Economic Calculation Manual
for
Small Scale Agricultural Prodcution and Agro-Processing

ภาคีวิจัยเพื่อการเกษตรและป่าไม้แห่งชาติ
ก.ส.ก.ป
NAFES

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Economic Calculation Manual for Small Scale Agricultural Production and Agro-processing

This manual is a working draft and will be tested for some months until the final version will be printed and broadly distributed. We would therefore kindly ask for your feedback to

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to improve this version.

Thank you.

Acronyms

EDC	Enterprise Development Consultants
FOA	Faculty of Agriculture
GAA	German Agro Action
GM	Gross Margin
Ha or ha	Hectare
INGOs	International Non Government Organizations
Lao PDR	Lao People Democratic Republic
LEAP	Laos Extension for Agriculture Project
NAFES	National Agriculture and Forestry Extension Services
NAFRI	National Agriculture and Forestry Research Institute
NPAs	Non Profit Agencies
NTFPs	Non Timber Forest Product
NUOL	National University of Laos
Qty	Quantity

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I. Introduction

1. Background

Basic economic information is essential for farmers to understand their operational performance and identify opportunities to improve agricultural production and marketing approach. Information on farm economics helps farmers to quantify their investment, their operating costs and the output of their production. It also helps farmers to analyze their production process, such as cash and non cash investment/outputs and profit per working day or production unit. In summary, the information helps farmers in their decision making related to choice of practices and scope of enterprises, particularly with regard to continuing or changing what they are currently doing. The analysis of data will also enable the farmers to identify the effectiveness and efficiency of their investment and production techniques.

To carry out proper analysis, a simple tool on economic calculation is required. A clear instruction will help extension workers and farmers in gathering economic data and analyzing the process of the major farm activities.

In 2003, during the development of the Lao Extension Approach, economic calculation tools have been developed covering six basic agriculture and livestock techniques. NAFES' master trainers with the support of the Laos Extension for Agriculture Project (LEAP) have developed, tested and introduced the tools among a wide range of farmers. The tools became an integral part of the training curriculum for government and project extension staff throughout the country.

As production and market requirements are rapidly changing, the need for more calculation tools has become obvious. NAFES master trainers also recognize the value of an introductory manual for the district extension staff. Hence a collaborative effort has been initiated between:

- **NAFES/LEAP**, the leading agency for extension training, material and information development and implementation
- **German Agro Action (GAA) Oudomxay (Muang Nga) and Phongsaly (Muang May)**, who had been intensively using and adapting the tools in a variety of different agricultural and income generating enterprises, and
- **Enterprise Development Consultants (EDC),** A leading local expert in small and medium business development in Lao PDR
- **Faculty of Agriculture (FOA) National University of Laos,** who is considered to be the most important education institution in Lao PDR.

In the second half of 2008, the original tools were adjusted; new technical topics developed and tested, and a step-by-step user manual finalized.

2. Objectives

The tool will help farmers and staff to calculate the economic benefit of agricultural production or processing during one season or a defined time period, especially in the rural areas of Laos. The tool aims to achieve two objectives:

1. **Support farmers in making informed decisions** on how to utilize their land, labor and financial potential in a more profitable way. It will help them to decide which cropping or animal system to choose for the next season.

2. **Monitor and evaluate extension activities.** The tool will allow a) a comparison between different participants of a group or learning project, b) a comparison between farmers who received the training and those who did not and c) a comparison of individual farmers' performance before and after the training. In this last case the tool needs to be applied at least once before and once after the training process.

   Furthermore, agricultural extension workers can utilize the result of the tools application to identify whether an outside intervention is needed.

3. Target Group

The main target groups of this tool/manual are **extension and development workers** from the Government, international donor projects and non-government institutions, such as INGOs, NPAs and the private sector companies. They facilitate the use of the tools by the farmers to help them monitor and evaluate their farming and agro-processing activities. It is important to note that the application of the tools is a **participatory process.** The role of the extension staff is facilitation and support, and not data collection or control.

Once introduced to the **farmers,** the tools can also be used directly by them, either with the help of the village extension worker or simply by filling in and analyzing the figures within the family. The tools have been developed to be very simple, so that people with low literacy status can comprehend easily.

In addition, the manual might serve educational purposes. **Teachers and students** of the agricultural and forestry universities and colleges could use the tools during their academic and practical training. The tools/ manual could become an integral part of the pre-service teaching curriculum.

Even though the tools have been kept as simple as possible, **a certain level of calculation and recording skills is required**. This means that farmers need to receive training and coaching until they are able to apply the tools themselves or with the help of family members. An initial training for extension staff and facilitators is essential as well. This applies to most of the extension materials - there needs to be an introduction or training on how to use them.

4. Contents of the Manual

The main section of the manual includes **economic calculation tools** with a description on how to calculate and how to use them. In total 19 tools are presented, that include

- THREE general tools on agriculture, livestock and processing. These can be used for any production in the respective field, but might need to be slightly adapted to each individual activity.

- SIXTEEN examples on specific productions fields. These topics present a solid basis for carrying out an economic calculation, among smallholders as they cover major agricultural, livestock and income generating activities in the rural areas of Laos. (Most of the development and testing was done in the Northern Provinces. Hence a slight adaptation to the local context in other areas might be necessary.)

The manual starts with a glossary on economic terms, so as to create a joint understanding on the meaning of each technical term. In addition, the calculation process, the recording of forms and calculation techniques are explained in detail. The manual concludes with practical examples, observations and tips for the users. A complete set of all calculation forms, each with a real-life example, is attached in the annex.

5. Economic Calculation Method

In order to keep the tools very simple and user-friendly, a level of **Gross Margin** has been chosen. The Gross Margin (GM) is calculated as gross income minus direct variable costs (running cost) of each enterprise. The tools do not intend to provide a complete calculation of the entire farm, therefore, the fixed investment, the depreciation of fixed assets and costs like tax, salaries of permanent workers, electricity, telephone and rent are omitted from the calculation.

"Gross Margin" calculation is an internationally recognized method for comparing the performance of different production activities, comparing each production activity on a yearly basis or comparing performance of a production activity between different farmers.

A positive gross margin is a contribution towards paying the fixed costs. Therefore maximizing gross margin is equivalent to maximizing the profit or minimizing the losses – because the fixed costs are constant.

In the Lao context, we found Gross Margin calculation most appropriate due to the following reasons:

A. Diversity of farming and livelihood activities on the same land: In the rural areas of Laos, especially in the upland, each household is involved in a variety of farm activities. The same land is used for multiple purposes, such as gardening, crop productions, animal husbandry, agro-forestry, etc. This makes it difficult to calculate the cost of land rent and tax for each activity.

B. Multipurpose use of fixed assets: Similar to point A, tools and equipment cannot be applied to a single activity. For example: a tractor is not only used for preparation of lowland rice cultivation, but also for water pumping, vegetable garden, household use, sawing wood, transporting NTFPs to market, milling rice and generating electricity in the evenings,. This makes it difficult to calculate the depreciation of the fixed capital.

C. Lack of detailed data: Since most of the farmers produce either fully or partly for self consumption, they usually do not keep track of their investment, operating costs or income. Some households do not know the exact size of their land. This makes it difficult to carry out a precise calculation of the fixed assets depreciation.

D. Needs of farmers: The **most important** reason is the need of farmers to have a suitable method for making an economic assessment. Farmers need to know if they benefit from a production and to what extent: Do they benefit much - quite some - little - nothing - or even loose. In this sense, a ten-

thousand Kip gain or loss does not have a major influence on the overall assessment. The tool is meant for helping farmers to improve their production and to identify their bottlenecks and opportunities. The tool will guide the farmers through a decision process, which can be adequately addressed by using the Gross Margin level assessment.

Even when we are not conducting a full farm assessment with the Gross Margin Calculation, it is important to get a basic understanding of the entire farm and their components.

A typical farm can be broken into three components: a) enterprises, b) production activities and c) production practices. Gross Margin can be calculated for an enterprise or an activity within an enterprise.

To understand the problems and the potential of the farming family, we need to assess basic farm data such as, size of the farm, including all different enterprises, scale of each enterprise activities within an enterprise, number of years in production and total number of family labor. This data provides the context, where all the enterprises along with their activities take place. It helps the extension staff to provide advice based on an overall understanding of the complete farm context.

The following diagram illustrates the correlation between various components of a farm. A Lao farm consists of different enterprises. Each enterprise has one or more production activities. Each activity is based on various production practices.

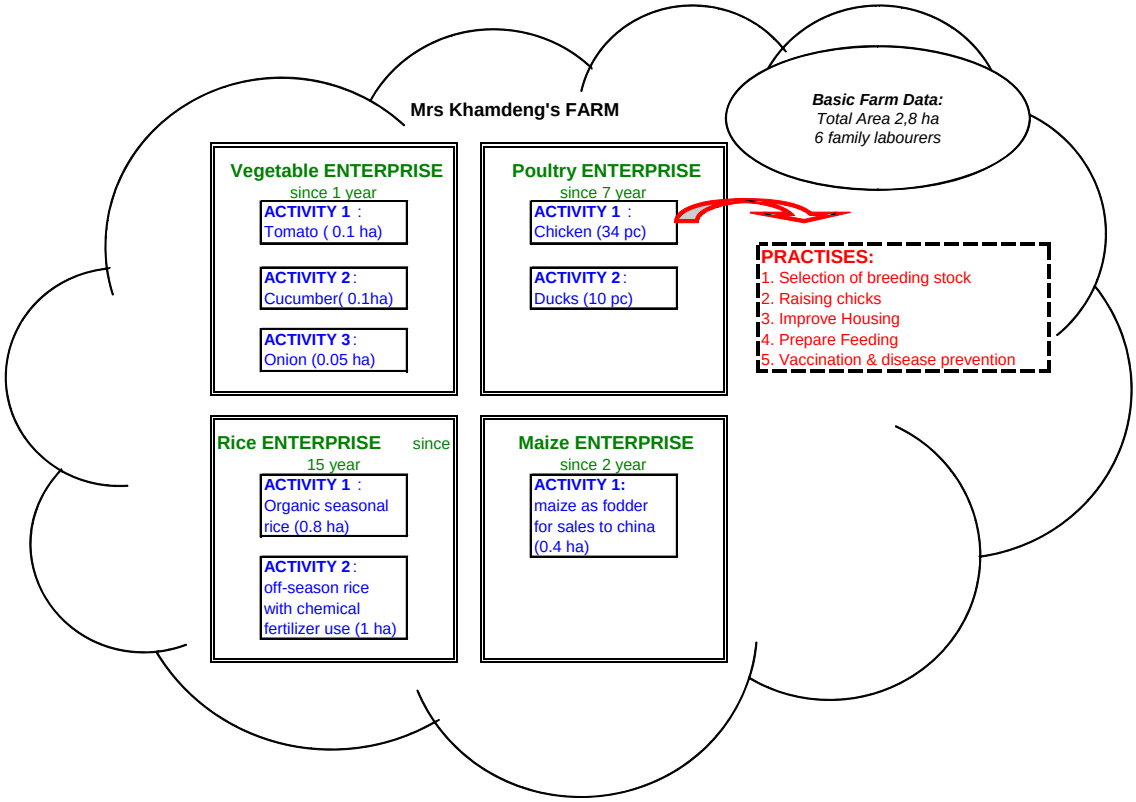

Figure 1: The correlation between various components of a farm

II. Definitions of Terms

Term	Definition
Cash	The money in local currency used for exchanging with goods and services.
Cash Balance	The balance cash in local currency after deducting the cash expenses from the cash income for a production period
Depreciation	The cost of wear and tear associated with equipment, machinery and buildings over time. It is usually calculated on an annual basis.
Fixed Cost	The cost of equipment or tools used in an agricultural production, which can be used across multiple enterprises or production cycles. These equipments and tools relate to those items which have a lifetime of at least one year.
Gross Income	Value or amount of income prior to deducting related expenses during one production cycle or defined period of time. Gross income may be calculated based on the size of the plot or farm, type of activity or enterprise.
Gross Margin	The actual value of income which is equivalent to gross income deducting direct variable cost incurred during one production cycle or defined period of time. Gross margin may be calculated based on the size of the land or the unit of product.
Input	Value or quantity of a resource that is used in a production activity, enterprise or other related farm operations to generate income. Inputs may be classified as fixed or variable inputs.
Labor Cost	The expenditure for hired labor in one production cycle for an enterprise or a production activity. The compensation might be done in cash or kind, depending on the agreement between employer and laborer.
Labor Day	A unit of work accomplished by an individual during a normal working day. A Labor day consists of standard eight hours
Land Tax	Land tax is an annual fee levied by the Lao PDR Government, which is payable by the owner of the land.
Non-Cash	An expense/income that is not paid for in cash, but can be valued based on market price
Operating Cost (Intermediate Capital Consumption)	Operating costs include those inputs or services that are fully utilized during the production cycle or predefined period, which can be valued and directly associated with the crop/livestock being produced.

