Tropentag 2010
ETH Zurich, September 14 - 16, 2010
Conference on International Research on Food Security, Natural Resource Management and Rural Development

Impact Monitoring and Evaluation System for Farmer Field Schools in Kyrgyzstan: How to Optimize Resource Allocation for Higher Impact?

Irene Müller, Dominique Guenat and Ingrid Fromm

Bern University of Applied Sciences, Swiss College of Agriculture, Department of International Agriculture, Laenggasse 85, 3052 Zollikofen, Switzerland. E-mail: ingrid.fromm@bfh.ch

Introduction

With the collapse of the Soviet Union and the independence of the Kyrgyz republic in 1991 Kyrgyz agriculture went through deep structural changes, from large collective farms to household-scaled semi-subsistence farms. Former kolkhoz and sovkhoz specialists became small-scale farm- generalists with a huge lack of technical knowledge and entrepreneurship. Those new farmers were poorly prepared and yields of various crops decreased dramatically. Besides a lack of inputs they were particularly in need of training which would give them the knowledge and confidence to make their own proper decisions (Eveleens, 2004). Figure 1 shows a problem tree with the main challenges faced by Kyrgyz farmers. From 2003 to 2005, pilot activities were carried out to test the suitability of season-long Integrated Pest Management (IPM) trainings in cotton, potato, cucumber, and tomato production using the Farmer Field School (FFS) model. The Advisory Training Centre (ATC)[1] was responsible for the implementation. The FFS approach struck a responsive chord with farmers and other stakeholders. The pilot activities demonstrated that FFS could effectively fill the gap in extension services and enable farmers to become more efficient and self-reliant managers of their scarce agricultural resources. The FFS approach had the potential to provide farmers with the practical knowledge and skills to operate more effectively in a market-oriented agricultural system and to enable optimum utilization of services offered by private providers (FAO 2006). In the period of 2003 to 2006, 174 Farmer Field Schools were conducted in Kyrgyzstan and altogether approximately 2600 farmers were trained (Eveleens, 2007). Since 2006, the IPM Farmer Field School approach in Kyrgyzstan is no longer in the pilot phase. There is a need to prove its effectiveness in improving farmers' livelihoods as an outcome of the FFS. Outcome monitoring allows the regular reporting of program results in ways that stakeholders can use to understand and judge those results. The existing monitoring system of the Integrated Pest Management program in Kyrgyzstan focuses mainly on results and outputs. However, there is a big demand for more detailed information on short, mid and long-term outcomes and impacts to optimize processes and the use of resources.
The purpose of this study was to develop an Impact Monitoring and Evaluation System (IMES), that would allow the measurement of the effectiveness of the FFS-approach in Kyrgyzstan with the aim to attract new donors, partner-organisations and potential FFS participants.

[1] ATC (advisory training centre) was renamed ZOKI (Training, Advisory and Innovation Centre) in 2008. It is located in Bishkek, Kyrgyzstan

Material and Methods

The methods applied in this study include literature review especially focusing on monitoring and evaluation methods used for FFS, outcome and impact assessment, participatory approaches, as well as field work: a total of 32 FFS-participants, 15 trainers, 4 master trainers, and 8 partner organizations were involved in the study. The interviews and questionnaires were conducted in Batken-, Chui-, Jalalabad-, Naryn-, Osh-, and Issik-Kul-Oblast between July and August, 2007. Each FFS group had on average 12 to 15 participants. Questionnaires and semi-structured interviews were used to assess their opinion, preferences, satisfaction, bottlenecks and potentials, concerning the IPM Farmer Field School approach in order to assess the research hypothesis (Müller, 2007).

Results and Discussion

Impact indicators were selected on the basis of the impact hypotheses, derived from the problem tree (Figure 1), influenced by stakeholders' opinions and lessons learnt from previous years. The impact hypotheses in this case are somehow like "pathways towards improved livelihood". An exemplary core set of outcome / impact indicators with reasons for its choice and source of verification is listed below in Table 1. They are put here as an example only and must be cross-checked by a group of different stakeholders, to adjust them to their situation, their value system and the specific crop.

