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Feeding livestock through partnerships

Nicoline C. de Haan, Dannie Romney, Peter Bezkorowajnyj and Olusoji Olufajo

F*armers develop strategies for coping with complex problems; reduction to disciplinary problems seldom is one of them.*
Godwin Kojo Ayenor (2006)[1]

Introduction

This paper analyzes an evolving partnership to draw lessons from often complex relationships between research and development as a means of improving livelihoods in Sub-Saharan Africa. In February 2002, a consortium of individuals and organizations in Nigeria started working together to improve the livelihoods of rural poor livestock keepers through increasing their options for feeding their livestock. Nigeria was ideally placed for a project of this kind since livestock have always been an important source of wealth for the country. The livestock sector has been seen as dynamic and very important in responding to new market demands from urban areas. This is compounded by the fact that in Nigeria there are a diversity of systems and demands, and though there is a growing demand for milk, there is no formal milk market. As a consequence of these developments fodder research has a long history in the country.

The project benefits from this vast research experience, using it to take a holistic approach to feed management through a range of technologies, a multitude of partners, a variety of delivery pathways and a diversity of farming systems found in Nigeria. Initially, the project created partnerships with local stakeholder as a means of scaling out its fodder technologies and adapting its technologies to the local context through the partners' relationships and access to the farmers. In this configuration, the local partners were facilitated to improve the livelihoods of farmers through technologies developed by the project. Challenged by outsiders and internal developments, the project showed that such a technological approach with restricted institutional arrangements was limiting the projects' impact and potential of improving livelihoods through fodders. It was therefore decided to embrace an innovation systems approach; the process of moving from a very technological to a more holistic approach provided some interesting lessons on bridging divides that many development and research projects face.

Partnerships and innovation systems

In an effort to understand the development context and improve practice, agricultural research institutes have increasingly turned to partnerships to enhance their effectiveness and their impact. As has been noted by Hall et al. (2001), much of this has been couched in terms of 'institutional synergies', 'comparative advantage' and 'pluralism in funding'. At the center of this debate is an increased understanding that improving livelihoods through technology is a more complex and fluid process than previously assumed. It cannot simply be reduced to research carried out by interdisciplinary teams to be handed over to development partners for implementation.

In the past, many approaches to development and improving livelihoods were premised on the understanding of science as being able to develop generic solutions, or technologies, for agricultural problems, which would then be disseminated to farmers for adoption (Lionberger 1960 and Rogers 1983). In some instances, such as the Green Revolution in Asia, this seemed to work; however, in others, the success of this approach was limited, and technologies remained on the shelf. This opened up the debate as to the reasons why there was such a limited uptake of technologies for agricultural improvement. One clear theme to emerge from this was the role of knowledge and innovation within the process of technology transfer (Kloppenburg 1990).

Knowledge and innovation, within this paradigm, had been the domain of science and scientists. They were the ones to determine the problem and thus the solution. Limited understanding was given to context specificity of the problem or the role of the farmer and their needs (Pretty et al. 1994). To rectify this and to bridge this knowledge gap, researchers started to develop relationships and partnerships with farmers and local research partners. A lot has been written about these types of partnerships and participation models, discussing degree of involvement, from contract to collegial (Biggs 1989), to modes of interaction and prerequisites of partnerships (Ferguson 2005, Lundy et al. 2005 and Chataway 2005).

Based on this premise, many partnerships have been developed in sub-Saharan Africa. Important lessons have been gained (Welle 2001 and Warner 2003). For instance, it is recognized that more can be gained from agricultural research partnerships through enhancing the linkages between different, often non-traditional partners. Synergies and linkages between different stakeholder groups can stimulate innovation (Hall et al 2001). The interactions and stimulation provided by these linkages encourages the development of new ideas, new interventions and new technologies. In essence, it is the creativity emanating from the interactions that will lead to new ideas (Clarke 2006). Though the idea is straightforward, implementation requires a change of attitude and often a change of institutional arrangements, which is often the biggest challenge for development to take place. It also often means blending a better understanding of the technical sciences with the social sciences (Douthwaite et al. 2002). This has only recently been applied to agricultural research, in an aim to better understand the (according to some) disappointing results of agricultural research in improving livelihoods.

