CONTRACT FARMING: A CASE STUDY OF SUNFLOWER FARMING IN THE BOJANALA DISTRICT OF THE NORTH WEST PROVINCE

by

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DECLARATION

I declare the dissertation hereby submitted to the University of Limpopo for the degree master of Development Studies in Development Studies has not previously been submitted by me for the degree at this or any other University, that it is my own work in design and in execution, and all material contained therein has been duly acknowledged.

……

Signed by: **RAPHALA BALEFILWE SOLOMON**

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It should be noted that views expressed in this study are entirely mine, and none of the above.

May God Bless All.

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INTRODUCTION TO THE STUDY

1.1 Background of the study

In an age of market liberalization, globalization and expanding agribusiness, there is a danger that small-scale farmers will find difficulty in fully participating in the market economy. In many countries such farmers could become marginalized as larger farms become increasingly necessary for a profitable operation. A consequence of this will be a continuation of the drift of populations to urban areas that is being witnessed almost everywhere.

Attempts by governments and development agencies to arrest this drift have tended to emphasize the identification of "income generation" activities for rural people. Unfortunately there is relatively little evidence that such attempts have borne fruit. This is largely because the necessary backward and forward market linkages are rarely in place, i.e. rural farmers and small-scale entrepreneurs lack both reliable and cost-efficient inputs such as extension advice, mechanization services, seeds, fertilizers and credit, and guaranteed and profitable markets for their output (Beamish, 2004). Well-organized contract farming does, however, provide such linkages, and would appear to offer an important way in which smaller producers can farm in a commercial manner. Similarly, it also provides investors with the opportunity to guarantee a reliable source of supply, from the perspectives of both quantity and quality.

The contracting of crops has existed from time immemorial. In ancient Greece the practice was widespread, with specified percentages of particular crops being a means of paying tithes, rents and debts. During the first century, China also recorded various forms of sharecropping (Eaton, 1998). In the United States as recently as the end of the nineteenth century, sharecropping agreements allowed for between one-third and one-half of the crop to be deducted for rent payment to the landowner. These practices were, of course, a form of serfdom and usually promoted permanent

farmer indebtedness. In the first decades of the twentieth century, formal farmer-corporate agreements were established in colonies controlled by European powers. For example, at Gezira in central Sudan, farmers were contracted to grow cotton as part of a larger land tenancy agreement. This project served as a model from which many smallholder contract farming projects subsequently evolved (Adams, 1990).

According to Eaton (1988) Contract farming can be defined as an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. The arrangement also invariably involves the purchaser in providing a degree of production support through, for example, the supply of inputs and the provision of technical advice. The basis of such arrangements is a commitment on the part of the farmer to provide a specific commodity in quantities and at quality standards determined by the purchaser and a commitment on the part of the company to support the farmer's production and to purchase the commodity.

The intensity of the contractual arrangement varies according to the depth and complexity of the provisions in each of the following three areas:

- *Market provision:* The grower and buyer agree to terms and conditions for the future sale and purchase of a crop or livestock product;
- *Resource provision:* In conjunction with the marketing arrangements the buyer agrees to supply selected inputs, including on occasions land preparation and technical advice;
- *Management specifications:* The grower agrees to follow recommended production methods, inputs regimes, and cultivation and harvesting specifications.

With effective management, contract farming can be a means to develop markets and to bring about the transfer of technical skills in a way that is profitable for both the sponsors and farmers. The approach is widely used, not only for tree and other cash crops but, increasingly, for fruits and vegetables, poultry, pigs, dairy produce and even prawns and fish. Indeed, contract farming is characterized by its

"enormous diversity" not only with regard to the products contracted but also in relation to the many different ways in which it can be carried out (FAO, 1999).

According to Glover and Kusterer (1990) contract farming system should be seen as a partnership between agribusiness and farmers. To be successful it requires a long-term commitment from both parties. Exploitative arrangements by managers are likely to have only a limited duration and can jeopardize agribusiness investments. Similarly, farmers need to consider that honouring contractual arrangements is likely to be to their long-term benefit.

1.2 Problem statement

For farmers in South Africa and in the Bojalana district of the North West province, the potential problems associated with contract farming include increased risk. Farmers are not able to balance the prospect of higher returns with the possibility of greater risk in production. The type of technology and crop choice are sometimes incompatible.

These potential problems can usually be minimized by efficient management that consults frequently with farmers and closely monitors field operations. Nevertheless, contract farming in the Bojalana district among sunflower farmers is becoming an increasingly important aspect of agribusiness, whether the products are purchased by multinationals, smaller companies, government agencies, farmer cooperatives or individual entrepreneurs. The approach of contract farming would appear to have considerable potential in South Africa where small-scale agriculture continues to be widespread. In many cases small-scale farmers in the Bojalana district of the North West province of South Africa are not competitive due to lack of access to the services provided by buyers. It must be stressed, however, that the decision to use the contract farming modality must be a commercial one. It is not a development model to be tried by aid donors, governments or non-governmental organizations (NGOs) because other rural development approaches have failed. Projects that are primarily motivated by political and social concerns rather than economic and technical realities will inevitably fail.

1.3 Motivation for the study

From the point of view of sunflower farmers in the Bojalana district of the North West province of South Africa, contractual arrangements can provide them with access to production services and credit as well as knowledge of new technology. Pricing arrangements can reduce risk and uncertainty. Contract farming ventures can give farmers the opportunity to diversify into new crops, which would not be possible without the processing and/or marketing facilities provided by the company. Offsetting these benefits, however, are the risks associated with the cultivation of a new crop, the fact that the company may fail to honour its commitments and the danger of indebtedness if problems arise. From the point of view of the sponsoring companies, contract farming may in many cases be more efficient than plantation production, and will certainly be more politically acceptable. It can give them access to land that would not otherwise be available and the opportunity to organize a reliable supply of products of the desired quality, which probably could not be obtained on the open market. On the other hand, from the companies' perspective contract farming is not without difficulties. On occasion farmers may sell their outputs to outsiders, even though they were produced using company-supplied inputs. Conflicts can also arise because the rigid farming calendar required under the contract often interferes with social and cultural obligations.

The essential precondition is that there must be a market for the product that will ensure profitability of the venture. To justify investments in contract farming it must be clear that the market will be profitable in the long as well as short run. The potential profitability for the sponsor must be calculated on the basis of assumptions about payments to farmers that will assure them consistent and attractive financial benefits. There is a range of other factors that affect the success of contract farming ventures. These include the physical, social and cultural environments; the suitability of utilities and communications; the availability of land; and the availability of needed inputs. An essential precondition is that management must have the necessary competence and structure to handle a project involving many small-scale farmers. Without this no investment can succeed. Another important requirement is government support. Contracts need to be backed up by law and by an efficient legal

system. Existing laws may have to be reviewed to ensure that they do not constrain agribusiness and contract farming development and to minimize red tape.

1.4 Aim of the study

The main aim of the study is to investigate a wide range of organizational structures that are embraced by the term "contract farming". The choice of the most appropriate one to use depends on the product, the resources of the company, the social and physical environments, the needs of the farmers and the local farming system. The five basic models, which are defined as the centralized model, the nucleus estate model, the multipartite model, the informal or individual developer model and the intermediary model are also analysed to indicate that any crop or livestock product can theoretically be contracted out using any of the models, though certain products can be said to favour certain approaches.

The question of how contracts are framed and what specifications are included are also investigated. Although it is rare that legal action is taken in the case of breach of contract, it is nevertheless usually important that the terms of the agreement are fully spelled out in the form of a contract or other legal agreement. The specifications of a contract can vary from the relatively simple, where the sponsor may only specify the quality standards applicable, to a detailed contract, which lays out input supply and cultivation arrangements, quality standards, and pricing and payment arrangements. Hitherto, many companies have failed to give sufficient importance to both the drafting of suitable contracts and explaining those contracts in a manner that farmers can understand.

The importance of good management and description of contract farming in many activities must be carried out in order to manage the operations of the contract. This study reviews the steps necessary to plan, organize, coordinate and manage production, including the identification of suitable land and farmers, the organization of farmers into working groups, the supply of inputs, the transfer of technology and the provision of extension services. It emphasizes the importance of developing harmonious management-farmer relationships and suggests ways of achieving this. This study also highlights the fact that contract farming, if managed badly, can often

be a catalyst for antagonism between men and women, with men receiving the benefits while women do the major share of the work.

1.5 Objectives of the study

The main objectives of the study are:

- To give an introductory background of contract farming in agriculture;
- To present a concise literature review of the advantages and disadvantages of contract farming;
- To determine which variables discriminate between two groups – sunflower farmers with contract farming and those without in the Bojalani district of the North West province of South Africa.
- To identify constraining factors that affect contract farming in rural areas of South Africa and elsewhere.

1.6 Research questions

Research questions which this study intends to answer are the following:

- What is contract farming?
- What are the advantages and disadvantages of contract farming?
- What are the main socioeconomic variables that discriminate between contract and non contract farmers cultivating the same crop in the same area under the same climatic conditions?
- What are the main constraints of farmers who want to go into contract farming?
- What are the responsibilities of suppliers and buyers in contract farming?
- What government interventions can enhance contract farming among small-scale farmers in order to increase household income and create job opportunities?

1.7 Significance of the study

Well-managed contract farming is an effective way to coordinate and promote production and marketing in agriculture. Nevertheless, it is essentially an agreement between unequal parties: companies, government bodies or individual entrepreneurs on the one hand and economically weaker farmers on the other. It is, however, an approach that can contribute to both increased income for farmers and higher profitability for sponsors. When efficiently organized and managed, contract farming reduces risk and uncertainty for both parties as compared to buying and selling crops on the open market.

Critics of contract farming tend to emphasize the inequality of the relationship and the stronger position of sponsors with respect to that of growers. Contract farming can be viewed as essentially benefiting sponsors by enabling them to obtain cheap labour and to transfer risks to growers. However, this view contrasts with the increasing attention that contract farming is receiving in many countries, as evidence indicates that it represents a way of reducing uncertainty for both parties. Furthermore, it will inevitably prove difficult to maintain a relationship where benefits are unfairly distributed between sponsors and growers (Kinsalla, 1999).

This study intends to investigate contract farming linkages between small suppliers and buyers of sunflower products in the Bojanala district of the North West Province and the extent to which such linkages can promote the growth of micro and small enterprises in the North West Province, and generate employment and income.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

According to Glover and Kusterer (1990), the advantages, disadvantages and problems arising from contract farming will vary according to the physical, social and market environments. More specifically, the distribution of risks will depend on such factors as the nature of the markets for both the raw material and the processed product, the availability of alternative earning opportunities for farmers, and the extent to which relevant technical information is provided to the contracted farmers. These factors are likely to change over time, as will the distribution of risks.

2.2 General overview

The prime advantage of a contractual agreement for farmers is that the sponsor will normally undertake to purchase all produce grown, within specified quality and quantity parameters. According to Hammer and Muchow (1994), contracts can also provide farmers with access to a wide range of managerial, technical and extension services that otherwise may be unobtainable. Farmers can use the contract agreement as collateral to arrange credit with a commercial bank in order to fund inputs. Thus, the main potential advantages for farmers are, provision of inputs and production services, access to credit, introduction of appropriate technology, skill transfer, guaranteed and fixed pricing structures; and access to reliable markets (Williams and Karen, 1995).

