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ASSESSMENT OF FARMING MODELS IN THOI LAI COMMUNE, CO DO DISTRICT, CAN THO, VIETNAM.

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ABSTRACT

The progressive farmers are the beginners in implementing diversity of farming activities on the farm. However, the models in the studied site are mostly spontaneous. Farmers selected model themselves. Thus, they lack of guideline to manipulate resources effectively. Though the progressive models with high economic potential as VARC, VAR and VCR are laid out as a policy of local government, farmers obtained low benefit cost ratio because they lack of capital, technical knowledge, technical labor (especially family labor), small land resource, less access to training, high cost of material inputs and unstable price of farm products at selling time. The extension agency and local authority need to establish cooperatives and delineate area for each kind of model suitably, and should make farmers feel secure in farm production such as stable price of inputs and farm products.

INTRODUCTION

Since 1981, Vietnam has moved from cooperative- managed to a household-managed land system (Hayami 1993), thus farmers are the ones to make decision themselves in choice of component for their farms. Intensive rice monoculture has been the choice to practice by farmers for a long time, therefore the stagnant yields and /or declining trends in productivity (partial or total) are being observed (Pingali 1994). Under economic transition of Vietnam and market-oriented economy, farmers need to diverse farming activities to meet market demand and to improve household income. Farmers have changed from one to more components to have diversity of income from their farms. However, implementing of model is effectively influenced by social and economic environment. This paper focuses on assessing the effectiveness of model and factors relating to farmers' implementing of existing farm models.

DATA COLLECTION AND ANALYSIS

A focus group discussion was conducted to identify existing farming system and models in the commune. A purposive selection of 32 progressive farmers with different models of VARC, VAR, VCR, VR, RC, and R (V= Orchard, A= Fish pond, R= Rice filed, C= Shelter for animal raising) was conducted for in-depth survey during July and August 2004. Progressive farmers were identified with the help of agricultural staff, leader of farmers' association, youth leader, leader of women's association and knowledgeable people in the commune. The semi- structure questionnaire was used to collect information on socio-economic characteristics of farmers, and cause and effect of applying farm model or system. A descriptive statistics was used to summarize the quantitative data and description in text to qualitative information.

RESULTS AND DISCUSSION

Socio-economic characteristics of farmers

Aside from only rice system, there are five models with two farm components or more. Farmers are from middle age to more than fifty years old and the average education was grade 7. They had experience in farming from 17 to 35 years on the land size of 2.4 ha which are larger than the mean land size/ household in the commune (1.13 ha) (*source: People Council of Thoi Lai Commune, Jan. 2004).* The household income was 87,155 thousand VN dong annually (table 1).

Table 1: Socio-economic characteristics of farmers distributed by farming model

Model	Age	Education (years in school)	Years in farming	Land size (ha)	Household income (1000 dong/year)
VARC	57	6	33	2.7	87,646
VAR	57	7	35	2.5	86,231
VCR	51	7	32	2.1	76,994
VR	53	7	34	1.6	58,285
RC	41	9	17	2.9	130,063
R	44	10	25	2.4	131,784
Mean	52	7	31	2.4	87,155

V = Orchard, a = Fish pond, R= Rice filed, C= Shelter for animal raising

Selection and benefit from farm models

Among progressive farmers, nearly one-fourth of them have been applying the model with 4 components (VARC), and VAR was practiced by one-fourth of farmers. They have applied the model with more than one component from 7 to 11 years. Farmers selected the models for themselves; exception of VAR was selected by both farmers and extension staff or local authority. Generally, farmers like all models chosen exception of VCR (table 2). The models VAR, VR and RC required less family labors than others and it also produced relatively higher benefit cost ratio (table 3). However, the models VARC is the development goals of the commune because of its potential in increase household income. Farmers have not yet obtained high benefit from this model because of certain problems in implementing which will be presented in the later part of this paper.