Partnerships and fodders

To understand the case study and the role of partnerships and innovation systems, a few words need to be said about fodder intervention. The project was initiated as a means of using existing knowledge on fodder options to improve the livelihoods of smallholder farmers. Many farmers across Africa endure animal feed shortages during the year, especially during the dry season. In order to alleviate this shortage the project aimed to initiate a multi-stakeholders alliance and identify promising fodder options for dissemination across Nigeria.

Fodders have shown an interesting technological development in West Africa. Their agronomic potential has been heavily researched, and their role and relevance within the farming systems has been heavily debated. On the one hand, scientists have argued that introducing fodders, especially dual-purpose fodders, will alleviate the documented feed scarcity experienced by farmers and livestock across West Africa, while simultaneously providing a food source for the family (Lenne and Wood 2004). Nonetheless, there has been some debate about the effectiveness of the technology, since despite its long research history, the adoption of fodders has been limited (Sumberg 2004) and farmers are often hesitant to invest in a technology that is required for an important but limited time during the year. The research project described below can provide some of answers to this ongoing debate in the scientific community.

Project implementation in Nigeria: project history

The original concept for the project was developed at a meeting in Addis Ababa (Ethiopia) in 2001 on 'Forage demand and adoption by smallholder livestock keepers' where fodder specialists from around the world came together. DfID[2] had already expressed interest in funding a project which would take 'on-the-shelf' technologies and introduce them to the farming community. It became clear that there was a vast amount of information and experience available on the biology and the agronomy of fodders. Despite this, these had shown limited impact on the livelihoods of farmers. Between 2001 and 2002, a group of scientists from the international agriculture research centers (IARCs)[3], developed and obtained funding for a project aimed at 'Enhancing livelihoods of poor livestock keepers through increasing use of fodder'.

The main goal of the project was to improve livelihoods of poor livestock keepers by increasing livestock productivity and the sustainability of their farming systems, through the adoption of fodder interventions. This would be achieved through delivery of four outputs: 1) matching 20,000 farmers with the right fodder according to their asset base and needs; 2) developing and disseminating technical and instructional information and planting material and strengthening seed systems; 3) increasing access to markets and 4) developing a platform for scaling up. The proposal was an interesting mix of development practice and research.

The constant pressure to show development impact of the project and the need to balance this with research outputs formed an interesting leitmotif and sometimes

tension for the project. The development of a mechanism to enable this was not the top priority for the proposal, and comprised a platform based on alliances and experiences gained through the project. Initially there was very little talk of partnerships per se, but rather of 'national partners and civil society institutions implement(ing) the activities at the pilot sites with the IARCs providing trans-regional focus, technical information, fodder germplasm and training' (original project proposal 2002).

A gathering of experts

At the start of the project, in February 2003, ILRI invited a range of individuals and organizations to an expert consultation at IITA in Ibadan, Nigeria. People from different national research institutes, state extension services and NGOs were invited, as well as researchers from IITA, ILRI and ICRISAT. Most participants had been involved in a research project of the IARCs or had helped with implementation of the projects and had an interest in fodders. Nigeria, in contrast to some countries, does not have a well-developed NGO community, and the two NGOs present at the meeting were locally oriented and small in size. Overall, most of the people attending the meeting were technical experts in fodder, with limited experience in community development or technology dissemination. Representatives of the extension services had technology-oriented backgrounds applying training and visit approaches to their work. Although there is global recognition that these approaches have limited success (e.g. Ganguly et al. 2006), in Nigeria this is still the principal method used, with extension staff attributing failures to inadequate funding rather than the method itself. Therefore from the beginning the people and organizations involved in the project had a greater interest in the technology than in the actual dissemination.

The meeting provided the opportunity for knowledge exchange of fodder technologies and options for their further dissemination. Participants then identified sites in Nigeria which they considered would benefit from these technologies based on their knowledge of agro-climatic conditions, and conditions of fodder scarcity. It was clear in the meeting that ILRI wanted to work with specific organizations to ensure a greater reach of the project; however how this would be operationalized was not yet apparent. To this end, a technical steering committee (comprised of ILRI and IITA technical scientists) was formed to define follow-up steps over the following months. Their role was to ensure the intended beneficiaries of 20.000 farmers were reached, that research data was collected on the targeted technologies and that the intended impact was achieved.

Research technicalities

The research examined contrasting farming systems, delivery pathways and partners, and different fodder technologies, building on previous fodder research projects across Nigeria, allowing swift progress to be made.

