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Unlocking the Potential of Contract Farming: Lessons from Ghana

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Executive summary

There have been many reviews and evaluations of contract farming and its usefulness for the small farmer in Africa. Some see contractual arrangements as disadvantageous to farmers, while others see them as beneficial. Despite these debates, contract farming is likely to continue as a means of keeping small farmers involved in markets. It is therefore important to learn from past experiences in order to improve the working of the system as a whole.

This paper analyses sorghum contract farming in north-east Ghana in order to explore ways of making such arrangements viable for small farmers. The analysis draws on the convergence of sciences approach, which sees both science and social relations (interactions among the relevant stakeholders) as important for developing small farmer-relevant agricultural innovations (technology, procedures, new forms of organisation). The study reveals that the failure and problems encountered in this particular contracting scheme were both technical and institutional. The technical issues were a combination of pest problems, the environment and the sorghum variety chosen. The institutional issues involved the contractual arrangements and relations between the contracting parties. The authors argue that if contracts are to be fair, they must allow for compensation, contingencies and production risks. But scientific knowledge is required in order to adequately incorporate these elements.

The authors suggest technological and institutional changes to improve contract farming. Science is needed to tackle specific technical problems likely to be faced by farmers; these should then become a basis for negotiating beneficial contract terms for all parties. They also suggest that while farmers could improve their negotiating power by forming organisations, governments should also strengthen the institutional and legal framework to protect small farmers, who are often the weaker of the contracting parties.

Unlocking the Potential of Contract Farming: Lessons from Ghana

Comfort Kudadjie-Freeman, Paul Richards and Paul C. Struik

Introduction

Contract farming is considered by many as a crucial means for industrialising agriculture. It is regarded as a strategy for agricultural transformation in developing countries because it has the potential to solve agricultural marketing problems (Little and Watts, 1994). Although there are different types, contract farming usually involves a central processing or exporting unit which buys growers' harvest. The terms are arranged through contracts; the grower provides land, labour and tools; while the purchasing unit provides credit and technical advice (Kirsten and Sartorious, 2002). The contract usually specifies the price, quantity and quality of produce, production conditions and delivery and grading requirements (Runsten and Key, 1996).

Many reviews and evaluations of contract farming in Africa have been critical. In many schemes contractual arrangements have been seen as disadvantageous to small farmers, and contract farming seen as just another means of exploitation that forces farmers to labour both extensively and intensively and leads to a loss of autonomy (Carney and Watts, 1990; Sofranko *et al*., 2000). Others hold the view that contract farming is a vehicle for modernisation, as it gives small farmers access to modern technologies, quality control, marketing and other services (World Bank, 1989; da Silva, 2005; Bijman, 2008). While the debate goes on, contract farming is likely to continue as a vehicle for keeping small farmers involved in markets. The aim of this paper is to learn from contract farming experiences in order to suggest ways to make the system more beneficial for farmers.

Methodology: the convergence of sciences approach

Convergence of sciences (CoS) is an agricultural research approach based on the understanding that agricultural innovations (i.e. technology, procedures, new forms of organisation and new ways of interacting) are generated through strong multi-stakeholder participation in agricultural development (Roling *et al*., 2004). The CoS approach, like other participatory approaches (e.g. participatory technology development), sees farmers and local communities as active partners in a problem-solving process. Although some past approaches have recognised the importance of socio-organisational systems such as input supply, credit systems, marketing and land tenure, these systems tend to be considered as "external". The unique aspect of CoS is that it includes and treats institutions and social relations as integral components of innovations, thereby altering the boundaries and conditions that affect the space for change (van Huis *et al*., 2007). The principles underlying convergence of sciences are also applicable to other areas of development where strong multi-stakeholder interactions are required to stimulate useful innovations.

This paper examines a new contract farming experience involving sorghum production in Ghana. The aim of the research was to look at the prospects for convergence of sciences under market-driven conditions in an African setting. Using narratives from the stakeholders who participated in the contract, we have analysed the technical and institutional problems by drawing on some principles of the convergence of sciences approach. The analysis provides some guidance on key issues to be addressed in improving conditions for growers in a contract farming scheme. At the end we suggest some policy recommendations for making contract farming fairer and more viable.

