MANAGEMENT ADVICE FOR FAMILY FARMS : AN EXTENSION PROCESS TO HELP FARMERS OF NORTH CAMEROON MEET UP CHALLENGES OF PROFESSIONALIZATION

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Abstract

In North Cameroon, the existing agricultural extension approach failed to consider the farm unit as a whole. Their focus was on the extension of new production techniques, paying less attention to the management pattern of these farms. With the current trend to a liberal economy, farmers whose management practices are still rudimentary, are called upon to move towards a more professional attitude in view of improving the efficiency of their farm exploitation. There is therefore a need to complement extension approach. This concern has led to the elaboration and implementation of a smooth and progressive Management Advise for Family Farms (MAFF) process. MAFF was designed and tested since 1998 by the Institute of Research for Agricultural Development (IRAD) within the frame work of the "Pôle Régional de Recherche Appliquée au Développement des Savanes d'Afrique Centrale (PRASAC)" and collaboration of the "Projet Développement Paysannal et Gestion de Terroir (DPGT)". Aimed at strengthening the farmer's decision making capacity, it moves from training on basic management (Year I) to an individual advise (Year III) through technico – economic analyses (Year II). During the first two years, farmers have been trained to diagnosis and basic management. Also, some extension and experimentation operations were carried out. Preliminary results show an improvement in farmers' behaviour who are progressively integrating measure, quantification and forecasting in their practices. As implemented, MAFF appears as a process to introduce farmers to the management cycle.

Key words : Professionalization, farmer's decision making capacity, Management Advice for Family Farms, North Cameroon

Introduction

In North Cameroon, agricultural extension services are provided mainly by two structures : "Société de Développement de Coton du Cameroun" (S0DECOTON**)** and the National Programme for Agricultural Extension and Research (NPAER). They focus on increasing productivity, thus the approach used is based on the extension of new production techniques. The results obtained so far are quite encouraging. An increase in cultivated farm land, coupled to a relatively timid modernization are observed.
However, this approach shows some limitations due to its sectorial and bossy character (Djamen *et al*., 2001a). It fails to consider the farm unit as a system made up of interconnected and interactive components. Moreover, the heterogeneity of farms is not always taken into account and less attention is given to the management pattern of these farms. In such a system, the farmer is considered as a passive actor whose sole role is to

implement new technical recommendations which are very often developed in an environment different of his.
Nowadays, with the current trend of liberalization, the government is disengaging itself from some of the roles it used to play such as commercialization of products and inputs supply. Given this new context which also marks the evolution towards globalization, farmers of North – Cameroon are called upon to improve their professional skills. They should move from the traditional subsistent agricultural practices to a more professional attitude, taking their destiny in their hands, improving the efficiency of their farms in view of earning more benefits from their efforts.
This situation is more worrying as studies have shown that farmers management practices are inadequate (Balkissou, 2000; Legile, 1999). In fact they cannot manage properly the available farms resources and are living under the threats of famine and inadequate finance means to cover their day to day needs. Alone, it would be difficult for them to achieve success since they are not fit enough.
There is therefore a need to complement the agricultural extension approach. To cover the gap left by both SODECOTON and NPAER, a Management Advice for Family Farms (MAFF) approach was designed and tested since 1998 by the Institute of Research for Agricultural Development (IRAD) within the frame work of the "Pôle Régional de Recherche Appliquée au Développement des Savanes d'Afrique Centrale (PRASAC)" to assist local farmers of North Cameroon.
Based on the global farm approach (Bonneviale *et al.,* 1989; Brossier *et al*., 1997), the ultimate goal of the MAFF is to strengthen the reasoning capacity of farmers, who will then carry out by themselves the diagnosis of their farming system, take and implement appropriate decisions and innovations that will increase the efficiency of their farms. The first difficulty the implementation of MAFF had to overcome was the question of the definition of an adequate methodology. The present paper casts a look at the first results registered and put an emphasis on the methodology used.

