AGRICULTURAL POLICY RESEARCH IN SOUTH AFRICA: CHALLENGES FOR THE FUTURE[1]

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1. INTRODUCTION

In an earlier paper (Vink, 1993) an attempt was made to provide a view of the changing policy environment for agriculture in South Africa and of the policy based research that supported those changes, and to propose an agenda for further research. The purpose in this paper is to revisit the 1993 agenda, thus the paper is organised around the original items on that agenda. Progress in each of the identified areas is assessed, and some thoughts are provided about its relevance today. This discussion is used as a basis for a new agenda for policy research in agriculture.

2. THE PROPOSED RESEARCH AGENDA IN 1993

The 1993 Agenda consisted of ten items.

2.1 The efficiency and equity effects of farm policy

In 1993 the agenda proposed research to monitor the efficiency and equity effects of farm policy on farmers, consumers and the agro-industrial complex. Some of the best policy research in South Africa falls under this heading, starting with the key publication reporting on the measurement of Total Factor Productivity (TFP) in South African agriculture (Thirtle *et al,* 1993*)*. The article reported on research conducted at the Universities of Pretoria and Reading, and the Development Bank of Southern Africa, which also provided the funding for the research. In this seminal article an index of TFP was constructed for South African agriculture for the period 1947-91. TFP grew at an average rate of 1,3% pa over the total period, at 1,48% pa in the post-WWII era, and at a higher rate in the time after deregulation started in the early 1980s, chiefly because of the shift to extensive production practices in dryland

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crop farming. While it was clear that not all farmers benefited or even that all farmers benefited equally from these changes, it was clear that welfare in the agricultural sector as a whole, and in the South African economy in general, improved as a result of these policy shifts.

Farm size and efficiency

These TFP results were also used to analyse the farm size efficiency relationship (Van Zyl 1995, Townsend *et al,* 1998). Other research under this heading, but using different measurement techniques, include Mbowa and Nieuwoudt (1998), who analysed the farm size efficiency relationship in the sugar industry, and Piesse *et al,* (1996) who analysed the relationship in the former homeland areas using Data Envelopment Analysis.

Returns to research

The TFP measures were also used to estimate the effect of technology transfer on agricultural growth in South Africa. Khatri *et al* (1994 and 1996a) used a profit function approach to investigate the sources of productivity change over the period 1947-92. In a subsequent publication, the lag structure of the returns to research was also investigated in more detail (Khatri *et al* 1996b). Thirtle and Van Zyl (1994) and Van Zyl *et al* (1996) also used the shadow value of research to derive the marginal internal rate of return to public sector extension.

In policy terms, this literature provides strong support for state expenditure on agricultural research (Thirtle *et al* 1998), yet state support to the Agricultural Research Council, the University Faculties of Agriculture and the provincial Departments of Agriculture has decreased over the past five years. While this is justified in terms of encouraging greater private sector support for research and development, it remains an area that the state cannot afford to neglect. This research has also been summarised in a forthcoming volume (Thirtle *et al,* 2000).

Other related research includes a study by Nell (1998), who identified and evaluated critical factors that predict the transfer, adoption and utilisation of livestock veterinary technologies by small ruminant farmers in the former QwaQwa homeland. Mekuria (1997) also focused on the technology problems of small farmers, this time in the Northern Province, while Ortmann (1997) investigated the IT needs of commercial farmers.

Size of the sector

In the classical Johnson-Mellor framework, agriculture plays an important role in the transformation of a country from a state of underdevelopment to a modern economy. In this process, the sector contributes to GDP, provides employment opportunities, becomes a market for the produce of the manufacturing sector, earns foreign exchange and transfers human and financial capacity to other sectors that can use these resources more efficiently. Prior to the work of Townsend and Van Zyl (1998) the only formal analysis that had been conducted on South African agriculture within this framework was done during the 1960s (Brand and Tomlinson, 1966). Sartorius von Bach and Nuppenau (1996) conducted similar research in the former homeland areas.

Macro-level data on the contribution to GDP of agriculture are published annually by the National Department of Agriculture (Abstract), while a narrative summary was also published in 1998 (NDA, 1998). Furthermore, the World Bank (1994) has published a comprehensive overview of the industry, while Van Rooyen *et al* (1996) also provide a useful summary.