Case study background

Case study site

In northern Ghana, sorghum is an important staple cultivated by small farmers and mainly consumed as food and local beer. The Guinness sorghum project began in 2001, in which Guinness Ghana Brewery (GGB) set out to buy Kapaala (an improved variety of sorghum) from farmers using a contract farming out-grower scheme. The potential for using sorghum in the brewery industry as a partial replacement for barley malt had been largely untapped in Ghana for over two decades. One important objective of the Guinness project was to help rural farmers in the poor areas of northern Ghana raise their incomes through sorghum production. Garu-Tempane Municipality, the case study site, is typical of these poor areas, being located in north-east Ghana, one of the most resource-poor and poverty stricken areas of the country.

For this study we chose to focus on (i) the Presbyterian Agricultural Station (PAS), one of the nucleus farm organisations involved in the out-grower scheme in Garu-Tempane; and (ii) the farmer groups it assists. We used a variety of data sources, such as individual and group interviews, documents and archival records on correspondence, reports and minutes of arranged meetings to ensure accuracy of interpretation and to triangulate the accounts of events from the stakeholders involved.

Stakeholders

The stakeholders involved in the contract were farmer groups, senior management and field workers of PAS (an agricultural station), a manager/co-ordinator of the scheme working for Technoserve-Ghana (a non-governmental organisation), scientists from a research organisation (SARI), and a representative of the brewery (see Figure 1):

- GGB is a multinational brewery company in Ghana which produces alcoholic and non-alcoholic beverages using barley as its main raw material. More recently, to reduce its import bill, it began to locally source sorghum of good malting quality as a partial replacement for barley. GGB contracted TNS/GH to supply 500 metric tonnes of Kapaala sorghum in the 2003 season.
- Technoserve-Ghana (TNS/GH) has worked in Ghana for over 20 years with farmer-based organisations in production, processing and marketing. Its role in the sorghum project was to co-ordinate farmer organisations which had the capacity to manage an out-grower scheme. TNS helped them with land preparation, input supply and delivery, provision of input credit, supervision and collection of produce at harvest. Other roles were to pre-finance production, monitor production, conduct post harvest cleaning and deliver sorghum to GGB.
- PAS is an agricultural station providing extension services to the farming communities in and around Garu. Its role in the contract scheme was to register farmers to produce Kapaala grain, deliver inputs, monitor and ensure proper field management practices, and collect/assemble grain after harvest.
- The farmer groups registered for Kapaala production were established between 4-10 years ago. Their average land holdings were 2.5 hectares. Group sizes ranged from six to fifteen members, usually about 80% men and 20% women. Under this contract, farmers agreed to produce, harvest and make grain available on an individual or group basis at the end of the season.
- SARI is the national agricultural research for the savanna zone of Ghana and has released several sorghum varieties, including Kapaala, the variety which GGB chose for brewing.

