

Chapter Two: The Economics of Contracting in Agriculture

2.1 Introduction

This chapter evaluates the research problem against the backdrop of the international experience of contract farming in both developed, as well as, developing countries. The objective of this chapter is to gain a better understanding of the institution of contracting, as it applies to smallholder agribusiness partnerships in developing countries. More specifically, the purpose of this chapter is to develop an economic rationale to explain the increase of contracting in the agricultural sector, as well as to establish a number of lessons that can be identified in the case studies and incorporated in the design of smallholder contracting schemes with agribusiness. The chapter commences with some definitions of contracting and its related terminology, before examining the history and spread of contracting. The increased incidence of contracting is explained by the industrialization of agriculture and contracting in both developed and developing countries, as well as a result of missing or imperfect markets. The chapter explains the reasons for the forces of change and the advantages and disadvantages, from both the agribusiness and grower perspective, for the increased use of contracting as a means to co-ordinate modern agricultural supply chains. The chapter then outlines a series of lessons that can be used as a basis to design smallholder contracting arrangements with agribusiness before developing a summary and conclusion.

2.2 Vertical Co-ordination: Some Definitions

There are many different ways of organizing economic activity and economic transactions can take place within markets or firms. The firm's activities can be coordinated by the markets, by contracts, by alliances, by joint ventures or by full vertical integration (Brickley et al, 2001). The firm can, therefore, coordinate economic activity by adopting a number of different governance forms along a vertical coordination continuum of opportunities. This continuum ranges from spot market acquisition, on the one side, to full vertical financial ownership on the other, with a number of hybrid organization forms in between these two extremes (Mahoney, 1992; Peterson & Wysocki, 1997; Peterson & Wysocki, 1998; Pasour,

1998; Rudolph, 1999). On the one extreme, economic activity is coordinated by the market and, on the other, it is managed within the company hierarchy (Peterson & Wysocki, 1997) where the boundaries of the firm underline those activities that are internalized in the firm's organization structure and those that are external to it (Coase, 1990).

The organization of economic activity is often managed by way of forming specific relationships with other firms. Vertical coordination occurs when a firm combines its own activities with another firm that performs different, but related activities, in transforming inputs to outputs. These related activities may occur before or after the activities that are managed within the boundaries of the firm (Rehber, 1998) and the two independent operating units work closely together to manage the flow of goods and services along the value chain (Johnstone & Lawrence, 1988). In this respect, the act of ownership, or a long term contractual arrangement, would tend to internalize the exchange process that occurs between the parties in a value chain (Kilmer, 1986). Vertical coordination can also be described as the cross functional alignment of value added activities that drive the physical movement of raw materials and finished goods from the point of purchase to the point of consumption. In this context, vertical coordination can be evaluated purely from a logistics point of view where the assumption is that logistical factors cause transaction costs with respect to activities like distribution, site and customer locations, communications, the corporate structure, routing, scheduling and planning (Rodriguez, 1996). Finally, the degree of managed coordination in the supply chain can be ascertained by determining the extent of the transfer of decisions and assets between the participants. When all the decisions are dominated by a single party, then ownership integration or a merger exists and, conversely, when each firm retains its own separate identity, but leaves certain decisions to the other firm, then contract integration or vertical coordination occurs (Rehber, 1998).

For the purposes of this study contract farming is defined as a form of vertical coordination between an agribusiness processor-marketer and a farmer who is contracted to supply some type of raw commodity. More specifically, the definition of specification contracting, that has been assumed by this study, includes forms of vertical coordination, between growers and buyers-processors, that directly shape the

production decisions of growers through contractually specifying market obligations. This definition further assumes that agribusiness inputs are often made available to the grower partners and that the agribusiness partner has some measure of control at the point of production (Little and Watts, 1994). The agribusiness partner could be a processor, a packer or a marketer (Goodhue, 1999).

The increased levels of vertical coordination in the modern agricultural sector, are reflected in many other industry sectors around the world. Vertical coordination, involving a hybrid of governance forms, is rapidly increasing in the banking industry, the defense industry, the telecommunication industry and the automobile industry (McAfee, 1999). Other industries include the textile and construction industries, trading and automotive companies, book publishing and the motion picture industry where increased levels of managed control are often conducted in a loose form of vertical coordination (Johnstone & Lawrence, 1988). In Japan, 'Keiretsus' include vertical coordination partnerships in the oil, automotive, newspaper, processed food, camera, pharmaceutical and cosmetic industries (Cutts, 1992) where the Just-In-Time management system of supply requires higher levels of coordination between the supplier and the manufacturer (Drury, 1996; Atkinson et al, 1999; Horngren et al 1999).

2.3 Contract Types in Agriculture

Vertical coordination contracts in agriculture embrace a wide number of arrangements that bind the grower and an agribusiness partner. The various types of contracts could include a marketing contract, a contract specifying some measure of company control or a contract specifying the provision of company inputs and full company control of production (Wolz et al, 1999). In the case of a marketing contract, sometimes called a market specification contract, the producer sells the raw commodity to the processor at a specified price, quality and time. In this type of contract, the producer has full autonomy regarding production decisions (Rehber, 1998). In the second type of contract, certain company inputs and services could be supplied by the agribusiness partner and there is some measure of company control in order to achieve higher levels of managed coordination of the supply and delivery of the intermediate product. In this type of arrangement the farmer agrees to produce

the raw commodity under some degree of company control and specification, and also to sell the commodity to the processor at an agreed price, quality and time (Rehber, 1998; Wolz et al, 1999). The third type of contract includes full company control, in addition to the provision of company inputs, and, thus complete control of the production process passes to the agribusiness partner, who will supervise production and provide the necessary inputs and services, as well as remunerate the producer at an agreed price for the raw commodity (Rehber, 1998; Wolz et al, 1999). The contract should always specify the price, quantity, quality, the provision of inputs, credit facilities, the conditions of production and the delivery and grading requirements (Sporleder, 1992; Runsten & Key, 1996; Wolz et al, 1999). The price set in these various arrangements could be a fixed price or a differential price (Sporleder, 1992). Finally, in certain cases of contracting, the structure of the contract could be based on the farmer's access to key resources like water (Morvaridi, 1995) whilst, in others, the producer does not even own the intermediate product which remains the property of the agribusiness partner. In a contract like this, the integrator uses the facilities and labour of the farmer, who is paid a fee to provide facilities and services, whilst simultaneously ensuring that agribusiness developed technology is retained exclusively by the firm (Martin, 1999; Goodhue, 1999).

The structure of the contract is sometimes shaped by the nature of the integrator, as well as the number of contracted growers. Some forms of contracting are, for instance, dependant on specific institutions like bargaining or marketing cooperatives (Sporleder, 1992). Conversely, when large numbers of small-scale growers are involved in a vertical coordination arrangement, it is often more efficient for both parties if the small-scale growers are represented by a farmer association. Contracting arrangements, especially in developing countries, sometimes involve large numbers of small-scale farmers (Little & Watts, 1994) and the agribusiness cost of contracting on an individual basis would be prohibitive. Agribusiness will, primarily, interact with the farmers' association to ensure that all the necessary inputs and requirements are communicated to the contracted growers. The farmers' association, therefore, acts as a body that provides training, ensures growing practices are maintained, ensures the provision of inputs and extension services and who coordinates the harvesting, delivery and supply of the intermediate product (Runsten & Key, 1996; Rehber, 1998; Wolz et al, 1999). The farmer cooperative, in this regard, is better able to establish a

greater degree of representation for its members and negotiate the terms and conditions of the contractual relationship (Wolz et al, 1999).

2.4 A History of Contract farming

The current increase in levels of vertical coordination can be viewed against the backdrop of a number of distinctive paradigms of organization structure in agriculture. The first period spans the era in which primitive agriculture was a fully integrated system. The farm family made all the production-processing decisions and provided all the inputs and consumed all the outputs. The second era can be traced to the development of market orientated agriculture in which different parties specialized in different functions in the supply chain as a result of urbanisation. Finally, the third era has witnessed the reintegration of many previously specialized functions in response to emerging market forces (Pasour, 1998; Rehber, 1998). The origins of the contracting farming can be traced back to the second era and isolated cases of this institution reach far back into history.

