

# Southern Africa

Financial year	Regional expenditure	Percentage of total project expenditure	Commission target as percentage of expenditure
2007-08	432,171	1.0%	<5%
2006-07	592,252	1.5%	<5%
2005-06	798,384	2.3%	<5%

ACIAR’s program operating in southern Africa concentrates on the Republic of South Africa. For the region, an expenditure target of less than 5 per cent of our overall research expenditures has been set.

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# Republic of South Africa

AOP budgeted expenditure in 2007–08	\$436,300
Actual expenditure in 2007–08	\$432,171
Expenditure in 2006–07	\$592,252
Expenditure in 2005–06	\$798,384

Expenditure includes both bilateral and multilateral projects

Key performance indicators	Performance 2007–08
Legumes and associated rhizobia of potential commercial value in South Africa and south-west Australia collected in Eastern Cape province	A major collection of species and root-nodule bacteria was undertaken in November 2007. Key genera have been targeted for seed increase and rhizobial matching, including <i>Desmodium</i> and <i>Lotononis</i> from the Eastern and <i>Lessertia</i> from the Western Cape.
The Continuous Improvement and Innovation (CI&I) methodology adopted by the extension groups in two South African Provinces	Strong commitment to CI&I as a process for decision-making across seven provinces (Limpopo, Northwest, Eastern Cape, Free State, Mpumalanga, Gauteng and Kwa-zulu Natal). Emerging farmers use the process to choose between new production or marketing opportunities or new technologies; the extension and technical staff use it to choose how and where to allocate their efforts for greatest impact. The National Department of Agriculture has accepted CI&I as a policy framework and funded positions to ensure more cattle farmers and more regions are included in the process.
Promising pasture species identified for regeneration of abandoned cropland in the Eastern Cape province	A number of pasture species (hard seeded annual legumes from the Mediterranean basin and temperate perennial legumes) suitable for low-rainfall, low-fertility environments identified and now being trialled in the Eastern Cape. Some species provided five-fold higher yields in initial trials; four lines shared for use in Australian pasture breeding programs.
40 per cent of new projects designed to have significant farmer or policymaker impacts within five years of completion	A new (small) project contracted in 2007–08 aims to provide industry-relevant information on markets for different beef quality types by late 2009.

## Position

At present the Republic of South Africa (RSA) is the sole focus of ACIAR's program in Sub-Saharan Africa. Australian technical knowledge and expertise is highly relevant because similar temperate, Mediterranean and subtropical production environments are found in both countries. Further, Australia's extension and farm systems capabilities are relevant in building local capacity to assist the development of the small scale emerging African farming sector.

The program is guided by the following principles:

- Research principles must be focused on delivery of benefits to emerging African farmers
- Projects will focus in areas where Australian scientists can add significantly to the skill base by filling 'gaps' in the existing South African expertise. In doing so, ACIAR will also look at synergies in the program with those of other South African and international funding agencies, and for potential Australian mutual benefits.

Sustainable use of natural resources, particularly with regard to croplands,

communal grazing lands and water resources, is an underlying theme. Likewise, enhancing the engagement of African farmers into agricultural commodity markets is recognised as an important element of increasing their incomes. ACIAR-supported research also aims to build the capacity of the provincial agencies and to foster relationships between these groups and national institutions.

There are currently three active bilateral projects and one active multilateral project in RSA.

## Achievements

### **Subprogram: Increasing the profitability and sustainability of crop–livestock farming systems**

Over 2003–07, an ACIAR **dry region fertilisation application** project has led the International Crops Research Institute for the Semi-Arid Tropics efforts in promoting the application of small doses of nitrogen (N) fertiliser for smallholder farmers in the Limpopo Province of South Africa. Elsewhere, low doses have been shown to be more relevant and accessible to smallholder farmers in dry regions—large numbers of farmers have previously used and reported



*A typical landscape of Limpopo province, where many smallholder communities raise cattle for sale (Photographer: Neil MacLeod)*

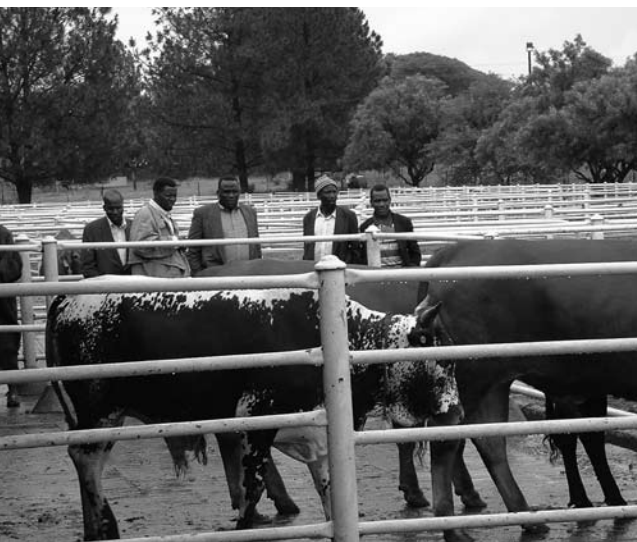
yield improvements from low N doses in Zimbabwe. On-farm trials and simulation have been key components of this preceding work and are at the core of this project. The project has achieved broad stakeholder awareness of low doses, it has demonstrated on-farm yield responses to low doses, and it has facilitated agribusiness to sign on to this effort through their sponsorship in producing and distributing small fertiliser packs and information leaflets on application methods. More appropriate fertiliser recommendations, and particularly low N fertiliser doses, is now recognised as a real issue in the Limpopo Province.

