

Miss the AGM? You missed a superb seminar!

The theme of the seminar was 'Towards Twenty Twenty' and **Tony Sherlock**, Chairman of Woolmark, started the crystal ball rolling with his look at the wool industry.

He told wool producers that they need to find out what the market wants and to produce for that market. The days of sending a wool bale out of the gate and not knowing where it goes is long gone, wool producers need to become consumer conscious. To meet market needs the wool grower will need to look at the fibre they are producing and understand the relationship between the wool characteristics and its processing characteristics.

Andrew Grace of Woolmark looked at the technical aspects of wool production. He pointed out that consumers are very conscious of environmental and animal welfare issues and the trend is to 'clean green' and 'animal friendly.' He looked at many new technologies ... cloning; transgenic sheep; chemical mulesing; bioclip; chain shearing; juvenile in-vitro embryo transfer; DNA pedigrees and fleecescan. Some of these are already available, some are 'over the horizon', all are available to help the wool grower present a product wanted by the consumer. (Andrew has kindly agreed to his paper being reproduced later in this newsletter.)

Lenard Poulter of Poulter Meats spoke on the future of meat retailing. His message was simple.... look from 'Plate to Paddock' and know what your consumers want. As head of a network of 150 stores, he has certainly created a winning formula. From value adding to poultry meats, Lenards have now moved into beef and lamb products. He challenged lamb producers to focus on understanding who consumes the product, what they want to eat and developing a brand loyalty.

Rob Woolaston, of CSIRO, the final speaker of the day, said he was delighted that so many of the technical developments were the results of CSIRO research. He advised that many were currently available, or very close to being available. He also spoke about the bid for a Sheep Industry CRC looking at 'a profitable sheep industry that anticipates consumer needs'.

So the emphasis on the CONSUMER shone through all the talks..... the consumer must be the person that wool and meat producers see when they do their own crystal ball gazing.

The Cicerone AGM was a brief session in which Chairman Hugh Sutherland presented his report and an election of Board members took place. Office bearers were elected at the first Board meeting. Your new Board is **Hugh Sutherland**, Chair; **Kim Barnet**, Deputy Chair; **Jim Scott**, (UNE) Treasurer; **Andrew Burgess**, **Terry Coventry**, **Murray Fenwicke**, **Rob Taylor** (Producers) **Betty Hall** and **Pauline Smith** (Extension); **David Paull** (CSIRO). NSW Agriculture is

represented by **Clare Edwards**.

PRO GRAZE and PRO GRAZE PLUS Are you interested in joining a ProGraze or Pro Graze Plus group. Let Caroline know 6778 3871

WWW Around 70% of Australian agricultural web sites take the average rural user too long to download according to communications specialist Jim Groves. The Australian Farmers Guide to the Internet ranked only 2 of more than 500 sites with a top score for content and internet appeal. Many web sites, if they were even found by the search engine, had too many graphics or were too complicated to navigate. Cicerone has already run one successful day on internet use. Would you like another one? Ring Caroline if you are interested (02) 6778 3871

FARM SAFETY is hitting the news headlines more and more. Don't become another chilling statistic, 'prevention' is a better option! If you'd like Cicerone to organise a Farm Safety seminar, please advise Caroline 6778 3871

More dates for your diary

3rd October (Tuesday) **Sheep boots workshop** 1.30pm, Liaison Centre, Chiswick
We have some exciting news with this PIRDs project..... be there!!!!

11th October (Wednesday) **Farm Planning workshop** the ABC farmlets are 'stocked, seeded and supered'. Come and have your say in the running of the three different grazing management systems 1.30 – 4.30pm Liaison Centre, Chiswick

16th October (Monday) **Meat Marketing Seminar** For those who have a red-meat enterprise

At the Armidale Golf Club RSVP essential to 6778 3871
SEE ENCLOSED FLYER FOR DETAILS

27th - 28th October **Fine Wool Symposium** contact Fran Nicholls CSIRO 6776 1306

An American perspective

Bill Bryson, one of the world's leading travel writers, tells us that "*We Americans pay scant attention to our dear cousins Down Under - though not entirely without reason of course. Australia is, after all, mostly empty and a long way away. Its population, just over 19 million, is small by world standards and its place in the world economy is consequently peripheral. As an economic entity it ranks about level with Illinois. From time to time it sends us useful things - opals, merino wool, Errol Flynn, the boomerang, but nothing we can't actually do*

without."

"The 1997 New York Times ran 20 articles on or about Australian affairs. It also found space for 120 articles on Peru, 150 on Albania, a similar number on Cambodia and well over 500 on Israel. As a place that attracted American interest, Australia ranked about level with Belarus and Burundi."

