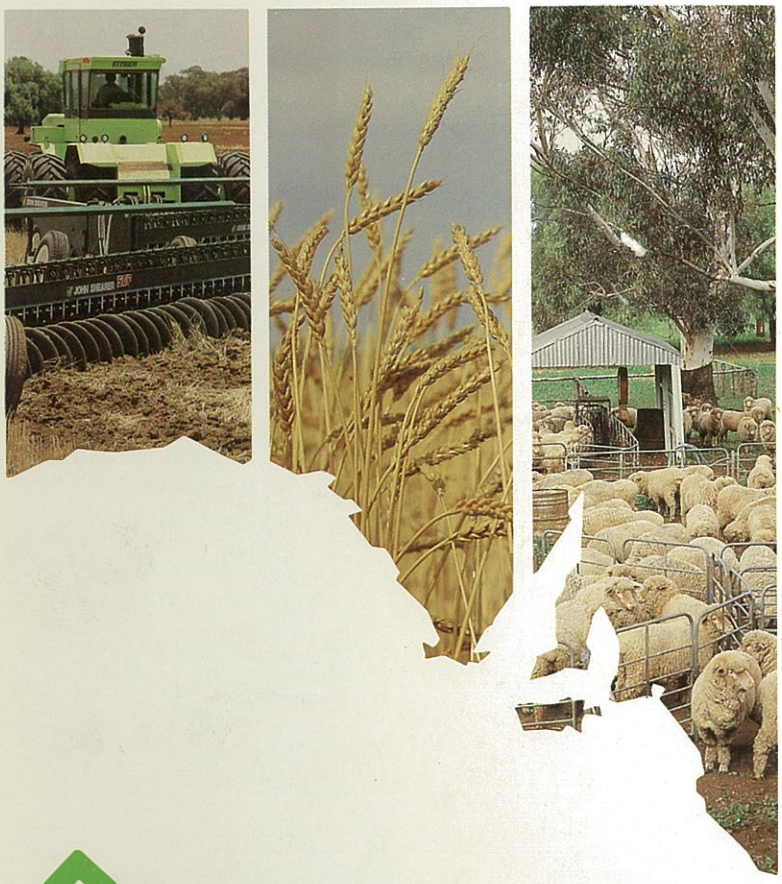
SAGRIC 84-87

Planning of Department of Agriculture services for South Australians



DEPARTMENT OF AGRICULTURE
SOUTH AUSTRALIA

SAGRIC 84-87

Planning of Department of Agriculture services for South Australians

Department of Agriculture, South Australia, October 1983

Department of Agriculture
South Australia, 1983
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Foreword

Agriculture's important contribution to the South Australian economy is enhanced by an efficient and forward looking Department of Agriculture.

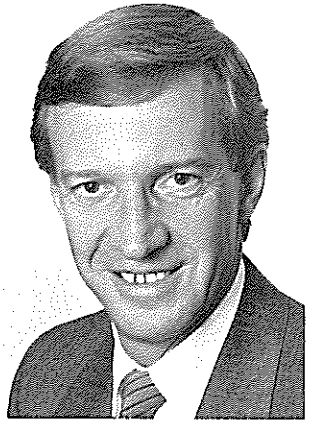
As Minister of Agriculture I can see how important it is for primary producers and others concerned with agriculture to be aware of the department's plans for the next few years. Departmental staff have prepared this corporate plan and I am sure they will find it a valuable working document.

This booklet outlines the activities that the Department of Agriculture plans to undertake in the next triennium; it describes the current agricultural environment; and it identifies issues likely to affect agriculture over the next few years.

The publication of a plan for the department on a three yearly basis will make possible a greater involvement of both staff and clients in ensuring that important needs of clients are being met.

Agricultural needs are difficult to plan for because of the changing nature of agriculture, hence the plan will be reviewed each year and a set of new goals will be published annually.

I am pleased to commend this document to those who use the services of the department and to departmental staff, as a guide to where we are going and how we plan to get there.



MINISTER OF AGRICULTURE

Contents

Farming in South Australia

Most of South Australia is arid or semi-arid. Only four per cent of the State's total area receives more than 500 mm of rain each year and only nine per cent of farm and pastoral land is under cropping or permanent improved pasture. South Australia, with mild, wet winters and hot, dry summers, has an almost identical climate with that of Mediterranean countries. Despite the harsh climate, South Australia contributes more than 10 per cent of the gross value of Australian agriculture.

South Australian farmers have developed a highly productive agricultural system which is largely based on the integration of cereal and livestock production.

The State has three main agricultural zones, as shown in Figure 1.

The pastoral zone is characterized by low rainfall and its agricultural production is based entirely on wool and beef. Livestock numbers in this area are generally referred to as number of head a square kilometre.

The cereal zone has a more reliable rainfall. Production is based on a cereal-livestock ley system with wheat and barley crops rotated with sheep and cattle grazed on legume-based pastures. This zone accounts for approximately two thirds of the annual gross value of agricultural production in South Australia.

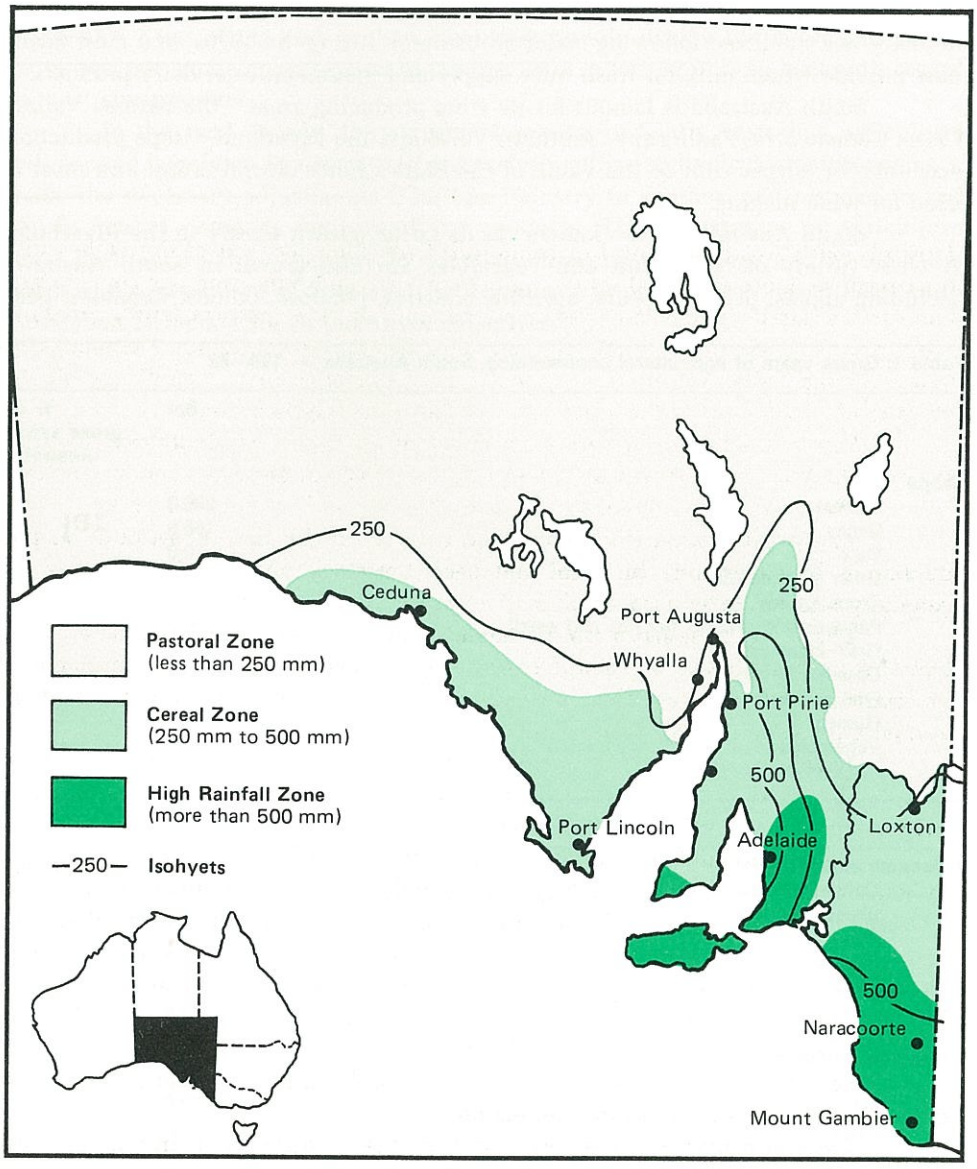
A wide range of activities is carried out in the high rainfall zone including beef, lamb, wool, dairy production and other livestock enterprises, and a variety of field cropping and horticultural production.

Cereal production accounts for about 90 per cent of the total area cropped in South Australia. Wheat is the biggest crop, followed by barley (refer Table 1). The low winter rainfall and hot, dry summer is ideal for cereal growing and there is a lower incidence of stem rust in South Australia than in the wetter wheat-producing areas of Australia. More than a third of the nation's barley is grown in this State. This has been predominantly high quality malting barley, however, in the last few years, production of lower quality feed barley has been increasing.

Livestock products account for approximately 48 per cent of the gross value of South Australia's agricultural production.

Pastoral activities are widespread, from the saltbush plains in the Far North to the well-watered pastures of the South-East. Sheep grazing is predominant, with about 87 per cent of total sheep being Merino. Pioneer breeders in South Australia developed a large-framed type of Merino that yields an exceptionally high clip of medium to strong quality wool. The dual-purpose breeds, Corriedale and Polworth, are popular in the less arid areas.

Figure 1: Main Agricultural Zones



Traditionally, beef cattle production was carried out mainly in the State's northern pastoral region, but approximately 50 per cent of the South Australian herd is now located in the high rainfall area of the South-East. Eradication of bovine brucellosis and tuberculosis through a major State-Commonwealth campaign is almost complete in all except the northern part of South Australia.

The dairy industry is confined to high rainfall or irrigated areas in the Adelaide Hills, Lower South-East, Lower Murray, and the Lakes irrigation area. The industry has stabilized following major adjustment during the 1970s, and most farms now provide whole milk for fresh milk supply and manufacture of dairy products.

South Australia is famous for its wine producing areas - the Barossa Valley, Clare, Coonawarra/Padthaway, Southern Vales and the Riverland. Grape production accounts for 30 per cent of the value of the State's horticultural crops, and most is used for wine making.

South Australia is also known for its citrus, grown mostly in the Riverland. A wide variety of other fruit and vegetables are also grown in South Australia including apples, peaches, pears, apricots, cherries, potatoes, onions, tomatoes, peas

Table 1: Gross value of agricultural commodities, South Australia — 1981-82

	$m	% of gross value Australia
Crops		
Wheat	266.0	10
Barley	168.8	37
Oats	10.8	7
Other grain cereals	2.2	1
Crops for hay	11.9	16
Pastures and grasses (for hay and seed)	31.5	10
Grain legumes	10.8	17
Oilseeds	3.0	8
Fruit and nuts	71.4	16
Grapes	70.9	34
Vegetables	74.7	14
All other crops	16.2	2
	738.2	12
Livestock slaughtering		
Cattle and calves	134.8	7
Sheep and lambs	121.5	19
Pigs	54.4	14
Poultry	37.8	10
	348.4	11
Livestock products		
Wool	260.5	15
Milk	52.0	5
Eggs	22.5	9
Honey and beeswax	3.0	17
	338.0	11
Total agriculture	1425.0	11

Source: Australian Bureau of Statistics

and brassicas. Some horticultural industries are facing severe economic problems which may lead to a change in production patterns.

The pig and poultry industries are dominated by large, intensive production units, most of which are located close to Adelaide. Both industries underwent major structural changes during the 1970s. Prior to this, they consisted of a large number of small producers with little industry organization. Now much of the production comes from a small number of large companies involved in breeding, production and marketing. Sales of pig and poultry meat rose rapidly during the latter part of the 1970s and per capita consumption of poultry meat is second only to beef with regard to meat consumption.

In the next decade, the continued success of South Australian agriculture will depend largely on its capacity to successfully utilize technological improvements, make the necessary adjustments from one industry to another, and respond to and satisfy market demands for agricultural products. The Department of Agriculture must itself retain the capability to adapt to changing technology and to meet the needs and expectations of farmers. It will continue to provide services to help South Australian farmers achieve their own objectives.

The Department of Agriculture

Origins

The provision of State Government-sponsored agricultural services to the farming community dates back to the late 19th century when advisory services were developed through the Agricultural Bureau movement, research was initiated at Roseworthy Agricultural College, and protection services began under legislation administered through a Stock and Brands Department.

Resources

In 1983, the South Australian Department of Agriculture has a staff of 1 087 officers, of whom 885 are employed under the Public Service Act. More than 70 per cent of the Public Service Act staff are agricultural and veterinary graduate staff and technical support staff.

The department is funded by the South Australian Government, the Commonwealth Government, industry bodies and other special funding bodies. Funds include loans to farmers, administered by the Rural Assistance Branch of the department. In 1982-83, the total funds administered by the department were in excess of $91m. These included $44m advanced by the State and Commonwealth Governments for natural disaster relief.

Services

The Department of Agriculture has a wide range of activities carried out by officers in metropolitan, regional and district offices, research centres and laboratories. Their location is shown in Figure 2 and listed at the end of this publication. The department's activities are managed by senior officers at head office in Adelaide and five regional headquarters. The senior management structure was revised recently and the organization chart is shown in Figure 3.

Extension services are provided throughout the State by specialist staff who work together as multi-disciplinary teams. Research is conducted at research centres and laboratories, and on farmers' properties. The research centre network has been the subject of a major review and a reorganisation of the network is likely. Diagnostic work is also done at these centres for staff and the public.

