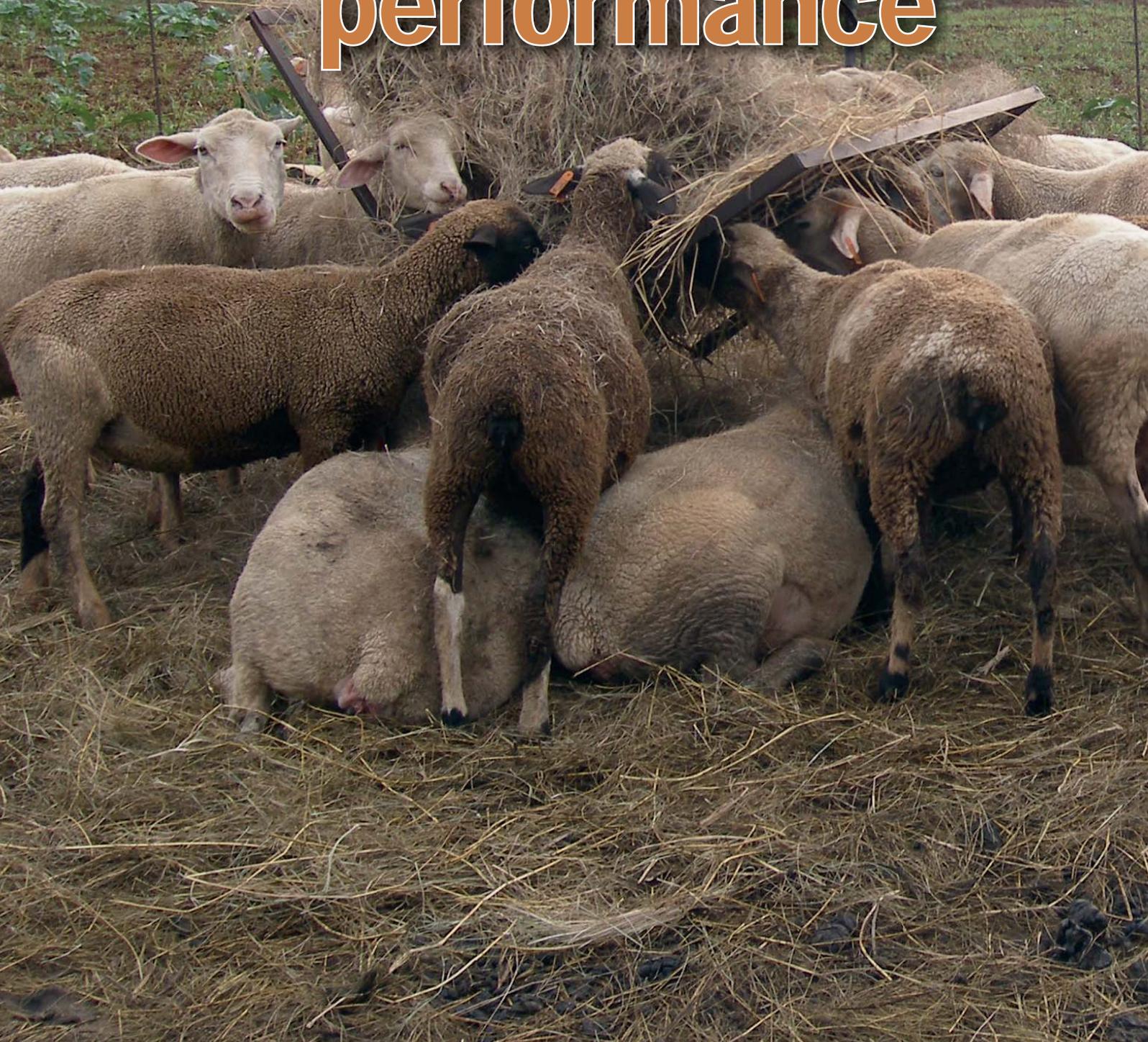


2 Sectoral overview and performance



Economic performance of the sector

NATURAL RESOURCES

The Republic of South Africa covers 121,9 million ha, and has a total population of about 46,6 million people. About 13% of South Africa's surface area can be used for crop production. High-potential arable land comprises only 22% of the total arable land. Slightly more than 1,3 million ha of land is under irrigation.

The most important factor that limits agricultural production is the non-availability of water. Rainfall is distributed unevenly across the country, with humid, subtropical conditions occurring in the east, and dry desert conditions in the west. Almost 50% of South Africa's water is used for agricultural purposes.

LAND USE PATTERNS

Land used for agriculture comprises 81% of the country's total area, while natural areas account for about 9%. Approximately 83% of agricultural land in South Africa is used for grazing, while 17% is cultivated for cash crops. Forestry comprises less than 2% of the land and approximately 12% is reserved for conservation purposes.

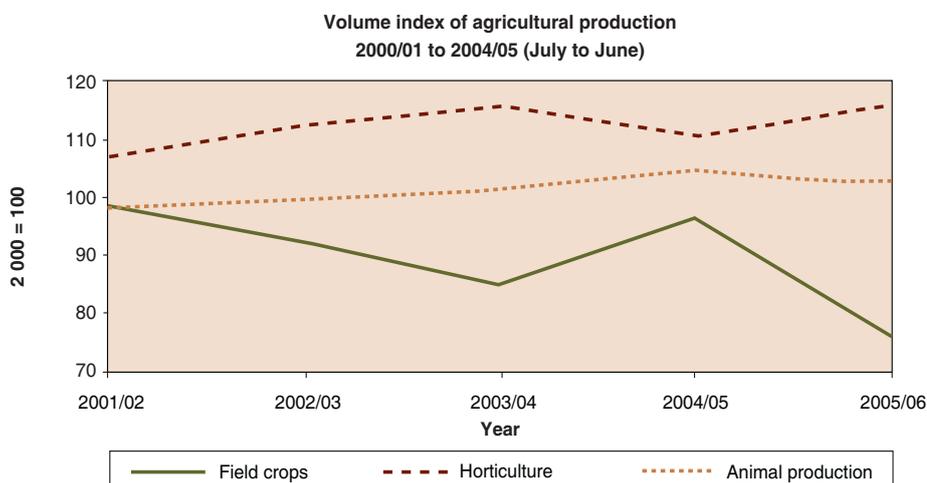
ECONOMIC SIGNIFICANCE OF THE SECTOR

Although agriculture contributed only 2,2% (R30 577 million) to the total gross domestic product in 2005, it is important to note its backward and forward linkages to the national economy. Purchases of goods such as fertilisers, chemicals and implements form backward linkages with the manufacturing sector, while forward linkages are established through the supply of raw materials to industry. About 70% of agricultural output is used as intermediate products in the manufacturing sector.