We hope the Olympic Games raises American awareness of this great country of ours.

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CHAIRMAN'S ADDRESS CICERONE 19 JULY, 2000

I would like to welcome you all to the second Annual General Meeting of the Cicerone Project. I will attempt to be brief yet cover everything in sufficient detail for all of you to be satisfied with the progress we have made to date. These will include the Cicerone Farm, Producer Initiated Research and Development (PIRD) projects, other workshops and field days.

Introduction

Cicerone was an idea that actually began around 2 years ago. Our Aim is to increase the profitability and sustainability of grazing based agriculture on the northern tablelands. A key feature of the project is that it is led by producers and involves individuals and groups with stakes in the success of northern tablelands agriculture.

The Cicerone Farm

The Cicerone Farm consists of 206 ha on Chiswick. The Cicerone Project has leased this land from CSIRO, at no cost, and after following an exhaustive process to decide the future of the farm the consensus decision was reached by members to divide the area of land into 3 farmlets. These farmlets were to reflect the range of producing environments for livestock in northern NSW. The purpose of the Cicerone Farm is to improve the adoption of the latest technology by showing it at work in the paddock as compared to a sterile lab or a small field plot environment.

The farmlets are;

Farm A – High production using high input strategies

Farm B – Medium input strategies incorporating a flexible rotational grazing system

Farm C – Same treatments as Farm B but with greater concentration on grazing management.

Over the last 12 months we have developed the Cicerone Farm to the stage where we are able to measure the performance of a range of management options. This has involved changing or building some 40km of fencing, sowing pasture and fertiliser applications. The next step is to introduce new technologies or research outcomes to see how each performs in what approximates a normal commercial environment.

The Cicerone Farm is currently running 1900 sheep and 55 NEAB cattle on agistment. We will soon have an additional 100 CSIRO cattle on agistment

for a short time.

During the last 12 months Cicerone has had the assistance of a number of individuals that have all helped to shape the Farm. I would like to take this opportunity to thank Matt Munro, Peter Vickery, David Wilkinson and Les Gallagher. Starting this month Justin Hoad was appointed the Cicerone Farm manager. The role of the Farm manager is not just to ensure the livestock and pastures are maintained, he will also be liaising with CSIRO staff and management, involved in the measurement of the performance of various aspects of the farm and in organising and largely running many field days. The Board of Cicerone has every confidence in Justin's abilities in this regard.

We still have a significant amount of work ahead of ourselves to ensure that we have adequate resources to benchmark the performance of the Cicerone Farm to the level that we believe is desirable.

Footrot PIRD

Footrot is one disease that has captured the attention of northern tablelands producers like nothing else over the last 12 months. In July 1998 Cicerone organised, as far as I am aware, the first major public meeting on this issue. The meeting was attended by over 100 producers and in large part led to further work conducted by Cicerone.

Many producers related how the disease in the New England was causing no ill thrift in the sheep, production remained good and any foot problems seemed to come and go without treatment. Producers were sceptical to say the least about the program being pursued in order to control and eradicate footrot in NSW.

In co-operation with Woolmark Company (PIRD funding), CSIRO, UNE, The Armidale RLPB, NSW Footrot Steering Committee and local producers Cicerone developed a trial to compare the field

expression of various gel stable strains of footrot under similar conditions during the period when footrot expression was likely to occur in the New England. Dr. Brian Cheetham of the Department of Molecular and Cellular Biology at UNE then compared the strains using DNA analysis.

In summary the PIRD had three outcomes which were I believe always suspected by never quantified.

1. The first is the effect of high clover content pastures on the expression of the disease. The same strains of footrot exposed to high and low clover content pastures expressed more severely, in terms of foot score, as the clover content increased.
2. The second was the degree with which foot conformation affected the rate of infection. Put simply open well-maintained feet are much less likely to provide a suitable environment for the spread of the disease.
3. Third and most importantly, the PIRD challenged the validity of the gelatine gel test to recognise footrot as virulent. In other words the DNA testing has conclusively proven that a gel stable test result does not necessarily mean you have a virulent strain of footrot. The clinical evaluation of the feet in question is of at least, most likely, more importance. This has ramifications for the current policy being pursued to control and eradicate footrot in NSW.
4. As evidence of this fact John MacFarlane, the Armidale District Veterinary Officer, was to present a paper on the results of the trial to a conference in Western Australia and Geoff Green will be presenting one to Footrot advisory officers in October.

Every Friday for 20 weeks a number of producers came to the Cicerone farm to learn about footrot, its effects and treatment. In addition specific field days were organised for local producers, District Veterinary Officers and Footrot Advisory officers, Year 11 and 12 Agriculture students and staff. Over 230 people attended these field days. This does not include the weekly foot inspections on the site, which were regularly attended by producers.