Figure 2: Department of Agriculture — Offices and Regional Boundaries

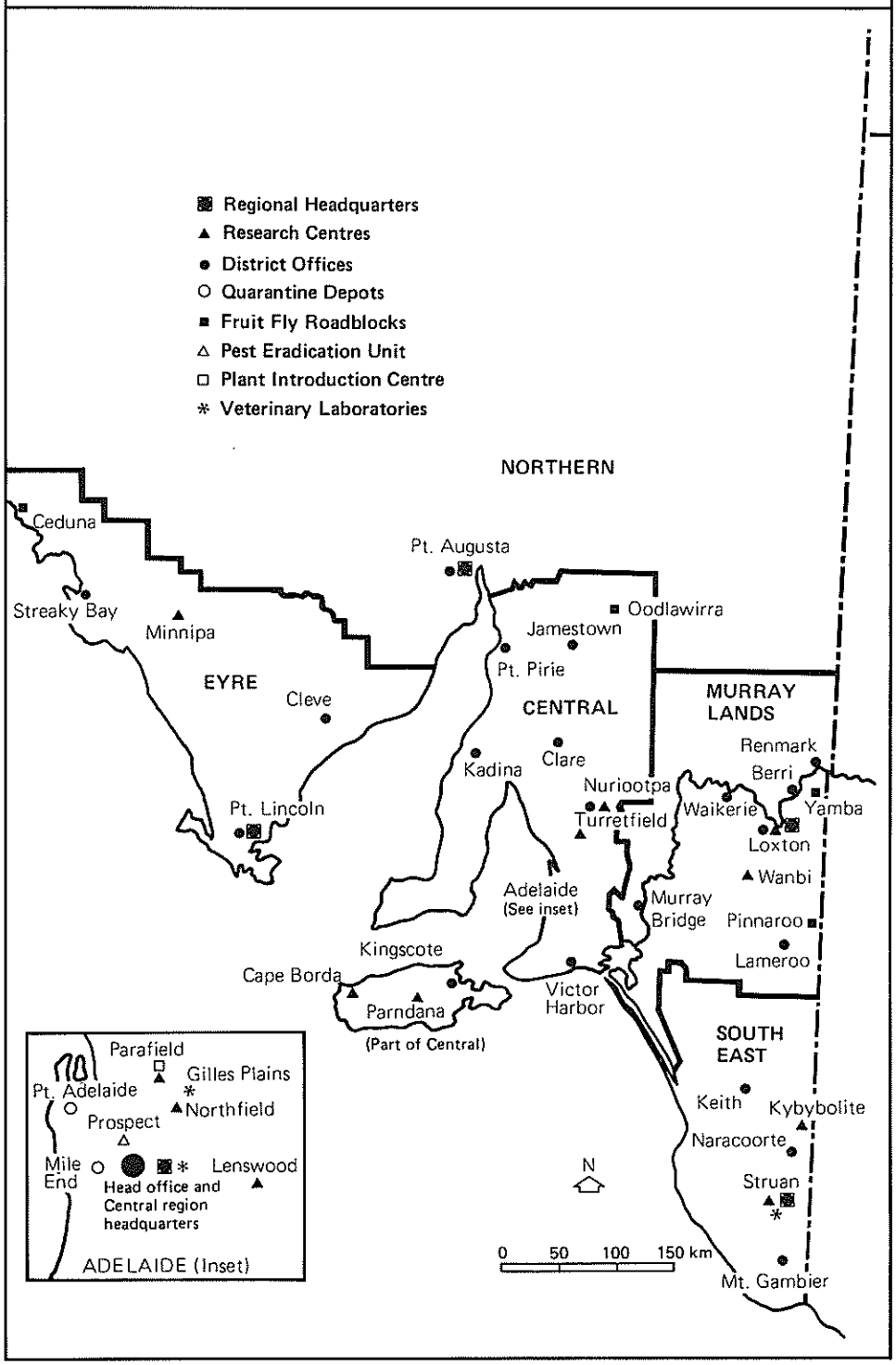
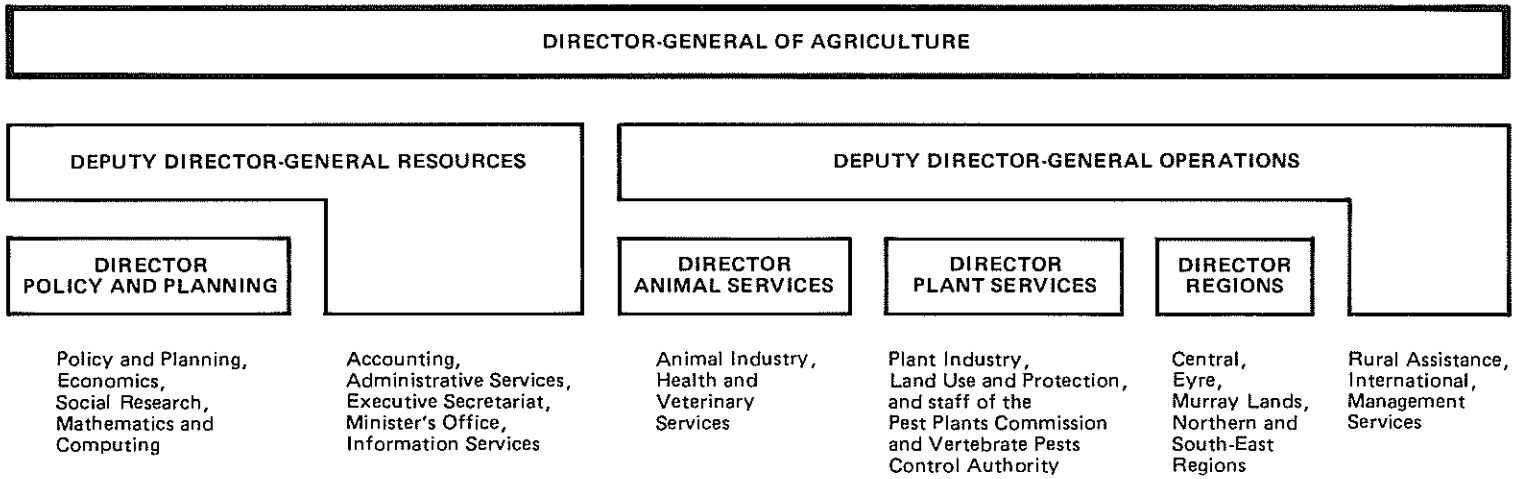


Figure 3: Department of Agriculture, South Australia — Organization Structure



The department administers Acts and Regulations on behalf of the State and Commonwealth Governments (refer Appendix). Staff are employed to ensure regulatory requirements are met. The number of Acts for which the department is responsible is being progressively reduced as obsolete or redundant Acts are repealed. The department successfully carries out most of its State-funded regulatory work through extension activities rather than by taking a legalistic approach.

Staff of a number of statutory authorities, including the Pest Plants Commission, Vertebrate Pests Control Authority and Meat Hygiene Authority are also integrated with the Department of Agriculture. A range of services support the extension, research, diagnostic and regulatory activities.

The department's activities are decribed in subsequent chapters.

Charter

The Department of Agriculture operates under the following charter of corporate objectives and functions.

Corporate objectives

- ☐ To contribute to the social and economic welfare of South Australia and the nation through provision of services related to agriculture.
- ☐ To stimulate and assist the agricultural sector to provide high quality food and fibre at competitive prices for the benefit of all South Australians.
- ☐ To encourage the most efficient use of the State's natural resources relevant to agriculture (including soil, water, plant and animal resources) for the benefit of the entire community.
- ☐ To assist the State's rural industries to remain economically sound and to assist participants in the agricultural sector to advance their physical, social and economic welfare in line with the remainder of the community.
- ☐ To further the health and well-being of economic, farm, laboratory, sports, zoo and companion animals.
- ☐ To promote the development of technical and trading relationships with developing countries through provision of expertise to support their agricultural growth.
- ☐ To maintain a high level of motivation and achievement by staff in serving the community and implementing government policies whilst also recognising the aspirations of staff for a satisfying and productive career.
- ☐ To promote an understanding and appreciation of the contribution of the agricultural sector to the economic and social welfare of South Australia.

Corporate functions

- ☐ Provide advice to the government to assist in the formulation of agricultural policies.
- ☐ Administer government legislation designed to manage and enhance the development and quality of production from the State's agricultural industries.
- ☐ Prevent the introduction of new, and control the spread of existing, pests and diseases that adversely affect agricultural industries.

- ☐ Provide research, extension and inspection services to ensure that food of acceptable quality and safety is available to the consumer.
- ☐ Encourage the efficient use and conservation of the soil and water resources used in agriculture.
- ☐ Conduct research into the biological, physical, social and economic aspects of existing and potential agricultural industries and improve the quality and efficiency of production and marketing.
- ☐ Provide diagnostic services for, and conduct research into, diseases of farm, sport, companion, zoo, native and laboratory animals and provide a range of species and strains of animals for research and educational purposes.
- ☐ Provide an agricultural advisory service to farmers and the general community covering technical, economic and marketing aspects.
- ☐ Provide agricultural expertise to developing countries in compliance with government policy.
- ☐ Administer funds made available for the improvement of primary production, rural adjustment, and assistance to rural producers who experience hardship as a result of natural disasters.
- ☐ Provide support services across the Department of Agriculture to facilitate the operation of the department's programs.
- ☐ Conduct staff training programs to maintain a high level of motivation and achievement and to provide opportunities for satisfying the career aspirations of departmental officers.

Programs

To achieve the department's objectives eight programs are being carried out.

- ☐ Agricultural industries policy
- ☐ Agricultural crop industries
- ☐ Horticultural crop industries
- ☐ Animal industries
- ☐ Farm management and rural community support
- ☐ Agricultural resource management
- ☐ Veterinary laboratory services
- ☐ Support services

Subsequent chapters outline the purpose of these programs and describe the environment in which they operate. Problems facing farmers are identified and likely developments relating to agriculture are discussed. Each program chapter outlines the department's activities and summarizes the major issues likely to affect farmers and the department during the next few years.

Corporate goals planned by the Department of Agriculture are listed at the end of the program chapters and new goals will be published each year.

The Future - a Planned Approach

Corporate planning

The Department of Agriculture carries out its activities through eight major programs that can be broken into 40 sub-programs relating to industry or service areas. Each sub-program contains a number of individual projects; there are about 800 projects conducted by the department. This project-based management system is compatible with the South Australian Government's Program Performance Budgeting (PPB) system.

The programs and sub-programs cut across organizational units of the department allowing it to plan activities not only for particular districts and regions within the State, but across the whole department according to State-wide industry and client needs. The department reviews its plans for the next decade every year by examining the current environment and attempting to identify changes likely to affect agriculture during the next ten years. Against the framework of the present and likely future environment, current activities are reviewed and corporate goals that identify proposed changes in direction or emphasis of activities are set.

Corporate goals - a definition

For planning purposes within the Department of Agriculture, a corporate goal has been defined as a proposal having a specified purpose within the objectives and functions of the department. It is responsive to the current and projected environment in which the department operates and is embodied in a statement which is time-bound, achievable, includes a broad statement of strategies and is capable of evaluation.

Goals have been assigned to short, medium and long term categories. Short term goals are to be achieved within twelve months, medium term goals in one to three years, and long term goals during the next ten years.

Monitor and review

The department adopts a flexible approach to planning and recognizes that medium and long term goals may need to be modified as a result of changing circumstances in agriculture or resource constraints. The implementation of the department's plan and its success in achieving the goals is monitored during each annual cycle of review.

Agricultural Industries Policy

According to recent projections, there is likely to be a world-wide trend towards a closer balance between the supply and demand for food during the 1980s. This contrasts with the current oversupply of many major agricultural commodities. During the 1970s and up until 1983, food production exceeded demand. This has been referred to as a "farm problem". Analysts are now predicting a shortage of certain agricultural products, a so-called "food problem", in the world during the 1980s.

There are other emerging pressures likely to affect the demand for food in the 1980s. Relative inflation rates, exchange rate fluctuations between trading nations, and changes in trading policies all affect international markets. These factors ultimately influence the production decisions of South Australian producers.

There is potential capacity in South Australia to meet the projected growth in demand for food. However, the costs of achieving this added production in terms of inputs (such as fertilizer and herbicides), machinery costs, opportunity costs of land, and greater yield variability on marginal land which may be brought into use, could be substantially higher than present costs. Studies recently conducted by the United States Department of Agriculture (USDA) show the growth of per capita agricultural output has declined in recent years. This supports the belief that further gains in yields and overall productivity will be achieved much more slowly than in previous periods. These gains could be significantly less than the projected increase in demand for food, according to the USDA. The implication is that real agricultural and food prices could rise sharply, encouraging the use of increasingly costly production techniques, less productive land and scarce water resources. South Australia has about 63m ha of land devoted to agriculture, of which about 2.6m ha are sown to cereals each year. The supply of land suitable for cropping in South Australia at present crop prices is limited, but, given a substantial rise in cereal prices, there will be greater pressure to crop marginal lands and to increase cropping intensity.

The South Australian rural economy was given a short term boost by the 10 per cent devaluation of the Australian dollar during March 1983. Devaluation lowers prices paid for Australian goods by importing countries, which may lead these countries to increase their purchases of some Australian agricultural commodities. The effect will vary between different agricultural commodities according to the extra amount sold as a result of the lower price, depending on the sensitivity of demand of the world market to price changes for each commodity. Although the net effect of devaluation on South Australian agriculture should be positive, there are a number

of costs including increased prices for agricultural imports and the effect on local agricultural costs of increased domestic inflation arising from the devaluation. Since agricultural imports are less than one per cent of total production costs the effect of their increased cost is negligible, but the effect of an increase in Australian real wages resulting from domestic inflation could be quite serious. It should be noted that the effect of the March 1983 devaluation has been counteracted by a slow revaluation.

In summary, Australian agriculture in the 1970s showed a marked downturn in its competitive position due to two main factors - rapid domestic inflation, resulting in massive increases in prices paid by farmers for production inputs, and exchange rate movement in which the Australian dollar did not decline in value to reflect the increase in inflation as would normally have been expected. The Australian dollar maintained its value largely because of the inflow of foreign capital associated with mineral development and a decline in the relative position of agriculture in the economy. Further to this, the supply of many agricultural products on the world market has been, and still is, in excess of demand.

Export markets

Australian farmers rely on export markets for the sale of a large proportion of their production. Importing countries can restrict Australian competition by implementing policies to subsidize their own local production on their domestic and export markets. These policies limit Australian competition in markets such as the European Economic Community (EEC) and Japan and in markets in which Australia competes with these countries. It is unlikely Australia's access to these markets will substantially improve in the short term.