Formal agriculture provides employment to about 930 000 farm workers. This includes seasonal and contract workers. In addition, the smallholder sector provides full or part-time employment for at least 1,3 million households. It is further estimated that about 6 million people depend on agriculture for a livelihood. Generally, the number of jobs created per unit of investment is higher in agriculture than in other sectors. This implies that growth in agricultural output has a significant impact on job creation.

PRODUCTION

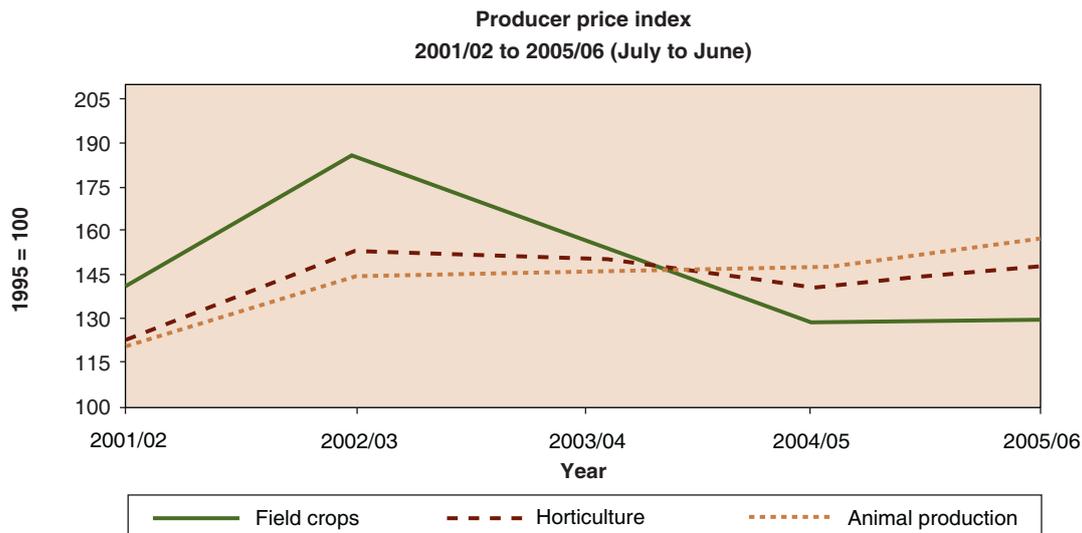
During 2005/06 the estimated volume of agricultural production was 6,4% lower than in 2004/05. The volume of field-crop production decreased by 21,1% compared to the previous year as a result of the decrease in maize, sorghum and dry bean production. Horticultural production increased by 4,6%, while animal production decreased by 2,3%.



PRODUCER PRICES OF AGRICULTURAL PRODUCTS

Producer prices of agricultural products increased on average, by 4,4% from 2004/05 to 2005/06. The combined producer prices of field crops rose by 0,6% from last season, with prices for winter grains, sugar cane, and dry beans increasing by 16,1; 10,3 and 13,7%, respectively. Although the combined producer prices of summer crops decreased by 9,8%, there was a significant increase in the producer prices of maize and sorghum in the second quarter of 2006.

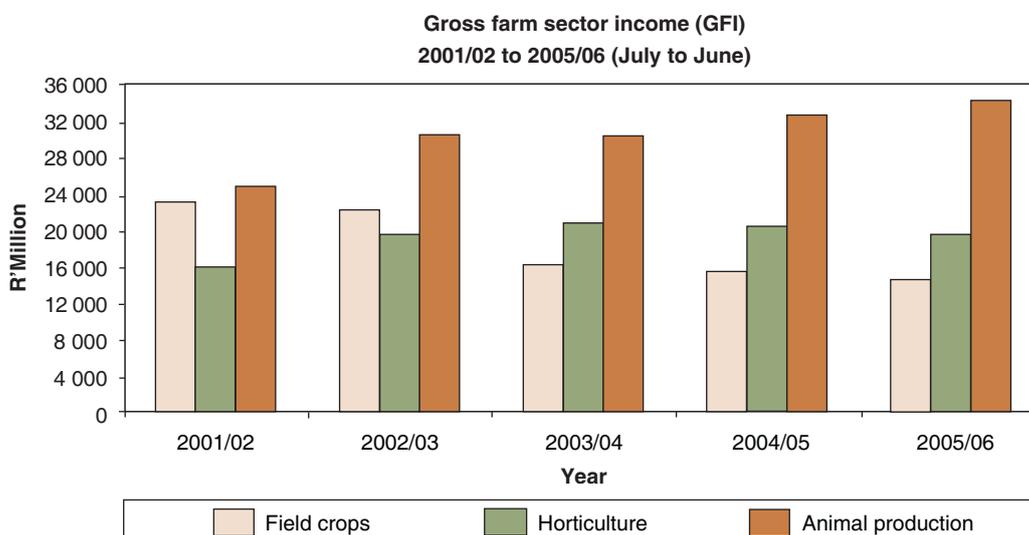
Producer prices of horticultural products increased by 5,4% compared with those of 2004/05. Prices of fresh vegetables increased by 17,2%, while the prices of fruit decreased by 2,4%.



In 2005/06, the producer prices of animal products were 6,5% higher than in 2004/05. Prices received for pastoral products, slaughtered stock and poultry increased by 20,2; 11,8 and 4,1%, respectively. The price farmers received for dairy products was on average 0,2% lower.

FARM SECTOR INCOME

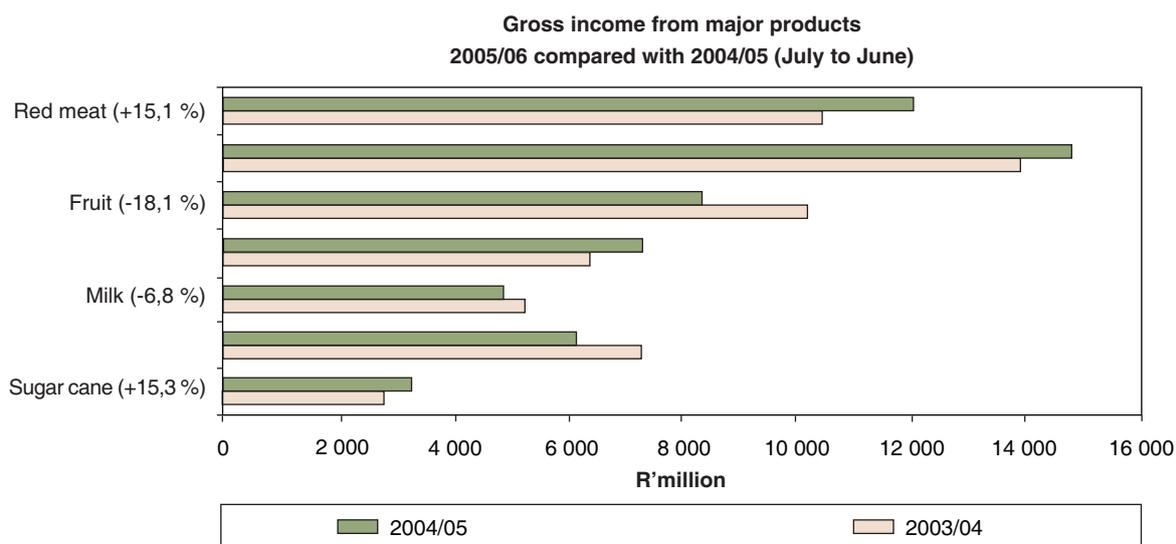
The gross income of producers (the value of sales and production for other uses, plus the value of changes in inventories) for the year ended 30 June 2006, amounted to R68 645 million compared to the previous R67 806 million—an increase of 1,2%.