We actually have a video on the field work of the Cicerone Footrot trial. Lab work needs to be added and the results of phase two of the trial. We hope the video may be available after phase two is completed.

Other Research

Cicerone has recently achieved Woolmark funding for PIRD's to take our current footrot PIRD results to other Districts with different climates. This is a common argument that sheep are OK in the New England but that problems occur once these sheep are moved elsewhere. At this stage Molong looks like being a venue for this further work.

In addition Cicerone has Woolmark PIRD funding approved to consider novel ideas for the control of footrot. For example have you ever considered purchasing a ram and been concerned about preserving the footrot free status of your flock. Therefore you may have held off with the decision to improve your flock. A field day to discuss producer's experience and ideas in this regard is planned for 8 August.

Cicerone is also investigating the productive and profit performance of a number of sheep meat breeds. Crossbred prices are in the doldrums at present so perhaps these breeds offer opportunities for improved performance.

We have AI'd some ewes to five South African meat breed sires and will be holding a field day on October 16 to examine the progress made and expectations from this work. This field day will be attended by at least 2 top South African breeders to discuss their experience.

Cicerone will also be calling for interested producers to participate in a wether trial. Disease concerns have all but stopped this important industry activity.

Other Field Days and Related Topics

- ◆ Our last AGM incorporated a "Marketing Your Wool Clip" seminar. This was attended by some 80 producers.
- ◆ During August last year we had a workshop on planning the Cicerone Farm which was also well attended.

- ◆ Related to our Footrot PIRD (already mentioned) we had 2 field days in December, one for producers and another for District Veterinary Officers and Footrot Advisory Officers.
- ◆ In February we held a similar day for CSIRO staff.
- ◆ During March and April we had a further 3 field days on footrot diagnosis and treatment.
- ◆ Cicerone was also present on a stand at the Future Farm section of Wool Expo.
- ◆ Cicerone has also produced 6 Newsletters in the last 12 months, which chronicle important issues affecting Cicerone and local producers.

Future Joint Initiatives

- ◆ Cicerone will continue to co-operate with Julian Prior, from the UNE, and his extension students. They conduct assignments to survey and evaluate the effectiveness of some of the Cicerone seminars.
- ◆ Cicerone will continue to assist the UNE Agronomy Department in giving practical assistance to agronomy students as they evaluate the state of our pastures for us.
- ◆ Cicerone is assisting Nick Rollings, Kate McGregor and Peter Vickery with their work related to satellite imagery and pasture responsiveness.
- ◆ We are investigating opportunities to work with Lamb Plan and CSIRO to evaluate the potential of the South African meat sheep.
- ◆ In a similar vein we are investigating with CSIRO the potential for us to co-operate on cattle projects.

Membership and Funding

Cicerone's membership growth has been consistently positive over the life of the project. Cicerone can now boast just under 100 financial members.

Funding has principally been from the Woolmark Company and membership subs to date. The funding arrangement with Woolmark also allows us to recycle income from the farm business back into

the farm. As our stock numbers have been increasing so the income derived from the farms production has also been rising.

In the longer term Cicerone does need to attract major funding from another source. I am convinced that we are closer to achieving this objective but we still have some way to go.

Support

There are a large number of individuals and organisations that require Cicerone's thanks.

I would like to thank the Woolmark Company and CSIRO for their continued important support. I believe that with recent announcements from CSIRO with regard to the restructure of the Division of Animal Production the future for co-operation between Cicerone and CSIRO looks very positive.

I would also like to thank the UNE, NSW Department of Agriculture, Armidale RLPB, NSW Footrot Steering Committee and many other organisations that I could name.

I would also like to thank the Cicerone Board who have all given freely of their time and expertise to further the work of Cicerone. A lot of work has gone on behind the scenes that many people don't appreciateKim Barnet, Tim Wright, Rob Taylor, Terry Coventry, Clare Edwards, Pauline Smith, David Paull and Jim Scott

Our co-ordinator, Caroline Gaden also deserves much of the credit for the work of Cicerone. Again I cannot thank Caroline enough for her dedication and professionalism.

Finally, and most importantly I would like to thank the members of Cicerone. The members are the reason that Cicerone will continue to exist. If there is anything the Board or staff of Cicerone can do to improve our performance then we would ask you to discuss your ideas or concerns with a member of the Board.

Hugh Sutherland

Woolgrowing in 2020 – A Technical Perspective

Scott Williams and Andrew Grace
The Woolmark Company

Introduction

Crystal ball gazing is an activity fraught with danger. As part of the recent media frenzy about the dawning of the year 2000, a number of observers compared the predictions of futurists from recent decades with the reality of life in 2000. In virtually all cases, the predictions bore little relation to what had actually passed. Who, for example, could have predicted the rise of the Internet? Or the popularity of the Spice Girls?

