

David Lindsay

I am making this submission from the perspective of a former scientist in the sheep and wool industry, a wool producer and levy payer since 1990, the owner of a small superfine stud and member of the Wool and Livestock Councils of WAFarmers. I have watched the demise of research in the wool industry to the appallingly low level it is now in. As the primary manager of research in the industry, AWI must take responsibility for this and needs a complete overhaul and rethinking of its priorities.

I find it strange and disturbing that all of the 3-year statutory reviews since 2000 and even this special review commissioned by the Federal Government have focussed almost entirely on its governance and business activities and not on the quality or quantity of the research it is supposed to oversee and fund or the scientific likelihood that the research has the best chance of aiding the industry. One would have thought that an eminent researcher should have had been retained by the reviewing company on each occasion to scrutinise the way the organisation commissions research, the type of research it funds and the way it husbands the researchers to get the best outcomes for the woolgrowers that pay for it. Yet all reviews in the last 18 years have been done by business consulting firms with no demonstrable expertise in research, experimentation or the management of creativity.

For example, all 9 questions being asked in this review deal almost entirely with how they run the office and not how to encourage research that benefits woolgrowers. In this submission I wish to point out, with examples, AWI's poor handling of research, in particular, on-farm research and their incompetence in dealing with issues in the industry that research should be helping to resolve. I therefore don't wish to address all of the 9 questions, but my submission relates to aspects of questions 4,5,6 and 7 and I have put some illustrative material in appendices.

Does AWI do research?

It is important to remember that, despite spin in publicity that suggests the contrary, AWI does no research. It commissions others to do the research for it. So, to manage research successfully it has to have at least a reasonable rapport with the researchers and research institutions who do the work—and by and large, AWI doesn't. Its approach is largely and very openly confrontational. Research in an industry is most successful when those doing the research see themselves as being an integral part of that industry. Some R & D Corporations, in particular the Cotton RDC, actively promote interaction between the researchers and the industry. They see themselves as facilitators of research and make it possible for scientists to design their research in the best interests of the farmers they serve and to discuss both success and failure with them. Other Research Corporations—of which AWI is the most obvious example—actively discourage this interaction by interposing their staff at many levels and treating their scientists like technicians. Scientists treated like technicians respond in one of two ways; they go elsewhere where they feel better appreciated or they work as technicians and not as scientists. Hence the crisis in research personnel that challenges the wool industry. The consequences of this were clearly demonstrated when the Industry was confronted with a new problem requiring urgent research. AWI floundered in its research response to PETA's challenge to mulesing. Instead of being able to turn to a body of competent researchers that considered itself part of the wool industry in 2002, AWI arbitrarily made promises about a completion date in 2010 for research that it had not even commissioned and about which it had no scientific knowledge. It then put up large funds to attract researchers with ideas that might work. It talked up one solution after another, funded a wide variety of new players with no track record in

research who were not part of the conventional research network (like Departments, CSIRO and Universities) and changed its direction many times. This confusion is illustrated clearly in attachment 1 which shows verbatim extracts from the Chairman's or CEO's reports in successive annual reports from 2003 to 2017 specifically addressing this issue. In 2018, AWI still has no satisfactory solution and has spent tens of millions of growers' money through its inability to understand or manage research or researchers.

In reality, none of the research achievements to which AWI has laid claim in the last decade have been the result of initiatives of AWI. They have simply been projects which AWI has part funded giving them the right to advertise their involvement. Examples of this include the Lifetime Wool Project, Time-Right and, surprisingly given their recent back-flip, the use of modern genetics in sheep breeding.

Risk Management.

The latest annual report, like the last dozen before it, has a statement of risk management that includes market risk, credit risk and liquidity risk. As a research organisation it should have an explicit policy on research risk because real research is inherently a very risky enterprise. Research is about finding out things that were not known before the research was attempted. In other words, research programs have to be funded in the absence of a known outcome. In this environment, traditional business tools like cost-benefit analysis are totally meaningless and effective research orientated companies, which AWI is certainly not, weigh up a whole lot of other factors including the track record of the people doing the research, its newness, and the opinion of experts about its likely success before making decisions about funding. AWI makes no attempt to do this in any significant way and, worse still, does not have and rarely seeks the expertise to do so.