Farm output

Farm output and input use trends are summarised annually in the Abstract of Agricultural Statistics while the major issues surrounding farm output trends have been reviewed as part of the debate on Total Factor Productivity. In addition to these, there has been a range of studies whose purpose was to measure the elasticity of supply of various farm commodities. These have been surveyed in Liebenberg and Groenewald (1996). It is interesting to note that these authors also find that there have been few such studies conducted in the past few years, chiefly because of the strong emphasis on structural change in the agricultural sector, and the belief that past production trends offer little insight into the future.

There is one pertinent example of a recent study of the supply of a specific agricultural commodity, namely Khuele and Darroch (1997). Nevertheless, there has been a range of recent studies on related aspects of the supply of agricultural products. These include studies on Integrated Pest Management, where the seminal example is Kleynhans *et al* (1999). Another example is the study by the Institute for Futures Research on genetically modified foods (IFR, 1999). This bulletin presents a background of the technology of GM foods and discusses some of the issues surrounding this emerging technology. It looks at the benefits of using GE in agriculture, as well as objections, mainly put

forward by Greenpeace. International agreements such as the Biosafety Protocol and consumer and public reaction are discussed.

Another example is Oostvogels *et al* (1997), who analysed the attitude of 'progressive' managers towards environmental care in the Elgin/Grabouw and Ceres areas: two major South African deciduous fruit producing areas in South Africa. A related subject that has been neglected since the 1980s is the management of the communal rangelands, especially in the former homeland areas. Dikeni (1996) identifies the major environmental policy issues surrounding rangeland use in the Free State and Northern Provinces, in order to identify processes for implementing effective policy reform. Cousins (1999), on the other hand, argues that these rangelands (including their woodland component) contribute significantly to rural livelihoods in that a variety of natural resources are used directly and for exchange in local and more distant markets.

However, the main body of related work deals with the upstream and downstream linkages between the farm and agribusiness sector. Machethe *et al* (1997) have surveyed the evidence from Africa and South Africa. The paper by Delgado (1999), especially, will have a lasting effect on research on these linkages in the South African agribusiness sector. Three further papers in this genre have been published. Ngqangweni *et al* (1999) argued that it is only recently that major research has been conducted on the potential of South African smallholder agriculture to stimulate economic growth, create employment and alleviate poverty in the disadvantaged rural areas. Karaan (1999) argued that small-scale mussel farming in Saldanha Bay is more efficient than production by large vertically integrated firms, while Tregurtha and Vink (1999), investigated the peculiarities of the relationship between a group of smallholder irrigation farmers in the North West Province and South Africa's beer giant, SAB.

Employment generation

Two things are clear about employment in the agricultural sector, namely that the data are poor[1] (e.g. Klasen & Woolard, 1999; Vink and Kirsten, 1999), and that the aggregate level of employment in the sector is declining (Vink & Kirsten, 1999 and Whiteford, 1998). More pertinently, this research shows that:

- While the permanent labour force is expected to decline over time, there is some evidence that the number of seasonal and temporary workers could increase;

- The decline in the number of jobs provided by the sector over the past decades has been exacerbated by bad policies that inhibited export opportunities, discouraged the development of labour saving technology, and actively encouraged the adoption of capital intensive farming practices.

Nowers and Berning (1999) provide a provincial perspective on opportunities and strategies to increase agriculture's contribution to net job creation. Their results show that the majority of respondents believed that opportunities exist to restore the agricultural sector, specifically in the Western Cape, to one of the main job creating sectors. Finally, Van Rooyen (1997) discusses the issue of employment generation in agriculture from a Southern African perspective.

There have been few recent assessments of the impact of the changing political and social environment on farm labour. One notable exception is the work of Newman *et al* (1997), who analysed labour remuneration and farmers' perceptions about the impact of labour legislation in agriculture. Sunde and Kleinbooi (1999) have also recently published the results of a survey that focused on means to promote equitable and sustainable development for women farm workers in the Western Cape. Earlier, Heunis and Pelser (1996) addressed shortcomings with regard to the contract of employment, grievance and disciplinary procedures and work councils based on research on labour practices in farms in the Bloemfontein area.

There has been a similar paucity of research on training needs in agriculture. Two exceptions are Nell *et al* (1999), who emphasise the need for skills upgrading as an element of international competitiveness, and Doyer *et al* (1999) who researched the skills needs of agribusiness enterprises.

It is significant that, although the issue of HIV/AIDS has been recognised as an important determinant of agriculture in the future (Bekker, 1998), there has been no substantive research in this field in agriculture.

