

**Towards making a difference through partnership and knowledge exchange in
smallholder dairy systems**

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Abstract

Milk production has the potential to substantially contribute to sustainable household income, food and nutritional security. However, acute staff shortages and inadequate skills within the sector have been major challenges. Over the last five years Scotland's Rural College (SRUC) has been in a partnership with two universities: Mzuzu University, and Lilongwe University of Agriculture and Natural Resources, and the Department of Animal Health and Livestock Development to contribute to the development of the dairy sector in Malawi. This work has centred on three capacity building projects titled: Sustainable Farming Systems, Optimising Smallholder Dairying, and Dairy Diploma Programme. The projects activities involved training farmers, extension workers, development managers, researchers, trainers and graduate students (MSc, MPhil, PhD, and Postdoctoral) and the integration of knowledge transfer with graduate training in support of sustainable smallholder dairy development in Malawi. Volunteer farmers were trained as lead farmers for peer knowledge exchange. This paper reports the experiences of the five-year partnership between institutions in Malawi and Scotland on strengthening smallholder dairy systems. In order to better understand the institutions' and individual actors' experiences and lessons from the collaborative projects, a survey of 30 key actors was undertaken in March/April 2013. This paper is based on the results of the survey. In Malawi dairy farming has been identified as its flag-ship industry. Through this initiative, a practical diploma course in dairy science has been established in Malawi and a flexible programme for life-long learning is envisaged in the future.

Keywords: Capacity building, dairy farming, Malawi, partnerships, Scotland, smallholder farming systems

Résumé

La production de lait a le potentiel de contribuer de manière substantielle aux revenus des ménages, à la sécurité alimentaire et nutritionnelle. Toutefois, les pénuries aiguës de personnel et les compétences inadéquates dans le secteur représentent des défis majeurs. Au cours des cinq dernières années, le Scotland's Rural College (SRUC) a été en partenariat avec deux universités (l'Université de Mzuzu et l'Université d'Agriculture et des Ressources Naturelles de Lilongwe) et le Département de Santé Animale et de Développement de

l'élevage au Malawi. Le présent travail a focalisé sur trois projets de renforcement des capacités intitulés: Systèmes d'Agriculture Durable, Optimisation de la Production Laitière par les petits exploitants et Programme de Formation Professionnelle sur les produits laitiers. Les activités du projet comprenaient la formation des agriculteurs, des agents de vulgarisation, des responsables du développement, des chercheurs, des formateurs et des étudiants diplômés (MSc, MPhil, PhD et Postdoc) et l'intégration du transfert des connaissances à la formation des diplômés au Malawi. Les agriculteurs volontaires ont été formés en tant qu'agriculteurs principaux pour permettre l'échange de connaissances entre pairs. Ce document rend compte des expériences du partenariat entre les institutions du Malawi et d'Ecosse sur le renforcement des systèmes de production laitière des petites exploitations. Afin de mieux comprendre les expériences et les enseignements tirés des projets de collaboration, une enquête a été réalisée auprès de 30 acteurs clés en Mars/Avril 2013. Ce document est basé sur les résultats de l'enquête. Au Malawi, l'exploitation laitière a été identifiée comme une industrie phare. Grâce à cette initiative, un cours pratique sur les sciences laitières a été mis en place au Malawi et un programme flexible pour la formation continue a été envisagé.

Mots-clés: Renforcement des capacités, production laitière, Malawi, partenariats, Écosse, systèmes de petites exploitations agricoles