The real problem is the apparent definition of "research" by AWI and by those that so far have reviewed its objectives and performance. In effect, it is for them simply everything that is not "marketing". It includes extension programs, training programs, dog baiting programs, and farmers forums, or, in short, using or recycling already known information. All of these activities are bundled together under the misleading terms R&D or RD&E but collectively they are termed "research" and make the "research" part of the budget appear substantial. A prime example is the "Lifetime Ewe Project" which has been touted for the last decade as AWI's flagship project. In fact, research in the Lifetime Ewe Project began to be wound down under pressure from AWI in 2006 and the last research component was completed in 2010. Yet, it is still the first example of on-farm research in the 2016-17 Annual Report. But since 2010, the only activity under this item is a program of workshops explaining the excellent work that was done from the late 90s to 2006. So, where is the next information like that in Lifetime Ewe going to come from?

R,D and E need to be separated. The "R" is risky as explained above. The "D" carries far less risk because the outcome is known broadly but there may be possible surprises in the implementation. The "E" carries no risk at all. So, by spending most of its money on D&E and limiting its expenditure on "R", AWI is tacitly employing risk management in what arguably should be its most important function. But, by doing so it is abandoning any chance of transformational research changing the way the industry operates. Analysis of the portfolio of on-farm funding on pages 93 and 94 of the latest annual report shows that only about \$2M of it can be generously described as new research (or,"R") out of a total budget of nearly \$10M loosely described as on-farm research. This is out of the so-called "research and development" component of the total budget of around \$70M.

Two million spent on real research out of a kitty of \$70M by a Research and Development Corporation is outrageous. Is it any wonder that Australian woolgrowers have little hope of any major breakthroughs from which they might benefit, unless they come from elsewhere by chance?

Scientists and people active in research see research quite differently and confine their definition of research to the development and testing of ideas and concepts that have never been developed or tested before. They see the difference between extension, with the goal of encouraging poorer wool producers to be as good as better wool producers, and research with the goal of providing good wool producers with the tools and concepts to be even better than they are now. They say that without continually injecting new thinking into the way wool is produced, the industry can only stagnate and become increasingly uncompetitive. Paradoxically in a competitive world, the industry needs to be “innovative” just to survive. The research that has a chance of making a real boost to any industry is not research that is a rehash of known information. It is research that finds breakthroughs that develop new knowledge often from way outside the industry, even from the basic sciences, to come up with entirely new methods of doing things. That won't be done by hired, part-time technicians and scientists but by bright scientists who are dedicated to and part of the industry. These people are likely to have connections with scientific disciplines outside those conventionally associated with the wool industry that are making advances which could be potentially useful to the industry. Attachment 2 is a summary of the principles under which scientists and producers can interact successfully to make research effective. Researchers are also a valuable knowledgeable human resource that can and should serve the industry more widely. For example, in the case of drought or other natural disasters like plagues of locusts, or where commodity prices swing widely and unpredictably the inevitable adjustments that must be made quickly and effectively are often better made with the help of technical wisdom and assistance. But, systematically, whether by intent or accident AWI has ensured that there are no such scientists left who feel that they are an integral part of the wool industry.

AWI's Philosophy on Research.