The effects of macroeconomic policy

Macroeconomic policy affects individual sectors of the economy mainly through its impact on the level of aggregate demand. CGE analyses include the SM3 (Strategic Macro and Micro Modelling) project of the Department of Agriculture in the Western Cape (DAWC, 1997); the work of the Development Bank (Eckert, 1995; Gibson & Van Seventer, 1997a & 1997b; and Vink *et al,* 1996) and the work of McDonald and collaborators (McDonald *et al,* 1997; McDonald & Piesse, 1999). McDonald *et al* (1999) also used a revised and

updated model to determine the impact of a decline in commodity prices generally on the agricultural sector. Other examples of SAM-based modelling include Townsend and McDonald (1998) and Khan (1999). Less formal assessments of the sector effects of macroeconomic policy shifts includes Naudé (1995) and Townsend and Thirtle (1998).

Structural features

The debate concerning the structural features of the agricultural sector in South Africa has been dominated by the farm size efficiency debate. Nevertheless, there has also been some research on other modes of production such as family farming, co-operative farms, etc. Schulze Ehring (2000), for example, contrasts family farming and collective farming systems in Germany and compares them with commercial farms in South Africa.

Three other initiatives should be mentioned here. About a decade ago the Development Bank of Southern Africa completed a research assignment (McKenzie *et al*, 1989) whose purpose was to collect available data on the quality and quantity of natural resources used by the agricultural sector[2]. This information was subsequently used in a wide range of policy debates, including the debate on land reform (e.g. Brand *et al,* 1992). The second is a research project conducted at the University of Stellenbosch under the auspices of the Agrifutura Project, and financed by the Development Bank of Southern Africa (e.g. Kleynhans & Coetzee, 1999; Kleynhans & Vink, 1998). The third can be found in Jooste *et al* (1997), who investigate the impact of policy on the distribution of the production of wheat in South Africa.

2.2 The sustainability effects of farm policy

The agenda in 1993 called for policy research that included the sustainability effects of farm policy shifts in conventional analyses to gain a better understanding of environmental issues. The question, therefore, is how green are we as a profession? Unfortunately, while environmental issues have always been a strong focus of agricultural policy-related research, the quality of publications on this issue outstrips the quantity by a wide margin. By the tenets of the Bow-Tie Criterion, this may not be a bad thing, although those of us who are not strict neo-classicists will want to see more in both quantitative and qualitative terms.

In his impressive Presidential Address, Backeberg (1996) discussed the relationship between environmental conservation and the constitutional order. At the other (grass-roots) extreme, Fakir (1996) has explored

community based natural resource management in South Africa, while Ferrer (1999) measured and tested commercial sugarcane farmers' risk preferences as determinants of their soil conservation decisions. Hassan (1997) on the other hand uses an input-output framework with an environmental accounting module to investigate the implications of liberalising agricultural trade on the environment in South Africa. Finally, in one of the few studies of environmental issues relating to the agribusiness sector, Mowat (1996) examined the issue of economic incentives in controlling pollution in the South African leather industry.

2.3 The impact of structural changes

It was not difficult in 1993 to predict that land reform would become an important issue in South Africa. The agenda item called for research on ways of supporting new entrants to the farm sector, as well as assessing their impact on the production structure of agriculture. As the discussion below shows, there has been a lot of research on modes of land reform, but not much on the structural consequences of land reform. In this section, the research on the redistribution of access to the means of production (including land, water, capital, management, institutions and information) is surveyed. The structural effects of the redistribution of access to markets are discussed under section 2.6 below.

Land

The land issue has always played a central role in the struggle for democracy in South Africa, and one of the first steps after 2 February 1990 was the repeal of racially based land legislation. In this earlier period the work of the Development Bank on land reform (reported in Brand *et al,* 1992), the proceedings of a 1990 conference hosted by IDASA (De Klerk, 1991) and the PhD thesis of Van Schalkwyk (1995) influenced the shape of the land reform programme.

The debate gained momentum with a 1992 workshop in Swaziland where the World Bank brought together various groups from South Africa as well as scholars and practitioners from other countries in Southern Africa and elsewhere (published as World Bank, 1993). The next milestone was the rural restructuring study of the World Bank, presented at the 'Options for land reform' conference of the Department of Economics and Planning of the ANC in Johannesburg in 1993. The results were taken up in the White Paper on the Reconstruction and Development Programme (RSA, 1994), and the White Paper on Land Reform (RSA, 1997).

These 'options' included a proposal by DBSA for equity sharing projects, and a wide range of these has subsequently been implemented (see Ngqangweni *et al,* 1995). The first of these projects to be implemented, the DBSA-funded Whitehall Project, was formally evaluated at an early stage (Eckert *et al,* 1996).