Term	**Definition**
Production Loss	The value of reduction in output or production during a production cycle or predefined period, due to natural catastrophes, pest or diseases.
Products	Goods and services that result from a production process
Gross Margin per Labor Day	The profit of a production activity or enterprise in one unit of labor. It indicates the effective productivity of labor use during one season or production cycle. Gross Margin / day is calculated from the Gross Margin divided by total labor used.
Gross Margin per Unit Area	The profit of a production activity or enterprise in one unit of land. It indicates the effective productivity of land resource use during one season or production cycle. Gross Margin / area is calculated from Gross Margin divided by total land area used.
Gross Margin per Unit of Production	The profit of a production activity or enterprise in one production unit. It indicates the effective productivity of production unit/quantity utilized during one season or production cycle. Gross Margin / production unit is calculated from Gross Margin divided by production quantity.
Total Input Cost	The total cost of input, both cash and non-cash, used in a production cycle
Total Land Area	The total area of land used by a farmer family for crop cultivation and animal husbandry during a production cycle
Enterprise	A definable system (production branch) which produces a commodity or groups of related commodities, e.g. rice enterprise, poultry enterprise.
Production Activity	An agricultural production or agro-processing activity, e.g. organic rice production for self consumption, chicken production.
Production Practice	The process steps involved in a production activity. e.g. preparation of land, seedbed preparation, plantation

III. Economic Calculation Tools and the Components

1. Economic Calculation Tools

The **economic calculation tools** were designed for agricultural and agro-processing activities. Therefore, the manual consists of three general tools on agriculture, livestock and agro-processing. These can be used for any production activity in the respective field, but might need to be slightly adapted to each individual activity. The manual also includes 16 adapted tools on specific production fields. These topics present a solid basis for smallholders' economic calculation, as they cover major agricultural, livestock and income generating activities within the rural areas of Laos. (Most of the development and testing was done in the Northern Provinces. Therefore a small customization to the local context in other areas might be necessary).

1.1 General economic tools

The general economic tools include:

1) Form A: Economic Calculation Tool for Crop Production
2) Form B: Economic Calculation Tool for Livestock Production
3) Form C: Economic Calculation Tool for Agro-processing

1.2 Adapted Economic Tools for Crop Production

Based on "Form A" the following specific crop production tools have been adapted:

1) Form 1: Economic Calculation Tool for Upland Rice Production
2) Form 2: Economic Calculation Tool for Paddy Rice Production
3) Form 3: Economic Calculation Tool for Soybean Production
4) Form 4: Economic Calculation Tool for Maize Production
5) Form 5: Economic Calculation Tool for Cucumber
6) Form 6: Economic Calculation Tool for Fruit tree
7) Form 7: Economic Calculation Tool for Sesame
8) Form 8: Economic Calculation Tool for Sugarcane
9) Form 9: Economic Calculation Tool for Galangal Production
10) Form 10: Economic Calculation Tool for Pigeon Pea for Stick-lac Production
11) Form 11: Economic Calculation Tool for Non Timber Forest Products

1.3 Adapted Economic Tools for Livestock Production

Based on "Form B" the following specific livestock production tools have been adapted:

1) Form 12: Economic Calculation Tool for Poultry Production
2) Form 13: Economic Calculation Tool for Swine Production
3) Form 14: Economic Calculation Tool for Fish Production

1.4 Adapted Economic Tools for Agro-Processing

Based on "Form C" the following specific agro-processing tools have been adapted:

1) Form 15: Economic Calculation Tool for White Alcohol
2) Form 16: Economic Calculation Tool for Jar Alcohol

Most of the tools refer to a specific seasonal production activities, such as planting maize, lowland rice or galangal. Other tools cover technical productions of a longer time-frame, such as fruit-trees, NTFP or poultry raising.

Economic calculation for long season crop productions are more complicated. To make the calculation as precise as possible, the farmers should be encouraged to keep a continuous record of inputs, sales or loss from the start of the production.

2. The Components of the Economic Tool

Each economic calculation tool consists of 4 major parts such as:

1. 1) General Information,
2. 2) Inputs,
3. 3) Outputs, and
4. 4) Economic Calculation.

During the assessment, all necessary information should be recorded in the form which consists of general information on producer, production inputs, production output, output distributions, and the loss of the production.

In the consecutive sections of the manual, we will illustrate each component of the tool for better understanding. An example of a complete tool can be seen in figure 2.

For the field testing it might be useful to prepare a template using an A0 flipchart. You could then use color cards to enter the data for each farming family. Thereby you are able to use the template several times.

Form 2: Economic Calculation Tool for Lowland Rice Production

1. General Information

Name and Family Name of Farmer	Village	Type of Paddy Field	☐ Rainfed ☐ Irrigated
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil							
Renting tractors							
Renting buffaloes							
Other							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation						
Seed broadcasting						
Seedling preparation						
Land preparation						
Seedling Collection						
Transplanting						
Maintaining						
Harvesting						
Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)
Total Value of Inputs		(J) = (H) + (I)	(J)		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold							
Rice Consumed by Family							
Rice given to other people							
Rice exchanged with other							
Rice for seed							
Rice in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

1
2
3
4

Figure 2: An Example of one Economic Tool

IV. Economic Calculation Process

Economic calculation for each production activity consists of 5 main steps as follows:

The Economic Calculation Process:

1) Record farmer's general information
2) Record production inputs and their value which include:
   - Intermediate consumption costs in cash, non-cash and the total value of one production cycle or one year period
   - Number of days of labor for each activity, then calculate the total days of labor, labor cost in cash and non-cash, and total labor cost in one year period or one production cycle
   - Calculate all inputs in cash, non-cash, and total value
3) Record and calculate the values of output which include:
   - Cash sale of the product
   - Non-cash values of the product that is consumed in the family, given to relatives, exchanged and balance stock.
4) Record and calculate the value of production loss with the cost
5) Use the above information for economic calculation which includes:
   - Profit and loss, such as cash balance and gross margin.
   - Gross margin per unit which is gross margin per day of labor and gross margin per unit of input or output, such as gross margin per hectare of land, per liter of alcohol, or per head of animal.

1. General Information

1.1. Introduction

General information section will include mandatory data such as name, family name, village, district, province, date of data collection, duration of production, type of production or variety, total production, yield, and production area. (See figure 3)

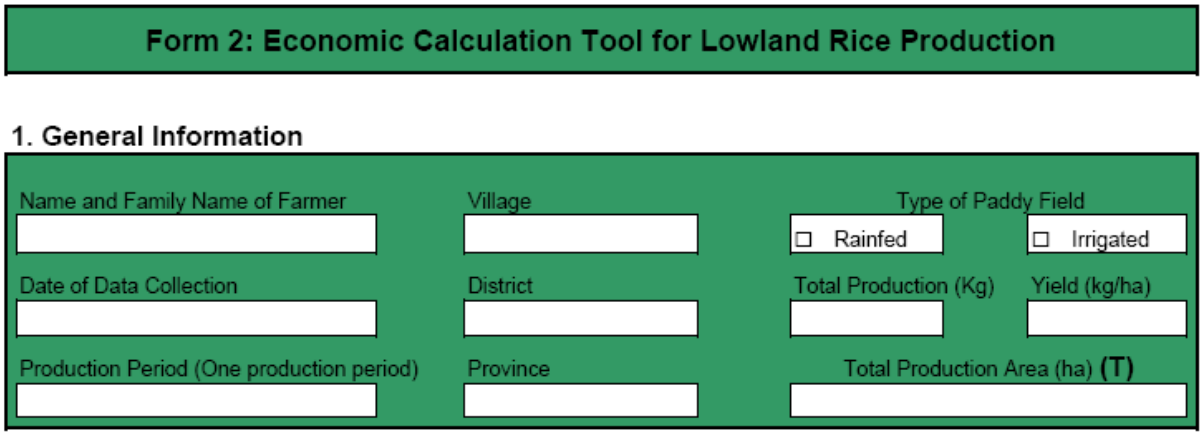

Figure 3: General Information Part

1.2. Recording and Calculation Steps

1. Record the name and family name of the interviewee;
2. Record data collection date;
3. Record dates of start of the production to harvesting in one production period;
4. Record the name of village, district, and province,
5. Record the variety used or type of production by marking **"☑"** in the space provided;
6. Record total production in kilogram or litre or other as appropriate;
7. Record the produciton yield; and
8. Record the total production area or production units.

The interviewer should record accurate information. The duration of the production in this section should be the difference between the date of start of production and date of harvesting. Farmers usually provide the production area in units of square meter, rai, and/or quantity of planting seed. Therefore, the unit needs to be changed into hectare (ha).

1.3. Example

For example: an extension officer conducted an assessment of a production together with Mr. Thongla in Houytan village, Nga District, Oudomxay Province on the 4th of June 2008. He and his family had planted 1 ha of seasonal rice from 2007 to 2008 and with a production yield of 3,500 kg. Proper recording of this information is illustrated in figure 4.

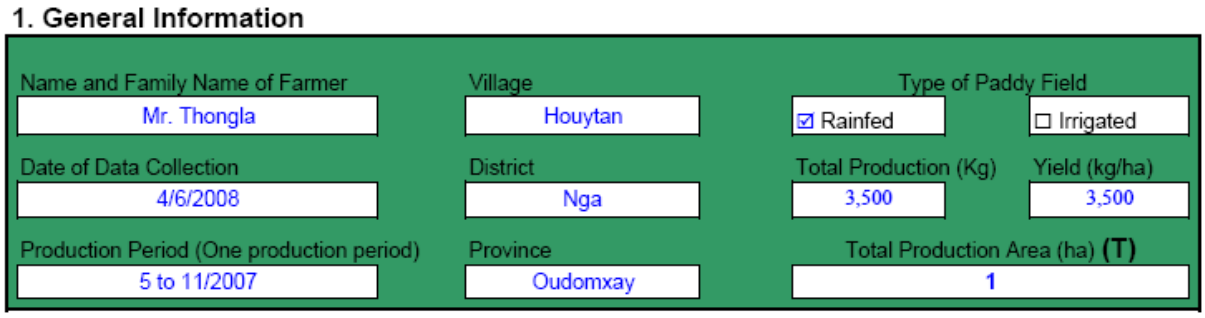

Figure 4: Example of Information Recording in General Information Section

1.4. Observation

In the general information section of the tools, not only the personal information about a farmer is recorded, but also the total production output, production yield, and the production area are recorded in the available space. Therefore, extension staff can identify the production situation easily. The information on productivity can be used to compare performance before and after training course attended by farmers, and between different farmers who have the same production activity. If the productivity is much lower than the average productivity in the village, there must be a serious problem. Thus, the extension officers need to identify the cause and ways to help the farmer in improving his production.

2. Recording and Calculating Inputs

Every production has an investment which is called Input. The economic calculation needs this information on inputs or investments, such as intermediate consumption costs and labor costs. The input cost can be cash or non-cash.

2.1 Intermediate Consumption Costs

2.1.1. Introduction

An intermediate consumption cost is the value of an input used for one production cycle or one cropping season such as seed, fertilizer, soil preparation, pesticides and transportation costs.