The real worry is that AWI doesn't care. Despite grandiose statements to the contrary in the Annual Report and elsewhere, many of its actions and announcements illustrate that they have little interest in research at all. Among many examples, the following stand out:

- Despite vigorous protests from the industry AWI interpolated into the 2012 wool poll a change in the ratio of funding of marketing to “research” from 50:50 to 60:40 where woolgrowers were supposed to be voting on the size of the levy. AWI then claimed that woolgrowers had therefore agreed to the 60:40 split.
- The Chairman has famously illustrated his own disinterest in research in many statements reported in the press. An extraordinary stance by the chairman of a R&D Corporation. Three examples:
 - “He personally would like AWI to spend 90% of the wool levy on marketing and 10% on research...” — and this, soon after the controversial and largely unpopular move from 50-50 to 60-40.
 - “Science couldn't teach Australian woolgrowers much new about breeding better merino sheep”

- “AWI board is scratching to find enough worthwhile on-farm research projects in which to invest levy dollars”.
- AWI withdrew from supporting or funding the Sheep CRC in 2012 and refused to be part of its bid for an extension in 2015 even though this potentially denied the wool industry of several million dollars of matching federal funding. This astonishing move was preceded by several years of public acrimony between the Chairman and the Director of the CRC.
- AWI ceased funding the most comprehensive and potentially ground-breaking program of research into sheep breeding, the *Information Nucleus flock*, supported jointly by MLA and AWI. This was in the face of widespread protest among which was a detailed article I wrote outlining 12 reasons why I thought this was a grave mistake. It was published in *The Weekly Times* in Victoria and *The Countryman* in Western Australia (attachment 3). There was no rebuttal from AWI to defend their action, but the withdrawal went ahead. Mr McCulloch is quoted in the *Countryman*, as saying that the project had “failed” because it lacked commercial application. *Post hoc*, AWI commissioned a consultant to justify the decision which he did with clearly flawed reasoning (see *Commercialisation* below). Meanwhile MLA continues to support the program strongly to this day making a very clear contrast between it and AWI.
- The independent review of AWI in 2012 recommended that “AWI should review the role and composition of the Science and Welfare Advisory Committee, with a specific view to either: discontinuing it; increasing the level of R&D expertise on the Committee through the appointment of external personnel; or replacing the Committee with a multi-disciplinary advisory group that is entirely separate from the Board.” The Science and Welfare Committee comprises five directors (i.e. all but two of the Board members) and makes recommendations to the Board on whether project proposals submitted by management should be funded or not. The review found it ludicrous that the Committee consisted only of members of the Board itself. They also noted that “**genuine expertise (in research) is arguably absent in all but one or two of the Committee members**” and it was an opportunity for the committee to widen its expertise, particularly in the area of genetic research. AWI publicly chose to ignore the recommendation on the grounds that they felt that “the skill sets on that particular committee are sound...” — which is rubbish and arrogant. AWI further claimed that “...the advice and the council they get from the advisory panels and committees is also adequate at the moment.” That is also rubbish because the Research and Welfare Committee rejected the advice of its own employees when it decided to axe support for a continuation of the *Information Nucleus Flock*. The 2012-15 statutory report noted that AWI did not act on the previous review’s recommendation but made no comment on their dismissive and arrogant reasoning.

Commercialisation

AWI explains its idea of commercialisation as follows:

“AWI's corporate philosophy on funding on farm research, development and extension, directs funding to areas where there is market failure and where there is the potential to commercialise the outcomes.”