Findings

Stakeholders' narratives

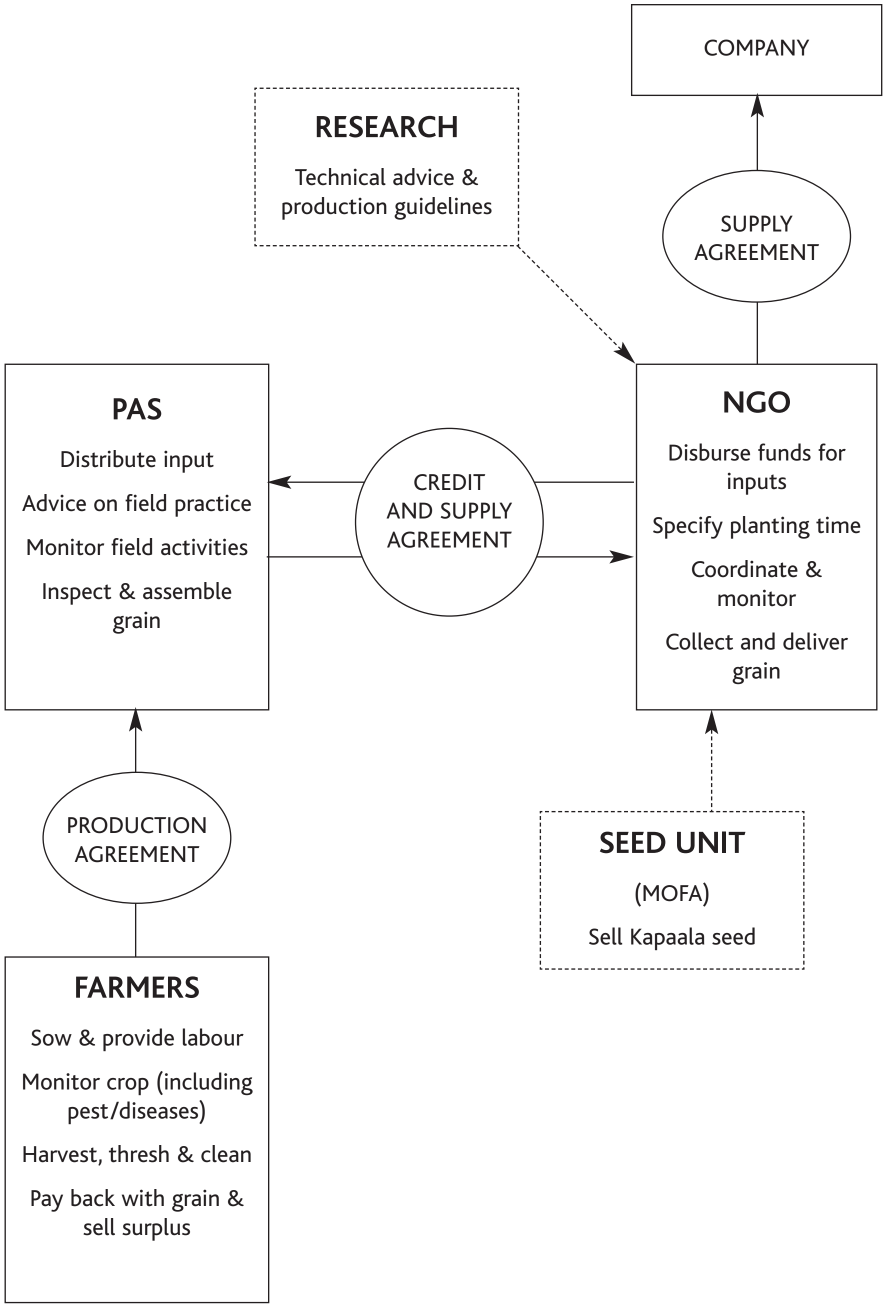
Here we present the views of the different stakeholders on the nature of their involvement in the contract and on what went wrong.

TNS/GH

After contracting PAS to manage production of Kapaala, TNS/GH prepared a crop budget with farmer representatives and representatives from the Ministry of Food and Agriculture (MOFA). Based on this budget the price to be paid by GGB for the grain was fixed at 0.29 GH cedis per kg (US$0.30), which was higher than the prevailing market price. TNS/GH organised a training workshop for farmers and other relevant stakeholders participating in the scheme. Based on a production guide for Kapaala prepared by SARI, TNS/GH instructed farmers to sow the certified seeds obtained from seed

FIGURE 1. STAKEHOLDER, ROLES, TASKS AND RELATIONSHIPS UNDER THE SORGHUM CONTRACT

(Note: stakeholders in dotted boxes are not part of the contract)



growers in the Northern and Upper West regions between the end of June to mid-July. Apparently the choice of this sowing time was informed by field trials prior to the release of the variety. Efforts were made to ensure that this directive was adhered to. This period was however later than farmers' normal sowing time. Germination was poor, with more than half of the seed experiencing between 0-30% germination rates. Many farmers replanted about three times while others purchased new seed. During its monitoring activities TNS/GH found that during the seed formation stage the sorghum farms were attacked by insects and birds. Furthermore, the rains, which normally end by mid-October, continued later that year, making harvesting and drying difficult and creating a conducive environment for grain moulds. Crop yields were far lower than the estimated target (only 5.65 metric tonnes out of a total anticipated target of 30 metric tonnes). At the end of the season farmers were unable to repay their loans even after selling all the grain they produced.

PAS

In 2003 PAS entered into an agreement with TNS to register and manage farmer groups to produce Kapaala sorghum during the cropping season of May to September (Figure 1). After farmers were registered, TNS sold four kilos of certified seed per 0.4 ha to the farmers and supplied two bags of NPK chemical fertiliser and a bag of ammonium sulphate fertiliser to each farmer or farmer group on credit. These inputs were to be paid back at 3% interest after harvest by deducting the costs from the income from the total grain produced. It was agreed with farmers that payment would be made to them after the grain was delivered to GGB. PAS was told by TNS that sowing should be done between the middle and end of June and they ensured that farmers stuck to this by monitoring their fields. Apart from the usual agronomic practice for sorghum, no specialised training was given to farmers on growing Kapaala.

