STUDY ON EXTENSION METHOD AFFECTED TO IMPROVE DAIRY FARMER KNOWLEDGE (Case Study in Cisarua, Bogor)

Lumintang, R.W.E., M. Yanti & Hadiyanto
Faculty of Animal Science, Bogor Agricultural University

ABSTRACT

The role extension in creating conditions conducive to growth and economic development in dairy cattle is largely acknowledged. However the importance of dairy cattle development for poverty reduction is much less well understood In fact the major problem is the scarcity of farmer knowledge, especially in management ability. This applies to improve farmer knowledge, particularly in management, by getting access to information effectively through booklet as a communication media. This study was focused on clarifying the capability of booklet as an extension media to improve dairy farmer knowledge, especially the content of the booklet as a source of information. Along the objectives, were examined the dairy farmer in Cisarua, and were chosen 40 dairy farmer at random in consideration of strata in terms of number owned dairy cattle. The study was designed by *Two-group pre-test - post-test design,* and conducted in 1996. The result of this study indicated that extension media were able to increase farmer knowledge, consisted of five aspects (breeding, animal feed, housing, management, and animal health). Booklet as an extension media has significantly influenced and affected the farmer knowledge, although their characteristics are divergence.

***Key words*: Dairy extension media, Communication dairy innovation, and Farmer knowledge.**

INTRODUCTION

The role extension in creating conditions conducive to growth and economic development in dairy cattle is largely acknowledged. However the importance of dairy cattle development for poverty reduction is much less well understood. For too long, development policy has laboured under the false assumption that the scarce resources are the main cause of underdevelopment in dairy cattle. In fact the major problem is the scarcity of farmer knowledge, especially in management ability. This applies to improve farmer knowledge, particularly in management, by getting access to information effectively through booklet as a communication media.

Padmo (2000) mentioned that booklet, as an extension was able to improve farmer knowledge by continuously facilitating the farmer with appropriate information. Hence the major problem in the context of livestock extension is not necessarily the absence of information. The real issue is that that information that most strongly affects the lives of the farmer is not accessible to them. The department of livestock creates structure enabling the farmer to pursue information through extension activities.

In Indonesia dairy farm held an important role in Agriculture Development. Effort to increase farmer' income as well as their livelihood should be planned and realised systematically. Dairy farm has been developed for a century ago, since pre-independence era. Implementing improved production method continuously supported development process. Although Government facilitated these supports and efforts, dairy production was still low. It reflects inefficiencies at management level as well as farmers' skill.

Sustainable development is the management and conservation of the natural resource base and the orientation of technological and institutional change in such a manner to ensure the attainment and continued satisfaction of human needs for the present and future generations. Such development is environmentally non-degrading, technically appropriate, economically viable and socially acceptable (De Wrachien, 2001). The potential to increase dairy production in related to increase milk production, as an effect of economic reform, should be realised. The growth of dairy business will benefit dairy farmers and dairy labourers and thereby reduce poverty.

Some obstacles inhibited dairy growth were (Directorate General of Livestock Report, 1996):

- Low farm'labour productivity, and ineffectiveness of production method.
- Rate of increasing milk demand is much higher than rate of increasing milk production.
- Post harvest technology has no longer access dairy farm in rural area, caused the milk' value added remaining low.

The condition presented in Table 1 assume that dairy population will be able to meet.

Table 1. Development of Dairy Farm in Indonesia, 1990-1994

Unit: head, ton

Item	1990	1991	1992	1993	1994
Population	293,878	306,290	312,226	329,520	330,481
Milk production	345,600	360,200	367,180	387,520	388,650
Milk consumption					
- Domestic	317,400	299,200	295,700	339,000	362,700
- Import	304,000	507,800	514,400	446,800	533,200

Source: Directorate General of Livestock Annual Report, 1995

The milk consumption. The condition showed the slower growth rate of dairy population, wherein influences milk production. It showed the dairy population inclined significantly in the first three year, and then the fourth year the inclining rate became slowly, or even stable.

