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Review

Recommendations arising from an analysis of changes to the Australian agricultural research, development and extension system

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ABSTRACT

The business of agricultural research, development and extension (RD&E) has undergone considerable change in Australia since the late 1980s, moving from a domain largely dominated by government departments to a situation of multiple actors, and where rural industries now directly contribute funds towards RD&E efforts. However, the transition has not been without impacts on the overall agricultural RD&E agri-food capacity of the nation, and there are now indications of reduced capacity and slowing productivity gains in certain sectors. If not addressed, there is the risk that the future resilience of industries could be threatened, affecting parts of the Australian economy and compromising Australian contributions to global food supply on export markets and a slowing of agricultural innovation. There are also comparable divestment trends and the loss of capacity and risks to future resilience of agricultural systems in other developed nations. Importantly, research and extension are discussed as interdependent partner disciplines, and that the separation of the two has deleterious effects on capacity and resilience building. The authors investigate, through six case study institutions, organisational innovations that may provide direction towards the future restructuring of agricultural RD&E effort in Australia. These insights have application to both the Australian and the international reader, warning about the consequences of reduced investment in agricultural RD&E, and learning about how research and extension can transition from traditional public sector models to systems that have greater flexibility and, importantly, ownership by the industries themselves.

Introduction

This paper reflects on the journey of the research, development and extension (RD&E) sector in Australian agriculture since the late 1980s. It provides an insight into the transition from a system dominated by public sector agencies to a position where rural industries partner with government via legislative arrangements and through which they then manage investments around RD&E effort. It analyses those changes and reflects on their impact on the capacity and resilience of Australian agriculture, and then discusses the current and future repositioning of RD&E. The authors approach agricultural research and extension as interdependent partner disciplines. In Australia, government policies have resulted in continuous and cumulative reduction in the role of public sector RD&E since the late 1980s. RD&E has also become the domain of a variety of actors from the private sector and non-government institutions, e.g. universities and farmer agencies.

The Australian agricultural sector is a key employer and export earner for the Australian economy. In 2009–10, the gross value of agriculture, forestry and fisheries was $43.6 billion, or 3.0% of Gross Domestic Product (GDP) (Australian Senate, 2012). Approximately 327,000 people or 3.0% of the workforce are directly involved in the agriculture, forestry and fishing industries. Another one-in-six Australian jobs (around 1.6 million) are involved in ancillary occupations arising from agribusiness e.g. food processing and manufacturing (Australian Senate, 2012). Australian agriculture, forestry and fishing industries contribute substantially to the economies of rural communities and to environmental stewardship of regional Australia (Australian Government, 2013). It is now also being appreciated in Australia that agricultural RD&E investments are critical drivers for achieving productivity gains essential for agricultural industry viability and the ongoing production of safe and affordable food both domestically and internationally (Australian Government, 2013).

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International drivers

RD&E in Australian agriculture cannot be discussed in isolation from what has happened in agriculture globally. Australian agriculture has become increasingly internationalised since the 1980s and has become inextricably linked to the influences of globalisation, international trade agreements, and international politics (Josling, 1998; Skogstad, 2008; Vanclay, 2003; Vanclay and Lawrence, 1995). Consistent with these trends, agricultural policy in Australia has undergone a paradigm shift, changing from a situation that involved a high level of government intervention and support, to a more competitive market-based model (Botterill, 2003; Vanclay and Lawrence, 1994). Australian agriculture in the 21st century operates in the sphere of what can be described as both competitive and globalised market paradigms, i.e. where governments restrict their roles to assisting farm businesses that are competitive in the market place; and where agriculture must function in an internationally politicised environment, on a global playing field amidst agreed rules and regulations around food quality, safety standards, intellectual property rights and negotiated access arrangements (Josling, 1998).

Since the 1980s, Australian agriculture has transformed from a principally dependent model characterised by single-desk marketing arrangements, set prices for commodities, tariffs, production quotas, and restrictions on entry; to a relatively deregulated environment with limited government support and intervention (Balderstone et al., 1982; Botterill, 2003; Vanclay, 2003; Vanclay and Lawrence, 1995). This paper will argue that even though the reforms of the 1980s and 90s were defensible, and have delivered to Australia a more competitive agricultural sector internationally with lower burdens to taxpayers (Australian Government, 2013; Botterill, 2003); there has been a detrimental impact on agricultural RD&E, and this issue requires review and reform.