The designed forms include the most important intermediate inputs being used in each production. If an important input is not shown in the tool, it can be added in “Other.....”. (See figure 5)

The required information relates to the input quantity, unit price, purchased quantity and quantity of inputs owned by the farmers or made at home. While recording this information, the inputs that were purchased, should be recorded in the cash column and the homemade or owned inputs should be recorded in the non-cash column. The inputs provided by a government organization, a development project or any other organization without a cash payment, should be recorded in the non-cash column.

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil							
Renting tractors							
Renting buffaloes							
Other							
Total				(A)		(B)	
Total Value of Input		(C) = (A) + (B)		(C)			

Figure 5: The Form to Record the Intermediate Consumption Inputs

2.1.2. Recording and Calculation Steps

1) Check the lists of intermediate consumption in the first column;
2) Record unit of each item in the second column “unit”;
3) Record quantity of each item in the third column “Qty”;
4) Record unit price of each item in the fourth column “Unit Cost”;
5) Record quantity of each item paid in cash in the fifth column “Qty”;
6) Calculate cash value of each item in the sixth column “in cash” by multiplying the unit price with the quantity. After that sum up all value and record it in the lowest row “(A)”;
7) Record quantity of each non cash item in the seventh column “Qty”;
8) Calculate non cash value of each item in the eight column “non cash” by multiplying the unit price with the quantity. After that sum up all value and record in the lowest row “(B)”;
9) Finally calculate the total value of intermediate consumption “(C)”.

2.1.3. Calculation Method

The calculation formula for intermediate consumption cost of each input is:

Value of Intermediate Consumption Cost (kip) = Unit Price (kip/unit) X Quantity

After calculating the value of intermediate consumption of each input, sum up cash intermediate consumption in "**(A)**" and non-cash intermediate consumption in "**(B)**". It should then amount to the total intermediate consumption value in "**(C)**" which is equal to "**(A)**" + "**(B)**". This value is used for further calculation.

2.1.4. Example

Our farmer, Mr Thongla needed only seeds and fuel for seasonal paddy rice production. He used 40 kg of seed priced at 1,800 kip/kg. However, he only purchased 10 kg of the seeds, while the remaining 30 kg was saved from the last production season. Thus, he did not need to pay cash for the total amount, but only for the 10 kg purchased on the market. He also needed fuel, which had to be paid in cash. He purchased 12 liter at a price of 14,000 kip/liter.

Therefore, the value of the seed, the value of fuel and total intermediate consumption cost is calculated as follows:

The value of seed in cash = 10 kg X 1,800 kip/kg = 18,000 kip
The total value of fuel in cash = 12 liters X 14,000 kip/kg = 168,000 kip
The value of cash inputs = 18,000 kip + 168,000 kip = 186,000 kip
The value of seed in non-cash = 30 kg X 1,800 kip/kg = 54,000 kip
Total Intermediate Consumption Cost = 186,000 kip + 54,000 kip = 240,000 kip

The example for recording and calculating Intermediate Consumption Cost is illustrated in figure 6.

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Seed	kg	40	1,800	10	18,000	30	54,000
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil	Liter	12	14,000	12	168,000		
Renting tractors							
Renting buffaloes							
Other							
Total				(A)	186,000	(B)	54,000
Total Value of Input		(C) = (A) + (B)		(C)	240,000		

Figure 6: Example of Recording the Interview into the Form

2.1.5. Observation

Inputs indicate the production techniques and labor used in one production cycle. The value of inputs reflects the investment cost which has an impact on the income of the production activity.

The extensionist or development staff can provide advice and support to the farmer by suggesting more efficient and more suitable inputs or ways to improve the production techniques. For example: a farmer had applied high quantities of chemical fertilizers and pesticides during the production, which causes high production costs - and is moreover harmful to the environment, farmer's and consumers' health. In this case, the staff could suggest a solution how the farmer could reduce the application of chemical fertilizers and pesticides.

2.2 Labor Cost

2.2.1. Introduction

Labor use should be recorded in detail for all the production stages i.e., slashing, burning, cleaning, land preparing, planting, maintaining, and harvesting. Firstly, the number of days of labor for each activity should be recorded. The rate of labor cost is recorded according to the local area and the type of work. The type of labor in each activity should also be separated for calculating total labor cost. If the labor used is family labor or free labor (from friends or relatives), it should be recorded in the column of "non-cash". If hired labor is required, it should be recorded in the "cash" column. (See figure 7)

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip)			
			Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation						
Seed broadcasting						
Seedling preparation						
Land preparation						
Seedling Collection						
Transplanting						
Maintaining						
Harvesting						
Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost	(G) = (E) + (F)		(G)			

Figure 7: Form for Recording Labor Cost

2.2.2. Recording and Calculation Steps

The steps of calculating labor cost:

1) Check the list of activities that requires labor in the first column. If there are additional activities, they can be added in the row for "Others……" ;
2) Record the number of labor days used in each activity in the second column "No. of Labor". Then, sum up all numbers of labor days in the lowest row "(D)";
3) Record daily labor costs for each activity in the third column "Cost per labor day";
4) Record the number of labor days paid in cash for each activity into the fourth column "Qty";
5) Calculate the value of labor cost in cash in the fifth column "in cash". Then sum up all values into the lowest row "(E)";
6) Record the number of labor days from family members for each activity in the sixth column "Qty";
7) Calculate the value of the labor cost in the seventh column "non cash". Then sum up all values into the lowest row "(F)";
8) Calculate the total value of labor costs in "(G)"

2.2.3. Calculation Method

The calculation method is as follows:

Labor Cost (kip) = Daily Labor Cost (kip/person/day) X Labor Day

- **Daily labor cost** is the cost of actual local hiring labor rate per day per person. The rate also depends on type of work. Generally heavier work will have a higher rate.
- **Labor Day** is the number of days used to complete an activity based on 8 hours per working day. The calculation technique is as follows:

Labor Day = Number of Working Day X Number of Labor

2.2.4. Example

Our farmer Mr Thongla used 4 family members and hired 2 outside laborers to transplant rice for 5 days. The rate of labor cost in this village is 20,000 kip/day/person. Therefore, the recording and calculation should be in the non-cash and in cash column. Prior to calculating the value of the labor, it is essential to calculate the total number of labor days required for this activity:

Number of Hiring Labor Days = 5 days X 2 people = 10 labor days

Number of Family Labor Days = 5 days X 4 people = 20 labor days

Total Labor Days = 10 labor day + 20 labor day = 30 labor days

Therefore:

The value of labor use in cash = 20,000 kip/day/person X 10 labor days = 200,000 kip

The value of labor use in non-cash = 20,000 kip/day/person X 20 labor days = 400,000 kip

In each production step the labor costs have to be calculated in the same way and entered in the respective column.

The example of recording and calculating labor costs and days of labor in the form is illustrated in figure 8.

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip)			
			Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation	5	20,000	2	40,000	3	60,000
Seed broadcasting	1	20,000			1	20,000
Seedling preparation						
Land preparation	6	20,000	2	40,000	4	80,000
Seedling Collection	10	20,000	2	40,000	8	160,000
Transplanting	30	20,000	10	200,000	20	400,000
Maintaining	15	20,000	5	100,000	10	200,000
Harvesting	20	20,000	10	200,000	10	200,000
Threshing	6	20,000	2	40,000	4	80,000
Transporting	10	20,000	2	40,000	8	160,000
Others.....						
Total	103	(D)	(E)	700,000	(F)	1,360,000
Total Value of Labor Cost	(G) = (E) + (F)		(G)	2,060,000		

Figure 8: Example of Recording and Calculating Labor Cost

2.2.5. Observation

One of the most important inputs in agriculture and agro-processing is labor. High usage of labor can have a significant impact on the production income. The information on labor usage such as "labor day" can also be compared with other farmers who produce the same product.

2.3 Calculation of Input Values

2.3.1. Introduction

After calculating the total intermediate consumption cost and labor cost in cash and non cash, we should calculate the total cash input in "(H)", the total non cash input in "(I)", and the total value of input in "(J)" as in the figure 9.

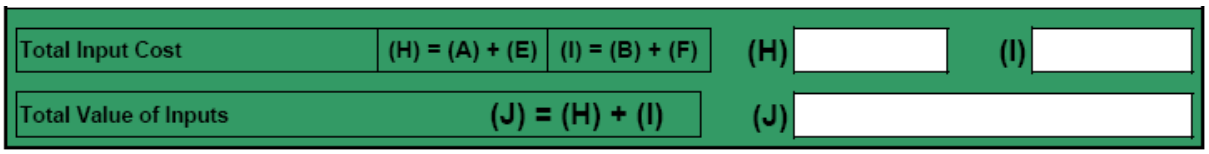

Figure 9: Form for Calculating Calculation Input Values

2.3.2. Recording and Calculation Steps

1) Calculate total input cost in cash into "(H)";
2) Calculate the total input cost in non cash into "(I)"; and
3) Calculate the total value of inputs into "(J)"

2.3.3. Calculation Method

a). Calculating total cash input

Calculation of the total cash input follows the formula shown below.

Total Cash Input (H) = Total Intermediate Consumption Cost in Cash (A) + Total Labor Cost in Cash (E)

b). Calculating total non-cash input

Calculation of the total non-cash input follows the formula shown below.

Total Non-Cash Input (I) = Total Intermediate Consumption Cost in Non-Cash (B) + Total Family Labor Cost (F)

c). Calculating Total Value of Input

The total input cost includes both total cash and total non-cash investment in the production. The calculation method is as follows.

Total Value of Input (J) = Total Cash Inputs (H) + Total Non-Cash Inputs (I)

2.3.4. Example

a). Calculating total cash input

In paddy rice production, the farmer Thongla paid 186,000 kip for intermediate consumption. He also paid 700,000 kip for labor. Thus:

The total cash input = 186,000 kip + 700,000 kip

The total cash input = 886,000 kip

b). Calculating total non-cash input

In paddy rice production, he had non-cash expenses of 54,000 kip and labor cost of 1,360,000 kip, for intermediate consumption. Therefore:

Total Non-Cash Input = 54,000 kip + 1,360,000 kip

Total Non-Cash Input = 1,414,000 kip

The example of recording and calculating the value of input in cash and non-cash is indicated in the figure 10.

c). Calculating Total Value of Input

This farmer paid 886,000 kip in cash for purchasing inputs for paddy rice production. He also used many inputs from his family amounting 1,414,000 kip. Therefore:

Total Value of Input = 886.000 kip + 1,414,000 kip
Total Value of Input = 2,300,000 kip

Example of the recording and calculating the total value of input is indicated in the figure 10.

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H) 886,000	(I) 1,414,000
Total Value of Inputs	(J) = (H) + (I)		(J) 2,300,000	

Figure 10: Example of the recording and calculating the total values of inputs

2.3.5. Observation

There is a negative relationship between production inputs and profit. A relatively high input cost results in less profit.

3. Recording and Calculating Output

3.1. Introduction

The output is divided into two types, such as, cash output and non-cash output. Cash output is the value generated by selling all the products including the main and other related products. Non-cash output is the value of the product that is consumed by the family, given to other people and the stock still remaining. The quantity and value of each item should be recorded in the form. (See figure 11)

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Rice sold							
Rice Consumed by Family							
Rice given to other people							
Rice exchanged with other							
Rice for seed							
Rice in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs		(O) = (L) + (M)		(O)			

Figure 11: Form for Recording and Calculating Output

3.2. Recording and Calculation Steps

1) Check the lists of output items in the first column;
2) Record unit of each item in the second column “unit”;
3) Record quantity of each item in the third column “Total Qty”;
4) Record unit price of each item in the fourth column “Unit Price”;
5) Record quantity of each item sold in cash into the fifth column “Qty”;
6) Calculate cash value of each item in the sixth column “in cash” by multiplying the unit price with the quantity. After that sum all value and record in the lowest row “(L)”;
7) Record quantity of each non cash item in the seventh column “Qty”;
8) Calculate non cash value of each item in the eight column “non cash” by multiplying the unit price with the quantity. After that sum all value and record in the lowest row “(M)”;
9) Finally calculate the total value of output into “(O)”.