With that caveat in mind, I think it is possible to identify some long-term trends that will influence the business of wool during the next twenty years, and to hazard some guesses as to the implications for wool producers. This paper looks at how innovation – research, development and implementation – could shape the wool industry of 2020.

The operating environment for wool production

A number of clear trends are significantly impacting on how we use or need technology for wool production. These are a few of them:

- *Increasing concern by consumers, and therefore regulatory authorities, about environmental and animal welfare issues.*

Graziers face increasing scrutiny over the way they handle their animals, how they use chemicals, and how they manage their land. This has implications not only for the immediate operating environment of the farm, but also for the market into which wool is sold. The competitiveness of wool as a textile fibre may depend on it being produced in a manner deemed acceptable to society.

The trend towards ‘clean, green’ and ‘animal friendly’ presents an opportunity for wool. However we will have to find solutions to chemical residues in wool scour effluent, to land degradation, and to mulesing in the medium term to take advantage of our natural fibre status. We will also need to consider what impact gene technologies might have on consumer perception of wool, given the present debate over GMOs (genetically modified organisms).

- *Increasing competition for land use, and from*

other fibres.

As the competition for land use increases, so too does the pressure to maximise returns per unit area. Terms of trade will continue to tighten for wool as they do for every product in a mature market.

The average greasy wool production per hectare for the Hamilton monitor group in Victoria, for 1998/99, was 42kg (say 30kg clean). In a world of increasingly scarce resources, the question will continually be re-asked: is this an acceptable yield from land that might otherwise be producing a tonne of grain? Or a quantity of carbon credits? Undoubtedly, the property market will answer the question.

There are a couple of implications for wool production. First, it may be that wool is increasingly grown only in those areas where there are no options (mainly the pastoral zone). Alternatively, or perhaps in parallel, we will see intensification of wool production. A stocking rate of 40 DSE/Ha, producing 150kg of clean fleece per Ha, may not be unreasonable benchmarks by 2020 in higher rainfall areas.

Another option is that wool will become just one of the outputs of multi-enterprise systems that also produce meat, grain, trees – and perhaps other unforeseen products, such as pharmaceuticals harvested from transgenic sheep for human medical purposes.

- *Increasing complexity of woolgrowing and the changing relationship between ownership, management and labour.*

The woolgrowing industry comprises a large number of small owner/operators, who usually

supply the management and labour for their enterprise (with the usual exception of marking/mulesing and shearing). As woolgrowing becomes an increasingly complex business, we may start to see this traditional paradigm disintegrate. Sources of capital such as super funds and other city investors may take greater ownership of land. Professional woolgrowers may manage very large operations under lease arrangements with the owners but without actually owning any land themselves. Specific functions such as shearing, crutching, and drenching may all be carried out by contract teams that provide both the labour and also the infrastructure (such as the equipment needed for shearing and associated activities).

This has implications for technology and vice-versa. The present structure of the industry is an obstacle to the commercialisation of some technologies because there is no critical mass. An example is genetics. Genetic progress is rapid in the pig industry, for example, at least partly because a few very large players control pig breeding internationally. They have sufficient scale to concentrate their use of elite stock, to invest in advanced breeding technologies, and even to invest in their own R&D.

- *Changes in the world economy that enable more flexible trading arrangements.* Globalisation and the boom in communications and product delivery are opening up opportunities for woolgrowers to exploit niche markets. This could see a move away from wool as a bulk commodity. This is likely to be accentuated by the fact that wool is likely to lose share in the textile market, given a relatively static production base and an expanding world demand.

Certain groups of producers already target their wool, for example, at environmentally sensitive markets. In some cases this involves alliances with downstream partners using 'organically' acceptable processes.

As woolgrowers target specific specialised market segments, it will be increasingly important that their product is of predictable, high quality and able to be delivered as required by the customer. The wool

production system needs to mimic as far as possible the factory consistency of competitor synthetics. This means adoption of technologies that allow a 'precision farming' approach.

Technological developments

Science and technology is both driving the changes described above, and offering options to adapt to those changes. Growth technologies with considerable promise for the wool industry include:

Molecular genetics

Scientists are rapidly unravelling life's genetic code. In doing so, they will change permanently the face of world agriculture, raising not only the prospects of quantum leaps in productivity but also the thorny issues of food safety, the preservation of genetic diversity, and the control and ownership of living things.

