



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Science Strategy



The Science Strategy Branch of the Science and Research Division examines investment and options to achieve sound management of the primary industries research and development portfolio.

NSW Department of Primary Industries (DPI) has a unique research capability across a very wide range of disciplines. The largest provider of research in the NSW government, DPI conducts science and research designed to underpin the growth, sustainability and profitability of the State's primary industries.

Innovation and research capability are integral to the generation of new ideas and practical solutions for primary industries. It enables these industries and the community to meet major challenges in a constantly changing world.

Economic Benefit

NSW's primary industries had a gross value of over \$18 billion in 2004–05 and directly accounted for 6% of the Gross State Product. The sector directly employed over 92,000 people full time and represented 12.4% of regional employment. Primary industries exports were valued at over \$16 billion and represented 57.8% of merchandise exports from NSW.

Primary industries have a significant multiplier impact on the economy, when a whole-of-chain approach is taken. For example, agriculture alone is estimated to have a 2.4 times multiplied impact for both value and employment.

NSW primary industries snap shot 2004–05¹

SECTOR	DIRECT GROSS VALUE (\$M)	DIRECT FULL TIME EMPLOYMENT	EXPORTS (\$M)
Agriculture	8,560	70,171	5,048
Minerals	9,200	13,836	10,800
Forestry	347	2,431	156
Fisheries	131	5,696	40

¹ Production data, Australian Bureau of Statistics (ABS). Export data estimated by NSW DPI from ABS data.

In the primary industries sector, the relationship between research and productivity is well established. For example, since 1953, productivity growth in NSW's agricultural industries has been worth \$438 billion to the State and a significant portion of this can be attributed to research-based innovations.

The economic benefits of NSW DPI research are strong and measurable. An evaluation of five DPI program areas showed that the department had invested \$114 million in these programs up to 2003 and that the industry return from this research was conservatively assessed at \$1311 million.

The environmental and community returns from DPI's research are harder to quantify but are estimated to be greater than that to any specific industry.

Regional Impact

NSW primary industries operate in a highly challenging environment: they are exposed to strong international competition, large climatic variability and numerous physical and biophysical threats. Innovation plays a central role in ensuring that NSW primary industries are sustainable and competitive.

Unlike mechanical and medical innovations that are almost equally applicable world-wide, primary industries innovations usually need to be adapted to local conditions.

For example, most agricultural and forestry technologies are sensitive to local climate, soil and other biophysical attributes, making them less easily transferable.

This means that all NSW's primary industries depend on a strong local primary industries R&D capacity.

Balanced Outcomes

Managing a wide portfolio of research presents challenges in ensuring an appropriate balance between short-term and long-term outcomes, and incremental and major step improvements.

The Science Strategy Branch examines investment and options to ensure that sound management of the portfolio is achieved.

Analysis and evaluation of major trends that impact on primary industries are done to ensure that the department's research remains focused on the most important areas and delivers the greatest possible benefit for the community.

The effectiveness of DPI's research investments and the outcomes they generate is also evaluated in light of the Division's framework for investment. The framework is designed to ensure maximum benefit to the community and DPI stakeholders. It examines the

- appropriateness of the issues
 - existence of market failure*
 - alignment with corporate goals and state needs and priorities
 - significance of problem
 - appropriateness and capacity of agency (skills, competence, critical mass, infrastructure or competitive advantage)
 - industry priority and support.
- efficiency of investment strategies
 - likely return on investment (economic, environmental, social)
 - achievement of a targeted outcome at least cost.
- effectiveness of research and development approaches
 - likelihood of success
 - identification of beneficiaries
 - capacity to extend new knowledge
 - probability of various (desirable and undesirable) outcomes
 - performance against agreed indicators.

The Branch plays a key role in promoting a culture of scientific and research management excellence to ensure that the department's science is globally competitive.

It also provides secretarial support to the NSW Ministerial Advisory Council on Primary Industries Science. The Council's provides an external point of reference for the department. and comprises respected scientists and industry leaders. Its role is to advise on stakeholder science and research needs, alignment of the department's research portfolio, strategies to ensure delivery of research outcomes, and research reinvestment.

* Market failure: where primary industries have insufficient incentive or significant obstacles to fund research, or producers are unable to adequately appropriate the benefits of research they may fund.

Key branch project areas

- Analyse and anticipate key trends in the future of NSW's primary industries sector.
- Develop viable and creative options for future research and development investment.
- Develop evidence-based analyses of departmental science and research impacts and outcomes.
- Develop effective research management systems, including project management and project reporting systems.
- Provide input to departmental and NSW Government science and research policies relevant to primary industries.
- Provide strategic support to major departmental research programs and initiatives.
- Strengthen the culture of scientific excellence within the department.
- Strengthen external engagement with the scientific, technical and wider community.
- Promote the strategic value of the department's science and research for the sustainable development of NSW.

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