3.3. Calculation Method

3.3.1. Cash Output

Cash output is the cash obtained from selling the primary and secondary products. It can be calculated as follows.

Value of Product (kip) = Unit Price (kip/unit) X Quantity

After calculating cash value of each item, the total cash output should be calculated in "(L)".

3.3.2. Non-Cash Output

Non-cash output is determined by calculating the value of the product consumed by the family, given to others, exchanged or products still in stock. The calculation method is similar to the cash output mentioned above.
After calculating the value of each item, we should calculate the total non-cash output in "(M)".

3.3.3. Calculating the Total Value of Output

The total value of output includes both all cash and non-cash outputs. The calculation method is illustrated below.

Total Value of Output (O) = Total Cash Outputs (L) + Total Non-Cash Outputs (M)

3.4. Example

3.4.1. Cash Output

The farmer produced 3,500 kg paddy rice. They sold 850 kg for 1,600 kip/kg. The rest was used for family consumption. Therefore:

Cash sale of rice = 1,600 kip/kg X 850 kg

Cash sale of rice -= 1,360,000 kip

The example for recording and calculating the total cash output is shown in figure 12.

3.4.2. Non-Cash Output

Out of the above mentioned 3,500 kg paddy rice in total, 1,700 kg was used for family consumption. The value of the rice in the local area is 1,600 kip/kg. Therefore:

Value of Rice for Consumption = 1,600 kip/kg X 1,700 kg

Value of Rice for Consumption -= 2,720,000 kip

The example for recording and calculating the non-cash output is indicated in figure 12.

3.4.3. Calculating the Total Value of Output

He received 1,360,000 kip in cash from selling rice. The remaining rice was worth a total of 4,240,000 kip. This includes the sum of rice for family consumption, for relatives, for exchange and the remaining rice still in the stock. Therefore:

Total Value of Output = 1,360,000 kip + 4,240,000 kip
Total Value of Output = 5,600,000 kip

The example for recording and calculating the total value of output is shown in figure 12.

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	850	1,600	850	1,360,000		
Rice Consumed by Family	kg	1,700	1,600			1,700	2,720,000
Rice given to other people	kg	100	1,600			100	160,000
Rice exchanged with other	kg	100	1,600			100	160,000
Rice for Seed	kg	50	1,600			50	80,000
Rice in the stock	kg	700	1,600			700	1,120,000
Waste Product Sold				0	0	0	0
Total	kg	3,500	(K)	(L)	1,360,000	(M)	4,240,000
Total Value of Outputs			(O) = (L) + (M)	(O)	5,600,000		

Figure 12: Example of Recording and Calculating Values of Output

3.5. Observation

Outputs give an indication on the production quantity, the production value and also the use of the production outputs. Selling the product has a positive relationship with the cash income. Generally, small holder farmers in Lao PDR keep most part of the paddy production for self consumption. Cash income will be generated only if the product is sold. However, the Total Value of Output will not affect the Cash Income of the production.

4. Economical Value of Production Loss

4.1. Introduction

Recording the value of production loss is necessary to prevent loss in the future and compare the figures with the previous season. In order to achieve correct figures, recording of loss should be done during each step of the production – from preparation to harvesting. The causes of the loss can be pests, diseases, flood, draught or others and should be mentioned and prioritized in the form. Here we consider only loss during the production. The loss after harvesting, e.g. during storage, is not taken into account.

The recording for the production loss is similar to those of the output above. (See figure 13).

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

Figure 13: Form for Recording the Value of Production Loss

4.2. Recording and Calculation Steps

1) Record unit of the production loss in the second column "unit";
2) Record quantity of the loss into the third column "Quantity";
3) Record the value of unit price in the fourth column "Unit price";
4) Calculate the value of production loss in the fifth column "Value"; and
5) Record the causes of the loss in the space provided.

4.3. Calculation Method

The calculation of production loss is valued in kip. This is to show the economic importance of the loss. The calculation method is similar to the calculation of the product value. The calculation method is illustrated below.

Value of Production Loss (kip) = Unit Price (kip/unit) X Quantity of Loss

4.4. Example

The farmer had evaluated that his rainy season paddy rice production showed approximately 500 kg loss during the last season, because the cherry snail had destroyed during the first few weeks after transplanting. The local market price is 1,500 kip/kg. Thus:

Value of Production Loss = 1,500 kip/kg X 500 kg

Value of Production Loss = 750,000 kip

The example of the recording and calculating the value of production loss is shown in the figure 14.

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss	kg	500	1,500	750,000

Causes of the loss: Cherry snail destroyed during first few weeks after transplanting

Figure 14: Example of Recording and Calculation the Value of Production Loss

4.5. Observation

The production loss indicates the quantity of production loss and its value. It illustrates the economical loss and states the major cause of the loss. If the economical loss of the production is very high, the extension staff can use this information finding a suitable solution to help the farmer. The above example shows that the farmers lost 750,000 kip because of pest through Cherry snails. If extension staff can solve the Cherry snail problem, the farmer would gain more income.

5. Economic Calculation

5.1. Introduction

The economical calculation comprises calculations such as: profit and loss in total and an analysis of profit per unit.
(See figure 15)

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	474,000
Gross Margin	(Q) = (O) - (J)	(Q)	3,300,000
4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	32,039
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	3,300,000

Figure 15: Form for Economical Calculation

5.2. Recording and Calculation Steps

1) Calculate cash balance into “(P)”;
2) Calculate gross margin into “(Q)”;
3) Calculate gross margin per labor day into “(R)”; and
4) Calculate gross margin per unit area or unit of production into “(S)”.

5.3. Calculation Method

5.3.1. Calculation of Profit and Loss

The calculation of profit and loss includes calculations such as Cash Balance and Gross Margin. (See figure 15)

a). Calculation of Cash Balance

Cash balance illustrates the cash status after one production cycle or season. The calculation method is as follows.

Cash Balance (P) = Total Cash Income (L) -- Total Cash Expenses (H)

b). Calculation of Gross Margin

Gross margin is the total value of income after deducting total input costs. The calculation method is as below.

Gross Margin (Q) = Total Income (O) -- Total Input Cost (C)

5.3.2. Calculation of Gross Margin per Unit

Gross margin per unit indicates the profit per one unit of production input or output. The result of the calculation shows the efficiency of the production that can be used to compare between different farmers or different production activities.

The gross margin per unit is calculated to identify the gross margin per area unit, per labor unit or per output unit. (see figure 15)

a). Calculation of Profit per Labor Day

Profit per labor days illustrates the efficient use of labor in a production cycle or season. It can be calculated as below.

Gross Margin per Labor Day (R) = Gross Margin (Q) ÷ Total Labor Days (D)

b). Calculation of Gross Margin per Area Unit

Calculation of Gross Margin per area unit relates to crop production. The Gross Margin per area unit illustrates the efficiency of land use in one production cycle. The calculation technique is as below.

Gross Margin per Area Unit (S) = Gross Margin (Q) ÷ -Production Area (T)

After calculating the gross margin, we can calculate the Gross Margin per area unit. The area unit is recorded in "(T)" in general information section of the tool. The common use of the unit is hectare. If farmers use smaller land areas for their production the unit can be changed to ***rai***.

c). Calculation of Gross Margin per Unit of Product

Calculation of Gross Margin per unit of product relates to production for agro-processing and livestock production, where the scope of land area is not important. Thus we cannot calculate the profit per unit area. Therefore we calculate the Gross Margin per unit of product or output which indicates the production efficiency for one production period. It can be calculated as below.

Gross Margin per Unit of Output (S) = Gross Margin (Q) ÷ Total Number of Production Outputs (T)

After calculating the gross margin, we can calculate the profit per unit of output. The unit output is recorded in "(T)" in general information section of the tool.

5.4. Example

5.4.1. Calculation of Cash Balance

Our farmer Mr. Thongla received 1,360,000 kip in cash from selling rice, while needing cash expenditures of 886,000 Kip throughout the whole production process. Thus:

Cash Balance = 1,360,000 kip - 886,000 kip
Cash Balance = 474,000 kip

The example of the recording and calculating the cash balance is illustrated in the figure 16.

5.4.2. Calculation of Gross Margin

This farmer had the total output of 5,600,000 kip, but he also had the total input costs of 2,300,000 kip. Therefore,

Gross Margin = 5,600,000 kip -- 2,300,000 kip
Gross Margin = 3,300,000 kip

The example of the recording and calculating the gross margin is shown in the figure 16.

5.4.3. Calculation of Profit per Labor Day

Our farmer had the gross margin from lowland rice production of 3,300,000 kip. He used 103 days of labor for production. Therefore:

Gross Margin per Labor Day = 3,300,000 kip ÷ 103 labor day
Gross Margin per Labor Day = 32,039 kip/labor day

The example of the recording and calculating the Gross Margin per Labor Day is illustrated in the figure 16.

5.4.4. Calculation of Gross Margin per Unit Area

Our farmer Mr. Thongla received 3,300,000 kip for gross margin of rice production, while he used 1 ha of land for the production. As a result:

Gross Margin per Unit Area = 3,300,000 kip ÷ 1 ha
Gross Margin per Unit Area = 3,300,000 kip/ha

The example of the recording and calculating the Gross Margin per unit area is shown in the figure 16.

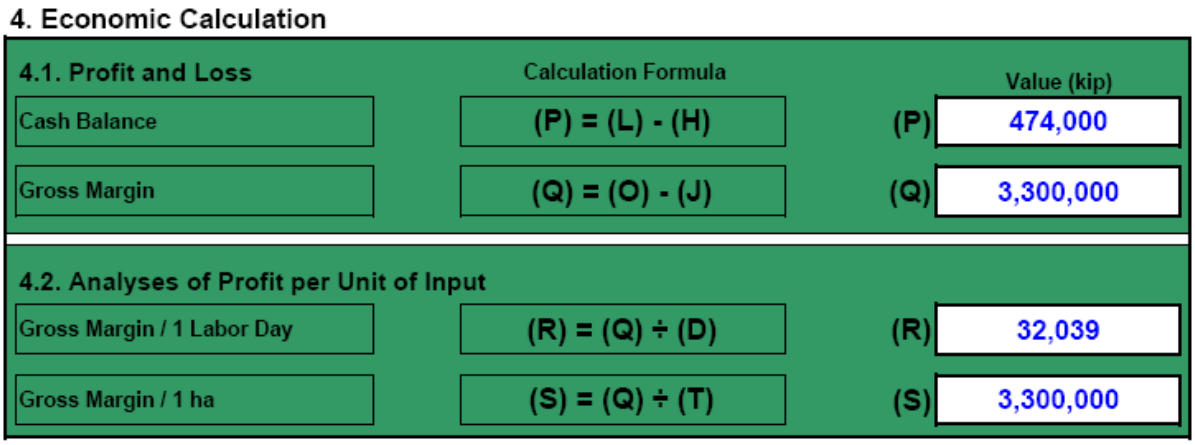

Figure 16: Example of Recording and Calculating Cash Balance

5.4.5. Calculation of Gross Margin per Unit of Product

Showing the calculation for gross margin per product we take the example of Mr Somchan in Donaen village, who raised 58 chickens in 2007/2008 and could gain a profit of 164,000 kip. Therefore:

Gross Margin per one Chicken = 164,000 kip ÷ 58 heads
Gross Margin per one Chicken = 2,828 kip/head

The example of the recording and calculating the Gross Margin per unit of output (Gross Margin/ 1 head of animal) is shown in the figure 17.

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	44,000
Gross Margin	(Q) = (O) - (J)	(Q)	164,000
4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	6,308
Gross Margin / 1 Head of poultry	(S) = (Q) ÷ (T)	(S)	2,828

Figure 17: Example of Economic Recording and Calculation of Chicken Production

5.5. Observation

The results from economic calculation in the tools will illustrate Cash Balance, Gross Margin, Gross Margin per Labor Day, and Gross Margin per Unit Area or Unit of Output.