The principal technologies explored were used to disseminate known successful germplasm of herbaceous legumes, whether dual purpose (such as cowpea, groundnut or soybean) or more traditional fodders (such as *centrosema*), through demonstration plot and farmer experimentation, with varying degrees of inputs and experimental freedom. These technologies were aimed at increasing provision of high quality

fodder in a range of production systems, such as in dairy production and the fattening of small ruminants. The demonstration plots and farmer experimentation had proven to work within the context of earlier projects in which farmers were adopting especially, but not exclusively, dual-purpose legumes. Most of the work was implemented at community level, with farmer groups and through farmer interactions individually and at group meetings. This was supervised in some case by the National Agricultural Research Systems (NARS), but mostly by the technicians employed by the project through IITA.

Cultivating linkages

Not much later, the steering committee visited the research site with the newly appointed project manager. During the site visits the emphasis was very much on the biological, agronomic and even pathological aspects of the demonstration plots and on interactions with the field technicians. Long-term strategies were developed, looking beyond the immediate research needs to establish activities in the field.

While the practicalities of the project development were not yet clear, attention was given to the easier, predominantly technical aspects of the project. Significant energy was spent building the working relationships of partners involved in the project. As such, a platform was built for cultivating linkages between organizations and sharing outputs. This targeted mainly those people and organizations already involved in previous fodder projects, rather than broadening the scope to include new participants.

Moreover, the second year started out with a review meeting, encouraging interaction between participants and allowing them to learn from the experiences so far. Field workers presented their completed activities as well as their work plans for the next phase. This served to strengthen the partnerships and to identify how it should be further developed. A visiting scientist was hired to facilitate these interactions and to support implementation and monitoring of work plans.

Since many participants had technical backgrounds, the work plans concentrated on technologies, and approaches proposed were mainly continuation of previously done work. Moreover, technicians became almost de facto partners, in lieu of the researchers involved in the project. This appeared to be a result of the approach taken in the first year, f investing in the technicians to ensure results, but also be able to share the potential of the technologies with the partners from universities and extension services.

From individual priorities to a partnership focus

At this point, the steering committee decided to change the project focus, placing partnerships at the forefront of the project. This was partially encouraged by the project donor, DfID, but also motivated by a need to broaden the reach and scope of the project.

Consequently, the project started evolving from a collaboration of individual stakeholders to one of partnership between the university, NGOs and extension service providers involved. This was partially thanks to the efforts of the visiting scientist, who made an effort to build rapport with the people and organizations that

had been involved with the project so far and engage them in face-to-face interactions. He became the clear link between the partners and ILRI, monitoring resources, inputs and the implementation of work plans.

In the middle of the second cropping season, a participatory monitoring and evaluation workshop was held with all the partners and ILRI. The workshop was driven by a need to implement the project and to understand and document the experiences from the field. In an effort to reach the poor farmers initially targeted by the project, the approach shifted from the traditional technology transfer approaches to a more community-oriented one.

By now the project had been running for two years with a specific group of organizations, research institutes, extension services and an NGO; however, the individuals that attended meetings changed constantly. Often the supervisors attended the meetings, while more junior but more enthusiastic staff were responsible for implementation. This caused discontinuity in building understanding between ILRI and partners. And so, with the input of the visiting scientist, the invitations for the monitoring and evaluation training were directed to specific individuals involved in implementation. The workshop allowed plenty of time for everyone to discuss the project, to interact amongst themselves and exchange experiences, developing synergies between the different organizations in the process. Project management started to look beyond the technologies developed by the IARCs, identifying ways by which to go about the scaling up process in order to reach the 20,000 farmers promised in the proposal.

With the increased focus on interactions with the select group of individuals involved in implementation, some started to feel the need to formalize arrangements between the project and the organizations they worked for.

Changes within the project

By this time the project was clearly changing. In the early stages it was focused predominantly on working with partners to research the adoption of specific fodder technologies and impacts on livelihoods following a single model, namely demonstration plots and farmer to farmer dissemination of germplasm and practices. The new emphasis involved experimentation with new approaches to scaling up fodder technologies. This required investment in building partnerships and the developing partners' capacities to try new approaches. All in all, instead of the emphasis on a clear technical package for dissemination using existing methods, the issue of information dissemination became central and different methods such as the use of television and pamphlets were tried out. This opened up the possibilities of a much wider range of activities.

