

# Adoption trends in the Liebe area and what it means for the Industry.

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## KEY MESSAGES

- When considering a new technology, growers are looking for increased profit and improved ease of management.
- Growers were optimistic about the future of farming. Cost of production, commodity prices and availability of finance are the factors that were considered to be most limiting going forward.
- Grower groups can help growers adopt technologies that increase the profit and ease of management of their farm.

## AIMS

To track adoption of farm practices related to soil management and business management.

## METHOD

Face-to-face interviews were conducted with 61 farmers in the Northern Agricultural Region of Western Australia. The survey group was made up of 50 Liebe Group members and 11 non-members. In order to track changes over time, the same farm businesses (with the exception of eight) were surveyed every three years since 2006 (2006, 2009 and 2012). The majority of people surveyed farmed in the shires of Dalwallinu, Coorow and Perenjori, however others had land in the shires of Moora, Wongan-Ballidu, Carnamah, Koorda and Morawa.

The survey focused on the stages of adoption described by Pannell *et al.* (2006). Adoption stages measured included: awareness of the innovation, information collection, small scale testing, scaling up the innovation, review, modification and scaling down or no longer using the innovation if it was unsuitable for the farm enterprise.

The survey focuses on three main areas; managing yield variability, soil health, and process of adopting new technologies. These topics were considered by growers to be the most likely factors to influence farming businesses when the survey was designed in 2006.

No statistical analysis has been done on the survey results.

## RESULTS

### *Managing yield variability*

Nine technologies that farmers could use to manage yield variation across the paddock were surveyed in 2006, 2009 and 2012. These technologies are listed in Figure 1. Awareness of all technologies amongst respondents were over 95% with the exception of geophysical technologies, which was known to 84% of respondents, an increase from 75% in 2006 (data not shown).

Soil testing and use of autosteer were the most widely adopted technologies with 98% and 92% of growers using them on an ongoing basis (Figure 1). Sixty seven percent of growers tested subsoil as well as the top 0-10cm, mainly to monitor soil pH.

The two biggest changes since 2006 have been auto steer, which doubled; and yield mapping which is currently used by 69% of farmers, up from 45%. The use of variable rate technology also increased over the three years. In 2009, 14% of farmers were using it. This has increased to 22% in 2012, with several farmers indicating that 2012 was the first season they had used the technology.

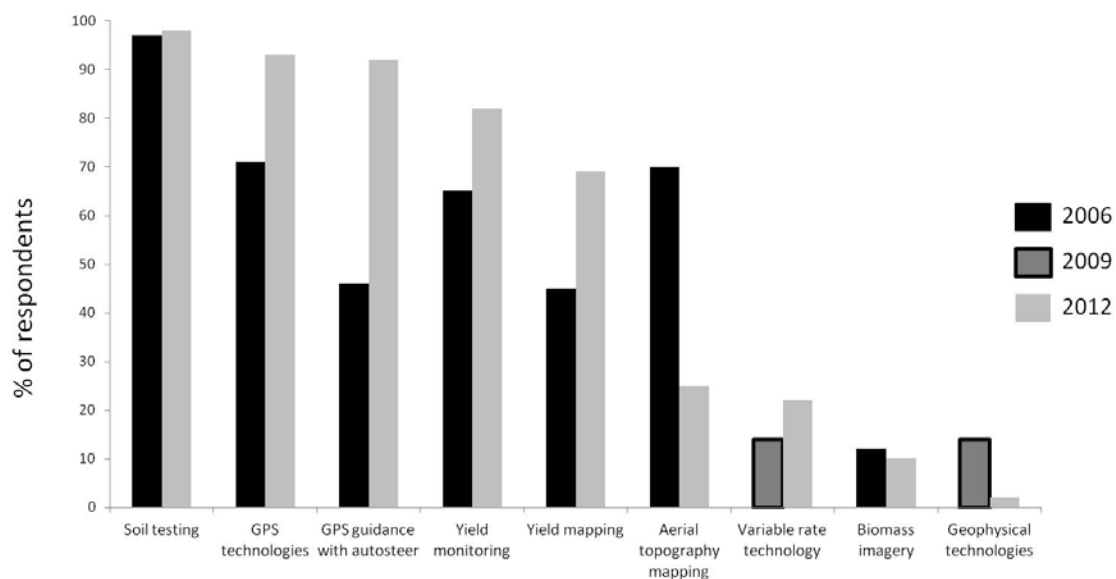


Figure 1: Percentage of respondents using each yield variation management technology in 2006 and 2012, with the exception of geophysical technologies and variable rate technology which has data collected in 2009 rather than 2006.

### Soil health

Soil management practices address deficiencies in physical, chemical and biological properties of the soil such as liming, zero tillage, tramline farming and green manuring (see Figure 2 for the complete list).

Adoption of the soil management practices was relatively unchanged since 2006 (Figure 2). Adoption of liming, minimum tillage and stubble retention was above 95%. The use of brown and green manuring declined by around 10% although the practices were not widely adopted in 2006. Many participants indicated that brown and green manuring were tools used only in dry years to sacrifice failed crops.

