Field schools for Kenyan dairy farmers

B. Minjauw, H.G. Muriuki and D. Romney

In the Central and Rift Valley Provinces of Kenya, approximately 90% of rural households are agricultural and of these, 73% have dairy cattle. Studies in Rift Valley Province have shown that smallholder farmers consider the major constraints to increased dairy production to be endemic diseases, particularly tick-borne diseases (TBD), and inadequate supplies of feed resources.

Currently, over 1000 Farmer Field Schools (FFS) on integrated pest management (IPM) and/or integrated soil management are being successfully implemented in Kenya - and many more in Africa as a whole. Can the FFS methodology be developed for similarly complex issues like animal production and health, where responses to interventions may not be as fast?

A sub-group prepares their AESA presentation. Photo: Bruno Minjauw

In 2001, the DFID/FAO project on Farmer Field Schools for livestock began adapting and testing the FFS methodology for animal health and production, focusing on smallholder dairy farmers. Ten pilot FFS have been established in five different agro-ecological zones in Central, Rift Valley and Coastal Provinces of Kenya. In implementing these FFS, Agro-Ecosystem Analysis (AESA, see Gallagher page 5) is adapted to make animals the focal point, and participatory technology development (PTD) techniques are utilised to address livestock-related issues. The project is also developing approaches and methods to test and introduce integrated methods to control tick-borne diseases and helminth infections, and to improve animal husbandry practices and the efficiency of utilisation of available feed resources within the crop-dairy system. These activities contribute to the ongoing DFID Smallholder Dairy Project (SDP).

Initiating FFS for livestock

All facilitators were trained during a two-week training of trainers (TOT) course. This was run as a learning workshop, where participants learned the basic principles of the FFS and at the same time used them to develop specific examples of activities, tools and techniques suitable for smallholder dairy production systems.

Facilitators trained in FFS approaches worked with established groups to prioritise the main constraints to improving the efficiency of milk production, using participatory techniques (pair-wise and matrix ranking). Issues highlighted for all groups were similar and included, in order of priority: 1) feeding strategies; 2) fodder establishment and conservation; 3) calf rearing and mortality; 4) diseases (tick-borne and mastitis); and 5) water management and breeding. Equal priority was given to the last two issues. Based on the results of this exercise, individual grant proposals were prepared by each group, including a detailed work plan with a corresponding budget.

A grant of US$600 was deposited in an account controlled by elected members of the FFS group to cover the cost of field activities and the cost of facilitation (the transport and lunch allowances for the extension worker). Management of this budget empowered the farmers to control activities covered by the FFS and ensured that the extension services offered responded to farmers actual priority problems and needs. The FFS groups usually meet on a weekly basis, but some vary their frequency to once every two weeks. The main participatory techniques used, including Agro-Ecosystem Analysis and Participatory Technology Development, were adapted to suit the specific needs of learning about livestock issues. For livestock FFS, understanding the impact of animal health on productivity and how to control disease occurrence, is of major importance.

Activities

Since the main objective of the FFS is to develop farmers learning skills, rather than to increase knowledge on a particular technical issue, record keeping and accurate observation are important components. Agro-ecosystem analysis is designed to improve observation skills and to develop decision-making skills, and this technique is utilised to record and observe the results of the PTD experiments. This observation process forms the basis for understanding the interactions between livestock and other elements of the ecosystem, as they relate to the problem or technology being studied. For example, where the subject is expected to have a direct outcome on the animal, such as a feeding or health management practice, the AESA is focused on the animal.

Measuring girth for the evaluation of body life weight. Photo: Bruno Minjauw

In practice, farmers are divided into small groups and they observe an animal from one of their farms. Observations are guided by a checklist that includes general information such as the life history of the animal, parameters defining the level of production, and observations describing the health status of the animal. Each group presents their results in a standardised format

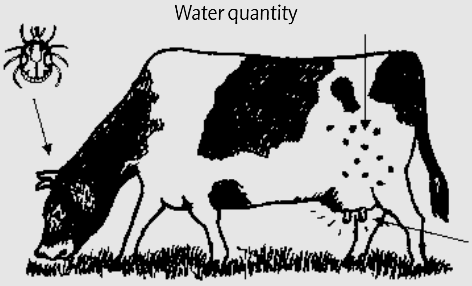
Aesa number
Week/date
Sub-group name

GENERAL INFORMATION
Breed
Name/tag
Sire name and breed
Dam name and breed
Date of birth and
Age
Time of observation
Weather condition
Last treatment: date and drug used

OBSERVATIONS
Hair/coat
Body condition
Rumination
Respiration
Temperature
Ecto-parasites
Discharges
Dung
Urine
Wounds
Movement/temperament
Eyes condition
Mucus membrane colour
Lymph nodes
Housing and shading conditions
Presence of other animal/insects
Noises

PARAMETERS
Body weight
Last weight
Weight gain:
Daily milk yield
Milk yield status: (improving or decreasing)
Number of calves
Date of serving
Date last calving
Pregnancy status
Calving interval

Feed quality
Feed quantity
Supplement
Water quality
Water quantity



RECOMMENDATIONS
How to improve the AESA records
- Parameter to be included
- Quality of observation

What needs to be done to improve productivity?