Past reforms to the RD&E system in Australia

Australia is a federation of States and Territories and the governments in these various jurisdictions have traditionally shared the investment burden in agricultural RD&E with the Australian Federal (Commonwealth) Government (Core, 2009). In the decades after World War 2 up until the early 1990s, agricultural development was a public policy priority in Australia, and agricultural institutions and RD&E effort grew, both in terms of scale and professional expertise (Cary, 1998; Williams, 1968). In addition to research, the period from the late 1960s through to the late 1980s also saw significant expansion in State and Territory Governments providing agricultural extension services. Over these two decades innovations in extension practices emerged and looked beyond simply production attempting to resolve more complex natural resource and socio-economic issues within rural industries (Bawden, 1992; Ison et al., 1997; Packham et al., 1988; Packham, 2011; Pannell et al., 2006; Prager and Vanclay, 2010; Van Beek and Coutts, 1992; Vanclay, 2004; Vanclay and Lawrence, 1994, 1995).

The economic and structural reforms of the 1980s moved Australian agriculture from a complex array of government interventions (e.g. price support, subsidy and quota systems) to one of the least supported farming sectors in the world (Botterill, 2003). Australian Government policy persuaded rural industries to begin to invest in their own RD&E as opposed to relying solely on State Governments or the Commonwealth. In the early 1990s, the Australian Government instituted various agricultural "Research and Development Corporations" (RDCs) (Core, 2009). These agencies collect industry levies which are matched dollar-for-dollar with Commonwealth funds, up to a defined limit of 0.5% of gross value of industry production for agricultural RD&E. They were instituted to deliver tangible outcomes to industry and the nation, which was a shift from an outputs focus that was centred on scientists previously directing where research and development was undertaken. The new aim was to pass the priority setting and fund allocation to industries (Kerin and Cook, 1989; Wallis, pers. comm., 3 October 2012). In addition to the RDCs, industry centres of excellence in research – Cooperative Research Centres (CRCs) – were also created, and were aimed at bringing together the best in their fields from both the public and private sectors to work on priority scientific issues (Core, 2009).

As industries and the Commonwealth took a greater role in RD&E, the State Governments saw an opportunity to divest from these services and began to withdraw as traditional providers of production-orientated RD&E services to agriculture (Core, 2009; Hunt and Coutts, 2009; Marsh and Pannell, 2000; Mullen, 2010a; Mullen and Orr, 2007; Vanclay, 1994; Watson, 1996). Recent estimates indicate that public investment in agricultural RD&E in Australia has been static for around two decades, and declines in the rate of gain in agricultural productivity are beginning to be observed as a result (Australian Government, 2013; Mullen, 2010a; Hughes et al., 2011; Mullen, 2012; Sheng et al., 2011).

With State Government investments in continual decline, the rural sector has seen the appearance of multiple actors in the agricultural RD&E landscape. It has led to opportunities for private enterprise with some former state departmental officers establishing their own advisory services, especially in more densely populated farming regions (AHRSCAFF, 2006). Several farmer-based agencies (e.g., the Kondinin and Birchip groups) have also established themselves in providing agricultural RD&E services in different regions of the country (Hunt et al., 2012a). However, an assumption held by policy makers that the private sector would sufficiently fill the gap left by the public sector exit across Australia's farming regions has proven to be over-optimistic, with evidence of failures in service provision of RD&E services (Cary, 1998; Fulton et al., 2003; Hunt and Coutts, 2009; Hunt et al., 2011; Vanclay, 2003). Governments in some jurisdictions still provide production orientated expertise in RD&E, but these are largely diminished in terms of capacity across almost all industries compared to previous decades (Hunt et al., 2012a).

It must be remembered that agricultural industries are dynamic entities, they ebb and flow with changes in prosperity, sometimes expanding, and other times contracting. The conversion from a dependent to a market-orientated paradigm facilitated major changes in the fabric and disposition of farming enterprises in Australia. Prime examples of this are the contractions observed in the wool and dairy industries since the 1990s. The wool industry's price stabilisation scheme failed, and the dairy industry was deregulated, providing exposure to genuine market forces for both of these sectors (Davidson, 2001; Vanclay, 2003). Consequently, these industries no longer exist in many regions where they previously dominated. Maintaining specialised RD&E services in regions that have transitioned into completely different agricultural industries, or where the former industries have regressed to isolated pockets, is not defensible.

In response to the rationalisation of RD&E resources nationally, interstate cooperative frameworks on agricultural RD&E are currently being developed for the different sectors of Australian agriculture (PIMC, 2010). Many jurisdictions are reducing their support for RD&E in industry areas where there is no corresponding co-investment. The exception to this is where there might be additional public benefit outcomes (Barlass, pers. comm., 5 September, 2012, National Horticulture Research Network meeting). This means that many small or developing rural industries may not have RD&E support from State or Territory governments as they are simply too limited in size to undertake co-investment. Declines in public sector investment in agricultural RD&E have also been