Council of Veterinary Deans
of Australia and New Zealand

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Submission to Inquiry into Agricultural Innovation

Introduction

The Council of Veterinary Deans of Australia and New Zealand (CVDANZ) welcomes the opportunity to contribute to this inquiry.

CVDANZ comprises the eight veterinary schools operated by James Cook, Queensland, Sydney, Charles Sturt, Massey, Melbourne, Adelaide and Murdoch Universities. As a collective, we seek to advance excellence in veterinary education and research, through collaboration and evidence-based influence.

The veterinary schools of Australia and New Zealand have a long and proud history of contributing to the prosperity of the livestock industries. To cite one simple but powerful example, the eradication of brucellosis and tuberculosis from the Australian cattle herd was a veterinary-driven initiative that has delivered huge benefits to the cattle industry in improved productivity, market access and human health. Veterinary schools will continue to play a vital role in the livestock industries of Australia and New Zealand in fields including disease management, biosecurity and food safety.

Responses to the terms of reference

We make the following comments in relation to terms of reference (1) and (3) of the inquiry.

1. *Improvements in the efficiency of agricultural practices due to new technology, and the scope for further improvements*

The positive and critical impact of new technology on the efficiency of agricultural practices, and the competitiveness of Australian agriculture generally, is well established. We will not specifically comment on this as we would expect that groups such as the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) and the Australian Farm Institute will provide evidence of the relationship between innovation and productivity growth in the farm sector.

We will make the point, because we are well placed to do so, that there is massive scope for further improvements in agricultural practices due to research being conducted by Australian veterinary and agricultural research institutes. Some examples of the expected outcomes of research currently being undertaken by veterinary schools are:

- Greater availability of analgesic (pain-relieving) drugs for use in livestock, increasing animal productivity and enhancing Australia's reputation for ethical livestock production

- More rapid and accurate identification of cattle affected by bovine respiratory disease and other common feedlot diseases, leading to more rapid and effective treatment
- Electronic capture and analysis of reproductive performance data from extensively managed beef cattle, enabling decisions to be made on the management of these cattle at the time they are mustered for pregnancy diagnosis
- Detection and identification of calving cows and whether the calf is sucking normally, allowing assistance to the dam or calf to be rendered as required
- Capture on low-cost, sugar-impregnated strips, of insect salivary DNA which can be probed for the presence of specific pathogens, enabling diseases to be monitored and actions taken to protect livestock (and humans)

Maintaining an effective biosecurity system was recently acknowledged in the Government's Agricultural Competitiveness White Paper as critical to the protection of Australia's valuable export markets. The White Paper states that the Government's rural RD&E priorities will be updated to reflect a stronger focus on biosecurity.

Improving animal health and welfare more generally are also ongoing priorities for the livestock industries. We note, for example, that economic modelling undertaken by the Centre for International Economics for the recently-launched Meat Industry Strategic Plan (MISP) 2020 estimated that the area of greatest payoff for industry investment over the next five years was in the Priority 'Welfare of the animals within our care' – incorporating animal welfare, endemic disease and emergency disease – with an estimated benefit/cost ratio of approximately 16:1[1].

Veterinarians and veterinary research institutes will play an important role in delivering against these government and industry priorities.

3. *Barriers to the adoption of emerging technology*

Barriers to the adoption of new technologies take many forms and these depend to a significant degree on the specific technology under consideration. For example, genetic modification of organisms faces barriers at consumer, regulatory and farm levels. Some technologies, such as niche chemical treatments or diagnostic tests, may be victims of market failure because potential sales are too small to attract a commercial partner.

We do not propose to provide a complete exposition of the many technology adoption barriers here because others are better placed to do so. However, we do wish to highlight one specific barrier to adoption. Some 'technologies' – often practice changes, particularly those that require relatively complex shifts in farming systems – may simply be poorly adopted due to a low skill base, risk averseness, a traditional mindset or any of a number of other reasons relating to the potential adopter. This can occur despite evidence that adoption will increase profitability.