Contract farming was employed, as early as 1885, by the Japanese to secure sugar production in Taiwan (Rehber, 1998) and by United States multinationals in Central America, at the beginning of the 20th century, as a result of state pressure and domestic labour militancy (Clapp, 1994). The widespread use of contract farming appears to have gathered momentum in the 1930s. In a majority of instances the impetus for contracting in this period appears to have been the need of agribusiness for land, cheap labour and geographical conditions suited to certain crops. Two early examples in agriculture include the fruit-vegetable canning sector and seed production. In the period 1930-1950, contracting in the fruit and vegetable canning sectors expanded in developed countries like the United States and Europe (Little & Watts, 1994). In the same period, seed production contracts were employed in Europe and North America where seed merchants contracted with growers in Britain, France, Holland, Australia, Canada and Hungary and the United States. The seed production industry, thereafter, moved from the United States and Europe to Japan in the 1950s, to Taiwan in the 1970s and to Thailand, Mexico, Costa Rica, and the Philippines in the 1980s (Watts, 1994). The supply of fruit and vegetables to United States markets has been increasingly grown on a contract basis since the

Second World War. Mexican growers, for instance, have supplied United States markets since the 1950s and the growth of contracting in this region is illustrated by the value of contracted Mexican exports which amounted to some US \$ 790 million in 1989 (Watts, 1994). The growth of contracting has accelerated markedly in the period 1980 to 2000 and by the late 20th century, the use of contract farming, in many food and fibre sectors, was widespread across Western Europe, the United States and Japan (Rehber, 1998).

The extent of vertical co-ordination in the United States agricultural sector is a good example of the widespread increase of contract farming in the developed world. In recent times, more than one in ten farmers have derived some form of income from contracting with processors or packers (Rhodes, 1993; Colchao, 1999). By 1993-1994 some 40% of total farm output was produced under contract, including the production of broilers, milk, hatching eggs, turkeys, hogs and fed cattle. In the United States during the last decade there have also been increases in the production of food and feed grain crops, cotton, tobacco and specialty crops (Pasour, 1998) and, in the period 1960-1980, there was a significant increase in contracting for vegetables, fruit, nuts and seed crops (Kilmer, 1986). The restructuring of the poultry egg sector has followed similar trends where investor firms have been the primary force behind the increasing levels of integration in order to improve financial performance (Ling & Leibrand, 1995). The history of contract farming in the hog sector particularly illustrates the shift from agricultural production to industrialized agriculture in the United States (Watts, 1994). By the late 1980's, twelve percent of all pigs were grown under contract and open land production is, increasingly, being replaced with a closed lot, factory type system, utilizing specialized buildings and increased levels of horizontal and vertical coordination (Rhodes, 1993).

Agricultural production under contract has also increased steadily in developing countries during the 20th century. This institution has spread rapidly in Asia, Latin America and Africa as a result of the improved returns earned by high value export crops, in conjunction with the impact of new technologies (Clapp, 1994; Eicher & Staatz, 1998). Contract farming in Latin America has been extensively promoted since 1945 in a series of import substitution programs (Clapp, 1994; Little & Watts, 1994; Daddieh, 1994; Runsten & Key, 1996). Agribusiness has, mostly, been

widely involved and included multinational corporations, the indigenous rich and state bureaucracies that have operated under several decades of reformism in countries like Chile, Brazil and Mexico (Korovkin, 1992). Although Latin America has a much longer history of this institution than Africa, contract farming, often known as satellite farming, expanded significantly in colonial Africa in the fruit and vegetable canning sectors as early as the period 1930-1950 (Little & Watts, 1994).

Contract farming schemes in developing countries tend to have been one of two types. In the first instance, large numbers of growers, occupying sizeable tracts of land, were contracted to produce traditional commodities. These schemes have normally involved a high level of central control by an agribusiness-government partner who provided numerous services to the growers. The presence of international donors and government partners has also been a common feature in many of these types of contracting projects. The state has often undertaken an active role in the promotion of contracting arrangements in developing countries, especially Africa, where the government or a parastatal has often been included as one of the principal partners in the arrangement (Watts, 1994; Little, 1994). The second type of contract scheme has involved the production of non traditional crops by a smaller number of more entrepreneurial growers. This type of scheme has been more closely associated with an agribusiness type partner that has exercised a much lower level of control. Of the two types of contract arrangements, there is evidence that the growth of contracting, involving non traditional crops, has been greater than that of traditional crops (Glover, 1994).

Although these two types of contracting arrangements predominate in developing countries, an additional arrangement sometimes involves local farmers and processors at the village level (Kawagoe, 1994). Finally, contracting in developing countries has often been associated with a multiplicity of parties, and objectives, incorporated in the contract. These parties could include the grower, agribusiness, local authorities, the government, donor bodies, research institutions and non government bodies (Glover, 1984; Little, 1994; Watts, 1994; Runsten & Key, 1996; Delgado, 1999).

In Africa the use of contract farming increased markedly in the period 1975-1985 with some sixty schemes operating in sixteen different countries (Carney, 1988; Watts, 1994; Little, 1994; Eicher & Staatz, 1998). Contracting, involving small farmers, has been most extensively developed in Kenya where, some 350 000 contract farmers were registered by 1991. This country, since the 1960's, has, increasingly, produced a range of industrial and export crops (Glover, 1994; Jaffee, 1994; Jackson & Cheater, 1994). Other countries with a history of contract farming, include Zimbabwe, Gambia, Cote d'Ivoire and Ghana. In Zimbabwe (until 2001), growers have contracted since the mid-1950s with varying levels of success under a wide range of institutions to produce cotton, tea, sugarcane, tobacco and vegetables (Jackson & Cheater, 1994). In Gambia contracting has been employed by the government since 1984, for an ambitious irrigated rice project (Carney, 1994) and in Cote d'Ivoire and Ghana, contracting has been extensively used to produce palm oil (Daddieh, 1994). The Tanzanian Villagiarisation project has been widely cited as an unsuccessful attempt to promote agricultural development using contract farming (Currie & Ray, 1986).

In conclusion, contract farming in Africa has generally resulted in improved farmer income that is counterbalanced by the loss of traditional lifestyle. In this regard, the World Bank has assessed that the advantages of contract farming to the small-scale farmer include the benefits of modern technology, better access to agribusiness inputs and skills, access to processing, storage and marketing facilities, and, that these advantages outweigh the disadvantages that are largely of a social nature (Levin, 1988; Porter & Howard, 1997a; 1997b).

2.4.1 Contract Farming in South Africa

Documented examples of contract farming in South Africa are found in the tea, fruit, sugar, flower, cotton, vegetable, timber, tobacco, mariculture and beverage industries (Levin, 1988; Porter & Howard, 1997a; 1997b; Van Rooyen, 1999; Karaan, 1999; Tregurtha & Vink, 1999; Weatherspoon et al, 1999; Sartorius & Kirsten, 2002). Other examples of contract farming exist in the growing of sunflower seeds (Epic Oil), mushrooms (Dennv Mushrooms), fresh vegetables (Woolworths, Irvin & Johnson, Gants & Robertsons) milk (Nestle), and the production of olives, tomatoes,

subtropical fruit, grapes and citrus (New Farmers Development Company). In all of these cases farmers are producing a particular commodity of a specific pre-determined quality, and quantity for a specific firm.

2.5 The Rationale for Contract Farming in Agriculture

2.5.1 The Forces of Industrialisation in Developed Countries

The industrialization of agriculture has been influenced by an international trend of market-orientated reforms that have contributed to the increased integration of world markets (Reardon & Barrett, 2000). This process has resulted in fewer larger farms, the concentration of farming, increased specialization and closer ties with processors (Schrader, 1986; Frank & Henderson, 1992; Rhodes, 1993; Ling & Liebrand, 1995; Schrader & Boehlje, 1996; Pasour, 1998; Pritchett & Liu, 1998) and the farming industry is being increasingly characterized by larger, industrialized firms that are more tightly aligned across the supply chain (Boehlje, 2000). Increased levels of vertical coordination are, thus, set to change the structure of production away from smaller independent operating units, functioning in a decentralized open market system, where there is limited product differentiation, to larger units that are increasingly linked by contract to an integrated supply chain involving a high level of product differentiation (Barry et al, 1992; Babb, 1992; Sporleder, 1992; Schrader & Boehlje, 1996; Pasour, 1998; Peterson & Wysocki, 1998; Pritchett & Liu, 1998).