INTRODUCTION

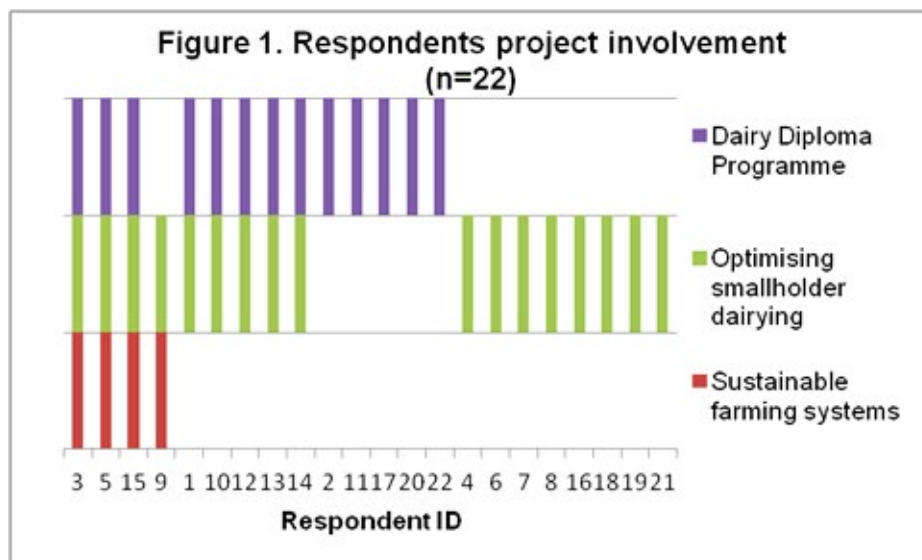
The Department of Animal Health and Livestock Development (DAHLD) of the Ministry of Agriculture and Food Security in Malawi has identified dairy farming as its flag-ship industry (DAHLD, 2006). In Malawi, the dairy sector is predominantly comprised of smallholder farmers. Smallholder dairying supplies about 60% of the milk that is processed at the formal processing plants in Malawi every year (DAHLD, 2011). Increasing and improving the small-scale dairy production would economically empower farmers and contribute to food and nutritional security, and poverty reduction. Furthermore, promoting smallholder dairy production would provide a robust coping strategy where agro-ecological conditions and access to markets provide a favourable environment for dairy production (BLADD, 2009). Despite the importance of the smallholder dairy sector and the services provided by the Government and NGOs, there are still constraints that need to be addressed in order to fully exploit the potential for smallholder dairying. The country is still deficient in milk production and imports 30% of the milk that is consumed (World Bank, 2009). Among the constraints that smallholder dairy farmers face are low cow productivity, slow national herd growth, calf mortality, low fertility, poor milk quality and scarcity of breeding stock. Further, acute staff shortages and inadequate expertise within the DAHLD and relevant non-governmental organisations has been a major challenge (Jere, 2006). Previous reports (Chagunda *et al.*, 1998; Chagunda *et al.*, 2002; Chagunda *et al.*, 2004; Banda *et al.*, 2012) have emphasised the need for improvement in service delivery to smallholders and the need for further training of farmers, extension service providers, and agricultural graduates is required to improve dairy management and productivity.

Collaboration between DAHLD, Lilongwe University of Agriculture and Natural Resources (LUANR) and the Scotland Rural College (SRUC) commenced in 2008. The

overall aim of the collaboration was to contribute to strengthening smallholder dairy systems development in Malawi. The programme focused on building capacity of farmers, graduates and institutions to promote knowledge exchange and networking within and between institutions. This paper aims to share experiences of the five-year partnership and provides lessons from the initiative on dairy systems development in Malawi.

METHODS

In order to better understand the institutions' and individual actors' experiences and lessons from the collaborative projects, a survey of 30 key actors was undertaken in March/April 2013. Completed questionnaires were returned by 22 individuals (including all six SRUC staff in the survey sample) giving a response rate of 73%. Most respondents (17/22) had been involved in the 'Optimising smallholder dairying' project, 13 respondents from the Dairy diploma Programme, and few (4) respondents involved in the 'Sustainable farming systems' project (Figure 1). Only three respondents indicated they had been involved in all of the three dairy development projects, two SRUC and one from Malawi.



