staff.

Their target audiences are schools, councils, CMAs, nurseries, environmental educators, Bushcare, Landcare and Coastcare co-ordinators, garden club members, the real estate industry, landscape companies, national parks staff and natural resource management boards.

Further information can be found at www.weeds.crc.org.au/education_training/index.html

■ **Contact Annette Beer, (02) 6938 1671 or Birgitte Verbeek, (02) 6763 1247.**

NEXT MONTH:

Agriculture Today's September 2008 edition, to publish on August 28, will carry features on vegetables and intensive cropping, plant health and biosecurity and kangaroos.

Allelopathy for ryegrass

SCIENTISTS at the EH Graham Centre, Wagga Wagga, are looking beyond traditional herbicides for annual ryegrass control in winter crop production.

Two major projects are underway, focusing on allelopathy, the study of chemical interactions that occur between plants in a plant community.

Plants protect themselves by exuding or emitting chemicals that deter insects or inhibit the growth of neighbouring plants.

Many modern plant varieties have had their allelopathy capability accidentally bred out of them.

However, recent research in the United States has produced rice varieties that largely control particular weeds, such as barnyard grass.

One of the EH Graham Centre projects is looking at

wheat varieties which are able to exude chemical compounds that can inhibit the growth of ryegrass seedlings.

Dr Hanwen Wu has tested more than 450 varieties of wheat and the work has shown there is considerable potential to select varieties that would exercise significant control over annual ryegrass.

Some of the tested wheat varieties produced close to 100 per cent inhibition of root development in annual ryegrass.

The second project is looking at chemicals contained in plant extracts as potential new "natural" herbicides for annual ryegrass.

According to EH Graham Centre scientist, Jim Pratley, the advantage of this approach is that it deals with natural products, which are normally short-lived in the environment and therefore have desir-

able environmental characteristics.

"We hope to find new modes of action to complement those that exist for annual ryegrass control," he said.

"So far, we have looked at more than 200 plant species."

Annual ryegrass remains the worst weed of winter crop production in Australia.

It is estimated to infest between 12 and 15 million hectares of crop, costing more than \$350 million a year in control measures.

It is world's worst example of herbicide resistance, and has developed resistance to almost every herbicide used against it.

One project is financed by an Australian Research Council Discovery Grant and the other by the Grains Research and Development Corporation.

■ **Contact Jim Pratley, Wagga Wagga, (02) 6933 2862.**



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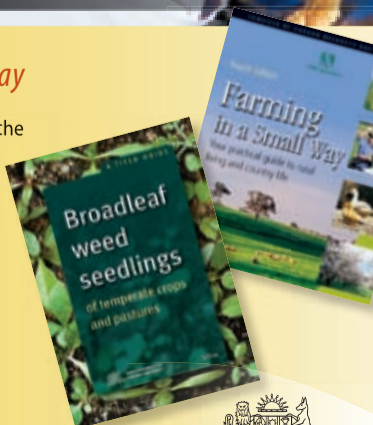
Broadleaf weed seedlings of temperate crops and pastures

This easy-to-use field guide illustrates broadleaf weed seedlings at their most susceptible stage for control, before they have competed with crop or pasture. It describes 95 broadleaf weeds and associated crop and pasture species, with colour pictures.

Farming in a small way

Practical advice on choosing the farm and the enterprise that suits you best, including coverage on small-farm economic realities, appraisals of alternative industries, and how to handle environmental issues

Further contact and ordering details for NSW DPI bookshop, and a huge range of free publications, are available on the NSW DPI website.



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www.dpi.nsw.gov.au

Making News

Weed wizard

RESEARCHERS in four States working with the recently completed Co-operative Research Centre (CRC) for Australian Weed Management have developed a computer simulation model and decision tool for growers.

The user-friendly "Weed Seed Wizard" simulates interactions between weather, paddock management and seed biology to predict the number of weeds appearing in a specific paddock each year as well

as the potential of the weed seedbank.

The aim is to allow growers to experiment with weed management strategies, to find a cost-effective one.

The wizard can be downloaded via the Grains Research and Development Corporation (GRDC) website at www.grdc.com.au/weedlinks – selecting the tools option.

Parkes agronomist

PARKES-based NSW DPI conservation management agronomist, Col McMaster,

will take on the responsibilities of Parkes district agronomist from next Monday.

Mr McMaster will fill the shoes of Karen Roberts until her return.

Mr McMaster has extensive experience working with Central West farmers and soils.

