The Australia Institute

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Economics, agriculture and native vegetation in NSW

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TAI

Submission

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Introduction/summary

Native vegetation and regulations relating to its management have a minimal economic effect on agriculture in New South Wales (NSW). The state produces between $10 and $16 billion in agricultural output per year, dependent largely on rainfall and commodity prices. When rainfall is good and commodity prices are high, output is high. Less rainfall and lower commodity prices means agricultural production in the state is of far lower value.

A study by the Australian Bureau of Resource and Agricultural Economics (ABARE) found that vegetation density was the least important influence of all factors measured on farm productivity. Part of the reason for this is that native vegetation has both positive and negative economic impacts on farms. While vegetation can reduce production area and make use of machinery less efficient, it can also provide shade and shelter, reduce erosion and increase land values through amenity.

ABARE studies suggest that a strong majority of landholders support native vegetation management regulations. Such regulations are an issue for a small minority of landholders in particular parts of NSW. Based on ABARE surveys, less than 10 per cent of landholders in north western regions intend to clear native vegetation and are affected by regulations.

Conservation of native vegetation brings benefit to the community through improved biodiversity and environmental conservation. Existing regulations support these benefits and minimal cost to the vast majority of landholders. Where particular landholders are heavily affected and community gains from conservation on their land are large, existing regulations may not provide incentive for compensation and some policy change may be required. This is unlikely to be the case across most of NSW.

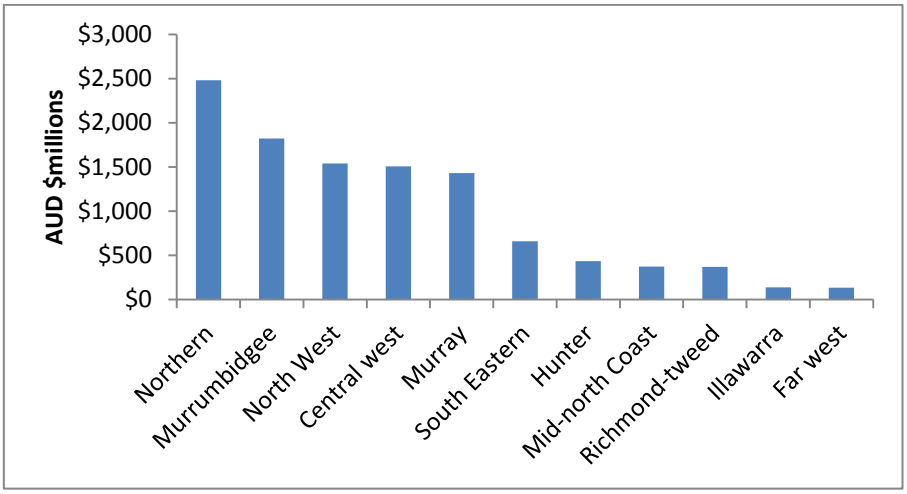
Economic contribution of agriculture in New South Wales

NSW produces agricultural goods worth between $10 and $16 billion per year. While agriculture accounts for only around two per cent of NSW total economic output, it is the most important industry for most rural regions of the state, particularly in inland areas.[1] The vast bulk of NSW agricultural production comes from five regions – Northern, Murrumbidgee, North West, Central West and Murray[2], as shown in Figure 1 below:

[1] ABS (2013) 5220.0 - Australian National Accounts: State Accounts, 2012-13

[2] These regions are the Australian Bureau of Statistics Statistical Regional Areas. A map of these areas can be found at http://www.abs.gov.au/AUSSTATS/abs@.nsf/2f762f95845417aeca25706c00834efa/463f50115b6dccfbca2571a9001e1f44/$FILE/NSW.pdf