The term 'molecular genetics' encompasses a range of disciplines, including:

- *Genome mapping*, or identifying the specific sequence of molecules making up the DNA of an organism, and determining exactly *which* lengths of DNA (genes) are responsible for a particular function;
- *Functional genomics*, or determining *how* genes code for a particular function; and
- *Transgenics*, in which genes – not necessarily from the same species – are inserted into the genome of the target species to confer beneficial properties.

Molecular genetics promises enormous changes to the way we live and work. We are gradually learning exactly where genes are and what they do, and how to swap them around between species in such a way that may take millions of years by natural evolution. A famous example has been the insertion of a gene from Arctic fish into a variety of tomato to confer frost tolerance.

By learning how genes work, we can also explore new ways of manipulating biological processes. For example, if innate resistance to a disease is shown to be due to a gene coding for a particular enzyme, then that enzyme can be manufactured in bacteria and provided as an injection to people lacking that gene.

The wool industry has made only small advances in

genomics. This is a very expensive science – the human genome project, which will map the entire human genome by the middle of next year, will cost the US alone over US\$2bn. The payoff from investment in this area is also a long way down the track. The Woolmark position at present is to maintain a low-level effort in this area, freeloading as far as possible on developments from other species and concentrating on the areas of specific concern for wool production.

So far we have:

- The ability to develop a (virtually) unique DNA profile of an individual sheep, so that we can identify its parents (this will shortly be available through CSIRO at Armidale);
- A small fraction of the sheep genome mapped. A current project is filling some of the gaps, but more importantly, providing links between the sheep and human genome maps so that we can gain as much as possible from the human genome project (humans and sheep share 98% of their DNA);
- Some background research on the likely location of genes of interest to woolgrowers (including black wool, fleecweight, fibre diameter);
- Some advances in producing transgenic sheep, although at this stage, none of the lambs have survived.

The industry has some very big issues to tackle with regard to developments in molecular genetics over the next few years, and probably the biggest is the ownership of the technology. Multinational companies such as Monsanto are investing heavily in the rights to exploit patents on genes, and charging hefty royalties for their use. Should we, collectively as an industry, invest heavily in gene research and protect the outcomes with patents? Do we have the financial muscle to fully exploit gene technologies without private interests tying up intellectual property? And how would any collectively owned technology – such as a population of elite transgenic sires – be distributed through the national gene pool?

Reproductive technologies

Artificial breeding technologies have helped some livestock industries to increase their genetic progress by allowing the semen and ova of superior

animals to be more extensively used.

Artificial insemination is an increasing part of Merino breeding. The technique of JIVET (juvenile in-vitro embryo transfer) is now available to sheep breeders, albeit at a high price. JIVET involves the harvesting of eggs from very young ewe lambs, artificially fertilising them with semen, then transplanting the embryos into surrogate mature ewes. This approach shortens the generation interval dramatically – like upgrading to a new model car every few months, rather than waiting a couple of years.

The South Australian Research and Development Institute has also recently announced the birth of Matilda, Australia's first cloned sheep. Matilda represents a major breakthrough. Cloning – producing an exact genetic replica of an organism – enables elite individuals to effectively be 'photocopied'. The cloning technique is a long way from being perfected, and it probably won't ever be a standard part of management for commercial woolgrowing flocks. However, its cost is likely to be justified in the industry's elite breeding flocks in coming years.

Biologicals

The technology to manipulate biological functions has advanced significantly in recent years and has overlaps with developments in genomics, particularly functional genomics, where the mode of action of a gene is elucidated.

There is potential for vaccine solutions to some of the wool industry's larger parasite problems. There have been significant advances toward blowfly and worm vaccines, although neither is likely to be available for some years. Developing vaccines for complex organisms such as flies and worms is cutting-edge and difficult research, but researchers are motivated by the success of the cattle tick vaccine developed by CSIRO a decade ago. The Woolmark/CSIRO technology 'Bioclip' is another example of a biological technology. Bioclip uses epidermal growth factor, a naturally occurring protein involved in the regulation of wool growth. The gene that codes for EGF was cloned from sheep and inserted into bacteria, vats of which are used to manufacture large quantities of the

protein for commercial use. This is a typical process for the production of biological compounds.

Another example is the lice detection test being developed by Woolmark, CSIRO and NSW Agriculture. The test will be a dipstick that detects the presence of louse antigens (proteins) in the grease from shearing combs and cutters.

As we gain a greater understanding of how the sheep works, we will increasingly learn how to manipulate its biological levers, rather than relying on our usual arsenal of physical and chemical weapons to grow and harvest wool.

Information technology

The explosion in information technology is clear to see in society. Obtaining and using reliable objective information is becoming the key to successful business in the modern world, and the wool industry will be no exception.