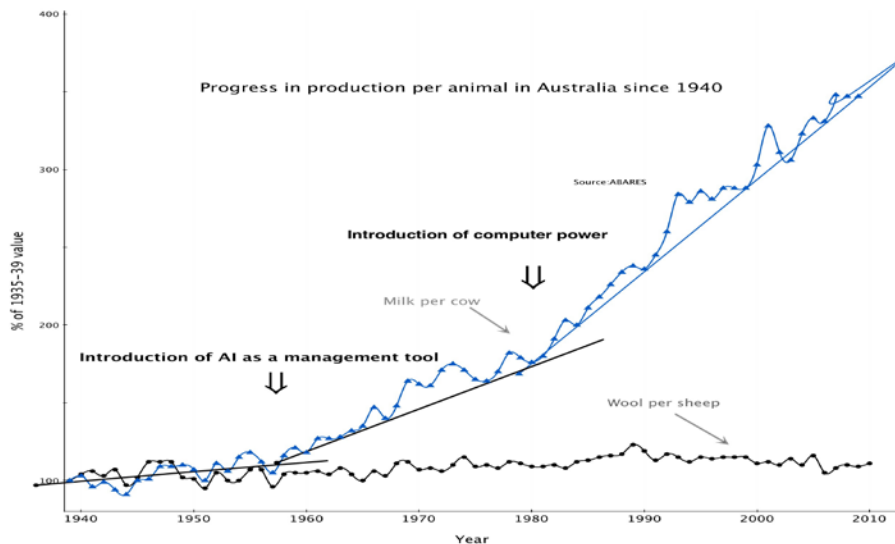
In broad terms growers pay 2% of their income to fund research that they anticipate will improve the economic viability of their industry in the long term. They expect that it will do this by enabling them to produce wool more cheaply or to sell it more competitively than at present. In other words, they are seeking benefits in the long term for the whole industry and not just for parts of it or for third parties. This is the commercialisation that they expect and where it should be measured.

When AWI commissioned a consultant to justify their decision to cease funding the *Information Nucleus flock*, the criterion used was whether stud breeders got more money for rams that were accompanied by modern genetic information, like breeding values, than for rams sold on centuries-old visual criteria. The consultant found that they didn't. So, continuing to improve and promote the use of modern genetics was deemed uncommercial. The consultant, who had no traceable history in genetics or research did not look at the prospective benefit that might accrue to commercial wool growers, in other words, about 99% of the industry. Therefore, successful commercialisation was defined as being when 1% of the industry made more money at the expense of the other 99% who would pay more for their rams after having paid in the first place for the research that underpinned the better animals. If genetic research can improve the efficiency of production of wool and continue to do so, then it, too, should not be impeded by micro-management considerations about who within the present structure might gain short term benefit, or worse, by having intermediate players hold up progress in the industry because they do not see adequate short-term benefits for themselves.

Examples of this unrealistic and damaging definition of commercialisation involving benefit to a third party from investment in research from woolgrower levies is not confined to genetics. It appears in decisions about possible new techniques for mulesing, shearing, pasture seed breeding and others.

Conflict of interest?

The fact that we do not have objective measurement of gain in stud flocks that don't use new genetic tools is hardly a reason for doubting the value of these tools. It is more due to the fact that we don't have any useable information on genetic gain for more than half the studs. However, we do provide an indirect measure of productivity in the wool industry as a whole here. Information from the annual reports of ABARES since 1940 that compares the productivity of wool producing sheep and milking cows is reproduced here and shows that sheep have improved 11% in the last 50 years while cows have improved over 350% in the same period. The evidence is clear that sheep under traditional breeding techniques for most of that time have made only miniscule gains and dairy cattle have made extraordinary improvement. It is unlikely that the gain is entirely due to superior genetics, but the magnitude is such that better genetics must have been a big component. ABARES does not publish comparable figures for other animal industries but comparable graphs for the pig and poultry industries would certainly be as spectacular as that for the dairy industry and the beef and sheep meat industries would also show substantial annual improvement.



It is pertinent that dairymen have all but abandoned the use of show ring and sale yard performance in favour of calculated breeding values resulting for sophisticated measurement and selection techniques. By contrast, the show ring and prices at auction remain the overriding influence within the wool industry—the last commercial animal industry to adhere to this tradition. How much money stud merino breeders spend on advertising is hard to calculate but it is certainly many times more than the \$2M that the whole industry spends on real (“R”) research. Clearly, there is little common ground, indeed strong divergence, between a significant and powerful proportion of the stud merino industry and researchers working to improve the rate of genetic gain. This being the case, as a former chairman of the NSW and Australian Stud Merino Breeders Association, the Chair of AWI could be seen to have an *a priori* conflict of interest. Rather than take pains to dispel this impression, he has made his stance obvious by his repeated statements about the limited value of science to breeders of merino sheep (see above) and his infamous one-way mirror spying on rival ram breeders. Worse though, AWI is spending levies from commercial woolgrowers to entrench his antediluvian values by:

- Supporting shows and judging competitions for young people
For example last year:
\$205K to Royal Agricultural Society and others on National Merino Challenge
\$201K to Stud Merino Breeders and others “Regional Engagement Activities”
- Producing a booklet in 2014-15 on how to judge sheep visually
Some absurd excerpts:
 - Thickness of the horn is an indication of bone and size
 - Ears should be thick and soft
 - Poll sheep don’t need horn trimming...
 - Front legs should be wide set to house a roomy chest.
 - The neck should extend from the withers. The neck folds should be balanced and free flowing.
 - The ribs should be well sprung, round (not slab sided) and deep
 - Softness and higher crimp frequency is associated with lower fibre diameter. Visually selecting for fibre diameter can be unreliable.
 - Visually selecting for staple strength can be unreliable.
 - There are varying views on what is most sought after as far as staple formation is concerned.

Is this worthy of a responsible R&D Corporation? AWI has discouraged hundreds of young, bright and dedicated scientists from working in the industry by failing to support them and mismanaging them. Yet the young people being supported here are being schooled in 19th century folklore, ostensibly to secure a sound future for the industry.

The Solution?

The largely negative issues that I have raised about AWI's management of research in this submission are the result of cumulative changes made over several decades by people who had little knowledge research. These issues are now so entrenched that it is hard to see them being redressed by marginal adjustments around the edges. For example, the 2012-15 review recommended that a policy of succession planning be implemented. This seems to be an invitation to consolidate a "steady-as-she-goes" policy. If encouraging good research is the objective, then this would be a disaster.

In 1982, the then Wool Board employed about 10 people to administer funds that were, in dollar terms, similar to those available today but, in real terms many times more. The latest annual report does not nominate the size of the staff to administer its portfolios, but extrapolating from earlier reports, it is probably between 150 and 200. In addition, it calls on an unspecified number of consultants to assist them. Administration probably takes up more of its funds than the research it administers, although to what extent depends on the method of accounting. Real research is the casualty. For example, CSIRO, once a mainstay of post farm-gate wool research, now has no research projects at all in wool. The world-renowned Division of Wool Technology in Geelong, which introduced many innovations in wool processing that kept the fibre competitive with rival fibres— to name a few, SIRO-set, SIRO-spun, SIRO-fast, SIRO-stretch, laser testing of fibre diameter and many of the blending technologies— no longer exists. There is still the Sheep Cooperative Research Centre (CRC), centred at the University of New England, where meat is the main focus rather than wool since AWI has refused to have anything to do with them. The CRC is due to close next year.

We have the anomalous situation in which two research corporations, MLA and AWI, are ostensibly responsible for research on the one animal —the sheep. Over the last decade, MLA has had a much better track record in research than AWI and the obvious way of affecting a meaningful change is to amalgamate the two with terms of reference that would initiate the long path towards returning a significant research environment to the industry. This may involve shedding the arm of the present AWI and allowing it to operate on its own. But, while marketing and advertising competes with research for its funding from levies under the auspices of the present administration, research has no future.

**Verbatim extracts from reports by either the Chairman or CEO or both in Annual Reports
from 2003 -2017**

2002-3

A practical, cost-effective alternative to mulesing has been deemed feasible.

2003-4

The development of an AWI funded commercially viable alternative to mulesing is well underway and early results have been promising

2004-5

...AWI is doing everything it can to deliver mulesing alternatives as fast as possible

2005-6

In the coming year the enormous effort that has been put into the development of alternatives to mulesing will begin to pay off. At the time of writing the new breech clips and injectables have been evaluated on more than 4,000 sheep on 15 farms. Twenty six companies have expressed interest in commercialising these products.

2006-7

In the past year ...there was significant progress: A mulesing clip developed by AWI is being field tested, as is a new intradermal injection procedure going product development.