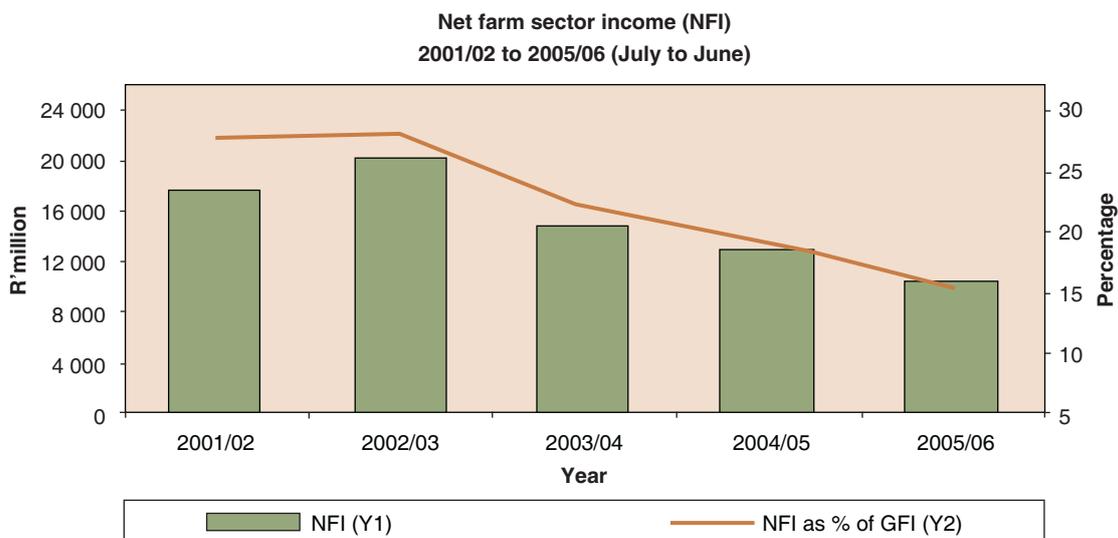
The gross income from field crops decreased by 4,9% to R14 436 million for the year ended 30 June 2006. The reason for the decrease was owing to the smaller maize crop.

The gross income from horticultural products decreased by 3,9% to R19 600 million, compared to last year's figure of R20 400 million.

The income from deciduous fruit and citrus fruit decreased by 20,1 and 24,0%, respectively. However, income from vegetable production increased by 14,6% to R7, 313 million and income from subtropical production increased by 3,0%, while income from viticulture showed a small increase of 2%.



The gross income from animal products was 7,4% higher, and amounted to R34 608 million, compared to the previous R32 229 million during 2004/05. Producers earned R8 776 million from slaughtered cattle and calves, compared to the previous R7 329 million, an increase of 19,7%. The income from slaughtered sheep increased by 12,1% and amounted to R1 916 million. The carcass prices of cattle and sheep increased by 14,7 and 11,3%, respectively. Income from poultry meat production increased by 6,7% to R11 278 million. Income from egg production increased by 6,2% compared to the previous year. Income from wool decreased by 12,6% to R691,5 million.

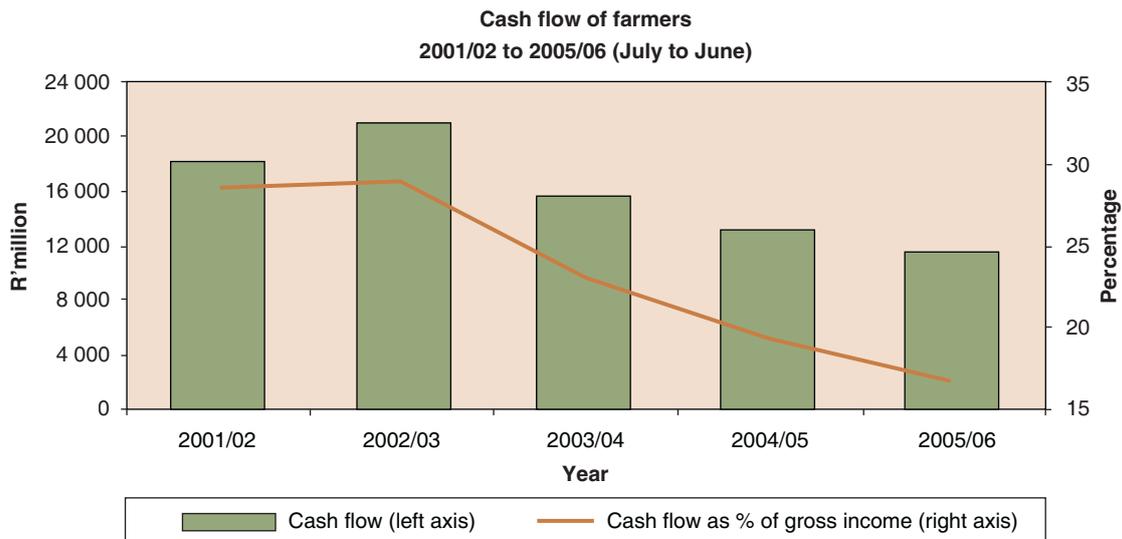


The net farm income (after the deduction of all production expenditures, excluding expenditure on fixed assets and capital goods) decreased by 19% during 2005/06, and amounted to R10 584 million. Payments for salaries and

wages, which represent 16,5% of the total farm costs, amounted to R9 923 million. Interest paid by farmers to banks and other financiers during the 12 months up to 30 June 2006, is estimated at R3 898 million or 6,5% of the total farm cost.