Woolmark and CSIRO recently launched Fleecescan, an on-farm version of the Laserscan technology for measurement of fibre diameter and yield. Woolgrowers now have the capacity to measure the fleeces of individual sheep as they are shorn. The data can be used to make decisions on classing the clip, on selecting sheep for the flock and for breeding purposes, and on marketing and price risk management.

Increasingly, these data will form the basis of a 'precision woolgrowing' where the outputs feed back into the production system, aided by a growing range of powerful decision support software programs. These will help you set breeding objectives; to monitor genetic progress; to objectively class the clip; to make feed budgeting and fertiliser decisions; and to set target prices.

The electronic revolution is also changing the way we sell and market wool. Eclipse, e-wool, and WoolLink are already in place. These technologies allow for an increased flow of information up and down the pipeline when coupled with individual sheep and bale identification (the latter being made possible by the Intrawool project).

Technologies in use, 2020

So what new technologies will the woolgrowing

enterprise of 2020 be using? Listed below is a mixture of technologies, many of which are already available (AA), but which don't yet enjoy extensive uptake. Others are nearly available for commercial use (NA), and some are further over the horizon (OTH). I have written this from the perspective of a producer in 2020. (It is worth noting that woolgrowers have funded or are funding R&D in all of the technologies below, through Woolmark, except those marked with an asterisk.)

- *Sheep breeding and reproduction*
 - DNA pedigreeing test (AA), in which the ear of each lamb is pricked and a drop of blood collected on a small square of paper and sent to a lab. This is carried out at marking as part of the routine for all flocks. Pedigree information helps to speed up genetic progress.
 - DNA tests for genetic traits (OTH), especially those encoded by a small number of genes such as black wool, carried out at the same time as the pedigreeing. The results are used in selection decisions.
 - Decision support software for setting breeding objectives, generating selection indexes, identifying optimum mating strategies, and measuring genetic progress (AA). This software links to the latest web-based information on the relative genetic merit of the industry's best seedstock, which resides in a single industry database. It contains estimated breeding values for a range of wool, meat and disease attributes, enabling sheep producers to tailor their breeding program to their identified market (OTH).
 - Routine use of artificial insemination (AA) even by commercial woolgrowers, with seedstock producers making regular use of JIVET (AA) and even cloning* (OTH).
 - Transgenic sheep from a number of studs (OTH).

- *Sheep health*
 - An in-shed lice detection 'dipstick' test (NA), used at crutching to determine whether to treat for lice at shearing. The combination of the test and appropriate use of effective chemicals has dramatically reduced the incidence of lice in flocks, and

certain groups of neighbours have worked together to eradicate lice on a regional basis.

- Decision support software for lice in long wool (NA). The software connects via the web to the latest market information. It help a grower who finds lice in long wool to decide whether to treat (depending on penalties for residues and the cost of chemical), shear early (depending on discounts for prem wool), or leave the sheep until shearing (depending on the population dynamics of the lice).
- A method for reducing breech strike that replaces the Mules operation (OTH).
- A blowfly vaccine (OTH), given annually to sheep at risk from flystrike (mainly weaners). The vaccine does not provide 100% protection but in conjunction with a breeding program and flytraps, it eliminates the need for jetting in most flocks.
- A reliable, cheap test for the presence of Johne's disease in the flock (NA). Only a few producers use the test in 2020 – most people have decided just to live with the disease.
- A worm vaccine (OTH), which, like the fly vaccine, is not 100% effective but is used in combination with breeding worm-resistant sheep (AA), worm-eating fungi delivered to sheep in capsules* (NA), and strategic use of drenches (AA) to give effective worm control. The old ML drenches (ivermectin etc) are still used, but are only about 20% effective; the alternative is a relatively new compound recently adapted from cattle* (OTH).

- *Wool harvesting and measurement*

- Real time, in-line measurement of fibre diameter of individual fleeces during shearing using Fleecescan or OFDA 2000* (AA). The data generated is used for breeding decisions (see above) and also for objective wool classing, using decision support software (AA). The data is linked to individual sheep through electronic eartags (AA).
- A hand-held device for taking these measurements with the fleece still on the sheep (OTH).

- In-shed sampling (AA) for selling purposes, which may or may not be required depending on how the technologies for on-farm testing (Laserscan and OFDA) have evolved. (Will they, for example, be able to measure yield, staple length and strength, residue levels, and other specifications? The issue with any of these technologies will be providing an adequate *and certified* description of the clip.)
- Biological wool harvesting (Bioclip) (AA), which has overcome its original teething problems associated with the jackets.
- Chain shearing* (AA), carried out by teams of contractors, and using much improved handpieces (OTH).