After the failure of this first attempt many farmers were in debt and were forced to continue production for another year in order to pay back their loans. Some farmers suggested to PAS that the variety should be changed because it was too susceptible to insect pests, birds and moulds. They suggested another variety known as Dorado. Dorado is a variety grown by farmers, and is similar to Kapaala in its agronomic requirements, growth and grain characteristics. Dorado has a more open panicle with slightly harder grains and reddish glumes than Kapaala, but it is difficult to distinguish between the varieties when they are threshed.

This suggestion was passed on to TNS, who later collected Dorado grain samples for GGB to test for suitability. Most farmers switched to Dorado in the second year when GGB agreed to use it. TNS had to buy seeds from any farmer who had Dorado or Kapaala, and after cleaning and sorting them, resold them to farmers who needed seeds. Unlike the previous year, farmers received no inputs or assistance; however they were allowed to choose their own time to sow the two varieties. There was some improvement in yields, but several farmers eventually sold their grain on the open market because they needed cash badly and could not wait for PAS to sell the grain to GGB.

The researchers (SARI)

SARI gave TNS sample crop budgets for sorghum to help them determine prices. SARI also provided technical advice to TNS and produced foundation seed from which certified seed could be produced and distributed to growers involved in the scheme. Later in June TNS held a training workshop for farmers, some scientists from SARI, representatives of the Ghana seed unit, MOFA and members of the Northern Sector Seeds Growers' Association. The seed growers and representatives of the Ghana seed unit were present because of their role in supplying certified seed for the first year of the Kapaala grain production. Seed growers produce certified seed from foundation seed for farmers. At the workshop TNS spelt out the criteria for selecting farmers, indicating that they would be limited to two regions. SARI, however, advised that a third region should be included because its climate was best suited to Kapaala production. TNS did not take this advice despite appeals to reconsider, stating that as an organisation well versed in business matters, they had their own strategy and criteria for selecting who would participate. SARI therefore found their role to be unclear and undefined in the TNS strategy for contracting farmers for the sorghum project. Apart from providing a production manual for Kapaala and supplying foundation seed SARI had no further involvement in the project. They later attributed the failure of the project to TNS's refusal to heed technical advice.

The farmers

The farmers were registered by PAS to produce Kapaala in 2003 when they were informed about GGB's demand for sorghum. They were also told by PAS that 4 kg of seed per 0.4 hectare would be sold on credit to each farmer or group of farmers to be grown on an individual or group basis. Two bags of NPK and a bag of ammonium sulphate would be given per 0.4 ha on loan. Farmers were also told that after harvest the sorghum would be bought from them at 0.24GH cedis per kg. Farmers who agreed to produce sorghum on these terms were duly registered. However, no written contract was negotiated or prepared with the farmers.

Usually farmers plant their early maturing sorghum in May or by the first week in June. However they were told by PAS that Kapaala required late planting (between middle and end of June). Most farmers sowed by the last week of June, though due to dry spells some farmers even delayed planting until the first or second week in July. However, even farmers who sowed at the prescribed time still considered this to be too late for an early variety. After sowing many found that germination was poor and they had to resow or refill. They applied the inputs at the recommended times and rate but just before the flowers emerged some drought was experienced. At flowering insect pests attacked the crops. Six out of the nine farmer groups reported sorghum midge (*Contarinia sorghicola*) and head bugs (*Eurystylus oldi Poppius*). Spittle bugs (*Aphrophora spp.*) were also reported by some farmers (Box 1).

BOX 1. FARMERS' REPORTS
PAS gave us the seed and told us to sow at the end of June, but it failed completely (Yabrago No. 1 community). **The seeds arrived first week of July and we sowed them but there was no rain. Those of us with enough seed re-sowed and others only thinned and transplanted (Biambogo & Yabrago communities).** **There were insects; red ones and also black ones when the crops flowered. There were no chemicals to spray them with, no seeds were formed on the heads and instead we had to use them for firewood or the children chewed them like sugarcane (Yabrago community).** **Another problem was the insects. They were red in colour, all over the field and came when the crops were flowering. Later we did not find any seeds on the heads (Biambogo community).** **We have not been able to pay the debt and PAS told us that this year's harvest will be used to pay for it (Kpatia, Yabrago No.1)** **None of us were able to sell any grain to PAS last year and all the group members still owe (Kpatia, Yabrago No.1).**

Factors contributing to the failure

There were both technical and institutional reasons for the failure of the contract scheme's first year. The technical component was a combination of pest problems, the environment, the sorghum variety and the timing of the sowing. The insect pests (based on the narratives of farmers, PAS and TNS) are all panicle pests of sorghum. Of the three that were mentioned the head bug and the midge are important sorghum pests in West Africa (Ajayi *et al*., 2001; Harris, 1961; Ratnadass & Ajayi, 1995) and especially in Ghana (Bowden, 1966; Tanzubil *et al*., 2005).