A large proportion of the analytical work that supported the policy positions taken during these debates was subsequently published in Van Zyl *et al*, (1996). In this book, the theoretical underpinnings of land reform in South Africa are examined by providing lessons based on international experience, analysing the South African policy and legal environment, and basing proposals on these realities.

The work of the World Bank served as input into a number of subsequent publications, including World Bank (1993), Christiansen and Cooper (1995), Deininger and Binswanger (1995) and Deininger (1999).

More recently, the debate has shifted to progress with the implementation of the land reform programme. Some of the more important contributions include Plewman *et al* (1995); Department of Land Affairs (1997); Atkinson *et al* (1998); Hall (1998); Kirsten *et al* (1996); Kirsten and Van Zyl (1999) and Graham and Lyne (1999). The last three of these are of particular interest, as they show empirically the slow pace of land transfer.

In addition to these works, there have been recent publications on the particular problems of land reform in the former homeland areas where common property institutions are found (E.g. McIntosh *et al*, 1995; Anim, 1997; Lyne *et al,* 1997); and Adams *et al* (1999). Further, there has been some work on the land reform under the specific circumstances of the wine industry (Williams *et al*, 1998 and Hamman and Ewert, 1999. Finally, Allan Low has made another important contribution based on farm household theory (Low *et al,* 1999). He points the way to the type of research required to assess the structural impacts of land reform. He concludes that agriculture in South Africa will comprise a mix of large-scale commercial and small-scale farms. To optimise their structural impacts, it is necessary to recognise the existence of both these types and their interrelationships, to monitor their development, to understand their different production situations and to cater for their different needs.

Water

The earlier relative lack of research on the economics of water use has been rectified during the process of the drafting of the White Paper on water (a

process described by Carter, 1996). In this regard, the seminal work in agricultural economics was the PhD thesis of Backeberg (1994). As can be expected, economists have emphasised the desirability of water markets. Backeberg (1997) argues that increasing scarcity and competition for water has led to international recognition that public policies must change to manage water as an economic commodity. Another example of this genre can be found in the work of Armitage (1997), who studied the demand side for water by investigating how water markets can lead to more efficient use of water. Hassan *et al* (1996), Louw and Van Schalkwyk (1997) and Van Zyl and Vink (1997) also address the efficiency of water use**.**

In addition, economists at the University of the Free State have investigated a number of aspects relating to irrigation efficiency, and to policy on the management of flood damage. The most recent examples of these include Armour and Viljoen (1999) and Berning *et al*. (1999).

Environmental economists at the University of Pretoria have also focused on water issues. Hassan and Olbrich (1999), for example, compare the economic efficiency of water use by irrigation agriculture and plantation forestry in the Crocodile River catchment while Pretorius *et al* (1999) focus on the effect of mining on water quality. There have also been a number of recent studies that address the gender aspects of access to irrigation water in smallholder irrigation schemes (Lahiff 1999 and De Lange *et al* 1999).

Capital

The field of rural finance was revitalised with the publication of the Interim and Final Reports of the Strauss Commission (1996). The Commission gave rise to a wide range of further studies, chief of which was the PhD thesis of Coetzee (1997). Other subsequent investigations that approach the issue from an institutional point of view include Coetzee (1998a); Coetzee *et al* (1998b); Coetzee *et al* (1998c); Coetzee *et al* (1998d); Graham *et al* (1998) and Pearson *et al* (1998).

There have also been a number of studies of the grass-roots needs of farmers for financial services. Kuhn *et al* (1997) address the thorny issue of collateral substitutes, while Lyne and Darroch (1997) describe a recent financial strategy to improve access to land. Morokolo and Coetzee (1999) analysed the savings behaviour of small farmers in the Moretele area, and Fenwick and Lyne (1999) examine the extent of liquidity constraints in the former KwaZulu. Methods of managing liquidity constraints include state intervention, as originally described by Nieuwoudt and Vink (1995), as well as the role of rural finance

in the land reform programme (Nell, 1999). Swanepoel *et al* (1998) found that the annual number of maize and extensive beef farm bankruptcies rose sharply over the period 1970 to 1994.