The concept of agricultural industrialisation describes the significant structural changes in the food and fibre systems and this process is assumed to have occurred as a result of the changing patterns of ownership and the organisation of processes (Leathers, 1999). Industrialisation is the consequence of economic growth, mechanisation and the increasing scale of organisation where this concept is seen as the difference between past and present production, processing, marketing and distribution systems (Sofranko et al, 2000). The industrialisation of agriculture is an evolutionary efficiency response to the need to minimise transaction cost and for tighter levels of co-ordination and control in agricultural supply chains in order to secure competitive advantage (Coase, 1937; Babb, 1982; Sporleder, 1992;

Williamson, 1995; Rowlinson, 1997). The process of industrialisation also refers to the increasing consolidation of farms and the vertical co-ordination among the stages of the food and fibre system (Council on Food, Agriculture and Resource Economics, 1994) and implies that larger scale production units are being increasingly linked to the supply chain through formal or informal arrangements (Boehlje and Doering, 2000). Although the term industrialisation is a nomenclature for a whole range of changes, two stand out. According to Drabenstott (1995) these changes are a shift from food commodities to food products and a move from spot markets to more direct market channels, such as production contracts. Boehlje (2000) articulates the changes in a slightly different fashion, by arguing that the most dramatic changes in agriculture are occurring in terms of the following: Firstly, the industrialization of agriculture is associated with the development of differentiated products. Secondly, this process is associated with the implementation of biological manufacturing and thirdly with the formation of food supply chains. Food production has, thus become an industrialised and capital intensive business that operates in a highly competitive and unpredictable global market. The problematic nature of the agricultural sector is underlined by the reduced ability of this sector to employ labour whilst, at the same time, world markets are confronted with increasing levels of supply of products, for which the demand is relatively inelastic. The inelastic demand for agricultural products, combined with increasing levels of production, has therefore resulted in problematic surpluses for many countries who often export high value agricultural products whilst simultaneously importing staple foodstuffs (Meliczek, 2000).

Developments in biotechnology and information technology have been closely linked with an increase in contracting in developed countries (Schrader, 1986; Pasour, 1998), where research and development in agriculture is being increasingly privatised in order to develop new products that can be branded and technology that can be patented. Research, technology development and transfer are increasingly being undertaken by the private sector (Huffman & Just, 1994; Jiggins, 1997; Sofranko et al, 2000). Furthermore, higher levels of vertical co-ordination have been promoted by a general climate of government withdrawal from agriculture, which has resulted in reduced intervention and a reduction in the funding of activities and institutions that fall into the agricultural sector (Pasour, 1998; Rehber, 1998). The increased levels of vertical co-ordination are, thus, a response to

technology development where the primary beneficiaries of new technology, like genetic engineering, will accrue to the holders of patents (Pasour, 1998; Flakerud & Klenow, 1999). The need for tighter co-ordination is, therefore, being influenced by the need to develop and patent biological and information technologies in agricultural supply chains. A vertically co-ordinated structure can encourage the collaboration of suppliers in the research and development phase, as well as ensure that the developed technologies are only used by the contracted partners (Schrader, 1986; Pasour, 1998). Finally, higher levels of vertical co-ordination, apart from the development of cost reducing technology, have been associated with lower prices where the chief beneficiaries are the consumers (McAfee, 1999).

The need for higher levels of co-ordination is influenced by the need to co-ordinate production, that is often spatially dispersed, with processing and marketing activities in order to meet stringent consumer demands (Schrader, 1986; Royer, 1995). The degree of co-ordination between the contracting parties is, therefore, often a function of both the numbers, and spatial distribution, of farmers (Runsten & Key, 1996). Modern agricultural supply chains incorporate complex processing facilities that require a highly co-ordinated approach in order to optimise the firm input-output function. Vertically co-ordinated structures result from the need to synchronise the firm's activities, optimise efficiency and minimise cost (Sporleder, 1992; King, 1992; Featherstone & Sherrick, 1992; Glover, 1994; Pasour, 1998; Rehber, 1998). The high levels of fixed cost in the food processing industry further influence the requirement for tighter co-ordination because of the need to make constant use of capacity in order to minimise fixed cost per unit of output. Because of the high level of co-ordination required in many modern agricultural supply chains, it is increasingly unlikely that the spot market can ensure the synchronisation of a continuous supply of a uniform quality raw commodity (Glover, 1984; Kilmer, 1986; Glover, 1994; Mahoney, 1992; Hennessy, 1996; Azzam, 1996).

Higher levels of co-ordination are influenced by consumer demands for differentiated products that are coupled with stringent requirements with respect to the health, nutrition and convenience characteristics of the product (Royer, 1995). The increasing fragmentation of demand has influenced product differentiation that, in turn, requires higher levels of managed co-ordination (Hayami, 1998). Better educated

consumers (Rehber, 1998) are increasingly forcing the pace and direction of product differentiation and quality specifications (Sporleder, 1992; Hennessy, 1996; Pasour, 1998). The increased fragmentation of demand, allied to stringent consumer requirements and the increased levels of processing, have expanded the range and differentiation of food products (Von Braun & Kennedy, 1994; Royer, 1995) where traditional open market mechanisms are not able to communicate the appropriate consumer requirements to producers (Belden, 1992). The need for increased levels of vertical co-ordination, thus, results from the need to develop differentiated products in a structure that links production with consumer requirements. This type of structure also ensures input control in a co-ordinated supply chain that is configured to agribusiness specifications (Belden, 1992; Rhodes, 1993; Rehber, 1998; Pasour, 1998; Goodhue, 1999; Sofranko et al, 2000).

2.5.2 The Forces of Industrialization and the Growth of Contracting in Agriculture: Developing countries

The industrialisation of agriculture in developing countries, is often seen as a function of many diverse social and economic forces that are country specific (Ruttan & Hayami, 1990; Ruttan, 1990; Timmer, 1990). The forces influencing the structure of agriculture are a function of history, culture, political influences, infrastructure development, the existence of institutions, the availability of technology, development strategy, trade policy and other socio-economic factors (Glover, 1987; Islam, 1994; Zhong et al, 1994; Ahmed, 1994 ; Rehber, 1998). Contract farming, in this regard, has been cited as a way to contribute towards development in Sub Saharan Africa (Eicher & Staatz, 1998; Coulter et al, 1999). In many cases, a notable feature of agricultural development projects in Africa is that the state has been the major initiator of schemes that incorporate local farmers under contract (Daddieh, 1994). The enthusiasm of donors about the benefits of contracting in developing countries, however, has resulted in inflated expectations of the potential of this institution (Little, 1994). Although contract farming appears to have increased farm family income in general there are many instances of this institution being used to exploit farmers (Porter & Phillips-Howard, 1997a).

The historical legacies of many developing countries have resulted in skewed access to land labour and capital (Binswanger et al, 1993) where some 440 million farmers in developing countries still practice subsistence agriculture (Von Braun, 1994) alongside large farming systems that are closer to corporate and government power structures (Hayami, 1990; Pasour, 1990). Historically, agribusiness has played an important role in the industrialisation of agriculture in developing countries for a number of reasons. Firstly, agribusiness acts as a primary and compelling force of change affecting the welfare of a large number of people within the vicinity of the operation. Secondly, agribusiness homogenises the process of commercialisation and industrialisation by applying internationally used practices and technologies. Finally, agribusiness takes the initial risk of investment and, generally, adopts a long term perspective as a participant in the agricultural sector of the country concerned (Karen, 1985; Williams, 1985). The industrialisation of agriculture can be achieved with large or small scale production sectors, or a combination of both, (Islam,1994) where backward linkages from agricultural processors to farmers act as an important force to influence higher levels of managed co-ordination (Von Braun & Kennedy, 1994). Processing agricultural products greatly expands the number of marketing opportunities available and the establishment of processing enterprises has been a central feature of the development plans of many developing countries, as well as international aid organisations, the Commonwealth Development Corporation and the World Bank (Little, 1994; Watts, 1994; Abbott, 1994).

The rapid growth of contracting in developing countries can be partially explained by the growing food dependence, the need to generate foreign exchange (Little & Watts, 1994) and as a means to industrialise and restructure agriculture (Goodman, Sorj & Wilkinson, 1987). Contracting is also seen as a vehicle to modernise traditional production systems (Vergopolous, 1985; Binswanger et al, 1993) and a means to counter missing or imperfect markets (Runsten & Key, 1996; Delgado, 1999). A lack of resources, as is typically the case in many developing countries, acts as a force to influence higher levels of co-ordination with the private sector in order to secure a range of inputs. The importance of investigating contracting, as a means to modernise the small farm sector in developing countries, is further illustrate' by the many economic reform programs that have drastically reduced public expenditure in the agricultural sector (Key and Runsten, 1999; Porter

& Phillips-Howard, 1997a; Eicher & Staatz, 1998). Furthermore, the deregulation of markets, combined with consumer awareness and product differentiation, has resulted in tighter quality specifications on world markets that can only be achieved in developing countries by a more integrated relationship between growers and processors. The international links of agribusiness, with regard to quality specifications, are thus, configured with the production practices of contracted growers in order to ensure acceptable standards (Williams, 1985; Watts, 1994; Eicher & Staatz, 1998).