Along with the technological problems, the contractual arrangement itself also presented a problem in terms of failing to compensate farmers for crop failure or allowing for risk. In this section we analyse some of these factors in more detail.

Pests

The sorghum midge (*Contarinia sorghicola*)

The midge is considered the most important of all the insect pests. Sorghum grain is injured when the orange-coloured midges lay eggs in the flowering spikelets. The larvae feed on the developing spikelets, prevent grain set and cause the spikelet to remain dry and empty. The short development cycle of the midge (14-16 days) means that as many as 9-12 generations can be completed in a single growing season, leading to a build-up of a large midge population. This is exacerbated when flowering times are extended by a wide range of planting dates. Temperature and humidity are very important factors in the phenology of the midge and its infestation levels (Bowden, 1965). In north-east Ghana, the midge larvae go into diapause by early to late November when there is a sharp drop in ambient temperatures and relative humidity is about 60%. By this time only a few early adult flies are found but the mass emergence of the adults occurs when temperatures are high (25-29^{o}C) and accompanied by high relative humidity (94-100%). Bowden also found that when main flowering is early in the season, midge attack is very low (< 5%) or non-existent but as flowering is delayed, the percentage of spikelets infested rises sharply. Therefore, in order to avoid the emergence of adults from diapause, causing economic level of damage to sorghum, main flowering should be complete by late August or latest by early September in north-east Ghana. One conclusion by Bowden was that, in Ghana, midge only become serious when the crop is delayed. This implies that planting should be early – i.e. the usual sowing time of May/June in north-east Ghana. In north-east Ghana as a whole, labour shortages can delay sowing and harvesting. Farmers also often indicated that being unable to access labour and bullocks for ploughing were important constraints to sorghum production and in farming in general (Kudadjie *et al*., 2004).

Head bugs (*Eurystylus oldi Poppius*)

Head bugs are the most important of all mirids that feed on sorghum grain in West and Central Africa. Female adults deposit their eggs on the panicles soon after booting and both adults and nymphs suck sap from the developing grain, causing it to shrink and thereby reduce yield. The bugs are often associated with grain moulds which reduce grain quality. In West and Central Africa, Ajayi *et al*. (2001) found that head bug abundance is lower on landraces (varieties developed by farmers) than on improved cultivars. This is because most landraces have long glumes which cover the grains until the endosperm becomes hard enough to resist oviposition and feeding by head bugs. In contrast, many improved varieties of sorghum in West and Central Africa, like Kapaala, have compact panicles which create a relatively stable and humid micro-climate for the bugs. A recent study by Tanzubil *et al*. (2005) on the damage potential of mirid bugs infesting sorghum panicles of Kapaala, Kobori (a local variety) and a head bug-resistant variety from ICRISAT showed that although all three suffered significant losses in grain yield and viability, Kapaala suffered the highest losses and the most shrivelling.

The susceptibility of Kapaala to head bug infestation was, however, already known to breeders and a hybridisation programme was started to open up the panicle of Kapaala (Kudadjie *et al*., 2004). The variety is also susceptible to precocious germination (pre-harvest sprouting). This problem arises especially when grain maturation occurs in rainy weather, leading to loss of seed viability and enhancing the development of grain moulds. Sorghum genotypes are known to vary in susceptibility to pre-harvest sprouting (Maiti *et al*., 1985). Therefore the TNS report about the occurrence of the moulds suggests a potential problem for farmers and ultimately for GGB. There is a clear case here for introducing some science into the institutional environment of contract farming.

From the above discussions it is clear that a combination of pests, environmental conditions and perhaps genotype contributed to the crop failure. This makes Kapaala production on a commercial scale a potential risky business.