Management

Agricultural economists in South Africa have traditionally displayed a bias towards farm management research. Recent commercial farming examples include Street and Kleynhans (1996), Ferrer *et al* (1997), Stockil and Ortmann (1997) and Geyer (1999). Some small farm examples include D'Haese *et al* (1998) and Makhura *et al* (1998). Much of the research in this area is reported in the Proceedings of the various conferences of the Farm Management Association, such as, for example, Laubscher (1999), the proceedings of the 1998 African Farm Management Association Conference held in Stellenbosch. An interesting footnote to this literature is the register of commercial farmers that is maintained by the Bureau for Market Research at the University of South Africa (Van Wyk *et al,* 1996).

Institutions

In the South African literature, institutional issues have conventionally been addressed as part of the larger debate on the political economy of agriculture (i.e. land reform, deregulation, etc.), or in terms of New Political Economy analyses of financial markets, farm-agribusiness linkages etc. Nevertheless, there are also examples of more overtly institutional treatments of a range of subjects, such as those of Callear and Mthethwa (1996), Lyne (1996); Moss (1996) and Van Hough (1996), DBSA and LAPC (1997), Troskie (1999a; 1999b; 1999c) and Troskie and Vink (1999).

Information

Although the Kassier Committee warned that one of the first victims of the process of deregulation of the marketing system would be the information base required for policy decision-making, the issue has received little attention in the literature. One notable exception is a recent study by Ehlers (1999) who analyses the changes in supply of agricultural data since deregulation; the different needs (demand) for agricultural information and the gap between supply and demand.

2.4 Focusing on the informal sector in the supply chain

Incorporating the unmeasured activities of that growing part of the market for farm produce about which we know too little, and whose production, processing, distribution and consumption activities will have an even greater influence on farm policy in the future.

Small-scale farmers

Up to the early 1990s the literature on agricultural policy was split between a focus on the problems of the commercial farming sector and on small-scale farmers. This distinction was never desirable, is no longer necessary, and is in many cases not possible. However, four of the more important books dealing with agricultural policy in South Africa have addressed the possibility of creating a class of small-scale farmers, and the conditions under which such a strategy could succeed.

The first of these is Michael and Merle Lipton (1993). They argue that a development path for South Africa that will create jobs and reduce poverty must include greater labour intensity in agriculture, especially in smallholder farming. They show that there is widespread scepticism about the prospects for more labour-intensive farming, but this scepticism is called into question by both theory and evidence of the advantages of small-scale production in certain products and circumstances. They discuss the preconditions for the development of small-scale farming, including land reform and the need to reorient investment and supporting economic and technical services. An extensive research project was subsequently launched in South Africa, and the results were reported in Lipton *et al* (1996a and 1996b).

The Africa Institute for Policy Analysis (AIPA), under the management of the late Prof. Bax D Nomvete, commissioned research on South African agriculture as part of a larger range of research on empowerment in the South African economy (Kirsten *et al,* 1998 and Van Rooyen *et al,* 1998).

2.5 Analysing the supply chain

The fifth item on the agenda called for more research on the agro-industrial complex as a whole and about the needed reforms in this sector. Much of the research in this area has been focused on the process of the deregulation of the marketing regime, and of its effects on primary production, although there have been some recent studies on the agribusiness sector.

The marketing chain

The recommendations of the Kassier Committee (1992) were based on the premise that a stronger, more centralised and more representative authority was required to override the vested interests in the regulated marketing system. The main purpose of the recommended 'Agricultural Marketing Council' would, therefore, be to manage deregulation. This principle of a managed transition was carried over into the new Act, which, however, went further in building safeguards to protect the disempowered. This is accomplished through the ingenious definition of the goals of the Act, the conditions under which intervention could take place and the process for allowing this to happen.

The introduction of the new Act has resulted in research aimed at assisting farmers to cope with the new environment. Brown (1998), for example, conducted a survey amongst 800 National Maize Producers' Organisation (NAMPO) members in the major maize producing regions of South Africa, while Cronjé *et al* (1999) and Edwards and Leibbrandt (1997) have also undertaken studies on the marketing needs of commercial farmers. Van Zyl *et al* (1998) attempt to estimate the production, price, welfare and employment effects in the Western Cape.

The increasing importance of the futures market has also been researched (Mutepe 1996, Olivier 1998 and Van Rooyen 1999). It is ironic that the earlier attempt to provide support services for small farmers under the BATAT programme (see Van Reenen, 1997) has foundered, and it is not clear that small farmers are any better off now than under the previous regime. Yet there has been research on ways in which this access could be improved (Bayley, 1996, Madikizela & Groenewald, 1998 and Matungul, 1999). There have also been a number of municipal-level investigations into the working of informal markets (Halliday, 1998, Karaan, 1999, Myburgh, 1996, Van Rooyen *et al*, 1997 and Mmakola, 1997).

