

SWINE RAISING ECONOMIC ANALYSIS, 2013

AGRISUD INTERNATIONAL

Agriculture Diversification and Malnutrition Alleviation in Siem Reap Peri-Urban area

Cambodia, September, 2013

Project Overview



Small-Scaled Fatteners in Kokdong village, Krabey Real

Since 2011, Agrisud has been implementing its project for the Diversification of Peri-urban Agriculture and Malnutrition Alleviation in Siem Reap, with the financial support of Conseil Général des Hauts de Seine (CG92). The project supports 320 rural households in developing agricultural activities such as vegetable growing, chicken and pig raising.

Swine Production Activity

Swine production plays an important role in agricultural diversification system for smallholder farmers. It generates additional income but also creates environmentally and economically virtuous cycles. By recycling pig manure, the farmers limit pollution and get organic matter to fertilize their lands (good waste and environmental management). By feeding the pigs with kitchen waste and using their manure, they reduce farm expenses (good economic management). Pigs are also considered as savings that can be sold whenever the household is in need of cash.

Therefore, in order to boost household incomes

Project's activities are implemented to achieve three main objectives :

- * Increasing local agricultural production and boosting farmers' incomes through the dissemination of agro-ecology practices and sustainable agricultural models,
- * Improving agricultural product marketing through post-harvest management technique implementation and market linkage development,
- * Reinforcing agricultural value chains through farmers group creation and collective initiative development.



Collection and recycling of pig manure

and to promote integrated agro-system, 116 households were supported in small-scaled swine raising.

To start their activity, they received one to three pigs from the project, depending on the feeding capacity.

Special points of interest:

- WHAT IS TES ?
- CLASSIFICATION OF PRODUCTION ACTIVITY
- ANNUAL ECONOMICAL RESULT .
- CONCLUSION

Activity Implementation budget / farmer:

- 80 dollars: pigsty construction and small equipment.
- 50 dollars per pig (average buying price)
- 10 dollars: per insemination for reproduction (6 months after pig distribution)

In total, farmers received 140 dollars minimum to support raising activity. 10 months later, farmers have to pay back 50 dollars in cash to FO .

Data are computerized in an Excel File

Farmer Name	Village	Animal Raised	Month of follow-up	Number of adult Female	Number of male adult	Number of small animal	Number of animals for fattening	Number of deaths during the month
Chhlang Saroth	Kraseing	mix	sept.-11	0	0	0	3	0
Chhoeun Sok	Kompongtaung	mix	sept.-11	1	0	0	19	0
Chhorn Choey	Kokdoug	breeding	sept.-11	1	0	0	0	0
Chhot Yoem	PreyPo	fattening	sept.-11	0	0	0	1	0
Moam Tith	Kraseing	breeding	sept.-11	2	0	0	8	0
Nil Samoeut	Prayuth	mix	sept.-11	0	0	0	2	0
Norn Da	Kokdoug	fattening	sept.-11	0	0	0	3	1
Peav Sophal	Poukchas	fattening	sept.-11	0	0	0	5	0

Animal Purchase	Food	Veterinary expenditures	Material	Other	Total Expenditures	nb of adult female sold	Total weight of female sold (kg)	Unit Price Riels/kg	Total income of adult female sold	nb of fattened animals sold	Total weight of fattened animals sold	Selling price riels/kg	Total income of fattened animals sold	Total of monthly sales	Nb of animals self-consumed
0	77600	3000	0	0	80600	0			0	0			0	0	0
0	2997200	80000	0	0	3077200	0			0	0			0	0	0
0	23800	0	0	0	23800	0			0	0			0	0	0
0	12000	0	0	0	12000	0			0	0			0	0	0
0	120000	0	0	0	120000	0			0	0			0	0	0
0	221400	1000	0	0	222400	0			0	0			0	0	0
150000	13000	0	0	0	163000	0			0	0			0	0	0
1400000	227500	0	0	0	1627500	0			0	0			0	0	0
0	94600	0	0	0	394600	0			0	0			0	0	0
0	166000	0	0	0	166000	0			0	0			0	0	0