5.5.1. Cash Balance

Cash balance indicates the cash income of the production. If the cash balance is negative, the cash investment for the production is higher than the cash output. This will leave the farmer without any investment money for the next season. Therefore, the farmer needs to find some other sources of cash investment for the next production, which may lead to an increase in debt. If the cash balance is positive the farmer gained cash savings that can be invested in this or other production activity or used as general income for the family. In general, a negative cash balance is only acceptable for a production which is carried out purely for self-consumption. In Laos this case is relates mainly to rice production

5.5.2. Gross Margin

Gross Margin illustrates the net income from the production. If the gross margin is negative, it means the value of investment is higher than the value of output. Thus, the extension staff should identify the cause of the problem and provide a suitable solution for improvement.

5.5.3. Gross Margin per Labor Day

The gross margin per labor day indicated the net income per labor day. If it is lower than the local daily labor cost, the extension staff should provide solutions for improvement. In case, a farmer implements only one production activity, the staff may help by introducing other income generating activities. The information on gross margin per labor day can be used as an indicator to compare different production activities between farmers. This can help farmers to see clearly which activity can provide higher return per unit of labor.

5.5.4. Gross Margin per Unit

The gross margin per unit can be calculated into two different ways: calculation of the gross margin per unit of land/area and calculation of the gross margin per unit of product. The gross margin per unit area for agricultural productions indicates how efficiently the land resources have been used. For livestock production and agro-processing activities, the gross margin per unit can is used. The gross margin is suitable to compare different production activities of one farmer and also allows a comparison between different farmers producing in the same field. This can help farmers to identify the production with the highest revenue and the conditions under which is revenue is achieved.

In addition, the extension staff and development officers can use the information from the tools, especially, from the recording and calculation to compare the productivity of a farmer before the training and after the training course, the efficiency of each production activity, and the production efficiency between different farmers. When the staff together with the farmers have summarized all information in the tool, they can provide advice on how to improve the production and what contribution they could give, e.g. in training or information.

For all calculations it is essential that the farmers keep a continuous record of their numbers, expenses and income. Therefore calculating the benefit will be accurate and easy.

V. Analyzing the Results with the Farmers

In the previous chapter, we have learnt how to correctly fill in the data and how to make a right calculation. But, what do all those figures mean? How can we translate these numbers into practical advice for the farmers? This is the most challenging part for extension staff. And this is also the most important part of the whole economic analysis. In this chapter we try to provide you an answer to those questions.

First of all, there is no blue print for the analysis as it depends on the specific circumstances and potentials of the farmers. Thus the best way to show the use is providing real life examples and explaining why a certain decision was made in that way.

The examples presented are:

a) an analysis of one production in production unit/household on sugarcane;

b) a comparison of one production in two production units/households on rain-fed rice; and

c) a comparison on different productions for one production unit/household on off season rice and cucumber.

These examples illustrate the objective of this tool, namely that farmers are able a) to analyze the performances of their productions (good or bad), b) to compare their production with their neighbors (better or worse) and c) to make an informed decision on further production activities (improve techniques or even shift to new productions).

Example 1: Analyzing one production of one farming household

This example is based on a discussion with Mr. Bouasone in Nongkeng village, Xaythany district, Vientiane capital in November 2008. He and his family have planted sugarcane from June 2007 to February 2008. He wanted to know the profitability in sugarcane plantation and whether he should continue the same plantation in the next season.

Form 8: Economic Calculation Tool for Sugarcane Production

1. General Information

Name and Family Name of Farmer: Mr. Bouasone	Village: Nongkheng		
Date of Data Collection: 10/11/2008	District: Xaythany	Total Production (Kg): 40,000	Yield (kg/ha): 83,333
Production Period (One production period): 6/2007 to 2/2008	Province: Vientiane Capital	Total Production Area (ha) (T): 0.48	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	Ton	1	120,000	1	120,000		
Pesticides	Bottle	2	150,000	2	300,000		
Chemical fertilizers							
Organic fertilizers							
Others							
Total				(A)	420,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	420,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation	20		20	600,000		
Planting	30	30,000			30	900,000
Maintenance	25	30,000			25	750,000
Harvesting	35	20,000			35	700,000
Transporting	20	20,000			20	400,000
Other						
Total	130	(D)	(E)	600,000	(F)	2,750,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	3,350,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	1,020,000	(I)	2,750,000
Total Value of Inputs	(J) = (H) + (I)		(J)	3,770,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sugarcane sold	Kg						
Sugarcane Consumed by Family	Kg						
Sugarcane given to other people	Kg						
Sugarcane exchanged with other	Kg						
Sugarcane for Seed	Kg						
Sugarcane in the stock	Kg	40,001	121			40,001	4,840,121
Waste Product Sold	Kg					192	240,000
Total			(K)	(L)	0	(M)	4,840,121
Total Value of Outputs		(O) = (L) + (M)		(O)	4,840,121		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sugarcane Loss				

Causes of the loss: _____

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	-1,020,000
Gross Margin	(Q) = (O) - (J)	(Q)	1,070,121

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	8,232
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	2,229,419

After filling in the complete calculation sheet the following areas of interest should be highlighted and brought to attention:

Figures of Interest	**Data**
Area (T)	0.48 ha
Total Production	40 t
Yield	83,33 t/ha
Cost of direct input in cash (A)	420,000 kip
Cost of direct input in non-cash (B)	0 kip
Total value of Labor cost (G)	3,350,000 kip
Total cost of direct input (direct variable and labor cost) (J)	3,770,000 kip
Total working days (D)	130 working days
Output in cash (L)	0 kip
Output in non-cash (M)	4,840,121 kip
Total Output (O)	4,840,121 kip
Cash balance (P)	- 1,020,000 kip
Gross margin (Q)	1,070,121 kip
Gross margin/working day (R)	8,323 kip
Gross margin/ha (S)	2,229,419 kip

First of all the amount of the **Yield** should be assessed. Compared to the FAO statistic in 2002, which states an average yield of sugarcane in Laos is 31.8 t/ha, Mr. Bouasone's yield is very high (actual production 40t/0.48 ha = 83 t/ha). This is nearly 3 times more than the average.

ADVICE: If the variation in the amount of yield is found higher than the normal standard, first of all, one needs to look at the accuracy of the information. Once the information is found to be accurate, the calculation needs to be repeated to rule out any calculation errors. In the case of Mr. Bouasone, in spite of accurate calculation the variation is high. This shows that Mr. Bouasone had favorable conditions such as a good land and land management. However he should be aware of the fact that he does use a lot of inputs.

Secondly, the **GROSS MARGIN** should be reviewed: The total gross margin of 1,040,121 Kip is not impressive, especially considering the fact that the yield is so much above average. This is due to the

high input costs, both in cash and non-cash. If we look into the details of the high inputs, the data shows that Mr. Bouasone had to buy seed material, fertilizer, as well as pay for soil preparation.

Moreover, growing sugarcane requires a lot of labor (130 working days in this case), which adds to the input costs. This makes the **gross margin per workday** very low i.e., 8,232 Kip per day .which is less than half the local labor cost (35,000 kip). This figure also becomes important if the farmer wants to compare the effectiveness of this production with other productions or with other farmers.

ADVICE: There are hardly any options to reduce the input costs. Prices for seed and fertilizer are pretty fixed and often prescribed by the sugar companies. Purchasing seed material in large amount as a group might reduce the price slightly. The other option is to use organic fertilizer instead of chemical fertilizer that will reduce the input cost.

The data related to **LABOR DAYS** gives us the number of days of work. The total of 130 labor days shows a) that sugarcane production is labor-intensive and b) that Mr. Bouasone has a large family and he did not need to hire external labor. E.g.: The planting took about one week, which required 6 family laborers for 5 whole days to cover the 30 days registered.

ADVICE: With his large family, the greater demand for labor can be covered without incurring additional cash. Instead, if he had to hire external labor, the production would not have been profitable at all.

Another important issue is the **CASH BALANCE**. In this case, Mr. Bouasone is in trouble because he has a negative cash income. This negative figure occurs because he could not sell any of the sugarcane to the factory. Because of this negative figure, he had to use cash from other production or savings to put into this production. If he has borrowed money, the situation would have been even worse. None of the input has yet returned as the negative cash balance (- 1,020,000 Kip) is exactly the amount of his input (1,020,000 Kip). Thus the figure for the total output of 4,840,121 is not worth anything unless he is able to sell to the factory.

ADVICE: This negative cash balance confirms that there is a high risk for small scale farmers who are dependent on a single factory or buyer to sell sugarcane. Clear agreement for purchase should be agreed with the buyers prior to plantation. Farmers with little cash flow should opt for another production. In general the cash balance should always be a positive figure – except for those productions which are meant purely for self-consumption (e.g. rice).

Overall ADVICE: It seems that sugarcane is not the right production for this farming family. Even though the family possesses a large amount of own labor, they have not gained any profit from this production. Since they do not have an agreement with the company on price or sales quantity, there is a risk of surplus stock of sugarcane. Due to the lack of proper storage possibilities, the chance of loss

is high. We recommend that Mr. Bouasone should adopt another crop for production that would provide a) a better security in terms of sales and b) a higher gross margin.

Example 2: Comparing one production in two farming households with different production techniques

This example provides a comparison between two farming families who use different production techniques and inputs in rainy season rice production of 2008.

- Mr. Boun-nam and his family from Xaythani district in Vientiane Capital applied only organic fertilizer and managed the workload with his own family labor.

- Ms Laeokham and her family from Viengkham district in Vientiane applied chemical fertilizer and had to hire external laborers during most of the production step.

Which production was more profitable and what could each of the families improve?

Farmer Mr. Boun-nam: Rain-fed rice - organic in 2008

Form 2: Economic Calculation Tool for Paddy Rice Production

1. General Information

Name and Family Name of Farmer	Village	Type of Paddy Field	
Mr. Bounnam	Nongno	☑ Rainfed	☐ Irrigated
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
10/11/2008	Xaythany	4,800	5,333
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	
7 to 11/2007	Vientiane Capital	0.9	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	60	3,000			60	180,000
Organic Fertilizer	Truck	4	70,000			4	280,000
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil	Liter	6	10,000	6	60,000		
Rent tractor	Time	1	200,000	1	200,000		
Other							
Total				(A)	260,000	(B)	460,000
Total Value of Input		(C) = (A) + (B)		(C)	720,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation	4	35,000			4	140,000
Seed broadcasting	2	35,000			2	70,000
Seedling preparation						
Land preparation	16	35,000			16	560,000
Seedling Collection	5	35,000			5	175,000
Transplanting	35	35,000	5	175000	30	1,050,000
Maintaining	3	35,000			3	105,000
Harvesting	12	35,000			12	420,000
Threshing	4		4	540000		
Transporting	3	35,000			3	105,000
Others						
Total	84	(D)	(E)	715,000	(F)	2,625,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	3,340,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	975,000	(I)	3,085,000
Total Value of Inputs		(J) = (H) + (I)	(J)	4,060,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	3,700	3,000	3,700	11,100,000		
Rice straw Sold							
Rice Consumed by Family	kg						
Rice given to other people	kg						
Rice exchanged with other	kg						
Rice for Seed	kg						
Rice in the stock	kg	1,100	3,000			1,100	3,300,000
Waste Product Sold							
Total	kg	4,800	(K)	(L)	11,100,000	(M)	3,300,000
Total Value of Outputs			(O) = (L) + (M)	(O)	14,400,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	10,125,000
Gross Margin	(Q) = (O) - (J)	(Q)	10,340,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	123,095
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	11,488,889

