



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

PRIMARY INDUSTRIES SCIENCE AND RESEARCH

Overview

The Science and Research Division undertakes strategic science to underpin profitable and sustainable primary industries.

NSW Department of Primary Industries is the largest provider of science and research services within the NSW Government. DPI scientists have been ranked in the top 1% of world research institutions in agricultural science, and plant and animal science.

Role of Primary Industries Science and Research

Primary Industries Science and Research (PIS&R), as part of NSW DPI,

- provides strategic science to enhance the growth, sustainability and biosecurity of NSW primary industries;
- undertakes research and development;
- advises on research and science policy and issues;
- coordinates research investments, and fosters alliances and cooperative ventures;
- develops innovative solutions and technologies;
- underpins creative solutions to enhance public policy.

Priorities

Detailed priorities for PIS&R are spelt out in the Primary Industries Science & Research Strategy 2005–2008. They fall within four key result areas.

Strong economic performance of primary industries

Research which focuses on enhancing primary industry profitability across NSW, either directly through innovation or indirectly by addressing constraints to present and future productive capacity. Strategic investment is made in 'frontier' technologies, particularly in agricultural biotechnology, genomics, functional foods and fisheries technology. Emphasis is placed on facilitating market access and improved management of risk (both climate variability and market volatility).

Wise management of natural resources

Farmers manage about 76% of the land in NSW and a similar proportion of the State's developed water resources. NSW DPI pursues new farming systems that

are profitable and compatible with natural processes. It also works with landholders to develop systems of on-farm land use and management that deliver off-farm environmental benefits for the broader community.

The department is also working to monitor wild stocks and important fish habitats to ensure that the information necessary to manage the State's commercial and recreational fisheries is available in a timely manner and provided to exacting standards.

A significant component of the State's natural resources in publicly owned lands is managed as part of the forestry estate. PIS&R is working to develop and deliver systems and procedures for improving, testing, measuring and reporting on the ecological sustainability of resource use on public land and the contribution forestry can make to environmental outcomes on private land.

Healthy and safe industries

Anticipated trade liberalisation will increase the movement of commodities and processed products across state and national borders, significantly increasing the risk of incursion of exotic pests and diseases. The department researches endemic, exotic and emerging pests and diseases that represent hazards to the production, welfare and market access of the State's plant and animal products. This research will provide the knowledge that underpins effective biosecurity policy and its implementation.

Excellence in service delivery

PIS&R strives to maintain and enhance its research capacity and culture of innovation to deliver quantifiable improvements in production and resource management, and science-based solutions to industry and public policy.

Research programs

PIS&R is divided into six research branches, each of which is divided into program areas, and a science strategy branch.

Systems Research – aquatic ecosystems, northern and southern farming systems, pastures and rangelands, and wild fisheries.

Production Research – horticulture, viticulture, animal production and aquaculture industries.

Health Sciences, Science Alliances and Evaluation – animal and plant health, food science and safety, weeds and vertebrate pests, alliances with universities, cooperative research centres and other R&D agencies, and economic cost-benefit analyses.

Resources Research – forest resources research, salinity and catchment hydrology, climate sciences and irrigation research, soils, recycled organics and remediation technologies.

Rural Innovation – plant and animal genetics and biotechnology.

Research Operations – Centres of Excellence, biometrical services, diagnostic and analytical laboratories and scientific collections.

Science Strategy – issues and options analysis, investment scenario planning and science review.

Capabilities

Expertise

NSW DPI researchers have expertise in a wide range of fields including genetics, biology, economics, physiology, entomology, ecology, aquaculture, pathology, microbiology, chemistry, soil science, agronomy, biometry, geology, geophysics, and mineral and petroleum science. International profiles are maintained by scientists undertaking contract work overseas or attending specialist conferences.

Research centres and locations

PIS&R investment is focused on key centres, which are strategically located across NSW and linked with the industries and communities that co-invest in their R&D.

Laboratories

Commercial services are provided from diagnostic and analytical laboratories located at Menangle, Wagga Wagga, Orange and Wollongbar. The department operates specialist research laboratories, located mostly at research centres. Certification to ISO 9001 is being sought for all NSW DPI research laboratories.

Scientific collections

Significant national resources are housed in scientific collections across NSW. They contain physical specimens and historical records relating to plant genotypes, soils, rocks, minerals, fossils, forestry woods, fish, insects, mites, fungi and bacteria. They include living cultures of fungi and bacteria and are of immense quarantine and diagnostic significance. The fossil reference collection forms the basis for dating rock strata in NSW.

NSW DPI research model

NSW DPI's research model is an integrated model, responsive both to industry needs ('market-pull') and to innovation by scientists ('technology push'). The model is sufficiently flexible to accommodate industry needs for cross-disciplinary research but also maintains long-standing activity in key areas of public benefit, such as natural resource management. Key research alliances occur through cooperative research centres, joint ventures and contracted research.

Cooperative research centres

In 2007, NSW DPI is a partner in 17 current CRCs.

Joint ventures

Joint venture arrangements exist with a number of state agencies, commercial partners and universities. Examples include the E.H. Graham Centre for Agricultural Innovation (with Charles Sturt University), Primary Industries Innovation Centre (University of New England), Coastal Agricultural Landscapes Centre (Southern Cross University), Centre for Animal & Plant Biosecurity (University of Sydney) and Broken Hill Exploration Initiative (Primary Industries and Resources South Australia and Geo-science Australia).

Contracted research

NSW DPI has 11 industry corporation investment partners, with major investment also from the Australian Centre for International Agricultural Research, BioFirst, Natural Heritage Trust, National Action Plan for Salinity and Water Quality and the Murray-Darling Basin Commission. Primary producers are also involved in advisory panels and field research. A critical component of the NSW DPI research model is the integration of research and extension in a statewide network of advisory and education specialists working alongside research scientists. Research outcomes can be delivered through cross-discipline teams, ensuring that they meet the needs of community, industry and government.

NSW Ministerial Advisory Council on Primary Industries Science

An external point of reference is provided by the NSW Ministerial Advisory Council of respected scientists and industry leaders. Its role is to advise on stakeholder science and research needs, alignment of the NSW DPI research portfolio, strategies to ensure uptake of research outcomes, research impact, and reinvestment strategies. The Council Chair is Dr John Keniry, who is Chairman of Ridley Corporation and a director of several other companies and statutory bodies.

Key contacts

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For more information on NSW DPI Science and Research, see <http://www.dpi.nsw.gov.au/research>