

South Australian Research and Development Institute (SARDI)

SOUTH AUSTRALIAN RESEARCH & DEVELOPMENT INSTITUTE
PIRSA

The South Australian Research and Development Institute (SARDI) delivers robust scientific solutions to support sustainable and internationally competitive primary industries.

Scientists create knowledge platforms, technologies and products to promote the growth, productivity and adaptability of food, aquatic and bioscience industries, while ensuring they remain ecologically sustainable.

Our values centre on scientific excellence, pushing boundaries in the discovery domain of science, a collaborative spirit and a contemporary outlook to constantly evolve to meet client needs.

Expertise

Highly skilled scientists with distinctive knowledge are supported by state-of-the-art facilities. Strong, dedicated science programs offer a depth and breadth of expertise. SARDI has an impressive multi-disciplinary capability and promotes interactions across science programs to draw on the talents of innovative thinkers at the forefront of knowledge transformation.

Science capabilities cover:

Sustainable Systems – new variety agronomy; crop improvement; climate applications; entomology; plant health and biosecurity; water resources, viticulture and irrigated crops; and soil biology and diagnostics.

Aquatic Sciences – fisheries; aquaculture; marine ecosystems, including biosecurity, the threatened, endangered and protected species subprogram, and oceanography; and inland waters and catchment ecology.

Livestock and Farming Systems – animal reproduction; farming systems; food safety and innovation; and pigs and poultry.

SARDI facilities

SARDI pursues excellence through an extensive network of research centres, laboratories and field sites. Regional sites provide opportunities for local employment, technology transfer and industry development.

SARDI has delivered high-quality research, development and technology transfer to primary industry for more than 20 years. It is a national leader in the areas of grains, seafood (wild fisheries and aquaculture), wine grapes, food and nutrition, climate adaptation, poultry, pork and animal welfare.

Delivering research

SARDI is committed to effectively delivering research solutions. Its science research programs annually attract more than \$50 million in external research grants, commercial receipts and government funding. Links with agricultural consultants, private companies, farming systems groups and government agencies ensure our research outcomes are delivered on the ground.

General enquiries:

Tel: +61 8 8303 9400
pirsa.sardi@sa.gov.au

Key contacts at SARDI:

Dr Peter Appleford

Executive Director

Tel: +61 8 8303 9398
E-mail: pirsa.sardi@sa.gov.au

Dr Kathy Ophel Keller

Research Chief, Sustainable Systems

Tel: +61 8 8303 9334
E-mail: pirsa.sardisustainablestems@sa.gov.au

Professor Gavin Begg

Research Chief, Aquatic Sciences

Tel: +61 8 8207 5401
E-mail: pirsa.sardiaquatics@sa.gov.au

Dr Simon Bawden

Acting Research Chief, Livestock & Farming Systems

Tel: +61 8 8313 7666
E-mail: pirsa.sardilivestock@sa.gov.au

www.pir.sa.gov.au/research

SARDI is the South Australian Government's principal research institute within Primary Industries and Regions SA (PIRSA).



Sustainable Systems

SARDI's Sustainable Systems science programs support improved productivity and sustainability of primary industries. The programs work collaboratively at national and regional levels to deliver targeted research outcomes.

Expertise

Sustainable Systems science programs cover a range of industries, including broadacre crops such as cereals, oats, vetch, pulses and oilseed, viticulture and horticulture. Our scientific teams work in pest and disease management, climate adaptation and improved cropping systems, including specialised expertise in molecular diagnostics and plant genetics. These research platforms offer practical and productive ways to optimise and enhance primary production systems. Research on climate adaptation, salinity and water use underpin the long-term sustainability of primary industries. Staff at seven locations around SA conduct research in a range of conditions, from Port Lincoln and Minnipa on Eyre Peninsula and Loxton, Turretfield and Roseworthy, north of Adelaide, to higher rainfall zones at Clare, Struan and the Waite Research Precinct, near Adelaide.

Science capabilities cover:

Climate Applications – addresses both short and long-term climate variability, delivering information on climate risk management to managers of agricultural and natural systems in South Australia.

Water Resources, Viticulture and Irrigated Crops – addresses water and nutrient management across South Australia's wine grape and irrigated horticulture production regions, as well as research to reduce the impacts of salinity.

Crop Improvement – molecular genetic tools are used to understand key traits in species of importance to cereal and legume improvement. The main focus is on identification of genes and linked molecular markers for quality, disease resistance and abiotic stress traits. A pasture improvement program is also developing improved varieties, agronomic practices and management systems for farming and the environment in South Australia.

New Variety Agronomy – integrates new variety evaluation, pulse pre-breeding, breeding, agronomic research and market quality evaluation capabilities to facilitate adoption of high-yielding and profitable grain varieties which are well-adapted. The group has a network of regional research teams based at Struan, Clare, Port Lincoln and Waite.

Entomology – develops integrated pest management solutions for grains industries, horticulture and viticulture as well as for forestry and urban settings. The group has expertise in insect taxonomy, ecology and molecular biology, and works closely with state and national plant biosecurity programs.

Soil Biology and Diagnostics – develops strategies to better manage soilborne pathogens and understand the role of beneficial soil microflora in cropping, horticulture and pasture industries. This includes development of world-leading DNA-based testing services for quantification of fungal and nematode pathogens, weed seeds, beneficial soil microflora and plant roots in soil. The technology delivered includes the Predicta B root disease test for cereal and pulse crops and PredictaPt for potatoes, and associated training programs in root disease management.