- *Pastures*

- Decision support software (AA) – developed from the FarmWise suite of programs developed by CSIRO – for optimising stocking rates, determining fertiliser requirements, feed budgeting, and planning drought management. The software pulls in and interprets satellite images of the farm* (NA), soil test results from the lab* (NA), and latest grain and fertiliser prices* (NA). The output from the program is downloadable to the computer in the tractor, enabling precise spreading of super and seed, as well as supplementary feed when required. It is also used to predict clip specifications and therefore assists in forward selling decisions.
- A hand-held device exploiting near-infrared technology (NIR) that allows rapid and reliable assessment of pasture quality and quantity as it stands in the paddock (OTH). The data generated provides another input into the decision support software for feed base management.
- A wide range of pasture species available to suit different environments (AA). Many species carry transgenes (NA) coding for various attributes, such as redlegged earthmite resistance, drought tolerance, and enhanced uptake of phosphate from the soil.

- *Farm management*

- Decision support software for setting target prices for the clip (AA). The software links

via the web to the latest market information (AA) and price risk management products* (AA). Controlling price risk and physical selling of the clip are two separate aspects of management.

- Decision support software for linking spinner requirements back to greasy clip preparation (NA).

Where to from here?

Before we get too excited about the future, it is worth remembering that the woolgrowing farm of 1980 didn't look much different to the way it looks today, and that we still have a long way to go in adopting all of the technologies that are already available. Many of these technologies will remain relevant even in the brave new world of genomics. Quantitative genetics, for example, will continue to form the basis for profitable breeding in the industry for many years, even after the sheep genome has been mapped and we know where all the genetic levers reside.

Similarly, the basic principles of profitable woolgrowing as they apply today do not rely on high technology and will continue to drive profit. They are:

1. Turn sunlight and water into as much pasture as possible, using fertiliser and the right pasture species;
2. Turn pasture into as much high quality wool as possible, by matching the livestock to the feed base (time of lambing, stocking rate) and using superior genetics;
3. Make the best use of other resources in the system, especially labour and machinery; and
4. Manage risk, especially wool price risk.

The recipe is simple and it focuses on *minimising cost of production* and *maximising price*. Technology will help the industry to drive both of these in the right direction. Printed with permission of Andrew Grace

Congratulations to the following members

Herbert and Gwen Higgins of Nowendoc on the birth of their grand-daughter Caroline Louise Higgins

The Tully's of Tarrangower for their win in the New England Wool Ultimate Clip competition. Don and Fay and children Glenn and Angie will be tossing up to see which two go on the trip to Italy!!

Did you know there is a Wool display at Homebush? The Woolmark Woolshed is inside the Olympic site and it's going to show everyone who goes to the Sydney Games that Australian Merino Wool is an innovative, high performance fibre. Outside the futuristic Woolshed there's platforms for shearing and display pens for rams, ewes

and lambs. Inside, visitors will see why wool is a high performance fibre, they'll see the people who grow it and they'll see the latest wool innovations in sportswear, fashion and interior textiles. All the Australian Olympic Uniforms for the Sydney Games will be on display.

The Cicerone Project Inc.

invites you to take part in a

MERINO WETHER TRIAL

to be held on the

Cicerone Farm, Big Ridge

A progressive wether trial with new annual intakes

Intake to be middle October

Number of wethers per team: 12

Disease: Wethers to be from flocks with MN1 status
(MN2 when area becomes 'protected')

Before delivery must be inspected for footrot by RLPB

*If you regularly foot bathe sheep we ask that **you do not** enter a team*

*Wethers **must not** be cryptorchids or treated with any hormones*

Age: approx 12 months **Shearing:** Sept/Oct

Trial shearings: 2,3,4,5years **Disposal Age:** off shears at 5

Aim: To initiate and compare current bloodlines of fine and superfine merinos within the New England Region which is an important seedstock and breeding area. There is no information on New England flocks in the National Wether Trial comparisons because there is insufficient data at present.

**Participants will become honorary members of
The Cicerone Project for the first year of entry of each new team**

Details of the trial can be obtained from either
Kim Barnett (Cicerone Board member) on 02 6777 2885
Bob Marchant (NSW Agriculture, Armidale) on 02 6776 5000

**Trial entry forms and guidelines can be obtained from
Caroline Gaden at 02 6778 3871**

Measure Compare Learn Adopt

The Cicerone Project Inc.

PO Box 1593, ARMIDALE NSW 2350

Phone 02 6778 3871 Fax 02 6778 3872

MERINO WETHER TRIAL APPLICATION

Name of owner (Please use capitals).....

Contact person if different from above

Flock nameBloodline of flock.....