2.3 Provision of inputs and production services

Many contractual arrangements involve considerable production support in addition to the supply of basic inputs such as seed and fertilizer. Sponsors may also provide land preparation, field cultivation and harvesting as well as free training and extension. This is primarily to ensure that proper crop husbandry practices are

followed in order to achieve projected yields and required qualities. There is, however, a danger that such arrangements may lead to the farmer being little more than a labourer on his or her own land.

Eaton (1989) asserts that it is often difficult for small-scale farmers outside the contract-farming context to gain access to inputs. In Africa, in particular, fertilizer distribution arrangements have been disrupted by structural adjustment measures, with the private sector having yet to fill adequately the void created by the closure of parastatal agencies. In many countries a vicious circle has developed whereby the low demand for inputs provides no incentive for the development of commercial distribution networks and this, in turn, further adversely affects input availability and use. Contract farming can help to overcome many of these problems through bulk ordering by management.

2.4 Access to credit

The majority of smallholder producers experience difficulties in obtaining credit for production inputs. With the restructuring of many agricultural development banks and the closure of many export crop marketing boards, particularly in South Africa, which in the past supplied farmers with inputs on credit, difficulties have increased rather than decreased.

Watts (1994) argues that contract farming usually allows farmers access to some form of credit to finance production inputs. In most cases it is the sponsors who advance credit through their managers. However, arrangements can be made with commercial banks or government agencies through crop liens that are guaranteed by the sponsor, i.e. the contract serves as collateral. When substantial investments are required of farmers, such as packing or grading sheds, tobacco barns or heavy machinery, banks will not normally advance credit without guarantees from the sponsor.

The tendency of certain farmers to abuse credit arrangements by selling crops to buyers other than the sponsor (extra-contractual marketing), or by diverting inputs supplied by management to other purposes, has caused some sponsors to reconsider supplying most inputs, opting instead to provide only seeds and essential

agrochemicals. The policies and conditions that control advances are normally described in attachments to contracts (Grossman,1998).

2.5 Introduction of appropriate technology

New techniques are often required to upgrade agricultural commodities for markets that demand high quality standards. New production techniques are often necessary to increase productivity as well as to ensure that the commodity meets market demands. However, small-scale farmers are frequently reluctant to adopt new technologies because of the possible risks and costs involved. Hoff and Joseph (1993) have indicated that they are more likely to accept new practices when they can rely on external resources for material and technological inputs. Nevertheless, the introduction of new technology will not be successful unless it is initiated within a well-managed and structured farming operation. Private agribusiness will usually offer technology more diligently than government agricultural extension services because it has a direct economic interest in improving farmers' production. Most of the larger sponsors prefer to provide their own extension rather than rely on government services (Sheherd and Farolfi, 1999).

2.6 Skills transfer

The skills the farmer learns through contract farming may include record keeping, the efficient use of farm resources, improved methods of applying chemicals and fertilizers, a knowledge of the importance of quality and the characteristics and demands of export markets (Shipton, 1985). Farmers can gain experience in carrying out field activities following a strict timetable imposed by the extension service. In addition, spillover effects from contract farming activities could lead to investment in market infrastructure and human capital, thus improving the productivity of other farm activities. Farmers often apply techniques introduced by management (ridging, fertilizing, transplanting, pest control, etc.) to other cash and subsistence crops.

2.7 Guaranteed and fixed pricing structures

The returns farmers receive for their crops on the open market depend on the prevailing market prices as well as on their ability to negotiate with buyers. This can create considerable uncertainty which, to a certain extent, contract farming can overcome. Frequently, sponsors indicate in advance the price(s) to be paid and these are specified in the agreement. On the other hand, some contracts are not based on fixed prices but are related to the market prices at the time of delivery. In these instances, the contracted farmer is clearly dependent on market volatility (Lionberger, 1990).

2.7.1 Access to reliable markets

Small-scale farmers are often constrained in what they can produce by limited marketing opportunities, which often makes diversification into new crops very difficult. Farmers will not cultivate unless they know they can sell their crop, and traders or processors will not invest in ventures unless they are assured that the required commodities can be consistently produced. Contract farming offers a potential solution to this situation by providing market guarantees to the farmers and assuring supply to the purchasers (Glover, 1990).

Even where there are existing outlets for the same crops, contract farming can offer significant advantages to farmers. They do not have to search for and negotiate with local and international buyers, and project sponsors usually organize transport for their crops, normally from the farmgate.

A study of tomato farmers in northern India confirmed that production yields and farmers' incomes increased as a result of the use of hybrid seeds and the availability of an assured market. An analysis of the yields and incomes of the contracted farmers compared with farmers who grew tomatoes for the open market showed that yields of the farmers under contract were 64 percent higher than those outside the project (Mosely and Krishnamurthy, 1995).

2.7.2 Increased risk

Farmers entering new contract farming ventures should be prepared to balance the prospect of higher returns with the possibility of greater risk. Such risk is more likely when the agribusiness venture is introducing a new crop to the area. According to Little (1994), there may be production risks, particularly where prior field tests are inadequate, resulting in lower-than-expected yields for the farmers. Market risks may occur when the company's forecasts of market size or price levels are not accurate. Considerable problems can result if farmers perceive that the company is unwilling to share any of the risk, even if partly responsible for the losses. In Thailand, for example, a company that contracted farmers to rear chickens charged a levy on farmers' incomes in order to offset the possibility of a high chicken mortality rate. This was much resented by the farmers, as they believed that the poor quality of the day-old chicks supplied by the company was one reason for the problem (Laramee, 1975).

2.7.3 Unsuitable technology

The introduction of a new crop to be grown under conditions rigorously controlled by the sponsor can cause disruption to the existing farming system. For example, the managers may identify land traditionally reserved for food crops as the most suitable for the contracted crop. Harvesting of the contracted crop may fall at the same time as the harvesting of food crops, thus causing competition for scarce labour resources. Particular problems may be experienced when contract farming is related to resettlement programmes. In Papua New Guinea, for example, people from the Highlands were resettled in coastal areas to grow oil palm and rubber. This required the farmers, who were traditionally sweet potato eaters, to learn cultivation techniques for new food crops and to adapt their dietary practices accordingly (McGregor and Easton, 1989).

Two factors should be considered before innovations are introduced to any agricultural environment. The first is the possible adverse effect on the social life of the community. When tobacco growers in Fiji were encouraged to cure tobacco

themselves rather than sell it in the fresh green form, it was found that they were unable to handle the highly technical curing operation with any degree of continuity (Clarke and Morrison, 2004). This was attributed to intermittent social commitments and customary obligations that overrode contractual responsibilities and eventually resulted in the cancellation of their contracts.

The second factor is the practicality of introducing innovations or adaptations. The introduction of sophisticated machines (e.g. for transplanting) may result in a loss of local employment and overcapitalization of the contracted farmer. Furthermore, in field activities such as transplanting and weed control, mechanical methods often produce less effective results than do traditional cultivation methods. Field extension services must always ensure that the contracted crop fits in with the farmer's total cropping regime, particularly in the areas of pest control and field rotation practices.

2.8 Manipulation of quotas and quality specifications

Inefficient management can lead to production exceeding original targets. For example, failures of field staff to measure fields following transplanting can result in gross overplanting. Sponsors may have unrealistic expectations of the market for their product or the market may collapse unexpectedly owing to transport problems, civil unrest, change in government policy or the arrival of a competitor. Such occurrences can lead managers to reduce farmers' quotas. Few contracts specify penalties in such circumstances. In some situations management may be tempted to manipulate quality standards in order to reduce purchases while appearing to honour the contract. Such practices will cause sponsor-farmer confrontation, especially if farmers have no method to dispute grading irregularities. All contract farming ventures should have forums where farmers can raise concerns and grievances relating to such issues (FAO, 2001).

2.9 Corruption

Problems occur when staff responsible for issuing contracts and buying crops exploit their position. Such practices result in a collapse of trust and communication between the contracted parties and soon undermine any contract. Management needs to ensure that corruption in any form does not occur (FAO, 1999). On a larger

scale, the sponsors can themselves be dishonest or corrupt. Governments have sometimes fallen victim to dubious or "fly-by-night" companies who have seen the opportunity for a quick profit. Techniques could include charging excessive fees to manage a government-owned venture or persuading the government and other investors to set up a new contract farming company and then sell that company overpriced and poor quality processing equipment. In such cases farmers who make investments in production and primary processing facilities run the risk of losing everything (GTZ, 2004).

2.10 Domination by monopolies

The monopoly of a single crop by a sponsor can have a negative effect. Allowing only one purchaser encourages monopolistic tendencies, particularly where farmers are locked into a fairly sizeable investment, such as with tree crops, and cannot easily change to other crops. On the other hand, large-scale investments, such as for nucleus estates, often require a monopoly in order to be viable. In order to protect farmers when there is only a single buyer for one commodity, the government should have some role in determining the prices paid (Carney, 1994).

Drucker (2000) suggests that privately managed monopolies under public regulation are preferable to non-regulated private or public monopolies. The greatest abuses do tend to occur when there are public monopolies, where buying prices are set by the government, or where farmers have made long-term investments in perennial crops (Jaffee, 1994). In 1999 the Kenya Tea Development Authority experienced serious unrest amongst its growers, reportedly because of the Authority's inefficient extension services and alleged "manipulation" of farmers. There was also discontent in Kenya among sugar farmers because the price set by the government did not change between 1997 and 1999 (Heald, 1988).

2.11 Indebtedness and over-reliance on credit

One of the major attractions of contract farming for farmers is the availability of credit provided either directly by the company or through a third party. However, farmers can face considerable indebtedness if they are confronted with production problems, if the company provides poor technical advice, if there are significant changes in

market conditions, or if the company fails to honour the contract. This is of particular concern with long-term investments, either for tree crops or for on-farm processing facilities. If advances are uncontrolled, the indebtedness of farmers can increase to uneconomic levels (Knox and Thiesch, 1981). In one venture "compassionate" advances for school fees, weddings and even alimony resulted in many farmers receiving no payments at the end of the season. Dropout rates for farmers in that particular project were high, as they thought contract farming did not pay.

2.12 Advantages for buyers

Companies and government agencies have a number of options to obtain raw materials for their processing and marketing activities. The benefits of contract farming are best examined in the light of the other alternatives, namely spot-market purchases and large-scale estates. The main potential advantages for buyers can be seen as: political acceptability; overcoming land constraints; production reliability and shared risk; quality consistency; and promotion of farm inputs (FAO,2001).

2.13 Government acceptability

It can be more politically expedient for a sponsor to involve smallholder farmers in production rather than to operate plantations. Many governments are reluctant to have large plantations and some are actively involved in closing down such estates and redistributing their land. Contract farming, particularly when the farmer is not a tenant of the sponsor, is less likely to be subject to political criticism. As a result of the restructuring of their economies, many African governments have promoted contract farming as an alternative to private, corporate and state-owned plantations. In Zimbabwe, for example, contract farming is actively encouraged, particularly in the sugar-cane, tea and cotton industries (Jackson and Cheater, 1994).