Though the partners had many ideas as to what they wanted to achieve, their own resources were often limited, either financially or technically. Consequently, funding was allocated to the partners, linked to specific responsibilities in their action plans, as formalized in Letters of Agreement. Institutionalizing these mechanisms also meant that the partners were beginning to feel more a part of the partnership since the responsibilities and obligations were clearer.

By the 2005 cropping season, three years into the project, participants were beginning to feel comfortable within the partnerships, working with various mechanisms to support their contributions such as work plans, regular meetings, face to face interactions and LoAs. The project partners and managers had become better acquainted, had gained an understanding of each others' strengths and weaknesses and had started building synergies through interactions.

However, one of the obstacles still encountered in the project, partly due to the technology-orientation of most partners, was the need to develop new ideas and approaches to disseminating fodder technologies. Further, the partnership needed to involve community members and additional partners to enhance the ability of the project to deliver fodder technologies to poor livestock keepers across Nigeria. This required different approaches than those the technically-oriented staff was accustomed to.

All in all, project management recognized that it needed to expand its partnership to deal with some of these issues arising from disseminating fodder technologies on a broader scale, and started involving with the private sector.

Interactions between the partners showed that a seed system was required to provide farmers with structural access to fodder seeds. The National Seed Service (NSS) and the private seed sector were invited to meet with the project partners, to analyze the seed system using the tool of actor linkage mapping (ALM). The ALM tool encouraged discussion on the different (types of) organizations involved, their mandates and possible linkages between them. Although private companies were unwilling to invest in new varieties that did not have a guaranteed market, a potential way of linking farmer demand to the private sector was through input suppliers.

Based on the ALM exercise, the project signed an agreement with a private seed company in order to address the issue of seed supply in the short term, underwriting seed production in 2005 and agreeing to purchase any unsold seed from the 2006 growing season. In fact, 4.7 tons were produced; seeds of all but one variety sold out and in 2006 the company expanded its seed production activity from 4.7 to 19 tons. Furthermore, representatives of input suppliers and farmers have been attending project meetings together with the original partners and the new private sector partner. Interactions and their resulting actions are what is making this partnership work; together, they are now developing innovative approaches to research and development within fodders in Nigeria.

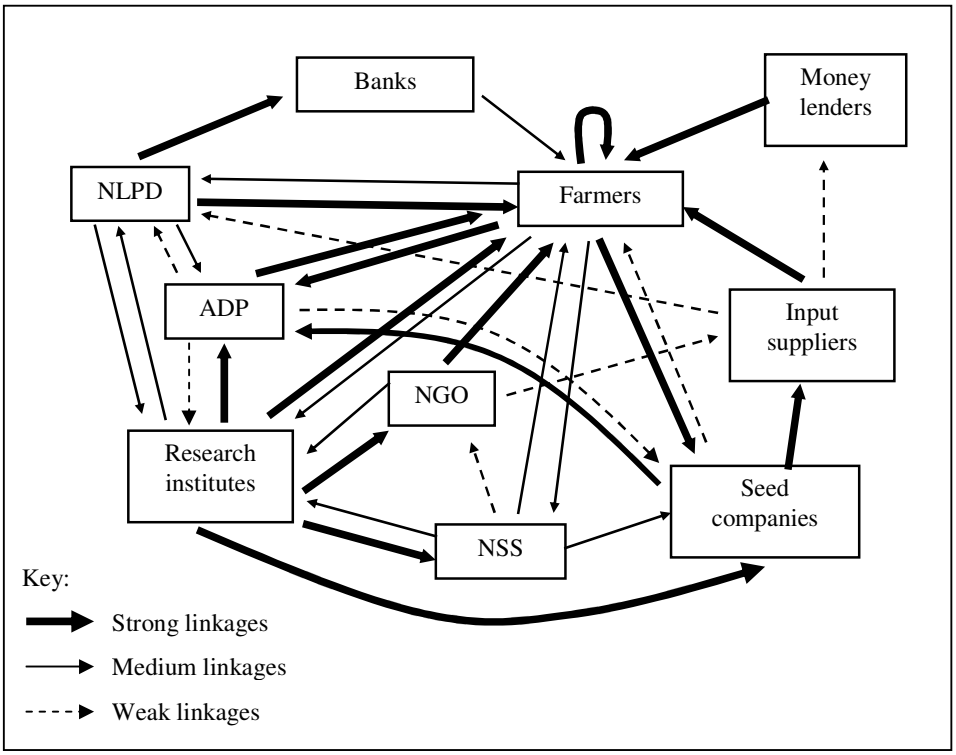

Figure 1: Qualitative linkages (flows of information and goods) among actors in the fodder seed innovation system in Kaduna State, describing the actual situation[4].