Four major factors affect the total demand for Australia's exported agricultural commodities, namely exchange rates, the world economic situation, Commonwealth and State Government policies affecting the rural sector, and the efficiency of production of Australia's farms.

Exchange rates

Any change in Australia's exchange rates significantly affects commodities, such as wheat, for which prices are determined on world markets. An increase in exchange rates means the prices for these commodities decline relative to those for which prices are determined domestically. Changes in exchange rates also affect the price of imported farm goods. The outcome is a change in profitability of Australian agricultural industries.

World economy

Overseas prosperity and protectionist policies of trading partners affect the export opportunities for Australian produce. If world economic activity maintains only a low growth rate in the 1980s, increases in consumer demand will remain slow. The current relatively high interest rates in overseas countries have discouraged the holding of stocks of produce which means that even a slight increase in demand for certain commodities may result in significant price increases for those commodities.

The department continually monitors market signals in order to maintain the most up-to-date information on world commodity prospects.

Government policies

The Commonwealth Government can have significant direct or indirect effects on agriculture through its various economic policies. State Governments can attempt to influence Commonwealth policies through submissions to bodies such as the Industries Assistance Commission (IAC) and Senate Standing Committees.

The State Government, through the Department of Agriculture, has the responsibility for ensuring the impact of Commonwealth policies is fully appreciated by the rural community and that any problems or inconsistencies arising from the implementation of such policies are conveyed to the Commonwealth Government.

Production efficiency

For South Australian farmers to remain competitive, their technological progress must be at least as good as that of their competitors. The Department of Agriculture has a significant role in ensuring all available knowledge on new technologies and products is extended to the farming community. It is likely that the rural community will need to increase its financial support for such programs in the future.

The department is reviewing its research centre network and rationalizing research to facilitate the development of technology to meet the changing needs of agriculture. There is also need to increase resources in extension which will need additional industry support if it is to be undertaken successfully given the competition for State funded resources.

Some policy options

In order to moderate the declining terms of trade facing farmers, the Commonwealth Government has access to a number of policies aimed at easing the effects of the economic forces affecting agriculture at present.

Devaluation

To stem the outward flow of capital from Australia, the Government recently devalued the Australian currency by 10 per cent. In the short term this is advantageous for rural exports. In the past a decline in farm exports was synonymous with balance of payments difficulties but, because of agriculture's declining relative importance in the Australian economy, any future decline in rural exports will have progressively less impact on the balance of payments.

Tariff reductions

This policy can have several effects, indirect and direct, on agricultural production. A reduction in tariffs would lead to a reduction in prices of local products in competition with imports, and hence reduce upward pressure on farm input prices. It would also increase pressure for devaluation of the Australian dollar. Initially, at least, imported farm inputs would be less costly than they were before the tariff cuts.

Direct assistance to farmers

The payment of direct subsidies to farmers is one method of compensating for tariffs imposed on certain imports. This has been referred to as tariff compensation. However, such payments are a "once only" change in the ratio of input costs to output prices and do not account for future changes in the competitive balance between the various sectors of the economy.

Supply of finance

The average equity in agriculture (about 90 per cent) is much higher than in manufacturing (about 40 per cent) due to two basic factors: the reluctance of farmers to borrow for farm improvements, and the reluctance of the financial system to advance funds to agriculture.

Low interest finance to farmers is limited. Those wishing to borrow beyond that limit must face the same high cost capital market as other borrowers. The rate of new capital formation in farming will continue to be affected by the cost/price pressures facing the rural producer. The amount of finance available and the interest rates applying will affect the amount of assistance available to the rural community.

Long term options

The previously mentioned policies aimed at offsetting cost/price pressures on farmers might be expected to offer some benefits to farmers, but they will not overcome the forces which create existing problems. For the long term, policy measures are needed which will promote productivity growth and stimulate adjustment within agriculture and between agriculture and other sectors in the economy. The effects of declining terms of trade experienced in Australian agriculture over the past 20 years have been offset to some extent by an annual increase in productivity of about 1.5 per cent.

For value of production to continue to increase, the value of output must increase at a greater rate than the increase in costs. This can perhaps be achieved through improvements in agronomic and management practices, plant and animal breeding, and agricultural equipment.

Farmers and farm workers need to expand their skills, and to this end policies should be aimed at improving educational opportunities and educational facilities for rural people, especially young farmers and new farm operators. Any means of improving the efficiency of management and labour should be vigorously pursued.

Notwithstanding the increased productivity that can be generated by farm operators themselves, and by government policies aimed at improving research, education and extension, entry of new farmers and restructuring of existing farms, there will still be a need to facilitate the movement of families out of agriculture. This could best be achieved by the creation of employment opportunities outside agriculture in rural areas or assistance in relocation or rehabilitation, household support and counselling.

Agricultural adjustment

There is a wide range of efficiency among South Australian farms. As in the past, many farmers will leave the land because the efficiency of their farms is such that

they cannot cope with costs increasing at a greater rate than prices. This will be a factor influencing many of the major rural policy decisions facing the Government in the 1980s.

Rural industries most in need of adjustment tend to be those that are labour intensive, rely almost exclusively on the domestic market, and are limited in the use of land and water resources. Adjustment will require an increasing proportion of the department's resources in the 1980s for financial management advice and social counselling. Unlike most other State agricultural departments, this department has responsibility for the operation of the Rural Adjustment and Rural Assistance Schemes; its role includes assessment of applicants as well as the banking functions involved in granting loans. The department is also responsible for providing natural disaster assistance under the Primary Producer's Emergency Assistance Act. Both the Rural Adjustment and Emergency Assistance Schemes operate at the margins of the rural finance system, fulfilling the role of "lender of last resort". The schemes have assisted in excess of 3000 farmers in 1982-83. This involved advancing $44m in loans and grants.

The State Government recently presented a submission to the IAC Inquiry on Rural Adjustment which, among other things, will determine whether changes should be made to the existing Rural Adjustment Scheme to ensure it meets the adjustment needs of each of the rural industries.

Conclusion

Farmers in South Australia (as in Australia as a whole) are likely to continue to specialize. Sideline activities such as dairying, pigs and poultry have virtually disappeared and there is a great deal of economic pressure on small, mixed horticultural enterprises. In the past, the farming operation in which more than one activity was run concurrently allowed a measure of safety in the event of depressed prices in one of these activities. Now, unless productivity is continually increasing or unless the cost per unit produced is decreasing, farmers will find it more and more difficult to survive.

In the above circumstances the department needs to be flexible enough to understand and develop new technologies that will improve farming efficiency and to extend this information to the farmer. It must also provide the expertise and facilities to assist those farmers who wish to change from one enterprise to another or move completely out of agriculture.

The economic environment in which the farmer operates will continue to be harsh at least until the middle of the 1980s. Cost/price pressures will exist in most commodity markets due to high labour costs, high inflation rates and unemployment. The growth in domestic demand will remain sluggish, but growth in overseas demand may improve to the extent that by the end of the decade there may be shortages in some agricultural commodities, resulting in a "food problem" as opposed to the "farm problem" which pervaded agriculture during the 1970s.

The activities carried out in the agricultural industries policy program help develop and support South Australia's point of view on national agricultural issues. The major forums for these points of view are the Standing Committee on Agriculture and the Australian Agricultural Council.

Many of the projects in the policy arena arise from agreements reached by Ministers at the Australian Agricultural Council. These touch on areas of national importance such as rural assistance and rural adjustment.

The following are examples of activities carried out in the agricultural industries policy program:

- ☐ developing policy on key issues through the preparation of submissions for presentation at IAC and other inquiries on many aspects of agriculture;
- ☐ developing a broad understanding of adjustment options and educating farmers and agri-industry groups on the options available to them;
- ☐ evaluating policy changes affecting world trade, which have relevance to South Australia;
- ☐ developing policies for the direction of departmental activities.

Major issues

In the current severe economic climate there is an urgent need for the Department of Agriculture and agricultural industry, in consultation, to carefully determine, and plan the implementation of, the most effective policies to overcome present and foreseeable problems affecting agriculture.

Examples of important issues affecting agricultural policy include:

- ☐ oversupply of major agricultural commodities;
- ☐ adjustment problems within agriculture, with particular reference to the Riverland region of South Australia;
- ☐ issues affecting trade, such as tariffs and subsidies;
- ☐ the trade-off between economic efficiency and the social policies of Governments of the day;
- ☐ Australia's ability to compete on agricultural export markets;
- ☐ trends in rural borrowing and the potential impact of any future entry of foreign banks into the rural sector;
- ☐ the need to develop markets for new products and promote existing products on local and overseas markets.

Corporate goals 1983-84

Short term

Meet farmers' needs for financial assistance more effectively by reviewing the operation of the Rural Assistance Branch as supplier of credit for rural adjustment and natural disaster relief.

Develop more responsive and effective extension services to the rural community by enquiring into, reporting on and making policy recommendations about the future development and direction of departmental extension services.

Carry out the department's regulatory responsibilities more effectively by developing a co-ordinated system for the preparation of legislation and regulations within the department, and the monitoring of legislative change within the State and nation.

Improve the effectiveness of South Australian agricultural research by identifying and instituting procedures for more effective review of the department's State-funded research projects.

Evaluate a range of policy options for marketing fresh fruit and vegetables in South Australia.

In view of the problems facing horticultural industries in the Riverland and the need for most efficient use of water resources, review and develop the concept of a regional development approach to rural adjustment.

Long term

Assist pastoralists in the arid zone by investigating, in association with other appropriate organizations, the management practices and future needs of these pastoralists, and develop appropriate policy guidelines consistent with the conservation of natural resources.

Agricultural Crop Industries

The major factor influencing field crop and pasture production in South Australia is rainfall - as was illustrated by the severe drought in 1982-83 when cereal production was half the average annual production and pasture production was significantly reduced. Because of this, farmers have experienced extreme financial and personal hardship aggravated by the cost/price squeeze in recent years. The area sown to cereals is likely to expand in the next 12 months as producers try to increase their liquidity and a record harvest is forecast for 1983-84.

The demand for rural exports, however, remains weak due to low activity in the world economy. The impact of the drought and recession on grain stocks will affect the economic performance of the rural sector beyond 1983, according to the Bureau of Agricultural Economics Outlook (BAE) report. However, recent trends in the wheat trade suggest world trade could expand by two million tonnes with a slight increase in the price of wheat of $5/tonne in 1983-84.

Technology is available for improving cereal production through the use of new varieties, new cultural techniques and closer rotations. However, the impact of these technological changes on soil fertility and structure, pests, diseases and weeds needs to be carefully assessed, as do the economic implications, to ensure farming profitability is maintained and the soil resources of South Australian farms are preserved.

Wheat is the major field crop planted in South Australia. In 1982 this accounted for nearly 50 per cent of the cereal acreage, with barley, oats and cereal rye next in importance. Most of the State's wheat and barley is produced on the Eyre Peninsula, the Yorke Peninsula, the Lower, Mid, and Upper North, and the Upper South East. Field peas were the major grain legume crop with the bulk of production coming from Central Region. Lupins and faba beans are produced mainly in the South-East for the South Australian market. Oilseed crops such as rapeseed, sunflower, safflower and linseed are grown mainly in the South-East. Rapeseed is the major oilseed crop.

Cereal production

Because of the 1982-83 drought wheat and barley production was reduced to 1.3m tonnes, compared with a 20 year average of 2.1m tonnes. Many farmers were unable

to harvest sufficient crop for seed in 1983. The 1983-84 season has started well and wheat and barley production is forecast (in September 1983) to total 4 m tonnes.

The use of chemicals for control of weeds and cereal cyst nematode (CCN) continues to increase. However, the cost and wide range of chemicals present the problem of choice of the most effective and cost-efficient chemical for both weed and CCN control.

There is a large, State-wide trend toward shorter rotations as farmers endeavour to maintain the profitability of cereal farms. It is essential that the risk of soil erosion associated with this practice be assessed so that preventative measures can be taken, or shorter rotations avoided, where there is a risk of erosion. Grain legumes crops are of increasing importance in the cereal/livestock ley farming system as they provide an alternative, quick source of income.

The potential production of suitable cereal varieties from particular soil types is dependant on adequate available nitrogen, one source of which is legume-based pasture. However, the inadvertant introduction of exotic aphids and sitona weevil has severely reduced the establishment and growth of legume- based pastures throughout the State.

Cereal diseases such as cereal cyst nematode, rhizoctonia, "hay-die", powdery mildew, septoria and stem rust are causing concern to farmers throughout the State.

There has been an increase in production of feed barley, whereas production of malting barley has decreased. Feed barley cultivars are producing higher yields and the price difference between barley grades is not very large. This could result in serious marketing problems until a higher yielding malting barley variety is available or until malting grades receive a higher premium. The recent release of the cultivar Schooner gives some hope for maintaining malting barley production.

The cereal/livestock ley farming system requires a wide range of technological information and diagnostic services to assist in maintaining farm profitability and in preventing long term land degradation. The department continues to evaluate, on farmers' properties, new cereal cultivars produced from breeding programs throughout Australia for the various cereal cropping areas of this State. In testing breeders' lines by plant pathologists, increasing emphasis is being given to disease tolerance and resistance, particularly to cereal cyst nematode, in new cereal cultivars. The development of oat cultivars suitable for South Australian farming conditions is continuing through departmental breeding programs and some cultivars are undergoing field evaluation.

Sections of the department, such as plant pathology, entomology, weeds research, and soil and plant nutrition have been employed in the on-going breeding and cereal variety evaluation program. Extension staff disseminate technical information provided by research officers to field crop producers.

Other field crops

Field peas, South Australia's fourth major field crop, is the dominant grain legume crop. Disease susceptibility and undesirable growth habit of current varieties is of continuing concern to pea growers who are looking to the department's pea-breeding program to overcome these problems. The area sown to faba beans, mainly in the South-East Region, is expanding, but market trends will need continued monitoring.

Local markets in the dairy and grazing industries are being obtained for lupins in the South-East. High yields and greater disease tolerance are being achieved by improved varieties.

