



MAIN PHOTO: BRENTON EDWARDS / INSET: TCN

# waite ACCOMPLI

The idea was to foster world-class, industry-driven agricultural and natural resource research by bringing together—operationally and geographically—previously isolated research groups in the University of Adelaide, CSIRO, and State Government agencies. Five years and \$80 million later, the Waite collocation is a working reality. **PAMELA LYON** reports on a vision fulfilled.



**F**ebruary 25, 1997, marked a kind of milestone in the history of South Australian primary production, providing a tangible result from that most gossamer of things, a dream. On that day the State, Federal and University of Adelaide research organisations based on the Waite Campus put on an impressive collective demonstration of their research talents and technological capabilities for one of their major stakeholders—farmers.

About 500 farmers and 200 schoolchildren from across the State turned out, at the invitation of the Advisory Board of Agriculture and following some of the hottest weather this century, to witness firsthand what had been wrought in large part for their benefit—to make their efforts on the land more productive and sustainable, more competitive on international markets and more responsive to consumer demand.

In the 1970s an idea was floated to combine the research strengths of the Waite Agricultural Research Institute, the CSIRO and the then Department of Agriculture by shifting the State agency's operations to the 215-hectare Urrbrae site that was once Peter Waite's pastoral property. This idea was promoted further in the early 1980s by the United Farmers and Stockowners.

The late Professor Harold Woolhouse breathed life into the collocation vision when he became Dean of the Faculty of Agricultural and Natural Resource Sciences, which by now was spread over two campuses, Waite and Roseworthy. He found a strong ally in Dr John Radcliffe, then South Australia's Director-General of Agriculture and now Deputy Chief Executive of CSIRO.

This neighbourly alliance might seem natural, but the different cultures of the University and CSIRO led to institutional barriers which discouraged cooperation between scientists.

Dr Radcliffe was thus justifiably cautious in these pages three years ago when he forecast that it would take "a year or two" before we could say that the collocation would accomplish more than the construction of some new, high-tech facilities and the physical proximity of several disparate research organisations.

So where are we now?

The roll call on the Waite Campus is certainly impressive (refer to the box on page 5 for a complete listing)—five departments within the Faculty of Agricultural and Natural Resource Sciences, three CSIRO divisions, Primary Industries South Australia (PISA), the South Australian Research and Development Institute (SARDI), the Australian Wine Research Institute (AWRI), five Cooperative Research Centres, the Special Research Centre for Basic and Applied Plant Molecular Biology, the Field Crop Improvement Centre, the Centre for Horticultural Crop Improvement, the Centre for Groundwater Studies, and a new Diagnostic Services Centre.

New and refurbished infrastructure worth \$80 million has been constructed, providing state-of-the-art facilities for many research areas. These include the Plant Research Centre, the Prescott Building, Taylor Building Addition, Lirra Lirra Restaurant and the Woolhouse Library, which houses the collections of all the institutions on site including the University's. An optic fibre network has been installed for advanced communications, and a child care centre opened to cater for the needs of staff and students. The latest development, the Hickinbotham Roseworthy Wine Science Laboratory, is now in the advanced stages of construction.

"It's certainly very pleasant to be here," said Roger Wickes, General Manager of Sustainable Resources at PISA. "It's a very nice place to work."

But is the collocation an accomplished fact collaboratively as well as physically? Are we getting the kinds of research and teaching synergies, accelerated applications and economies of scale that were forecast?

"It's definitely bearing fruit," Dr Radcliffe said. "But there is still a lot of potential."

"Overall, we've come a long way in achieving the vision," said Rob Lewis, Chief Executive Officer of SARDI.

"Without a doubt the Waite collocation has resulted in a number of things. One is that it has arguably resulted in the most comprehensive primary industries research and teaching capability in the southern hemisphere, probably matching some of the best in the world," Mr Lewis said.

"Another is that the close interaction of State, Federal and University research groups is a very worthwhile model to benchmark against for similar initiatives."

By throwing in their lots together, said Professor Malcolm Oades, Head of the University's Division of Agricultural and Natural Resource Sciences, the various organisations were now able "to do a lot more collectively than we could have done individually or in the total sum of individual efforts."

"There are all sorts of spin-offs," he added, "like effective approaches to industry for contract research, like getting hold of expensive facilities and equipment by sharing the cost."

"For the University in particular, it creates a much broader experience for our students, not only for the undergraduates but for the postgraduates. There is a whole range of expertise available to them, and with appropriate negotiation they have access to a whole range of facilities that we could never have had at the University."

Minister for Primary Industries Rob Kerin said the Waite Campus represents "a world class research capability" which has a vital role in the development of the State's valuable primary industries sector, which is worth \$3.3 billion at the farm gate and a further \$1 billion through value adding.