The project was successful in **attracting the support of the private sector** in improving the access and affordability of fertiliser for farmers. Sasol Nitro, a fertiliser company, agreed to register and supply 10, 20, and 50 kg packs of starter and topdress fertiliser to Progress Milling for distribution to the company's community-based depots. In addition, Panaar Seeds provided small packs of open-pollinated varieties (OPV) and hybrid maize and soyghum. From average fertiliser sales of around 17 t per year in the previous five years, the initiative resulted in depot sales of 96 and 140 t in 2005–06 and 2006–07. The tonnage of small packs sold in the two seasons was 20 per cent and 22 per cent of the season totals. By involving a fertiliser company directly in the supply of small packs, the cost premium per unit of N in previously retailed small packs was reduced from over 100 per cent to just 10 per cent. Surveys of farmers accessing the depots showed that small packs of fertiliser are preferred by farmers using fertiliser for the first time.

A group of emerging farmers in South Africa's north is addressing the problems of unsustainable farming practices and land degradation. In the Limpopo Province a **crop–livestock systems project** is helping to improve the sustainability of emerging farmers who operate in crop or livestock farming systems and to support local

researchers and extension staff to develop systems-based participative research and extension programs. Now in its fourth year, a key focus has been the development of forage and management strategies and associated delivery of multi-day training courses and follow-up workshops to farmers and extension staff. A brochure '*Veld Management – the Basics*' has summarised key information from these interactions and is being widely distributed. Crop-based work has engaged smallholder farmers in an extensive program of applied field research activities based around the themes of improving soil fertility, agronomic management and the introduction of cash cropping. These resource-constrained farmers have shown that they can adopt improved agronomic practices and increase cultivation and production of cash crops for sale.

Increasing the income of smallholder wool producers in South Africa's Eastern Cape has been a focus of national and provincial efforts. This has included **pasture development for community livestock** based on wool and sheep management and wool classing, resulting in increased incomes. The main constraint to continued growth is pasture quantity and quality. A project is testing legumes to find those adapted to such conditions, and inoculating them with rhizobia. The project team is introducing improved management strategies and ensuring they are equitably implemented at the communal level. Despite a very dry winter in 2007, establishment of legumes ranged from satisfactory to excellent. Some annual legumes of Mediterranean origin have 'perenniated' through relatively mild summers in 2006–07 and 2007–08. As well, the seeds and inoculant of some subtropical legumes which failed to germinate in autumn 2007 because of drought survived to grow through the summer. Strong candidates for establishment on the abandoned arable lands of East Cape Province are two species of *Ornithopus* (serradella), two species of *Trifolium* (clovers) and *Biserrula pelecinus*, a hard seeded annual legume from the



*Project farmers inspect their cattle, which are raised under feedlot conditions at a research station in Irene, South Africa*

Mediterranean basin, as well as *Lotus*, *Lespedeza*, *Coronilla varia* and *Desmodium subsericeum*.

An important project on **developing profitable beef business systems** for previously disadvantaged farmers was completed during the year. This project has assisted in the development of cattle from emerging farmer herds and enhancing their performance through the domestic commercial market beef system. An increased

understanding of relationships between components of herd profitability as a means of achieving ongoing and targeted genetic and non-genetic improvement of tropically adapted beef cattle has been achieved. Over the life of the 'Beef Profits Partnerships' (BPP), farmer records show increased revenue to the project's emerging farmers by more than 16000 Rand per farmer team per year. The project evaluated a number of tropically adapted indigenous breeds and cattle with findings that growth rates and feed efficiencies of steers from emerging and communal farmer herds can parallel those from commercial herds. There were small or no differences between herd types or breeds in carcase and meat quality attributes opening up encouraging prospects for future marketability of such indigenous cattle. At the end of the project, BPP networks had been expanded to five new South African provinces with widespread commitment to the project's 'Continuous Improvement and Innovation' process. A follow up project on **developing supply chain partnerships** for the emerging beef sector may be considered for commencement after the results of a current one-year study on **segmentation and palatability in the South African market** have been taken into account.