CASH FLOW OF FARMERS

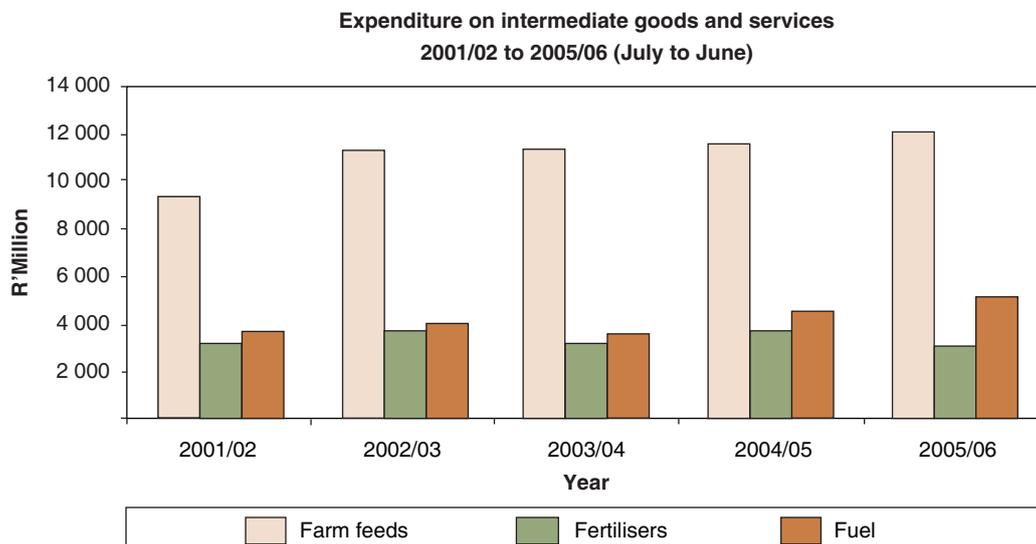
The cash flow of farmers amounted to R11 435 million, compared to the previous R13 068 million for the year ended 30 June 2006—a decrease of 12,5%. This was the result of a decrease in the gross income from field crops and horticultural products.



PRODUCTION COSTS

Expenditure on intermediate goods and services refers to the value of goods and services that were purchased for consumption as inputs during the process of production.

Expenditure on intermediate goods and services during 2005/06 is estimated at R42 576 million, which represents an increase of 5,3% from R40 438 million in 2004/05. Expenditure on fuel and on building and fencing materials showed remarkable increases of 18,4 and 10,5%, respectively.



Expenditure on farm feeds remained the biggest intermediate expenditure item, accounting for 28,2% of total expenditure even though it showed a small increase (4,4%) for the previous 12 months. Farm services, maintenance and repairs, fuel, and fertilisers contributed 11,9; 10,5; 12,5; and 7,2%, respectively, to the total intermediate expenditure.

Expenditure on dips and sprays increased by 3,3%, from R2 839 million to R2 933 million, and expenditure on packing material increased by 2,7% to R2 651 million. Generally, there was an increase in the prices of goods and services purchased for use during the production process.

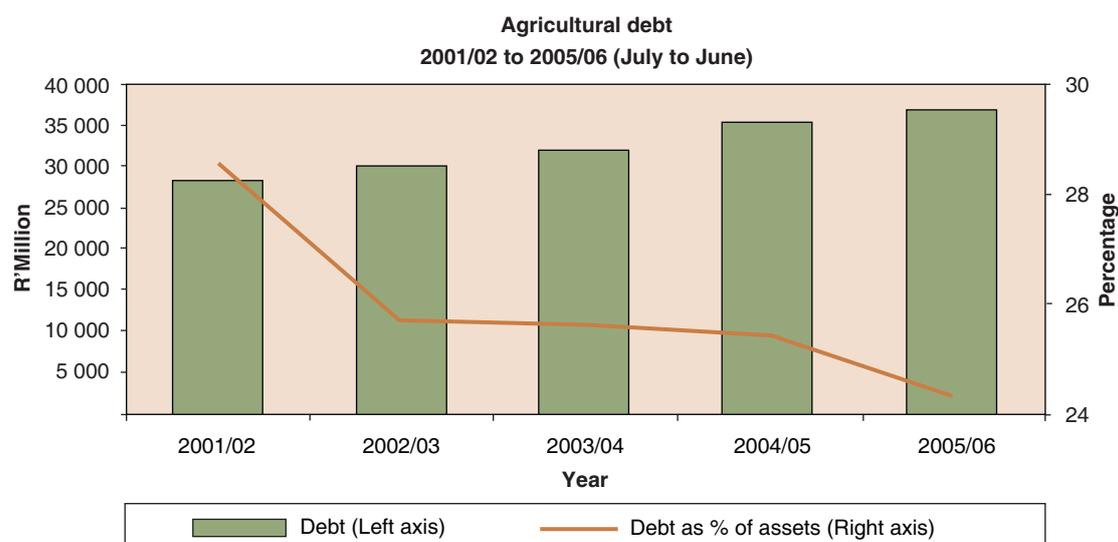
INVESTMENT

The value of capital assets in agriculture as at 30 June 2006 was estimated at R151 076 million compared to the R140 317 million of the previous year. Land and fixed improvements constituted R91 069 million, machinery and implements R26 314 million, while livestock constituted R33 690 million of the total value of capital assets.

The gross investment, in respect of fixed improvements for the year ended 30 June 2006, increased by 5,1% to R3 118 million. In the case of machinery, implements and vehicles, investment decreased by 2,4% and amounted to R4 031 million. The change in the livestock inventory is expected to remain steady given the fact that animal numbers will not change significantly compared to the previous year.

FARMING SECTOR DEBT

The total farming debt at the end of June 2006 was estimated at R36 686 million compared to the R35 592 million of the previous year—an increase of 3,1%.



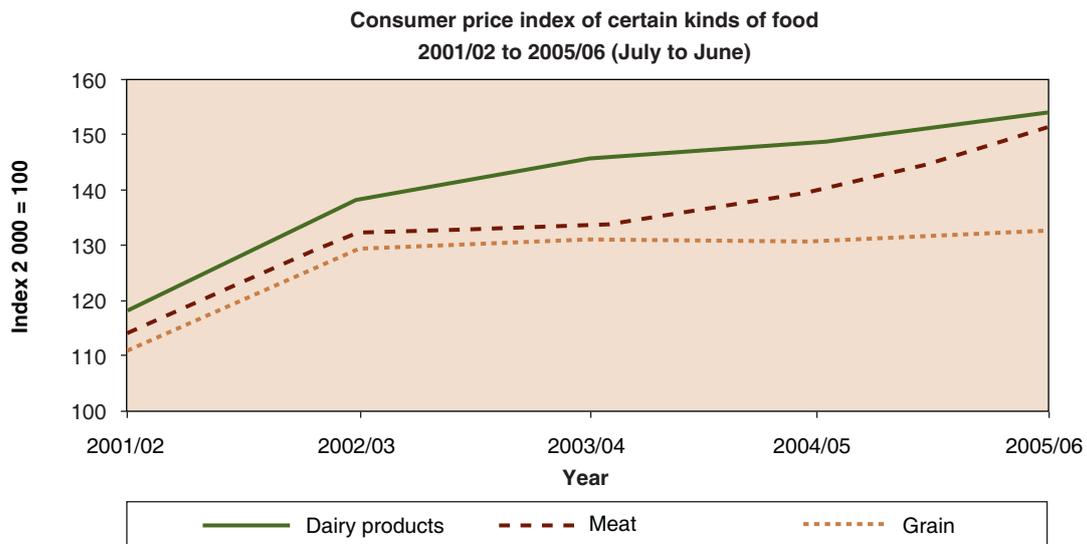
CONSUMER PRICES

The consumer price index of all items increased by 3,8% for the year ended 30 June 2006, while that of food and non-food items increased by 4,5% and 3,2%, respectively.