In recent years many countries have seen a move away from the plantation system of production to one where smaller-scale farmers grow crops under contract for processing and/or marketing. In Central America, for example, multinational corporations have moved from banana plantation production to purchasing bananas grown by contracted farmers, with the corporations providing technical advice and marketing services (Ruthenburg, 1980). This trend is also found in the international

tobacco industry; smallholder tobacco production through contract farming has replaced estates in several countries. Similar changes have occurred with other crops. In Kenya, the tea industry, originally founded on the plantation model, now provides extension services and inputs to tens of thousands of contracted farmers (von Bulow and Sorensen, 1988).

The decision to choose contract farming does not make a company totally immune from criticism. For example, the considerable opposition to the role of multinational corporations in India in the late 1990s had a negative effect on investment in contract farming by foreign agribusiness corporations.

2.14 Overcoming constraints

Most of the world's plantations were established in the colonial era when land was relatively plentiful and the colonial powers had few scruples about either simply annexing it or paying landowners minimal compensation. That is, fortunately, no longer the situation. Most large tracts of suitable land are now either traditionally owned, costly to purchase or unavailable for commercial development (NABARD, 1999). Moreover, even if it were possible for companies to purchase land at an affordable price, it would rarely be possible to purchase large enough parcels of land to offer the necessary economies of scale achieved by estate agriculture. Contract farming, therefore, offers access to crop production from land that would not otherwise be available to a company, with the additional advantage that it does not have to purchase it (GTZ, 2004).

Although it may be considered that plantation agriculture on a large scale is generally more cost-effective than small-scale production, that is not always the case. According to Springfellow (1996), estate production involves both direct labour costs and indirect costs of labour in terms of hiring, training and supervising. It is often necessary to provide accommodation and meals for estate workers. As noted by Springfellow *et a*l., (1996), land can be very expensive and difficult to obtain, thus contract farming can often be competitive, particularly for crops where large-scale economies of scale are difficult to achieve. As already noted, experience in some

developing countries indicates that plantation models of crop production can evolve successfully into cost-effective smallholder contract farming ventures.

2.15 Product reliability and shared risk

The failure to supply agreed contracts could seriously jeopardize future sales. Plantation agriculture and contract farming both offer reasonable supply reliability. Sponsors of contract farming, even with the best management, always run the risk that farmers will fail to honour agreements. On the other hand, plantation agriculture always runs the risk of labour disputes. In the case of horticultural production some companies do prefer estate rather than contracted production. In Gambia and Ghana, for example, a number of crops are grown under the estate model, as are strawberries and flowers in Kenya (Jaffee, 1994).

Working with contracted farmers enables sponsors to share the risk of production failure due to poor weather, disease, etc. The farmer takes the risk of loss of production while the company absorbs losses associated with reduced or non-existent throughput for the processing facility. Where production problems are widespread and no fault of the farmers, sponsors will often defer repayment of production advances to the following season (Ray, 1981).

Both estate and contract farming methods of obtaining raw materials are considerably more reliable than making purchases on the open market. The open market is rarely an acceptable option for organizations that have significant assets tied up in processing facilities and need to have guaranteed quantities of raw material to justify their investment. For example, it is hardly ever an acceptable option for companies who make regular shipments of horticultural produce to supermarkets and for export. Companies must ensure that crops are harvested and sold on a carefully scheduled and consistent basis: a factor that is normally assured under a well-directed contract farming scheme (Daddieh, 1994).

2.16 Quality consistency

Markets for fresh and processed agricultural produce require consistent quality standards. Moreover, these markets are moving increasingly to a situation where the

supplier must also conform to regulatory controls regarding production techniques, particularly the use of pesticides. For fresh produce there is a growing requirement for "traceability", i.e. suppliers to major markets increasingly need to be confident of identifying the source of production if problems related to food safety arise. Both estate and contracted crop production require close supervision to control and maintain product quality, especially when farmers are unfamiliar with new harvesting and grading methods. Often, large numbers of crops within a single project have to be transplanted, harvested and purchased in a uniform manner so as to achieve product consistency (Penning de Vries *et al*., 1991).

Distinct varieties of produce in the desired quality and quantities are often not available on the open market. For example, a multinational that invested in the Indian State of Punjab found that the local varieties of tomatoes were unsuitable for processing into paste or ketchup. This was one of the factors that made it decide to go into contract farming (Mosely and Krishnamurthy, 1995).

Agribusinesses producing for markets demanding high quality standards, such as fruits and vegetables for export, often find that small-scale farmers and their families are more likely to produce high-quality products than farmers who must supervise hired labour. Also contract farming makes quarantine controls more manageable. It is easier for quarantine authorities to inspect a limited number of exporters of a single commodity, who closely supervise farmers, than to inspect hundreds, or sometimes thousands, of individual producers selling through open markets. Much of the production of "organic" foods is being done on contract, as an integrated operation facilitates a clear crop identity from farmer to retailer. In some highly sophisticated operations, containers are now being loaded on the farm for direct delivery to the supermarket (Dicken, 2003).

2.17 Promotion of farm inputs

Panganiban (1998) has indicated that an example of an unusual but, nevertheless, interesting benefit for sponsors comes from the Philippines. A feed milling company experienced difficulties in marketing its feed, which was more expensive than that produced by competing companies. To solve this problem it developed rearing

schemes for pigs and poultry under contract in order to provide a market outlet for its feeds and to demonstrate their performance to other farmers living near the contracted farmers.

2.18 Problem faced by sponsors

(i) Land availability constraints

Farmers must have suitable land on which to cultivate their contracted crops. Problems arise when farmers have minimal or no security of tenure as there is a danger of the sponsor's investment being wasted as a result of farmer-landlord disputes. Difficulties are also common when sponsors lease land to farmers. Such arrangements normally have eviction clauses included as part of the conditions. A study by Dirven (1996) on distributional impact of contract farming in Senegal indicates that, land rights are determined not only by gender but also by the historic manner of land use. When international donor organizations insisted on having a legal titleholder for contracted crops, resistance to giving women formal titles to land was shown by male household heads. The objection was based on the fear of permanent land alienation that could occur as the result of matrimonial disputes.

Some contract farming ventures are dominated by customary land usage arrangements negotiated by landless farmers with traditional landowners. While such a situation allows the poorest cultivator to take part in contract farming ventures, discrete management measures need to be applied to ensure that landless farmers are not exploited by their landlords. Before entering into contracts, the sponsor must ensure that access to land is secured, at least for the term of the agreement (World Bank, 2001).

(ii) Social and cultural constraints

Problems can arise when management chooses farmers who are unable to comply with strict timetables and regulations because of social obligations. Promoting agriculture through contracts is also a cultural issue. According to Coulter *et.al.,* (1995), in communities where custom and tradition play an important role, difficulties may arise when farming innovations are introduced. Before introducing new cropping schedules, sponsors must consider the social attitudes and the traditional farming

practices of the community and assess how a new crop could be introduced. Customary beliefs and religious issues are also important factors. For example, Easter for some Christians is an inappropriate time for sowing vegetable crops. Harvesting activities should not be programmed to take place during festivals, and failure to accommodate such traditions will result in negative farmer reaction. It must also be recognized that farmers require time to adjust to new practices.

(iii) Farmer discontent

A number of situations can lead to farmer dissatisfaction. Discriminatory buying, late payments, inefficient extension services, poor agronomic advice, unreliable transportation for crops, a mid-season change in pricing or management's rudeness to farmers will all normally generate dissent. If not readily addressed, such circumstances will cause hostility towards the sponsors that may result in farmers withdrawing from projects. This emphasizes the importance of good management to the success of contract farming (Dorward and Trocke, 1981).

(iv) Extra-contractual marketing

The sale of produce by farmers to a third party, outside the conditions of a contract, can be a major problem. Extra-contractual sales are always possible and are not easily controlled when an alternative market exists. For example, a farmer cooperative in Croatia bought cucumbers, red peppers and aubergines on contract. The cooperative's advances to the farmers included all necessary production inputs. Unfortunately members often sold their vegetables to traders at higher prices than the cooperative had contracted. The outside buyers offered cash to farmers as opposed to the prolonged and difficult collection of payments negotiated through the cooperative. Sponsors themselves can sometimes be a cause of extra-contractual practices. In Colombia, a company purchased passion fruit from a competitor's growers when production shortfalls occurred. A similar situation was also experienced in Indonesia where a number of sponsors competed for quality tobacco by surreptitious means. This led to a "tobacco war" between various sponsors that eventually forced the local provincial government to intervene (Stephenson, 1986).

In another case, a tobacco project diversified into off-season maize to provide farmers with additional income. In the first season some farmers sold their maize crops to traders for cash. Over 60 percent of the first season's maize crop was estimated to have been sold outside the agreement. The repayment of loans advanced for inputs was thereby circumvented, making the diversification venture uneconomical for the sponsor. The sponsor imposed strict penalties the following year as part of the maize registration formula. If the farmers were found to be selling their maize outside the agreement, their highly profitable tobacco agreement was cancelled (Stehhenson, 1986).

Where there are several companies working with the same crop (e.g. cotton in some southern African countries), they could collaborate by establishing a register of contracted farmers (Allen, 1972). Managers must be aware of produce being sold outside the project and also be aware of produce from outside being channelled into the buying system. This occurs when non-contracted farmers take advantage of higher prices paid by an established sponsor. Non-contracted crops are filtered into the buying system by outside farmers through friends and family who have crop contracts. Such practices make it difficult for the sponsor to regulate production targets, chemical residues and other quality aspects.

(v) Input diversion

A frequent problem is that farmers are tempted to use inputs supplied under contract for purposes other than those for which they were intended. They may choose to use the inputs on their other cash and subsistence crops or even to sell them. Clearly this is not acceptable to the sponsor, as the contracted crop's yields will be reduced and the quality affected. Steps to overcome such problems include improved monitoring by extension staff, farmer training and the issuing of realistic quantities of inputs. However, the knowledge that a contract has the advantages of technical inputs, cash advances and a guaranteed market usually makes the majority of farmers conform to the agreement. Unless a project is very poorly managed, input diversion is usually an annoyance rather a serious problem (SARC-RSARRD, 1998).

2.19. Types of contract farming

Multinational corporations, smaller private companies, parastatals, individual entrepreneurs and, in some cases, farmer cooperatives can all act as sponsors and financial investors for contract farming activities. In nearly all instances, the sponsors are also responsible for management of the venture.

Contract farming can be structured in a variety of ways depending on the crop, the objectives and resources of the sponsor and the experience of the farmers. Contracting out production is a commercial decision to facilitate an adequate supply within a designated period and at an economic price. Any crop or livestock product can theoretically be contracted out using any of the models; however, certain products favour specific approaches**.** Broadly speaking, contract farming arrangements fall into one of *five* models (Eaton, 1990):

The centralized model.

The nucleus estate model.

The multipartite model.

The informal model.

The intermediary model.