Classification of production activity

Breeding	<p>Smallholders that raise in general 1 sow. Weaning is done between 25 to 30 days after birth The small piglets (about 5-8 kg) are sold one month after the birth.</p> <p>Smallholders prefer breeding than fattening as they have not much capital to invest on animal food. Breeding activity is not selected by households who have other income generating activity and do not have a lot of spare time. Generally women are taking care of pigs.</p>
Fattening	<p>Piglets are purchased from outside when producers do not do breeding activity. Two different production scales are defined :</p> <ul style="list-style-type: none"> • Small-scale fatteners : They raise from 2 to 4 pigs in a cycle. Raising is a secondary activity and methods are more traditional. Limited quantities of concentrated food are given to pigs. pig as saving system • Medium-scale fatteners : They raise from 2 to 5 pigs per cycle. Raising is the primary source of income and the level of raising technique is higher. Raisers paid more attention on disease prevention and animal care.
Mix of breeding and fattening	<p>Raisers which combine the 2 orientations breeding and fattening. Different organization of the activity :</p> <ul style="list-style-type: none"> - some farms produce their own piglets to fatten., - other farms fatten their own piglets and also buy piglets from outside to fatten.



What is TES?

⇒ It is a **monitoring system** based on the **regular collection and analysis** of technical and economic data among a sample of beneficiaries, over a given period.

⇒ The data are processed and analyzed by the monitoring and evaluation officer, shared with the project team and returned to farmers to ensure farm economic management advising.

⇒ In the longer term, the TES provides information to **assess the technical and economic gains** achieved by farmers and to conduct periodic comparisons.

Since January 2012, the TES (Technical Economic System) has worked with a sample of 14 pig raisers.

Below are the important information registered monthly in the database :

Technical information	Economical information
<u>Livestock composition :</u> <ul style="list-style-type: none"> • Number of sow • Number of boar • Number of births • Number of pigs for fattening • Number of deaths 	<u>Expenses :</u> <ul style="list-style-type: none"> • Animal Purchase • Food • Treatment and vaccination • Materials and other expenses <u>Income :</u> <ul style="list-style-type: none"> • Kind and number of animal sold • Weight of animal sold • Unit selling price per kg • Total income

Criteria of selection for the sample :

- Within the 8 villages of the two communes targeted by the project.
- Reflecting the diverse production orientation : breeding, fattening or mix orientations.
- Reflecting the different livestock size..

In total, 14 households among the project beneficiaries were selected for the TES sample.

Pig Production

Month of Follow-up.....

Date	Describe	Quantity	Unit Price (Riels/kg)	Total (Riels)
Total				

Monthly Total by Categories	Total in Riels
Animal Purchasing	
Feeding	
Vaccination and Treatment	
Materials	
Other	
Grand Total	

Record of Number of animal		
Sow.....	Piglet.....	Fattener.....
Number of animal died.....		
Cause.....		

Technical information recording sheet

Income

Date	Kind of animal sold	Total weights	Unit Selling Price (Riels/kg)	Total (Riels)
Total				

Monthly Total by Categories	Total in Riels
Sow	
Piglets	
Fatteners	
Grand Total	
Number of animal slaughtered	

Any Notification

Economical information recording sheet

Analysis of annual technico-economic results of swine raising activity

An analysis of the TES pig raising database was conducted in November 2013 to assess raisers' technico-economic performance. The analysis covers monthly information recorded from January 2012 to July 2013 within the sample of 14 farms.

Results are presented for the whole sample first and then detailed by production orientation.