2007-8

...there has been good progress in three potential solutions that AEI is investigating. Firstly, early trial results show that that the clips are working towards producing an outcome similar to mulesing in other animal management areas. Secondly, it is pleasing to see early results indicating significant potential for breeding to reduce breech wrinkle, increase natural bare area and increase resistance to breech blowfly strike. ... And there has also been progress in developing the needleless intradermal injection.

2008-9

A Sheep Breeding Value for breech strike is one important step in the road to long term natural resistance. Trials of the intradermal treatment known as Skintraction™ have been encouraging and breech clips became commercially available by Leader Products in May.

2009-10

With clips launched into the marketplace, investment has continued into genetic research, breeding for flystrike resistance, the development of intradermal technology, as well as flystrike education and extension activities. ...the Skintraction™ alternative continues to show encouraging results ahead of APVMA approval.

2011-12

We have continued to fast-track our R&D program, including genetic research and breeding and intradermals to deliver welfare improved methods of flystrike prevention.

We will continue to support all woolgrowers in their choice of best practice animal health and hygiene in flystrike control

2012-13

...new flystrike trials using liquid nitrogen and laser technology are a significant development in this area.

2013-14 While breeding resistant sheep remains a key tool for producers, R&D continues into breech modification alternatives such SkinTraction® and liquid nitrogen.

2014-15 Not mentioned

2015-16 Not mentioned

2016-17 For 12 years now AWI has increased the investment in projects to identify a practical and effective alternative to mulesing. AWI is the only company globally doing any work in this important space and we remain committed completely.

Australian Wool Innovation Information Nucleus Flock (INF2)

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AWI's decision not to fund the Information Nucleus Flock (INF) is myopic in the extreme and in no way in the interests of the wool industry. Its reasoning is myopic in at least 12 ways.

1. The letter in the latest AWI newsletter to stakeholders to justify the decision not to fund the INF begins with "I write to you to confirm AWI is committed to meaningful and relevant genetic and genomic research." [There are two signatories, so it is hard to know who "I" is]. This is hot air. The rest of the letter suggests clearly that they are not committed and the now famous statement by the Chairman that "Science has little to contribute to the Merino sheep breeder", confirms this. A third of the projects listed as genetic and genomic research since 2001/2 have already been terminated by the present board (current annual contribution \$0) and the rest are being wound down.
2. The Board is choosing not to fund a project that is clearly long term and, in real terms, is only just underway. The reason given is that it hasn't "returned benefits". It is hard to think of any research project in this, or any, industry that has returned benefits at such an embryonic stage. Improvement in genetics does not provide massive, one-off increases but steady and permanent increases year by year. **Merinoselect** claims that this increase for the wool industry could be as high as 5% per year if it were taken up fully. As it is not being taken up fully at present it will be some years before its benefits will be obvious for all to see globally. How could anyone who understands the nature of genetic research condemn the project at this stage because its lack benefits?
3. AWI presents arguments that are based on the assumption that breeding in the wool industry is only done by members of Merino Stud Breeders associations so only these associations need approve of the work being done. In fact an increasing number of ram breeders are not members of Stud Breeding Associations. The letter signed by the Chairman and the CEO states "The major beneficiaries of AWI funding via INF2 must be the entire industry." The Merino Stud Breeders Association is far from being the whole industry.
4. The claim is made that the proponents of the INF have not consulted fully with the Merino Stud Breeders which is untrue because **some** stud breeders use, rely heavily on, and are enthusiastic about the information that the ASVB and genomics programs are already delivering. What is true is that **some other** stud breeders feel threatened by the challenge that these new technologies pose to their traditional breeding methods and are radically opposed to it. Currently, there are 160 studs using **Merinoselect** and this has been calculated to account for about 35% of Merino rams sold annually.