The agribusiness sector

Policy-related research on the agribusiness sector has been neglected in South Africa until relatively recently. Earlier papers include Berning and Potgieter (1996), Ortmann (1998) and Esterhuizen and Van Rooyen (1999). Studies that document specific agribusiness enterprises can be found in Butler and Ballenden (nd), Cargill and Winterbach (1998), Hosking (1998) and Van de Venter (nd).

2.6 International comparative experience

This agenda item has been addressed in a large number of publications in the past few years, mostly on the competitiveness of South African agriculture as a whole, in terms of specific commodities, and in specific provinces. Unfortunately, South African researchers still need to learn how to relate our experience with that of other parts of the world.

International trade

There has not been much published research on the extent to which South African farmers are subsidised apart from Helm (1994), who established the empirical benchmark for the withdrawal of state support from the sector. Thereafter, Jooste and Van Zyl (1998) used the Effective Protection Ratio (EPR) to measure of the impact of policy distortions on agricultural producers, while Jooste *et al* (1998) presented scenarios on the effect of changes in the tariff regime. Macro-level studies include Kleynhans (1998), who measured the comparative advantage of agriculture using revealed advantage and Jooste and Van Zyl (1997) who analysed the factors that contributed to market distortions in South African agriculture.

Wheat

The wheat industry, especially of the Western Cape, has received considerable research attention over the past few years. Research on the pre-deregulation situation includes Vink *et al* (1998) and Kirsten *et al* (1998). The economists at the Western Cape Provincial Department of Agriculture have also analysed the wheat industry from a supply chain perspective (Troskie and Goedecke, 1998; and Troskie and Smit, 1999). Further, Troskie and Wallace (1999) have researched the influence of globalisation and regionalisation on the South African exchange rate, and thus on the Western Cape wheat industry. Finally, Edwards and co-workers have published a number of interesting analyses of the Western Cape wheat industry that focus on the importance of quality characteristics (Edwards, 1996 and 1997; Edwards and Leibbrandt 1997 and 1998).

Maize

There have been relatively fewer analyses of the competitiveness of the South African maize industry. Nevertheless, the work of Sartorius Von Bach *et al* (1998) and Wiseman (1998) bears mention.

Livestock

Badurally-Adam and Darroch (1997) have published the most comprehensive analysis of the competitiveness of the red meat sector, in an investigation of the impact on South African meat demand of a Free Trade Agreement with the European Union. Jooste *et al* (1997) and Jooste and Van Schalkwyk (1996a and 1996b) respectively investigate the effects of liberalisation of the beef and maize sectors in South Africa, and in the Customs Union, while Venter (1999) analysed competitiveness in the sheep meat industry and Blignaut (1999) analysed the dairy industry.

Horticulture

Gay and Nieuwoudt (1999) present the results of a trade simulation model for the South African fresh orange industry, while Carter (1999) has estimated the economic rate of return to research in the deciduous fruit industry and Bedford has investigated horticulture production in the Eastern Transvaal (Bedford, 1998) and in KwaZulu-Natal (nd).

Wine

During 1999 a major strategic planning exercise for the wine, brandy and grape juice industries was launched under the banner of 'Vision 2020'. The results of this exercise, which are expected in early 2001, could influence these industries in the future, and will probably set the policy research agenda for some time. This exercise builds on Kassier (1997) and Ewert *et al* (1998). The former is the report of an official Ministerial Committee of Inquiry, which laid the basis for the formal deregulation of the industry, while the latter focused on the ways in which individual producers and their co-operatives were reacting to market signals.

Other research on the wine industry includes Morgan (1999), who explores alternative ways of measuring the returns to research at the level of individual research projects/programmes and Townsend *et al* (1998) who investigate the farm size and efficiency relationship in the industry.

Flowers

Studies on aspects of the competitiveness of smaller industries include Allerts *et al* (1998) on future imbalances in the supply of and demand for airfreight on *fynbos* production, Van Rooyen and Van Rooyen (1998) on aspects of the flower industry and Wessels *et al* (1998) on the *proteaceae*.

Regional analyses

Competitiveness in the Western Cape province has been investigated by Viljoen and Eckert (1995), and Van Zyl *et al* (1997), Eckert and Liebenberg (1997), Eckert *et al* (1997) and Pretorius (2000). There have been no recent studies on other individual provinces, although the PhD study of Meyer (1998) has added immeasurably to the literature on interprovincial linkages.