2.5.3 Market Failure and Vertical Co-ordination

The new institutional economic theory provides a useful theoretical framework to further explain the existence, and theoretical rationale, of contract farming as a result of the problems of market failure and missing markets that cause uncertainty (asymmetric information) and influence transaction costs. The characteristics of agricultural produce often influence market requirements. Agricultural produce typically varies in terms of moisture and sugar content, size, shape, colour, flavour and the timing of delivery. These qualities, combined with characteristics like perishability, quality and production variability, influence transaction characteristics and the suitability of marketing outlets. Consumers that have particular preferences for these characteristics are normally prepared to pay a premium for these products. Spot markets, and the traditional price mechanism, are unable to satisfy consumer needs because complex quality requirements are not communicated to the entire supply chain (Key and Runsten, 1999; Grosh, 1994 and Minot, 1986). These problems are exacerbated by the existence of missing markets for information or imperfect-asymmetric information (Grosh, 1994; Key and Runsten, 1999). When there is asymmetric information between the buyer and the seller regarding the quality of the product, traditional markets are unable to co-ordinate the players and higher levels of managed co-ordination are required. In this respect, specification contracting is often cited as an institution that can replace the open market system with an institution that can configure the needs of consumers with producers, as a result of higher levels of integrator control over the farmer. Market internalisation explains restructuring along the vertical co-ordination continuum including the conglomerate and the multinational corporation (Pitelis, 1996). Table 2.1 illustrates how production

technology information, complex quality requirements and desired product characteristics are often not conveyed in the open market system, and when markets for this type of information do not exist, producers need to adopt some form of vertical co-ordination in order to acquire it (Minot, 1986; Delgado, 1999).

Table 2.1: Market failure and mechanisms of vertical co-ordination

Type of market failure and co-ordination problems which result	Circumstances under which failure occurs	Method by which institutions improve co-ordination	
		Contracting	Vertical Integration
<p>Production information asymmetry: Buyer knows significantly more than growers about the production technology</p> <ol style="list-style-type: none"> 1. Quality improvements could increase profitability for growers but growers lack technical know how 2. Better timing of supply could raise profitability but growers cannot change timing 3. Improved practices would be profitable but growers are not familiar with them 	<p>Crop has complex technology or is new to grower</p> <p>Quality varies, affects demand, is controllable.</p> <p>Timing of supply affects demand, is controllable</p> <p>Improved practices exist and are known by buyer</p>	<p>Management-providing contract which specifies practices to achieve quality, timing, and at least-cost production. Cost of extension covered in marketing good.</p>	<p>Internalised transfer of production information through company communication system</p>
<p>Marketing information asymmetry: buyer knows significantly more about markets than growers, e.g. future, seasonal patterns, quality needs.</p> <ol style="list-style-type: none"> 1. Quality improvements could increase profitability for growers but growers are not aware of premium on quality. 2. Better timing of supply could raise profitability but growers are not aware of timing requirements. 3. Although greater production is profitable, grower not sure of future price. 	<p>Crop has specialised or distant market, demand is relatively new.</p> <p>Complex quality requirements, especially exports</p> <p>Perishable good for processing or export.</p> <p>Volatile or new market, grower does not trust monopsonist.</p>	<p>Market-specification contract, which allows greater exchange of information regarding demand: quality timing and price.</p>	<p>Market information transferred within the integrated firm down to the field level</p>
<p>Imperfections in markets for credit, inputs and agricultural services. High transaction costs, growers unsure of profitability of inputs and services, lenders unsure of reliability of borrowers, policy-induced distortions which reduce input and credit availability.</p> <ol style="list-style-type: none"> 1. Quality is sub-optimal due to limited use of inputs and services. 2. Timing of supply is inappropriate or uncoordinated without inputs and services. 3. Sub-optimal output and excessive use of inputs and services. 	<p>Use of large amounts of inputs, particularly specialised inputs, is profitable for the commodity.</p> <p>Crop for which quality depends on inputs.</p> <p>Crop for which timing depends on inputs.</p> <p>Crop for which input use reduces production costs.</p>	<p>Resource-providing contract supplying inputs and credit. Repayment assured by contract to market product.</p>	<p>Credit and inputs provided internally within the firm.</p>

Source: Minot, 1986

Market failure, especially the unavailability of production credit, limits the adoption of new crops and restricts access to inputs, technology and information that are necessary to produce a timely and good quality product. This often results in many farmers not being able to produce a particular commodity unless the supply of credit and inputs is provided and contracting often acts as an institution to link farmers to an agribusiness partner in order to satisfy these requirements. Many of the commodities, grown under contract farming in developing countries, have long gestation periods and require substantial capital investment. In the light of the failure of capital markets in developing economies, contract farming can act as an institution to overcome capital market failure and thus becomes a form of interlocking factor market where the integrator supplies production material, inputs and credit and uses the future contracted, delivery of the crop as collateral. The influence of market failure on the structure of agricultural supply chains is further illustrated in Table 2.2. In conclusion, the institution of contracting has bridged missing markets in many developing countries to allow farmers the opportunity to produce high value non traditional crops (*cf.* Minot, 1986; Grosh, 1994 and Key and Runsten, 1999).

Table 2.2: Influence of market failures on agribusiness organisational strategies.

Market imperfections and transaction costs	Organisational strategy*
Imperfect credit market resulting in high costs of credit to growers – Agribusiness act as lender via contract	CF / VI
Imperfect insurance market and high PRICE risk – firm act as insurer via forward contract	CF / VI
Imperfect insurance market and high YIELD risk – firm unable to insure due to moral hazard problems	VI
Imperfect market for production information – technology, timing	CF / VI
High labour supervision costs due to crop requirements	CF / SM
Imperfect market for specialised inputs (machinery, seeds, etc)	CF / VI
Missing markets for family labour and land	CF / SM
Missing or thin local product markets	CF / VI

* CF = Contract farming; VI = Vertical integration; SM = Spot market
Adapted from Key and Runsten, 1999.

2.5.4 The Reasons for Contract Farming : A Summary

The reasons for contracting in agriculture often have a different focus in developed countries in comparison to those of developing countries. In developed countries there is always a profit motive (Baumol, 1997) and the levels of vertical co-ordination have increased because of technological economies, economies of scale, transactional economies or market imperfections (Royer, 1995). By contrast,

contracting in developing countries often incorporates a hybrid of social welfare and economic objectives (Glover, 1984; Glover, 1987; Little & Watts, 1994; Rehber, 1998). Contract farming in developing countries has been said to combine the advantages of a plantation system, where there are economies of scale in processing, better co-ordination of inputs and outputs and superior capabilities to monitor quality, with the advantages of smallholder production, where family labour is less costly and more productive (Glover, 1987). In this respect, contract farming has been suggested as a suitable way to modernise plantation type production systems that exist in many developing countries (Binswanger & Elgin, 1990; Hayami, 1998), as well as a way to transfer technology, commercialise rural farming and create a stable capitalist sector (Carney, 1994; Clapp, 1994). Simultaneously, the use of this institution can often promote the social and political goals of the state and contributes to the restructuring and industrialisation of agriculture (Goodman et al, 1987; Jaffee, 1994; Jackson & Cheater, 1994; Daddieh, 1994). Contracting has also emerged as an institutional response to missing or imperfect markets that include land, credit, insurance, marketing outlets, information, research and extension services, infrastructure, education and factor markets (Runsten & Key, 1996). Contract farming is also a particularly cost effective way to provide extension services which are estimated to reach only 30% to 40% of all farmers in developing countries (Jiggins, 1997; Rehber, 1998). Finally, the important contribution of agribusiness in developing country contracting schemes (Karen, 1985) is underlined by the role of the private sector as a source of inputs, credit, access to information, technology development, management talent and techniques that are often limited in the agricultural sector (Rudolph, 1999).

2.5.5 Advantages and Disadvantages of Contract Farming

2.5.5.1 The advantages to the producer

Contracting allows farmers to overcome the barriers of entry into many industrial crop and animal sectors. In addition, farmers entering into a contract farming arrangement usually gain access to information, technology, marketing channels, managerial skills, technical expertise, access to plant and equipment and patented production procedures (Carney, 1988; Rhodes, 1993; Glover, 1994; Clapp, 1994; Jackson & Cheater, 1994;

Little, 1994; Royer, 1995; Pasour, 1998; Delgado, 1999, Vellema, 2000). Contracting also improves access to capital and credit which are a major concern for most farmers and especially in developing countries. Farmers are, therefore, often prepared to sacrifice autonomy for the sake of increased family income (Hudson, 2000).

Contract farmers can often reduce production costs and increase production and income as a result of new technology and access to company inputs (Watts, 1994; Clapp, 1994). The reduction in cost is a result of technology, better collective decisions, reduced transport and marketing costs (Hennessy, 1996; Pasour, 1998), cheap inputs from the agribusiness partner and the ability to increase economies of scale (Royer, 1995). Technology, developed by agribusiness, is often an important factor that can reduce farmer cost (Pasour, 1998).