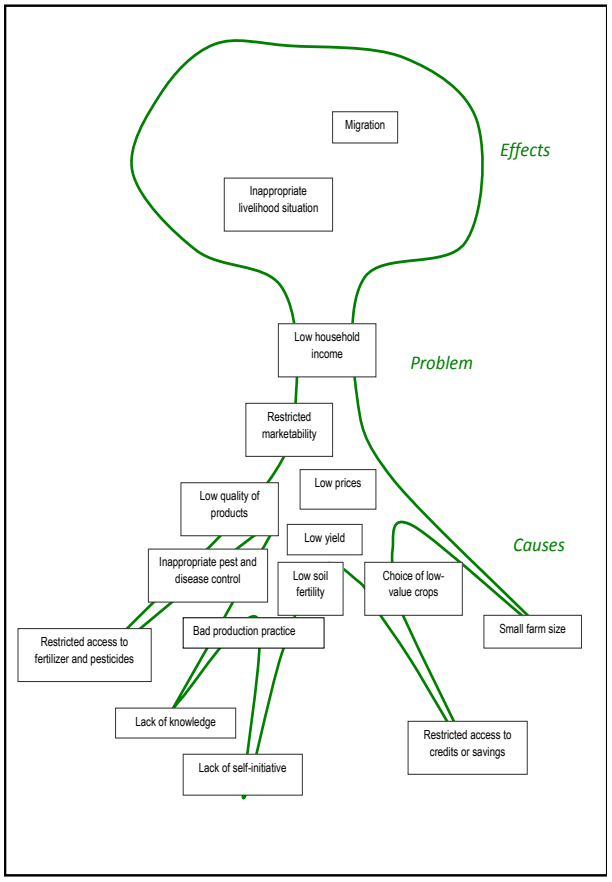

Figure 1. Problem tree summarizing problems identified by farmers

Table 1.Exemplary Core Set of Outcome / Impact Indicators

	Outcome / Impact Indicator	The selected indicators (left) relate to the following issues	Source of Verification
Economic	Crop yield (tomato)	- Soil fertility - Productivity - Production practice	Measure or estimate by the farmers, invoices of processing companies
	Area under specific crop (tomato)	- Profitability - Meeting market needs	Interviewing farmers (as farmers do not keep accounts)
	Yield quality (tomato)	- Production practice - Price potential	Farmers' statements, field visits
	Marketing of products	- Risk reduction - Potential for production increase	Interviewing farmers
	Household income	- General development of the livelihood situation - Basis for later qualitative information about reasons	Estimate by the farmers
Ecological	Inputs used	- Adoption of IPM technology - Cropping practice	Interviewing farmers with checklist
	Number of marketed crops (crop diversity)	- Increase of biodiversity - Risk reduction - Sign of innovation	Interviewing farmers, using list of products as support
Human-social	Group development	- Risk reduction - Farmer-to-farmer extension - Lower production costs due to lower input prices	Farmers, NGO implementing FFS, contracts
	Problem solving skills	- Empowerment - Self-initiative	Farmers, field visits
	Planning	- Reliability of monitoring data - Empowerment	Farmers

There are many possible indicators suitable to measure the outcome and impact of Kyrgyz Farmer Field Schools. Which indicators are most appropriate to describe changes in the specific context, completing each other, and allowing a certain triangulation, had to be elaborated by the stakeholders directly involved. An example of the above introduced core indicators (Table 1) is given in Table 2 where for each indicator, values were attributed on the basis of the survey results.

Once the indicators have been chosen, an appropriate monitoring tool must be chosen from a broad range of different methods or created to measure them. Gujit (1998) points out that choosing a method that is suitable and feasible, depends on factors such as the unit of analysis, whether qualitative or quantitative information is required, resources, etc.