**"One of the advantages of the Waite collocation is that the skills of the partners in both basic and applied research can be brought to bear to develop projects which bring out the best attributes of each."**

"Much of our increased production in recent years has been underpinned with well-focused and planned research," the Minister said. "Horticultural production has virtually doubled to \$825 million in the space of a few years, which reflects the commitment to industry and Government to work in partnership for the benefit of agriculture in South Australia."

Anecdotal impression aside, there is plenty of evidence to indicate that collocation has led to collaboration and to a more effective industry-oriented research effort.

First and foremost, Professor Oades observed, is the continuing success in winning **Cooperative Research Centres (CRCs)**. Of the five now at the Waite Campus in which the University is a major partner, four CRCs—Soil and Land Management, Weed Management Systems, Viticulture and, the newest, Molecular Plant Breeding—are headquartered at the Waite because of the concentration of resources and expertise in the collocated institutions.

"With a Special Research Centre and a CRC in plant molecular biology, we're beginning to get a total link between molecular biology and plant breeding for the particular traits that people want out in the paddock," Professor Oades said. "We're trying to make that a smooth continuum."

Three **joint centres** have also resulted. The Field Crop Improvement Centre is a collaboration involving the University's Department of Plant Science and SARDI, while the Centre for Horticultural Crop Improvement brings together the University's Department of Horticulture, Viticulture and Oenology, SARDI and the CSIRO Division of Horticulture. SARDI and PISA are the only partners so far in a new Diagnostic Services Centre, which seeks to commercialise tests undertaken in the course of research with potential as diagnostic services for industry, Mr Lewis said, but the University and CSIRO



**"[Collocation] has arguably resulted in the most comprehensive research and teaching capability associated with the primary industries in the southern hemisphere, probably matching some of the best in the world."**

have the option of joining.

The big winner, of course, is in **joint research**.

"You've got several hundred scientists and teachers who should be able to provide a very marked amount of synergy at the interface of disciplines as a result of the collocation," said Dr Ann Hamblin, Director of the CRC for Soil and Land Management.

The cereal breeding program is a good example. Researchers in the Department of Plant Science and at SARDI are investigating the characteristics of cereal grains such as wheat, barley, triticale and oats at the molecular level, which feeds into plant breeding programs at both institutions. Both also operate evaluation and demonstration programs, while SARDI provides supporting functions such as screening for disease and pest resistance.

"We screen about 80,000 plants on the terraces east of the Plant Research Centre on behalf of the breeding programs," said Mr Lewis.

Professor Oades has hopes for developing similar collaborative research continuums in other departments, such as Crop Protection, where the major drive is toward biological pest control, and Horticulture, Viticulture and Oenology, which he predicts will become "the Australian centre, and one of the world's best centres, for training oenologists and viticulturists."

Dr Radcliffe, who also is Chair of the Board of SARDI, noted that the increasing emphasis on applied outcomes useful to industry which rely on high quality basic research gives the Waite Campus a distinct advantage in the research marketplace.

"One of the advantages of the collocation is that the skills of the partners in both basic and applied research can be brought to bear to develop projects which bring out the best attributes of each," Dr Radcliffe said. "These approaches are particularly attractive to R&D corporations and place the Waite Campus at the forefront of agricultural research and development in the country."

"Obviously what we're seeking in this whole collocation are results which can be translated into technologies that can be used by the industries we serve or by the people who contract with us," Mr Lewis said.

One indicator of success in this area is the amount of external funding SARDI has managed since it was created. In 1992/93—its first year of operation—SARDI managed

\$7.13 million in external funding, he said. In the last financial year the figure had grown by 60% to \$11.43 million—"and it appears we'll eclipse that in the current financial year," he added.

Mr Lewis attributes this success to SARDI's "working hard to build an organisation that commands respect and credibility in the marketplace". The collaborations made possible by the collocation, which expanded SARDI's ability to respond to industry needs, were crucial to the development of this reputation, he says.

Researcher-to-researcher relationships on individual projects have always existed between the various organisations, of course. What the collocation has done is to accelerate their development and proliferation, said Mr Wickes at PISA.

PISA's activities at the Waite Campus include the Soil and Water Environments Centre, administration of the Land Care program in South Australia, soil surveys, land and water management, work in Geographical Information Systems (GIS), decision support systems, and the Animal and Plant Control Commission. Collaborations have developed and expanded with the Department of Soil Science, the CRC for Weed Management Systems and the CSIRO Division of Land and Water.