Decisions by sponsors on the type of model to follow should be made on the basis of market demand, production and processing requirements and the economic and social viability of plantation versus smallholder production. Where market requirements necessitate frequent changes to the farm technology with fairly intensive farm-level support from the sponsor, the permanent organization and maintenance of a production chain under a centralized model is vital. Organizations that require stringent processing standards rely largely on the centralized model. For crops such as tea, sugar and oil palm, with which farmers may have had little or no experience, sponsors are more likely to follow, where possible, the nucleus estate approach. Such crops require a significant long-term investment and, generally,

immediate processing after harvest. However, the lack of adequate land or political opposition to estate development may dictate a centralized rather than nucleus estate approach (Eaton, 1990).

Where quality control is not the predominant concern, the informal model may suffice. In some examples, sponsors use third parties or intermediaries to subcontract production out to farmers. If the sponsor considers that a field trial is warranted prior to the introduction of a crop to farmers or that a guaranteed minimum throughput is required for the processing facility, a nucleus estate model is often most appropriate. Where capital investment in processing facilities is considerable and the number of contract farmers is high, either the centralized or the nucleus estate structures can be used, accompanied by strong managerial inputs and backed by formal contracts. The informal model, which may become more widespread in the future, is characterized by seasonal, short-term crops with only minimal material support to farmers (Dunham, 1995).

Often, the operational structure of projects changes over time. For example, the distinctions between the centralized model and the informal model are sometimes blurred. Successful individual informal developers may expand their operations into activities that eventually evolve into the centralized category. One successful small-scale developer in Indonesia started a small operation in 1970 with a few greenhouses. By 1996 the company had grown into a $US6.4 million business supplying fresh vegetables to local supermarkets and frozen vegetables for export, with the produce originating from hundreds of contracted farmers (Shepherd and Farolfi, 1999).

(i) The centralized model

This is a vertically coordinated model where the sponsor purchases the crop from farmers and processes or packages and markets the product. Except in a limited number of cases, farmer quotas are normally distributed at the beginning of each growing season and quality is tightly controlled. A sponsor may purchase from tens of thousands of small-scale farmers within a single project. The centralized scheme is generally associated with tobacco, sunflower, cotton, sugar cane and bananas and with tree crops such as coffee, tea, cocoa and rubber, but can also be used for

poultry, pork and dairy production. Where fresh vegetables and fruits are grown under contract, the term "processing" may include grading, sorting and packaging as well as the provision of cool storage facilities (Coulter *et al.,* 1995).

In Africa, the contracting out of crops to farmers under centralized structures is common. These are often called "outgrower" schemes. For example, in Zambia the multinational corporation, Lonhro, considered the system preferable to growing cotton on a plantation basis. In the late 1980s it initiated a smallholder project where over 15 000 farmers grew cotton under contract for the company's ginnery (Jackson and Cheater, 1994).

Contract farming under the centralized processing and marketing model is common throughout the Thai sugar industry (CSI, 1999). Forty-six individually owned sugar mills in the country produced 4 080000 tonnes of sugar in the 1997/1998 season, of which 57 percent was exported. Over 200 000 farmers grow sugar cane for these mills, on approximately 9 14 000 hectares. There are also many farmers who grow crops for large-scale farmers through agreements with intermediaries. In theory, the Thai Government closely regulates prices, issues quotas and monitors the operations of the private sugar-milling companies. The Government has introduced a net revenue sharing system under which growers receive 70 percent and the millers 30 percent of total net revenue. The Government also promotes and manages technical research centres and encourages growers' associations (Gautskell, 1999).

The level of involvement of the sponsor in production can vary from a minimum where, perhaps, only the correct type of seed is provided, to the opposite extreme where the company provides land preparation, seedlings, agrochemicals and even harvesting services. The extent of the sponsor's involvement in production is rarely fixed and may depend on its requirements at a particular time or its financial circumstances. In India, a tomato processing factory in the Punjab was transferred in 1997 from one multinational company to another (Mishra, 1996). The previous owners had supplied seed, supervised production and harvesting operations and provided technical advice when needed, but the new owners only provided seeds. In the Philippines, a vegetable canning company operating close to Manila decided to cease advancing fertilizer and chemicals to its contract farmers because these were

being diverted to other crops and farmers were also making extra-contractual sales. The company changed to a policy of supplying only seeds unless it was convinced of the farmer's honesty.

Nucleus estates are a variation of the centralized model. In this case the sponsor of the project also owns and manages an estate plantation, which is usually close to the processing plant. The estate is often fairly large in order to provide some guarantee of throughput for the plant, but on occasion it can be relatively small, primarily serving as a trial and demonstration farm. The British-based Commonwealth Development Corporation (CDC) was a pioneer of the nucleus estate model although it no longer develops such estates. A common approach is for the sponsors to commence with a pilot estate then, after a trial period, introduce to farmers (sometimes called "satellite" growers) the technology and management techniques of the particular crop (Poulton *et al*., 1997).

Nucleus estates have often been used in connection with resettlement or transmigration schemes, such as in Indonesia and Papua New Guinea, for oil palm and other crops. While mainly used for tree crops, there are examples of the nucleus estate concept with other products. Indonesia, for example, has seen the operation of dairy nucleus estates, with the central estate being primarily used for the rearing of "parent stock" (Miller, 1995).

(ii) The multipartite model

The multipartite model usually involves statutory bodies and private companies jointly participating with farmers. Multipartite contract farming may have separate organizations responsible for credit provision, production, management, processing and marketing. In Mexico, Kenya, and West Africa, among other countries, governments have actively invested in contract farming through joint ventures with the private sector (Morrissy, 1974; Jaffee, 1994). Multipartite structures are common in China where government departments as well as township committees and, at times, foreign companies have jointly entered into contracts with village committees and, since the early 1980s, individual farmers.

In this particular case, the county branches, through their agronomists and field technicians, were responsible for implementing and maintaining the terms and specifications of the agreement. There were formal contracts between the joint venture and the branches, and written contracts between the counties and the village committees, but only a verbal understanding between farmers and their respective committees. In theory, farmers were expected to carry out cultivation as specified by the joint venture. In practice, however, county officials only followed instructions from the joint venture if to do so was in the county branch's immediate economic interest, irrespective of quality standards and long-term production objectives. The lack of coordination between the joint venture and the county management, village cadres and farmers eventually resulted in the collapse of the venture (Heald, 1998).

(iii) The informal model

This model applies to individual entrepreneurs or small companies who normally make simple, informal production contracts with farmers on a seasonal basis, particularly for crops such as fresh vegetables, watermelons and tropical fruits. Crops usually require only a minimal amount of processing. Material inputs are often restricted to the provision of seeds and basic fertilizers, with technical advice limited to grading and quality control matters (Rickson and Burch, 1996).

A common example of the informal model is where the sponsor, after purchasing the crop, simply grades and packages it for resale to the retail trade. Supermarkets frequently purchase fresh produce through individual developers and, in some cases, directly from farmers. Financial investment by such developers is usually minimal. This is the most transient and speculative of all contract farming models, with a risk of default by both the promoter and the farmer. Nevertheless, in many developing countries such developers are long established and in numerous cases they have proved an alternative to the corporate or state agency approach (Ghee and Dorell, 1992).

The success of informal initiatives depends on the availability of supporting services, which, in most cases, are likely to be provided by government agencies. For example, while companies following the centralized model will probably employ their own extension staff, individual developers usually have to depend on government

extension services. In addition, individual developers often have limited funds to finance inputs for farmers and therefore may have to develop arrangements whereby financial institutions provide loans to farmers against the security of an agreement with the developer (an informal multipartite arrangement). Furthermore, while nucleus estates and centralized developers frequently purchase products for which there is no other market (oil palm, tea and sugar, which depend on the availability of nearby processing facilities, or fruits and vegetables for export), individual developers often purchase crops for which there are numerous other market outlets. It is therefore important that agreements reached between the developers and farmers are backed up by law even if, in many countries, the slowness and inefficiency of the legal system make the threat of legal action over small sums a rather empty one (Adams, 1990).

In some parts of the world traders, who may not own processing or packaging facilities themselves, purchase crops for onwards sale to processors and packers. In some cases such traders provide seeds and fertilizer to the farmers with whom they deal. These are usually very informal arrangements with a high risk of default by farmers. However, in many countries, particularly in Africa, liberalization of the export market sector has led to a breakdown of input supply arrangements in recent years and further development of such informal contractual arrangements would thus appear to merit encouragement (Allen, 1972).

(iv) The intermediary model

Throughout Southeast Asia the formal subcontracting of crops to intermediaries is a common practice (Burch, 2004). In Thailand, for example, large food processing companies and fresh vegetable entrepreneurs purchase crops from individual "collectors" or from farmer committees, who have their own informal arrangements with farmers. In Indonesia, this practice is widespread and is termed *plasma.*

2.20. Contract farming in South Africa

2.20.1 Introduction

The primary precondition for any investment in contract farming must be that it is likely to be profitable. Having identified a potentially profitable market the sponsor can then move on to assess whether that market can be profitably supplied by contracted farmers in a particular location of a particular country. This involves an assessment of the social and physical environment of the proposed contract area as well as the potential support likely to be provided by the government.

2.20.2 A profitable market

(i) Profit for the sponsor

The sponsor's decision to invest in a particular market must be based initially on the knowledge that, subject to certain conditions, it will be profitable. However, in South Africa, contract farming is just one of a number of solutions to a commercial market opportunity for Black small-scale farmers. A market must have the capacity to remain profitable in the longer term. In the case of tree crops, for example, prices tend to be cyclical. An analysis of economic viability carried out when prices are high would produce very different results than those obtained at the bottom of the price curve. A "sensitivity analysis" is thus required to ensure that production can be carried out profitably even when prices are low (Arnon, 1981).

In South Africa, the exporting of horticultural produce to the markets of Western Europe, Japan and the United States is very competitive. Subject to guarantees regarding quality and supply, importers purchase produce on the basis of price. A supplier, through contact farming or otherwise, can lose markets overnight if quality standards and deliveries become unpredictable and inconsistent (Bouman, 2004). Companies considering high-value horticultural exports also need to be certain that they can meet existing quality standards and likely future requirements. For example, if importers started to demand "organic" produce from South Africa, how easily would suppliers and farmers adapt?

(ii) Profit for the farmer

If either the sponsors or their contracted farmers in South Africa fail to achieve consistent and attractive financial benefits a venture will collapse. A further precondition, therefore, is that the sponsor needs to be sure that farmers will obtain higher net incomes from entering into a contract than they could from alternative activities with the same, or less, risk. Sponsors should calculate realistic yields in order to forecast whether production by farmers can be profitable at prices the sponsors are able to pay. These estimates should be based on the experience of farmers in the chosen area, their historical production data, soil fertility and, sometimes, field trials. Once estimates are compiled and production costs known, the sponsors are in a sounder position to calculate a realistic pricing structure that is mutually profitable. Guaranteed, regular and attractive incomes should encourage farmers to make a long-term commitment (Burch, 2004).

Sponsors should be aware that yield results from research plots are normally far higher than results from farmers' fields. Agronomists in Indonesia noted that soybeans grown at research stations produced yields more than twice those achieved by small-scale farmers. Experienced managers of contract farming projects usually estimate yields based on the mean production over the previous three to five years. As new technologies are introduced and farm management improves the mean yield increases over time. When a new crop is introduced the yield estimates are based on historic knowledge of the crop grown in similar environments and on the results of field trials (Burch *et al*., 1992).