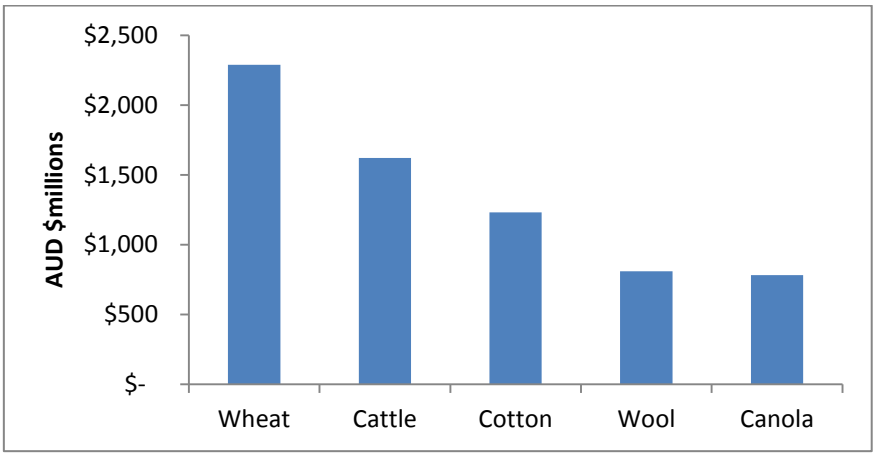
Figure 1: NSW gross value of agricultural production by region



Source: 2010-11 Agriculture Census, accessed through NSW Trade and Investment Value of Agricultural Production Data Interactive Spreadsheet

NSW agriculture is diverse – the ABS lists 73 different product categories. The largest of these by farmgate value are wheat, cattle, cotton, wool and canola, as shown in Figure 2 below:

Figure 2: NSW major agricultural outputs by gross value



Source: ABS (2014) Value of Agricultural Commodities Produced, Australia, 2012-13

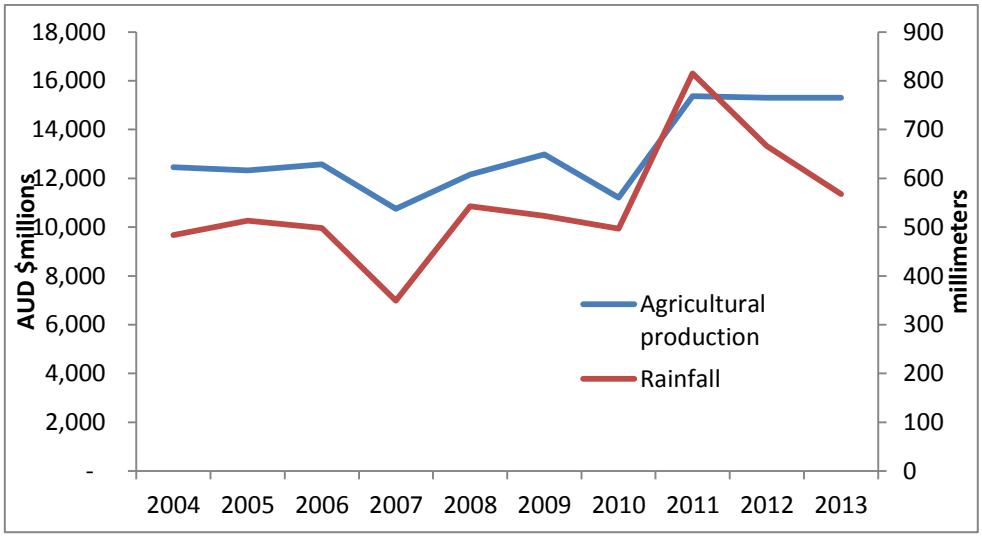
The value of agricultural production to the NSW economy varies from year to year. Indeed, it is one of the more volatile industries in terms of gross value of production. This variation is caused by a number of factors.