1. Methodology

1.1. From the knowledge of farmers' needs to the implementation of appropriate actions

Prior to the implementation of Management Advise for Family Farms operations, studies were carried out on farms located in PRASAC's area of intervention (North and Far – North provinces of Cameroon). These studies focused on the structure (Havard *et al.,* 2000) and the functioning (Moussa & Jonsson 1998; Djamen, 2000; Ndzana, 2000; Wambo 2000) of farms and the management practices of farmers (Legile 1999, Balkissou 2000). These diagnostic studies revealed the following :

- Average farm land area per family is small (2,2 ha)
- A search for food self sufficiency and a minimum financial income are the main objectives of farmers. Thus food crops occupy almost 70 % of the cultivated land while the rest is covered by cotton, the main source of income. Paradoxically, only 45 % of farms produce enough food to cover their needs. Almost all of them face the difficulty of meeting up their financial and food needs throughout the year.
- Farmers' education level is low (Havard *et al.,* 2000) and their management practices are rudimentary. Generally, uncertainty dominates over forecasting. Few farmers practiced forecasting which most often does not exceed a farming season due to their weak room for maneuver.
- Inspite of support brought by SODECOTON, farmers show a great need of technical support

- Farmers faced climatic constraints. In fact due to the very short and monomodal rainy season (May – October), farmers are strained to use their seasonal scarce resources to cover unlimited food and financial needs face in course of the year.

1.2. A smooth and progressive process aimed at strengthening farmers' capacity of self diagnosis

Considering all these factors, the approach of MAFF developed, inspired of the experience of Burkina Faso (Kleene, 1995), aims mainly at reinforcing farmer's capacity of self analysis and decision making. More precisely, the objectives of this extension process is to : give rise to thought, promote measuring and forecasting, and integrate technico – economic aspects in the reasoning of farmers (Legile, 1999).
To achieve this goal, a lot a work need to be done so the process adopted is smooth, progressive and gradual. It is planned over three years (Figure 1). It moves from *training on basic management* (year I) to *advise in the strict sense* (Year III) through *technico-economic analyses* (Year II). This program begins on a day to day management (concrete) and moves gradually to forecasting (abstract). The implementation of this process is done through modules of training elaborated according to constraints detected during diagnosis.

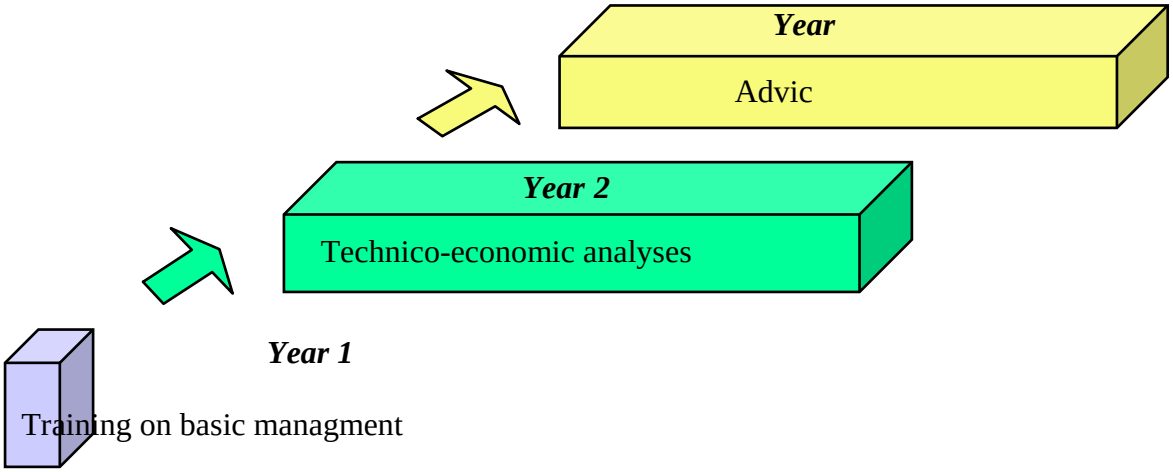

Figure 1 : The implementation of the MAFF approach in North Cameroon (Legile, 1999)

1.2.1. Year 1 : Training on basic management
It appears that the first thing to be done is to give to farmers basic notions of management. The best way to do it is to use concrete examples that can be understood easily by farmers who are not use to. Thus these modules concern the management of financial income and of food stock. The third module focuses on forecast preparation of the farming season.
For the first two modules, the methodology used is based on questioning, so for each item the following questions were to be answered :

- What are my needs ?
- What are the available resources ?
- Are available resources sufficient enough to cover all my needs ?
- If not, what can be done to fill the gap ?