Table 2. Rating of Impact Indicators

	Impact Indicator	Rating				
		5 = very good	**4 = good**	**3 = moderate**	**2 = weak**	**1 = very weak**
Economic	Yield (tomato)	> 45 t/ha	30-45 t/ha	20-30 t/ha	15-20 t/ha	< 15 t/ha
	Surface[1] (tomato)	> 100 sotkov[2] =1ha	50 – 100 sotkov	20 – 50 sotkov	2 – 20 sotkov	< 2 sotka (home consumption) or stopped producing
	Quality of Product (Tomato)	Good size, no visible damage (rotting, holes or spots)	Fruit worm holes or rotting patches rarely found	< 10% of fruits are damaged, patched or are undersized	10 – 30% of fruits are undersized or damaged (fruit worm, blossom-end rot, spots)	> 30% of yield is too small or heavy damaged to market
	Marketing of Product	Guaranteed market outlet (contracts), perhaps with on-farm processing	Oral agreements about price and quantity for the majority of yield	Agreement about price and quantity for small part or yield	Selling to market traders, being dependent on normal market fluctuation	Sell at the border of the street as this is the only possibility
	Household Income	> 20% increase	10 – 20% increase	1 – 10% increase	Stagnating	Decreasing
Ecological	Inputs used	> 6 IPM techniques[3] are used in the field	5 - 6 IPM techniques are used in the field	3 - 4 IPM techniques are used in the field	1 – 2 IPM techniques are used in the field	No IPM technique is used in the field
	Number of marketed crops (crop diversity)	< 9	8-9	6-7	4 - 5	> 3
Human-social	Group Development	Farmers form official or unofficial groups, cooperatives or network	Farmers marketing jointly their products or purchase of inputs	Farmers collaborate and exchange knowledge with members of the new group	Farmers collaborate mainly with members of the own family	Farmers work individually
	Problem-solving skills	Participates in participatory research or on-farm trials	Sets-up own small experiment	Asks neighbor or friend for advice	Tries things only where there are little problems	Does nothing
	Planning/ Documenting	Participants use a tech-chart[3] to plan and document main crops	Participants make cost-benefit calculations themselves	Participants note down yield and production costs	Participants measure yield or know volume from delivering to processing company	Participants have only a vague idea about yield

1. Area per farm household (large farms are not represented in FFS)
2. Pl. of sotka (сотка): old Soviet standard unit of measurement for private plots of land, “centihectare" = $100m^2$
3. IPM techniques trained can be listed and used to remember

The diagram acts as a framework to visualize quantitative, rated core indicators, which are the basis for the qualitative questioning on reasons for changes noted beside and providing information why and how changes happened, making it possible to attribute certain impacts to the projects interventions. The group-evaluation is therefore facilitated by a FFS-trainer or external monitoring consultant, moderating farmers' findings. Before or at the beginning of the FFS-training, baseline data will be collected. At the end of the first year's training and two years after trainings has ended, the indicators will be measured again and results will be checked against the baseline data. Reasons for changes are then jointly discussed and noted beside the indicators. A first evaluation takes already place during the monitoring itself and findings are directly fed back from the group to the individual farmer. Joining data from groups with similar conditions or crops has to be done by a master trainer or project staff of ATC, who also have to do the final interpretation and decision making how to adjust the program, if necessary, or use the data for the attraction of future FFS-participants, partner organizations and donors.

The method proposed allows FFS groups to follow up their own progress, assuming that a baseline study is done at an early stage (e.g. at the beginning of the FFS) and repeated after one year and maybe again after two or more years. The method is useful for the FFS trainer (he / she can assess the results achieved by "his" / "her" FFS group) and also for the participants themselves, individually (they can situate their individual results within the results of the group that will be illustrated in the spider diagram). It can enhance the motivation of the group members if they achieve positive results. The surveys conducted within the framework of the present study helped to develop the method. In particular, they allowed "calibrating" the method with realistic data based on the farmers' experience and the researcher's observations. It would be useful now to apply the method to a larger number of FFS groups in the Kyrgyz context. This would allow comparing groups and identifying the key factors that explain the success of the best groups, or the reasons for less successful results in weaker groups.