[1] Angus Hobson, CEO, Red Meat Advisory Council, pers comm

Veterinarians can assist farmers to adopt new technologies or practices in situations where integration into an existing system presents a challenge. Two examples are provided by the Mackinnon Project, a business unit of the University of Melbourne's Faculty of Veterinary and Agricultural Sciences, and the Fred Morley Centre, part of Charles Sturt University's School of Animal and Veterinary Sciences.

'Mackinnon' was established in 1982, with funding support from the Scobie and Claire Mackinnon Trust, for the specific purpose of improving the productivity and profitability of Victorian sheep flocks and beef herds. Since its establishment, Mackinnon has become an internationally-respected farm consultancy service. It provides individualised whole-farm advice to 120 sheep and beef and cropping farms, running a total of about 1 million sheep and 30,000 breeding cows. Each year, about 250 farm visits and about 3,000 hours of consultancy are provided to the Australian farming community. Mackinnon has trained 35 postgraduate veterinarians in farm animal medicine and production. Importantly, too, it has played a key role in the development and adoption of a number of innovations in sheep and beef farms, such as 'smart grazing' for parasite control in sheep and spring calving in beef herds.

A peer-reviewed study, published in the Australian Veterinary Journal[2], described how the net farm income of a group of four Mackinnon clients had increased from 70% to 207% of that of a benchmark group of farms over a period of seven years. This improvement in performance was attributable to the adoption of proven research results, a process facilitated by the Mackinnon service.

The Fred Morley Centre is a more recent initiative, having opened in 2010. The Centre does not provide a direct consulting service, but rather focuses on undergraduate and postgraduate training for veterinarians and other agricultural professionals, the development of information packages to assist agricultural professionals, assessments of research findings for their on-farm application and the conduct of on-farm research.

Veterinarians are uniquely placed to assist livestock producers to adopt new and emerging technologies. They are trained to address specific issues of animal health, welfare and biosecurity that have large impacts on farm performance. They have the scientific skills to conduct research and to evaluate and advise on the outcomes of research generally. Furthermore, vets are 'system thinkers' who understand that most interventions have effects across a system and that these must be understood and accommodated if the intervention is to be successful.

[2] Lean GR, Vizard AL & Webb Ware JK 1997, 'Changes in productivity and profitability of wool-growing farms that follow recommendations from agricultural and veterinary studies', Australian Veterinary Journal, 75:10, pp. 726-731.

Concluding comments

Australia's competitive advantage as an agricultural producer lies increasingly in the quality of its product rather than its price. 'Quality' is defined broadly here to include attributes such as ethical production (animal and human welfare, environmental stewardship), food and product safety (to human health and importing country livestock populations) and provenance. Veterinarians and veterinary research institutes play a key role in underpinning this market proposition.

Maintaining high standards of animal health, welfare, biosecurity and food safety will only become more difficult over coming decades. Climate change, increasing trade flows, a growing human population, intensification of livestock production, pressures to reduce the cost of production and other factors all present serious challenges. To counter these requires a sustained innovation pipeline from fundamental research through to adoption.

This, in turn, requires a national capacity to train high-quality veterinarians and veterinary researchers. The Australian veterinary education system is among the best in the world. For example, a recent comparison of veterinary schools globally ranked the University of Sydney Veterinary School eleventh, with five of the eight Australasian schools listed in the top 50[3].

It also requires that research institutes including those associated with veterinary schools be well resourced. An important element of this resourcing in Australia is the agricultural levy system. The great strength of the levy system is that it ensures that both industries and the Commonwealth Government contribute to research with public and private benefits. Furthermore, the availability of matched industry money gives confidence to other investors – including state governments and universities – to also invest in areas of agricultural RD&E. There is leverage of money and effort and confidence that priority areas are being pursued.

In concluding, CVDANZ asks this inquiry to note that:

1. Australia's veterinary education system is critical to the future of the domestic livestock industries (and in fact provides major service export opportunities to the emerging economies of Asia and elsewhere). Public support for veterinary education should be a priority.

2. Likewise, agricultural and veterinary research should be supported to a level commensurate with its importance to agriculture and the Australian economy.

[3] QS World University Rankings by Subject 2015 – Veterinary Science, http://www.topuniversities.com/university-rankings/university-subject-rankings/2015/veterinary-science, accessed 18 September 2015