Contract farming reduces marketing risk and stabilises farmer income, and, in this sense, the agribusiness partner provides a form of insurance (Featherstone & Sherrick, 1992; Watts, 1994; Jackson & Cheater, 1994; Runsten & Key, 1996; Wolz et al, 1999; Flakerud & Klenow, 1999; Martin, 1999; Colchao, 2000; Sofranko et al, 2000). Marketing risk is reduced as a result of the agribusiness contract to purchase the output of the farmer and income is stabilised because of the repetitive nature of required deliveries and payment. At the same time contracts may simplify production and marketing decisions thus improving the farmer's effectiveness. The reduction of marketing risk through the demand assurance embodied in a contract is also appealing to farmers producing products where the markets are thin (Hudson, 2000).

Contract farmers can increase profit opportunities as a result of the opportunity to produce differentiated products (Pasour, 1998) and this institution allows developing country farmers to increase income as a result of diversifying out of traditional crops (Williams, 1985; Levin, 1988; Korovkin, 1992; Glover, 1994; Von Braun & Immink, 1994; Kennedy, 1994; Delgado, 1999; Coulter et al, 1999). Profit opportunities are increased because industrial-value added crops generate higher levels of profit than traditional food and open market crops. There is widespread evidence of an improvement in farmer income in developing countries as a result of contracting (Levin, 1988; Clapp, 1994;) although the effect of an increase in cost of production is sometimes not considered when evaluating the incidence of increased income (Little,

1994). Finally, the educational experience for the contract farmer interacting with an agribusiness partner can provide a platform for farmers in developing countries who are attempting to convert from subsistence to commercial farming (Glover, 1984; Glover, 1994; Sofranko et al, 2000).

2.5.5.2 Disadvantages to producers

The disadvantages of contract farming include the loss of farmer autonomy, increased production risk, the increased market power of agribusiness and the increased concentration of production that can lead to food security problems and the long term degradation of natural resources.

It is argued by several authors (Schrader, 1986; Currie & Ray, 1986; Levin, 1988; Korovkin, 1992; Morvaridi, 1995; Pasour, 1998; Rehber, 1998; Wolz et al, 1999; Colchao, 1999; Sofranko et al, 2000) that there is a universal loss of autonomy as farmers operate under a centralised control system and the contracted farmer is sometimes reduced to no more than hired labour (Clapp, 1994). Conversely, it can be argued that the independent farmer who has high levels of debt has much the same status (Watts, 1994). It is also argued that farmers experience disadvantages due to the high level of agribusiness manipulation of the contract, in terms of both the legal and tacit arrangements, (Glover, 1984; Glover, 1987; Porter & Howard, 1997). Contract farming, in many developing countries, has also led to the undermining of traditional structures and support systems (Korovkin, 1992) and is often associated with higher levels of family conflict (Watts, 1994).

A further disadvantage is that production risk can increase as a result of the need to meet the contractual obligations of the agribusiness partner (Royer, 1995). In this sense, risk can also increase as a result of the farmer investing in highly specific fixed production assets combined with the non assurance of a permanent contract or the chance that the integrator may default (Featherstone & Sherrick, 1992; Royer, 1995; Rehber, 1998). Production risk is increased specifically in developing countries as a result of diversifying out of traditional crops into non-traditional crops where the technology has not been developed locally and farmers have no personal experience of the crop (Runsten & Key, 1996).

Contracting universally increases land-use intensity and can lead to higher levels of pollution (Runsten & Key, 1996). Contract farming in developing countries can also result in decreased food production and increased food security problems as a result of concentrating on contract crops (Glover, 1994; Clapp, 1994; Morvaridi, 1995; Rehber, 1998).

Farmers incur additional cost as a result of the need to co-ordinate their production to suit agribusiness, as well as to liaise for the use of company inputs and services (Glover, 1987). It is also argued that prices paid to the contracted farmer are often less than spot market prices because of the reduction in marketing risk and the bargaining power of agribusiness. This reduction in income is especially problematic when limited supplies of food crops are produced or available on a regional basis (Watts, 1994). This situation might especially penalise a contracted farmer with high levels of capitalisation and managerial skills where an open market exists for the same crop (Runsten & Key, 1996; Rehber, 1998). Moreover, contract production often involves a high cost package of inputs that require financing facilities. The change in cost structure is especially marked in developing countries when farmers diversify out of traditional crops and can often negate the effect of increased revenue (Von Braun & Immink, 1994; Little, 1994).

2.5.5.3 Benefits to Agribusiness

The benefits to the agribusiness firm from a contract farming arrangement include the ability to control cost and quality and to reduce uncertainty with regard to the supply of a raw commodity. Cost is also reduced as a result of a more synchronised input-output processing function (Kilmer, 1986; D'Aveni & Ravenscroft, 1994; Azzam, 1996) and the cost and financing of production is passed on to the farmer (Schrader, 1986) without the loss of control (Rhodes, 1993). The company can ensure that the quality of large volumes of a raw commodity is better-controlled (King, 1992; Featherstone & Sherrick, 1992; Goodhue, 1999) and that the company technology is properly adopted by the producer (Leathers, 1999). Further advantages to the company are the ability to reduce the price paid for the raw commodity as a result of assuming the marketing risk of the contracted farmer and reducing transport costs

(Glover, 1984; Kumar, 1995). As a result of a relatively stronger bargaining position in the contractual arrangement, agribusiness is also able to influence favourable farmer commodity prices (Delgado, 1999). Contracting thus transfers the production risk to the farmer and eliminates the uncertainty of supply (Levin, 1988; Korovkin, 1992) and, because the quality of inputs is more consistent, reduces the risk of dissatisfied consumers (Pasour, 1998; Rehber, 1998; Wolz et al, 1999).

Advantages that are specific to agribusiness firms in developing countries can also include substantial political economy gains as a result of involvement in national development projects. Further advantages can accrue if government is a party to the contracting arrangement (Hayami, 1990; Binswanger et al, 1993; Watts, 1994; Little, 1994) or, alternatively, government provides favourable policy or subsidised credit (Clapp, 1994; Morvaridi, 1995). In conclusion, agribusiness is often precluded from purchasing land and contracting with local farmers can overcome this constraint. This happened in many parts of Latin America where multinational agribusiness firms used contract farming to secure a constant flow of commodities for their processing and export ventures (Runsten & Key, 1996).

2.5.5.4 The Disadvantages of Smallholder Contract Farming

A principal disadvantage frequently associated with contract farming in developing countries, is the high level of smallholder transaction costs. Transactions costs are often excessive because supply arrangements involve large numbers of small-scale farmers that are spatially dispersed, that require high levels of inputs and support and because smallholders make smaller, more frequent deliveries to agribusiness. (Key and Runsten, 1996). Excessive transactions costs are also generated as a result of the need to structure, administer and enforce a large number of contracts (Barry et al, 1992). Moreover, the agribusiness partner incurs additional supervision and monitoring costs in conjunction with the non cost effective delivery of services and inputs to farms that are small and spatially dispersed. In this regard, it is estimated that dealing with larger farmers, who make less use of inputs and deliver in greater volumes, costs less than dealing with smallholders (Runsten & Key, 1996; Key & Runsten, 1999). In this regard, Coulter et al (1999) refer to an example of horticultural

exporters in Zimbabwe who pay their smallholder suppliers 30% of the price per kilogram paid to the large-scale farmers in order to break even.

Agribusiness firms often prefer to deal with larger farmers in order to reduce transaction costs as well as for greater consistency of quality and supply. In the United States, for example, contract farms are significantly bigger than non-contract farms (Sofranko et al, 2000) and, if the raw commodity offers economies of scale and is not labour intensive, large farmers have a production advantage (Glover, 1984; Runsten & Key, 1996). Furthermore, the cost of procurement is reduced because larger producers are often located closer to highways, are quicker to respond to contracting opportunities (Von Braun & Immink, 1994) and more geographically concentrated than smaller farmers (Pasour, 1998). Large farmers, with higher levels of capitalisation and management skills, also reduce the risk of supply (Coulter et al, 1999) and have a better chance of success (Little & Watts, 1994). Larger farmers tend to be better educated, better able to adopt technology, are able to acquire specialised capital inputs more easily, require less inputs from agribusiness, require less monitoring and the larger volumes supplied reduce the cost of interaction. Furthermore, agribusiness dealings with small farmers in developing countries have often resulted in increased cost per capita with respect to administration, services rendered, transportation and communication. Moreover, smaller farmers borrow more, more frequently require the use of specialised equipment and require more intensive monitoring resulting in the increased cost per unit of raw commodity supplied. Finally, in a situation where contracting is not legally enforceable, the costs of screening potential contract farmers is a function of the number of farmers screened and, in this respect, larger farms cost proportionally less (Runsten & Key, 1996).