RESULTS

The roles of respondents in the projects were varied ranging from project coordinators to those preparing training materials, facilitators and recipients /trainees. All respondents indicated that they had found involvement in the projects either 'very enjoyable' or 'mostly enjoyable'. Overall, the highest rated project in this respect was 'Optimising smallholder dairying' for which 76% of involved respondents said it had been 'very enjoyable'. Despite the subjective assessment, this provides an indication that the effort required for participation was perceived to be much less than the benefits gained.

Most respondents felt the projects had resulted in significant improvements to key aspects

of dairying in Malawi, such as to ‘forage and feed resource management’ (Figure 2). However, a more detailed analysis shows considerable differences in the views of SRUC and International respondents (Figure 2a). SRUC respondents were less positive about the impacts than International respondents, particularly with respect to ‘animal fertility and reproduction’.

Respondents also generally felt that the projects had contributed significantly to development efforts in target areas (Figure 3). As with the amount of improvement some differences arose between the views of SRUC and International respondents (Figure 3a). There was no pattern to this difference and it applies to only two aspects : ‘forage and feed resource management’ and ‘animal breeding and recording’

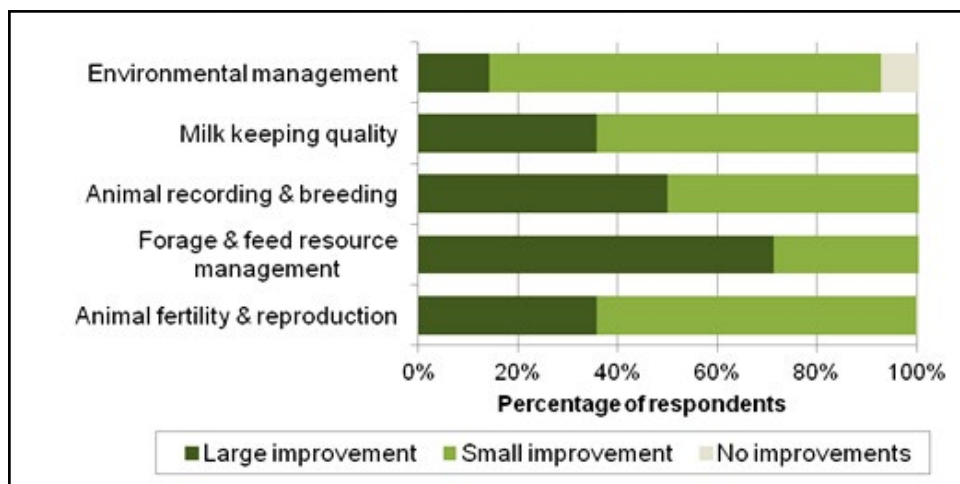


Figure 2. Impact - amount of improvement (n=22)

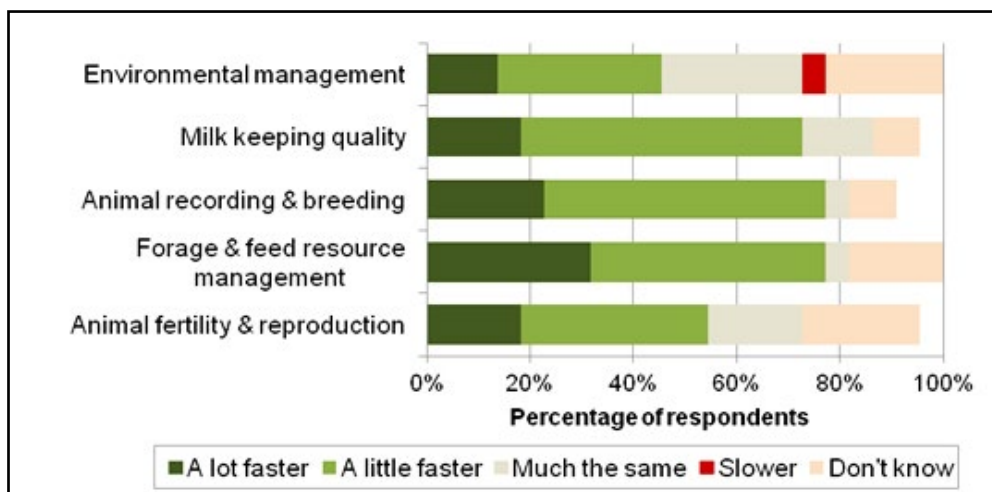


Figure 3. Impact - Speed of improvement (n=22)

The majority (91%) of respondents indicated that the number of dairy experts in Malawi had increased as a result of the projects (Table 1). Moreover, they were unanimous that the

projects had increased the technical ability of dairy experts in Malawi and had established long lasting links between Malawian and Scottish dairy experts and institutions.