The slower rate of inclining dairy population resulted to milk production, which less than the inclining rate of milk consumption, could have contributed to reducing efficiency of dairy business. It caused the domestic milk supply should have been substituted by importing milk. Even if growth may be achieved, dairy productivity may not grow. This is not conducive to socio economic condition of the dairy farmer.

It is to clarify the capability of booklet as an extension media to improve dairy farmer knowledge in Cisarua, Bogor, especially the content of the booklet as a source of information.

MATERIALS AND METHOD

Along the objectives, were examined the dairy farmer in Cisarua, and were chosen 40 dairy farmer at random in consideration of strata in terms of number owned dairy cattle. The study was designed by *Two-group pre-test – post-test design,* and conducted in 1996. Observation was conducted in two phases; firstly the pre-test phase was conducted prior to the treatment, and secondly the post-test phase was conducted after the treatment. Characteristics of the farmer were analysed by descriptive analysis. Comparison between pre-test and post-test was analysed by t-student test and ANOVA. Table 2 shows the location condition of Cisarua, Bogor.

Table 2. Location Condition of Cisarua.

1.	Width	1,128.62 hectare
2.	Height above sea level	925 metre
3.	Rainfall per year	2,600 - 4,500 mm
4.	Temperature (averaged)	22 Centigrade
5.	Relative humidity	70 %
6.	Total farm size	216.25 animal unit
7.	Milk production	11.613 litre/head/day

Source: Cisarua statistical report, 1997

RESULT AND DISCUSSION

Farmer characteristics

Sustainable dairy production combines technology, policy, and activities aimed at integrating socio-economic principles. Sustainable can be used in the meaning of dairy husbandry. In this sense, it is related to concepts such as continuity, durability and equity in the production of dairy over long periods of time, and strongly related to the long-term economic sustainability. This requires an excellent condition of the farmers, wherein reflected by the characteristics of the farmers themselves. Farmer's characteristics are described below: (Table 3)

Table 3. Dairy Farmers Characteristics in Cisarua

No.	Characteristics	Value
1.	Educational level	High School graduated (67.5 %)
2.	Age	Ranged 21 - 40 year old
3.	Experience in dairy farming	More than 10 year
4.	Extension intensity	Once a month
5.	Communication media exposure	Radio and Television

It is concluded that farmers were getting involved in dairy business for a long time period (over 10 year), however they need a very intensive extension program. Occasionally, they need an extension media to raise their knowledge, coincides with the extension worker-visiting scheme.

While most of the farmers are in productive age (21 - 40 years old). This is an appropriate condition to improve their knowledge through extension program, combines with realising credit program in dairy. Credit program in Cisarua was presidential support credit through Bukopin Bank. There also existed a co-operative, namely Milk production co-operative (Koperasi Produksi Susu - Bogor). This particular co-operative co-ordinated the marketing of milk, through collecting the milk twice a day, and sold them to Milk manufacture in Jakarta.

Although the farmer was exposure by radio and television, in fact a special program in dairy farming was very lack. Therefore, the particular information was very needed to be taught to the farmer.

Impact of Extension method on farmer knowledge

Stiglitz (2000) described knowledge had a number of characteristics, which differentiate it from ordinary goods. There were three main theses:

1. The overwhelming variety and complexity of human societies requires the localisation of knowledge;
2. Practical know-how is largely tacit knowledge that needs to be learned by horizontal methods of twinning, apprenticeship, and seconding; and
3. Each society, through its knowledge institutions, should take active role in the local learning process.