Meat prices increased by 8,3%, while the prices of grain products reflected a decrease of 1,6%. The consumer price of vegetables increased by 12,4% and fruit prices increased by 0,5%. In the case of dairy products and eggs, prices increased by 3,6%, and an increase of 8,7% was recorded for sugar and related products.

CONSUMPTION EXPENDITURE ON FOOD

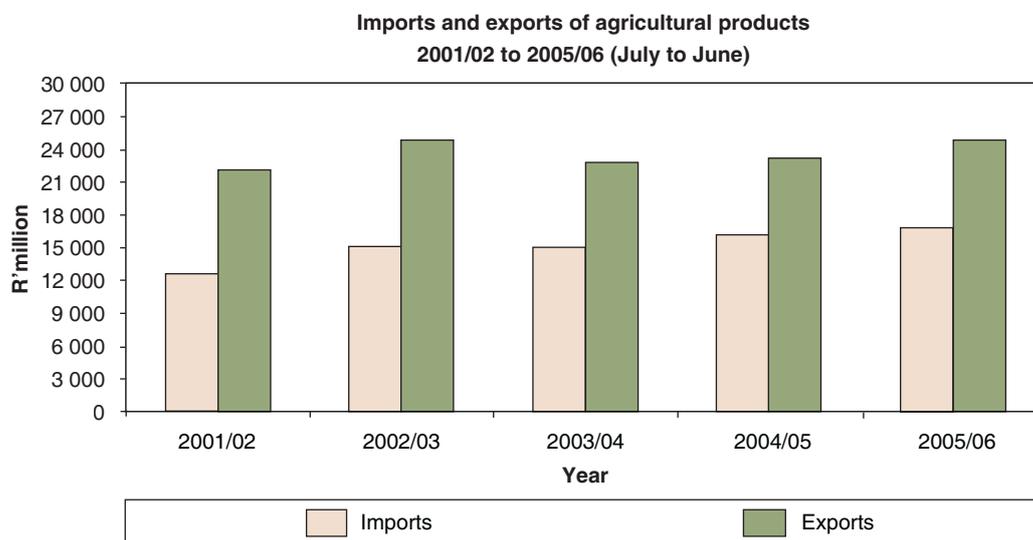
The consumption expenditure on food for the year ended 30 June 2006 increased by 5,6%, and amounted to R178 971 million, compared to the R169 403 million of the previous year. Expenditure on meat increased by 9,4% to R50 312 million, on fruit and vegetables (including potatoes) by 8,0% to R28 870 million, on milk, milk products and eggs by 3,4% to R16 510 million, and on bread and grains by 3,4% to R55 706 million. Expenditure on sugar decreased by 6,3% to R3 513 million, and on oils and fats by 4,9% to R2 941 million.



Meat accounts for 28% of the expenditure on the food component, bread and grains 31%, fruit and vegetables 16% and milk, milk products and eggs 9%.

IMPORTS AND EXPORTS OF AGRICULTURAL PRODUCTS

The value of imports for 2005/06 came to R17 193 million—an increase of 5,9% compared to R16 232 million for 2004/05. The value of exports increased by 5,1% from R23 551 million for 2004/05 to R24 754 million for 2005/06.



According to the 2005/06 export values, wine (R3 564 million), citrus fruit (R2 979 million), sugar (R2 347 million), grapes (R2 103 million) and maize (corn) (R1 996 million) were the main export products.

Rice (R1 318 million), undenatured ethyl alcohol (R1 211 million), wheat (R1 063 million), meat and edible offal of poultry (R1 050 million), and oil cake (R923 million) were the main import products.

During 2005/06, the United Kingdom, The Netherlands, Zimbabwe, United States and Japan were the five largest trading partners of South Africa in terms of export destinations, with export values of R2 943 million, R2 560 million, R1 383 million, R1 291 million and R1 154 million, respectively. About 22,6% of total agricultural exports for the period July 2005 to June 2006 went to the United Kingdom and The Netherlands.

The five largest trading partners from whom South Africa imported agricultural products during 2005/06 were Argentina, Brazil, United States, United Kingdom and Thailand, with import values of R2678 million, R1955 million, R1235 million, R1139 million and R1021 million, respectively.

State of natural agricultural resources in South Africa

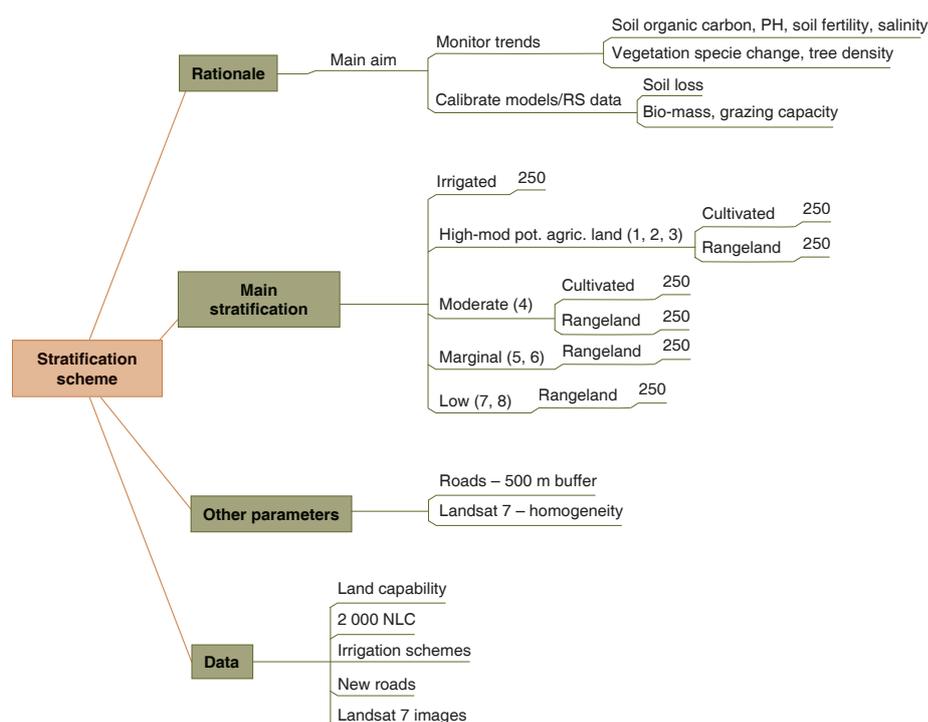
During 2005, the DoA embarked on the development of a programme called the National Fixed Site Monitoring System (NFSMS) for South Africa, aimed at providing reliable quantitative information regarding the status of the natural agricultural resources, at national level.