Address

.....Postcode

Phone Fax email

Lambing period FromTo Date of last shearing

Are you a Commercial or Stud Ram breeder ... please tick Commercial Stud Ram

Are you entering a second team in the Selected Section ... please tick Yes No

I certify that:

- the sheep entered in each team consist of 12 wethers from a certified MN1 status flock for Ovine Johnes Disease. This requirement will become MN2 status when the area is designated a protected area. PHOTOCOPY OF CERTIFICATE MUST BE ENCLOSED
- the sheep will be examined to be footrot free by the RLPB immediately prior to shipping to the Cicerone Farm. We ask that if you regularly foot bath your sheep you do not enter the trial (footbathing masks the presence of footrot).
- the wethers are not treated with any hormone nor are they cryptorchids and I understand that any evidence of ram-like behaviour will result in the wether being removed from the trial.
- I will present **all** wethers of the drop for Random Draft by NSW Agriculture Sheep Adviser.
- I understand the wethers will be shorn together at the Cicerone Farm and proceeds from these hogget fleeces will be divided up between participants. The 12 wethers and all wool subsequently shorn from them will become the property of The Cicerone Project Inc. At the end of the trial sheep will NOT be returned to my property (because of disease considerations) but will be sold for slaughter and the proceeds will remain the property of The Cicerone Project Inc

I will deliver the sheep to the Cicerone Farm at Chiswick, New England Highway, on Monday 23rd October 2000.

Signature

..... Date

Philip Ruthven, Chairman of IBIS looks into a crystal ball for Australian business.

Times have changed and we are aggregating into bigger and bigger groups:- from tribes and clans into territories; from territories into state (the Agrarian Age); from states into nations (the Industrial Age); from nations to regions (the Infotronics Age); from regions into the world (the next age from the 1960s to the 2040s)

In this new age we are heading for

- home leasing
- dad and mum at work with 1-3 kids somewhere (thanks goodness for mobiles)
- out sourcing of household goods and chores
- sport all the time, (including TV) and new gambling options
- modern pubs, clubs, hotels, casinos
- the Internet
- frequent holidays, especially short breaks and especially overseas
- mobile phones

Over 40% of households have PCs. Over 20% of homes (1.5 million) are on the Internet and a higher population have access via their workplace or educational institution or Internet cafés. 45% of homes are expected to be on the Internet by June 2001 and 94% by June 2009. Our mobile phone uptake is one of the fastest in the world and mobile phone density is in the Top 3 in the world.

Generation Xers (those under 40) and Generation Yers (those under 20) are now nearly 60% of the population and are all Internet literate

Currently Internet and home delivery currently accounts for under 1% of all retail sales. This is expected to rise to 25% of all retail sales by 2035

In Australia there used to be just three generations alive at a time. Now we are divided into 6 groups:-

'Ancients'	born before 1925	5%
'Oldies'	born 1925 - 1942	13%
'Baby Boomers'	born 1943 - 1960	24%
Generation X	born 1961 - 1980	30%
Generation Y	born 1981 - 2000	28%
Generation Z	born 2001 - 2019	0%

What does this mean for our traditional market place? More internet retailing; loss of sales from retail to wholesale via outsourcing; leasing of durables like cars, PCs; more off shore purchases (3-4% of sales over the next few decades); more foreign visitors whose share of retail will rise; an increase from 22% to 50% of franchising by 2035. **In the new age a synthesis of small and big business will operate via franchising, networking and alliancing. (Remember what Lenard Poulter said at the AGM about branding and getting the public to develop a strong brand loyalty!)**

Information for this article was taken from the July 2000 edition of National Business Bulletin and printed with their permission

IF YOU THINK EDUCATION IS EXPENSIVE, TRY IGNORANCE

TAX INVOICE

The Cicerone Project Inc.

reminds you that

ANNUAL SUBSCRIPTIONS

are now due

IF YOU HAVE A RED SPOT ON THE ADDRESS LABEL THIS MEANS YOU!

One year membership is \$88 (includes \$8 GST)

Get inside information on our Footrot trial and boot development

**Learn more about the grazing management systems
on the Cicerone Farm**

Compare the South African Meat breeds

Watch the wether trial progress

Have your say in research.

Please join us!

Measure Compare Learn Adopt

Return to The Cicerone Project Inc., PO Box 1593, ARMIDALE 2350, receipts issued at AGM

✂.....

Yes I want to continue to support the work being done by **The Cicerone Project**

Enclosed is cheque to the value of \$..... as my subscription renewal

Name

Address

Postcode Phone Fax

email

**The Cicerone Project gratefully acknowledges the funding support
given to them by Wool Mark**

Newsletter Editor: Caroline Gaden, Executive Officer of The Cicerone Project Inc.
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The Cicerone Project Inc.

PO Box 1593, ARMIDALE 2350

RED SPOT?

YOU ARE UNFINANCIAL!!!