Which treatment should be used?

Example format for the AESA in Dairy FFS.

to the rest of the school. These findings are then discussed, allowing farmer-to-farmer information dissemination as well as an evaluation of progress.

The establishment of the PTD process is one of the biggest challenges in livestock FFS. Indeed, while it is relatively easy to design a comparative study for integrated pest management in crops, the high economic value of cattle does not permit experiments that might involve any risk or even short-term losses in animal productivity. Therefore, one of the objectives of the on-going livestock FFS project is to establish the kind of technology development that can be performed without any risk or detrimental effect, while still allowing farmers to experiment with new technologies. Three types of "PTDs" have emerged from on-going activities:

1) Classical experiments: Although livestock are the focus of livestock FFS, many of the activities of the livestock keeper are crop-related. This is particularly the case for fodder production and grazing improvement. "PTDs" include:
- Establishing alternative sources of fodder. A range of fodders are planted using different planting methods, treatments and/or different fertiliser regimes.
- Preservation of fodder using different techniques such as silage making and a box baler for hay.

2) Comparison of existing farmer practices: Observation and evaluation of the different practices of farmers, within and outside the FFS group, provides the opportunity for farmers to address issues that do not lend themselves to experimentation because of the high risk in terms of animal well-being or high costs for implementing the experiment. Examples include:
- Tick control: comparison of efficacy of different acaricides and/or of different application regimes.
- Vaccination efficacy: comparison of disease incidence in immunised and non-immunised animals
- Comparison of milk quality and losses due to milk spoilage in relation to the quality of the milk parlour infrastructure.

3) Ex-post analysis: In ex-post analysis, farmers compare actual experimental results with practices that were used before. Results may be quantitative, if records are available from the past or from similar situations, or qualitative, where farmer perceptions are evaluated. This also includes the "Stop and Go" method, where the treatment is stopped and re-introduced several times to show its effect, using an animal as its own control. Examples include:
- Water availability: the amount of water available to the dairy animal is changed according to the calculated needs. Milk production using the new regime is compared with previous records of production using the old regime.
- Genetic material: artificial insemination is used to compare calf birth weight with other calves or with expected weight.
- Prophylactic programme: a programme of preventive treatment is applied to a group of cattle and their performance is compared with previous productivity and with neighbouring herds. This could include de-worming, a trypanocide and/or vaccination against prevalent diseases.

Presentation during a field day of fodder conservation techniques. Photo: Bruno Minjauw

Not every problem can be easily dealt with using a "learning by doing" approach. Some problems, such as those relating to contagious diseases, for example, are not suitable or too dangerous for experimentation. Others may be too abstract to be demonstrated physically, such as the importance of epidemiological status or immunological reactions, and these can be addressed in special topic sessions where issues are discussed. Since the facilitator cannot be an expert in every subject, he or she will help the farmer group to invite the right person to talk about the subject chosen by the farmers. This empowers the FFS group to contact other organisations such as NGOs or national or international research institutes. Special topics can also include livestock and non-livestock related issues, giving farmers the chance to access the information that addresses their priorities at a particular moment. For example, talking to the community about trypanosomiasis when the village is threatened with a cholera outbreak is unlikely to be addressing a priority issue. Advice about cholera control will certainly be more relevant.

Conclusions

If scientific research is to achieve a real impact on farm productivity and livelihoods, new methodologies for dissemination of information have to be developed. Participatory approaches, which facilitate farmer demand for knowledge, give them the opportunity to choose, test and adapt technologies according to their needs. Through participation in FFS, farmers develop skills that allow them to analyse their own situation and adapt to changing circumstances. The ILRI livestock FFS project, funded by the DFID Animal Health Programme, is testing and adapting a participatory method to create a sustainable relation between farmers, extension officers and research institutes. These relationships are thought to be a fundamental tool, allowing scientists to collect appropriate data and to transform developed technologies into products adapted to farmers needs.

Using the FFS approach, the project is developing an innovative process through which farmers adapt existing technologies and try out new ideas. These ideas are developed through interactions between farmers, scientists and extension workers. This unique relationship is an excellent platform for epidemiological studies using participatory methods, to disseminate information on disease prevalence, to design relevant participatory technology development, and to introduce more successful disease surveillance and control strategies. ■

Recording general information for the AESA. Photo: Bruno Minjauw

B. Minjauw and D. Romney. International Livestock Research Institute, PO Box 30709, Nairobi, Kenya. Email: b.minjauw@cgiar.org
H.G. Muriuki. Ministry of Agriculture and Rural Development, PO Box 30028, Nairobi, Kenya.

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References:
Minjauw, B., Muriuki, H.G., and Romney, D. 2002: **Adaptation of the Farmer Field School methodology to improve adoption of livestock health and production interventions**. In: Responding to the Increasing Global Demand for Animal Products, BSAS Conference, 12-15 Nov. 2002, Merida, Mexico.