

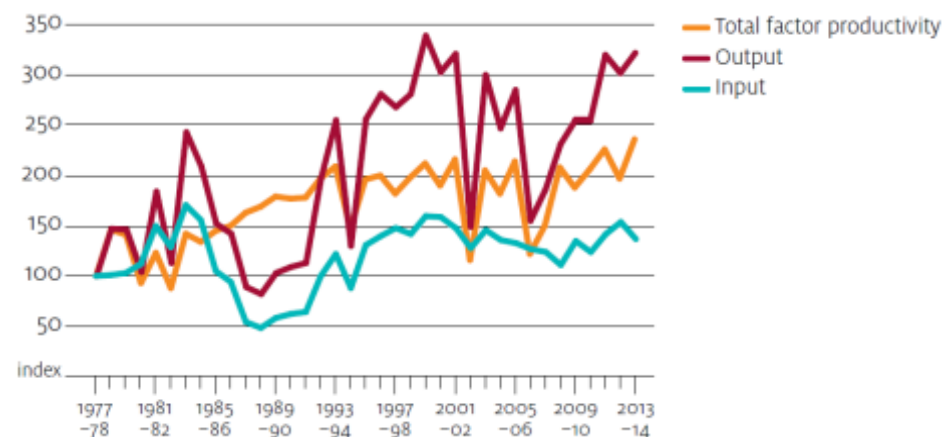
In addition, during the public hearing that GrainGrowers' General Manager, Mr David McKeon, and I attended on Monday this week, we took a question on notice from the Commissioners regarding what figures there are to describe the trend of declining productivity growth rate in Australian agriculture. Please find a response to this below. I would be grateful if you could forward this response onto the Commissioners for their information.

In considering matters of grains industry productivity, GrainGrowers refers to data and analysis from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES). ABARES produces a range of productivity estimates for Australian broadacre and dairy industries, based on data collected through its national farm survey programme. The ABARES preferred estimate of productivity is total factor productivity (TFP), which is the ratio of a quantity index of market outputs relative to a quantity index of market inputs. Estimation of industry-level TFP involves aggregating multiple outputs and inputs across farms using the Fisher index.

Productivity growth is generally measured over the long term because it is usually treated as an indicator of technological progress, which can involve significant time lags in both on-farm implementation and realised benefits. Short-term variability in productivity can be dominated by seasonal conditions rather than reflecting shifts in technical efficiency. Average annual TFP growth rates are estimated by fitting an exponential trend line.

In the cropping industry, growth in total factor productivity averaged 1.5 per cent a year from 1977–78 to 2013–14. Productivity grew strongly until the early 1990s, averaging 3.5 per cent a year from 1977–78 to 1994–95. Growth over the following two decades was slower, averaging 0.7 per cent a year.

Input, output and total factor productivity growth, cropping specialists, Australia, 1977–78 to 2013–14



Source: ABARES Australian Agricultural Grazing Industries Survey

Productivity gains in the grains industry have been supported by advances in technology and changes in industry structure. The development of more efficient farming systems, particularly those involving new crop varieties, conservation farming and GPS guidance systems, has increased yields while reducing costs. An important driver of this change has been improved crop chemicals and application technologies. Advances in key cropping technologies have been accompanied by industry consolidation and growth in average farm size. Larger farms tend to be more productive because of their greater capacity to adopt

new technologies, including equipment only suitable for farms above a minimum size. In particular, a shift to larger and more efficient planting and harvesting machinery in the 1980s and 1990s, facilitated by larger average farm size, was a key contributor to productivity growth during this period.

The slowdown in productivity growth since the mid-1990s is partly attributable to adverse seasonal conditions, particularly during the 2000s, but also reflects underlying challenges for future productivity growth in the grains industry. Since the widespread adoption of conservation cropping systems in the 1990s and early-2000s, there has been no step-change innovation in grains production. Advances in farming systems and technology have generally related to fine-tuning existing systems rather than making fundamental changes. Land degradation has also been a constraint on productivity growth in some regions.

Kind regards  
Carmen

**Carmen Whiteley**  
Senior Policy Officer

**Grain Growers Limited**

Lvl 2, 53 Blackall Street, Barton, ACT 2600

**Tel:** (02) 6173 6423 | **Fax:** (02) 6173 6499 | **Freecall:** 1800 620 519

**Web:** [www.graingrowers.com.au](http://www.graingrowers.com.au)



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