Partnership analysis

The Fodder Innovation Project has clearly evolved since its inception in 2002. Initially it had a clear technological focus with strong leadership from the IARCs, whereas it has transformed into a consortium of partner organizations to ensure fodder technologies are disseminated to farmers across Nigeria. Though the processes described in this paper include only the first years of the project, some key observations can be made from the experiences:

- *Understanding the motivations for creating or joining a partnership*

For ILRI the initial motivation for developing a partnership was to disseminate proven fodder technologies more effectively. Their aim was suited to different agro-ecologies and involving different partners, using participatory approaches, farmer-to-farmer diffusion and practices. This changed over time to a broad based-based partnership focused on strengthening relationships and interactions between partners of different types.

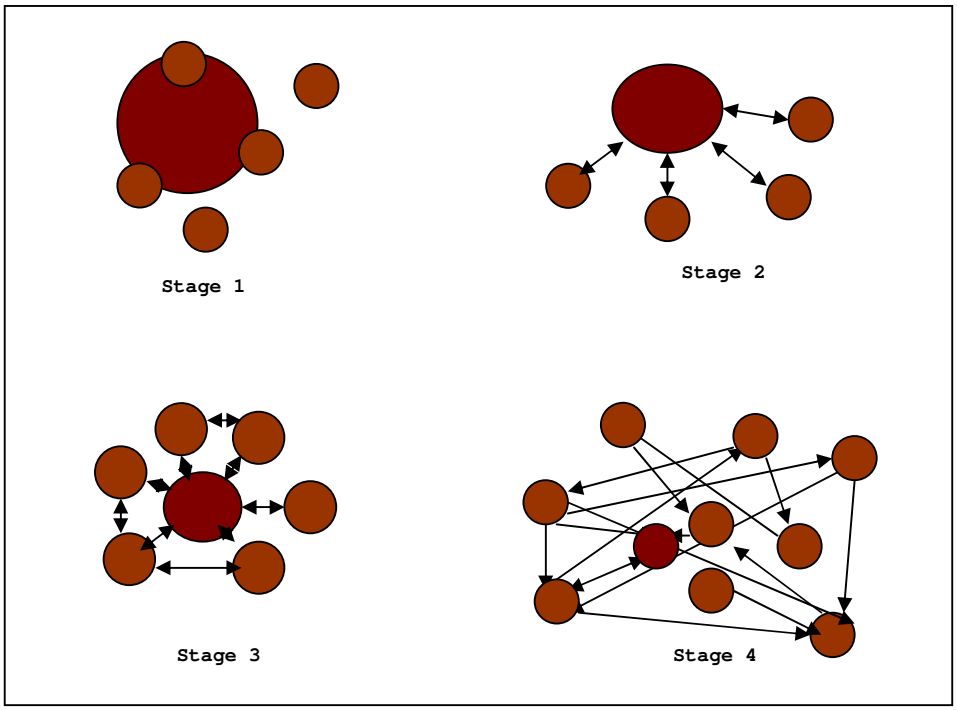

Figure 2: The development of the partnership over time – the large dark brown circle in the stage 1 represents ILRI

For the other partners, the initial motivation to join the partnership was a willingness to provide technical expertise and, in some cases, access resources for research purposes.

Understanding and making clear what motivates one partner or the other will allow for clear negotiations, ensuring that everyone benefits from the partnership – otherwise it will not survive.

- *Developing a vision*

The partnership model envisioned at the beginning of the project was never very clear. This was related to unarticulated assumptions made by technical scientists about concepts such as technology, participation and sustainability that were not always similar to what others understood. Therefore, at the outset of a project, it is worth spending time developing a common understanding of the project and the key concepts within it, in the process developing a vision and creating a common platform for interaction.

- *Developing ownership and creating synergies*

The partnership as originally envisioned was relatively homogenous, with each partner implementing similar activities within similar parameters. Though this worked well in each research partner's direct relationship with the farmers, it did not help to build a common platform amongst the partners. Therefore, at a national level for the project research and development, more complementarity was needed between

partners and their respective roles, creating synergies, building on their strengths and avoiding overlaps.