2.20.3 The physical environment

(i) The physical environment

The success of any agricultural investment requires that two multidimensional preconditions be met. Firstly, the general suitability of the topography, climate, soil fertility and water availability. Secondly, the suitability of the physical environment for the specific plant genotype or animal for which there is a market demand. The extent to which all these factors interact determines production yields, quality and profitability.

(ii) Utilities and communications

A major precondition for agricultural investment in rural areas of South Africa is the existence of an adequate communication system that includes roads, transport, telephones and other telecommunication services. Reliable power and water supplies are particularly vital for agro-processing and exporting of fresh produce. The availability of suitable educational and medical services is also important for those who participate in contract farming, whether they be direct employees of the sponsor or the farmers themselves (Byres, 2003).

Sponsors will need to be assured that farm produce can be easily transported and that inputs can be delivered to their farmers. While major road infrastructure may be adequate, approach (or feeder) roads to farms may not. This is particularly important in the case of perishable crops that need to be processed soon after harvest (e.g. tea, oil palm and sugar) or stored in a suitable environment (e.g. cut flowers). Where local transport access is inadequate, sponsors must decide whether the problems can be resolved or whether alternate areas should be selected. Sometimes farmer groups are given the responsibility for ensuring that company transporters can reach the fields. Before the start of any project, the sponsor, farmers and local government agencies must agree on who will ensure access to and maintain feeder roads. In Kenya (Heald, 1988), the sugar companies' agreement with farmers stipulated that the companies had the right to construct feeder roads on the farmers' lands. This inevitably caused resentment among the landowners.

A precondition for the export of horticultural crops under contract is the availability of regular airfreight schedules; fresh vegetables and cut flowers depend on adequate cargo space to international markets. Unless quantities are large enough to justify chartering planes, the exporters will be dependent on space being available on commercial flights. The number of commercial flights depends on the number of passengers wanting to fly, and this can fluctuate rapidly. Several countries that have experienced coups or social disturbances have seen their tourism industries collapse overnight. This, in turn, has led to flight cancellations and the loss of markets for the exporters (Jones, 2003).

An example of an investigation into the physical and social environment comes from Bali where an Indonesian corporation planned to grow tobacco under contract. Following a comprehensive survey of the factors listed above, it was recommended that the project be restricted to only two of a province's seven sub-districts. This decision was based on the following analysis.

Government support:

- Enthusiastic encouragement by the regency's leaders and the local agriculture department.
- Adequate road and communications networks.
- Two long-established irrigation systems - a traditional system maintained by the farmers, and a more sophisticated system constructed and supervised by the regency.

General conditions:

- A responsive and progressive farming community that expressed a strong desire to cultivate the crops and enter into contracts with the sponsor.
- Suitable friable loamy soils with the desired level of soil acidity.
- A sufficient altitude that provided the preferred temperature range.
- Minimal competition from the production of high-value, tourist-orientated crops such as those grown in other sub-districts.
- Little evidence of the mosaic viruses that infect tobacco.

(iii) Land availability and tenure

Contract farming in South Africa can involve a wide diversity of land ownership and tenure arrangements. Farmers under contract must have unrestricted access to land on which to plant their crops. There must be an awareness and understanding on the part of management of how farmers gain access to land for cultivation and for that access to be acceptable within the framework of the contract.

In the majority of projects, sponsors contract directly with farmers who either own land or have customary land rights within a communal landowning system. However,

within a single project there can be numerous variations of land tenure, including freehold title, formal lease of state land, leases from the sponsor's own estate and informal seasonal arrangements with landlords. Even if tenure is on an extralegal, customary and seasonal basis, short-term contracted crops such as maize, tobacco and all table vegetables can often be accommodated (Roberts and Dicks, 1991).

Despite the occasionally flexible nature of customary land tenure, the dominant factor now controlling land tenure under contract farming is the rent demanded by the landowner. In one venture land rents were dependent on the whim of the respective landlords. This has resulted in a wide variation of charges, influenced by the nature of individual farmer-landlord relationships. Some of the land rents are relatively low, many reasonable and some grossly inflated. Interventions by government through its land Reform Programme may be necessary to negotiate standard rents on behalf of all farmers.

(iv) Input availability

In most contract farming ventures the sponsors recommend, procure and distribute many or all of the material inputs. Sponsors need to be assured that they will be able to organize the supply of all necessary inputs for the farmers and for their own processing needs. All inputs should be identified and ordered well in advance, either from local sources or from overseas. Contract farming ventures call for varying levels of inputs depending on the nature of the crop and the degree of the farmers' sophistication. For crops such as Virginia flue-cured tobacco, farmers require a multitude of structural and material inputs that include curing barns, grading sheds, fuel, fertilizer, imported seed, pesticides and cultivation advances. Failure to have ready access to these can cause serious disruption to the production chain and can result in serious financial losses for all parties. Similarly, the failure of managers to supply feed on time to poultry and pig owners can have major consequences for the farmers (Roling, 1985).

(v) Social considerations

Many rural communities in South Africa are wary of modern agribusiness and strongly influenced by traditional practices. Conventional societies are normally more

conservative in their ambitions and material needs. There are often great disparities in cultural attitudes towards work. Before beginning a venture, managers need to develop an understanding of the cultural attitudes of those with whom they are working. They must also be particularly aware of the possibility of disputes when there is more than one cultural group working on the contract (Roy, 1990).

There is always the possibility that the economic success of a contract farming venture could, in fact, have social repercussions that jeopardize its long-term success. This may occur, for example, because the opportunity to participate is limited to a certain number of farmers. If farmers are chosen on the basis of the size of their farms and resources, contract farming may widen pre-existing economic disparities and lead to resentment on the part of those excluded. In India there is concern that contract farming has led to a reversal of previous tenancy arrangements, with small-scale farmers now renting out land to large-scale farmers who have contracts (Rusten and Key, 1996).

2.20.4 Government support

Governments have to play an important role if contract farming is to be successful. A relevant legal framework and an efficient legal system are preconditions. Moreover, governments can do much to foster success by developing linkages between investors and farmers and can play an important role in protecting farmers by ensuring the financial and managerial reliability of potential sponsors (Springfellow and Kone, 1996).

(i) The enabling and regulatory role

Contract farming in South Africa will depend on either legal or informal agreements between the contracting parties. These, in turn, have to be backed up by appropriate laws and an efficient legal system. Relevant laws can be grouped into three categories: enabling functions, economic regulatory functions and constraining functions. In the context of contract farming the enabling aspect of the law is perhaps the most important. Laws of contract, in particular, allow the evolution of commercial transactions beyond direct barter exchanges. Legal mechanisms for granting a group of individuals recognition as a legal entity have also been central to the development

of commerce. A classic example is the limited-liability company. However, in the context of contract farming, a sponsor entering into agreement with a cooperative also needs to be assured that the cooperative is on a sound legal footing (Watling and Chape, 1992).

Governments need to be aware of the implications of all laws and policy decisions on agribusiness development and how those policies influence contract farming. In the Philippines, for example, fast-food chains had been importing frozen French fries. Although that particular variety of potato could be grown in the Philippines, the Government had imposed import restrictions on seed potatoes, resulting in the unavailability of the required variety. Approaches to the Government by the companies eventually resulted in the ban being lifted and this permitted the establishment of two contract farming ventures to supply the rapidly growing fast-food industry. Thus a simple policy reform ultimately benefited the sponsors and a large number of small-scale farmers (Beets, 2001).

While it may not be considered a precondition it is desirable that governments play an arbitration or dispute resolution role. For example, the Government of Malawi established dispute resolution guidelines for agricultural contracts and offered the services of the Ministry of Labour to mediate. Likewise, in many large-scale, sugar-producing countries there are statutory bodies that act as arbitrators between sugar-cane growers and the sugar mills. In Canada, thousands of potato growers under contract with a single buyer negotiate prices and contract terms through the offices of the New Brunswick Potato Agency (Dorward *et al*., 2002). It is compulsory that all potato farmers join the Agency.

Other government enabling activities to sustain contract farming may include:

(I) Provision for training in technological and managerial skills at all levels, if sponsors do not provide those services.

(II) Initiation and facilitation of research studies into the product under contract, in collaboration and consultation with the sponsors. State research institutes can particularly benefit smaller ventures, especially those managed

by individual developers who cannot sustain their own plant breeding programmes, etc.

(III) Provision of agricultural extension services to ventures that do not employ their own field staff. Small-scale developers cannot afford the luxury of their own extension service and thus need to make use of government services.

At the national level, it is a precondition that specialized services are available to provide institutional support to production, processing and marketing. Government services, such as quarantine controls, plant pathology clinics and research stations are important for contract farming. Such services are particularly necessary for companies that invest in high-value crops for export or in organic farming (Goldberg an McGinty, 1999).

In most countries there is no legislation that specifically regulates contract farming. If legislation is introduced it should ideally be based on the industry's ability to regulate itself. However, governments have sometimes attempted to over-regulate. This is often done when the sponsor is a parastatal or other government agency. For example, legislation in Kenya authorized the parastatal sponsor of contract tea farming to issue licences to farmers on rigid conditions. These governed aspects such as authority to uproot tea bushes, pest and disease controls, unauthorized planting of tea, failure to cultivate in the approved manner, and the right of the parastatal to grant or refuse a licence to plant tea. Although regulations such as these may have done the opposite, it can be argued that governments should enact legislation to protect farmers as the weaker of the contracting parties. This is particularly the case where the farmers involved are tenants of the sponsors and have little security (Goodland and Gordon, 1999).

Businessmen, particularly those involved with exports, frequently complain about the red tape and the costs involved with complying with excessive bureaucratic regulations and procedures. A simplification of official documentation, for example, could have a positive impact on the outlook of potential investors.

(ii) The developmental role

As contract farming grows in importance governments should perhaps reallocate development resources towards its promotion. For example, the Philippines Government, with assistance from an FAO project, promoted contract farming for small-scale farmers who were allocated land under the agrarian reform programme. A major feature of this was a "market matching" exercise. This involved organizing forums where agribusiness entrepreneurs could meet farmers' representatives to discuss their requirements. The forums were followed by more detailed discussions between individual sponsors and individual cooperatives or farmer organizations. By 2000 at least 27 companies had established contractual relationships with farmers as a result of the programme. Other activities carried out by the Department of Agrarian Reform included dissemination of market information, highlighting the products for which there was a commercial demand that could be satisfied through contract farming operations. The Department also agreed to act as arbitrator in the case of disputes (CRC, 1990).

Another example of promotion of contract farming comes from India where the regional office of a government-owned bank organized a meeting of bankers, agribusiness executives and the government extension service in order to explore possibilities of creating market linkages for agricultural products. This led to a major poultry producer contracting 2 200 farmers in 164 villages to grow maize and soybeans for feed purposes. Finance is provided by the banks, with a tripartite agreement being signed by farmers, the company and the banks (CRC, 1990).