"He has worked out of the Parkes DPI office for the past three years on a range of soil, production and conservation farming projects with the NSW DPI agronomist network.

Mr McMaster is contactable at the Parkes NSW DPI office, 6816 3300.



Andrew and Megan Mosely at Kilfera Field Day at Ivanhoe. They select and rear their rams under rangeland conditions and therefore consider them to be unpampered, hardy and ready to work.

'Etiwanda' Dorpers

ANDREW and Megan Mosely established their White Dorper stud, "Etiwanda", at Cobar in 1999, as an alternative sheep breed that better suited their environment.

They found the Dorpers to be low input and profitable.

"Etiwanda" was the first White Dorper stud in the Western Division and continues to be one of the first White Dorper studs in the eastern States to use Australian Sheep Breeding Values (ASBVs) as a tool for animal selection.

Andrew and Megan believe it is very important to have an objective measurement of the genetic performance of their sheep to ensure they are breeding toward their objective and providing clients with animals that will be productive and profitable.

ASBVs provide information on

SALLY WARE
Hay

traits that cannot be assessed visually and give a more accurate indication of an animal's genetic breeding ability.

Their breeding objective is to produce an animal with a medium frame, well muscled, structurally sound, highly fertile, high shedding and with an excellent constitution and well balanced ASBVs.

Keeping balance in mind, they also look for rams with good post weaning weights.

This enables ram clients to produce commercial lambs that meet market specifications by seven months under paddock conditions.

They are keeping an eye on fat levels and aiming for a high eye muscle depth, which relates to carcass yield (and therefore profitability).

Data recorded for each lamb are sire and dam, the number of lambs at birth, sex of lamb, ease of lambing, weaning weight, post weaning weight, eye muscle and fat depth and scrotal circumference on the rams at seven months.

Scrotal circumference is an important trait as it directly correlates to the fertility of the ram's daughters and to the serving capacity of the ram.

The lambs are weighed at three months old when they are weaned. At seven months the lambs are returned to the yards for scanning.

Registered LAMBPLAN scanners from Advance Livestock Services in Hamilton, Victoria, scan the "Etiwanda" stock.

The cost is \$4 a head including travelling.

Most "Etiwanda" rams are sold before they are 12 months old but rams kept for the stud have their yearling weight recorded at 12 months.

Once all the data is collected, the Moselys submit it by email to Sheep Genetics in Armidale.

Sheep Genetics charges a \$300 fee plus a cost per head to process the data.

The ASBVs are returned via email and are downloaded into the Moselys' animal management software.

In future, the Moselys will start using electronic ear tags, a reading wand and a palm pilot for paddock and yard recording.

These techniques will save time and improve the recording accuracy.

The Moselys have recently trademarked their Rangeland Ready logo to describe the "Etiwanda" stock.

■ Contact Sally Ware, Hay, (02) 6993 1608 or Megan and Andrew Mosely, (02) 6837 3797, www.etiwanda.com.au



White Dorper rams grazing on "Etiwanda", Cobar.

Improving Merino weaner survival

PROFILING weaners by their liveweight could help producers significantly improve the survival rates of young Merino sheep, NSW Department of Primary Industries research has found.

"Weaning weight has a significant influence on post-weaning growth and survival, with the first four to six weeks after weaning critically important for subsequent productivity," Orange-based research scientist Sue Hatcher said.

"While the lightest cohort of weaners within a mob clearly requires targeted feeding for survival, another sub-group of weaners may also be at high risk," she said.

Ms Hatcher said observations of post-weaning growth in the first four to eight weeks indicate the existence of four sub-groups that wean:

1. At or above the mob average and then have strong positive growth.
2. Below the average and have strong compensatory growth.
3. At or above the average and then have negative growth.
4. Below average and never catch-up.

"There were differences in death rates between the four liveweight profile groups," Ms Hatcher said.

"Those weaners classified into groups three and four were nearly five times more likely to die in both the Central Tablelands and Yass Rural Lands Protection Boards than those in groups one and two.

"There was no difference in survival between groups one and two or between groups three and four."

Ms Hatcher said the findings had important implications for the management of young Merino sheep.

"Weaners in groups one and two clearly require no specific



management intervention post-weaning," she said.

"The relative low weaning weights of group two most likely reflect their dam's milk production, for which they were able to compensate post weaning.