Farmer Ms Laeokham: Rain-fed rice - chemical in 2008

Form 2: Economic Calculation Tool for Paddy Rice Production

1. General Information

Name and Family Name of Farmer: Ms. Leokham	Village: Phonmy nue	Type of Paddy Field: ☑ Rainfed	☐ Irrigated
Date of Data Collection: 17/11/2008	District: Viengkham	Total Production (Kg): 6,500	Yield (kg/ha): 4,514
Production Period (One production period): 7 to 11/2007	Province: Vientiane	Total Production Area (ha) (T): 1.44	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	152	2,500			152	380,000
Organic Fertilizer							
Chemical Fertilizer	Bag	4	250,000	4	1,000,000		
Pesticides							
Water fee							
Electricity for water							
Fuel and oil							
Others							
Total				(A)	1,000,000	(B)	380,000
Total Value of Input			(C) = (A) + (B)	(C)	1,380,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation	2	30,000			2	60,000
Seed broadcasting						
Seedling preparation						
Land preparation	24		24	1,350,000		
Seedling Collection	5	30,000			5	150,000
Transplanting	45		45	1,890,000		
Maintaining	8	30,000			8	240,000
Harvesting	27	30,000	27	810,000		
Threshing	8		8	625,000		
Transporting						
Others						
Total	117	(D)	(E)	4,675,000	(F)	450,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	5,125,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	5,675,000	(I)	830,000
Total Value of Inputs		(J) = (H) + (I)	(J)	6,505,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	2,000	3,000	2,000	6,000,000		
Rice Consumed by Family	kg					0	0
Rice given to other people	kg					0	0
Rice exchanged with other	kg					0	0
Rice for seed	kg					0	0
Rice in the stock	kg	4,500	3,000			4,500	13,500,000
Waste Product Sold							
Total	kg	6,500	(K)	(L)	6,000,000	(M)	13,500,000
Total Value of Outputs			(O) = (L) + (M)	(O)	19,500,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	325,000
Gross Margin	(Q) = (O) - (J)	(Q)	12,995,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	111,068
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	9,024,306

Comparing the figures of both farmers shows the following:

Figures of Interest	**Farmer Boun-nam** **"Rain fed - organic"**	**Farmer Laeokham** **"Rain fed - chemical"**
Area (T)	0.9 ha	1.44 ha
Total Production	4.8 t	6.5 t
Yield	5.3 t/ha	4.5 t/ha
Cost of direct input in cash (A)	260,000 kip	100,000 kip
Cost of direct input in non-cash (B)	460,000 kip	380,000 kip
Total value of Labor cost (G)	3,340,000 kip	5,125,000 kip
Total cost of direct input (direct variable and labor cost) (J)	4,060,000 kip	6,505,000 kip
Total working days (D)	84 workdays	117 workdays
Output in cash (L)	11,100,000 kip	6,000,000 kip
Output in non-cash (M)	3,300,000 kip	13,500,000 kip
Total Output (O)	14,400,000 kip	19,500,000 kip
Cash balance (P)	10,125,000 kip	325,000 kip
Gross margin (Q)	10,340,000 kip	12,995,000 kip
Gross margin/working day (R)	123,095 kip	111,068 kip
Gross margin/ha (S)	11,488,889 kip	9,024,306 kip

The first step in the comparison is to find variables with similar results and variables that show differences. In this example there is a major disparity in nearly all categories. The most striking differences are in cost of input, labor-days, cash balance, gross margin per ha and the gross margin per labor-day.

Since the production area varies in size namely 0.9 ha and 1.44 ha, it is useful to compare the **gross margin per ha** and the **yield per ha**. Mr. Boun-nam with the organic rice production has achieved a higher value per ha than Ms. Laeokham. The yield is nearly 12 Million Kip in the case of Mr. Boun-nam compared to about 9 Million for Ms. Laeokham. This results a higher average yield of 5.3 t/ha compared to only 4.5t/ha and input cost.

In the case of Mr. Boun-nam, the input in cash and non-cash was only 4,060,000 kip. While for Ms. Laeokham, the input in cash and non-cash was 6,505.000 Kip. For an additional 50 % land area she put in almost double of what Mr. Boun-nam had used.

The **total output** for Ms Leokham is 19,500,000 kip which is higher than that of Mr. Boun-nam . This does not surprise us as Mr. Boun-nam had planted only 0.9 ha compared to 1.44 ha. He could have achieved 23,040,000 Kip if he had planted 1.44 ha like Ms Leaokham. Also **cash in hand** for Mr. Boun-nam (10.1 Million) is much higher than Ms Laeokham (0.32 Million).

About **labor input.** His production is a little bit more labor intensive. He required 84 days of labor when compared to Ms, Laeokham who required 117 for a land area which is 50 % more than Boun-nam. This affects the Gross Margin per day of labor which is 123,905 kip compared to 111,068 kip. He however managed his production by relying on his own family labor. Therefore, he did not have to invest additional cash.

Overall ADVICE:

Mr. Boun-nam's production is certainly more profitable than Ms Laeokham. He has a high profit margin per ha, good cash balance and can afford family labor which reduces the cash input. His position at this stage enables him to continue the current production. This explains how farmers who do not rely on cash reserves find the production profitable and suitable. With additional technical advice and support, he could further improve his profit margin. A good advice can be provided based on a detailed assessment of each production step.

In the case of Ms Laeokham, the profit margin per ha is definitely less than Mr. Boun-nam. However she still has a positive cash balance and a good gross margin. Her bottleneck is the large amount of input, especially in terms of cash for hired labor. Even with this high input level, including the intensive use of chemical fertilizer, the yield per ha is still lower when compared to that of Mr. Boun-nam. In this case, it is recommended, that she should try to switch to organic production for one season so as to a) reduce input costs and b) promote a more environment friendly technique. At the end of the season she needs to assess the amount of increase in terms of benefits, because the conditions in her district might differ from that of Mr. Boun-nam's Xaythani district.

If she could afford more free labor from her family, her cash in hand could be a seriously increased. However, her family being very small, she will have to rely on external help. In this case, it is advisable to switch to a less labor intensive production.

Example 3: Comparing different productions to find the most profitable options for one farming family

This is an example that compares production activities of different crops. Mr. Bouasone, the sugarcane planter from example 1, was unhappy with the outcome of the sugarcane plantation. After the assessment, he decided to look for an alternative crop for the production during this dry season. However he was not sure about which alternative to choose. We carried out an assessment of alternative crops that were planted by his neighbors under similar conditions. This helped him in the decision making process.

As part of this assessment, we interviewed Mr. Khamla, so that he could share his experience with off-season rice production. We also assessed Ms. Touy's cucumber production during the last off-season.

Both farmers are residents of Xaythany district in Vientiane Capital. As already observed in the example 1, the conditions in this area are quite favorable with regard to access to market, irrigation, electricity, road and other services. They might not be applied one-to-one in other areas.

Form 2: Economic Calculation Tool for Paddy Rice Production

1. General Information

Name and Family Name of Farmer: Mr. Khamla	Village: Nongkheng	Type of Paddy Field: ☐ Rainfed ☑ Irrigated	
Date of Data Collection: 10/11/2008	District: Xaythany	Total Production (Kg): 4,700	Yield (kg/ha): 4,700
Production Period (One production period): 11/2007 to 4/2008	Province: Vientiane capital	Total Production Area (ha) (T): 1	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	150	4,500	150	675,000		
Organic Fertilizer	Bag	45	5,000	45	225,000		
Chemical Fertilizer	Bag	6	380,000	6	2,280,000		
Pesticides							
Water fee	Rai	6.25	50,000	6.25	312,500		
Electricity for water							
Fuel and oil	Litre	4	8,000	4	32,000		
Others							
Total				(A)	3,524,500	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	3,524,500		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation	2	15,000			2	30,000
Seed broadcasting	1	40,000			1	40,000
Seedling preparation						
Land preparation	23		16	937,500	7	280,000
Seedling Collection	11	40,000			11	440,000
Transplanting	35	40,000			35	1,400,000
Maintaining	5	40,000			5	200,000
Harvesting	13	40,000	11	440,000	2	80,000
Threshing and Transporting	15		10	540,000	5	200,000
Others						
Total	105	(D)	(E)	1,917,500	(F)	2,670,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	4,587,500		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	5,442,000	(I)	2,670,000
Total Value of Inputs		(J) = (H) + (I)	(J)	8,112,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	3,250	2,500	3,250	8,125,000		
Rice straw Sold							
Rice Consumed by Family	kg	1,000	2,500			1,000	2,500,000
Rice given to other people	kg	250	2,500			250	625,000
Rice exchanged with other	kg					0	0
Rice for Seed	kg	200	2,500			200	500,000
Rice in the stock							
Waste Product Sold							
Total	kg	4,700	(K)	(L)	8,125,000	(M)	3,625,000
Total Value of Outputs			(O) = (L) + (M)	(O)	11,750,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	2,683,000
Gross Margin	(Q) = (O) - (J)	(Q)	3,638,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	34,648
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	3,638,000

Form 5: Economic Calculation Tool for Cucumber Production

1. General Information

Name and Family Name of Farmer: Ms. Touy	Village: Nongkheng		
Date of Data Collection: 10/11/2008	District: Xaythany	Total Production (Kg): 6,720	Yield (kg/ha): 42,000
Production Period (One production period): 11/2007 to 1/2008	Province: Vientiane Capital	Total Production Area (ha) (T): 0.16	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	Can	12	120,000	12	1,440,000		
Organic fertilizers	Bag	40	5,000	40	200,000		
Chemical fetilizers	Bag	5	380,000	5	1,900,000		
Pesticides	Bottle	4	37,000	4	148,000		
Irrigation	Rai	2	50,000	2	100,000		
Bamboo	Piece	2,000	100	2,000	200,000		
Other							
Total				(A)	3,988,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	3,988,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation	8		8	300,000	10	0
Planting	10	30,000			10	300,000
Making bamboo nets	20	30,000			20	600,000
Maintenance	30	30,000			30	900,000
Harvesting	20	30,000			20	600,000
Transportation						
Other						
Total	88	(D)	(E)	300,000	(F)	2,400,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	2,700,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	4,288,000	(I)	2,400,000
Total Value of Inputs	(J) = (H) + (I)		(J)	6,688,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Cucumber Product sold	Kg	6,528	1,250	6,528	8,160,000		
Cucumber Product Consumed by Family	Kg	192	1,250			192	240,000
Cucumber Product given to other people							
Cucumber Product exchanged with other							
Cucumber Product for Seed							
Cucumber Product in the stock							
Waste Product Sold							
Total		6,720	(K)	(L)	8,160,000	(M)	240,000
Total Value of Outputs		(O) = (L) + (M)		(O)	8,400,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Cucumber Product Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	3,872,000
Gross Margin	(Q) = (O) - (J)	(Q)	1,712,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	19,455
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	10,700,000

Comparing the figures of both productions shows the following:

Figures of Interest	**Farmer Mr. Khamla "Off-season rice"**	**Farmer Ms. Touy "Cucumber"**
Area (T)	1 ha	0.16 ha
Total Production	4.70 t	6.72 t
Yield	4.70 t/ha	42 tons/ha
Cost of direct input in cash (A)	3,524,5000	3,988,000 Kip
Cost of direct input in non-cash (B)	0 kip	0 kip
Total value of Labor cost (G)	4,587,500 kip	2,700,000 kip
Total cost of direct input (direct variable and labor cost) (J)	8,112,000 Kip	6,688,000 Kip
Total working days (D)	105 workdays	80 workdays
Output in cash (L)	8,125,000 kip	8,160,000 kip
Output in non-cash (M)	3,625,000 kip	240,000 kip
Total Output (O)	11,750,000 kip	8,400,000 kip
Cash balance (P)	2,683,000 kip	3,872,000 kip
Gross margin (Q)	3,638,000 kip	1,712,000 kip
Gross margin/working day (R)	34,648 kip	19,455 kip
Gross margin/ha (S)	3,638,000 kip	10,700,000 kip

As in earlier examples, we should start with identifying similarities and differences. In this case, we found some similarities related to the input required.

1. Both productions require a similar total **INPUT,** around 7 Million Kip.
2. Both production need a similar **CASH input** of nearly 4 Million Kip.
3. Both productions are quite **LABOR intensive**. However rice production with 105 days of labor is more intensive than cucumber which requires 80 days of labor.

Thus in this case, we can easily compare the output. The rice farmer Mr. Khamla scores higher in nearly all output categories. The **TOTAL OUTPUT** is 11.7 Million for the off-season rice compared to only 8.4 Million for Ms. Touy's cucumber. A big difference is seen in the **GROSS MARGIN which is** 3,683,000 kip for rice, while that for cucumber is only 1,712,000 kip. This means the gross margin for rice is about 2 times higher than that for cucumber. The **GROSS Margin per day of labor**

is 34,648 kip for the rice and 19,455 kip for the cucumber production, which is 2 times higher value per working day for the rice production.