Average global results for a raising farm (all orientations together)

General information	Global	Annual	Monthly
Number of months of follow-up	16 months	12 months	1 month
Number of piglets sold	8 heads	6 heads	0.5 head
Number of sows sold	1 head	0	0
Number of fattened animals sold	8 heads	6 heads	0,5 head
Number of animals self-consumed	0 head	0 head	0 head
Mortality Rate	4 %	-	-
Economical information			
Total of expenditures	1060 \$	795 \$	66.25 \$
Total of incomes	1409 \$	1056 \$	88 \$
Current economic result	349 \$	261 \$	21.75
Valuation of the stock	146 \$	109 \$	9.08 \$
Valuation of the self-consumption	0 \$	0 \$	0 \$
Global result	495 \$	370 \$	30.83 \$
Global result + self-consumption	495 \$	370 \$	30.83 \$

Labor Force

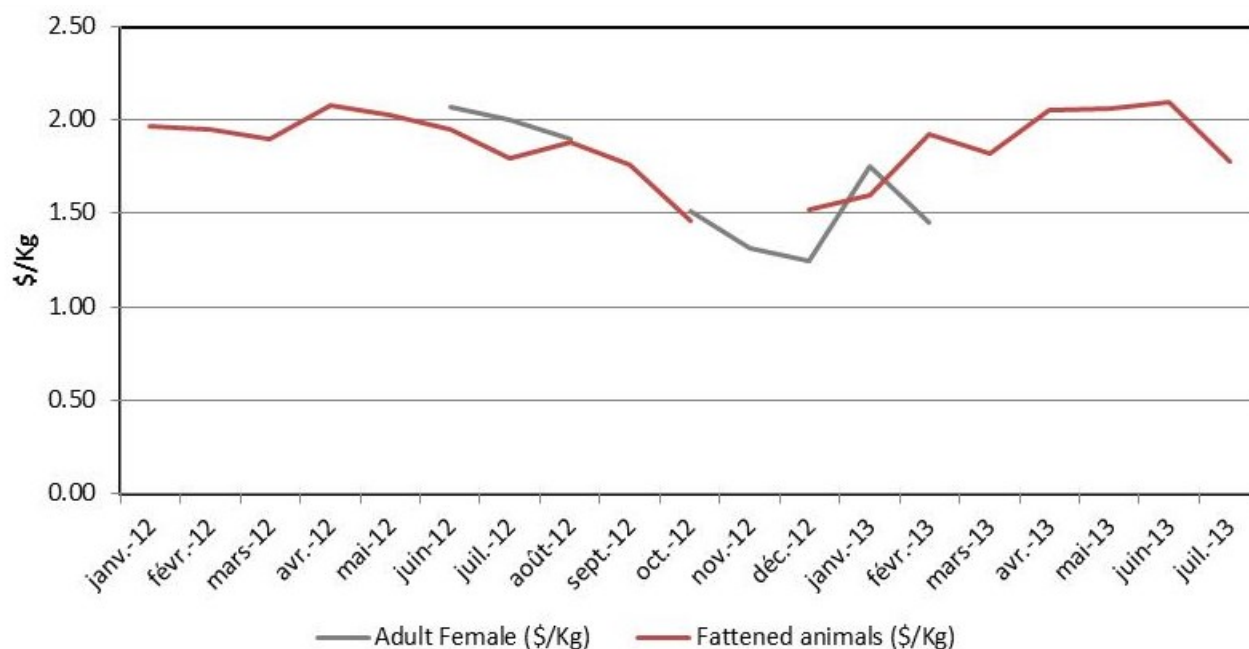
Labor force is not taken into account as the workforce is mainly family.

Calculation of economic results

- ☑ **Total of expenditures** = sum of all expenditures during the period.
- ☑ **Total of incomes** = sum of all incomes from animal sales during the period.
- ☑ **Valuation of self-consumption** = number of pigs self-consumed x average selling price x average weight of animal sold during the period.
- ☑ **Valuation of animal stock** = difference between final stock value (T+1) and initial stock value (T).
- ☑ **Current economic result** = incomes - sales.
- ☑ **Global result** = Current economic result + stock