"The high proportion of deaths among group three weaners - who represented between six and 14 per cent of weaners from the 15 monitored mobs - indicates the inability of these young sheep to adapt to an independent existence post weaning.

"The economic benefit of feeding group four weaners who do not grow out to the average of the mob is questionable. Perhaps these individuals should be a priority for early sale."

Ms Hatcher said the challenge was to be able to differentiate early (ie, at marking) for appropriate intervention, particularly for group three and four weaners.

Future research will quantify physiological differences between post-weaning liveweight profiles and identify appropriate management strategies for each, such as targeted feeding, cross-weaning or early sale.

■ Contact Sue Hatcher, Orange, (02) 6391 3861.

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Crucial time for NLIS

THE National Livestock Identification System (NLIS) for sheep and goats has been in place for two-and-a-half years but producers still need to ensure their movement documents are fully and correctly completed to enable the system to trace accurately.



A movement document can be either a national vendor declaration and waybill (NVD) or a transported stock statement (TSS).

Bill O'Halloran, project co-ordinator for the system in NSW, has high praise for the way producers, agents, saleyards and others have backed the system.

But he adds "we still have a problem with incorrect or incomplete movement documents".

"To pass the test of a full system review late in 2009, we must have movement documents right," he said.

"We need to make sure all of the property identification codes (PICs) on eartags in sheep that have not been bred by the vendor are recorded on the movement document.

"This is essential for prompt tracing.

"There are national stan-

dards for how quickly this tracing needs to be done and if all the PICs are there it saves a huge amount of time trying to find the information."

Mr O'Halloran said there was an option for vendors to use a pink post breeder tag instead of recording all the PICs.

This option is intended for people like finishers who bring in many small lots and are selling them as one lot.

"If the pink tag is used, it is essential that all previous movement documents received for the mobs in the boxed mob are completed fully and kept for the req-

uired seven years," Mr O'Halloran said.

Inspectors from Rural Lands Protection Boards and NSW Department of Primary Industries will check mobs at saleyards in coming months to ensure producers are filling out movement documents correctly.

"To get the system to work effectively and avoid having to move to much more expensive options, we have to get the movement documents right," Mr O'Halloran said.

"I'm sure we can achieve this with help from producers and their agents."



Creep feeding means better lamb growth

LAMB growth rates may be increased by using the simple management practice of creep gates that allow lambs unrestricted access to additional feed from cereal based pastures or grain and fibre supplement while still suckling.

In this way lambs can be provided with high quality feed, and ewe feed requirements will be reduced along with weaning stress.

It also prevents overgrazing of the cereal pastures and reduces the unit cost.

Creep gates can be easily constructed using solid or tubular pipe or steel posts.

A creep gate with vertical spacings of 225 to 250 millimetres with an adjustable horizontal bar set 450 to 600mm high will allow most lambs access to additional feed and prevent ewes from passing through the system.

Gates with adjustable spacings can be modified as lambs grow in size.

Creep gate systems may be used when creep feeding or creep grazing.

GEOFF DUDDY
Yanco

Creep feeding, where small fenced-off enclosures within the grazing paddock allow lambs access to supplemented, high quality feed, can be constructed cheaply and efficiently.

The creep feeding enclosure may contain a self feeder, open troughs or an area where hay or silage may be fed.

Creep feeding assists with training lambs to recognise, and consume, feed that may be used to supplement the lambs at a later date.

Creep grazing requires less labour and is generally more economical than creep feeding.

These systems will help acclimatise lambs to physical separation from their dams and will minimise stress associated with weaning.

It allows more efficient use of available pasture or cereal crop feed and can be an efficient way to utilise cereal

crops with limited bulk while preventing overgrazing by the entire mob.

Creep grazing may help to fill the autumn-winter feed gap without additional supplementation of the entire lambing mob.

Pre-training lambs to recognise and accept feed types while on the ewe will improve their use of creep gates.

Trail feeding cereal grain, pulses, quality hay or silage and/or allowing ewes and lambs to graze cereal or high quality pasture for several days before introducing lambs to creep systems should help lambs adapt and to get additional feed offered within the creep area.

Ideally to further minimise stress, several creep access points should be available for lambs to enter and leave.

Refer to NSW DPI's creep feeding lambs PrimeFact at www.dpi.nsw.gov.au/_data/assets/pdf_file/0003/777/81/Creep-feeding-lambs-Primefact-224---final.pdf

Making News

Tasty research

DPI meat scientist, David Hopkins, has been recognised by the global

scientific community for research contributing to better eating quality of lamb and sheep meat. ScienceWatch, an

international electronic journal, has listed Dr Hopkins' recent work due to the number of papers which have referenced it.