Factors affecting economic output of NSW agriculture

Weather

The most significant impact on the economic output of NSW agriculture is, perhaps not surprisingly, the weather. Figure 3 below shows that the gross value of NSW agricultural production is very closely correlated with the annual rainfall in the state:

Figure 3: NSW gross value of agricultural production and statewide average rainfall



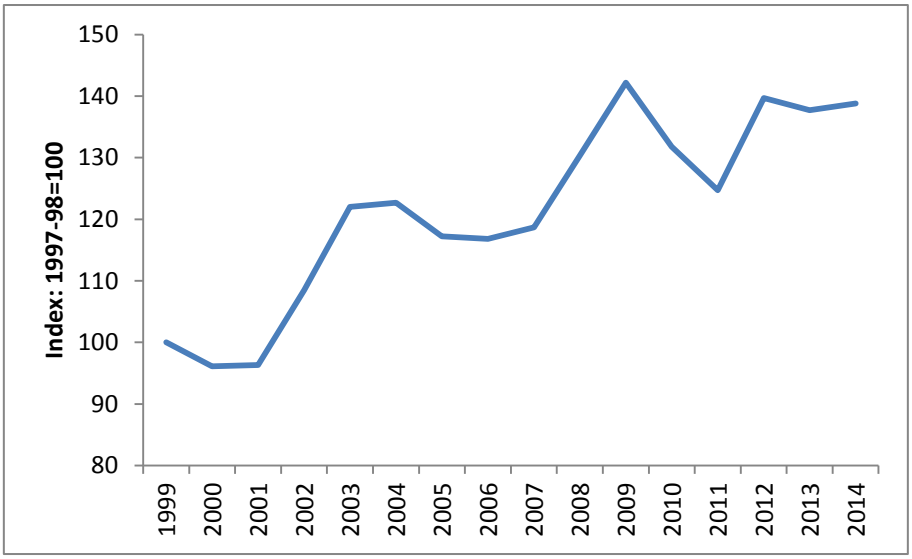
Sources: *ABS (2014) Value of Agricultural Commodities Produced, Australia, 2012-13, Bureau of Meterology (various years) Climate Annual Summary, available at http://www.bom.gov.au/climate/annual_sum/annsum.shtml*

Figure 3 shows that from 2003 to 2011 value of agricultural production moved in line with the state's average rainfall. Only in 2012 and 2013 does the value of agricultural production remain high despite drier years. This change is partly explained by the other key influence on NSW agricultural economic output – commodity prices.

Commodity prices

Data from the Australian Bureau of Agriculture and Resource Economics and Science (ABARES) shows that prices received by farmers have been consistently high during these years, higher than in any recent year except 2009, as shown in Figure 4 below:

Figure 4: Prices received by Australian Farmers (index)



Source: ABARES (2013) *Agricultural commodity statistics 2013,* p19

While weather and commodity prices are the most important factors influencing the overall output of NSW agriculture, at a farm level many other factors also play a part.

Farm level impacts

A 2006 study by ABARES (then ABARE) on the impacts of native vegetation on farm productivity estimated statistically the relative influence of different variables. The results are shown in order in Figure 5 below:

Figure 5: Relative influence on farm productivity

Ranking	Variable
1	Off-farm income
2	Climate
3	Corporate structure
4	Land area
5	Land quality
6	Land use intensity
7	Access to finance
8	Education
9	Vegetation density

Source: Davidson et al. (2006) *Native vegetation management on broadacre farms in New South Wales: Impacts on productivity and returns, p14*

Figure 5 and its source study show that vegetation density has, by far, the lowest impact on farm productivity of all the factors examined. Furthermore, the ABARE study was limited to broadacre, inland farms without irrigation – ie those most likely to be affected by native vegetation and any changes to regulations around its management and conservation.

Because vegetation density has such a small impact on the productivity of farms across NSW, there is no statistically noticeable difference in agricultural output or any other measure of productivity of changes to legislation such as the Native Vegetation Act (2003).

The reason native vegetation density and related regulation has such little impact on agricultural output across the state is that native vegetation has both costs and benefits for landholders, as well as society more widely.

Costs and benefits of native vegetation on farms

Costs[3]

Most obviously, areas of native vegetation result in areas that cannot be farmed. Reduced usable area of farms also impacts on economies of scale and overall productivity. If regulations restrict clearing, it may be difficult for farmers to reconfigure how they use their land.

Trees in the middle of paddocks can make it difficult for some farming machinery to work around them. This increases the costs of running the machinery and reduces the incentive to invest in machinery that can improve farm productivity.