Plant Health and Biosecurity – provides targeted research and development to reduce losses from plant disease across cereal, pulse, pasture, viticulture and horticulture industries. This includes delivery of plant health diagnostic services to growers, consultants, state and national plant biosecurity authorities. The group collaborates closely with breeding companies, pre-breeding programs and the private sector to develop disease resistant plant varieties.

General enquiries: Tel +61 8 8303 9420



Aquatic Sciences

The SARDI Aquatic Sciences division helps to deliver the sustainable growth of South Australian aquaculture industries and protects our wild fisheries and freshwater resources and their environments through innovative science. The major science programs are Fisheries, Aquaculture, Marine Ecosystems and Inland Waters and Catchment Ecology.

Expertise

SARDI Aquatic Sciences core skills include aquaculture nutrition, genetics and propagation, marine and freshwater ecological research, environmental assessment, oceanography, aquatic biosecurity and health, fisheries biology, assessment and modelling and micro-algal production. Staff are located at the South Australian Aquatic Sciences Centre at West Beach in Adelaide, the Lincoln Marine Science Centre at Port Lincoln and a research centre at Mount Gambier.

The needs and opportunities of seafood value-adding, safety and market access are pursued through SARDI's Food Safety and Innovation science program, based at Waite Precint, Adelaide.

The South Australian Aquatic Biosecurity Centre at Roseworthy Campus provides researchers with highly secure conditions for the study of aquatic pathogens and pests that threaten our marine ecosystems and fisheries.

Science capabilities cover:

Fisheries – conducts biological, ecological and fisheries research and modelling and provides scientific advice to State and Commonwealth governments on issues related to the ecologically sustainable utilisation of Australia's fisheries resources. The program includes the following fisheries – finfish, offshore and inshore crustacean, molluscan as well as fisheries modelling.

Aquaculture – focuses on developing new technologies, species and sites for aquaculture, while enhancing the competitive advantage – and minimising the risks – of existing aquaculture industries in brackish, freshwater and marine environments. The five interacting subprograms cover Propagation and Systems, Nutrition and Feed Technology, Genetics, Reproduction and Biotechnology, Aquatic Animal Health and Welfare, and Algal Production.

Marine Ecosystems – provides scientific and technical advice across government, industry and the community about key issues in the management of marine environments. Research activities are carried out by six subprograms: Oceanography, Aquaculture Environment, Benthic Ecology, Environmental Assessment, Mitigation and Rehabilitation, Marine Pests, and Threatened, Endangered and Protected Species.

Inland Waters and Catchment Ecology – looks at the conservation and management of freshwater dependent systems, including native fish resources and habitats in the Lower Murray-Darling Basin. Four subprograms – Climate and Catchment Ecology, Fish Ecology, Invasive Species, and Plant Ecology – provide scientific and technical advice to government, industry and the community on key issues such as ecosystem processes, ecology and population dynamics of freshwater and estuarine fish, molluscs and crustaceans.

Contact

SARDI Aquatic Sciences
South Australian Aquatic Sciences Centre
2 Hamra Avenue
West Beach SA 5024

General enquiries: Tel: +61 8 8207 5400



Livestock and Farming Systems

The Livestock and Farming Systems research division assists animal and mixed farming industries to achieve economic and sustainable levels of production of high-quality, competitively priced produce, by conducting research and encouraging technological improvement. The development and marketing of these industries and products, and the provision of science policy advice to government, are two key objectives. Science programs fulfil key roles in the plan for research, development and extension (RD&E) in Australia's pork, poultry and animal welfare sectors under the National RD&E Framework.

Expertise

Livestock and Farming Systems maintains state-of-the-art laboratory and production-focused animal research facilities in conjunction with broadacre research centres, and promotes extensive industry and producer partnerships and networks. More than 80 staff are located at various sites across South Australia, including Roseworthy Campus (divisional headquarters), Turretfield Research Centre, Waite Campus near Adelaide, Minnipa Agricultural Centre (Eyre Peninsula) and Struan Research Centre (South East).

Science capabilities cover:

Pigs and Poultry – provides research and development in nutrition, housing, reproduction, health and welfare and meat hygiene for the pork, chicken meat and egg industries in South Australia, Australia and internationally. SARDI experts lead and conduct innovative and practical research that enhances the economic growth of the Australian pork and poultry industries, as well as expands education and training capabilities as part of its national RD&E commitments.

Livestock Innovation and Welfare – aims to improve livestock reproduction, utilising cutting-edge techniques including molecular biology, embryo technologies, stem cells and genome editing. The program provides specialist services and innovative research capabilities in reproduction for sheep and cattle to enhance genetic improvement programs, breeding efficiency and to ensure animal welfare and product quality.

Farming Systems – undertakes research and development focused on liaison with farmers and advisers in South Australia, especially in low-rainfall environments. The science program is widely recognised for its ability to assess new and existing information in a whole-farm context, using knowledge from a range of areas including soil science, plant physiology, agronomy, animal science and sustainable farming techniques.

Food Safety and Innovation – provides scientific and technical advice to government and industry that aims to protect public health and market access and assist the growth and economic development of South Australia's and Australia's food industries. The program is run by specialists in a broad range of disciplines, from food science, chemical engineering, sensory science, human and veterinary public health, toxicology, microbiology, virology and risk management.

General enquiries: Tel: +61 8 8313 7605