Of the oilseeds, which are minor crops in South Australia, safflower and sunflower are grown mainly in the South-East. Oilseed rape showed early promise, but the area sown has been declining because production costs are high and management requirements stringent.

Co-operation with other States in the field testing of selected cultivars and lines has led to commercial production of higher yielding and agronomically suitable cultivars of lupins and oilseed rape in South Australia.

Pastures

Legume pastures have declined in vigour and density over the last few years due, in part, to insect damage principally from sitona weevil, introduced aphids, red-legged earth mite and lucerne flea. Poor pasture management practices, more intensive cropping, diseases, and poor seasons have also contributed to the decline.

The breeding and selection of suitable cultivars of pasture legumes for the varied soil types and climatic zones, as well as for tolerance to pests and grazing pressures, requires more extensive investigation. The search for productive legume pasture cultivars suitable for cereal-livestock ley farming systems continues. New lucerne and annual medic cultivars are being evaluated and the selection of more suitable and adaptable cultivars of subterranean clover is in progress. In 1982, a number of lines were evaluated on farmers' properties. There has been a dramatic swing toward cultivar selection criteria such as aphid tolerance and grazing persistence in the department's breeding and selection programs. This has involved a wider range of technical expertise. The contribution of various legume pasture plants to available soil nitrogen has yet to be quantified and investigations are under way to determine this.

Increasing use of herbicides in pastures has resulted in increased demand for information on cultivar tolerance. The tolerance of pasture legumes to various herbicides is being evaluated so that weed control strategies are available to pasture seed producers and farmers generally. Investigations into biological control of sitona weevil are continuing in an attempt to reduce the debilitating effect of this pest on legume pasture plants.

Present methods of seed production of pasture legume species are seen by farmers as laborious and inefficient and resulting in the high cost of pasture seed. A greater supply of cheaper seed could be an incentive for pasture improvement.

Annual ryegrass is still one of the major pasture grasses in South Australia, but its value has been undermined by the spread of annual ryegrass toxicity. This disease is of serious concern to farmers and increasing efforts to determine practical control methods are under way.

Major issues

There are a number of issues relating to cereal and pasture production that are being or will need to be addressed in the near future. Of overall and vital concern to cereal

and pasture producers is the future of the cereal-livestock ley farming system and the need for its revitalization. Specific issues are:

- ☐ the effect of new technology on cropping, particularly in relation to soil fertility and structure, insect pests, diseases, weeds and farm financial management;
- ☐ choice of chemicals for control of weeds and plant diseases in relation to cost, safety, long term effects and management techniques;
- ☐ the advantages and disadvantages of alternative tillage systems;
- ☐ annual ryegrass toxicity;
- ☐ cereal diseases, especially cereal cyst nematode, rhizoctonia, stem rust and powdery mildew;
- ☐ legume-based pastures and problems of insect pests such as aphids and sitona weevil, value as a nitrogen source, and varieties and cultivars appropriate to different localities and soil types;
- ☐ grain legume crops in relation to choice of appropriate variety, control of insect pests, diseases and weeds, and marketing;
- ☐ effect of trace element deficiencies in crops and pastures, especially copper, cobalt, selenium and manganese;
- ☐ best management strategies for crop and pasture production on siliceous and water repellent sands;
- ☐ availability of perennial grass species for light soils;
- ☐ choice of farm machinery for cropping.

Corporate goals 1983-84

Short term

With the objective of lowering the incidence of cereal diseases, review the department's plant pathology services, particularly in relation to cereal pathology.

Assist in revitalizing the South Australian cereal-livestock ley farming system through extension programs and monitoring of farms in the system.

Assist farmers in choosing appropriate legumes by establishing a nitrogen fixation research resource to monitor and measure the effectiveness of a range of legume species in improving soil fertility under various farming systems.

Develop a strategy for marketing new herbage and field crop cultivars and germ plasm that have been bred by the department for release on local and export markets.

Medium term

Alleviate problems associated with increasing soil acidity occurring on sandy soils in the South-East by investigating pasture responses on these soils and advising farmers of the results.

Aid decision-making on the location of grain storage facilities in South Australia by conducting research into the relative costs of storing and transporting grain.

Long term

Improve South Australia's pasture production in high rainfall areas by evaluating species of *Trifolium* other than *T. subterraneum* and advising farmers of the most appropriate species for their areas.

Assist farmers in optimising pasture production by investigating and advising on the role of various legume pastures other than medics and clovers.

Horticultural Crop Industries

The gross on-farm value of production of the horticultural industries of South Australia was $215m in 1981-82. These industries are coming under increasing economic pressure and some have a great need for adjustment.

The department services the pome fruit, citrus, stonefruit, grape and vegetable industries, and a group of smaller horticultural industries. Its efforts are particularly directed to the centres of horticultural production in the Adelaide Hills, northern Adelaide Plains, Barossa Valley, Riverland, Lower Murray, Southern Vales and Lower South-East.

Experimental work includes varietal assessment, virus testing and clonal selection, crop production studies, development of techniques for integrated pest and disease control, pruning, trellising and harvesting techniques, assessment of potential of new crops, tissue analysis as a basis for determining fertilizer requirements, diagnostic, entomological and plant pathological services, studies in wine quality, post-harvest and packaging research and examinations of alternative marketing systems. Research work is carried out at Northfield, Loxton, Lenswood and Nuriootpa Research Centres.

Extension services include providing production and marketing advice to growers and industry. Specific advice is available on production of each of the principal crops, as well as on farm management and redevelopment. Specialist irrigation advisory services and advice on vegetable production and post-harvest technology is provided in the Riverland. Assistance is also provided to regional viticultural councils and other industry organizations.

Regulatory responsibilities include supervision of export standards for fresh fruit and vegetables, carried out on behalf of the Commonwealth, as well as assistance in determining wine grape prices, under the relevant legislation. Registration of agricultural chemicals used by the horticultural industries is monitored to ensure labelling and recommendations are correct.

Grapes

Over 96 per cent of grapes grown in South Australia are used in wine making. Certain red grape varieties have been over-produced since the late 1970s.Until recently, white grapes have been required in increasing quantities to supply a rapidly expanding demand for white table wine. The growth in white wine sales has now levelled off

and there are small surpluses of some white varieties. The industry can improve grape production efficiency by using improved planting material, rootstocks, trellising, machine harvesting and pruning, and improved irrigation practices, but the basic problem of over- production of some varieties remains. The 1982-83 drought resulted in a reduced grape surplus compared with the previous year, but some movement of growers out of the grape industry will be required before production is reduced to a satisfactory level.

South Australia is not a major producer of dried vine fruits, but about 25 per cent of its grape plantings are dual purpose varieties. For the past few years dried vine fruits have brought good returns. Present terms of entry to the European Economic Community (EEC) do not favour Australian dried vine fruit producers, however, and heavy crops in the northern hemisphere would make it difficult to profitably dispose of a heavy Australian crop. There is room for a small expansion of dried currant production to supply domestic markets. There is considerable potential to expand export sales of table grapes and grape juice.

The department provides services for the grape growing and wine producing sectors of the industry. Research and extension centred on the Barossa and Riverland continue to focus on the South Australian Vine Improvement Program. Besides providing technical support to the regional vine improvement committees the department is now concentrating on fitting the improved planting material into systems that can be harvested mechanically. Continued monitoring of the state of the industry is needed to encourage growers to replant in line with industry requirements and take account of economic factors in planning their production system. Mechanization of pruning and harvesting, management of irrigation and soils and nutrition, propagation training and trellising, and control methods for pests and diseases are being pursued by research and extension teams. Regional viticultural councils are being promoted and assisted to provide effective "self-help" to the industry. These activities will continue through the 1980s.

Citrus

The Australian citrus industry is in a healthy position with demand for citrus juice 40 per cent greater than supply. The excess demand is being met from overseas suppliers, principally Brazil. However, the current level of protection will progressively decline, placing the industry under increasing pressure to maintain its efficiency.

Almost all of the 34 per cent of Australia's citrus produced in South Australia comes from the Murray Lands region, with about two thirds of this going to processing. Of the citrus sold fresh, about 80 per cent is disposed of on Australian markets, and 20 per cent is exported. Local demand for fresh oranges remains fairly static, but there are some prospects of increasing the trade of fresh navel oranges to South-East Asia and the Middle East. The growth of the juice market is likely to continue, but it is anticipated that the processing industry will continue to supplement local supplies of citrus with imported citrus juice and other fruit juices to expand the range of products available on the domestic market.

There is a continuing need to upgrade plantings and irrigation systems to improve efficiency and provide a hedge against loss of protection, future market downturns, and inevitable input cost increases. It should be noted that adjustment

in horticulture is characterized by long lead times and high capital cost and hence will require specialized services, particularly extension, from the department.

The department's involvement in the industry includes: servicing the Citrus Improvement Scheme; research and extension in citrus tree nutrition and post-harvest handling of fruit; research on irrigation and salinity; and supervision of export fruit on behalf of the Commonwealth.

Apples

Apples are the second most important fresh fruit crop in South Australia after oranges. They have an annual gross value of about $12m and most are grown by a group of 200 efficient producers in the Adelaide Hills. About 18 000 tonnes are held in storage over 10 to 11 months of the year and marketed fresh; about 3 500 tonnes go to juice. The industry continues to have a strong market in South Australia despite surplus production in some other States due to export problems. The continued ability of the industry to maintain its cost competitiveness with its interstate counterparts will be a key factor in determining its future.

Some marketing problems arise because 40 per cent of production is the Jonathan variety which has a high incidence of storage disorders. There is some potential for increasing consumption of processed apple products including juice, confectionery, dried rings and dehydrated crisps.

The department is conducting research and related extension activities including variety improvement through the South Australian Plant Improvement Scheme, investigation of new methods of pest and disease control and new spray technology, the monitoring of nutritional requirements, and improvement of post-harvest handling technology.

Pears

Pear production in South Australia is divided almost equally between the Adelaide Hills and the Riverland. The predominant variety in both regions is Bartlett (also known as WBC) which is marketed either fresh, canned or dried.

As the market for canned pears declines, the Barlett variety is being sold on the fresh market with the result that fresh markets have been seriously oversupplied, especially in Victoria. Although Riverland producers are able to market early ripening Bartlett pears interstate and overseas, and although there may be modest increases in dried pear production, South Australian pears will be largely confined to local fresh market outlets. Further rationalization of pear production is likely, especially in the Riverland. The outlook for fresh Packham and other "hard" storable pears is good and the current shortfall is likely to continue in the short to medium term.

Departmental activities are the same as those for the apple industry. In addition, pollination studies are being conducted.

Canning fruit

The canning fruit industry underwent major restructuring in the early 1970s in response to market changes. This industry has traditionally relied on export sales to

take up to 60 per cent of its production. Continuing decreases in export sales on EEC markets and resultant pressures on other world markets have led to a surplus of Australian canning fruit. South Australia is particularly affected by the surplus of canning peaches and, with the financial difficulties of the Riverland Fruit Products cannery, the South Australian industry now faces a very uncertain future. It will be necessary to rationalize the growing and canning sides of the industry throughout Australia.

The canning fruit industry will need increased departmental resources during the next five years to assist in major adjustments, including redevelopment of properties for production of other crops. Currently, assistance is given to growers considering redevelopment using existing crops or economic alternatives such as dessert peaches and nectarines, table grapes, or nut crops.

Dried tree fruits

The South Australian tree fruits industry accounts for 95 per cent of the total Australian dried apricot production. In 1983, 2 780 tonnes of dried apricots were produced in South Australia. Production is expanding in response to increased Australian market demand, with corresponding retractions in the canning sector. There appears to be an increasing demand by the Australian consumer for other dried tree fruits such as peaches, nectarines, pears, prunes and apples.

The quantity of dried tree fruit imported into Australia is increasing. A small expansion in production of dried tree fruits could help growers move away from canning fruit production provided that costs, quality, and promotion of the dried product are given due attention. Further market research and product development are needed before potential growth areas for dried tree fruits can be identified. The department is developing apricot cultivars more suited to mechanized harvesting.

Almonds

Australia's almond production, though still centred on South Australia, is now retracting from the Southern Vales area and increasing in the Northern Adelaide Plains and Riverland districts. Large areas have recently been planted in the north west of Victoria. In the Riverland, new almond plantings may displace some wine grapes and, to a lesser extent, canning fruits.

The industry has recently come under pressure from overseas imports. However, given larger orchard holdings, Australian producers should be able to compete successfully with those in other countries, particularly in the USA, where similar cost structures and economies of scale apply. There is some scope for increasing consumption and, in turn, local production provided developments here remain competitive with those overseas. The department needs to maintain the existing level of service to this industry in conjunction with the Victorian Department of Agriculture.

Cherries

These are produced by a highly competitive group of growers in the Adelaide Hills as a high risk, labour intensive enterprise. The industry supplies local and interstate

markets and, in 1982-83, some exports were air-freighted to South East Asia. New varieties are being examined to reduce defects such as cracking due to rain.

In addition to activities associated with the South Australian Plant Improvement Scheme which supplies improved planting material to the industry, the department is engaged in a survey of stocks with root rot resistance.

Specialty horticultural crops

There are limited opportunities for increasing the production of a number of specialty fruit and nut crops including avocados, kiwi fruit, dessert peaches and nectarines, pistachio nuts, walnuts and pecans. However, the department will have to carefully monitor supply and demand and assist the industry to research and develop production systems for the range of new crops. Because of the high capital requirement and high risk, infant industries may need special assistance during the establishment period. This will require maintenance of the existing services of highly specialized research and extension staff in the department.

Berry fruits

The small berry fruits industry is centred on the Adelaide Hills and comprises mainly strawberry production. Most of this is sold on the local market and is worth between $1.5m and $2.5m annually. It is relatively easy for growers to move in and out of this industry, compared with the other fruit industries, hence the level of production and value of the crop fluctuate widely from year to year.

The department produces the Berry Fruit Newsletter to help the industry keep up with latest developments and production trends.