The objectives of the programme are to:

- Monitor trends regarding the status of the natural agricultural resources at specific sites.
- Provide information suitable for the calibration and verification of products resulting from satellite data processing or model outputs.
- Allow for the development of norms and standards and the implementation of best practices.

The NFSMS will eventually form part of the Natural Agricultural Resource Monitoring System (NARMS) (various scales of application) that will include the utilisation of various other datasets including satellite data, field observations and products derived from prediction models.

The placement and number of monitoring sites are the main issues that can influence the successful implementation and maintenance of the system. A total of 2000 sites were selected by means of random sampling, within a 500 m buffer around major roads in South Africa. The stratification scheme, issues and indicators to be monitored are indicated in the fig. below. The stratification was based on accessibility, land capability and land-cover (see diagram below). Land-cover classes were grouped into three main categories namely; cultivated, rangeland and irrigated. Non-agricultural land was excluded from the stratification process.



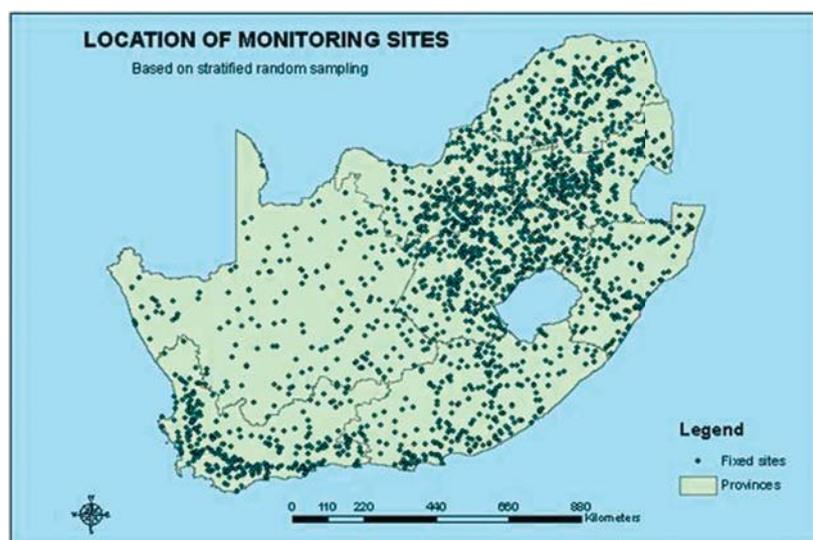
Stratification scheme, issues and indicators to be monitored

The table below contains the issues/resources and indicators to be monitored at various frequencies. Information on soil indicators, species composition and tree density should be collected on a 5-year basis, while biomass information should be collected annually.

Issues/resources and indicators to be monitored

Issue/resource	Indicators	Frequency (years)
Biomass	1	
	Species composition	5
	Tree density	5
Soil	Water erosion	5
	Organic carbon	5
	Soil fertility	5
	pH (acidification)	5
	Salinity	5

The location of fixed sites in South Africa is indicated in the map below. It is obvious that there is a higher concentration of sites in the higher production potential areas. All sites are currently being evaluated to determine their suitability to be included as permanent monitoring sites.



The number of provisional sites per province is indicated in the following table. These figures may change after the selection of new sites (replacing sites found unsuitable).

Number of provisional sites to be monitored in each province

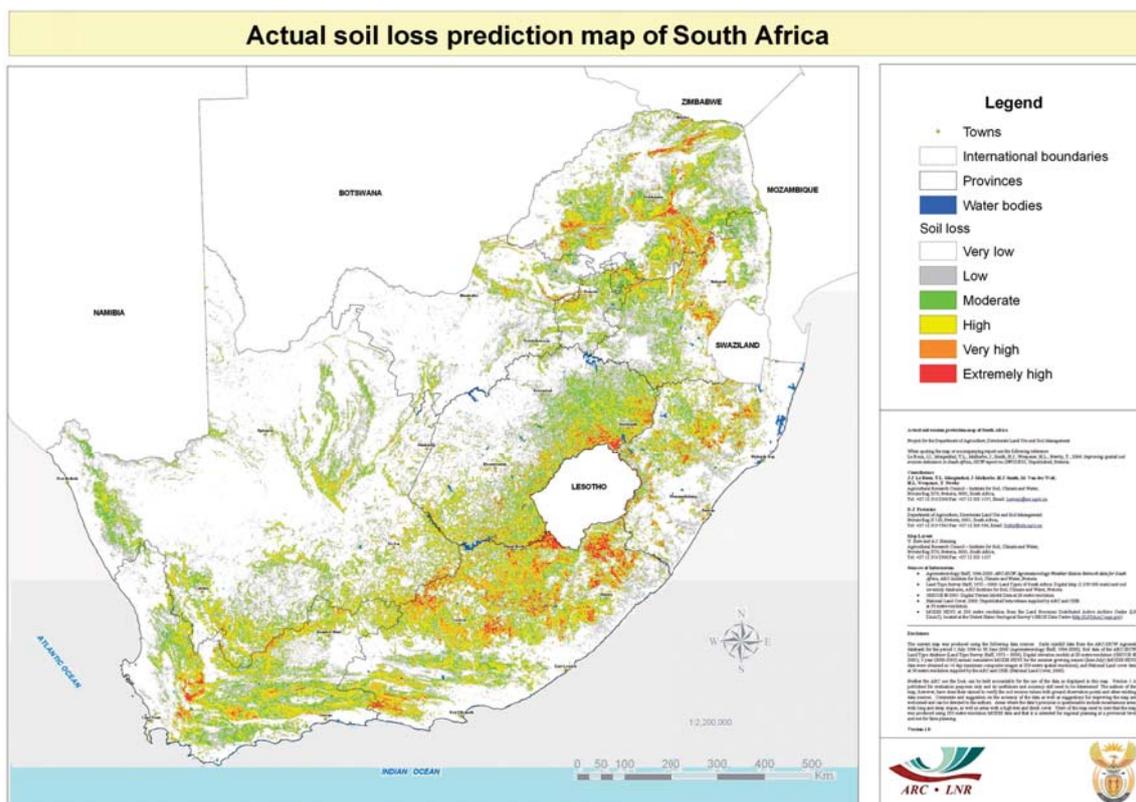
Province	Number
Eastern Cape	238
Free State	388
Gauteng	53
KwaZulu-Natal	146
Mpumalanga	200
Northern Cape	180
Limpopo	251
North West	270
Western Cape	274

The field surveys at the fixed sites will commence in 2007. One of the main logistical issues that still needs attention is arranging access to the sites with landowners. This can be a very time consuming and is currently being addressed through dedicated awareness campaigns.