2.7 Assessing the impact of changes in the world trade regime

Changes to the global trading environment have also affected the South African agricultural sector. To the extent that one can argue that the Uruguay Round has resulted in a more liberal international trading regime for agriculture, these changes are part of the deregulated environment within which South African farmers have to make decisions. It is, therefore, no surprise that there has been considerable research on the effects of these changes on the farming sector.

Van der Merwe and Otto (1997) present an overview of issues currently affecting agricultural trade, both globally and in South Africa. Similarly, Van Zyl *et al* (1997) attempt to estimate the effects of some of the changes in the marketing system on the Western Cape Province of South Africa. Publications on the effects of specific trade agreements include De Rosa (1996) on the effect of the Marrakech Agreement on Sub-Saharan Africa, and Gladwin and Otto (1999) and Penzhorn and Kirsten (1999) on the effects of the Free Trade Agreement between South Africa and the European Union.

2.8 Understanding the SADC region

The eighth agenda item was stated as 'Getting to know our neighbours, and specifically the costs and benefits to agriculture and the agro-industrial complex of a more open trade regime in Southern Africa'. Apart from the recent invited paper at our conference by Maasdorp (1997), this issue has not received much attention. The final two agenda items called for more research on the management of donor funds, and on more research on the economics of lobbying in agriculture. Most agricultural economists will agree that the former is a good example of a bad forecast: the issue is a non-issue. Policy research on the latter aspect has been addressed above under the heading of access to institutions.

3. CONCLUSIONS AND RECOMMENDATIONS

This survey has showed the remarkably close working relations that exist between policy analysts and decision-makers in the arena of agricultural policy in South Africa. Our colleagues from other parts of the world often remark on our good fortune in this regard. Yet, unless agricultural economists work to stay relevant, there will inevitably be a separation between decision-makers and analysts. This may not be bad for the formulation of good policy, as analysts and implementers will have the opportunity to specialise in the areas where they have a comparative advantage. Yet it could lead to a greater output of less policy-relevant research[3]. It also is not inconceivable that agricultural policy analysts will turn their attention away from policy-relevant issues, and towards the needs of the private sector, labour unions and farmers' organisations, or away from policy issues entirely to focus more on disciplinary research.

Policy analysts here and elsewhere are generally trained in one or other relevant speciality such as Agricultural Economics, Anthropology, Sociology, Econometrics, etc. As such, they carry the strengths and weaknesses of a particular disciplinary bias. Without a strong link to decision-makers, they lose exposure to real-world problems, and their disciplinary biases could be reinforced. In fact, this review shows that these biases exist despite regular contact with real world policy problems. In particular, experience has shown that the greatest weakness of agricultural economists in the policy process lies in the research methods employed, in the focus of the research and in the subject matter that it addresses. Each of these will be explained below.

Research methods

Economists make use of time series and cross-section data, the former generally when analysing macroeconomic issues, and the latter more for farm level research. Yet these are currently both problematic in South Africa. When a country undergoes structural change it is dangerous to extrapolate from past trends to the future. Historical data can be useful, as has been shown by the TFP calculations. Yet it can also produce irrelevant research, as Prof. Groenewald has so eloquently warned.

The same can be said of the sort of 'snapshot' results that are obtained from cross-section surveys. Our profession has a prouder record in this arena, yet we need to innovate. One aspect that needs attention is our methods of data collection. The research methods adopted in the evaluation of the Farmer Support Programme and the recent work on cattle marketing in the Northern

Communal Areas of Namibia have, for example, proven to be far more instrumental in furthering our understanding of small farm systems. Another aspect that requires more attention is the way in which we synthesise different production systems in the commercial and in the small farm sectors.

Research focus

Practical policy must take account of time (in what sequence should policy be implemented), space (where should projects and programmes be implemented) and institutions (who should do what during the implementation process). Policy analysts are often accused of being impractical: this accusation is not repeated here, as it is the task of the implementers to be practical. Yet agricultural economists need to take issues of time, space and institution more seriously in their work.

A research agenda for the next decade

Finally, this survey has shown that there are a number of important policy issues that have not been given sufficient attention in the literature. The most important of these, in no particular order, are:

- **Farm labour issues.** The survey shows that there has been extensive research on farm labour as a factor of production at the macroeconomic level. This includes the research on the factor bias of past policy as well as the SAM-based models that explain the positive welfare effects of a redress of the past bias towards capital. Yet there is an insufficient understanding of matters of major importance to the future of the sector, such as the trends in employment, wage rates, the role that the wage/skills gap plays in global competitiveness, etc. There is also too much said, and too little research conducted, on important matters such as living conditions, conditions of employment, and the effect of diseases such as, but not confined to, HIV/AIDS on the sector. Finally, there are many gender issues that have not been addressed.