Vegetables

Vegetable growers in South Australia produce about 20 main vegetable crops and about 10 minor ones, each with particular problems and needs. The major crops are potatoes, with a value in 1981-82 of $20m, onions ($8.5m), and glasshouse tomatoes ($5m). Others are brassica crops such as cauliflower, cabbage and brussel sprouts ($7m) and cucurbits ($2m). The total value of the vegetable industries was $74m in 1981-82. Marketing issues are of paramount importance in the vegetable industry's future.

South Australia produces approximately 10 per cent of Australia's potato crop. In 1982, 100 160 tonnes of potatoes were produced by 350 registered growers with 75 per cent of the crop marketed through the South Australian Potato Board. In the coming decade it is likely the number of South Australian growers will stabilize at approximately 300 and production will slowly increase.

The potato supply system has an inherent tendency to over supply the market between February and May and under supply it between September and November. The industry is attempting to fill the shortfalls by initiating production in other areas of the State. The department needs to work closely with growers and processors to develop efficient potato production systems that permit potatoes to be produced

throughout the year to meet the separate market requirements of the table trade, the crisp industry and the manufacture of frozen french fries.

The department's involvement in the potato industry includes cultivar evaluation for fresh and processing markets; studies to determine crop response to fertilizer applications, and to improve quality, seed hygiene and pathogen control; and damage assessment and reduction.

State tomato production is about 1.3m boxes, about half of which is produced on the Northern Adelaide Plains by about 350 growers. The remainder is produced in the Riverland and at Murray Bridge. Traditionally, about half of the State's production has been consigned to the Melbourne fruit and vegetable wholesale market. With increasing production of good quality produce from Queensland, South Australian growers are facing tremendous competition in the Melbourne market and need to improve product quality for this market. The industry is hampered by the lack of a single industry organization accepted by all growers, but good progress is being made by the formation of special marketing groups, each with their own brand name, for glasshouse and field tomatoes.

The State's glasshouse and field tomato industry is continuing to adjust to meet fresh market demands. The Department of Agriculture is providing research and extension back-up in cultivar assessment, irrigation and nutritional requirements, and post-harvest handling and packaging. In the marketing phase the small, specialized commodity marketing groups are receiving special attention regarding production and maintenance of grade standards.

Australian onion production now exceeds consumption, and in the export markets the industry is facing increased competition from New Zealand. South Australian production appears to be stabilizing between 30 000 and 35 000 tonnes, about one-third coming from each of the main production areas of the Adelaide Plains, South East, and Murray Lands.

A substantial extension and research program will be required to assist growers of each of a number of vegetable commodities in the short and medium term. Particular emphasis needs to be placed on the marketing of all vegetable crops, but especially tomatoes and cucumbers. Rural adjustment provisions for the Adelaide Plains glasshouse vegetable industry are continuing.

Ornamental horticulture

In 1980-81 the expanding ornamental horticultural industry, comprising cut flower production and nurseries, occupied a total production area of 239 ha in 170 establishments employing 1 051 people. Total value of sales grew from $10.3m in 1978 to $14.5m in 1981. The industry is located near Adelaide, though some expansion is taking place in the South-East and Murray Lands.

There is considerable potential for the export of proteaceous plants and other native species provided marketing is approached in an aggressive manner, and that costs, particularly freight, can be contained. The ornamental horticultural industry has a small potential to replace some of the uneconomic tree fruits production, provided production research and development and marketing facilities can be made available to assist growers in the adjustment process.

Departmental activities include diagnostic services in plant pathology and entomology on a needs basis. Services to nurserymen and flower growers will be expanded in 1983-84.

Major issues

Some South Australian horticultural industries are facing severe problems and the department is developing solutions. The main issues that are of concern to the department, horticultural producers and vegetable growers are the need for:

- ☐ planned replanting of grapes and tree crops in response to projected market demand;
- ☐ development of alternative crop opportunities;
- ☐ continued development of local and export market opportunities for horticultural crops, especially fresh fruit and vegetables, Australian native plants, and dried tree fruits and nuts;
- ☐ solutions to marketing problems facing producers of canning fruits, wine grapes, dual purpose grapes, dried vine fruits and winter tomatoes;
- ☐ greater unity in the grape industries and tree crops industry;
- ☐ greater integration of fresh fruit and vegetable marketing, including the adoption of national grade standards for fresh fruit and vegetables.

Corporate goals 1983-84

Short term

Improve the opportunities and profitability of ornamental horticulture by expanding the research and extension services to nurserymen and commercial flower growers.

Improve the productive efficiency, profitability and marketing of South Australian glasshouse vegetables and outdoor winter tomato crops by determining and advising growers of the most suitable varieties, production techniques and post-harvest handling methods.

Assist wine grape growers in making production decisions by conducting, with industry, wine grape utilization surveys similar to industry surveys in the Barossa Valley, in other wine-growing areas of the state.

Provide a basis for better-informed decision making by fruit growers by negotiating with industry and other Government departments, resources and procedures for conducting future censuses of horticultural crop plantings.

Assist fresh fruit and vegetable growers in making marketing and production decisions by developing procedures, in conjunction with industry, to provide up-to-date price and profitability information.

Medium term

Improve the profitability and marketing of glasshouse tomatoes by developing a precise set of cultural recommendations to ensure standardization of fruit quality to allow brand name marketing.

Long term

In the light of surpluses and economic problems facing some horticultural industries, increase the options available to fruit producers by developing, in conjunction with industry, production and marketing systems for new horticultural crops.

Evaluate new cultivars of existing horticultural crops, in particular, stone and pome fruits, and advise growers which cultivars are best suited to domestic and export fresh markets.

Provide further marketing options for fresh fruit and vegetable producers through the development, in conjunction with the industries, of interstate and overseas markets.

Animal Industries

The gross value of South Australian livestock slaughterings and livestock products was $686m in 1981-82, almost half the total value of South Australian agriculture.

Recovery from the disastrous effects of drought and bushfires is an immediate concern of the South Australian ruminant livestock producers. The department is providing extension programs on pasture establishment, fencing, restocking and strategies for recovery of financial viability. The prolonged drought has highlighted the importance of grazing management strategies that minimize soil erosion. Through the Ruminant Research Review, the department is examining its research programs and resource allocation in the ruminant industries in the light of changing requirements of the livestock producer.

Although not directly affected by the recent natural disasters, the pig and poultry industries have experienced considerable cost pressures, following substantial increases in prices of grain and protein feed ingredients.

All livestock industries are coming under increasing public scrutiny with regard to animal health and welfare. Research activities within the department are subject to approval by the Animal Ethics Committee.

A service to investigate herd and flock diseases is available to livestock producers. This complements the private veterinary services but is critical in determining the extent and severity of new and unusual diseases. These include infectious and metabolic diseases, toxic conditions, trace element deficiencies and external parasites. Inspection services are provided at livestock markets for notifiable diseases of stock and health certification of livestock for interstate movement.

Continued vigilance is maintained within the animal quarantine services to prevent outbreaks of exotic disease. This involves updating regulatory procedures, and developing contingency plans for dealing with outbreaks.

Sheep

The South Australian sheep population has been reduced substantially by drought and bushfires. It was estimated at the end of March 1983 to total 15.5m, a fall of 1.2m from the preceding year. Bushfires had a particularly severe impact on the sheep meat industry, which is located mainly in the areas affected by the fires. A quarter of a million sheep were killed in these areas. Approximately 70 per cent of the State's prime lambs come from the high rainfall zone.

The lamb marking percentage for the 1982 season was estimated at 75 per cent or less, because of the drought. The 1983 percentage was expected to be similar, however it has been remarkably high (over 80 per cent) in all but the pastoral zone as a result of excellent drought strategies, including lot-feeding to reduce both energy loss of the animals and soil erosion. In the pastoral zone, which is still in the grip of drought, lambing percentages of 0 to 20 per cent are not uncommon. The population build-up will be slow as producers in the cereal-livestock zone are expected to increase areas sown to crops for rapid financial return, and high stock prices will be an additional deterrent to restocking.

With the break in the drought, industry prospects generally are promising. The outlook for wool and sheep meat is good. A general improvement in the wool industry is forecast for 1983 and into 1984 with an expected increase in demand for wool and a rise in auction prices. BAE forecasts point to an increase in the average Australian auction price in the 1983-84 season to about 490c/kg clean wool. In the sheep meat industry, the BAE forecasts increases in 1983/84 in the saleyard price of lamb and mutton to 140c/kg and 70c/kg respectively, representing increases of 28 and 30 per cent respectively above the previous year's prices.

Australian slaughterings and overall production figures for mutton and lamb will be reduced, whereas live sheep exports will remain at about six million in 1983. These exports are heavily dependant on Middle East markets.

The extended drought highlighted the need to develop grazing management strategies that minimize soil erosion, particularly in the marginal, sandy soil areas. A more flexible attitude towards stocking rates will be necessary. The use of lot-feeding as a drought management strategy allows stocking rates on pasture to be reduced and has enabled breeding stock to be retained during the recent drought.

The department's role in the industry involves detailed monitoring of sheep properties by advisory staff, training in shearing shed management, objective clip preparation, wool classing, wool handling and participating in numerous field days throughout the State. Nutrition and management advice are important components of departmental extension.

Sale-by-description of wool is imminent, with the Australian Wool Corporation planning preliminary introduction of the system in July 1984. The department will be co-operating with the Corporation in State-wide extension of this new marketing system. Training at all levels of the industry is seen to be important. Similarly, sale-by-description represents an important new initiative for auction of lamb meat.

Sheep diseases under regulatory control by the department are sheep lice and footrot; ovine brucellosis is covered by a voluntary accreditation scheme, well supported by the industry. Health problems involving helminth infestation, trace element deficiency, annual ryegrass toxicity and urinary calculi are under investigation.

Producers are becoming increasingly aware of the use of objective measurement in selection of breeding stock. A sheep meat performance recording scheme is provided by the department.

Major research programs are under way in sheep genetics, reproduction, nutrition and management, and are aimed at improving fertility, lambing percentages, growth rate and wool production in the sheep meat and wool industries. Research is carried out at Turretfield, Struan, Kybybolite, Minnipa, Cape Borda, Parndana and Wanbi.

Beef

The South Australian beef industry has been subject to the combined effects of reduced industry profitability, drought, bushfires and destocking within the Brucellosis and Tuberculosis Eradication Campaign (BTEC). Beef cattle numbers have been reduced to approximately 710 000 in March 1983, from 850 000 in March 1982. Following the recent drought, an increased proportion of cattle has been used for restocking purposes, with consequent reduction in stock turn-off for slaughter and substantial increases in market prices.

There is a marked regional concentration of the South Australian beef herd, with 50 per cent of the herd in the high rainfall zone in the South-East of the State which constitutes only three per cent of the South Australia's total area. Herd rebuilding is likely to be slow, given the profitability of competing enterprises.

The BAE predicts an increase of 20 per cent in meat prices during 1983-84 above 1982-83 prices. Supplies of meat products are expected to be severely reduced during the second half of 1983.

Among departmental activities in support of the beef producer are research and extension programs in nutrition, breeding, health and management. These include investigations into trace element deficiencies in various districts; agronomic methods for control of annual ryegrass toxicity; worm control in grazing ruminants; and development of criteria for sire selection and female replacement.

The BTEC is part of a national program to safeguard export markets. The scheme is well advanced in much of the non-pastoral area. In the pastoral areas it will eventually result in improved productivity, because of the removal of diseased cattle and the large capital investment in improved fencing and stock handling facilities. Research of both diseases has led to improvements in diagnosis.

Promotion of objective herd improvement programs using the National Beef Recording Scheme and associated sire referencing schemes is important to industry improvement, as is cross-breeding.

Implementation of Commonwealth legislation for objective description of meat exports and complementary State legislation for producer-to-processor trading will occur towards the end of 1983 and will provide impetus to the improved marketing systems based on sale-by-description. Electrical stimulation and strip branding should become more commonly practised in the meat industry during 1984.

Beef cattle research is conducted at Struan, Turretfield, Wanbi and Parndana.

Dairy

The dairy cattle population has continued to decrease slowly; present numbers are estimated at 98 000 (1983). The number of farms supplying milk has stabilised, but the total number of dairy farms has continued to decline slowly as a result of cream producers leaving the industry. Gross returns to dairy farmers have increased with higher prices in the fresh milk and manufacturing sectors. Costs, however, have increased more rapidly. Due to the increase in the number of city milk suppliers, no more city milk licences are being granted by the Metropolitan Milk Board.

In spite of drought conditions, milk production to April 1983 was approximately eight per cent above last year's level, reflecting increased supplementary feeding.

Farmers are concerned about future over-production in the Australian industry. Overproduction would place greater pressure on export and domestic markets at a time of falling world prices and adversely affect returns to dairy farmers.

The Industries Assistance Commission Report on the Dairy Industry, due in November 1983, may have significant implications for the South Australian industry. One problem to be considered is the effect of increased imports of non-cheddar cheese that are sold at lower prices than local products.

The Department is involved in administration of the Dairy Industry Act and Regulations, extension of and involvement in the Australian Dairy Herd Improvement Scheme, development of an effective antibiotic surveillance scheme, monitoring of herd bulk cell counts on milk and, in the regulatory area, amendment of the Dairy Industry Act and the Artificial Breeding Act regulations. The problem of reduced pasture productivity on the Murray Swamps in the face of increasing water salinity has stimulated investigation into irrigation management of swamp pastures through the River Murray Irrigation and Salinity Investigation Program.

The relation of mating management to pasture growth cycle, improvement of fertility and mastitis control are further important matters dealt with by extension officers. Local dairy farmer discussion groups are proving an effective extension medium.

Research includes fodder crop improvement, nutritional studies on grain legumes and heifer growth, breeding for improved cheese yield, studies of the sources of bacterial contamination in milk, and an investigation of the effect of cell count level on milk and milk products.

Pigs

South Australia's pig population has been fairly stable and in April 1983 was approximately 380 000; the expansion of the larger intensive units has been balanced by smaller producers leaving the industry. The industry has been under severe pressure during 1983 from increased feed prices for grains and protein ingredients, and from reduced availability of animal proteins. Returns to producers are expected to improve in 1983-84 as feed costs appear likely to decline and an increase in saleyard prices is expected. Saleyard prices in 1983-84 are forecast to average five to ten per cent above the average for 1982- 83. Reduced supplies of beef and sheep meats, as producers rebuild herds and flocks, will improve the competitiveness of pig meat.