Australian Wool Innovation Information Nucleus Flock (INF2)

5. AWI have addressed their objections only to the contribution of the INF to **genetic** and **genomic** research. The INF with its large inventory of fully pedigreed animals each with a huge number of measurements is a unique resource that is being used for a wide range of research projects including studies into flystrike, staple strength, reproductive performance resistance to disease and growth. Analysis of DNA will eventually replace present methods of determining pedigrees which, in itself, will be a huge saving in costs and labour for the serious stud breeder. Research into all of these aspects is also under threat except where MLA gives its continuing support but, of course, with a meat, rather than a wool focus.
6. The limited explanation about the decision to withdraw funds from the INF for alleged commercial reasons also fails to address other consequences of that action which include:
 - The certain fact that \$4.8M already spent will have been totally wasted.
 - The handful of bright, specialist geneticists and scientists displaced by the action will be lost permanently from the industry. They are unlikely to return to the industry later, given their treatment this time.
 - The of Wool growing will be consolidated as a sunset industry, buried in 19th century tradition and unable to compete with competing fibre industries with 21st century technologies.
7. There is a constant implication that the technologies associated with ASBVs and genomics still have to be proven. This is nonsense. It is true that they still have to be adapted to be relevant to the wool industry and that is the focus of the research in progress and that which is planned. But the concepts and the overall power of these concepts have been fully proven and are now a major element in other animal industries like pigs, dairy and poultry and are playing an increasing role in the beef and lamb industries. We see almost every day in the press, examples of how an increased understanding of the **human** genome is helping our understanding of a wide range of major diseases and syndromes and leading to cures and treatment. The wool industry is already 10-20 years behind.
8. If we examine the animal industries that have fully embraced and are continuing with the techniques being discussed here and are making unprecedented genetic progress with them, we find that they no longer have a “stud” structure within their industry or what they have is irrelevant to their commercial genetic progress. ***Is this potential upheaval and challenge to a comfortable and profitable stud hierarchy in the wool industry the reason behind this decision to strangle at birth the research that aims to adapt modern genetics for the production of wool?***

Australian Wool Innovation Information Nucleus Flock (INF2)

9. AWI could only make its case if it could prove that the sheep's genes work differently to those in all other animals studied and, even if they think it, they certainly haven't made that case. Interestingly, the French sheep milk breed, the Lacaune, has some 6 million sheep that have improved their production of milk per ewe by more than 2.5% every year over the last 60 years using advanced genetics including, as they have become available, EBVs and genomics. So those sheep certainly have genes that act like those of other species.
10. The statement that "there is limited ...evidence that breeders using the additional information from ASBVs have more profitable sheep than those who do not", is highly questionable. This is supposed to be based on the evidence from the *Merino Bloodline Performance* results [this is an analysis from all of the wether trials across Australia that links and compares the bloodlines used in these trials. It does not include information on females and is therefore not a fully accurate measure of progress but it is near enough to be relevant). The most striking result of a close examination of *Merino Bloodline Performance* is that many high profile, traditional studs that do not use ASBVs but which advertise heavily and sell their rams at high cost have performed abysmally in wether trials compared with relatively unknown studs, many of whom use **Merinoselect**.
11. Large sums of money are quoted in the case made by AWI. They are mainly aggregates over many years and, although it is not explicitly stated, they are presumably to show that they have spent too much in the field of genetics. If it is 15% of the total on-farm budget spent on a very wide interpretation of what are genetic projects, then this is far from excessive and not a case at all.
12. One of the points of contention about the genomics component is the present cost of \$130 per sample for DNA analysis. It is claimed that this will not fall as demand grows. This pessimistic view is not supported by evidence from other emerging technologies. For example, twenty years ago, computers cost around \$3,000 a megabyte, they now cost around \$6 and falling.

The INF and the research behind it are one of the last, in-depth scientific projects that AWI supports and its imminent demise as a generator of new genetic information to the wool industry is a step that all serious wool growers must oppose strongly. Its demise would reduce the industry to a position where, at best, it will dabble in superficial short term projects and recirculate old information but have no capacity to respond to the increasing challenges to be commercially relevant in the face of technological improvements by its competitors.