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Reducing flystrike susceptibility

WHILE debate continues about the phasing out of mulesing in 2010, sheep producers still need to act to reduce the incidence of flystrike.

While hopes exist for effective alternatives to surgical mulesing by that time, there are already several strategies available to manage flystrike susceptibility, including flock husbandry practices, chemical and non-chemical pest management and breeding and selection.

Sheep in short wool are less susceptible to flystrike.

The timing of crutching and shearing are husbandry practices that play a large role in reducing the risks associated with both breech and body strike.

Many wool producers currently crutch twice a year as part of their normal wool management program.

There may be opportunities to modify the current sheep management schedule but it is important to consider the calendar of operations for all on-farm activities, including the availability of shearers.

Tail length is a critical consideration in reducing flystrike, as well as the incidence of tail and vulva cancer.

The correct place to dock the tail is immediately below the third palpable joint or in line with the tip of the vulva in ewes.

A three joint tail allows the sheep to lift its tail well away from urine or faeces which are the main attractant for breech strike.

Managing struck animals is critical to minimising flystrike.

Culling them reduces strike incidence in the short-term and in the long-term improves the flystrike resilience of the flock.

Integrated parasite management can incorporate use of flytraps to determine when the over-wintering blowflies emerge from the soil.

They emerge when soil temperatures exceed 15 degrees.

These temperatures occur from spring until at least autumn in many areas.

If the flies that emerge in spring find susceptible sheep, flystrike will occur unless remedial action is taken.

Blowflies are particularly attracted to sheep odours such as fleece-rot damage in damp fleece, and dags.

Flytrap results and the frequency of significant rainfall – enough to wet sheep to skin level – can be used to estimate the flystrike risk to susceptible sheep.

If the risk is significant, act quickly to reduce flystrike susceptibility.

This might mean applying insecticides, crutching or drenching if internal parasite levels are high.

If your sheep are not susceptible the risk is low.

When considering breeding and selection, the key traits to breed out are breech wrinkle, breech cover and fleece rot.

Of these traits, breech wrinkle is the most important for breech strike; fleece rot is the most significant for body strike.

Some producers worry that if breech wrinkle and body wrinkle are reduced, sheep will lose fleece weight.

But both can be achieved quickly and fleece weight maintained.

How quickly will depend on a producer's starting point.

The genetic solution will be permanent and cost effective as we are not relying on costly measurements.

So where to start?

Breech wrinkle correlates highly with body wrinkle.

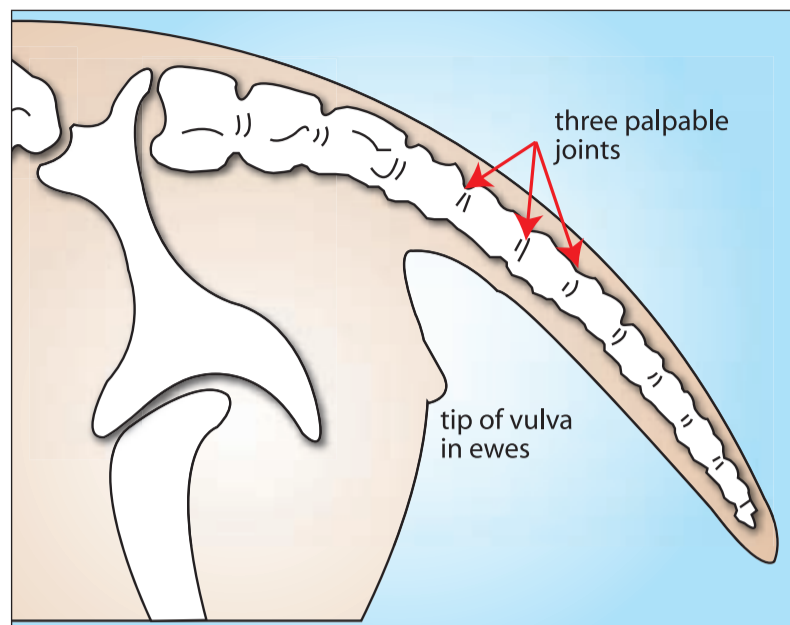
To measure, use the scoring sheets used for Estimated Breeding Values (EBV).

Score 100 ewes hoggets at random or a good cross section of your flock for body wrinkle and breech cover.