Performance testing services are provided on farms through the South Australian Pig Improvement Programme of the department. Genetic improvement is important to the industry and importation of breeding stock from overseas is continuing. The department is assisting the industry in examining the feasibility of a boar-testing station to identify superior sires. Recording of piggery performance, both physical and financial, is promoted through the Pig Management Recording Service, and a ration formulation service is also provided. Developments in piggery design are important for the future.

Pig diseases controlled by regulation are the enteric group - swine dysentery and salmonellosis. Tuberculosis of pigs is now almost eradicated.

Although the sale-by-description method of pig auction continues to operate satisfactorily, sales direct to the processor have increased.

Research is concentrated on health, nutrition, physiology and reproduction and is mostly conducted at the Northfield Pig Research Unit.

Poultry

The chicken meat industry is largely vertically integrated, technologically efficient, and has attained substantial stability after rapid early growth. Within the South Australian industry in the year to June 1983, an estimated 27 million chickens were produced, an increase of approximately 10 per cent on the previous year. Reduced supplies of red meat will improve the competitiveness of poultry meat during 1983-84 and the BAE has predicted an eight per cent rise in the retail price. Limited growth in the chicken meat industry therefore appears likely, although over-production remains a potential problem.

The egg industry has controlled marketing, with quotas on hen numbers. Egg sales in the year to February 1983 were three per cent above those of the previous year. It is anticipated that hen quotas will remain unchanged in 1983-84 from the previous year. The South Australian laying-hen population, currently about 800 000 (June 1983), varies as a result of the short-term lease scheme which was introduced to control excess production during spring. This scheme allows birds to be taken from production at times when over-production is a threat. It is likely to continue during 1983-84.

The poultry industries have been under cost pressure during 1982-83 from increased feed costs, due to rises in grain and protein ingredient costs. Feed costs are likely to decline in 1983-84.

The integration of poultry health and husbandry extension services during 1983-84 will increase the effectiveness of departmental services to the poultry industry. Effective liaison with the industry on technical and legislative matters has been developed. A survey of the cost of egg production is being undertaken by the department during 1983 to assist the South Australian Egg Board in setting egg prices.

Pullorum disease and tuberculosis are now virtually eliminated. A scheme which monitors hatcheries and the health of parent breeder flocks is an important component of general health control.

Research at Parafield Poultry Research Centre is concentrated on genetics, nutrition, improvement in egg shell quality and poultry welfare. Random sample laying tests are also conducted to assess performance characteristics of commercially available laying strains.

Bees

South Australia has an apicultural industry of over 1 200 beekeepers owning 110 000 hives of bees. The IAC is at present collecting evidence to see if the industry is in need of assistance because of the drop in honey prices over the last two years.

Apiarists register with the department every three years and at the last registration they voted to initiate a compulsory Honeybee Compensation Fund which will come into force on 1st July 1984.

Action by beekeepers and graziers against CSIRO to prevent the release of biological control agents of Salvation Jane was concluded in June 1983.

The department advises the industry on all aspects of apiculture and administers the Apiaries Act.

Other animals

The angora goat industry has settled down to a small industry which is growing steadily. Prices of stud animals are more realistic than a few years ago when they were highly inflated.

The cashmere goat industry is in an embryonic stage. Growth of this industry will be slow and will require intensive selection programs. However returns are potentially high with pure white down bringing $100 a kilogram in 1983.

The organization of the horse industry is extremely disjointed, and it is hard to gain an exact estimate of its size. However, by far the largest and most rapidly growing sector of this industry caters for recreation. This provides a large market for farm grown fodder, and also generates on-farm income from agistment and sales of breeding stock. The decline in the number of horses on the farm has now stabilised, and the overall numbers are starting to increase. The department has some expertise in horse matters, and handles enquiries from this industry through its existing livestock advisers.

South Australia has a deer industry that is only five years old and consists of about 20 commercial breeders running 700 deer. In spite of competition from the large deer industry in New Zealand, Australian breeders are confident that the outlook for their venison and velvet is good. In 1983, venison is selling at about $5/kg dressed weight (and up to $11/kg for choice cuts to restaurants), and the 1982 velvet crop sold for $100/kg. The department's Adelaide district office provides technical advice on deer breeding and refers enquirers to the South Australian Deer Breeders' Association for further information.

Major issues

The main issues that will need continued attention by the department and livestock producers include:

- ☐ recovery from the recent drought, fire and floods, and development of strategies for pasture re-establishment, replacement of fencing and other capital items, and restocking;
- ☐ management of livestock in areas still affected by drought;
- ☐ grazing management to minimize soil erosion;
- ☐ eradication of bovine brucellosis and tuberculosis;
- ☐ management of livestock to prevent or minimize disease;
- ☐ animal welfare;
- ☐ livestock and livestock product marketing, including sale-by-description;
- ☐ grazing strategies and selection of pasture species to offset the seasonal fluctuations in the feed supply for grazing animals;
- ☐ designs for yards, sheds and fences, and use of tree shelters for grazing animals;
- ☐ objective measurements for breeding and selection of livestock.

Corporate goals 1983-84

Short term

Assist South Australian wool producers by conducting extension programs on "sale with additional measurement" which is to be introduced by the Australian Wool Corporation in July 1984.

Improve control of disease in beehives by preparing legislation for a Honey Bee Compensation Fund Act that will compensate beekeepers for destruction of diseased hives, with a view to implementing the Act by June 1984.

Improve livestock ownership identification and disease trace-back by updating the systems and computerizing the pig brands and stock brands registers.

Increase potential benefits of artificial breeding and embryo transplants to livestock production by re-drafting and updating legislation in the Stock Diseases Act.

Assist farmers in making marketing and production decisions by analysing and advising producers of the behaviour of prices in markets for beef and wool, particularly in terms of seasonality.

Medium term

Provide a wider range of selling options to farmers by establishing lamb auction sale-by-description by December 1984.

Significantly reduce the incidence of lice in sheep by developing and conducting a specialist extension program and appropriate applied research.

Long term

Reduce the incidence of diseases and other production-limiting factors affecting livestock by progressively increasing the range of departmental services relating to animal health and production.

Agricultural Resource Management

Developments in recent years have placed increasing pressures on the State's land and water resources. The preservation of these basic resources and the protection of the crops and livestock they support against plant and animal pests and disease, is the main purpose of this program.

Soils

Recent changes in traditional farming systems in South Australia have placed more pressure on the land. Foremost among these changes is the trend to more intensive cropping, and the decline of medics and clovers in the pasture phase of the rotation. This decline results from a combination of shorter rotations and the influx of insect pests, which have become widespread and damaging in recent years.

In addition to these problems, the use of bigger, more powerful machinery has led to the cropping of larger areas of land and increased speed of cultivation. Both practices increase the likelihood of erosion and soil degradation. Cropping is also extending to erosion prone land such as steeper slopes and sandier soils, with farmers not giving sufficient consideration to the suitability of the land.

Conservation of the soil resource is a very important concern. The cereal areas most at risk from erosion and soil degradation are the red brown earth zone of the Mid-North and the sandy, farming areas of the Murray Mallee and Eyre Peninsula.

In 1982 an expanded soil conservation program was initiated. It is based on group conservation schemes supervised by departmental regional soil conservation staff, together with members of Soil Conservation Boards. These Boards are composed entirely of farmers. The aim of the program is to co-ordinate schemes for soil conservation. It includes group catchment schemes in the Mid-North and on Eyre Peninsula whereby plans to control water run-off on individual farms are based on the integration of soil conservation works for the catchment as a whole. Schemes are also being implemented to stabilize coastal and mallee sand dunes, and an arid lands re-vegetation project is under way.

Normal advisory and service work is aimed at helping farmers install soil conservation works and adopt land management practices that will maintain soil fertility and soil structure, prevent run-off and erosion, and reclaim degraded land.

Medium and long term research is under way in the Mid-North and Murray Mallee to evaluate farming systems with different cropping intensities and various

tillage methods. The evaluation includes aspects such as traditional fallow, trash retention, direct drilling and the use of herbicides. The research is aimed at developing efficient farming systems for maintaining production and conserving soil resources and providing guidelines to help farmers monitor their farming practices. The level of soil pathogens is also being investigated.

Because cropping has become more intensive and pastures are deficient in legumes, farmers are now applying more nitrogen to cereals. Applications of nitrogenous fertilisers at seeding and after seeding are being compared in the Central, Eyre and Murray Lands Regions.

Soil and foliar applications of manganese are also being evaluated as a means of preventing manganese deficiencies in lupins grown on siliceous sands of the South-East and in barley grown on the highly calcareous soils of southern Yorke Peninsula.

Soil and plant tissue tests are being carried out to monitor changes in soil fertility and diagnose nutrient deficiencies in cereals, medics and lucerne, to provide farmers with information needed to make better fertilizer decisions.

Water repellent sands occur in the South-East and on Eyre Peninsula. Various management practices, including the application of soil stabilisers, are being developed and tested for establishing aphid-tolerant lucerne on the water repellent sands of the Upper South-East.

The condition of rangeland vegetation in the arid zone is being assessed and monitored.

Water

More attention will be paid to the State's limited water resources and their quality because of increasing demands by urban and rural users. This is reflected in a continuing demand for technical and economic appraisal of various irrigation methods designed to increase efficiency and reduce costs. The installation of more efficient pumping units and large-scale irrigation machines on farms in the Upper South-East and Murray Basin is one result of this.

A departmental extension and service unit provides farmers with information and assists in site selection, survey and construction of irrigation and farm dams, installation of erosion control structures, and layout of water harvesting projects. A similar service is provided to advise farmers on the efficiency and costs of various irrigation practices and assist in the design and survey of flood irrigation projects, mainly in the South-East.

Salinity is a major threat to the State's horticultural industries. The River Murray Irrigation and Salinity Investigation Program was established to investigate irrigation practices, crop water requirements and salinity, assess water quality standards in the Riverland horticultural areas, and provide advice on these issues to Riverland irrigation farmers.

Planning and Local Government controls on agricultural pollution have increased the demand for advice on management of wastes from intensive animal production units.

Advisory services on waste management are available to managers of intensive animal units and assistance on the planning and zoning of these activities is made available to Local Government. A consultancy service was provided to assist the

management of an intensive animal industry group in the Padthaway district in the South-East.

Research on pollution is being conducted in the Piccadilly Valley in the Adelaide Hills and measurements made of the quality and sediment load of surface run-off waters.

Monitoring of salt flows into the Middle River dam on Kangaroo Island is continuing.

Vertebrate pests, pest plants and locusts

Pest animals, pest plants and locusts, are a constant and recurring threat to the State's crops and livestock.

Increasing numbers of dingoes can be expected to enter the State's sheep zone as the dog fence becomes older and more difficult to maintain.

During the drought and following the recent bushfires, large quantities of hay and other fodder were introduced into affected areas. Councils and landholders will need to identify and report any outbreaks of pest plants that may have been introduced with this feed.

The main continuing activity is the co-operative approach to pest control by the State government, local government and landholders, through the establishment and maintenance of a framework of pest control boards. A continual updating of pest control methods is necessary to provide a technical and advisory service to pest control boards through regional officers. The proposed amalgamation of the Vertebrate Pests Control Authority and the Pest Plants Commission will enable the activities of the two organizations to be rationalized.

Local Pest Plants Control Boards are collaborating in a mapping project to record the location and density of pest plants in South Australia.

Pest Plants Commission staff maintain the Department of Agriculture herbarium and provide a plant identification service for all plants.

The Vertebrate Pests Control Authority is conducting research programs into the biology and control of rabbits and feral goats, particularly in the pastoral country, and of the house mouse in relation to cereal crops protection. The effect of rabbits on the regeneration of native vegetation and as grazing competitors of domestic livestock is also being investigated.

Plague locust and plague grasshopper populations are constantly monitored and liaison maintained with the Australian Plague Locust Commission.

Quarantine

Overseas trade, expanding tourism and rapid transport provide countless opportunities for the entry of plant and animal diseases from overseas and interstate and the need for maintaining vigilant quarantine services is greater than ever before.

Quarantine is a labour intensive Commonwealth-State responsibility operated by the Commonwealth Department of Health and State Departments of Agriculture. It requires daily inspection of plants and animals and suspected disease-carrying materials at airports, seaports, road blocks, railway terminals and postal customs. The department has to be able to identify exotic plant and animal diseases.

Quarantine on the South Australian borders is directed mainly at preventing the introduction and establishment of plant diseases and pests such as fruit fly, which occur in other parts of Australia.

Agricultural and veterinary chemicals

With the proliferating range of agricultural chemicals and stock medicines, one of the farmer's main concerns is to determine which chemical to use, how to use it, and its level of safety.

All agricultural and veterinary chemicals must be registered and must comply with labelling and quality requirements before release. Sampling and testing of registered chemicals for conformity with the label claims and formulations, and investigating problems following misuse of products is one of the functions of the department's Agricultural and Veterinary Chemicals Unit. This unit also checks samples of foodstuffs for chemical residues and, in association with the agricultural chemistry industry, provides a service for the testing of herbicides. The prime objective of the various controls is the safe and efficient use of chemicals and the avoidance of hazards to non-target species, the user and the environment.

Major issues

The importance of maintaining the value and productive capacity of the State's agricultural resources must not be underestimated. Some of the main issues that will affect the direction of future departmental activities in this program are:

- ☐ the need for continued development and adoption of soil and land management techniques that will prevent soil erosion, improve soil fertility and soil structure and control soil pathogens - with emphasis on management for long term productivity as well as short term profit;
- ☐ the need for more efficient use of scarce water resources including research into irrigation practices, assessment of water quality standards in irrigation areas, and provision of advice to irrigation farmers;
- ☐ proposed Commonwealth and State inputs to the further development of group conservation schemes based on farmer co-operation and community participation;
- ☐ agricultural pollution of surface run-off waters and agricultural waste management;
- ☐ amalgamation of the Vertebrate Pests Control Authority and the Pest Plants Commission which will allow the activities of both organizations to be rationalized;
- ☐ strengthening of the co-operative approach to pest control by Local Government and landholders;
- ☐ soil reclamation;
- ☐ expanding international transport and travel and thus the need to maintain an efficient and vigilant quarantine service to protect Australia's agricultural industries;
- ☐ the increasing use and range of agricultural and veterinary chemicals requiring maintenance of regulatory standards and provision of competent advisory services to potential users.