NEW PREDICTED SOIL EROSION MAP FOR SOUTH AFRICA

The new predicted water erosion map for South Africa (period: 2000 to 2005) is shown in the map below. The map is expressed in quantitative terms, and defined into soil loss classes in tons/hectare/year: very low (0 to 5); low (5 to 12); moderate (12 to 25); high (25 to 60); very high (60 to 150); and extremely high (>150). The map and figures quoted from the report are in the process of being verified by officials of the DoA.

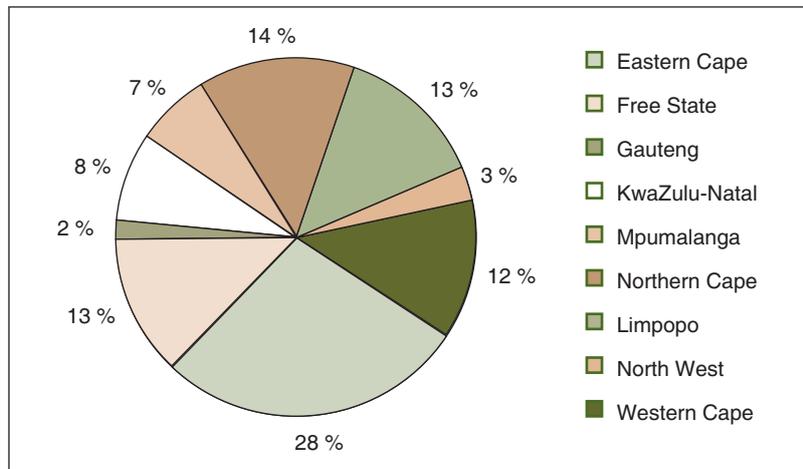
According to the map below, the average soil loss rate for South Africa is 13 tons/hectare/year. According to Lu *et al.* (2003), the average predicted soil loss rate for South Africa is at least three times higher than that estimated for Australia (4,1 tons/hectare/year). South Africa has a higher soil loss rate than Australia, presumably, owing to extensive cultivation and overgrazing. The effects of soil erosion are expected to get worse with agricultural intensification. It is predicted that the eastern part of the country has considerably more erosion than the western part of the country. From the data (see Fig. 1), it was calculated that the area of land with a high to extremely high erosion risk totals 1,5 million ha (around 1% of the land surface). Over 11 million ha (9%) are classified as having a moderate erosion risk, and 17% are classified as very low to low risk. Overall, 20% of land is eroded at a rate greater than the national average rate, showing the potential to target erosion control to problem areas.



Predicted water erosion map for South Africa (period: 2000 to 2005)

In quantitative terms, the largest area of high risk land occurs in the Eastern Cape, mainly in the north. Compared to the whole country, the Eastern Cape makes the largest (28%) contribution to soil loss (Fig. 4) and the mean soil loss is excessive at 25 tons/hectare/year. Almost 60% of the province is classified as “very low to low”, and approximately 12% of the province seems to experience moderate soil loss. Almost one third (26% or 3,7 million ha) of the province is predicted as having high to extremely high soil loss. These results support the conclusions drawn in the Eastern Cape State of the Environment (SoE) report by the CSIR (2004). The SoE report affirms that the province has some of the highest provincial indices of soil degradation, particularly within the commercial and subsistence farming areas. The areas predicted to be greatly affected by soil loss appear to be the degraded unimproved grasslands. Unimproved grasslands are associated with subsistence agriculture where overgrazing by live-

stock has been excessive. The erosion rate could be overestimated in some of the steep arid mountain ranges (e.g. Sneeuberg), which are predicted to have extremely high erosion rates (>150 tons/hectare/year).



Predicted soil loss per province presented as a percentage of the total soil loss in South Africa

In addition to the Eastern Cape, there is a high erosion hazard in certain parts of Limpopo, KwaZulu-Natal, Mpumalanga, Free State and Western Cape. The data in Fig. 4 indicate that these provinces also contribute approximately half as much as the Eastern Cape (12 to 14%) to the soil loss in South Africa. It was also estimated that the average soil loss in these provinces does not differ much from each other, and it ranges between 13 to 16 tons/hectare/year.

The southern part of the Northern Cape also shows signs of high soil loss, but when compared to national land cover data, this soil loss occurs in areas of poor vegetation cover or barren rock. Therefore, high soil loss in some areas remains speculative since patches of bare soil may not necessarily be experiencing high levels of erosion. Furthermore, it is postulated that erosion features in some of these areas are of considerable age and may not be contributing to current sediment yields (e.g. north of Graaff-Reinet). Needless to say, erosion in these areas is as yet poorly understood and needs further investigation.

Soil loss tolerance defines the maximum rate of soil erosion that can occur and still permit crop productivity to be sustained economically. If computed soil loss is greater than the soil loss tolerance value assigned to the particular soil, erosion is considered excessive. Tolerable soil loss can be determined with bulk density, the rate of soil loss, and the soil formation rate. McPhee and Smithen (1984) proposed a range of soil loss tolerances between 3 tons/hectare/year for shallow soils and 10 tons/hectare/year for deep alluvial soils. However, the permitted soil loss calculated in that method, does not take into account the loss of valuable nutrients and good structure in the topsoil, the off-site effects of soil loss, and the exponential character of soil loss. Even low rates of soil loss cannot be interpreted as realistic permissible losses. Nevertheless, the new data from this study (2006) indicate that 24% (30 million ha) of land exceeds the proposed soil loss tolerances.

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DoA involvement in climate change in South Africa

BACKGROUND

South Africa has developed a number of disaster management plans according to the National Disaster Management Framework. Against the increasing awareness of the dramatic social, economic and environmental effects of climate change, a Climate change sector plan is under development to address institutional arrangements, vulnerability assessment, mitigation and adaptation. Four key performance areas (KPA) are identified and addressed, with appropriate imperatives and key performance indicators: Institutional Arrangements for Climate Change, Vulnerability Assessment to Climate Change, Mitigation and Adaptation as well as Response and Recovery.

The Climate change sector plan for agriculture is being developed to be in line with the National Disaster Management Framework for the South Africa. In order to increase awareness of and actions relating to anthropogenic activities that impact on agriculture, a Climate Change-related Plan of Action has been developed. Because agriculture is one of the sectors most affected by the impact of climate change, the DoA has emphasised adaptation and mitigation strategies such as supporting risk management initiatives, research on large-scale epidemics and identifying hazards in the implementation of the National Climate Change Response Strategy for South Africa of the Department of Environmental Affairs and Tourism (DEAT).