Respondents were asked to name specific individuals who had benefited through participation in the projects and describe how they had developed. The feedback highlighted that staff from institutions in both countries had benefited as a result of participation. When further analysed, about a third of the staff named were SRUC staff and two-thirds from Malawi. Grouping the feedback according to the benefits coming from the project, about a quarter of cases referred to development of 'expertise' (deep understanding) and three-quarters to the development of skills/technical knowledge. With respect to participating smallholder dairy farmers, 68% of respondents indicated increased milk quality as a result of the project activities. In addition, 82% felt that as a result of the projects, smallholder dairy farmers received improved information that showed them how much milk they were producing and were able to produce higher quality forage (Table 2).

Table 1. Project impacts expertise

As a result of the projects....	Yes %	No %
The number of dairy experts in Malawi has increased	91	5
The technical ability of dairy experts in Malawi has increased	100	
Good and long lasting links between Malawian and Scottish dairy experts have been established	100	

Table 2. Project impacts on smallholder dairy farmers in Malawi

As a result of the projects participating smallholder dairy farmers.....	Yes %	No %	'Don't know' %
... now get information that shows them how much milk they are producing	82	0	14
.....now have targets for their milk production	45	9	41
.....have increased their use of artificial insemination (AI)	45	45	5
.....have decreased the calving interval of their cows	45	27	23
.....are now able to produce higher quality forage	82	9	9
....have become more aware of the environmental impact of dairy farming	64	9	27

The projects were perceived to have had less impact on the setting of production targets for artificial insemination (AI) and length of calving intervals. Close to half of farmers interviewed (45%) indicated increased use of AI. Further analysis (Figure 4) shows that again SRUC and International respondents had slightly different opinions. A greater impact on milk production targets, ability to produce higher quality forage and awareness of environmental impacts was perceived by SRUC as compared with International respondents. In contrast, the International respondents felt that more impact had been made on the use of AI and calving intervals than did SRUC respondents.

The projects had a number of components, all contributed towards the overall success of

the projects. The key components of the project were: 1) informal links between Malawian and Scottish farmers; 2) development of MSc placement; 3) Scoping studies on key issues on dairy sector; 4) training of trainers; 5) clinics/workshops on forage management and other important topics; 6) milk sale / performance recording system development; and 7) milk quality monitoring. For future project design it is therefore helpful to understand what components are essential (critical) success factors and those which are less important. All of the project components evaluated were considered to be ‘essential’ by at least 60% of respondents. As can be seen in Figure 5, links between Malawian and Scottish dairy experts was unanimously considered to be essential by survey respondents.