By finding answers to each of these questions, farmers are gradually introduced to measure and quantify their needs and resources.

For the first question, the answer is found by checking the overall household food and financial needs. Generally in a household, food produced are used for a wide range of purposes : family consumption, sales, constitution of seed material, payment of taxes and workers. For the particular case of financial income, all the needs and their period of appearance are identified. This is very important because the amount of money from sales of cotton, the main source of income, is low and seasonal, thus does not cover different needs which arise throughout the year. In a household where people practice extra-farm activities, income brought by these activities should be considered. In fact, they represent about 15 to 20 % of the household total income.

The same exercise is carried out for the available resources. Different resources and their period of availability are listed and quantified so that periods of shortage can be detected. In almost all cases, resources come from farm production and / or from sales. In most households, cotton is the main source of income. It contributes to more than 3/5 of the household total income (Balkissou, 2000).

A comparison between needs and available resources permit farmers who are food crop or financially deficient to look for solutions in advance to avoid difficulties.

Forecast preparation of the farming season : Although based on questioning, the method is slightly different because farmers are introduced to forecasting. In fact this module is the sum of the two previous modules. Here the questions to be answered are :

- What am I going to produce ?
- What are the amounts of inputs required ? and when ?
- Are resources sufficient enough to fill the needs ?

The crops to grow and the land area to cultivate are determined by the needs of the household. There is a close relationship between these needs and the type of crop rotation adopted by farmers. Land area allocated to the growing of food crops is determined by the family's food needs, and the area land for cotton reflects the financial needs.

Once the different crop species to be cultivated are chosen, the farmer now draws up a farming calender according to different operations needed for each crop. Then all inputs (land, labour and capital) required for the implementation of these operations are identified and quantified. The same exercise is done for resources and their period of availability so that the period of shortage can be detected. A comparison permits the farmer to balance between his needs and the available resources.

1.2.2. Year 2 : Introducing farmers to technical and rate of return analyses

After consolidating the program of Year I, the module of year II focuses on technical and rate of return analysis. The main purposes were to introduce farmers to :

- calculate the economic profit of each crop
- carry out a technical analysis of the yields
- define indicators measurable that will be used to evaluate the performances of the farm

The economic profit for each crop is determined by making the difference between the amount of inputs used to achieve different operations necessary to a grow the chosen crop and the market price of the production obtained. They can reallocate the area under cultivation for a given crop depending on its rate of return.

Simultaneously, the correlation between the techniques used and the yield obtained is established. This is done by throwing a look at the amount of inputs and the period of achievement of each cropping operation. Through this, farmers understand better that their yield depends mainly on their farming practices. After this analyses they can change or improve their practices. Example : May be the poor yield is due to the non-respect of technical recommendations (poor tillage, late sowing, ...).

Through this exercise which is carried during debate sessions, farmers defined together standard and indicators needed to evaluate the performances of farms of the region.
During the first two years, beside diagnosis and training, some experimentation and extension operations were carried out. They were aimed at developing and enlarging the scope of farmers.

1.2.3. Year 3: The advisory package proper

This phase which is just starting is the ultimate phase of the implementation of the MAFF approach designed for North Cameroon farmers. During the first two years, priority was given to training on diagnosis and basic management. After these modules the farmer is fit enough to receive advice. This advice is especially strategic because it has to deal with long term decisions aimed at reorganizing the production system to make it more efficient. Consequently this year, activities are focused on farmers' projects.
The methodology used has four steps :

- A participatory diagnosis carried out by the counselor (extension agent). Discussions are focussed on technico – economic analyses of the farm; working out and discussion of a one year forecast program and further development of the farmer's project.
- Detailed technico – economic analysis of the farm, of the farmer's project and solutions by the team of counselors.
- Discussion and restitution of the results of the analysis between the counselor and the farmer in view of helping the farmer in decision making process.
- Implementation of the decisions, follow-up, adaptation / alteration according to the farmer's demand.