However these achievements are based on 1 ha rice production compared to only 0.16 ha for the cucumber.

Overall ADVICE:

The above example shows that both off-season productions - rice and cucumber - are more profitable than sugarcane. During off-season, the total output for rice was 11.7 Million Kip and for cucumber was 8.4 Million - compared to only 4.8 Million for sugarcane. Moreover both products have a stable market situation:

We recommend Mr. Buasone to go for **off-season rice production,** if he has limited cash in terms direct input (about 7 Million input in cash and non-cash like in the example).

However, if he can afford a higher input (in cash and labor), we recommend cucumber production as the **Gross margin per ha** shows that **cucumber production** has a higher value (10,700,000 kip per ha) than rice production (3,683,000 Kip per ha). In our analysis a similar input was used for planting 1 ha of rice compared to 0.16 ha of cucumber. If Mr. Buasone can afford large cash, he could utilize his planting area in a more efficient manner. Planting the entire area of 1 ha with cucumber would bring him a harvest of 42 t with a total output of more than 52.5 Million Kip. Moreover he could achieve this output within a time frame of three months compared to six months for rice.

This example shows that the recommendation given to the farmers is based on their potential. It is therefore important to discuss the outcome and possibilities together with the farmers to allow them making a suitable decision.

Annex:
Economic Tools and Examples

1. General Economic Tools

1. Form A: Economic Calculation Tool for Crop Production
2. Form B: Economic Calculation Tool for Livestock Production
3. Form C: Economic Calculation Tool for Agro-processing

2. Adopted Economic Tools for Crop Production with examples

1. Form 1: Economic Calculation Tool for Upland Rice Production
2. Form 2: Economic Calculation Tool for Paddy Rice Production
3. Form 3: Economic Calculation Tool for Soybean Production
4. Form 4: Economic Calculation Tool for Maize Production
5. Form 5: Economic Calculation Tool for Cucumber
6. Form 6: Economic Calculation Tool for Fruit tree
7. Form 7: Economic Calculation Tool for Sesame
8. Form 8: Economic Calculation Tool for Sugarcane
9. Form 9: Economic Calculation Tool for Galangal Production
10. Form 10: Economic Calculation Tool for Pigeon Pea for Stic-lac Production
11. Form 11: Economic Calculation Tool for Non Timber Forest Products

3. Adopted Economic Tools for Livestock Production with examples

1) Form 12: Economic Calculation Tool for Poultry Production
2) Form 13: Economic Calculation Tool for Swine Production
3) Form 14: Economic Calculation Tool for Fish Production

4. Adopted Economic Tools for Agro-Processing with examples

1) Form 15: Economic Calculation Tool for White Alcohol
2) Form 16: Economic Calculation Tool for Jar Alcohol

















Form A: Economic Calculation Tool for Crop Production

1. General Information

Name and Family Name of Farmer	Village	Type of Crop	
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil							
Others							
Others							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation						
Planting						
Maintaining						
Harvesting						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Crop Product sold							
Crop Product Consumed by Family							
Crop Product given to other people							
Crop Product exchanged with other							
Crop Product for Seed							
Crop Product in the stock							
Waste product sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Crop Product Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form B: Economic Calculation Tool for Animal Production

1. General Information

Name and Family Name of Farmer	Village	Type of Animal
Date of Data Collection	District	
Production Period (One production period)	Province	Total Animal Quantity in the period (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Animal in opening stock							
Purchased new poultry							
Concentrate Feed							
Regular feed (rice brand, broken rice, Maize, etc.)							
Supplementary Feed							
Vaccines							
Medicines							
Materials for housing maintenance							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Build/fixed animal housing						
Feed preparation and Feeding						
Maintaining						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Young Animal sold							
Animal sold							
Animal Consumed by Family							
Animal given to other people							
Animal exchanged with others							
Animal in the stock							
Young Animal in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Animal Loss or Died				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 Head of Animal	(S) = (Q) ÷ (T)	(S)

Form C: Economic Calculation Tool for Agro-Processing Production

1. General Information

Name and Family Name of Farmer	Village	Type of Agro-processing
Date of Data Collection	District	
Production Period (One production period)	Province	Total Production Quantity (unit) **(T)**

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Raw material 1							
Raw material 2							
Raw material 3							
Water							
Electricity							
Others							
Total				**(A)**		**(B)**	
Total Value of Input		**(C) = (A) + (B)**		**(C)**			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Prepare raw materials						
Processing						
Packaging						
Transporting						
Others						
Total		**(D)**	**(E)**		**(F)**	
Total Value of Labor Cost		**(G) = (E) + (F)**	**(G)**			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	**(H)**		**(I)**	
Total Value of Inputs		**(J) = (H) + (I)**	**(J)**			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Product sold							
Product Consumed by Family							
Product given to other people							
Product exchanged with others							
Product in the stock							
Waste Product sold							
Total			**(K)**	**(L)**		**(M)**	
Total Value of Outputs			**(O) = (L) + (M)**	**(O)**			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Product Loss				

Causes of the loss: _____

_____

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	**(P) = (L) - (H)**	**(P)**
Gross Margin	**(Q) = (O) - (J)**	**(Q)**

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	**(R) = (Q) ÷ (D)**	**(R)**
Gross Margin / 1 Unit of product	**(S) = (Q) ÷ (T)**	**(S)**

Form 1: Economic Calculation Tool for Upland Rice Production

1. General Information

Name and Family Name of Farmer	Village	Type of Upland: ☐ Regular	☐ Contour
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Insecticide							
Herbicide							
Fuel and oil							
Other							
Total				(A)		(B)	
Total Value of Input		(C) = (A) + (B)		(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Land preparing						
Planting						
Maintaining, weeding, fertilizering						
Harvesting						
Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold							
Rice Consumed by Family							
Rice given to other people							
Rice exchanged with other							
Rice for seed							
Rice in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 1: Economic Calculation Tool for Upland Rice Production

1. General Information

Name and Family Name of Farmer: Mr. Thongxay	Village: Nongtao	Type of Upland: ☑ Regular ☐ Contour	
Date of Data Collection: 3/6/2008	District: Nga	Total Production (Kg): 3,050	Yield (kg/ha): 1,525
Production Period (One production period): March to November 2007	Province: Oudomxay	Total Production Area (ha) (T): 2	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	120	2,000			120	240,000
Organic Fertilizer							
Chemical Fertilizer							
Insecticide							
Herbicide							
Fuel and oil							
Other							
Total				(A)	0	(B)	240,000
Total Value of Input			(C) = (A) + (B)	(C)	240,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	60	15,000			60	900,000
Burning	2	15,000			2	30,000
Cleaning	40	15,000			40	600,000
Fencing		15,000				
Land preparing		15,000				
Planting	88	15,000			88	1,320,000
Maintaining and weeding	220	15,000			220	3,300,000
Harvesting	120	15,000			120	1,800,000
Threshing						
Transporting						
Others						
Total	530	(D)	(E)	0	(F)	7,950,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	7,950,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	0	(I)	8,190,000
Total Value of Inputs		(J) = (H) + (I)	(J)	8,190,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	1,000	1,500	1000	1500000		
Rice Consumed by Family	kg	1,650	1,500			1,650	2,475,000
Rice given to other people	kg	50	1,500			50	75,000
Rice exchanged with other	kg	50	1,500			50	75,000
Rice for Seed	kg	150	1,500			150	225,000
Rice in the stock	kg	150	1,500			150	225,000
Waste Product Sol				0	0	0	0
Total	kg	3,050	(K)	(L)	1,500,000	(M)	3,075,000
Total Value of Outputs			(O) = (L) + (M)	(O)	4,575,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss	kg	1,000	1,500	1,500,000

Causes of the loss: Mice destroy

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	1,500,000
Gross Margin	(Q) = (O) - (J)	(Q)	-3,615,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	-6,821
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	-1,807,500

Form 2: Economic Calculation Tool for Lowland Rice Production

1. General Information

Name and Family Name of Farmer	Village	Type of Paddy Field ☐ Rainfed	☐ Irrigated
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil							
Renting tractors							
Renting buffaloes							
Other							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation						
Seed broadcasting						
Seedling preparation						
Land preparation						
Seedling Collection						
Transplanting						
Maintaining						
Harvesting						
Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold							
Rice Consumed by Family							
Rice given to other people							
Rice exchanged with other							
Rice for seed							
Rice in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 2: Economic Calculation Tool for Paddy Rice Production

1. General Information

Name and Family Name of Farmer: Mr. Thongla	Village: Houytan	Type of Paddy Field: ☑ Rainfed	☐ Irrigated
Date of Data Collection: 4/6/2008	District: Nga	Total Production (Kg): 3,500	Yield (kg/ha): 3,500
Production Period (One production period): 5 to 11/2007	Province: Oudomxay	Total Production Area (ha) (T): 1	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	40	1,800	10	18,000	30	54,000
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Electricity for water							
Fuel and oil	Liter	12	14,000	12	168,000		
Renting tractors							
Renting buffaloes							
Other							
Total				(A)	186,000	(B)	54,000
Total Value of Input		(C) = (A) + (B)		(C)	240,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seedbed Preparation	5	20,000	2	40,000	3	60,000
Seed broadcasting	1	20,000			1	20,000
Seedling preparation						
Land preparation	6	20,000	2	40,000	4	80,000
Seedling Collection	10	20,000	2	40,000	8	160,000
Transplanting	30	20,000	10	200,000	20	400,000
Maintaining	15	20,000	5	100,000	10	200,000
Harvesting	20	20,000	10	200,000	10	200,000
Threshing	6	20,000	2	40,000	4	80,000
Transporting	10	20,000	2	40,000	8	160,000
Others						
Total	103	(D)	(E)	700,000	(F)	1,360,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	2,060,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	886,000	(I)	1,414,000
Total Value of Inputs	(J) = (H) + (I)		(J)	2,300,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice sold	kg	850	1,600	850	1,360,000		
Rice Consumed by Family	kg	1,700	1,600			1,700	2,720,000
Rice given to other people	kg	100	1,600			100	160,000
Rice exchanged with other	kg	100	1,600			100	160,000
Rice for Seed	kg	50	1,600			50	80,000
Rice in the stock	kg	700	1,600			700	1,120,000
Waste Product Sold				0	0	0	0
Total	kg	3,500	(K)	(L)	1,360,000	(M)	4,240,000
Total Value of Outputs		(O) = (L) + (M)		(O)	5,600,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Rice Loss	kg	500	1,500	750,000

Causes of the loss: Cherry snail destroyed during first few weeks after transplanting

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	474,000
Gross Margin	(Q) = (O) - (J)	(Q)	3,300,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	32,039
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	3,300,000

Form 3: Economic Calculation Tool for Soybean Production

1. General Information

Name and Family Name of Farmer	Village	Soybean Variety	
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg						
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Water fee							
Basket							
Bag							
Irrigation fee							
Fuel							
Other							
Total				(A)		(B)	
Total Value of Input		(C) = (A) + (B)		(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Land preparation						
Planting						
Maintaining and weeding						
Harvesting						
Draying and Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Soybean sold							
Soybean Consumed by Family							
Soybean given to other people							
Soybean exchanged with other							
Soybean for Seed							
Soybean in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Soybean Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 3: Economic Calculation Tool for Soybean Production