Table 2: Years implementing model and person selecting model

Type of model	(%) farmers apply	Years applying model	Who selected model (%)			Likeness ranking
			Husband	Husband & wife	Extension staff & local authority	
VARC	22	11	13	9	-	2
VAR	25	8	6	16	3	2
VCR	16	8	6	9	-	3
VR	13	11	6	6	-	2
RC	9	7	6	3	-	1
R	13	11	6	6	-	2

1= like best

Table 3: Cost and return from model (1000 VN dong/ha)

Type of model	Income/ha	Materials & hired labor cost/ ha	Family input labor/ha	Computed family labor/ha	Total cost/ha	Net return/ha	Benefit cost ratio
VARC	32752	16024	121	2414	18438	14313	0.75
VAR	34555	11795	78	1556	13351	21204	1.69
VCR	34447	13418	212	4249	17667	16779	1.16
VR	34325	11448	83	1656	13104	21221	1.63
RC	45811	15914	71	1418	17332	28479	1.70
R	53195	20458	92	1838	22296	30899	1.42

Regarding to systems practised on the rice field, triple rice has been practicing for 17 years (table 4). Rice and fish, and rice rotation with upland crop were practiced since 4 years ago. Farmers have heard about cultivation of fresh water shrimp in the rice field but it was not practised popularly by farmers. Farmers who practiced rice and fish system and triple rice had larger field than others. Rice and fish system are high potential to increase household income recommended by technician staff. Rice shrimp system is also paid attention by local government to develop at the commune in future.

Table 4: Number of years applying system on rice land and cost and return (1000 VN dong)

Rice system	Years apply	Area applied (ha)	Income/ha	Cost/ha	Benefit/ha	Benefit-cost ratio
Triple rice + fish, double rice + fish	4	1.80	39,265	15,169	24,096	1.68
Rice-upland crop-rice	4	0.35	39,714	16,072	23,642	1.66
Triple rice	17	1.57	38,220	15,000	23,219	1.55

Access to information related to farm models

Farmers knew information about combination of different components on their farms mostly from other farmers, radio and television. Only 3 to 9% of farmers knew information from extension staff, training, and demonstration (table 5).

Table 5: Source of information

Information source (*)	VARC	VAR	VCR	VR	RC	R
Other farmers	25	25	16	13	9	11
Training	3	9	-	6	6	-
Extension staff	6	9	3	3	6	9
Relative	19	9	13	9	6	3
Loud speaker	6	6	-	3	9	3
Radio	22	25	16	13	9	13
Television	22	25	16	13	9	13
Seeing demonstration	9	9	6	6	6	6

(*) multiple responses

Farmers who had known information related to model after hearing or training exchanged technical information to their friend (98%) and the place to exchange mostly at home (98%) (table 6) because in their daily life they talk with neighbors and relative, usually at home, coffee shop or during wedding or dead anniversaries (figure 1 and 2).

Table 6. Persons and place to exchange information after training or hearing of technologies related to model

	Frequency	%
Who to exchange information		
Friend	90	98
Neighboring farmers	2	2
Where to exchange information		
At home	92	98
At the field	2	2