Where contracted farmers are organized into cooperatives or groups, governments can play an important role by carrying out activities to strengthen the managerial skills of these organizations**.** Although the performance of agricultural cooperatives in developing countries has been marginal at best, improving a cooperative's managerial capability should, in theory, greatly enhance its business performance, the transfer of technology to farmers and its marketing skills.

The government has a role to play in ensuring that companies proposing to invest in contract farming are *bona fide* and are planning long-term partnership arrangements with farmers, rather than short-term operations which may leave farmers with

considerable debts. Sponsors must have demonstrated financial strength, proven managerial competence and technological experience. Before promoting and launching projects, sponsors should create a suitable management and administrative structure and the purchase or lease of land for offices, processing facilities and transport needs should be organized in advance**.** Some projects may involve considerable capital investment and elaborate infrastructure such as that required for sugar milling, tobacco processing and vegetable canning (Dolinsky, 1992).

CHAPTER 3

RESEARH METHODOLOGY

3.1 Study area

The Northwest Province was previously part of the Transvaal and hence, the Boer Republic that lasted until 1900. The province starts near the Pretoria-Johannesburg megalopolis in the east and reaches all the way to the west to the Botswana border. The landscape consequently becomes more arid as you move west where it forms a south-western border with the Northern Cape.

The greater part of the province, its western regions, makes up the Bushveld. It is here where South African writer Herman Charles Bosman's stories are set. The "bushveld" was so named for it's scrub brush and savannah vegetation, interrupted sporadically by baobabs and acacia trees.

The eastern and central parts are dominated by the Magaliesberg Mountain range and is not as dry as the west, but also very sunny. The Mountains themselves were lifted about 600 million yeas ago so that they tilt to the north east laying bare their layers of rock.

The Hartebeespoort area is dominated by the dam and the high peaks of the Magalies range overlooks the entire area. Some of these peaks have deep grooves gouged in them by the heavy ice sheets moving over them during the last Ice Age. The Magaliesberg Cableway is a good way to get to the highest peaks. Also in the area are some "Cultural villages", and at the one at Lesedi you can experience African entertainment in the form of dancers in traditional drag. These villages are a type of theme park that includes dinner, traditional dance and stories, usually about the area itself (http://www.nw-platinumprovince.co.za/ Accessed 17 July 2006).

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Further to the north-west, build in an ancient extinct crater lies Sun City, one of the first places in (apartheid) South Africa where gambling and pornography was legalised. This Las Vegas of Africa is quite gaudy and if you visit it you must be willing to suspend your disbelief and if you do you will have a great time. There are lots of indoor and outdoor activities. The former includes shows, gambling and movies, the latter includes "The Lost City" theme park with water rides, pools, an artificial ocean with tides, but also the Pilansberg Game Reserve which is well worth it. The artificial lake also offers para-gliding, water skiing and other activities (http://www.nw-platinumprovince.co.za/ Accessed 17 July 2006).

The North West province has 4 district municipalities and 21 local municipalities. Bojanala Platinum District Municipality is one of the 4 districts of North West province of South Africa. The seat of Bojanala Platinum is Rustenburg. The majority of its 1 185 325 people speak Setswana (Census, 2001). This research was undertaken in the Rustenburg Local municipality, one of the five local district municipalities undr the Bojanala Platinum Municipality.

3.2 Geography

Bojanala Platinum is surrounded by Waterberg to the north, Tshwane to the east, West Rand to the south-east, Southern to the south, and Central to the west. The district local minicipalities and their popolation figures are presented in Table 3.1.

Table 3.1: Local Municipalities of Bojanala Platinum District

Local municipality	Population	%
Rustenburg	395 538	33.37
Madibeng	338 260	28.54
Moses Kotane	236 840	19.98
Moretele	177 907	15.01
Kgetlengrivier	36 475	3.08

Table 3.1 shows that Rustenburg which the study was conducted forms the largest municipality (33.37%) of the Bojanala Platinum district. An indication that the

sampling was done in the largest area of the district to reduce bias in the results (http://www.nw-platinumprovince.co.za/ Accessed 17 July 2006)..

Figure 3.1 shows the Bojanala district in the North West province of South Africa.

Figure 3.1: Bojanala district in the North West province of South Africa.

3.3 Demographics

Table 3.1 shows the gender distributuion of the sutudy area, Bojanala Platinum District Municipality. The figures in the table indicate 51.28% males compared with 48.72 females, and further shows that the area is male dominated.

Table 3.2: Gender distribution

Gender	Population	%
Male	607 862	51.28
Female	577 463	48.72

3.4 Ethnic groups

Table 3.3 shows the distribution of the ethnic groups in the area. In all, the figures indicate that the area is diminated by Black Africans (92.23%). The sample size of the study was collected from this majority of Black African farmers with coontract farming who participated in the study (http://www.nw-platinumprovince.co.za/ Accessed 17 July 2006)..

Table 3.3: Ethnic groups

Ethnic groups	Polulation	%
Black African	1 093 177	92.23
Coloured	82 045	6.92
Indian/Asian	6 360	0.54
	3 743	0.32

3.5 Sampling method

According to Deming (1975) sampling methods are classified as either *probability* or *non-probability*. In probability samples, each member of the population has a known non-zero probability of being selected. Probability methods include random sampling, systematic sampling, and stratified sampling. In non-probability sampling, members are selected from the population in some non-random manner. These include convenience sampling, judgment sampling, quota sampling, and snowball

sampling (Cochran, 1977). The advantage of probability sampling is that sampling error can be calculated. Sampling error is the degree to which a sample might differ from the population. When inferring to the population, results are reported plus or minus the sampling error. In non-probability sampling, the degree to which the sample differs from the population remains unknown (Deming, 1975).

In this study, stratified sampling, which is a commonly used probability method that is superior to random sampling was employed because it reduces sampling error. A stratum is a subset of the population that share at least one common characteristic. In this study the stratum used was a group of males and females of sunflower farms in the Rustenburg local municipality. The researcher first identified the relevant stratum and its actual representation in the population of sunflower farmers in the North West province. Random sampling was then used to select a *sufficient* number of subjects from each stratum. "*Sufficient*" here refers to a sample size of 60 which was considered large enough to be reasonably confident that the stratum represents the population of sunflower farmers.

After sampling, a review was held of the exact process followed in sampling, rather than that intended, in order to study any effects that any divergences might have on subsequent analysis. A particular problem that was considered was that of *non-responses*. Many of the individual farmers identified as part of the sample were unwilling to participate or impossible to contact. In this case, there was a risk of differences, between the willing and unwilling, leading to selection bias in conclusions. This problem was addressed by follow-up studies in which a repeated attempt to contact the unresponsive and to characterise their similarities and differences with the rest of the sampling frame was done. Finally a cohort of 49 farms was used in the analysis (Chambers and Skinner, 2003).

3.6 Research techniques

3.6.1 Student *t*-test

A *t*-test (with *P*-value) was performed on the means of responses from farmers (suppliers) with contract farming and with no contract farming, in order to find out

whether there were any significant differences between their socio-economic variables. The *t*-test is usually used when dealing with small samples, usually fewer than 30 cases. However, according to Behr (1983), it can also be used for large samples with more than 30 cases. In this study, with 49 suppliers, this method was considered appropriate.

To test the null hypothesis that, in the sample, variable scores for each group are the same, the following *t*-statistic was calculated:

$$t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

where X_1 = sample mean of group 1; S_1^2 = variance; and N_1= sample size. Again where X_1 = sample mean of group 1; S_1^2 = variance, and N_1 = sample size.

Based on the sampling distribution of the above statistics, the probability that a difference at least as large as the one observed would occur if the two sample means are equal, was calculated. If the observed significance level is small enough (usually $P<0,05$, or $P<0,001$), the null hypothesis is that the sample means are equal is rejected.

3.6.2 Discriminant analysis

Discriminant Analysis (DA) was used to identify which socio-economic variables can be used to discriminate between contract and non contract farmers. DA was considered the best method that could be used to determine which variables are the best predictors of whether sunflower farmers in the group will engage in contract farming or not. This technique weighs and combines discriminating variables measuring characteristics on which groups of cases are expected to differ in a linear function that maximizes differences. Information contained in multiple independent variables is summarized in a single score (McLachlan, 2004).

The hypothesis was that socio-economic factors associated with contract farming or no contract farming would predict whether or not a farmer is in one of the two groups.

The estimated discriminant function score can be written as:

$$D_i = d_{i1}Z_1 + d_{i2}Z_2 + ... + d_{ip}Z_p$$

Where Z= the score on each predictor, and d_i= discriminant function coefficient. The discriminant function coefficients are, by definition, chosen to maximize differences between the two groups (Klecka, 1983; McLachlan, 2004).

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Background of farm operator/owner/manager

Separate variance estimates of the means of selected variables on personal background of farm operator/owner/manager are shown in Table 4.1. In general, there were significant differences in some of the means of the variables in the farmers with contract farming linkages and those with no contract farming linkages with buyers. Interpreting the variables with *t*-values larger than unity, the following variables can be considered significant: age, marital status, number of children, number of family members employed in the business, primary education, and secondary education.

The most significant variables, at least at the 5% level, were number of family members employed in the business, primary education and secondary education.

The results show that the group with contract farming has significantly higher average number of family members employed in the farm business (2,35) than the group with no contract farming which has an average of 1,17. In general respondents in the group of farmers with linkages were more educated than the group without linkages.

Table 4.1: *T*-test of means of variables: farmers with contract farming and with no contract farming with big buyers

(i) Personal background of farm operator/owner/manager

	Mean of responses	Mean of responses	Separate variance estimate	
Variable	CF (n=24)	No CF (n=25)	t-value	P-value
Males (%)	0,79	0,68	-0,88	0,39
Age (years)	48,62	44,38	-1,36	0,18
Married (%)	0,79	0,92	1,27	0,21
Children (number)	5,67	3,68	-2,47	0,19
Family members employed on farm (number)	**2,35**	**1,17**	-2,43	0,02
Primary education (%)	0,54	0,20	-2,59	0,01
Secondary education (%)	0,79	0,52	-2,05	0,05
Tertiary education (%)	**0,33**	**0,28**	-0,40	0,69
Formal management training (%)	0,64	0,67	0,19	0,85
Employed before starting business (%)	0,86	0,75	-0,90	0,38
Worked for someone else in the same business (%)	0,45	0,41	-0,30	0,77

4.2 Farm business details

Table 4.2 shows the differences in the mean values of variables describing the farm business details of the sunflower farmers. There were significant differences between most of the variables. The results suggest that most of the group with contract farming linkages were sole proprietors of their farm business compared with the group with no contract farming linkages.

The gender variables of farm owners in the two groups were not significantly different and can be inferred that there is some gender equality as far as ownership of farm businesses is concerned in the study area. The number of supervisory staff, and workers were also not significantly different from each other. These results suggest that there is no farm ownership bias towards any sex group in the study area. It can also be inferred that there is no entry barriers for women or men.

In line with the findings that the no contract farming linkage group had lower education only 24% in this group indicated that they had ever drawn up a business plan compared with 63% in the group with linkages and the difference was highly significant (at 1% level). This result is manifested in the fact that those who indicated that they had negotiated financial facilities at a bank are more in the group with contract farming linkages than in the no contract farming linkage group.