Research partners are now encouraged to lead monitoring and evaluation processes as well as impact assessment. They are also responsible for drafting technical publications that are used by development partners. The extension partners are encouraged to test and implement new modes of dissemination, and to exploit new synergies with other (types of) partners. Greater effort is invested in learning about each others' organizations, developing new and more effective linkages.

- *Building cohesion*

While the initial technology-focused approach caused much discussion, the fact that there was a technology to rally around as a concrete entry point and as a common frame of interest should not be underestimated in terms of engaging the partners. Most of them had a technical orientation and farmers, extension agents and scientists felt more comfortable with a defined package to disseminate, than in the farmer-led approach.

Through the technical orientation, tangible results were available fairly quickly and contributed to the building of trust at the beginning of the project, the effect of which should not be underestimated in a strong technical paradigm such as found in Nigeria. This allowed for a strong base to be created and provided a fertile ground for new developments in the project.

In the first years, research and technology were strong drivers in the partnership. They provided its basis, but also contributed to the development of a new approach. Through analysis of the different roles involved in the partnership, it became clear that there was a need for a more diverse partnership model, with inclusion of the private sector to help realize the research and technology ambitions.

Conclusions

The process described in this paper illustrates the development of a partnership from a technology to a process-driven approach. While initially it was established with the specific purpose of validating and disseminating technology interventions, it evolved into a partnership where strengthening of linkages and changing the patterns of interactions amongst the partners is seen as vital in achieving goals and addressing new constraints and opportunities.

At the outset, the project developed partnerships to help insert the technology into different institutional and agro-ecological environments. Its goal was to research the potential impact enhancement of the proposed technologies. To this end the partners invited into the project were mainly local research institutes and extension services who understood and had worked with the technology previously. In the first years of the project, the technology and the science behind it was the raison d'être of the partnership.

Although this focus provided a concrete entry point and a common ground from which to work, its impact on livelihoods was limited. Experience showed that it was necessary to broaden the stakeholders and diversify the project methods if the aims of reducing the feed scarcity of the farmers were to be achieved. As a result, the private seed industry has been engaged in the project, and new activities have been initiated, such as capacity building and face-to-face facilitated interactions between partners.

More than anything, the interactions within the partnership have allowed a clearer vision to develop. Through these activities linkages have been strengthened, constraints identified and innovations realized.

All in all, a change has been harnessed in the way research and development actors interact in this project, paving the way for innovations in terms of improving livelihoods. Though research is key in terms of identifying potential solutions, it is not the only source. Moreover, technologies are no longer the primary rationale for the partnership. Instead they have become a means to an end, providing a platform around which to mobilize partners, developing a network, and improving participants' capacity to respond to opportunities and constraints.

This is a conceptual and fundamental difference from the way research and development has been working to date, harnessing new types of relationships with other stakeholders and developing new types of capacities on the part of scientific institutions and organizations (Clark 2007).

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Abstract
Addressing issues of animal feed scarcity has the potential of raising incomes and improving the lives of smallholder farmers across the tropics. Though technical solutions have been available for years and have been reported as superior by farmers, adoption has been lacking. Through action research, a coalition of partners examined approaches to increase fodder production in Nigeria. Initially prominence was given to technological solutions; partners were approached to help with scaling-up and adapting the technology to local situations. During the project, it became clear that the issue of fodder scarcity is much more complex and introduction of simple technologies was not enough. As a result, the coalition of partners implementing the project has been shifting focus towards the institutional interactions between partners

and the capacity required to facilitate the changes within and between them to enable innovation and help address issues related to fodder scarcity. This paper describes the evolution of an approach and the experiences that provided a better understanding of the role of partnerships and how bridging the divides through capacity building will help better address fodder scarcity.

About the authors

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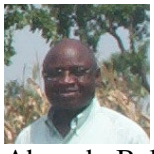

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[1] Proposition made by Godwin Kojo Ayenor in defense of his PhD entitled 'Capsid Control for Organic Cocoa in Ghana', 16th October 2006.
[2] The Department for International Development, UK
[3] This group comprised the International Livestock Research Institute (ILRI), International Centre for Tropical Agriculture (CIAT), International Institute of Tropical Agriculture (IITA), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
[4] NLPD: National Livestock Project Division; ADP: agricultural development projects