Farmer knowledge was analysed by the concept of *impact points* in dairy farming. Impact points was described as follows:

Table 4. Measurement of Knowledge Improvement Scoring on Impact Points in Dairy Farm Technology

Factors	Questions	Score
1. Reproduction and Breeding	Breeds	30
	Selecting	40
	Mating system	40
	Period of head	40
	First birth age	40
	Time being mated after birth	40
	Birth interval	10
2. Feeding	Roughage	
	Technical feeding	25
	Quantity of feeding	40
	Quality of feed	45
	Frequency of feeding	20
	Concentrate	
	Technical feeding	25
	Quantity of feeding	35
	Quality of feed	35
	Frequency of feeding	15
	Water drinking	30
Housing and Equipment	Locating	15
	Construction	25
	Drainage System	15
	Disposal Place	15
	Housing Equipment	15
	Milking Equipment	20
Management	Cleaning Cow	20
	Cleaning House	20
	Milking Technique	40
	Post Harvest Handling	35
	Heifer Growing	35
	Drying Technique	30
	Recording	20
Animals Health	Knowledge of dairy disease	40
	Preventing disease	100
	Curing System	60

There were two kinds of methods to be treated:

1. Method I was extension method with booklet
2. Method II was extension method without booklet

Result of treatment was: Statistical T-test indicated as follows: (Fig.1)

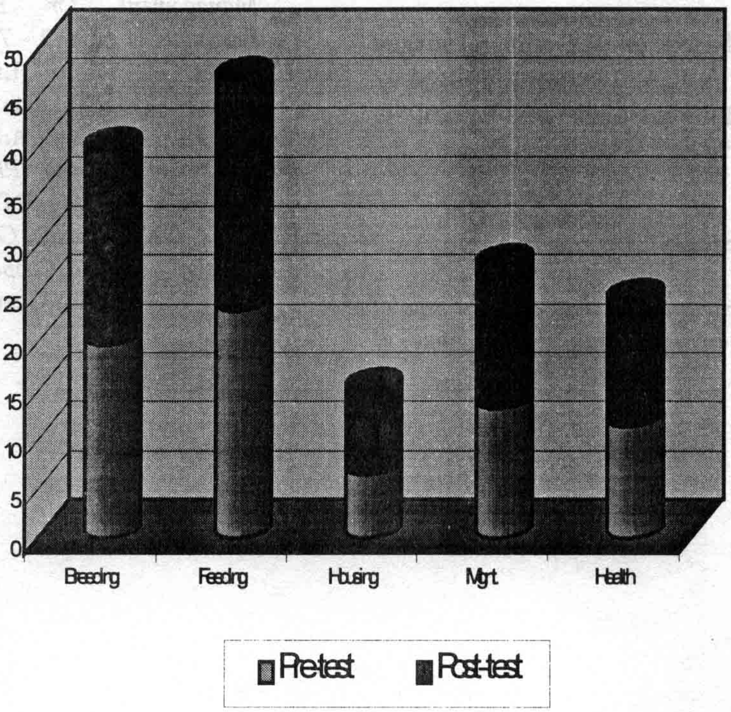

Fig.1. T-test result between Pre-test and Post-test in Extension method I

1) Breeding and Feeding aspects showed the higher score than the other aspects. It means that these two particular aspects were very responsive toward booklet extension method. Farmer could well understood by using the booklet, and they could easily adopted as well as implemented in their farm. Farmer perceived the two aspects as an important aspect in dairy farming.
2) Management and health aspect were considered to be less important than breeding and feeding aspects. It was also indicated that these two particular aspects were needed to be improved through extension booklet method.
3) Housing aspect tended to be the lowest important. It was indicated that housing information was hardly to be understood. Efforts to improve farmer knowledge in housing should be increased in the future.
4). Booklet holds an important role in extension method in pursuing farmer improved Knowledge.

The result of this study indicated that the farmer characteristics were divergence, however, their level of knowledge was uniform at the early stage. Pre-test and post-test score indicated that booklet as an extension method was able to increase farmer knowledge, consisted of five aspects (breeding, animal feed, housing, management, and animal health).

Farmer learning and effective change cannot be imposed from outside. Indeed, the attempt to imposed change from the outside is likely to engender resistance and barriers to change, as it is to facilitate change. To impose a model without a self-directed individual learning process will promote a state of passivity and dependence.

CONCLUSIONS

Booklet as an extension media has significantly influenced and affected the farmer knowledge, although their characteristics are divergence. Booklet published by department of livestock are popularly conceived to be mass media to dairy farmers and enabling to improve their knowledge, although the human media (extension worker and group leader) is the primary source of information.

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