- **Trade issues.** The Millennium Round of the WTO is one of the most important issues facing agricultural policy makers in South Africa for the next few years. However, there has not been much strategic research on this issue. The research reported in this survey bears witness to this, as its coverage of commodities often leaves much to be desired, it has focused almost exclusively on raw commodities rather than on processed goods or services and it has largely been *ex post* rather than forward looking. This is important in view of the emphasis on fair trade (labour and environmental

issues); on the role of property rights in the exploitation of the South; and in the influence of technologies for genetic modification that characterise the modern discourse on world trade in the streets of Seattle and in the corridors of power.

- **Regional issues.** Southern Africa is important to South Africa for a range of reasons, at least two of which are pertinent to this discussion on the agricultural and agribusiness sectors. **First,** the country has to take account of its international obligations in the numerous trade negotiations to which it is a party. Thus our membership of the Cairns Group and the details of the SA/EU Free Trade Agreement are important considerations in the Millennium Round. Yet our membership of the SACU and SADC are arguably even more important, both because of their relevance as a market for exports and a source of imports, and because of their strategic importance to the country. **Second,** current patterns of imports from, and exports to the region still reflect the past, yet are changing rapidly. Thus, South Africa needs to know more about its future in the region. Again, the small effort that has been made in this regard has concentrated on commodity trade to the exclusion of the agribusiness and related service sectors, and has been reactive.

- **Spatial issues.** Economists are not known for their recognition of the important role that space plays in the implementation of economic policy. Yet there has been some research in this regard. The project on the Migration, Land Reform and Infrastructure of Prof. S Bekker (Stellenbosch) and Ms C Cross (University of Natal, Durban) that has been funded by the Development Bank of Southern Africa is probably the most comprehensive current research in this area. There is little doubt that policy makers need more information on this and related issues.

- **Structural issues.** The survey has shown that structural issues have received considerable research attention. However, the focus has been on small farmer systems, equity sharing, etc. and their viability in the South African circumstances. More work is required on other modes of production such as family farms, corporate farming, the spatial structure of farming systems and the ways in which this structure is changing over time. This will also include strategic planning at the sector level, such as the current 'Vision 2020' exercise for the wine, brandy and grape juice industries.

- **The livestock sector.** Most of our research on agricultural commodities has been focused on the field crop and horticultural sector. Yet South Africa's

natural resource base is more suited to animal production on rangelands, and there has also always been a large domestic market for the products of intensive livestock production such as poultry and pork, etc. Livestock are important not only because of the natural resource base and the market. The industry is the largest subsector in agriculture, it has historically had strong ties with the Southern African region, and livestock production is a relatively easy means of value-adding for farmers who are trying to diversify out of field crops or horticulture as a means of managing risk.

- **Agribusiness.** From the survey, it is clear that the South African literature displays a bias towards commodity production, marketing and trade, almost to the exclusion of the agribusiness sector. One notable exception is the relatively extensive work on the linkages between agriculture and the rest of the economy. Yet we seem to take the presence of the intermediate capital goods and processing industries for granted. While these are properly accounted for in all the macroeconomic work that has been reported here, there is little doubt that sectors such as fertiliser and seed production, mechanisation, milling and baking, etc. receive less attention than they merit. Research on these issues is important not only for the role they play in South Africa, but also because of the integration of these industries in Southern Africa. More research is, therefore, required in the fields of production, marketing and trade in agribusiness goods and services, as well as in related institutional and technological fields.

- **Institutional issues.** This survey has shown that very little research with an overtly provincial focus has been done in South Africa, and the research on competitiveness of Western Cape agriculture is almost unique in this respect. Apart from the PhD of Meyer (1998) there has been even less research on inter-provincial relations and their impact on agriculture, and no known research on the implications of the relationship between the national and local, and the provincial and local spheres of government[4]. Thus, these are issues that require more attention.

NOTES

1. *Data on employment in agriculture are provided by the Central Statistical Service (see e.g. CSS, 1998).*
2. *The results of this assignment still form the basis of the data provided in Table 5 of the Abstract.*
3. *It could also lead to poor policy decisions, but that issue falls outside the scope of this survey.*
4. *A notable exception is the Eighth Interim Report of the Katz Commission (the Report of the Land Tax Sub-Committee).*

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