Areas of native vegetation can impinge upon more productive land, and management of invasive scrub can incur costs for the land owners.

[33] Based on (Davidson et al., 2006) p8

Benefits[4]

Native vegetation can benefit the productivity of farms. A recent ABARES study found that 85 per cent of 1017 surveyed farmers were managing native vegetation for on-farm benefits.[5]

- Shade and shelter for crops, pasture and livestock
- Reducing erosion, nutrient runoff and sediment flows along streambeds
- Improved water quality through filtration and reduced runoff
- Preventing and controlling salinity
- Habitat for crop pest predators
- Fodder for livestock during drought
- Farm forestry as an alternative income stream

Many landholders value the aesthetic improvement that native vegetation can provide to their property, particularly around farmhouses. Mallawaarachchi & Szakiel (2007) list many economic and agronomic studies which quantify these benefits in particular regions and conditions.

Economic implications of native vegetation regulations

The various costs and benefits that native vegetation present mean that farm productivity is not strongly affected and at a macro level NSW agriculture is not influenced by changes to native vegetation regulations. For these reasons, native vegetation regulations are supported by most landholders:

> *In most cases landholders believed that the benefits of appropriately managed nonbroadscale native vegetation were likely to outweigh the costs, particularly in the long run.*[6]
>
> *[ABARE farm survey results] suggests that the existing vegetation density, mix and location for around two thirds of these farms are generally optimal from a private land manager's perspective. As such, regulation of native vegetation is not likely to have a significant impact on these landholders who derive benefits from existing vegetation stocks as part of their normal farm practices.*[7]
>
> *Just over half of farmers thought government programs were fully or partly effective and about 29 per cent thought them ineffective. The remainder said they did not know.*[8]

These ABARES studies from 2006, 2007 and 2012 all conclude that for the majority of landholders there is very little net cost from native vegetation or regulations around its management and conservation.

For particular groups of farmers, however, restrictions on vegetation clearing are significant. These farms are in the north west of the state, where between 16 per cent and 25 per cent of

[4] Based on Mallawaarachchi & Szakiel (2007) *Non-broadscale land clearing in Southern Australia: Economic issues in managing native vegetation on farm land*
[5] Harris-adams, Townsend, & Lawson (2012) *Native vegetation management on agricultural land, p8*
[6] Mallawaarachchi & Szakiel (2007) p31
[7] (Davidson et al., 2006) p9-10
[8] (Harris-adams et al., 2012) p12

surveyed landholders intend to clear vegetation. Of these farmers, only 43 per cent however, indicated that they need formal approval for proposed clearing.[9]

We see that less than half of less than a quarter – perhaps ten percent – of landholders in the areas most affected by native vegetation require permits for proposed clearing activities. These farms are mostly involved in extensive grazing activities and are not intensive, high-value, highly productive agricultural enterprises.

No doubt these farms stand to gain considerably from changes to native vegetation management regulations. These private gains should be compared with the public benefits of conserving native vegetation. Existing market based mechanisms such as BioBanking may ensure that these benefits can be shared with landholders, providing incentive for conservation. If conservation values are found to be high in relation to financial benefits to landholders, other compensation arrangements may be required to ensure an economically optimal policy outcome.

Conclusion

For most landholders in NSW existing regulation around native vegetation management presents minimal cost and potential benefit. For particular areas of north west NSW, where farming occurs across large areas with more remnant vegetation, there are numbers of landholders who could benefit from changes in regulation. Decision makers need to closely assess whether these largely private benefits would outweigh the potential public damage from reduced regulation. Any such changes relate to a very small minority of farmers and would have no overall impact on the economic output of NSW agriculture.

References

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[9] (Harris-adams et al., 2012) p17-18

Research report 07.1 Prepared for the Natural Resource management division, Australian Government Department of Agriculture, Fisheries and Forestry, Canberra. Retrieved from http://data.daff.gov.au/brs/data/warehouse/pe_abare99001340/rr_07.2_landclearing.pdf