Corporate goals 1983-84

Short term

Assist erosion control, particularly on the sloping red-brown earths of the Mid- North, by establishing a research team to develop guidelines and standards for soil conservation structures and tillage practices.

Increase the efficiency of services provided by the department's animal quarantine section following a review of animal quarantine services.

Start research into control of pest plants within the existing Weed Sciences Unit, securing if possible the appointment of a research officer by redeployment from other activities.

Develop strategies to overcome the deleterious effects of soil-borne plant pathogens on cereal, vegetable and horticultural production in the Murray Lands Region following the appointment of a plant pathologist.

Medium term

Develop catchment area models defining major reasons for the pollution of water supplies to help devise land-use systems that will avoid environmental damage.

Long term

Improve efficiency of water use, particularly that for horticultural production and pastures along the River Murray, through extension programs related to irrigation management.

Help cereal farmers control weeds, by seeking industry support to upgrade the experimental basis for making cereal herbicide recommendations and thus improve the precision of weed control advice.

Farm Management and Rural Community Support

The farm management and rural community support program provides a range of services to the rural community. These services are integrated across conventional industry and regional boundaries and focus on economic and social aspects of modern farming rather than technical agricultural aspects. The program is aimed at improving the economic efficiency of individual farms and the social well-being of the farming community.

Farm management outlook

Farm management in the dryland areas in 1983 will be dominated by the immediate need for recovery from the drought. In other areas reconstruction will be necessary after the most devastating bushfires in South Australia's history and the serious floods which followed soon after. Each has put pressure on the financial resources of many farmers, required increased borrowing and led to a tight cash flow.

These pressures come at a time when world demand for most agricultural products is depressed. The 10 per cent devaluation in March 1983 will assist farmers in the export industries, but sound financial management will be essential for short term survival of many farm businesses.

In the medium term, pressure for adjustment of some industries will continue, especially some horticultural industries. The department offers advisory services to farmers who are making long term investments in new irrigation systems and alternative tree and vine plantings. In the cereal zone farmers are confronted by a wide range of tillage and machinery options requiring simultaneous consideration of soil type, tillage methods, crop rotations, machinery and finance. Continued research and extension programs are required to help farmers make sound investment decisions regarding farm machinery.

Rural assistance

As farmers begin to plan their recovery from drought, bushfires and floods, demand for financial assistance is likely to increase, particularly for debt reconstruction and farm improvement. Over the next decade, horticultural industries in the Murray Lands, Central and South-East Regions will require considerable adjustment and continued financial assistance.

A significant increase in Commonwealth funds for rural adjustment was announced in June 1983 - almost twice that of the previous year. This, together with proposals to increase loan repayments, should assist in maintaining rural adjustment activity in South Australia.

Under the provisions of the Rural Adjustment legislation, farmers must be shown to be able to continue their operations with commercial credit in the long term in order to be eligible for short term assistance, and loans should be reviewed after a period to assess the need for continuing concessional finance. Accordingly, proposals are being developed to apply increased interest rates to loans which have been in existence more than five years.

The Department of Agriculture's Rural Assistance Branch operates the Rural Adjustment Scheme and administers relief measures in natural disasters.

In June 1983, the South Australian Government presented a submission prepared by the department to the IAC Inquiry on Rural Adjustment, suggesting how the current system could be modified to improve the effectiveness of rural adjustment measures.

Extension and rural education

The department, through its various regional offices and industry divisions, provides an advisory service to farmers through extension officers with expertise in agronomy, soils, livestock, and farm business management, working as a multi-disciplinary team. Traditionally, extension advice has been provided largely to individuals on a consultative basis. While this remains a major feature of the department's extension service, during the last three years group extension activities have increased. These group activities include meetings, conferences, field days and seminars organized for farmers.

The department is developing a program of meetings for farmers in Eyre Region to discuss and establish an understanding of machinery investment alternatives, financial management skills, and land purchase. Murray Lands region is developing group activities to improve farmers' financial decision- making skills.This includes working with women's groups. The department also provides a service to the rural community by assisting groups such as Women's Agricultural Bureau, the Rural Youth Movement and the Agricultural Bureau.

The department provides support for many agricultural education programs throughout South Australia, primarily through the rural studies programs of the Department of Technical and Further Education. Lecturers are provided for short courses in the Rural Studies Certificate and the Certificate of Farm Practice. The recent report of the Advisory Committee on Agricultural Education has recommended an expansion of training courses for farm families in farm management, agricultural machinery, leadership, and computer systems in agricultural management. This would require an expansion of departmental involvement in farmer education in South Australia.

Micro-computers are beginning to have a large impact on agricultural extension and farm management. An increasing number of farmers are buying micro-computers as an aid to record keeping, financial planning and other aspects of farm management decision-making. Extension officers are becoming familiar with the terminology,

equipment and computer programs relevant to particular industries. Portable computing equipment and farm programs can provide quick, easy handling of information by groups and individuals.

The department's regional extension services are initiating programs of computer education of farmers and extension staff, often in conjunction with the Department of Technical and Further Education. Several regional officers are undertaking post-graduate training in the use of modelling and other computer techniques at agricultural colleges in Australia and New Zealand and a number of extension officers are, on their own initiative, undertaking part-time studies in the use of computers.

Computer models developed by the department are used to examine alternative strategies for fruit block redevelopment. Another computer model has been developed to evaluate the impacts on cash flow of alternative stocking strategies for individual properties involved in the BTEC in the Far North.

The department has also taken an interest in videotex, a communication, information and data processing system which combines three existing technologies - computers, television and telephone communication networks.

An extension research unit undertakes social research of value in extension, acts as a consultant to departmental officers undertaking survey work and assists in staff development and training courses.

A community and home gardens advisory service provides a sale and distributions outlet for departmental publications and an answering service for public enquiries. The department continues to produce over 750 fact sheets and bulletins which are regularly added to and updated. In addition, departmental journalists issue press releases and feature stories to the rural media. In the regions, increasing support has been given to local media outlets with feature articles and seasonal reminders on various aspects of farming.

Farm management economics

The aim of the department's efforts in farm business management is to demonstrate the value of planning and monitoring performance, and to develop farmers' skills in financial analysis.

It is mainly in farm business management that micro-computers are being used as an extension tool. The range of farm management computer programs being developed in Australia and overseas is increasing in number and quality and their use by farmers and extension officers is expected to increase over the next decade. The department can play a major role by evaluating the effectiveness of these computer programs as tools for on-farm decision-making.

The department's regional economists provide regular contributions to publications such as Farming Forum, State of Agriculture, and various rural newspapers. Regional economists also conduct farm management schools and provide speakers for various Agricultural Bureau meetings, and departmental and industry conferences. The department's agricultural economists also provide economic information for use by the department, Government, rural industry, farmers and the general community. A farm mechanization program helps farmers select farm machinery suited to their needs. Various types of farm machinery are evaluated and compared, and advice is given to assist farmers in selecting the best form of farm machinery finance.

Agricultural systems research

Farming systems involve a complex interaction of a wide range of physical, biological and economic factors. Systems research enables the analysis of complex inter-relationships through the construction of computer-based models. A well constructed farming system model represents the current state of knowledge of the system and involves the integration of climatic and physical data, research knowledge, district experience and market behaviour. Agricultural systems research can help farmers to reach management decisions, act as an extension aid, help train extension officers, assist in the integration of research findings and help set research priorities.

Systems research in the department involves a multi-disciplinary approach to solving research and extension problems. Projects under way include an analysis of South Australian dryland farming systems, the evaluation of redevelopment strategies for Riverland fruit blocks, and an evaluation of alternative stocking strategies for Northern pastoral properties.

Marketing

Marketing, in a general sense, includes all activities involved in the flow of goods and services from the producer to the consumer. In recent years, various changes affecting the profitability of Australian agriculture have led to a greater emphasis on the provision of marketing services to individual farmers and agricultural industries. In South Australia, the Department of Agriculture offers a range of marketing services where need and demand for them has become apparent.

The department offers services in the following areas: assistance to industries in product specification (grading, classification, measurement, labelling and minimum standards for produce); the development, introduction, selection and evaluation of new products; market research for product development by the department, and market development for new or smaller industries; liaison with industries on the research, evaluation and development of marketing systems; and education and training of producers and industry organizations in marketing.

Marketing services are provided for South Australian agricultural industries, and particular projects are being undertaken to analyse production costs and marketing margins for certain industries. These are carried out in the industry programs.

Major issues

The main issues that will affect departmental services in relation to farm management and rural community support are:

- ☐ the availability of new communications and computing technology and the application of this technology to the provision of information to farmers;
- ☐ the availability of an increasing number of farm decision-making computer programs;
- ☐ changes in systems for marketing agricultural produce;
- ☐ farm financial management, particularly machinery purchase and replacement, the cost and availability of credit, farm budgeting, and investment decisions;
- ☐ demographic and social changes in the rural community.

Corporate goals 1983-84

Short term

Improve the effectiveness of the department's services to the Rural Youth Movement, Agricultural Bureau and Women's Agricultural Bureau by reviewing existing services and implementing appropriate recommendations.

Establish an advisory service to farmers on farm mechanization and engineering.

Help farmers make management decisions by providing gross margins of South Australian agricultural industries.

Medium term

Support agricultural education in South Australia by providing part-time lecturers to DTAFE and other appropriate institutions in line with the recommendations of the Advisory Committee on Agricultural Education.

Improve the effectiveness of farm decision making through the development of enterprise models and sensitivity analyses for use in extension.

Upgrade farmers' management skills by conducting short courses in farm financial management, starting in 1983 with programs in the Eyre and Murray Lands Regions.

Improve farm management and decision making by evaluating existing computer software.

Long term

Assist farmers in making operating and management decisions by progressively establishing computing facilities in district offices, for technical information and farm management computer programs.

Veterinary Laboratory Services

Veterinary laboratory services are directed towards investigating problems of animal health and production in livestock and other animals, in allied materials (pastures, crops and stock feeds) and in animal products (for problems relating to safety or quality). The services include information on the definition, significance and extent of these problems and evaluating possible options for control.

Laboratory services gather information by surveys and surveillance and carry out diagnostic test services, test development and research projects.The servicing of disease control schemes and provision of information and advice on animal health problems are major parts of the veterinary laboratory services program.

Livestock

The breaking of the drought early in 1983 resulted in increased demand for veterinary diagnostic services. The bushfires of early 1983 and the end of the drought in southern South Australia have caused livestock prices to rise. These factors coupled with any improvement in general economic conditions, will increase demand for diagnostic services for farm animals.

As well as the veterinary laboratory and field station in Adelaide, the department operates the South East Regional Veterinary Laboratory (SERVL) at Struan. This laboratory has, in the past, been mainly concerned with the Brucellosis and Tuberculosis Eradication Campaign (BTEC). As demand for services related to BTEC declines, it is anticipated that further services for other diseases and production problems in the South-East Region will be developed. These will be integrated with existing services provided by the Frome Road laboratories.

Sport and companion animals

Horse and dog racing and breeding are major industries. In addition, there are sound human health and social reasons for ensuring the health and well-being of sport and companion animals. Laboratory services for these animals are directed through veterinary practitioners towards individual animals and their owners. Tests developed for these animals and information derived from them also provide a significant input to animal health and disease control. With rising living standards and increasing

community standards for animal welfare, greater demand is expected for diagnostic laboratory support for veterinarians specializing in companion animal practices.

Laboratory animal production

Laboratory animals and animal products are used extensively in animal and human health research and it is important that the welfare of the animals be considered. There are only two major suppliers of laboratory animals in South Australia, the Department of Agriculture is the only supplier of genetically-defined inbred strains.

In 1982-83, 42 500 animals were distributed from the production unit at Gilles Plains and 95 per cent of these were laboratory strains of rats and mice. Other animals are produced including guinea pigs, rabbits and small numbers of cats and dogs.

General veterinary services

The department offers a diagnostic and consulting service in the fields of bacteriology, biochemistry, haematology, immunology, parasitology, tissue pathology, virology and laboratory animal welfare to veterinarians in private practice, departmental officers and other Government and semi-Government instrumentalities, both State and Commonwealth. In 1982-83, 700 000 tests were conducted in the department's veterinary laboratories which have a range of 425 tests available to clients. A State-wide quality control program is being developed to ensure consistency and quality of diagnostic services in all veterinary diagnostic laboratories. Close cooperation with IMVS regional laboratories in country hospitals, particularly in standardizing veterinary test procedures, will ensure the availability of high quality veterinary laboratory services throughout the State.

A wide range of research is also conducted, including investigations related to infertility and abortion in cattle, internal parasites of meat animals, copper deficiency and footrot in sheep, and the development of a coliform vaccine to prevent piglet scours. Funds are being sought to enable a study of the physiological and behavioural effects of electro-immobilisation of animals to be conducted.

Laboratory support for disease control schemes constitutes a major part of the workload of the Frome Road and SERVL laboratories. About 300 000 tests were conducted for the BTEC in 1982-83 and although demand for BTEC tests is declining, the program will remain a significant part of veterinary diagnostic services work for the next few years. An active test development program is maintained and new techniques and tests are frequently being added to the veterinary services available.

The department breeds and supplies laboratory animals of known genetic composition for teaching and research. In addition, research is conducted in these fields as occasion demands and resources allow, and a consultancy service in experimental animal welfare and ethics is provided.

Veterinary Sciences Division

The integration of the Veterinary Sciences Division with the Department of Agriculture following its transfer from the Institute of Medical and Veterinary Science (IMVS) is

proceeding satisfactorily. A major review of the division was conducted during 1983. It made important recommendations concerning the division's future. The most significant recommendation is that the division should continue to recognise veterinary diagnostic service as its major function. The appointment of a clinical pathologist to co-ordinate the reporting of test results and to maintain close liaison with clients is an important improvement to this service. It is anticipated that two-thirds of resources will be directed to the diagnostic role, the remainder being directed to research. The division has adopted a new management structure to enable it to carry out its role more effectively within its changed organizational frame-work.