In the group with contract farming linkages, 50% indicated that they supply products or services to big companies and also previously sold products/services to other large buyers. In addition, the same group sell products/services to more than 4 buyers (75%) and prefer formal arrangement (96%) with big buyers.

Table 4.2: ***T*-test of means of variables: farmers with contract farming and with no contract farming with big buyers**
(ii) Farm business details

	Mean of response	Mean of response	Separate variance estimate	
Variable	Linkages (n=24)	No Linkages (n=25)	t-value	P-value
Duration of farm business (years)	-	-	-	-
Legal entity:				
Sole proprietor (%)	0,90	0,06	-2,43	0,02
Partnership (%)	0,12	0,28	1,35	0,18
Close corporation (%)	-	-	-	-
Gender of owners:				
Males only (%)	0,70	0,64	-0,50	0,61
Females only (%)	0,29	0,16	-1,09	0,28
Husband and wife (%)	0,25	0,12	-1,16	0,25
Males and females (%)	0,21	0,08	-1,27	0,21
Management staff (number)	1,46	1,44	-0,07	0,94
Supervisors (number)	0,95	0,86	-0,29	0,77
Workers (%)	9,92	6,36	-1,50	0,14
Workers when farm business started (number)	-	-	-	-
Ever drawn up a business plan (%)	**0,63**	**0,24**	-2,89	0,00
Negotiated financing facilities at bank (%)	0,63	0,40	-1,58	0,12
Ever been successful (%)	0,88	0,69	-1,22	0,24
Business registered as:	-	-	-	-
Provisional taxpayer (%)	-	-	-	-
VAT (%)	0,67	0,43	-1,61	0,12
PAYE/SITE (%)	0,58	0,48	-0,71	0,48
Workers unionised (%)	-	-	-	-
Recognition with a Trade Union (%)	0,54	0,20	-2,59	0,01
COSATU affiliated (%)	0,16	0,13	-0,34	0,73
Supply products or service to big company (%)	0,50	0,20	-2,17	0,03
Sold products/services to other large buyers (%)	0,50	0,20	-2,27	0,02
Sell products/services to:	0,56	0,08	-3,93	0,00
One buyer (%)				
2-3 buyers (%)	-0,42	0,48	0,44	0,66
More than 4 Buyers (%)	**0,75**	0,36	-2,93	0,00
Prefer formal arrangement with big buyers (%)	**0,96**	0,53	-3,46	0,00
Prefer informal arrangement with big buyers (%)	-	-	-	-

4.3 Buyer mentoring

The results of the means of variables describing buyer mentoring are presented in Table 4.3. The separate variance estimates suggest that the following variables significantly differentiate the farmers with contract farming linkages from those with no contract farming linkages: counselling, financial training, provision of credit, timeliness of delivery and volume of sales indicated by the *t*- and *P*-values.

The results indicate that on average, the number of respondents with contract farming linkages who receive advice, financial training, and credit far exceeds that of the group with no contract farming. Again these results have good implications for sunflower farmers in the area, and indicate some elements of success through contract farming linkages with big buyers. Furthermore, the results suggest that farmers are upgrading their skills as a result of the contract farming linkages through counselling and financial training from buyers.

From the results, the factors that are most important in satisfying big buyers are the timeliness of delivery and volume of sales from supplies. According to Nellis and Parker (1992) business managers attach great importance to high volumes of sales coupled with timeliness of delivery because they help to attract external finance, and assist in timely distribution and retailing of products. Consumers may also view business with high volume of sales in a favourable light. When the volume of sales is declining in a business, extended credit may be curtailed by financial institutions. A reduction in staffing and managerial level may result, due to inevitable cost cuts.

Table 4.3: *T*-test of means of variables: farmers with contract farming and with no contract farming with big buyers
(iii) Buyer mentoring

	Mean of response	Mean of response	Separate variance estimate	
Variable	CF (n=24)	No CF (n=25)	t-value	P-value
Did/does the buyer provide you with:				
Advice (%)	0,96	0,16	-2,12	0,04
Counselling (%)	0,70	0,36	-2,02	0,05
Financial training (%)	0,58	0,23	-2,07	0,05
Provide credit (%)	0,72	0,31	-2,41	0,02
Loans for repayment for raw materials (%)	0,25	0,31	0,35	0,73
Any expectations (%)	0,16	0,07	-0,84	0,41
Does buyer provide settling a/c earlier terms (%)	0,23	0,10	-0,83	0,42
Pay on time (%)	0,43	0,50	0,40	0,69
Factors most important in satisfying big buyer:	0,61	0,62	0,07	0,95
Best price (%)	0,88	0,68	-1,66	0,10
Quality (%)	0,79	0,68	-0,88	0,39
Timeliness of delivery (%)	0,88	0,52	-2,88	0,01
Volume of sales (%)	0,79	0,55	-1,79	0,08

4.4 Constraints on contract farming

(a) Supplier (farmers) issues

The means of variables representing constraints to the expansion and improvement of contract farming are presented in Table 4.4. On supplier issues, those with contract farming considered limited application of new technology, and poor product quality to be significant. Among 49 respondents, 88% of suppliers with contract farming considered limited application of new technology as a constraint in the expansion of contract farming. This is in line with previous findings that buyers also consider limited new technology as a constraint. Technological support services are clearly required by both buyers and suppliers to expand linkages.

(b) Buyer issues

On buyer issues, lack of top management commitment and support, and government incentives seem to be the most significant constraints. Out of 24 respondents who

had contract farming with big buyers 63% considered lack of top management commitment and support as impediments in the expansion of contract farming while out of 25 who did not have contract farming only 28% considered this factor as a constraint.

(c) Intermediary issues

Most farmers with contract farming (67%) considered the matching of requirements of buyers and suppliers as a constraint in expansion of contract farming when considering the issue of intermediaries in contract farming. This is an indication that both farmers (suppliers) and buyers consider intermediaries as not helpful in solving their problems. Suppliers also consider the issue of intermediaries not selling their services aggressively as one of their major constraints. In the linkages group 58% compared with 32% in the no linkage group considered this factor as a constraint. It was not surprising that 83% of the linkage group compared with 48% in the no linkage group indicated that they did not know of any intermediary agency.

The definitions of variables used in the discriminant analysis are presented in Table 4.5. Most of the variables are dichotomous, taking values of zero and one.

Table 4.4: ***T*-test of means of variables: farmers with contract farming and with no contract farming with big buyers**
(iii) Constraints on contract farming

	Mean of response	Mean of response	Separate variance estimate	
Variable	CF (n=24)	No CF (n=25)	t-value	P-value
Serious impediments to expansion and improvement of contract farming with big business:				
Supplier issues:				
Limited application of new technology (%)	0,88	0,60	-2,26	0,03
Poor product quality (%)	0,75	0,36	-2,93	0,01
Unreliable delivery (%)	0,71	0,48	-1,64	0,11
High price (%)	0,71	0,48	-1,64	0,11
Others (%)	0,58	0,28	-2,20	0,03
Buyer issues:				
Lack of top management commitment and support (%)	0,63	0,28	-2,53	0,02
Resistance on the part of buyers (%)	-	-	-	-
Lack of government incentives (%)	0,67	0,28	-2,88	0,01
Others (%)	0,63	0,44	-1,29	0,20
Intermediary issues:				
Not matching requirements of buyers and suppliers (%)	0,67	0,24	-3,25	0,00
Inappropriate or unqualified staff (%)	0,50	0,28	-1,58	0,12
Intermediary not selling their services aggressively (%)	0,58	0,32	-1,88	0,07
Don't know of any intermediary (%)	0,83	0,48	-2,76	0,01
Others (%)	0,83	0,64	-1,55	0,13
Training issues:				
Training courses don't meet suppliers' needs (%)	0,67	0,64	-0,19	0,85
Don't know of any agencies that offer training (%)	0,58	0,48	-0,71	0,48
Others (%)	0,67	0,48	-1,32	0,19
Government issues:				
Restrictive legislation on small business (%)	0,67	0,48	-1,32	0,19
No incentives to buyers to develop linkages (%)	0,54	0,56	0,13	0,90
Others (%)	0,67	0,68	0,10	0,92
Trade Union issues:				
Block outsourcing, fear of deterioration conditions (%)	0,79	0,44	-2,66	0,01
Block outsourcing, fear of loss of membership (%)	-	-	-	-
Others (%)	0,43	0,48	0,29	0,77

Table 4.5: Definitions of variables used in the discriminant analysis

Variable name	Variable description	Variable type	Variable range
	1. Farm business operator/owner/manager:		
CHILDREN	Number of children	Continuous	0-14 Children
FAMILY	Number of family members in business	Continuous	0-6 Persons
SECOND	Secondary education	Dichotomous	1=Yes; 0= Otherwise
COSATU			
	2. Business details:		
SOLE	Legal entity: Sole proprietor	Dichotomous	1=Yes; 0=Otherwise
MORE	Sell to more than 4 buyers	Dochotomous	1=Yes; 0= Otherwise
BPLAN	Ever drawn up a business plan	Dichotomous	1=Yes; 0=Otherwise
UNION	Workers unionised	Dichotomous	1=Yes; 0=Otherwise
COSATU	COSATU affiliated	Dichotomous	1=Yes; 0= Otherwise
LARGEB	Supply product/service to a big company	Dochotomous	1=Yes; 0=Otherwise
OBUYER	Sell to product/service to large buyers	Dichotomous	1=Yes; 0=Otherwise
FORMAL	Prefer formal arrangement	Dichotomous	1=Yes; 0= Otherwise
ADVICE	Buyer provide advice	Dichotomous	1=Yes; 0=Otherwise
COUNSEL	Buyer provide counselling	Dochotomous	1=Yes; 0=Otherwise
MANAGERL	Buyer provide managerial training	Dichotomous	1=Yes; 0= Otherwise
TECHNICL	Buyer provide technical training	Dichotomous	1=Yes; 0=Otherwise
FINANCIL	Buyer provide financial service	Dichotomous	1=Yes; 0=Otherwise
EXPECT	Any expectations	Dochotomous	1=Yes; 0= Otherwise
CREDIT	Buyer provide credit (e.g. Loans)	Dichotomous	1=Yes; 0=Otherwise
TIME	Timeliness of delivery	Dichotomous	1=Yes; 0=Otherwise
VOLUME	Volume of sales	Dichotomous	1=Yes; 0= Otherwise
	3. Constraints of contract farming:		
LIMITED	Limited application of new technology	Dochotomous	1=Yes; 0=Otherwise
POORPROD	Poor product quality	Dichotomous	1=Yes; 0= Otherwise
OTHERS	Other factors	Dichotomous	1=Yes; 0=Otherwise
LACKOFTP	Lack of top mgt commitment and support	Dochotomous	1=Yes; 0= Otherwise
LACKGVT	Lack of government incentives	Dichotomous	1=Yes; 0=Otherwise
NOTMATCH	Not matching requirements	Dichotomous	1=Yes; 0=Otherwise
INTERMID	Not selling their services aggressively	Dochotomous	1=Yes; 0= Otherwise
DONOTK	Do not know	Dichotomous	1=Yes; 0=Otherwise

