Southern Africa

Financial year	Regional expenditure	Per centage of total bilateral expenditure	Board target as per centage of expenditure
2006–07	$493,222	1.4	<5%
2005–06	$627,876	2.6	<5%
2004–05	$735,199	2.9	<5%

ACIAR's program operating in southern Africa concentrates on the Republic of South Africa. Some projects led by International Agricultural Research Centres in other countries are concluding. For the region an expenditure target of less than five per cent of our overall annual bilateral research expenditure has been set.

Republic of South Africa

Active projects in 2006–07	7
AOP budgeted expenditure in 2006–07	$474,624
Actual expenditure in 2006–07	$493,222
Expenditure in 2005–06	$627,876
Expenditure in 2004–05	$735,199

Key performance indicators	Performance 2006–07
Development of an initiative that aims to provide farmers using traditional cattle breeds with a sound market for their beef	Prices received for cattle owned by the emerging farming communities involved in the project have steadily improved as a consequence of their improved knowledge of marketing their stock and the feedlot buyers being aware of their meat quality. A new project will explore opportunity for partnerships with the retail sector.
Potential lablab and cowpea varieties identified to augment the dryland cropping systems in Limpopo province	On-farm field trials have been established in four districts in Limpopo and North West provinces.
Commercial fertiliser input sector providing appropriate services to emerging farmer markets	SASOL has registered small packs and is retailing fertiliser. In the first year, over 1,000 farmers acquired fertiliser in small packs, resulting in significant yield increases and estimated returns of $400 per farmer.
Methods optimised for the detection of polyploid acacias for plantation forestry	Less time-consuming identification tools were developed. Analysis of stomatal measurements were used to distinguish diploid, mixaploid and tetraploid plants. Near Infra Red Analysis also successfully separated diploids from polyploids in preliminary studies.
Forty percent of new projects designed to have significant farmer or policymaker impacts within five years of completion	Only one new project has been developed in southern Africa during the period and it is 'Category 1'.

Position

ACIAR has been involved with southern Africa since 1983, completing over 40 projects. Benefits to date have included the empowerment of individual and farmer groups to market and receive a fair price for their cattle, vaccines for Newcastle disease in chickens in several countries, a tick-resistance diagnostic test and a tick fever vaccine, selection of Australian trees for exceptionally difficult sites, identification of low-input fertiliser strategies for crops in risky environments, and demonstration that cattle breeds preferred by emerging farmers have equal growth potential to commercial breeds. The priorities and size of the investment by ACIAR have changed over time.

ACIAR has supported IARC projects—through the International Livestock Research Institute (ILRI), the World Agroforestry Centre (ICRAF), the International Institute of Tropical Agriculture (IITA), the International Crops Research Institute for the Semi-Arid Tropics

(ICRISAT) and the International Maize and Wheat Improvement Centre (CIMMYT)—in a number of African countries. The focus of IARC projects is now also exclusively on southern Africa.

Currently, the Republic of South Africa (RSA) is the sole focus of ACIAR's bilateral program. Australian technical knowledge and expertise is highly relevant because similar temperate, Mediterranean and subtropical production environments are found in the two countries. Further, Australia's advanced extension and farming systems capabilities are relevant in building local capacity to assist the development of the African farming sector.

This program is guided by the following principles:

- Our research partnerships must be focused on delivery of benefits to emerging African farmers.
- Projects will only be considered for RSA and 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 our program with those of other South African and international funding agencies, and for potential Australian mutual benefits.

Achievements

Projects in RSA are largely grouped under the following thematic priorities:

- increasing the profitability and sustainability of crop–livestock farming systems
- efficient use of water and nutrients in cropping systems.

Australian acacias are amenable to genetic improvement and have shown large productivity increases through selection and breeding. However in certain regions they can be serious weeds. Triploids (plants with three sets of chromosomes instead of two) in agricultural and forestry crops are usually sterile and this can have the advantages of increased productivity, absence of seed to cause weed problems, and suitability for genetic modification without risk of genetic pollution through uncontrolled outcrossing to non-crop plants. A project to develop triploid clones of four Australian Acacia species and their hybrids for use in plantations in South Africa, Vietnam and Australia has made significant progress. Due to the complex nature of the expression of ploidy after induction, it has been necessary to devise a suite of protocols to efficiently and correctly identify the ploidy of an induced plant. Near Infra Red Spectrometry (NIR) has been successfully employed and ploidy identification is now cheaper and quicker, enabling the project team to scale up induction experiments in 2007–08.

The project to develop **profitable beef enterprises for previously disadvantaged farmers** finished, and has left a legacy of a large and growing number of motivated and trained farmers (and their partners) able to improve beef businesses and take control of negotiations to market their cattle. There is a learning and training strategy in place to help them continue to develop their farming skills and effectiveness. The project also completed a thorough research activity comparing traits for production and meat quality in indigenous South African cattle (Sanga breeds) with those of conventional commercial breeds (i.e. a mix of selected local, exotic and crossbreeds). It showed at a number of levels that, contrary to widely held beliefs, indigenous cattle produce meat that is the equal of that of most conventional breeds and is significantly more tender, and more commercially acceptable, than that of Brahman cattle. This information gives farmers growing these breeds a critical bargaining point in the marketing of their animals, and another advantage along with their other attributes of hardiness and tick resistance.

An emerging group of farmers in Limpopo province in South Africa's north needs to address problems of **unsustainable farming**

practices and land degradation. A project aims to develop forage and management strategies to assist such farmers. Project work planned on veld-based livestock production systems and cropping-based systems was modified after initial site inspections made it apparent that insufficient property size and forage limitations due to veld degradation (in particular bush thickening and loss of perennial grasses) were the most critical management problems facing the emerging farmer groups. With no viable pasture base, any objectives to promote advanced animal nutrition and marketing of better classes of stock are of doubtful viability. Therefore the development of legume fodder banks, which had been intended as the key project activity, was held back and the main focus of field and communication activities switched to veld monitoring, testing the feasibility of spelling animals, shrub control and other reclamation strategies to reclaim lost productivity of the pasture resources.

A project begun during 2006 has a focus on **increasing the incomes of smallholder wool producers** in South Africa's Eastern Cape. National and provincial efforts have attempted to improve wool and sheep management and wool classing, but the main constraint to continued growth is pasture quantity and quality. Pastures are generally small and do not support animal production as well as in similar conditions elsewhere. The project is introducing legumes adapted to such conditions, evaluating both native and non-native varieties.

Smallholder communities in South Africa aim for continuous improvement and innovation in their cattle farming systems