PROPOSED PLAN OF ACTION/CURRENT INVOLVEMENT IN CLIMATE CHANGE

The DoA is currently preparing, developing and co-ordinating plans/research programmes to address the pertinent climate change issues affecting agriculture. Identified research areas of importance related to climate change and agriculture (not exhaustive) are as follows:

- Vulnerabilities—Comprehensive audit on vulnerabilities that would identify adaptation priorities
- Contribution of agriculture to greenhouse gas generation—improved estimates and measurements
- Understanding thresholds of crops (and varieties) relating to maximum/minimum temperatures, frost dates, rainfall and soils
- Carbon dynamics and conservation agriculture
- Scenario planning on climate using modelling techniques
- Renewable energy/biofuel—Sustainability for energy vs food security
- New, alternative and appropriate technologies to reduce greenhouse gas production
- Socio-economic aspects of different scenarios
- Awareness raising, capacity building and transfer of technology

There are further research projects in collaboration with other stakeholders and partners. Two projects are currently running with limited funds and additional resources are needed for the identified research projects.

DROUGHT—SCALE OF DROUGHT AND INTERVENTION

Background

Drought originates from precipitation deficiency resulting in water shortage for some activity such as plant growth or water for livestock and grazing. It is a natural hazard that differs from other hazards in that it has a slow onset and evolves over several months or years.

The country has been in drought since the end of the excessive rains of the 1999/00 summer rainfall season. A spike of bumper rains during the latter part of the 2005/06 summer rainfall season brought many under the false impression that the drought had been broken. The poor rainfall performance during the current summer rainfall season proved them wrong, as drought conditions with their concomitant impact are still evident in most provinces.

The analysis of provincial reports of the agricultural status in the provinces for the past six months, which were confirmed by telephonic conversations with the NAC members in the provinces, revealed that drought conditions were developing with crops failing, declining dam levels and deteriorating veld and livestock conditions. Drought-related livestock mortalities have been reported in most provinces. To date, the total amount of R468 million has been allocated for purchasing and transportation of fodder as well as the repair of old and drilling of new boreholes in eight provinces, namely: Limpopo, North West, Mpumalanga, Free State, KwaZulu-Natal and the Eastern, Northern and Western Cape.

It is also not easy to determine both its onset and cessation. Although seasonal forecasts provide probability forecasts on the expected rainfall deficiency prior to the start of the season, possible drought can be predicted to a certain extent using a variety of impact-orientated indices, e.g. the Palmer Drought Severity Index.

In terms of the Drought Management Strategy the major climatic criteria for determining drought condition is rainfall. With respect to livestock other factors either extend the duration or exacerbate the shortage of forage and grazing associated with a drought. Specific factors in this regard are plagues such as locusts, Karoo caterpillars, millipedes, severe hailstorms, etc.

Procedure

The DoA keeps constant contact with the provinces to for a follow-up on both receipt and utilisation of the early warning information. In the event of drought, the following are carried out:

- Contacting the affected province to request a preliminary report, indicating the extent of damages to agriculture and the measures in place from the province
- Conducting disaster assessment in the province in collaboration with provincial officials, and sometimes with the relevant directorates in the department.

Prepare a detailed report with recommendations to the DoA management for the establishment of the scheme, where necessary. After the establishment of the assistance scheme, a framework is drawn up.

Monitoring and evaluation

The DoA visits the provinces for implementation as well as regular monitoring and evaluation of the established schemes.

Drought Management Plan

The department is currently developing the Drought Management Plan based on the National Disaster Management Framework and the Disaster Management Act, 2002 (Act No. 57 of 2002) in collaboration with stakeholders whose roles and responsibilities are outlined, because drought management is a collective effort.

FLOODS—PRE-EMPTIVE ACTION/INTERVENTION

In 1999, the DoA drafted the Drought Management Strategy in a bid to increase efforts to address drought management. Drought remains by far the biggest challenge ever, with the impact escalating each year.

Following the 2000 floods, the Limpopo Basin National Baseline study for South Africa was commissioned by the Global Environmental Facility/United Nations Environmental Programme Medium-Size Subregional Project in partnership with the Governments of Mozambique, Zimbabwe, South Africa and Botswana to introduce land-use planning projects along the Limpopo River to mitigate the impact of floods.

Floods, especially in the coastal areas of the Eastern and Western Cape have become a thorn in the recent past with farming communities continuing to receive the shorter end of the stick. The DoA will develop a draft Flood Management Strategy to deal with floods during the 2007/08 financial year. In drafting this plan, a platform of collaboration with DWAF would be a vital ingredient. Institutional arrangements plague disaster management in South Africa. The DoA is geared to establishing a agricultural disaster risk management system comprising agricultural disaster risk management units in the provinces. The units will serve as communication channels used by the DoA.

The Disaster Management Act of 2002, advocates a continuous and integrated multisectoral, multidisciplinary process of planning and implementing of measures aimed at preventing or reducing the risk of disasters, mitigating the severity or consequences of disasters, emergency preparedness and post-disaster recovery and rehabilitation.

The new approach is a shift away from a perception that disasters are rare occurrences managed by emergency rescue and support services. A shared awareness, early warning and responsibility have to be created to reduce the negative impact of agricultural risks and hazards.

EARLY WARNING

The National Agrometeorological Committee (NAC) advises the agricultural sector on the impending elements and hazards that may affect farming negatively. This committee compiles the monthly NAC advisories which inform the farming community on the current status of farming activities, the expected weather conditions and steps to prevent, minimise and instill a constant state of preparedness with respect to the impact of expected hazards. In addition to the monthly advisories, the directorate is also issuing daily extreme weather warnings for droughts and floods.

To be effective and efficient, an Early Warning System must be multihazard, people-centred and must integrate four elements:

- **Risk knowledge**—Knowledge of the relevant hazards, and of the vulnerabilities of people and society to these hazards
- **Monitoring and warning service**—A technical capacity to monitor hazard precursors, to forecast the hazard evolution, and to issue warnings
- **Dissemination and communication**—The dissemination of understandable warnings, and prior preparedness information, to those at risk
- **Response capability**—Knowledge, plans and capacities for timely and appropriate action by authorities and those at risk.

Intervention

The DoA keeps constant contact with the provinces as a follow-up on both receipt and utilisation of the early warning information. In the event of floods, the directorate carries out the following:

- Contacting the affected province to request a preliminary report indicating the extent of damages to agriculture and the measures in place from the province
- Conducting disaster assessment in the province in collaboration with provincial officials, and sometimes with the relevant directorates in the department.
- Preparing a detailed report with recommendations to the DoA management.

Monitoring and evaluation

The DoA visits the provinces for implementation as well as regular monitoring and evaluation of the established schemes.