1.3. A special disposition for a particular extension process

The implementation of MAFF operations needs special dispositions without which success will be difficult to achieve.

- **Extension agent (Counselors)** : They should have good knowledge of agriculture. With a level of education of at least General Certificate of Education Advance Level (High school). They must master the participatory approach and animation techniques. Also, the capacity to carry out diagnoses and establish dialogue with and within farmers is a pre requisite.
- **Farmers** : Those who come to MAFF should be willful and agree to re examine their production system. They can constitute themselves in groups according to the similarity of their needs.
- **An adequate schedule of modules** : to guarantee their success these modules must be carried out timely. In the case of MAFF experience in North Cameroon, modules elaborated were developed at the right moment : *yield management* at harvesting period; *management of financial income* after the sale of cotton; *forecast preparation of the farming season* at the eve of the rainy season and experimentation during cultivation period.
- **Tools** : An appropriate diagnosis cannot be done without precise data. So farmers are introduced to note taking in farm records. Thus farm records are one of the fundamental tools for the implementation of MAFF.

2. Results and discussion

2.1. Farmers of different profile determined to improve their practices

A primary assessment of the effects of MAFF operations shows that farmers receiving MAFF are of different profiles. They can be found among big and performant farms as well as within

middle size farms and young farms at a growing phase. Table I presents some major characteristics of farms receiving MAFF comparatively to the general average of farms located in this zone. It clearly appears that farmers under MAFF are relatively younger (34 years) and have a better level of education as compared to the general average. They also have better yields.

Table 1 : Some main characteristics of farms receiving MAFF

			Farmers receiving MAFF***	Farms general average*
Farmers age (years)			34	43
Number of actives / person			3,5 / 7,2	3,1 / 5,5
Farmers education level		≥ Form VI/VII (%)	71	32
Crops rotation	Total land under cultivation (ha)		3,2	2, 2
	Cotton (%)		31	30
	Cereals (%)		42	56
Animal draught owner (%)			47	37
Cattle			4,6	3,6
Yields (kg/ha)		Cotton	1 256	920
		Maize	2 400	2 000
		Groundnuts	1 000	1 000
		Sorghum	700	600
Cash return** (Fcfa)****			614 000	330 000
Household total income (Fcfa)		/ farm	490 000	276 000
		/ active	140 000	88 000
		/ person	69 000	50 000

Legend : * General average of the 900 farms located in the PRASAC's area of study (Havard et *al.*, 2000) ;
** this is an estimation of the overall yield (sales and household consumption), plus the sale of cattle, income brought back by extra – farm activities.
*** They were about 200 in 2000. **** 1FF = 100 FCFA
Source : Djamen *et al.*, 2001a

2.2. More measure and quantification in farmers practices

2.2.1. Management of food stock

The first effect observed is a change in the management pattern of farmers. Henceforth, more and more farmers check their needs and thus use their resources more efficiently. A study carried out by Djamen *et al.*, (2001b) shows that cereal wastage has considerably reduced thanks to measure and quantification. Farmers know their household daily food consumption, so just the quantity necessary to feed the family is prepared and there are no longer any remains of food as formally observed in 66% of farms during harvesting period. Farmers who are food crop deficient look for solutions in advance to avoid difficulties. Furthermore, untimely and hasty sales of cereal generally observed at post-harvest period are more and more reduced.

Also, those who produce enough, manage more precisely the quantity for sale. The yields are divided in to two parts : the first part is for family consumption while the second intended for sale is stored in community granaries waiting for the appropriate moment when prices are high on the market.