The contractual arrangement

The contract reflects the relationships among the different stakeholders and usually involves an agreement between the parties (Little & Watts, 1994). However, in Africa the contract is not always formalised; instead it is a verbal agreement or a simple registration by farmers to indicate understanding and compliance with the terms of agreement (Eaton & Shepherd, 2001). In this study there was no evidence of negotiation between farmers and the company before the former "signed up" to produce Kapaala for GGB by registering their names with PAS field agents. Farmers did not know how the prices had been determined. Equally unknown to them were when collection and payment would be after harvesting, the penalties for defaulting, or the compensation arrangements for contingency or crop losses. Thus, it seems that farmers agreed to produce based on their trust in PAS after several years of receiving its support. It is in fact quite common to find that patron-client relationships—a normal facet of village life in West Africa, between for example chiefs and commoners, or grain merchants and farmers (Richards, 1986)—extend to relations between projects and participating farmers.

PAS had a more formal agreement with TNS and GGB through a signed memorandum of understanding (on behalf of farmers), with GGB using TNS as an intermediary (see Figure 1). While GGB had no direct relationship with farmers, TNS did, and therefore had a crucial role in negotiating a viable contract between both parties. However, the NGO failed to negotiate fair terms because it lacked technical knowledge about the variety, its interaction with the environment and the possible associated risks. In crop production, risks arise from the uncertainties about the crops' performance and unpredictable nature of the weather (Glover, 1994; Hardaker *et al*., 1997; Kirsten & Sartorious, 2002). A need to manage risk and uncertainty is one of the reasons why contract farming is popular. It is important that in dealing with the technical aspects of production the arrangements for sharing risk should be given as much attention as those for sharing profit (Bernal, 1997).

Lessons for the future: making technology development part of the contracting process

Kapaala is a relatively new and sensitive variety whose cultivation is more complicated within the marginal and unpredictable environments faced by farmers in north-eastern Ghana. Problems are bound to arise; planning how to anticipate and deal with them should be an essential element of the contract. Thus the role of technology development in the contracting process needs to be assessed. In discussing the Ghana case, it may be helpful to draw attention to a similar case of contract farming in the Philippines (Box 2).

Those involved in the Ghanaian case can learn from the example in Box 2 because here too success depends on the interpretation of the technological problem and the nature of the contract. This is where science becomes important. Rather than parties becoming embroiled in blaming each other for failure, negotiation and re-negotiation of the contract is required, based on hard evidence from farmers, PAS and TNS on the techno-

BOX 2. LESSONS FROM THE PHILIPPINES

In this Southeast Asian production scheme for hybrid maize seed, the company (Pioneer Hibred Agricultural Technologies) contracted growers to produce certified seed for its market. The seed was produced from foundation seed produced by company breeders in its research department. The cultural practice was prescribed in detail, and the company technicians closely interacted with farmers to monitor the seed production. Successful production was highly dependent on reliable irrigation at crucial stages of plant growth. Managing the genotype-environment interaction under adverse environmental conditions was a major hurdle in seed production. This often led to crop failure, which undermined the relationship between growers and the company.

Crop management, irrigation management and the quality of parent seed were the key technological ingredients of successful seed production. Although researchers and breeders tried to find answers to production problems by improving the technology (hybrid maize), growers still had to cope with the risks and uncertainties of unpredictable weather and uncertain crop performance. But so long as the technology performed well and risks were compensated for satisfactorily, the company was able to convince growers to continue production. Compensation for production risk can not be separated from the technological aspects of seed production; biological and technical elements strongly influenced the social relationship between company and growers. Even though much depended on the capacity to use technical knowledge for practical purposes, interpretation, negotiation and compromise could not be avoided by any of the parties involved in the contract.

Once these arrangements were firmly in place the contract to produce seed proved to be successful and farmers were able to solve their major problem: how to finance their own agricultural production.

Source: *Vellema, 2002*

logical causes of the crop failure. Examples of the type of scientific investigations that could help include the following:

- Carrying out experiments to determine the worst periods of midge attack in the sorghum producing regions and to work out what levels of loss are incurred from midge and head bug infestations.[1]
- Determining how different planting dates affect Kapaala yields in different parts of the region. Empirical data will make it possible to check farmers' reports of production problems.
- Developing midge-resistant and less pest-susceptible varieties (via a longer term programme).

The role of science (and research) here would be not only to provide technological improvement but also to give an objective interpretation of the pest problem so that it can be fed back into the re-negotiation of future contracts and debt settling.

The role of the NGO, in response, would be to facilitate the negotiation of a fair contract (one that takes into consideration contingencies and anticipated problems) between

1 This could be derived from an investigation of the combinations of moisture and temperature that induce and break diapause, through a series of trials over several seasons and arranged to give a spread of main flowering dates (cf. Bowden, 1966).