Marking is a good time to do this if you are still mulesing or using an alternative measure such as breech clips.

Score the rams you have on hand.

Discuss the issue with your



ram breeder and find out what direction they are heading on body wrinkle and breech bareness.

Selection strategies that can be implemented now include purchasing rams with breech Estimated Breeding Values which should be available in the coming spring; cull ewes with heavy body wrinkle (for example into a meat breeding group) and ones that have been struck.

No single solution will fit all.

Consulting your sheep classer and other sheep advisers will be important.

Breeding will be part of the solution in future, however, an integrated approach using the management options mentioned will still be required.

Notably, tail length has a noticeable effect on reducing the incidence of flystrike.

■ Contact Sally Martin, Young, (02) 6382 1077 or your local NSW DPI sheep and wool officer.

Keeping oestrogenic clovers in check

CLOVER disease is an induced infertility in sheep as a result of the animals consuming clovers containing high levels of oestrogenic compounds.

Clover disease was prevalent during the 1960s and 1970s when many pastures were sown to some older varieties of sub clover that were high in oestrogen.

While newer varieties do not have this problem, oestrogenic varieties have continued to increase in southern pastures from remnant populations and if not kept in check could potentially impact on sheep production again.

The two main problem varieties are Dwalganup, which was sown extensively in NSW, and Dinninup, which was a low level contaminant in uncertified seed from WA.

Both of these varieties are

Plant Banter

with Nigel Phillips
NSW Department of Primary
Industries agronomist



early maturing and have a high hard seed level helping them survive false breaks and dry springs.

Consequently, they have been able to persist in many paddocks.

It is important to note that not all older varieties are high in oestrogens and varieties released since 1990 such as Goulburn, Urana, Coolamon and Riverina have been screened for oestrogen levels before release.

The newer varieties are also higher in hard seed content.

Drought conditions during the past six years has seen sub clover set dramatically

affected. Dwalganup and Dinninup will have had an advantage in seed set over later maturing varieties with low levels of hard seed and may now be the dominant remaining clover.

If one of your pasture recovery strategies is to increase the sub clover population by using the existing clover plants then you should check that they are not oestrogenic varieties.

Unfortunately, very few farmers or agronomists will be able to accurately identify sub clover varieties.

In practice, it may be easier to assume if you have not sown a paddock to one of the newer varieties it is likely to contain a high level of oestrogenic clover.

Sub clover plants that survive a long cropping phase are also more likely to be an oestrogenic variety so

introduce new varieties when sowing back to pasture.

Include an earlier maturing variety in the sowing mix to compete with Dwalganup and Dinninup.

This may be important if drier conditions are going to be more prevalent.

There is an excellent Sub Clover Agfact on the NSW DPI web site which can help you choose the right variety for your area and identify oestrogenic varieties that may be in your paddocks (<http://www.dpi.nsw.gov.au/agriculture/field/pastures/establishment/clover>).

Clover disease does not affect cattle and will only impact sheep flocks if more than 30 per cent of their diet is oestrogenic clover.

Infertility in a flock may be due to a number of factors, so consult your veterinarian if you have any problems.

Making more around State

NSW sheep producers have responded well to the first round of Making More From Sheep initiatives, with 230 producers attending workshops across the Southern Tablelands, Central West, and New England.

"Making More From Sheep presents a number of valuable tools and strategies to help sheep producers boost the productivity, profitability and sustainability of their sheep business," the program's State co-ordinator, Alex Russell, said.

"We have opted to hold the workshops on-farm in smaller groups so that those attending have the maximum opportunity to learn some new skills.

"Many sheep producers at events held have commented on how they would be



LEFT: Grenfell sheep producers, Rob Johnson, "Clavering" and Paul Togniotti, "Myee", at a local Making More from Sheep workshop that focused on turning pastures into profit.

able to apply the information."

Making More From Sheep was launched by Australian Wool Innovation and Meat and Livestock Australia.

The program was developed with the input of about 250 leading sheep and wool producers and technical experts, and is being delivered in NSW by NSW Department of Primary Industries.

The centrepiece of the program is a comprehensive guide, titled *Making More From Sheep - A sheep producer's manual*.

The manual costs \$65 plus GST for AWI levy-payers and MLA members, ■ Visit website www.morefromsheep.com.au, the AWI Helpline, 1800 070 099, or the MLA membership line, 1800 675 717 to order the manual.

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