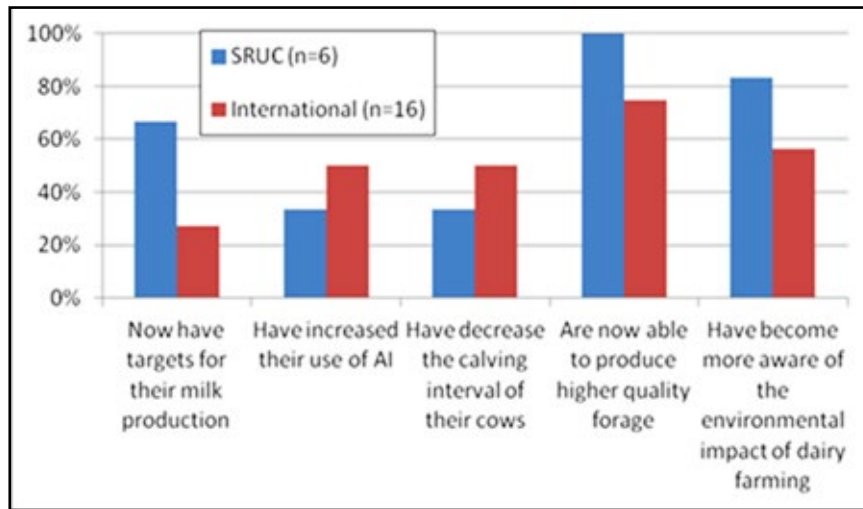


Figure 4. Percentage respondents agreeing that smallholder dairy farmers [...] by type

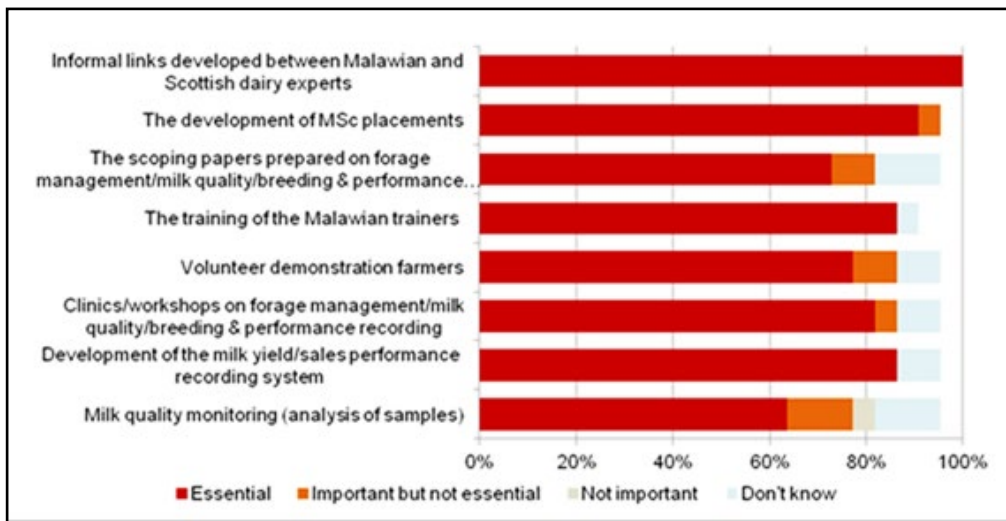


Figure 5. Importance of key aspects of the project success (n=22)

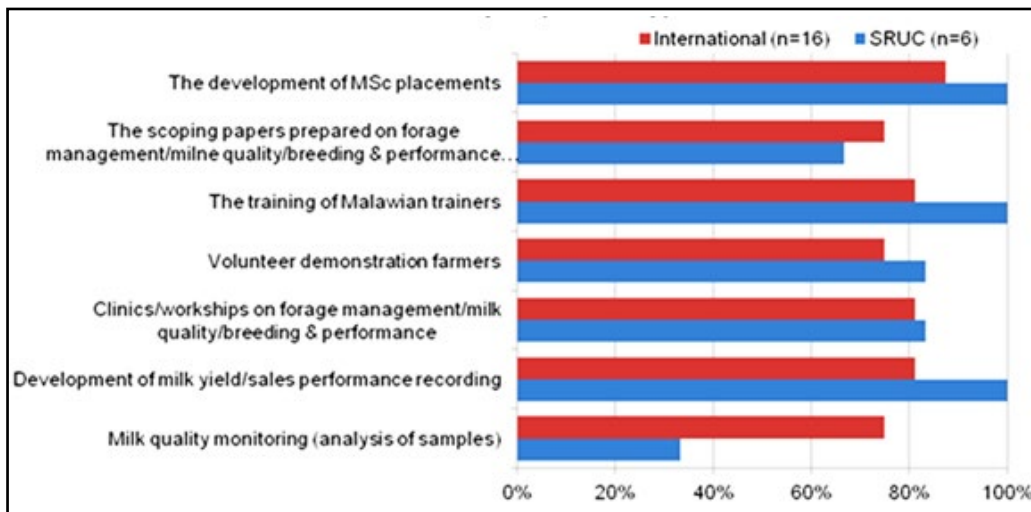


Figure 6. Percentage respondents rating component as 'essential' for success by respondent type