GGB and farmers, based on the scientific evidence researchers generate about the technology. Essentially, it would have to include what to do, for example, when the rains do not come at the expected time, or what pest control measures farmers can be financially supported to adopt in order to ensure that all the environmental and technical uncertainties are not off-loaded onto the farmers.

The suggestion to replace Kapaala with Dorado should be seen as an attempt by farmers to reduce their production risk. Faced with debt, and left with no choice but to undertake a second year of production without financial support, farmers tried to negotiate a variety they could manage better in their farming systems. If GGB is a company that is willing to learn, then listening and responding to farmers' knowledge will offer a potential way forward for stakeholders in the Ghanaian process. Perhaps more could be achieved, quickly and more certainly, by involving an agency like SARI to undertake the research agenda suggested above and to investigate the technical failure objectively. GGB might build links with SARI, such as investing in SARI's research. Ultimately the company stands to gain when the technology is improved. A key issue will be to find sites where technology improvement can be undertaken, and to have relevant partners (including both researchers and farmers) involved in developing solutions to technology bottlenecks. The objective should be to spread the technological risks fairly as part of the contracting process, and then to work on reducing these risks. Providing a specific place for technology development and improvement within the contracting process should make contracting more viable and attractive to all stakeholders. Having direct and open lines of communication between farmers, company and researchers may be one way of responding.

The development of farmer-based organisations (FBOs) to promote linkages to agri-businesses (such as was designed in Ghana within the context of the Agricultural Services Sub-sector Investment Programme) needs to be strengthened through training and financial support. This will also help give growers greater negotiating power. Government and NGOs alike must promote and contribute to the development of agri-business linkages (Dannson, 2004). Government can strengthen the institutional and legal framework for private sector agreements. For example legislation that specifically regulates contract farming can help to protect farmers, who often tend to be the weaker of the contracting parties. NGOs can continue to assist with financial service provision and training to better equip farmers to deliver products that meet quality specifications for their partners in the agri-business sector.

General conclusions and recommendations

This Ghanaian case study highlights some ways in which greater convergence between farmers, scientists and the processing company around technological issues could make contract farming work better:

- Stakeholders and potential stakeholders in the contract—farmers, the processor, the NGO sector and scientists—need to come together to negotiate technological adaptations. This can be done with the active involvement of farmers and by applying scientific knowledge to: (i) establish specific production problems that farmers are likely to face in growing the crop; and (ii) arrive at objective interpretations of these problems. The results will then provide the basis for discussing and negotiating contractual terms that will have benefits for all parties, help farmers to minimise their production risks and the company to reduce its marketing risks.

- The actual contents of the contract need to be spelt out clearly; risks and uncertainties need to be incorporated into agreements between farmers and the company.
- Space must be created for negotiation. For negotiation to be fair and open, growers and companies need to interact as partners and not as clients and patrons. This is important, especially where most growers are small-scale operators with little power. One way to encourage such a partnership relationship is to have strong, effective farmer organisations that can maintain a business link and relationship with companies. This requires keeping direct and open lines of communication between growers and the company and seeking ways to promote healthy relationships between the two parties. All stakeholders need to be committed to seeking a better application of resources, skills and knowledge. Incorporating technological improvements into the contracting process serves to make initially poor bargains better.

With these principles in place, contract farming has the potential for creating and sustaining new and dynamic relationships between the private sector, farmers, scientists and NGOs under market-driven conditions.

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References

Ajayi, O., Sharma, H.C., Tabo, R., Ratnadass, A. and Doumbia, Y.O. 2001. Incidence and distribution of the sorghum head bug, *Eurystylus oldi Poppius* (Heteroptera: Miridae) and other panicle pests of sorghum in West and Central Africa. *Insect Science and its Application* 21: 103-111.

Bernal, V. 1997. Colonial moral economy and the discipline of development: The Gezira scheme and modern Sudan. *Cultural Anthropology* 12(4): 447-479.

Bijman, J. 2008. *Contract Farming in Developing Countries: An overview*. Department of Business Administration, Wageningen University, the Netherlands, (unpublished).

Bowden, J. 1966. Sorghum midge, *Contarina sorghicola* (Coq.) and other causes of grain sorghum loss in Ghana. *Bulletin of Entomological Research* 56: 169-89.