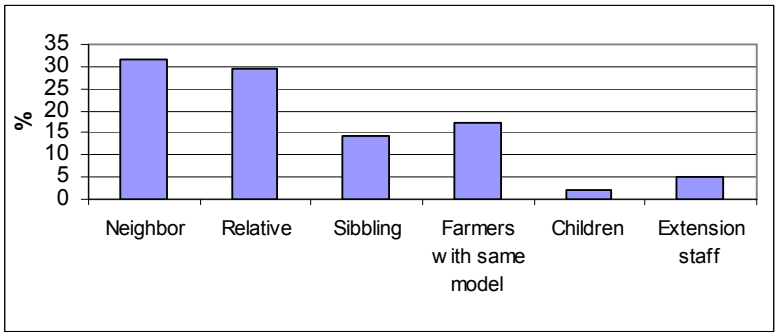

Fig 1: Who to talk in daily life

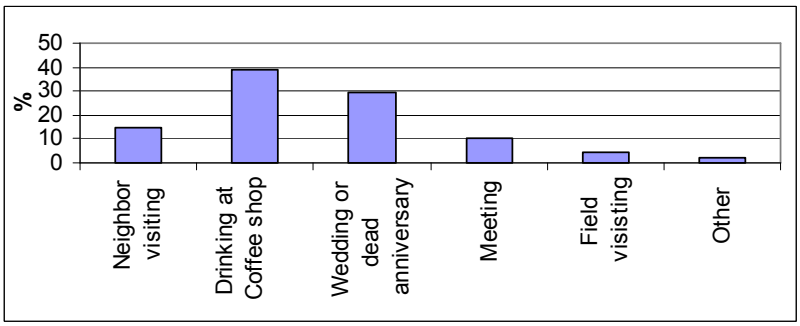

Fig 2: Chance to talk and exchange information

The methods of diffusion of technologies related different models were oral transmission, radio, television, loudspeakers, local organization as farmers' association, women's association, youth's association, and technical staff. Farmers exchange the experience in farming, technologies and life because they want other farmers to be rich. They thought if all people around work hard and gain good income, the life in the commune is improved, happy and they release their worriment of disturbance from not good man or thief.

Problems related to implementing models by farmers

Table 7 shows farmers had certain problems in implementing the model such as problems related to people and household conditions. Human problems included lack of family labor, difficulty in asking for hiring labors. Though the progressiveness and unanimity of husband and wife was good they had low education leading to not knowing well about technologies. Problems related to household conditions comprised of difficulty in getting loan, small land size, unfavorable soil type, and scattering rice fields.

Farmers also faced social problems in implementing models such as not so good information system in the commune, technical training with small number of participants, less contact with technical staff, not so good clinic system, unstable market and price. The natural problems as flooding and pest also caused difficulty for farmers in implementing the model effectively (table 8).

Table 7: Problem related to human and household condition in implementing of model by farmers (%)

Model	VARC	VAR	VCR	VR	RC
Problem related to people					
Family labor					
Enough labor	43	62	60	75	33
Lack of labor	57	38	40	25	67
Asking for hiring labor					
Difficult	43	25	20	75	67
Easy	57	75	80	25	33
Technical knowledge					
Good	-	13	40	25	33
Not good	100	88	60	75	67
Knowing well about technology					
Knowing well	14	38	20	25	33
Not knowing well	86	63	80	75	67
Progressiveness of husband and wife					
Good	71	100	80	75	100
Not good	29	-	20	25	-
Education of family members					
Good	-	13	-	-	-
Medium	100	88	100	100	100
Unanimity of husband and wife					
Yes	86	100	100	100	100
No	14	-	-	-	-
Other human problem					
Yes	57	-	-	-	-
No	43	100	100	100	100
Household conditions					
Capital					
Having capital	71	50	80	75	67
Lack of capital	29	50	20	25	33
Difficulty in obtaining loan					
Yes	100	75	80	100	67
No	-	25	20	-	33
Land size					
Sufficient	71	88	40	50	33
Small	29	13	60	50	67
Soil conditions					
Favorable	29	25	40	75	67
Not favorable	71	75	60	25	33
Other household problem					
None	-	88	80	100	100
Rice field scattered	100	13	-	-	-
Small homestead	-	-	20	-	-

Table 8: Problem related to socio-economic conditions in implementing of model by farmers (%)

