



THE UNIVERSITY OF
SYDNEY

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Chair,
Agricultural Competitiveness White Paper,
Department of Prime Minister and Cabinet
Canberra, ACT.

Dear Members,

I am an academic holding a position highly relevant to this submission. The views expressed are mine and do not necessarily reflect those of the Faculty and University of Sydney.

The Green paper should be enhanced in two areas in particular viz. that agriculture is rather far too narrowly defined and that future developments, even on-farm, must be addressed more explicitly.

Agriculture is simply more than activities on a piece of land called a farm to produce a commodity. Agriculture embraces production of commodities, stewardship of the land i.e. an environmental aspect, decision making in terms of expertise, resources, markets etc., logistics, processing of commodities through to consumer requirements including quality and food safety. Thus the white paper should consider the whole value chain to be nationally and internationally competitive.

Farming up to the farm gate is about to be transformed within a decade. The paper needs to consider disruptive technologies and how they will impact the farm. Four examples are: (i) the use of drones (ii) remote sensing (iii) controlled traffic remotely driven and workforce changes and (iv) robotics.

Drone technology, although in its infancy, is already saving valuable time and resources on a family farm in New Zealand (vide: <http://www.3news.co.nz/nznews/drone-helps-southland-farmers-check-on-stock-2013103117>). In the Australian context, fixed wing drones are likely to be more common than 'helicopter' drones due to their ability to

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stay in the air for longer periods of time that are required for large farms. However, that may change as battery technology is changing rapidly.

Remote sensing is becoming cheaper and higher resolution images are becoming available; the consequence is that high quality, cheap up-to-date images will become available for decision making. For example, livestock producers will be able to assess pasture production and quality, link them to climatic data and forecasts and thus make decisions about stocking rates. This can be a drought avoidance technique so that producers are not selling stock in poor condition into depressed markets; it also has the advantage of caring for the soils on farm, reducing soil erosion, maintaining pasture seed banks etc.

Although **controlled traffic** is becoming more widely adopted on farms, the next step will be totally autonomous tractors and other vehicles. Thus monitoring and control of activities can be achieved remotely. A consequence is that on-farm labour requirements will change and that higher levels of education will be required for the remaining workforce.

Robotics are already being adopted on progressive dairy farms, so much so that some farms can now be operated without human intervention unless a malfunction occurs. This has released labour and also the farm manager is able to have a different lifestyle. In the next few years, new robots and new sensors will transform the on-farm agricultural workforce.

Future farmers will have to become more agronomically attuned to their farm and become better educated. In the past couple of decades, there has been increasing emphasis that the farmer becomes the businessman. This has been at the expense of the farmer actually having a detailed knowledge of the soils, soil health, water availability, crop or pasture variety and its growth requirements, equipment servicing, livestock requirements etc. The future farmer will have to have this kind of knowledge and will hire in the business expertise. It will be the farmer's call how to use the business advice in the light of specific knowledge of soils, water, crops, pastures and livestock. In other words, this is the reverse of the last twenty or so years.

More than a decade ago, I published (in an international peer reviewed journal) data showing that the numbers of Australian and US farmers were in decline over the decades. This trend is continuing. Australian Bureau of Statistics data on agricultural commodities 2010-11 shows that 40% of farms were producing less than \$50,000 value whereas 15% of farms had over \$500,000 value of production. Likewise in the US, 75% of all farms had sales of less than \$50,000, producing only 3 percent of the total value of farm products sold while those with sales of more than \$1 million – 4 percent of all farms – produced 66 percent (USDA: Census 2012 published 2014). These statistics have implications for the farm workforce, amalgamation of farms and the definition of farms. In essence, many of the small farms are for lifestyle, near cities, tax minimization etc. Furthermore, they tend to represent the ageing farmer

and thus skew the age distribution of the farm workforce which can lead to non-optimal policy decisions about labour and infrastructure.

In addition, the ABS survey of income and housing (ABS data 2009-10) show that “only 5% of farming households are classified as having low economic resources, compared with 21% of other households”. “The bulk of farming households (71%) were in the top 20% of wealth distribution” of all households.

Other items to be raised in the context of the competitiveness paper are:

(i) Research, Development and Extension.

I am highly supportive of the Australian R&D system and in particular, the Research Development Corporations (RDC's). It is essential that their funding be continued and increased if Australia is to be internationally competitive. In giving this endorsement, some RDC's are excellent whereas some others, dominated by growers or small industries, require better management and particularly to focus on long term issues, not simply local or ephemeral issues.

I propose that government should examine and develop an RD&E system based on the Land Grant Model of the USA which has been so highly successful. My experience with this model has been very positive. Although it can not be totally replicated, the system should be incorporate these elements: universities, state agencies, federal agencies and other R,D&E providers should be co-located; the combined group should be managed as a single entity to avoid demarcations and duplication of administrative procedures. The advantage is that the research is captured and disseminated much more quickly; likewise information from adopters can be transmitted to researchers more quickly.

(ii) The employment opportunities for agriculture in the sense of the whole value are immense. It could also mean the resurgence of secondary industries relating to the processing, food safety and value adding of commodities. For both on-farm and off-farm, employees will have to become more highly educated. I am sure that others will address this issue.

(iii) Tax.

I am highly supportive of **income averaging only for on-farm income**. In fact, due to climatic variability, income averaging of on-farm income could range from seven to ten years. On no account, should income averaging be applied to off-farm income. Off farm income should be treated in the same way as income from people in towns and cities.

(iv) Return on Investment and Land prices.

The Australian Farm Institute has data showing that return on investment is high (often greater than 15%). Land prices should reflect

ROI's not on unrealistic valuations which can lead to excessive debt especially when adverse seasons occur. The paper should address what are realistic percentages of debt that can be carried in the context of climatic variability and realistic equity with respect to land values. Too often, this is distorting the narrow sense agricultural economy.

I am willing to discuss these or other issues relating to agricultural competitiveness with you or other members of government.

Yours sincerely,

A handwritten signature in cursive script, appearing to read "Lindsay Campbell". The signature is fluid and somewhat stylized, with a long horizontal stroke at the end.

Dr Lindsay C. Campbell