Carney, J.A. and Watts, M. 1990. Manufacturing dissent: work, gender, and the politics of meaning in a peasant society. *Africa* 60(2): 207-241.

Dannson, A. 2004. Ghana. In: Rottger, A. 2004. Strengthening farm-agribusiness linkages in Africa: summary results of five country studies in Ghana, Nigeria, Kenya, Uganda and South Africa. *AGSF Occasional paper 6*. pp 25-49. UN Food and Agriculture Organization (FAO), Rome.

Da Silva, C.A.B. 2005. *The Growing Role of Contract Farming in Agri-food Systems Development: Drivers, theory & practice*. FAO, Rome.

Eaton, C. and Shepherd, A.W. 2001. Contract farming: partnerships for growth. *FAO Agricultural Services Bulletin* 145, FAO, Rome.

Glover, D.J. 1994. Contract farming and commercialization of agriculture in developing countries. In: Von Braun, J. and Kennedy, E. (eds.) *Agricultural Commercialization, Economic Development and Nutrition*. John Hopkins University Press, Baltimore.

Hardaker, J.B., Huirne, R.B.M. and Anderson, J.R. 1997. *Coping with Risk in Agriculture*. CAB International, Wallingford.

Harris, K.M. 1961. The sorghum midge (*Contarina sorghicola* Coq.) in Nigeria. *Bulletin of Entomological Research* 52: 129-146.

Huis, A. van, Jiggins, J., Kossou, D., Leeuwis, C., Roling, N., Sakyi-Dawson, O., Struik, P.C. and Tossuou, R.C. 2007. Can convergence of agricultural sciences support innovation by resource-poor farmers in Africa? The cases of Benin and Ghana. *IJAS-International Journal of Agricultural Sustainability*. 5(2): 91-108.

Kirsten, J. and Sartorious, K. 2002. Linking agribusiness and small-scale farmers in developing countries: is there a new role for contract farming? *Development Southern Africa* 19(4): 503-529.

Kudadjie, C.Y., Struik, P.C., Richards, P. and Offei, S.K. 2004. Assessing production constraints, management and use of sorghum diversity in north-east Ghana: a diagnostic study. *NJAS – Wageningen Journal of Life Sciences* 52, 371-391.

Little, P.D. and Watts, M.J. 1994. Introduction. In: Little, P.D. and Watts, M.J. (eds.), *Living Under Contract: Contract farming and agrarian transformation in Sub-Saharan Africa*. University of Winconsin Press, Madison.

Maiti, R.J., Raju, P.S. and Bindinger, R.R. 1985. Studies on germinability and some aspects of pre-harvest physiology of sorghum grain. *Seed Science Technology* 13: 27-35.

Ratnadass, A. and Ajayi, O. 1995. Panicle insect pests of sorghum in West Africa. In: Nwanze, K.F. and Youm, O. (eds.), Panicle insect pests of sorghum and pearl millet. *Proc. International Consultative Workshop*, 4–7, Oct 1993. ICRISAT, Niamey, pp. 29-38.

Richards, P. 1986. *Coping with Hunger: Hazard and experiment in an African rice farming system*. Unwin, London.

Roling, N.G., Hounkonnow, D., Offei, S.K., Tossou, R. and Van Huis, A. 2004. Linking science and farmers'innovative capacity: diagnostic studies from Ghana and Benin. *NJAS-Wageningen Journal of Life Sciences* 52 (3-4): 211-235.

Runsten, D. and Key, N. 1996. *Contract Farming in Developing Countries: Theoretical aspects and analysis of some Mexican cases*. Research Report No. 3. August 1996. Report prepared for the United Nations Economic Commission for Latin America and the Caribbean, Santiago, Chile.

Sofranko, A. Frerichs, R, Samy, M. and Swanson, B. 2000. Will farmers organize? Structural change and loss of control over production. *Refereed paper presented at the 62nd Annual Meeting of the Rural Sociological Society*, Chicago, Illinois, August 4-8.

Tanzubil, P.B., Zakariah, M. and Alem, A. 2005. Population ecology and damage potential of mirid bugs infesting sorghum panicles in Northern Ghana. *Tropical Science* 35(2): 58-62.

Vellema, S. 2002. *Making Contract Farming Work? Society and technology in Philippine transnational agribusiness*. Shaker Publishing, Maastricht.

World Bank, The. 1989. *Sub-Saharan Africa: From Crisis to Sustainable growth*. The World Bank, Washington DC.

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