Model	VARC	VAR	VCR	VR	RC
Social problems					
Information system					
Good	29	88	60	50	100
Not good	43	-	20	50	-
Medium	29	13	20	-	-
Dissemination of information					
Good	14	63	20	0	100
Not good	43	38	40	75	-
Medium	43	-	40	25	-
Training conducting					
Good	14	38	40	25	100
Not good	71	25	40	50	-
Medium	14	38	20	25	-
Number of participants in training					
High	29	75	60	25	67
Low	71	25	40	75	33
Contact technician staff					
Often	-	25	-	25	33
Sometimes	100	75	100	75	67
Clinic system in the commune					
Good	-	88	40	25	67
Not good	57	-	20	75	-
Medium	43	13	40	-	33
Others					
Marketing					
Not good, not stable, suppressing price to farmers	14	38	20	-	-
Good, easy to sell and buy, farmers getting benefit	86	63	80	100	100
Price Stable	-	25	-	-	-
Not stable	71	63	40	50	67
Suitable, benefit to farmers	29	13	60	50	33
Weather, natural condition, pest (*)					
Favorable	100	100	100	100	100
Yearly flooding	14	-	-	-	-
Using molluscide indiscriminately, golden snail	28	-	-	25	-

(*) multiple responses

Farmers' perception related to model selection, condition to apply model, potential of model and improvement.

Farmers like the model VARC because they said that this model produces stable income, less risk, effective rotation of capital and manipulation of by-products within models. Dung from pigs can be used as food for fish. They can plant the short duration-crops in orchard as red pepper. They have many sources of income throughout the year. Some of farmers expressed that this model is good but they have not been satisfied yet because they have not constructed boundary to prevent flooding for orchard, lack of family labor, unstable price of pigs at the time if selling, low yield of fish in orchard because of shade from the trees.

The main reason to select VARC is economic reason. Farmers said that they want to be rich. They have large land to do different components on the farm. They do not waste the land. VARC is closed cycling model.

They want to manipulate all products from the farm to increase household income. They got information from television that this model produced high return. They also learned experience from television. Actually, the model does not require large land but it should be sufficient (at least 2.5 ha) to raise beds in orchard for fruit trees and rice field. The fields should not be scattered. The important thing is thinking of what kinds of crop to plant and what kinds of animal to raise suitably for the model. This model requires sufficient family labors and capital. Family labors also should know technologies. The manager or head of the household must know technology of all components in the model. He or she must know how to be good manager, acute with the market, and always learn new knowledge or experiences from various means to improve crop and animal productivity. He or she also dares to think, speak and do. Regarding to society, farmers said that the society should be good and local government encourages implementing the model to implement model effectively.

The household conditions are not easy to obtain by many farmers because land was inherited from previous generation. Most of farmers had small land. Capital and land is not easy to obtain meanwhile knowledge on technologies is not difficult, according to farmers, if farmers work hard and try on their best to learn.

Regarding to potential of VARC model, farmer said it has high potential because of its high and stable income. It can use the available resources and the components can complement for each other. At present, fish production in the canals along the fruit tree beds is not much effective. Fruit price is low down at harvest. Farmers lack of capital and knowledge to improve, especially fruit orchard. To improve the model, farmers said that the local government encourages organizing cooperatives with knowledgeable members soon. The cooperative will sell seeds and seedlings to farmers as well as look for market to sell products after harvest. The members should have a common boundary by changing the fields to be adjacent to each other. The canals in the orchard should be bigger and select suitable kinds of fingerling which can be tolerant to shade condition in orchard and can be sell at high price. Disease-free seedlings and the kinds of plant with good quality and high price at harvest should be selected to plant. It is better to select hybrid plant. The rice field should plant the specialty as Jasmine, local sticky rice. The ratoons of second rice season (Spring-Summer) can be used to feed fish in the following season. Farmers applied fertilizer for ratoons growing well to serve as food for fish.