Major issues

Issues of concern to livestock producers and the department are listed in the animal industries program. In addition, the department considers the following are of major importance in planning the provision of its veterinary laboratory services.

- ☐ The increase in demand for veterinary diagnostic services, particularly for companion animals;
- ☐ The need for rapid communication of diagnostic test results;
- ☐ The demand for high standards in the quality and care of laboratory animals;
- ☐ Co-ordination of the department's veterinary laboratory and animal health field services following the transfer of the Veterinary Sciences Division from the Institute of Medical and Veterinary Science to the Department of Agriculture.

Corporate goals 1983-84

Short term

Improve veterinary diagnostic services by developing automatic data processing systems to convey test results to clients and provide an associated rapid billing service.

Improve co-ordination, responsiveness and quality of veterinary diagnostic services by appointing a clinical pathologist and a diagnostic services manager.

Advance veterinary pathology services by introducing improved laboratory quality control standards.

Long term

Extend the range of diagnostic laboratory services offered to veterinary practitioners and livestock producers in the South-East by progressive provision of additional test procedures.

Support Services

Support services are an integral component of the department. In addition to administrative and clerical support which ensures smooth and efficient operation of the department's activities, specialist scientific and technical support is provided to managers, research workers and extension officers.

Management and administrative support

This includes management and administration of resources, clerical support to assist officers in research, extension, diagnostic and regulatory work, and staff development and training activities.

Administrative, clerical and typing support

Staff are located throughout the department to provide administrative support, typing services and receptionist duties. A major review of these services is under way to ensure the department's activities continue to be supported in the most efficient manner.

Word processing facilities at the department's head office have been of great benefit in the preparation of technical papers and reports, and they are working to capacity. Since these facilities were installed technological advances have been made and the department is re-examining its word processing requirements in the light of the range of equipment now available. Telex machines are also located in head office and several regional centres. A correspondence section is responsible for distributing all correspondence and maintaining a central filing system. As part of the Review of Administrative Services, the department is examining the feasibility of computerizing the file indexing system to provide faster and easier access to files.

Services are also provided at head office and regional centres to manage and maintain departmental land, buildings and plant, motor vehicles, and farm machinery and equipment.

Finance and accounting

These services are provided by the Accounting Section. The principal functions are financial management and general accounting.

Financial management services include negotiating with Treasury on departmental funding implications, preparing budgets, providing a variance analysis service, and conducting financial investigations.

General accounting services include maintaining departmental ledgers, paying trade accounts and general expenses, billing sundry debtors, and collecting and recovering revenue.

In performing these functions the section must comply with the requirements of Treasury, the Auditor-General, Public Service Board and other authorities.

In recognizing the increasing demand for public accountability, the Accounting Section plans the continual enhancement of its financial management systems to provide all levels of management with more relevant, accurate and timely information. To achieve this, the section will play a major role in co- ordinating the provision of financial information consistent with the department's corporate objectives and the proposed integrated management information system.

Staff management and training

The Management Services Section provides advice and assistance to departmental managers on personnel matters. In the present economic climate the department is very aware of the need for effective management, and training courses are provided for middle management. This section is also organizing a program of personal development reviews. These reviews have a two-fold purpose: to help staff in planning their career development, and to determine staff training needs throughout the department.

Other management services include assisting managers in conducting reviews of their units and recording any changes in departmental staffing structure.

Scientific and technical support

Research and extension staff are given support in mathematics, statistics, experimental design, computing, information provision and processing, artwork, journalism, and social survey design.

Mathematics and computing

A specialist unit is located at head office for mathematical and computing services. Expert assistance is provided in design and statistical analysis of experiments and surveys in research and extension. The unit also offers assistance and advice on the purchase and evaluation of computing technology for the department and planning and development of computerized information systems.

Library services

A network of libraries and book collections in departmental offices and research centres throughout the State is provided for the department and public. The main library at head office employs two professional librarians and two clerical officers. The librarians provide a range of library services at head office and catalogue and maintain book collections in the department's country offices and research centres.

The library collection comprises 10 000 books and 1 200 periodicals, and a range of films, slide tapes and video tapes. The department has access to other library collections and provides automatic literature-searching of national and international data bases.

Publications and media

Specialist officers at head office within the Extension Services Unit assist in the production, distribution and promotion of departmental publications. This includes audio-visual, photographic and display materials and written publications. They also help district officers prepare news releases.

Extension research support

The extension research group helps extension officers design surveys using social survey techniques. It also provides training in survey methods for departmental officers.

Major issues

Although the planning of support services depends to a great extent on the type and level of activities in other departmental programs, there are a number of specific issues that also need consideration, namely:

- ☐ Government objectives to contain public expenditure while maintaining an effective public service, and the associated need to maintain a high standard of departmental management;
- ☐ in the light of staffing constraints, the need to maintain a high level of staff motivation and achievement;
- ☐ the demand for more detailed accountability by Government departments;
- ☐ the availability of an increasing range of computerized technology to assist in information provision and communication.

Corporate goals 1983-84

Short term

Enhance the effectiveness of administrative services within the department following a review of these services.

Review management information requirements throughout the department and recommend ways to meet them more effectively.

Review the effectiveness of the department's financial management systems to improve the provision of financial information consistent with the requirement for managers to measure performance and control costs more effectively.

Review the department's typing services with particular reference to word processing facilities and recommend ways to improve the efficiency of these services.

Review the department's file indexing and reference system and recommend ways to improve it.

Improve the management and operation of departmental plant and property by developing comprehensive, computerized registers of departmental capital assets.

Develop, in conjunction with Flinders University, a statistical analysis model for agricultural research.

Reorganize the main departmental library so it can more effectively meet the needs of staff and other users.

Streamline production of departmental publications by implementing a consultative group planning procedure.

Medium term

Provide effective research and diagnostic services for rural industries, by developing building plans in association with Public Buildings Department for central library and office facilities at Northfield.

Long term

Improve the effectiveness of media communications to producers by developing district training programs.

Develop procedures which will allow line managers to regularly review the methods, office technology, classification and organization of their units and match their organizational performance against their corporate goals.

Develop, in conjunction with the Staff Development and Training Committee, a planned program of staff development for senior departmental managers.

Implement personal development review programs within organizational units of the department, to assist individual officers in career development for the mutual benefit of staff and the department.

Appendix

Department of Agriculture, South Australia

HEAD OFFICE
25 Grenfell Street
G.P.O. Box 1671
Adelaide 5001
Telephone: 227 9911

Research Centres and Laboratories
Northfield Complex
Fosters Road
Northfield 5085
Telephone: 266 0911

Veterinary Sciences Division Laboratories
Institute of Medical and Veterinary Science
Frome Road
G.P.O. Box 1671
Adelaide 5001
Telephone: 228 7226

Veterinary Sciences Division Field Station
Cnr. Blacks Road and Grand Junction Road
Gilles Plains 5086
Telephone: 261 1033

Parafield Poultry Research Centre
230 Salisbury Highway
Parafield Gardens 5107
Telephone: 258 1244

Plant Pathology Laboratory
Waite Agricultural Research Institute
Private Mail Bag 1
Glen Osmond 5064
Telephone: 79 7901

Cape Borda Research Farm
Gosse KI
Telephone: (0848) 9 3253

Fruit & Plant Inspection Depots
Adelaide Airport
Telephone: 43 6662

Outer Harbour
Telephone: 248 3265

East End Market
Telephone: 223 1615

Mile End South
Telephone: 227 4191

Port Adelaide
Telephone: 47 5133

Pest Eradication Unit
46 Prospect Road
Prospect
Telephone: 269 4500

Plant Introduction Centre
230 Salisbury Highway
Parafield Gardens
Telephone: 258 2307

Transport Depot
Churchill Road
Prospect
Telephone: 269 1521

Quarantine Depots
Railway Yards
Mile End
Telephone: 227 4191 (Plants)

Lipson Street
Port Adelaide
Telephone: 47 5133 (Plants) or 47 3922 (Animals)

CENTRAL REGION—Adelaide
Regional Headquarters
Adelaide
25 Franklin Street
Telephone: 227 3799

District Offices
Adelaide
25 Franklin Street
Telephone: 227 3799

Clare
9 Old North Road
Box 287
Clare 5433
Telephone: (088) 42 3900

Echunga
Animal Health Advisor
Telephone: 388 8201

Jamestown
17 Irvine Street
Box 145
Jamestown 5491
Telephone: (086) 64 1408

Kadina
35 Frances Street
Box 145
Kadina 5554
Telephone: (088) 21 15555

Kingscote
Council Chambers
Dauncey Street
Kingscote KI 5223
Telephone: (0848) 22464 or 22222

Nuriootpa
Research Road
Box 245
Nuriootpa 5355
Telephone: (085) 62 1355

Victor Harbor
3 Eyre Terrace
Box 4
Victor Harbor 5211
Telephone: (085) 52 3064

Virginia
Box 522
Virginia 5120
Telephone: 380 9562

Port Pirie
Norman Street
Box 519
Port Pirie 5540
Telephone: (086) 32 3530

Research Centres
Lenswood Research Centre
Lenswood 5240
Telephone: 389 8302

Parndana Research Centre
Parndana KI 5220
Telephone: (0848) 95234 or 95236

Turretfield Research Centre
Rosedale 5350
Telephone: (085) 25 8017

Nuriootpa Research and Advisory Centre
Research Road
Box 245
Nuriootpa 5355
Telephone: (085) 62 1355

Fruit Fly Roadblock
Oodla Wirra
Telephone: Oodla Wirra 3U

SOUTH-EAST REGION—Struan
Regional Headquarters
Struan
Box 618
Naracoorte 5271
Telephone: (087) 64 7419

District Offices
Keith
Makin Street
Keith 5267
Telephone: (087) 55 1844

Mount Gambier
Helen Street
Box 475
Mount Gambier 5290
Telephone: (087) 24 1511

Naracoorte
6a McRae Street
Naracoorte 5271
Telephone: (087) 62 1855

Research Centres and Laboratories
South-East Region Veterinary Laboratory
Struan
Box 618
Naracoorte 5271
Telephone: (087) 64 7419

Kybybolite
Box 2
Kybybolite 5262
Telephone: (087) 64 2002 or 64 2008

Struan
Box 618
Naracoorte 5271
Telephone: (087) 64 7419

NORTHERN REGION—Port Augusta
Regional Headquarters
Port Augusta
Tassie Street
Box 357
Port Augusta 5700

District Office
Port Augusta
Tassie Street
Box 357
Port Augusta 5700
Telephone: (086) 42 3722

Stock Inspectors
Coober Pedy
Telephone: Coober Pedy 73 5415

Chandler
Leigh Creek South

MURRAYLANDS REGION—Loxton
Regional Headquarters
Loxton
Kokoda Terrace
Box 411
Loxton 5333
Telephone: (085) 84 7241

District Offices
Berri
Wade Street
Box 6
Berri 5343
Telephone: (085) 82 1166

Lameroo
Railway Terrace
Lameroo 5302
Telephone: Lameroo 345

Loxton
Kokoda Terrace
Box 411
Loxton 5333
Telephone: (085) 84 7241

Murray Bridge
Bridge Street
Murray Bridge 5253
Telephone: (085) 32 2266

Renmark
Ral Ral Avenue
Box 1014
Renmark 5341
Telephone: (085) 86 6761

Waikerie
Kingston Road
Waikerie 5330
Telephone: (085) 41 2622

Research Centres
Loxton
Box 411
Loxton 5333
Telephone: (085) 84 7317

Wanbi Research Centre
Wanbi 5310
Telephone: Wanbi 11

Fruit Fly Roadblocks
Pinnaroo
Telephone: Pinnaroo 321

Yamba
Telephone: (085) 85 5026

EYRE REGION—Port Lincoln
Regional Headquarters
Port Lincoln
Adelaide Place
Box 11
Port Lincoln 5606
Telephone: (086) 82 3022

District Offices
Cleve
Box 156
Cleve 5640
Telephone: (086) 28 2091 or 28 2098

Port Lincoln
Adelaide Place
Box 11
Port Lincoln 5606
Telephone: (086) 82 3022

Streaky Bay
Bay Road
Streaky Bay 5680
Telephone: Streaky Bay 108

Research Centre
Minnipa
Box 31
Minnipa 5654
Telephone: Minnipa 31

Fruit Fly Roadblock
Ceduna
Penong Road
Box 183
Ceduna 5690
Telephone: Ceduna 288

Major South Australian Government Acts administered by the Minister of Agriculture

Abattoirs Act 1911
Agricultural Chemicals Act 1955
Apiaries Act 1931
Barley Marketing Act 1947
Beef Industry Assistance Act 1975
Branding of Pigs Act 1964
Brands Act 1933
Bulk Handling of Grain Act 1955
Canned Fruits Marketing Act 1980
Cattle Compensation Act 1939
Citrus Industry Organisation Act 1965
Country Fires Act 1976
Dairy Industry Act 1928
Dried Fruits Act 1934
Egg Industry Stabilisation Act 1973
Foot & Mouth Disease Eradication Fund Act 1958
Fruit Fly Act 1947
Fruit & Plant Protection Act 1968
Fruit & Vegetables (Grading) Act 1934
Hide Skin & Wool Dealers Act 1915
Marginal Dairy Farms (Agreement) Act 1971
Marketing of Eggs Act 1941
Meat Hygiene Act 1980
Metropolitan Milk Supply Act 1946
Noxious Insects Act 1934
Pest Plants Act 1975
Phylloxera Act 1936
Primary Producers Emergency Assistance Act 1967
Potato Marketing Act 1948
Poultry Meat Industry Act 1969
Rural Industry Assistance Act 1977
Rural Industry Assistance (Special Provisions) Act 1971
Seeds Act 1979
South Australian Meat Corporation Act 1936
Soil Conservation Act 1939
Stock Diseases Act 1934
Stock Foods Act 1941
Stock Medicines Act 1939
Swine Compensation Act 1936
Vertebrate Pests Act 1975
Veterinary Surgeons Act 1935
Volunteer Fire Fighters Fund Act 1949
Wheat Marketing Act 1980