Table 4.6: Estimated discriminant function: farmers with contract farming and with no contract farming with big buyers

Discriminating		Group means		
Variable	Coefficient	CF (n_1=24)	No CF (n_2=25)	Univariate *F*-value
CHILDREN	0,14*	5,67	3,68	6,227
FAMILY	0,24*	2,20	1,08	5,317
SECOND	0,27*	0,79	0,52	4,165
SOLE	0,28*	0,92	0,64	5,801
BPLAN	0,39**	0,63	0,24	8,376
UNION	0,30*	0,54	0,20	6,746
COSATU	0,22*	0,50	0,16	5,856
LARGEB	0,35**	0,50	0,00	11,99
OBUYER	0,33*	0,50	0,20	5,180
MORE	0,35**	0,75	0,36	8,532
FORMAL	0,55**	0,96	0,16	22,48
ADVICE	0,25**	0,42	-0,24	8,740
COUNSEL	0,28**	0,25	-0,36	8,155
MANAGERL	0,17**	0,21	-0,40	7,618
TECHNICL	0,26*	0,21	-0,36	6,706
FINANCIL	0,32*	0,29	-0,32	7,083
EXPECT	0,17**	0,21	-0,40	7,618
CREDIT	0,11	0,04	-0,32	3,361
TIME	0,25**	0,88	0,52	8,181
VOLUME	0,31*	0,79	0,36	6,823
LIMITED	0,26*	0,88	0,60	5,046
POORPROD	0,25**	0,75	0,36	8,532
OTHERS	0,20*	0,58	0,28	4,870
LACKOFTP	0,27*	0,63	0,28	6,423
LACKGVT	0,22**	0,67	0,28	8,295
NOTMATCH	0,38**	0,67	0,24	10,59
INTERMID	0,27	0,58	0,32	3,540
DONOTK	0,18**	0,83	0,48	7,505
Business with CF correctly classified		= 91,70%		
Business with no CF correctly classified		= 88,00%		
Overall percent of cases correctly classified		= 89,80%		
Eigen value		= 1,58		
Canonical correlation		= 0,78		
Wilk's lambda		= 0,39		
Group centroids:				
Farms with CF linkage		= 1,26		
Farms with no CF linkage		= -1,20		

** P<0,001 ; * P<0,05

4.5 Results of the estimated discriminant anlysis function

A summary of the results of the results of the estimated discriminant analysis function employed in analysing the data is presented in Table 4.6. The results show that all the independent variables except CREDIT and INTERMID are all statistically significant. The variables *BPLAN, LARGEB, MORE, FORMAL, ADVICE, COUNSEL EXPECT TIME, POOPROD, LACKGVT, NOTMATCH* and *DONOTK* are the most significant variables with the heaviest loadings. All the variables have the expected signs.

The relatively low Wilk=s Lambda (0,39) and high canonical correlation (0,78) suggest that most discriminating information has been extracted by the selected variables (Klecka, 1983). The discriminant function classified 89,80% of the overall cases correctly. These results confirm the results obtained in the separate variance analyses.

The results indicate that among small sunflower farmers, drawing up of a business plan, previously selling products/services to other buyers, selling products/services to many buyers (more than 4); and the preference of formal arrangements with big buyers can be used to separate suppliers with linkages from those without contract farming. On buyer mentoring, the incidence of advice, counselling, financial training, provision of credit, timeliness of delivery, and volume of sales are significant determinants of contract farming.

The results also suggest that poor product quality from suppliers, and lack of government incentives prevent contract farming between suppliers and big buyers in the study area. The problem of intermediaries' activities not matching requirements of buyers and suppliers, as well as the knowledge of activities of intermediaries in the area can also be considered a serious impediment to the expansion and improvement of contract farming with buyers.

CHAPTER 5

SUMMARY AND CONCLUSIONS

The main objective of the study was to investigate contract farming linkages between small suppliers and buyers of sunflower products in the Bojanala district of the North West Province and the extent to which such linkages can promote the growth of micro and small enterprises in the North West Province. Promoting the growth of micro and small enterprises is an effective way to generate employment and income.

The results of this study indicate that out of 49 sunflower farms included in the study who originally had contract farming with buyers, about half (51%) of them had stopped contract farming with their buyers at the time of the interview. The discriminant analysis suggests that these were farm owners who indicated that they had not drawn up a business plan during the past years before the interview; previously sold products/services to other buyers; sold products/services to many buyers (more than 4).

Data for the study were collected from interviews with small sunflower farmers in the Bojanala district of the North West province. The sample included 49 small sunflower suppliers and represented a broad spectrum of sunflower farming activities in the area.

The analysis of the data involved the use of a t-test and discriminant analysis. The results of the study indicate that there are few contract farming business linkages between buyers and small sunflower suppliers in the area. Thus, the extent of linkages can be considered inadequate to promote the growth of micro and small enterprises.

To promote the growth of micro and small enterprises through contract farming business linkages, it is recommended that (a) access to support services be improved; (b) policies aimed at encouraging contract farming business linkages involving small farmer suppliers be developed; (c) small farmer suppliers= access to improved technologies be improved; (d) the level of education of small farming

business entrepreneurs be increased; and (e) small farmer suppliers= products and services should be made known to buyers, and small farmer suppliers should be made aware of buyers= requirements.

Although the farm businesses included in the sample in this study may not be representative of buyers and suppliers in the Bojanala District of the North West Province, it seems reasonable to suggest that contract farming between small sunflower suppliers and buyers (especially large ones) are few. Only a quarter of the buyers indicated that they had contract farming with small suppliers. There seems to be lack of appreciation of the need to establish contract farming linkages between farmers and buyers. In conclusion, contract farming linkages between small farm suppliers and buyers have had a limited impact on development in the Bojanala District of the North West Province and more efforts need to be directed at promoting such contract farming linkages.

The following recommendations, if implemented, could address some of the constraints on contract farming in the area:

i) **Access to support services.** Improving access to services such as credit and business counselling could contribute significantly to the establishment and strengthening of business linkages. The provision of adequate support services by the government through its agricultural credit schemes such as MAFISA, land Bank, Khula Finance etc., would alleviate the problem of timeliness of delivery of products and services which the study found to be one of the major constraints on contract farming linkages among farmers with contract farming.

ii) **Policy initiatives for encouraging contract farming.** Without strong policy incentives encouraging buyers to do business with small farmer suppliers, buyers are likely to maintain the status quo of dealing with large businesses. Therefore, it is important for the government to develop policies that would ensure that buyers do business with small suppliers.

iii) **Access to improved technologies.** The use of new technologies is important for small suppliers to deliver products of the right quality to buyers. Since most of the suppliers with contract farming indicated that they do not have access to such technologies, the government through the provincial Department of Agriculture should play a much more meaningful role in ensuring that such technologies are available to the small suppliers. Delivering products of the right quality to buyers could assist in strengthening existing contract farming linkages by raising the demand for sunflower products from small suppliers.

iv) **Awareness of buyers= requirements and suppliers= products/services.** It would appear that many small suppliers are not aware of the products and services demanded by buyers. The government through the provincial department of Agriculture could play a key role in bringing together suppliers and buyers. One way to achieve this could be by organizing events where small suppliers demonstrate their products and services and buyers pointing out their requirements to suppliers.

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ANNEXURE: QUESTIONNAIRE

CONTRACT FARMING AMONG SUNFLOWER FARMERS IN THE NORTH WEST PROVINCE

RESEARCH QUESTIONNAIRE FOR FARM OPERATOR/OWNER/MANAGER

Instruction: *Supply the correct information or make a cross (x) in the appropriate box where applicable.*

Interviewer .....Questionnaire No. ..... Date:.....

A. PERSONAL BACKGROUND OF FARM OPERATOR/OWNER/MANAGER

1. Sex: Male □ Female □

2. Age last birthday (Years) .....

3. Marital status:
   - Married □
   - Single □
   - Widowed □
   - Other, specify □

4. Number of family member employed in farm business
   .....

5. Education:
   - Primary □
   - Secondary □
   - Tertiary □
   - Other, specify □

6. Formal management training?

Yes □

No □

7. Employed before starting farm business?

Yes □

No □

8. Worked for someone else in the same farm business?

Yes □

No □

B. FARM BUSINESS DETAILS

8. How long have you been farming in this area? .....Years

9. Legal entity:

Sole propriety □

Partnership □

Close corporation □

10. Gender of owners:

Males only □

Females only □

Tertiary □

Husband and wife □

Males and females □

11. Number of:

- Management staff ----------
- Supervisors ----------
- Workers ----------
- Workers when farm business started ----------

12. Have you ever: YES NO

Drawn up a business plan?	□	□
Negotiated financing facilities at a commercial bank?	□	□
Been successful?	□	□

13. Business registered as:

	YES	NO
Provincial taxpayer?	□	□
VAT?	□	□
JSB levies?	□	□
Industrial council?	□	□

14. Workers:

	YES	NO
Unionised?	□	□
Recognition with a Trade Union?	□	□
COSATU affiliated?	□	□

15. Supply of products or service to big buyers? □ □

16. Previously sold products/services to other big buyers? □ □

17. Sell products/services to:	YES	NO
• One buyer?	□	□
• 2-3 buyers?	□	□
• More than 4 buyers?	□	□

18. Prefer formal contract arrangement with buyers? □ □

19. Prefer informal contract arrangement with buyers? □ □

C. BUYER MENTORING

20. Did/does the buyer provide you with:	YES	NO
• Advice?	□	□
• Counselling?	□	□

- Financial training? □ □
- Credit? □ □
- Loans for repayment of inputs? □ □

21. Any expectations? YES □ NO □

22. Does buyer provide settling account earlier terms? YES □ NO □

23. Does buyer pay on time? YES □ NO □

20. Factors most important in satisfying buyer: YES NO

- Best price? □ □
- Quality? □ □
- Timeliness of delivery? □ □
- Volume of sales? □ □

D. ON CONTRACT FARMING

21. Serious impediments to expansion and improvement of contract farming with big business/companies:

(i) Supplier issues: YES NO

- Limited application of new technology? □ □
- Poor product quality? □ □
- Unreliable delivery? □ □
- High price? □ □
- Others? □ □

(ii) Buyer issues: YES NO

- Lack of top management commitment and support? □ □
- Resistance on the part of corporate buyer? □ □
- Lack of government incentives? □ □
- Others? □ □

(iii) Intermediary issues:	YES	NO
• Not matching requirements of buyers?	□	□
• Inappropriate or unqualified staff?	□	□
• Intermediary not selling their services aggressively?	□	□
• Don't know of any intermediary?	□	□
• Others?	□	□

(iv) Training issues:	YES	NO
• Training courses don't meet farmers' needs?	□	□
• Don't know of any agencies that offer training?	□	□
• Others?	□	□

(v) Government issues:	YES	NO
• Restrictive legislation on small farm businesses?	□	□
• No incentives to buyers develop contract farming?	□	□
• Others?	□	□

(vi) Trade Union issues:	YES	NO
• Block outsourcing, fear of deterioration conditions?	□	□
• Block outsourcing, fear of loss of membership?	□	□
• Unreliable delivery?	□	□
• Others?	□	□

THANK YOU FOR YOUR ATTENTION !!!