About VAR, farmers said that the condition to apply this model is easier to obtain compared with VARC. VAR also improves household economy. The local government also encourage farmers follow this model. This model is simpler than VARC and it does not require much labor and input, easy to apply, less risk compared with pig raising. Because of family needs in daily life, the products from the model also improve nutrient for family members. Farmers applied the model because they heard from extension program and other farmers who are applying with good results. To apply this model - similar as VARC- farmers said that land size should be sufficient (at least 2 ha) and they should have capital that is accumulated by themselves. They said they should not borrow money from the bank. If they have to pay interest from getting loan, the net return from the model will be reduced. The water should not be stagnant and keep flowing in and out. The manager and family labors should know technologies, learn experiences and use good plant and fish varieties. They also should know how to produce fruit in off-season when they can sell with higher price. The local government needs to delineate the place to apply model to have proper instruction for the model. According to farmers, this model is also high potential in increase income if farmers know well technologies and price at harvest is stable. This model does not need so much capital and family labor. The income from orchard can be used to input for rice and vice versa. To improve the model, farmers suggested that the common boundary should be strong to prevent flood. The fruit trees which are tolerant to submerged water as mango, guava, etc... should be planted. Water should flow in and out to reduce

contamination due to stagnant water. The healthy fingerlings and disease–free plants should be selected. Farmers should strictly limit using of pesticide. Extension agents need to train farmers the technologies related to components in the model.

Similar as VAR, VCR is high potential to produce stable income. However, farmers practically said the price of pigs at selling time was lower than expected. Thus, progress of household income improvement is slow. The orchard was mixed orchard and it needs to improve to intensive fruit cultivation. This model was applied because farmers heard information from other farmers who practiced with good results. They found that this model is not difficult to practice. It needs capital, labor and technologies. Human resource in the family and household conditions are similar as other models. Farmers want to know technologies in producing fruit during off-season, plant protection, and capital for strong boundary construction.

In general, farmers have similar needs and expectation for same component in any model. The potential of the any model can be triggered if the local government has suitable planning and policy, reduces or subsidizes agricultural material price, improves the information system in the commune and ensures selling products at stable price after harvest.

CONCLUSION

The progressive farmers are the beginners in implementing diversity of farming activities on the farm. Most of them selected model by themselves through information from different means. Thus, they lack of guideline to manipulate resources effectively. Diversity of farming in progressive models with high economic potential as VARC, VAR and VCR are also laid out as a policy of local government. Local government encourages farmers to practice the model with more components to improve household economy. However, farmers obtained low benefit cost ratio because they faced certain difficulties related to human problems, household conditions, social and natural problems. In general, farmers apply any component in the model; they need to know well about technology related to the components and good manipulation of available resources in the model effectively. In fact, they lack of capital, technical knowledge, technical labor (especially family labor), small land resource, less access to training, high cost of material inputs and unstable price of farm products at selling time. The extension agency and local authority need to establish cooperatives and delineate area for each kind of model suitably. The social environment should be good to make farmers feel secure in farm production such as stable price of inputs and farm products.

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Đánh giá các mô hình canh tác ở xã Thới Lai, Cờ Đỏ, Cần Thơ

Nông dân có tính cầu tiến là những người tiên phong trong áp dụng mô hình đa dạng hoạt động. Tuy nhiên, các mô hình tại xã Thới Lai hầu hết do người dân tự chọn và tự làm. Vì vậy họ thiếu sự hướng dẫn để tận dụng các nguồn lực sẵn có một cách hiệu quả. Mặc dù các mô hình triển vọng có tiềm năng kinh tế cao như là VARC, VAR và VCR được đưa vào chủ trương của chính quyền địa phương, nông dân vẫn có lợi nhuận thấp vì họ thiếu vốn, thiếu kiến thức kỹ thuật, thiếu lao động có kỹ thuật, không được tập huấn, giá cả vật tư nông nghiệp cao, và giá bán sản phẩm không ổn định sau khi thu hoạch. Các cơ quan khuyến nông và chính quyền địa phương nên tổ chức hợp tác xã, khoanh vùng cho từng loại mô hình một cách thích hợp, và làm cho nông dân cảm thấy an tâm trong sản xuất như bình ổn giá cả thị trường.