2.2.2. Management of revenue

Through the checking and planning of their expenditure, farmers have been introduced to make better use of their low and seasonal income. About seventeen percent of farmers receiving MAFF have already started this exercise. When measure and forecasting are well done, money earned from the sale of cotton is directly divided and shared to different needs. Also, farmers are conscients of the fact that cash crop revenue alone cannot cover all family's needs. So there is a need to diversify sources of income. New strategies are being developed : More land be allowed to the cultivation of food crops which are less demanding in terms of inputs than cotton but, have a good market value (maize and groundnuts mainly). Some farmers are keeping animal especially cattle, sheep and goats.

Those farmers who have a good room of maneuver receive the help of the counselor to chose an investment capable of increasing the efficiency of the farm. Fifteen percent of farmers have started writing down their expenditure and savings in a note book.

2.3. Introducing farmers to short term forecasting

Through the module *forecast preparation of the farming season*, farmers are introduced to forecasting. Concretely, this module aims at enabling farmers settle and grow their crops under smooth and good conditions. This is very important because it is through farming that they find means to cover their food and financial needs. Therefore, sufficient production of crops is imperative.

The exercise of checking and planning, carried out before the start of the farming season, permits farmers to adjust their objectives to the available means. In 39 % of cases the comparison between needs and the available resources resulted in a decrease in size of land under cultivation. The fact is that these farmers used to cultivate more land than their means could permit (Djamen *et al*., 2001b). However, an increase of farm size has been observed in six percent of farms receiving MAFF. This is the case of well equipped farmers, who after a diagnosis found out that although disposing of sufficient production means, they used to cultivate less than their family needs required.

Also, it has been observed that thanks to a farming calendar drawn up in advance, farmers in MAFF are making effort to realise different cropping operations at the needed moment (from land preparation to harvesting).

2.4. Integrating technico - economic analyses in the reasoning of farmers

This is the purpose of the program of Year II. Through technical and rate of return analyses farmers now better understand that their yield is closely related linked to their farm practices. Efforts are made to better follow-up technical recommendations (date of sowing, application of fertilizers, etc.). The economic analysis has resulted in an increase of the land area of crops which are less demanding in inputs but have a good productivity (example maize compared to sorghum and millet). These analyses resulted to the re adjustment of previous practices.

2.5. Developing and enlarging the scope of farmers

During the first two years, beside training on diagnosis and basic management, some experimentation and extension operations were also carried out:

- high yielding variety seeds have been distributed to farmers in view to renew seed materials and improve their yield. This experience has been carried out with rice, groundnuts, maize, sorghum and beans.
- New animal draught tools have been tested. The use of organic manure as soil amendment was also tested with some farmers.

- At their demand, some farmers receiving MAFF were trained to new module techniques. These modules had to deal with animal health and nutrition, crop protection and agro-forestry.
- Technical itinerary for the production of some crops (cotton, maize, sorghum, groundnuts, production and utilization of organic manure) were explained to farmers.
- Generally, farmers have shown a great interest to all these operations.

2.6. Helping farmers in designing and implementing their project

This phase which is just starting is the ultimate phase of the implementation of the MAFF approach. Discussions have already started with some farmers who have projects. The process consists on discussing with farmers to help them elaborate a viable project for their farm units. It is still too early to give preliminary results of this phase.

Conclusion

This communication presents the methodology used for the implementation of a MAFF approach designed for farmers of North Cameroon who are now facing the challenges of professionalization. Based on the farm global approach, this process is smooth and gradual, planned over three years.

During the first two years, groups of farmers of different profiles have been introduced to basic management. This is done through training modules of common interest focused on food stock and income management, forecast preparation of the farming season and technico – economic analyses. The third year is the time for individual advice and states on the farmer's project.

Acquisition and further development of knowledge are the first visible results. The implementation of knowledge has brought some changes in farmers' behaviour. Henceforth there is more measure, quantification and even forecasting in their management and cropping practices. Checking and quantification of different needs enable the farmer to find the suitability between his objectives and the available resources, so solutions against difficulties can be found in advance. Also, the scope of farmers had been widened through experimentation and extension operations.

As implemented in North Cameroon MAFF integrates diagnosis, training, extension and advice. Through this process, farmers are gradually introduced to the implementation of the management cycle, that is : 1) diagnosis / preparation; 2) decision / implementation ; 3) follow up / assessment and 4) adaptation / modification.

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