Selling price evolution



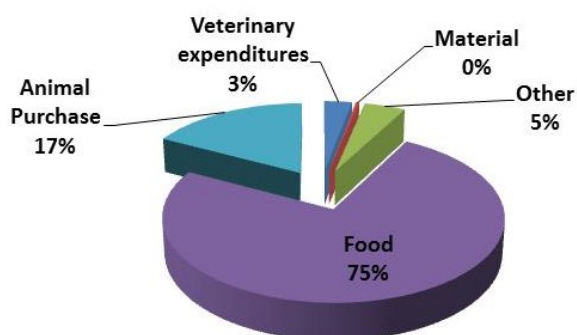
The graph illustrated the evolution of the selling price of alive pork meat (both fattened pigs and sows) recorded in the TES database between January 2012 and July 2013. In 2012, we observe a constant decrease of the price from 2\$/kg to less than 1.5\$.kg This drop is probably due to massive sales of animals after the an unexpected spread of diseases.

The selling price of alive pork meat has started to increase again in 2013, reaching again 2 \$/kg in June 2013.

Importations of alive porks from Thailand also entailed fluctuations of prices of pork meat in local markets.



Raising costs



Distribution of raising costs

Feed purchase represents 75% of the raising expenditures. Indeed, most of raisers purchase feed from outside. Feed production for livestock on farm is not a well spread practice in Cambodia.

However, the project has encouraged farmers to try as much as possible to produce a small portion of feed on site valuing maximum local resources: morning glory, corn, cassava leaves...

Technical and economic results from TES, with quantified data, help to convince raisers of practical changes to implement.

Average monthly results by production orientation and comparison

General information	Breeding	Fattening	Mix
Number of farmers in the sample	4	6	4
Economical information			
Monthly current economic result	9	5	61 \$
Monthly valuation of the stock	10	-1	38 \$
Monthly valuation of the self-consumption	0	0	0\$
Monthly global result	19	4	99 \$
Monthly global result + self-consumption	19	4	99 \$

This table compares the technical and economic results of the different types of raising. Thus, the most lucrative activity is the one that combines breeding and fattening which allows a margin of \$ 99 per month.

Indeed, fattening only, with the purchase of animals and high costs of feed, does not allow to generate interesting profit. Pigs are more considered as a bank that are sold when the family needs money.

Similarly, breeding only brings on average \$ 19 per month. Raisers who do not have enough cash flow to invest in fattening will prefer breeding.

Problems encountered

Breeding : In the targeted areas, the piglets' mortality rate is considered as high with an average death of 2 heads per breeding cycle. Breeding is challenging because of miscarriage caused by diseases on pregnant sows (Aujeszky and Parvonellosis). In some other cases, newborn piglets are crushed by the sow when the division between sow and piglets is not done after delivery. The project promoted artificial insemination but some raisers still preferred to use a boar. The problem is that the boar's owners don't respect the rest period of three days between each mating. Often, the boar is used two to three times a day, resulting in a loss in sperm quality and a lower number of piglets conceived.

Fattening :

Three main constraints are identified :

- Diseases : Farmers can be confronted with the loss of fatteners of 30kg to 40kg because of respiratory problem, and/or sometimes Pestifar and Aujesky diseases. At that time, the farmers choose to sell quickly the dead or sickness fatteners at a lower price.
- Prices : The selling price of alive pork meat rapidly decreased recent years. The reasons are increased imports of pig meat from the neighbor countries and the massive sales of animals during infection periods.
- Lack of cash flow : high cost of feed can not be borne by all raisers. Thus, raising is often interrupted during the rainy season when the price of rice mill doubles (700 riels to 1 400 riels per kg).

Conclusion

This analysis, shows that fattening coupled with breeding is the most profitable activity for raisers.

Strong knowledge on feeding and short raising period are the key to earn sufficient incomes. The raising costs are too important if the raising period is long because of the high cost of inputs (feeding and health care). To be profitable, the selling price for pork meat should be higher than 8,000 Riels per kg. Otherwise, raisers should learn to prepare home-made feed mixes to lower their expenses.

The TES implementation allows by comparing the different strategies of raising, to advise farmers to help them to change their practices for improving of their incomes.