2.6 The lessons

A history of contract farming projects in developing countries indicates no clear picture of either success or failure. More evident is that multiple factors including country specific issues appear to influence the outcome of these relationships (Little & Watts; Runsten & Key, 1996). The reasons for the success or failure of contract farming are, thus, often a function of widely differing scenarios where the variables include history, the timing of the project, the attitudes of the participants, the choice of crop type, the choice of technology, the effect of political influences, the legal system and a range of other social and economic factors (Daddieh, 1994). In general it would appear that the success of contract farming schemes in developing countries is positively influenced by the presence of infrastructure, high levels of technology, a strong agricultural sector and sound agricultural and macro economic policy (Rehber, 1998). A checklist of key success factors for the design of small-scale farmer agribusiness contracting partnerships, primarily from the perspective of the agribusiness partner, includes the importance of commodity characteristics, the need to minimise transaction cost, the need to ensure that the co-ordination of supply and quality is optimised and the importance of contract enforcement.

2.6.1 Commodity Characteristics

The choice of crop is an important success factor. Crops selected in a contracting arrangement should have a high value per hectare and require post harvest facilities and processes that are not feasible for the farmer to invest and undertake given the economies of scale (Glover, 1984; Abbott, 1994). The production techniques and the natural conditions for the selected crop are an important influence on the viability of the contracting project. The correct matching of crop types to natural conditions, technology and plant processing facilities, results in the optimal use of the processing competencies (Abbott, 1994). The economic logic of contracting options is being increasingly evaluated in terms of how the raw commodity characteristics relate to the technology and labour requirements and some crop types display greater potential for contracting than others (Binswanger & Rosensweig, 1986; Jaffee, 1994; Delgado, 1999). In general, the supply of raw

commodities that are perishable and require high levels of technology inputs and tight quality specificity control, combined with a need for a high level of co-ordination with processing facilities, are better suited to contracting arrangements than the open market (Glover, 1984; Glover, 1987; Kumar, 1995; Runsten & Key, 1996; Rehber, 1998; Wolz et al, 1999).

Delgado (1999) stresses the importance of recognising that individual commodities have both production and marketing characteristics that will determine the optimal form of production organisation. This argument contributes to an additional perspective of explaining the structure of agricultural supply chains by suggesting that commodity characteristics influence transaction characteristics which, in turn, are best accommodated in specific governance forms. Table 2.3 summarises the relationship between commodity characteristics and the optimum form of the grower-processor supply chain. High levels of labour inputs in the growing operation favour smallholder organisation, whereas economies of scale and heavy investment requirements tend to promote large scale farming. Delgado, (1999) argues that many commodities can be efficiently supplied by small-scale farmers because high levels of costs and inputs only arise in the processing and marketing activities.

High levels of perishability tend to discourage independent small-scale operators because of the elevated risks involved in not having an assured market. Furthermore, a high value-to-weight ratio tends to be associated with greater risks in marketing and a more specialised clientele, leading to contractual or vertically integrated forms of organisation. The absence of domestic markets for export items makes it risky for independent farmers to produce outside a marketing structure that can handle these items. Finally, items such as cut flowers and vegetables, that are produced for the export market, tend to be characterised by economies of scale in marketing, as are other perishables that require a cold chain for handling where these economies of scale requirements tend to lock out independent small operators (Delgado, 1999).

Table 2.3: Commodity Characteristics and Contracting

Transaction Cost Factors	Presence of the factors at left is likely to favour the form of organisation indicated		
	Independent small operators	Contract institutions between small operators and processors/ marketers	Vertically integrated, more specialised large farms or plantations
Commodity characteristics in production:			
High labour inputs	Yes	Yes	No
Economies of scale in production	No	No	Yes
High returns to extension/ farm/research linkages	No	Yes	Yes
Complex purchased input use required	No	Yes	Yes
High investment requirements	No	No	Yes
Commodity characteristics in processing/marketing:			
Quality specificity	No	Yes	No
Perishability/need for co-ordination with processor	No	Yes	Yes
High value to weight	No	Yes	Yes
Principal market is export	No	Yes	Yes
High economies of scale in marketing	No	Yes	Yes

Source: Delgado (1999)

2.6.2 Transaction cost

Transaction cost can be explained as the cost incurred by the firm with respect to the acquisition of goods and services across technologically separate interfaces. Transaction cost can be influenced by historical legacies, the organisation structures of farmers, technology transfer and the level of mutual asset specificity.

Historical Legacies

The identification and understanding of the historical and institutional legacies that have shaped society, the property rights economics of a country and the agricultural sector, are a key element in the design of the contracting structure (Binswanger et al.

1993;Jaffee, 1994; Jackson & Cheater, 1994). The transaction costs of the contracting arrangement are a function of property rights economics and the prevailing institutional framework (Williamson, 2000). Complementing an understanding of how historical legacies have influenced the prevailing institutional framework, the assessment of the start up cost, the learning cost and the operating costs of acquiring the raw commodity from contracted farmers, are key elements that are required to address the viability of the contract farming arrangement. Growers would, mostly expect to be paid market related prices from the outset of the relationship (Runsten & Key, 1996). Furthermore, agribusiness start-up costs will be increased if they are responsible for the development of production and control systems for a new non traditional crop or animal commodity (Abbott, 1994).

Farmers' Associations

The formation of a farmers' association can be especially important in developing countries where contracting projects often involve large numbers of small-scale farmers who generate a differentially higher level of transaction cost (Little, 1994; Watts, 1994; Von Braun & Immink, 1994; Runsten & Key,1996). The formation of a farmers' association to represent small-scale farmer interests can significantly reduce agribusiness transaction costs. Farmer associations can be the most cost effective way for agribusiness to communicate with the contracted farmers and to deliver inputs and services (Von Braun & Immink, 1994; Kawagoe, 1994; Runsten & Key, 1996; Porter & Howard, 1997; Coulter et al, 1999). Farmer associations are a cost effective way for agribusiness to develop and transfer technology to large numbers of farmers where the high level of agribusiness control allied to the continuity of a long term contractual arrangement, allows the integrator to optimise this process (Abbott, 1994; Jiggins, 1997). The success of farmer associations in developing countries can be influenced by a number of factors. Generally, farmer associations have functioned better when they have a clear agenda and undertake a limited number of activities. Moreover, successful farmer associations in developing countries are limited in size, service the interests of a limited number of members and do not involve the excessive spatial dispersion of its members. These structures are also more likely to be successful if they are underpinned by existing local and national structures, if they have well maintained records and maintain a

strong democratic process that does not service the interest of a political party (Runsten & Key, 1996; Coulter et al, 1999). Despite the many advantages of establishing farmer associations, the contracted farmers often have a number of reservations with respect to being represented by this type of institution. These difficulties are influenced by the heterogeneous nature of the farmer, the farmer perception that the agribusiness partner will view the association as a threat to its authority and the presence of competitive fresh markets (Glover, 1987; Runsten & Key, 1996).

Technology Transfer

The cost and transferability of the product specific technology from agribusiness to the farmer is an essential success factor. (Glover, 1987; Rehber, 1998; Chakravarti, 1999). There is, sometimes an option of employing alternative technologies with respect to the production techniques of the grower. In the case where the commodity can be efficiently supplied using either labour intensive or capital intensive technologies, labour intensive technologies are sometimes more suited to the development needs of certain countries (Haggblade, 1987). Agribusiness can, furthermore, consider how the technology employed can influence the behaviour of the farmer and reduce opportunistic behaviour (Runsten & Key, 1996). The importance of the future cost and transferability of technology is especially important in a general trend of government withdrawal from agricultural research, development and transfer services which are being increasingly privatised (Runsten & Key, 1996; Pasour, 1998). Traditional state agricultural institutions are also losing their influence because of the wider range of services and research that have been privatised (Meliczek, 2000). This trend of government withdrawal is occurring concurrently with the globalisation of agricultural markets and amendments in international trading restrictions (Ling & Liebrand, 1995; Pasour, 1998; Rehber, 1998). Finally, costs of technology transfer should also consider legal and other costs related to the introduction of new technology. New technology could pose some serious health threats as many new products are, as yet, untested and international trade regulations, which require these products to be specifically labelled, could result in trading restrictions similar to the concerns of European Union countries (Pasour, 1998).

Mutual Asset Specificity

The degree to which mutual asset specificity can be designed into both parties' balance sheets is a key success factor that can ensure the continuity of the contracting arrangement and reduce the level of uncertainty. Mutual asset specificity will induce a higher level of interdependency between the contracting parties, reduce opportunistic behaviour and can be incorporated as a tool that raises the exit costs for both partners (Sporleder, 1992).

2.6.3 Co-ordination of Quality-Supply

The co-ordination of quality and quantity can be improved by well planned logistics, the careful identification of the participants, assessing the role of the state and by ensuring the provision of inputs.