More detailed analysis shows that perceptions of the 'essentialness' of components varied between SRUC and International respondents (Figure 6). In particular, milk quality monitoring was considered to be essential by more International than SRUC respondents. Several of the other components were rated more highly by SRUC than international staff.

Challenges and potential solutions

Working in international projects can be very challenging due to diversity of cultures, knowledge bases and experiences. Perception on science applications in different contexts can pose difficulties. The main challenges and potential solutions identified by survey respondents are reported in Table 3. These highlight opportunities for developments in future projects. A large and diverse set of general comments were made by respondents which are included in Table 3.

Overall, survey respondents were very positive about what the projects had achieved and their involvement in them. The analysis of the results highlights two key points, amongst others, with respect to the success of these three projects

1. The projects were perceived to have increased both the current capability and future capacity of the Malawian dairy sector within their reach.
2. The development of knowledge, decision making and behavioural change.

CONCLUSIONS

In conclusion, the positive attitudes of respondents demonstrate the value that the projects were considered to have given. The feedback also highlighted the importance and time required to build understandings between partners from different backgrounds to the transfer of expertise from larger scale, scientifically advanced partners to smaller scale partners operating in challenging physical and economic environments. Furthermore it

highlights that such partnership projects can be synergistic, enabling development of the training partners as well as the trainee partners.

There were a number of differences in the perceptions of SRUC and International respondents. These are important in assessing the success of past projects and planning future ones. Where the two stakeholder groups are at variance there is opportunity for fruitful discussion to develop a better understanding of different viewpoints of the realities. In particular, it will be important to examine cases where SRUC respondents perceive a more positive picture than the International staff, i.e., those on site.

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Table 3. Some challenges and potential solutions

What do you think have been the greatest challenges of working in international projects like these?	How do you think we could better overcome/ manage these challenges?
Limited resources - mainly financial, material and time	Where possible projects should have room for an additional phase where follow up can be made to cover/address gaps that were encountered in the course of project implementation
Bringing both partners to the same level of understanding about the project goals was challenging	Through improved information sharing and increased involvement of both parties during the conception of the project
Communication especially use of internet which is not reliable in Malawi	Once this was explained and accepted then the ball was well and truly rolling
Initially explaining that there would only be knowledge transfer and no handouts	Intensify trainings
Differences in skills and knowledge	Continue training lead farmers
It takes time for benefits to reach intended beneficiaries	Ensure that all partners have well functional communication facilities e.g. internet Where these are absent projects should be allowed to provide for basic communication facilities for easy management of the projects
Communication (internet)	Long term relationships between organisations and staff involved. Some underpinning funds to develop a 'twinning arrangement' between SRUC and Bunda College
Getting a true partnership so that one partner does not dominate	Three year projects which then stop are not long enough to build up these links
Identifying real issues for Malawi dairying	Focused training, proper choice of people and not based on race/relationship, be accountable and transparent
Understanding the cultural and institutional differences between Malawi and Scotland	I suggest that in the initial stage of the project life much investment should be in establishing the communication channels and facilities. Establishment of links to implementers on the project goals and activities before actual implementation of project familiarize project activities. There might be need to increase on project life time
Adoption of the technologies by Malawians at different levels, some prioritised the proceeds, very few work, lack of accountability and transparency	The workshops should be organized off-campus when schools are in session
The greatest challenge is in getting timely feedback from both partners on assigned activities. The differences in skills, capacity standards, values and culture can also hamper the desired outcome of the project	
Arranging meetings between project partners. For example, our participatory training workshop was organized when the academic session was on	