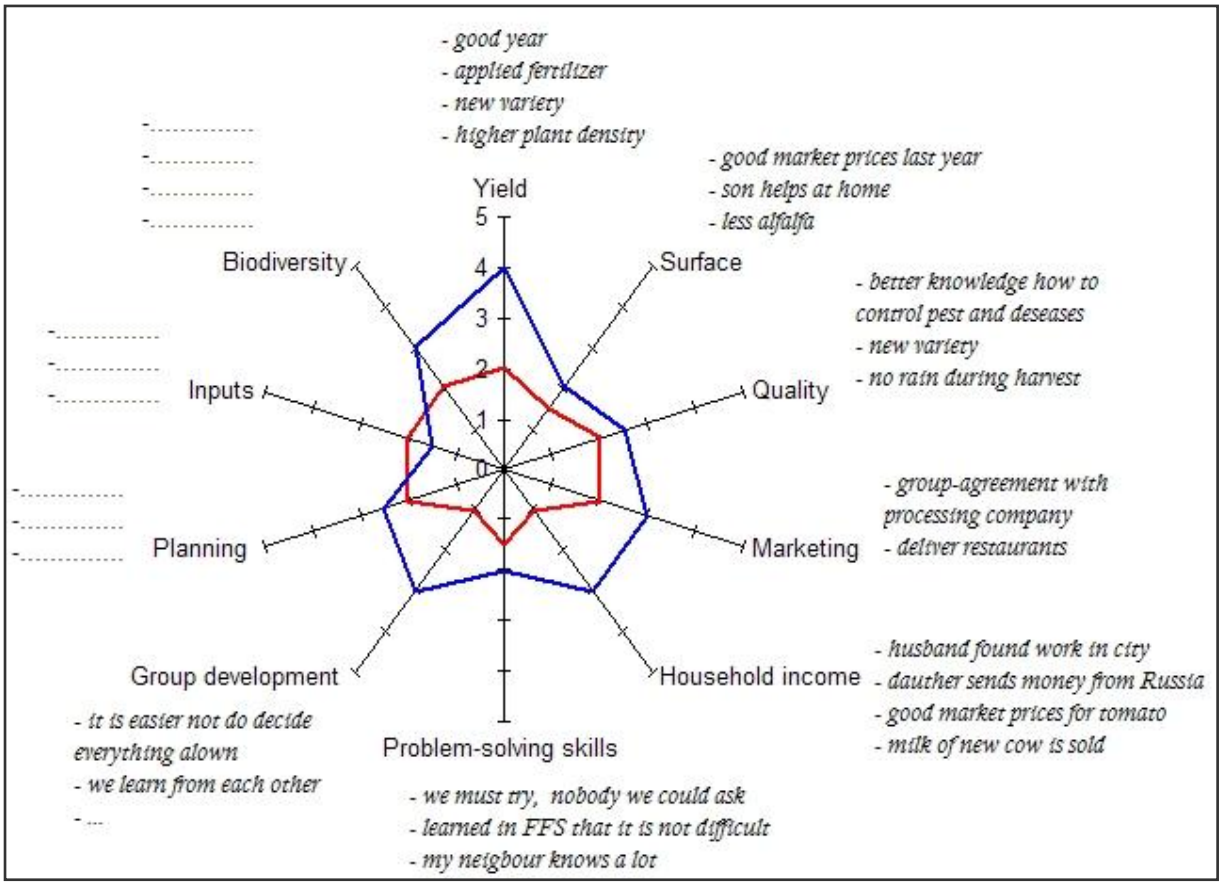

Figure 2. Spider-web Graph applied to the Kyrgyz FFS IPM case

On the other hand, one question that was raised before the study remains partly unanswered: how can development agencies, NGOs or government organizations assess whether it is worthwhile starting a FFS with a group of farmers? This question would require setting minimum conditions that a group should meet to be "entitled" to start as FFS group. These conditions can be derived from the spider model, but they can be defined only after a broader application of the model to existing FFS (including FFS that were not successful). The reasons for the failure of FFS groups, if they can be generalized, i.e. if they are not due to very specific and local conditions, would serve as benchmarks for new groups (minimum conditions) or they would allow screening new groups, avoiding investments in groups that do not have the potential to succeed. This application of the tool, even before new FFS groups actually starts, would for sure interest development stakeholders, as this would increase the chances for successful investments in agricultural development.

Conclusions and Outlook

The literature research has shown that the methodology for impact evaluation of the IPM Farmer Field School is still under development, and at present, no agreed framework for IPM impact assessment exists (van den Berg, 2004). This is not surprising because what is seen as impact of IPM FFS depends on each project's objective and the perspectives of different stakeholders. Objectives themselves are based on prevailing problems and context of the study area and typically vary with the developmental stages of programs (Braun *et al.*, 2006). To measure impact of IPM Farmer Field Schools in Kyrgyzstan, it is important to bear in mind that impact indicators are chosen to measure the program's objective, representing an improvement of a problem situation Kyrgyz farmers face, and not on IPM principles. Frequently used and easily measurable indicators of IPM FFS impact evaluations, like pesticide and fertilizer reductions (von den Berg, 2004), are no real subjects in Kyrgyzstan, due to lack of money and high (world-market) prices, preventing farmers from applying those inputs excessively (FAO, 2007). Kyrgyzstan is a *post*-Soviet country, where innovative skills like problem-solving, initiative-taking, creativity, etc. were efficiently suppressed by the former system (Kitaev, 1994). Former kolkhoz and sovkhoz specialists, who are nowadays small-scale farm- generalists with a huge lack of technical knowledge and entrepreneurship, are particularly in need of training, which gives them the knowledge and confidence to make their own proper decisions (Eveleens, 2004).