Project Logistics

The design of the project logistics will provide key insights of the future transaction characteristics that will be generated by the grower-processor activities. The configuration of the location and concentration of growers, in relation to the processor, can be incorporated as a tool to optimise the spatial, logistical and communication factors that generate transaction costs. The logistics of the contracting arrangement are an important success factor that will contribute to reducing costs and maximising efficiency. The logistics of the contracting arrangement are an essential element of the financial viability of the project and numerous lessons in developing countries underline cases where project failure was influenced by the uneconomic location of projects that were designed, for social welfare motives, rather than on economic criteria (Glover, 1987; Runsten & Key, 1996; Rehber, 1998).

Identification of the Participants

Contract farming in developing countries often involves a range of participants in addition to the agribusiness firm and the contracted farmer. These parties, both

foreign or local, could include the host government, parastatals, international aid or lending agencies, the World Bank or the Commonwealth Development Corporation (Glover, 1994; Little & Watts, 1994). The integrator partner could also be a village level processor, or home level processing (Kawagoe, 1994; Von Braun & Immink, 1994) and growers can range from subsistence farmers to highly capitalised farmers (Little & Watts, 1994). Furthermore, a majority of contracting projects in Africa have involved the host government as a partner (Jaffee, 1994) and the incidence of pure private sector contracting is rare (Little, 1994). The issue of multiple partners in developing country contracting projects has been widely discussed as an important issue, where the high level of government involvement has frequently resulted in a conflict situation involving international donor organisations, the growers and the state (Daddieh, 1994).

The Role of the State

The role of the state needs to be identified at the design stage and, if the government is a partner, it should provide financial and infrastructure support at the very least (Goldsmith, 1985). The success of many contracting projects, especially in developing countries, is influenced by the role of the state. The success of the project can be influenced by the state with respect to policies that affect prices, the development and location of infrastructure and preferential contracting agreements. The government can develop policy that influences the price, development and allocation of inputs like water, fertilisers, research, extension, credit and land (Korovkin, 1992; Von Braun & Immink, 1994; Carney, 1994; Daddieh, 1994; Runsten & Key, 1996). Furthermore, the state can influence the acquisition of monopsony power (Clapp, 1994), the development of suitable markets and services (Jaffee, 1994), make improvements in infrastructure and transport and institute the development of rural financial institutions (Von Braun & Immink, 1994). The agribusiness partner, who in many cases undertakes a considerable investment, can ascertain if the state intends rewarding agribusiness for taking the risk of investing in the agricultural project concerned (Glover, 1994). Agribusiness could also consider the influence of the state as a mediator to reduce contract conflict, in addition to, its ability to regulate commodity and contract prices (Abbott, 1994; Kennedy, 1994). In conclusion, the cost structure of contracting projects can be profoundly affected by the state's reaction

to consumer group pressures that can influence changes in product regulations (Ling & Liebrand, 1995; Runsten & Key, 1996).

Smallholder Access to Inputs

The promotion of access to services and facilities in contracting in developing countries is a vital issue that can influence the success or failure of a project. Agribusiness can favourably influence the optimal supply of the raw commodity from the contracted farmer by investing in their producer partners. This investment should ensure that the farmer has access to the company's technological and associated services, to credit, to training, to the supply of seeds and fertiliser and access to irrigated water (Abbott, 1994). The parties involved in the promotion of these facilities could include the agribusiness integrator, the government, non government organisations and farmer co-operatives. The general ability of the farmer partner to perform in a contracting project in the modern sector, often requires a considerable investment. The chances of integrating successfully will be improved if the various participants undertake to promote the development of growers, including their degree of literacy, improving business skills and providing farmer links with institutions. Other provisions in support of contracting projects could include a facility to resolve conflicts, the development of infrastructure and the support of small-scale local services. Furthermore, the chances of functional contracting projects can be improved if the government and agribusiness ensure that input suppliers adapt their packages to suit smaller scale farming technologies, that viable communication systems exist and that energy and health systems are supplied (Karen, 1985; Coulter et al, 1999)

2.6.4 Contract Enforcement Lessons

The identification-evaluation of all the parties to the potential arrangement is important and it has been suggested that the screening of participants can contribute towards the success of the project (Royer, 1995). Other important factors that can enhance contract enforcement include the presence of competitive fresh markets, property rights economics, contractual dispute, the strength of agribusiness management and a range of socio-economic issues.

Competitive Fresh Markets

The success or failure of contracting in developing countries can often be attributed to the presence or absence of a competitive fresh market allied to the strength of the legal system. A competitive fresh market can result in a serious disruption to input supplies where contracted farmers choose to sell to the fresh market instead of the agribusiness partner, who is often unable to legally enforce contractual obligations (Abbott, 1994 ;Runsten & Key, 1996; Watts, 1994; Jaffee, 1994; Rehber, 1998). The risk of non supply of the intermediate product can be reduced in a situation like this if the farmer does not have the facilities to harvest and transport the crop to market and agribusiness provides these services as part of the contract (Runsten & Key, 1996). The agribusiness partner should, therefore, ensure that the commodity can only be sold in the closed market conditions of the contracting arrangement and that the contracted farmer is precluded from selling to alternative markets (Runsten & Key, 1996).

Property Rights

The ability to define and enforce property rights is an important success factor in contracting. The strength of the judicial system, especially in some developing countries is a key factor that can contribute to the success or failure of a contracting project (Clapp, 1994; Runsten & Key, 1996; Key & Runsten, 1999). In Mexico and Africa, the level of default, combined with the inability to sue defaulting producers, has resulted in the failure of many projects involving contracted small-scale farmers (Runsten & Key, 1996; Rehber, 1998; Coulter et al, 1999). Contracting projects, in general, are more successful if both the legal and tacit arrangements are complied with and both parties attempt to promote the relationship (Watts, 1994).

Contract Dispute

Contractual disputes are considered to be one of the main reasons for the failure of contract farming in developing countries where there is a need to develop an arbitration system that involves representation of small-scale growers by the government, a farmer association or a non government organisation (Little, 1994;

Watts, 1994; Little & Watts, 1994; Runsten & Key, 1996; Rehber, 1998). The presence of mutual trust can act as an informal mechanism to improve contract enforcement by securing lower levels of opportunism and higher levels of contract enforcement (Gow et al, 1999; Fafchamps & Minten, 1999).

The farmers' perception and trust of the agribusiness partner is a key factor influencing the relationship between the parties and the agribusiness should be aware of, and consider, the effects of the manipulation of the legal and tacit arrangements of the relationship (Glover, 1984; Levin, 1988; Currie & Ray, 1986; Porter & Phillips-Howard, 1997a; 1997b; Fafchamps & Minten, 1999; Delgado, 1999; Tregurtha & Vink, 1999). Contract farming in developing countries has been characterised by the perceived high levels of company manipulation, farmer distrust of the contractual relationship, a perception of a loss of autonomy and a degree of labour exploitation involving family members (Glover, 1987; Watts, 1994; Jaffee, 1994; Clapp, 1994; Porter & Phillips-Howard, 1997a). In this regard the company manipulation of the weight and quality of farmer supply, the charges for agribusiness services and inputs rendered to the farmer and the payment for the raw commodity supplied, are often a widespread problem for small-scale farmers (Glover, 1987; Abbott, 1994; Runsten & Key, 1996). The joint monitoring of the quality of the raw commodity supplied is suggested as a measure to reduce distrust, where a mechanism to monitor quality could include both company officials and a farmer representative present (Delgado, 1999). Furthermore, agribusiness can favourably influence the farmers' trust in the company by ensuring that the growers are happy with the remuneration system that reflects market prices. This is often difficult, however, because the company pays the contracted farmer before the processing and sale of the manufactured product (Pasour, 1998; Wolz et al, 1999). Contract farming relationships, moreover, often have a better chance of success if the contracted farmers have had a previous history of interaction with agribusiness. The agribusiness partner can further reduce conflict by allowing farmers to have alternative production possibilities to reduce production risk and satisfy food security requirements (Glover, 1994; Porter & Phillips-Howard, 1997b). In conclusion, contractual disputes with large numbers of growers are often difficult and costly to enforce, and the success or failure of the relationship is more efficiently influenced by the mutual interest of the parties involved (Babb, 1992; Abbott, 1994).

Agribusiness Management

The strength of the agribusiness management of the growers' activities is an important influence on the success or failure of projects (Abbott, 1994; McComb et al, 1994 ; Little, 1994) and many projects fail in developing countries because of the mismanagement of grower activities (Watts, 1994). The staff who interface with contract farmers have a major impact on the efficiency of the contracting project. In this regard, the agribusiness partner could ensure that employees, who act as the front line of the company, are local citizens who have an intimate knowledge of local farmers and, can act significantly to reduce contract related conflict (Porter & Phillips-Howard, 1997b; Delgado, 1999; Vellema, 2000). Local managers are better able to explain and interpret company financial statements to the farmers and the company can also consider preparing financial statements in the language of the contracted farmers (Porter & Phillips-Howard, 1997b) . A further key issue in the management of many contracting arrangements, is the control of land and water. If the land and water are privately owned by the contracted farmers, then the decision making autonomy of farmers is not affected, however, if either the land or water, or both, are under company control, it is important that both parties understand and follow the contractual stipulations and that the agribusiness partner interfaces with growers to ensure a minimum of conflict (Levin, 1988; Porter & Phillips-Howard, 1997a; 1997b).