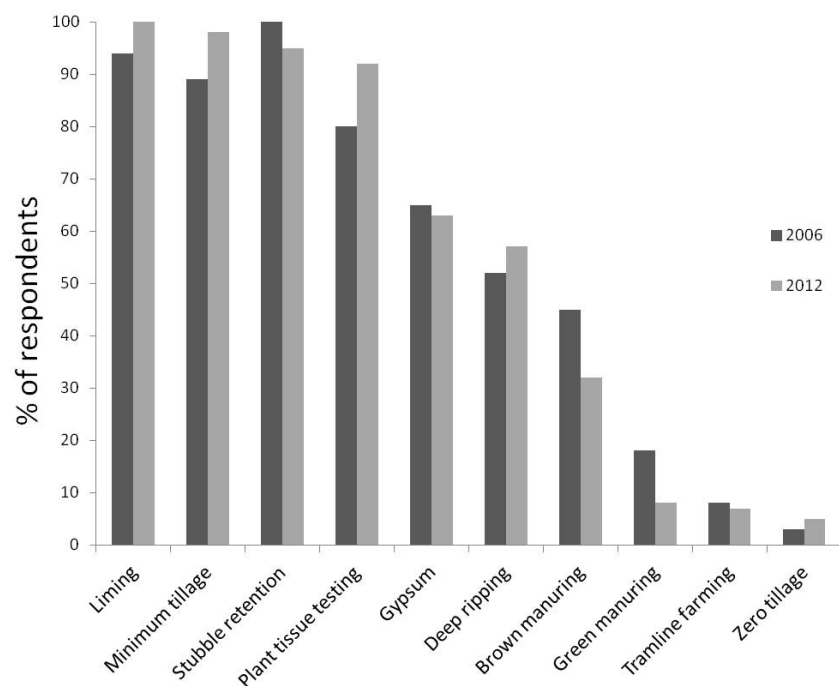


Figure 2: Percentage of respondents using each soil management practice on an ongoing basis in 2006 and 2012.

Neither Zero tillage nor Tramlining had been widely adopted (only 5% and 7% respectively). In 2012 growers had less

intention of using zero tillage and tramling farming than they did three years before (data not shown). Some of the surveyed growers had adopted these technologies in the past but were scaling down or no longer using them in 2012. Some problems with zero tillage identified by farmers were: crop yield dropped, crop establishment was poor and machinery was expensive to maintain. In the case of tramlining the main problem identified was that new machinery purchases did not fit in with tramline widths.

### *Process of adopting new technology*

Seventy two percent of respondents indicated that they use farm consultants on an ongoing basis for an average of 52 hours per year. On average, over the course of the year, half of a grower's time was spent on field work. Business management activities such as farm finance, marketing and planning took up 27% of time. The division of time and use of farm consultants was unchanged since 2006 (data not shown).

Seventy two percent of respondents indicated they had introduced a new management practice to their business over the past three years. Examples include: using an iPad for electronic record keeping, introducing canola into the rotation, and mouldboard ploughing. Autosteer was mentioned by nine growers as the most beneficial practice they had adopted in the past three years. The main benefit to the farm business from adopting a new technology was increased profit (mainly lower cost) and ease of management.

### *The future*

Farm economics was listed as the main limiting factor for farming into the future (see Table 1). All those surveyed were asked to indicate how they felt about the long term future of agriculture in their area. Responses were ranked from being very pessimistic (1) to being very optimistic (7). The most common response was 6, indicating the farmers in the Liebe area were optimistic about the future. This was unchanged since 2006.

Table 1: Respondents' perceptions of the most important factors limiting their farming enterprise into the future (% of responses giving each factor a first ranking).

Factor limiting farm enterprise	% of respondents
Farm economics (includes cost of production, commodity prices, availability of finance)	38
Rainfall/climate change	26
Labour storage and rural population decline (includes education opportunities for kids, isolation and finding skilled and unskilled labour)	17
Herbicide resistance	8
Government policy (includes animal liberation groups and government services to rural areas)	5
Soil health (pH and salinity)	4

## **DISCUSSION**

Comparison between the Liebe Group and a national GRDC grower survey indicates Liebe farmers have much higher adoption of liming, 100% compared to 50% (Watson and Watson, 2012). However, in regards to tramline farming adoption in the Liebe area is much lower than national average, 7% compared to 29% respectively. Adoption of variable rate technology is slightly higher in the Liebe area with 22%, compared to 17% nationally.

Increased profit and ease of management are the two main attributes that growers are looking for when considering new technologies. The use of tramline farming has not increased over the last six years because growers are not convinced that potential profit gains outweigh management challenges associated with tramline farming. Our survey indicated that in 2006 thirty eight percent of growers surveyed were researching tramlining. The 'researching' proportion of growers has not progressed to adopting the technology in 2012. In fact the percentage of growers researching tramlining decreased in 2012 to nineteen percent. This suggests that many growers have decided not to adopt tramlining at this stage.

Liebe growers are optimistic about the future and have high adoption rates for technologies such as liming. Part of the aim of the Liebe Grower group is to assist growers to make more informed adoption decisions and to encourage optimism. Agriculture is influenced by numerous external forces that the average farmer can't influence such as the weather and global commodity prices. However, being part of a grower group allows individual growers to have influence over the research that occurs at a local level, thus giving growers an increased sense of control over their future.

#### **KEY WORDS**

Adoption of technology, soil management, farm practices, farm business

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