Trying to evaluate this context-important, broad range of impacts, affecting not only the economic sector of a farm-household, but also the ecological and human-social contexts, is recommended by various authors (Eveleens, 2007; van den Berg, 2004; Braun *et al.*, 2006), yet it makes IPM FFS impact evaluations a real challenge. Reasons for this are difficulties in quantifying and measuring other parameters than yield and pesticide use, lack of methodologies that are accepted by the broader scientific community and short time-line for evaluation studies (van den Berg, 2004). Further context-specific problems make such evaluations more challenging. Most Kyrgyz farmers do not document their yield and production costs, estimates are often weak, they show little self-initiative and responsibility, and they frequently change the results in hopes to be further favored by the program. There are additional influences from other sources, like a high density of other projects or programs especially in Chui Oblast, remittances sent from family members working in Kazakhstan and Russia, strongly fluctuating markets in China and Kazakhstan, and no strong boundaries to family land and high readiness to move or emigrate if a good opportunity appears, affecting the livelihood situation and making changes of farmers' situation difficult to attribute to FFS-trainings.

References

Braun A, Jiggins J, Röling N, van den Berg H, Snijders P, 2006. A Global Survey and Review of Farmer Field School Experiences. Global Farmer Field School Network and Research Centre, accessed on March 14th, 2008, http://www.infobridge.org/ffsnet/output_view.asp?outputID=1880

Estrella M, Gaventa J, 1998. Who Counts Reality? Participatory Monitoring and Evaluation: A Literature Review. Institute of Development Studies, UK, 73pp

Eveleens K, 2004. The Training of Trainers/Farmers Field School Programme for Cotton and Potato IPM in Kyrgyzstan in 2004: Evaluation and follow-up. FAO consultancy report, unpublished, Global IPM Facility, 14pp

Eveleens K, 2007. Preparation Mission Kyrgyzstan: WB AISP, IPM component. Unpublished, FAO, Rome, 8pp

Food and Agriculture Organization of the United Nations technical cooperation programme, 2006. Strengthening implementation capacity for Integrated Production and Pest Management (IPPM) training based on the Farmer Field School approach in Kyrgyzstan. Pro forma project agreement for 2006 and 2007, unpublished, FAO, Rome, 18pp

Food and Agriculture Organization of the United Nations, 2007. The community's toolbox: The idea, methods and tools for participatory assessment, monitoring and evaluation in community forestry: Tool 9 Semi-structured interviews. FAO, accessed on February 29th 2008, http://www.fao.org/docrep/x5307e/x5307e08.htm

Groeneweg K, Tafur J Ch, 2003. Evaluation in FFS: A Burden or a Blessing? LEISA Magazine on Low External Input and Sustainable Agriculture, March 2003 Volume 19 no. 1,16-17pp (or: www.infobridge.org/asp/documents/3486.pdf)

Guijt I, 1998. Participatory Monitoring and Impact Assessment of Sustainable Agriculture Initiatives. SARL Discussion Paper No.1, International Institute for Environment and Development, UK, 112 pp

Herweg K, Steiner K, 2002. Impact Monitoring & Assessment: Volume 1: Procedure. Centre for Development and Environment (CDE) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Bern and Eschborn, 48pp

Kitaev I, 1994. Russian Education in Transition: Transformation of Labour Market, Attitudes of Youth and Changes in Management of Higher and Lifelong Education. JSTOR, accessed on March 17th 2008, http://links.jstor.org/sici?sici=0305-4985(1994)20%3A1%3C111%3AREITTO%3E2.0.CO%3B2-Q#abstract

Mancini F, Van Bruggen A, Jiggins J, 2006. Evaluating Cotton Integrated Pest Management (IPM) Farmer Field School Outcomes using the Sustainable Livelihoods Approach in India. Wageningen University, accessed on March 14th 2008, http://www.bfs.wur.nl/NR/rdonlyres/631BAD5F-A736-43E5-8CDA-25C855034322/37076/ExAgrSLA_Mancini.pdf

Müller I, 2007. Integrated Agricultural Production in Farmer Field Schools in Kyrgyzstan. Practical Training Report, unpublished, Swiss College of Agriculture (SCA), Zollikofen, 40pp.

Van den Berg H, 2004. IPM Farmer Field Schools: A synthesis of 25 impact evaluations. Food and Agriculture Organization of the United Nations, accessed on March 14th 2008, ftp://ftp.fao.org/docrep/fao/006/ad487e/ad487e00.pdf