Socio-economic Factors

High levels of contract conflict have been a feature of many smallholder contract farming projects as a result of the exploitation of family female labour (Little, 1994; Watts; 1994). The role of women in developing country farming, combined with related family conflict, is an important issue affecting success because of the high level of labour inputs supplied by women (Little & Watts, 1994; Porter & Phillips-Howard, 1997a;1997b). Contract farming, in developing countries can result in the restructuring of household labour and this issue will need to be addressed as agriculture is modernised in these countries (Carney, 1988). The availability of low cost labour, in the grower family, is often a principal reason that induces agribusiness to select contracting as a means to secure the intermediate product.

Labour is often cited as a critical limiting factor in developing countries where the burden falls on female household members to respond to an intensification of labour requirements. This increased burden, however, can often lead to increased family conflict, and, an increase in subversive behaviour that can affect the success of the respective project (Carney, 1988; Runsten & Key, 1996) because the interests of the various family members in the farm household may be divergent (Niemeijer & Hoorweg, 1994) Finally, it is important to ensure that payment for the raw commodity produced is directed towards the person in the farmer household, male or female, who is responsible for the contracting workload (Glover, 1994; Delgado, 1999). In reality, however, this can still be difficult where the household head is a woman who cannot legally acquire title to land (Porter & Phillips-Howard, 1997a; 1997b) and male family members often retain contract payments without informing other family members of the amount nor including them in household income decisions (Williams, 1985).

2.6.5 The Lessons of Small-Scale Supply

The choice of large scale versus small-scale suppliers can have a fundamental influence on the level of agribusiness transaction costs. The economic viability of contracting projects is often adversely affected by the presence of large numbers of small-scale growers. Increased farm size is a feature of contracting in developed countries where contract farms are significantly bigger than non contract farms. The reason for this is primarily an agribusiness need for the scale and continuity of supply and economies of scale for the farmer (Sofranko et al, 2000). A history of contracting reveals that agribusiness integrators prefer to deal with larger farmers in both developed and developing countries in order to reduce transaction costs and because of the need for greater consistency of quality and supply (Runsten & Key, 1996; Key & Runsten, 1999). The choice of supplier is often determined by crop type. Crops that promote mechanisation and economies of scale often favour larger producers who can acquire capital inputs on a more cost effective basis (Rehber, 1998; Delgado, 1999). Conversely, a crop that requires low levels of mechanisation and high labour inputs, may be better suited to small-scale farmers who have a lower opportunity cost of labour. Small-scale farmers, in this regard, have higher levels of personal incentives than large producers who are often faced with incremental

supervision costs similar to those of plantation type farming systems (Watts, 1994; Haggblade, 1987; Runsten & Key, 1996).

Agribusiness dealings with small-scale farmers in developing countries have often resulted in increased cost per capita with respect to the administration requirements of small-scale growers, the increased level of services rendered and the incremental transportation and communication costs incurred. Small-scale farmers borrow more, more frequently require the use of specialised equipment, require more intensive monitoring and they make more frequent deliveries of smaller quantities to the integrator resulting in increased cost per unit of the raw commodity supplied (Little, 1994; Watts, 1994; Runsten & Key, 1996).

2.6.6 Contracting Lessons in South Africa

The legacy of apartheid and its effect on black-white relations remains a vital consideration with respect to the establishment of contract farming in South Africa where small-scale farmers, mostly, see contracting as a means to participate in high value crop production, as well as secure access to inputs like credit and fertiliser (Porter & Howard, 1997a; 1997b). The development of trust between agribusiness partners and contracted growers, especially emergent small-scale black farmers, will, therefore, be a vital pre-requisite to ensure the success of future vertical co-ordination partnerships in South African agriculture. A lack of trust has been demonstrated to increase transaction costs in the wine industry (Weatherspoon et al, 1999) whilst the development of trust in the beverage industry has reduced the transaction cost of small-scale farmer barley supply (Tregurtha & Vink, 1999). Other issues that have emerged in South African small-scale contracting partnerships are the unequal power relationship between agribusiness and the farmers (Mbongwa et al, 1996; Machethe et al, 1997), the potential problems over company control of water, the leading role in production played by women and the low level of food self sufficiency in the farmer household because of family labour concentrating on contract production (Porter & Howard, 1997a; 1997b).

The issue of property rights in South Africa will be especially important with respect to the enforcement of contracting arrangements. Many small-scale farmers, in the

former homeland areas, have various rights of access to land as defined by Proclamation R 188 of 1969. Land access is usually by virtue of membership of a community and not through sale, lease or rent. In many instances, only men are entitled to inherit land rights and individuals do not own their residential and arable allotments, but rather are allowed the right of occupation and cultivation as stipulated by the tribal authorities. According to some surveys, only 15% of land in the former homelands is held on freehold or conditional title (Levin, 1988; Kirsten & Van Zyl, 1996). African freehold, moreover, rarely belongs to a single entrepreneur but rather to the extended family or a syndicate (Van Zyl et al, 1996). Although several of the Native Lands Acts that specifically segregated land on a racial basis and restricted Africans to certain types of land tenure, have been set aside in the 1990's, land reform and the transformation of the agricultural sector have been slow (Van Zyl & Kirsten, 1999).

2.6.7 Miscellaneous Lessons and Issues

The volatility of world prices with respect to raw commodities and finished products can profoundly affect the viability of the relationship for both parties in a contracting arrangement and the agribusiness needs to ensure that the continuity of supply is maintained in times of depressed prices by setting a contract price that is acceptable to the farmer (Levin, 1988; Watts, 1994; Abbott, 1994; Jackson & Cheater, 1994; Little, 1994). Price fluctuations, outside the control of the farmer, can result in a situation where the farmer is faced with a cost-price squeeze, namely, higher production costs and lower prices (Glover, 1987) and adverse prices have been a major cause of project failure in developing countries (Little, 1994; Watts, 1994).

Increased levels of contracting have been associated with the concentration of production in both developed and developing countries and increased output per farm has often resulted in higher levels of pollution and land degradation (Pasour, 1998; Rehber, 1998). Contract farming also discourages the production of food crops in developing countries and promotes mono-culture systems. These systems are often regarded as non sustainable, as contributing to higher levels of natural resource degradation and elevating food security problems (Glover, 1984; Kennedy,

1994 ; Wolz et al, 1999). Conversely, it has been suggested that contracted farmers in developing countries use a higher proportion of their land than traditional farmers and that food production is not jeopardised (Kennedy, 1994). Increasing levels of global attention are being placed on the impact of pollution and degradation in both developed and developing countries. In this respect, it has been suggested that the lack of a strong legal system, typical of many developing countries, can further exacerbate the problem of land degradation (Runsten & Key, 1996).

It has been speculated that the market price of raw commodities could become less public and less reliable as vertical integration increases and open market transactions decrease. Open market transactions are increasingly being replaced by closed market, private transactions between producers and integrators within the same supply chain. (Pritchett & Liu, 1998). Finally, increased levels of vertical integration may contribute to a reduction in competition in the market place for both producer inputs and outputs and it has been suggested that farmers will lose their bargaining power when traditional markets cease to exist (Pasour, 1998).

2.7 Summary and Conclusion

This chapter has evaluated the institution of contract farming and the research questions against the backdrop of the international experience of contracting in both developed and developing countries. The chapter firstly developed a definition of contracting, before describing some of the different types of contractual relationships that can exist. A brief history of contracting was then examined before exploring some of the forces that have influenced the increased levels of vertical co-ordination in both developed and developing countries. The increased incidence of contract farming was then explained as a result of the effect of missing-imperfect markets in the agricultural sector, before a general summary of reasons was assembled to explain why the industrialisation of agriculture has resulted in increased levels of vertical co-ordination. The advantages and disadvantages of contracting were outlined in order to ensure that the lessons developed in the chapter could be related to tangible economic benefits or cost.

The chapter concluded by developing a series of lessons that could be used as a basis to complement the design of smallholder contracting models. These lessons include the importance of commodity characteristics, the management of transaction cost, the co-ordination of supply and quality and contract enforcement. The design of contracting arrangements is more likely to be successful if agribusiness appreciates both their own and the small-scale farmer motivation for entering into a contract relationship. The lessons, in conjunction with other issues, identify pertinent data that can be addressed in the case studies conducted in Chapters Five and Six, as well as contribute to the design of a smallholder contracting model in Chapter Seven.