"You park your car alongside those of colleagues in other agencies," Mr Wickes noted. "Casual contacts cement the professional links because



## HERITAGE PRESERVED

The Waite Campus is home to one of the State's most significant historical and cultural sites—the Urrbrae House Historic Precinct—developed by the University over the past six years into a centre for the appreciation of science, heritage, horticulture and the arts. Urrbrae House, the gracious 19th century homestead of pastoral pioneer Peter Waite, is the centrepiece and now is a regular venue for art exhibitions, concerts and functions.

The electric battery house (it was among the state's first private homes with electric lighting) and refrigeration plant (the oldest domestic plant in Australia) are being restored to tell the story of early domestic technology.

The Coach House, site of the Waite Institute's first laboratory, is being refurbished to house the scientific collections of Antarctic explorer Sir Douglas Mawson, who sent the soil samples from his expeditions to the laboratory for analysis. For more information, contact Curator Yvonne Routledge (08) 8303 7425.

people are meeting each other and being introduced, and that helps to expand the network. Just this morning one of the CSIRO scientists wandered in to have a cup of coffee, and down the hall is the CRC (for Soil and Land Management)."

The University has derived a unique benefit through **affiliate teaching**, the participation of researchers in collocated organisations in the education and supervision of undergraduate and postgraduate students. For example, the former Director of the Australian Wine Research Institute (recently recruited by US wine giant E&J Gallo) also served as the Professor of Oenology. Similar affiliate appointments exist in crop protection, soil science and animal science.

"This is a means by which the University

One looks right, the other is right, according to the Oxford English and Macquarie Dictionaries.

As this is a University publication, we feel obliged to conform to correct usage in so far as we are able, however odd that usage appears (and it does look odd).

—The Editor



of Adelaide's position as a leading edge educator can be maintained by sharing skills available on the campus," Dr Radcliffe observed. And at a time of strong competition for students among the agricultural faculties in Australia, these affiliate arrangements also help to attract high-quality students.

The achievements to date have not been all clear sailing, however. A number of factors have had to be overcome—and are still being overcome. Chief among them is culture.

"Different organisations have different cultures and different missions," Mr Lewis said. "When you enter into partnership, you have to come to grips with these cultural issues as well as the research, operations and administrative issues."

Dr Hamblin observes that organisational values sometimes clash. "Publish or perish is still a core value for the universities and CSIRO, but not for the state agencies," she said. "Sometimes clients can't wait to get the ultimate refinement before developing a discovery, and sometimes you can't always share information if something is developed in the private sector."

"In the early days," Mr Lewis said, "I spent a lot of my time trying to deal with these cultural issues. To put it bluntly, there was intellectual arrogance on behalf of some individuals and organisations, and there was intellectual cringe on behalf of others."

"To be successful, and to continue to be successful, this has to be recognised as a genuine partnership, which operates for mutual benefit."

The **Waite Campus Management Committee** is one means by which the various organisations are reaching collective decisions as equal partners in important areas, notably research support and other

administrative functions. A looming challenge is the organisation of an electronic notice board accessible to the different computer-based systems on campus.

"There will be very good reasons put forward by IT managers and personnel people to tell us why this can't be done, but the challenge is to find a solution," Mr Lewis said. "Until we can do that, it will be much more difficult to get us to start thinking as a single culture with a single vision."

"We can do better. We can do more in achieving the original objectives of better utilisation of the collective resources of the campus to achieve research outcomes and to raise the profile of R&D and the essential role that it has in the economic development of the industries we support, as well as in the maintenance of the natural resource bases on which those industries rely."

Nevertheless, the Waite Campus is now acknowledged regionally and nationally as **a model for the development of other research concentrations**. The development of the animal sciences at the Roseworthy Campus in conjunction with SARDI, which has invested \$4 million in pig and poultry facilities, is an example. Interactions with SARDI's Turrethfield and Minnipa Field Research Centres are also on the cards.

Asked his hopes for the future of the Waite Campus, Professor Oades responds without a moment's hesitation.

"Stability," he says.

"There's been an enormous change. What we're looking for now is a period of stability where people can really do their teaching well and get on with their research."

## on site

### Faculty of Agricultural and Natural Resource Sciences

#### Departments

- Animal Science
- Crop Protection
- Horticulture, Viticulture & Oenology
- Plant Science
- Soil Science

### CSIRO

#### Divisions

- Horticulture
- Land and Water
- Mathematics & Information Sciences

### Primary Industries South Australia

### South Australian Research and Development Institute

### Australian Wine Research Institute

### Cooperative Research Centres

- Molecular Plant Breeding (new)
- Soil and Land Management
- Viticulture
- Weed Management Systems
- Premium Quality Wool

### Special Research Centre for Basic & Applied Plant Molecular Biology

### Field Crop Improvement Centre

### Centre for Horticultural Crop Improvement

### Centre for Groundwater Studies

### Diagnostic Services Centre

### Urrbrae House Historic Precinct