1. General Information

Name and Family Name of Farmer	Village	Soybean Variety	
Mr. Nan	Thin		
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
3/6/2008	Nga	200	1,000
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	
2 to 5/2008	Oudomxay	0.2	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	20	7,500	20	150,000		
Organic Fertilizer					-		
Chemical Fertilizer					-		
Pesticides					-		
Water fee					-		
Basket					-		
Bag	Each	5	4,000	5	20,000		
Irrigation fee					-		
Fuel					-		
Other					-		
Total				(A)	170,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	170,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	12	20000			12	240,000
Burning	1	20000			1	20,000
Cleaning	3	20000			3	60,000
Fencing		20000				
Land preparation	10		10	100,000		
Planting	4	20000			4	80,000
Maintaining and weeding	8	20000			8	160,000
Harvesting	5	20000			5	100,000
Draying and Threshing	5	20000			5	100,000
Transporting						
Others						
Total	48	(D)	(E)	100,000	(F)	760,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	860,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	270,000	(I)	760,000
Total Value of Inputs		(J) = (H) + (I)	(J)	1,030,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Soybean sold	kg	199	4,000	199	796,000		
Soybean Consumed by Family							
Soybean given to other people							
Soybean exchanged with other							
Soybean for Seed	kg	1	4,000			1	4,000
Soybean in the stock							
Total	kg	200	(K)	(L)	796,000	(M)	4,000
Total Value of Outputs			(O) = (L) + (M)	(O)	800,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Soybean Loss	kg	50	4,000	200,000

Causes of the loss: Mice and Buffalow destroyed

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	526,000
Gross Margin	(Q) = (O) - (J)	(Q)	-230,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	-4,792
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	-1,150,000

Form 4: Economic Calculation Tool for Maize Production

1. General Information

Name and Family Name of Farmer	Village	Maize Variety	
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Herbicides							
Seed separation							
Bag							
Other							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Land preparing						
Planting						
Weeding						
Maintaining						
Harvesting						
Seed separating						
Drying						
Transporting						
Others						
Total		(D)		(E)		(F)	
Total Value of Labor Cost			(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)
Total Value of Inputs		(J) = (H) + (I)	(J)		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Maize sold							
Maize Consumed by Family							
Maize given to other people							
Maize exchanged with other							
Maize for Seed							
Maize in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Maize Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 4: Economic Calculation Tool for Maize Production

1. General Information

Name and Family Name of Farmer	Village	Maize Variety
Mr. Kham Ai	Nakhok	From Vietnam
Date of Data Collection	**District**	**Total Production (Kg)** / **Yield (kg/ha)**
4/6/2008	Nga	2,000 / 2,000
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**
6/2006 to 12/2007	Oudomxay	1

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	12	18,000	12	216,000		
Organic Fertilizer					-		
Chemical Fertilizer					-		
Pesticides					-		
Herbicides					-		
Seed separation					-		
Bag	Each	33	2,000	30	60,000	3	6,000
Other					0		
Total				(A)	276,000	(B)	6,000
Total Value of Input			(C) = (A) + (B)	(C)	282,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	42	20,000			42	840,000
Burning	1	15,000			1	15,000
Cleaning	3	15,000			3	45,000
Fencing	6	20,000			6	120,000
Land preparing						
Planting	9	15,000			9	135,000
Weeding	21	20,000			21	420,000
Maintaining						
Harvesting	18	15,000			18	270,000
Seed separating						
Drying						
Transporting	20		20	400,000		
Others						
Total	120	(D)	(E)	400,000	(F)	1,845,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	2,245,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	676,000	(I)	1,851,000
Total Value of Inputs	(J) = (H) + (I)		(J)	2,527,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Maize sold	kg	1,700	500	1,700	850,000		
Maize Consumed by Family							
Maize given to other people	kg	300	500			300	150,000
Maize exchanged with other							
Maize for Seed							
Maize in the stock							
Waste Product Sold							
Total	kg	2,000	(K)	(L)	850,000	(M)	150,000
Total Value of Outputs			(O) = (L) + (M)	(O)	1,000,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Maize Loss	kg	400	500	200,000

Causes of the loss: Wild Pig Destroyed and Late Harvested

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	174,000
Gross Margin	(Q) = (O) - (J)	(Q)	-1,527,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	-12,725
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	-1,527,000

Form 5: Economic Calculation Tool for Cucumber Production

1. General Information

Name and Family Name of Farmer	Village		
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Organic fertilizers							
Chemical fetilizers							
Pesticides							
Irrigation							
Bamboo							
Other							
Total				(A)		(B)	
Total Value of Input		(C) = (A) + (B)		(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation						
Planting						
Making bamboo nets						
Maintenance						
Harvesting						
Transportation						
Other						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Cucumber Product sold							
Cucumber Product Consumed by Family							
Cucumber Product given to other people							
Cucumber Product exchanged with other							
Cucumber Product for Seed							
Cucumber Product in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Cucumber Product Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)	
Cash Balance	(P) = (L) - (H)	(P)	
Gross Margin	(Q) = (O) - (J)	(Q)	

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	

Form 5: Economic Calculation Tool for Cucumber Production

1. General Information

Name and Family Name of Farmer: Ms. Touy	Village: Nongkheng		
Date of Data Collection: 10/11/2008	District: Xaythany	Total Production (Kg): 6,720	Yield (kg/ha): 42,000
Production Period (One production period): 11/2007 to 1/2008	Province: Vientiane Capital	Total Production Area (ha) (T): 0.16	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	Can	12	120,000	12	1,440,000		
Organic fertilizers	Bag	40	5,000	40	200,000		
Chemical fetilizers	Bag	5	380,000	5	1,900,000		
Pesticides	Bottle	4	37,000	4	148,000		
Irrigation	Rai	2	50,000	2	100,000		
Bamboo	Piece	2,000	100	2,000	200,000		
Other							
Total				(A)	3,988,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	3,988,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation	8		8	300,000	10	0
Planting	10	30,000			10	300,000
Making bamboo nets	20	30,000			20	600,000
Maintenance	30	30,000			30	900,000
Harvesting	20	30,000			20	600,000
Transportation						
Other						
Total	88	(D)	(E)	300,000	(F)	2,400,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	2,700,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	4,288,000	(I)	2,400,000
Total Value of Inputs	(J) = (H) + (I)		(J)	6,688,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Cucumber Product sold	Kg	6,528	1,250	6,528	8,160,000		
Cucumber Product Consumed by Family	Kg	192	1,250			192	240,000
Cucumber Product given to other people							
Cucumber Product exchanged with other							
Cucumber Product for Seed							
Cucumber Product in the stock							
Waste Product Sold							
Total		6,720	(K)	(L)	8,160,000	(M)	240,000
Total Value of Outputs		(O) = (L) + (M)		(O)	8,400,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Cucumber Product Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	3,872,000
Gross Margin	(Q) = (O) - (J)	(Q)	1,712,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	19,455
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	10,700,000

Form 6: Economic Calculation Tool for Fruit tree Production

1. General Information

Name and Family Name of Farmer	Village	Fruit tree Variety	No. of Plants
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
Production Period (One production period)	**Province**	**Area (ha) (T)**	**Age of the plant**

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Seeding							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Herbicide							
Irrigation fee							
Fuel							
Baskets							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip)			
			Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Planting						
Maintaining and weeding						
Harvesting						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)
Total Value of Inputs		(J) = (H) + (I)	(J)		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip)			
				Qty	Value in cash	Qty	Non-Cash value
Fruit tree sold							
Fruit tree Consumed by Family							
Fruit tree given to other people							
Fruit tree exchanged with other							
Fruit tree in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Fruit tree Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 6: Economic Calculation Tool for Fruit tree Production

1. General Information

Name and Family Name of Farmer	Village	Fruit tree Variety	No. of Plants
Ms. Noy	Nakham	Mango	50
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
1/20/2008	Mai	225	1,125
Production Period (One production period)	**Province**	**Area (ha) (T)**	**Age of the plant**
2007 -2008	Phongsaly	0.20	11

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seeding							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Herbicide							
Irrigation fee							
Fuel							
Baskets							
Other							
Total				(A)	0	(B)	0
Total Value of Input			(C) = (A) + (B)	(C)	0		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing	1	20,000			1	20,000
Planting						0
Maintaining and weeding	14	20,000			14	280,000
Harvesting	7	20,000			7	140,000
Transporting						
Others						
Total	22	(D)	(E)	0	(F)	440,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	440,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	0	(I)	440,000
Total Value of Inputs		(J) = (H) + (I)	(J)	440,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fruit tree sold	kg	215	2,000	215	430000		
Fruit tree Consumed by Family	kg	10	2,000			10	20,000
Fruit tree given to other people							
Fruit tree exchanged with other							
Fruit tree in the stock							
Total	kg	225	(K)	(L)	430,000	(M)	20,000
Total Value of Outputs			(O) = (L) + (M)	(O)	450,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Fruit tree Loss		0		0

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	430,000
Gross Margin	(Q) = (O) - (J)	(Q)	450,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	20,455
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	2,250,000

Form 7: Economic Calculation Tool for Sesame Production

1. General Information

Name and Family Name of Farmer	Village	Sesame Variety
Date of Data Collection	District	Total Production (Kg) / Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg						
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Basket							
Bag							
Tray							
Fuel							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Planting						
Maintaining and weeding						
Harvesting						
Draying and Threshing						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost			(G) = (E) + (F)	(G)		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sesame sold							
Sesame Consumed by Family							
Sesame given to other people							
Sesame exchanged with other							
Sesame for Seed							
Sesame in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sesame Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 7: Economic Calculation Tool for Sesame Production

1. General Information

Name and Family Name of Farmer	Village	Sesame Variety	
Mr. Khamphet	Nhakha	From Oudomxay	
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
1/10/2008	Mai	250	1,250
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	
3 to 11 / 2007	Phongsaly	0.2	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	3	6,000			3	18,000
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Basket	each	4	2,500			4	10,000
Bag	each	6	1,000	6	6,000		
Tray	each	1	3,200			1	3,200
Fuel							
Other.....Net tray.....	each	1	2,000	1	2,000		
Total				(A)	8,000	(B)	31,200
Total Value of Input		(C) = (A) + (B)		(C)	39,200		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	12	15,000		-	12	180,000
Burning	2	15,000		-	2	30,000
Cleaning	20	15,000		-	20	300,000
Fencing		15,000		-		
Planting	1	15,000		-	1	15,000
Maintaining and weeding	20	15,000		-	20	300,000
Harvesting	16	15,000		-	16	240,000
Draying and Threshing	8	15,000		-	8	120,000
Transporting				-		
Others				-		
Total	79	(D)	(E)	-	(F)	1,185,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	1,185,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	8,000	(I)	1,216,200
Total Value of Inputs	(J) = (H) + (I)		(J)	1,224,200		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sesame sold	kg	247	6,000	247	1,482,000		
Sesame Consumed by Family	kg	2	6,000			2	12,000
Sesame given to other people							
Sesame exchanged with other							
Sesame for Seed	kg	1	6,000			1	6,000
Sesame in the stock	kg	0	0			0	0
Total	kg	250	(K)	(L)	1,482,000	(M)	18,000
Total Value of Outputs			(O) = (L) + (M)	(O)	1,500,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sesame Loss		0		0

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	1,474,000
Gross Margin	(Q) = (O) - (J)	(Q)	275,800

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	3,491
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	1,379,000

Form 8: Economic Calculation Tool for Sugarcane Production

1. General Information

Name and Family Name of Farmer	Village		
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed							
Pesticides							
Chemical fertilizers							
Organic fertilizers							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation						
Planting						
Maintenance						
Harvesting						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sugarcane sold							
Sugarcane Consumed by Family							
Sugarcane given to other people							
Sugarcane exchanged with other							
Sugarcane for Seed							
Sugarcane in the stock							
Waste Product Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sugarcane Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 8: Economic Calculation Tool for Sugarcane Production

1. General Information

Name and Family Name of Farmer: Mr. Bouasone	Village: Nongkheng		
Date of Data Collection: 10/11/2008	District: Xaythany	Total Production (Kg): 40,000	Yield (kg/ha): 83,333
Production Period (One production period): 6/2007 to 2/2008	Province: Vientiane Capital	Total Production Area (ha) (T): 0.48	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	Ton	1	120,000	1	120,000		
Pesticides	Bottle	2	150,000	2	300,000		
Chemical fertilizers							
Organic fertilizers							
Others							
Total				(A)	420,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	420,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Land preparation	20		20	600,000		
Planting	30	30,000			30	900,000
Maintenance	25	30,000			25	750,000
Harvesting	35	20,000			35	700,000
Transporting	20	20,000			20	400,000
Other						
Total	130	(D)	(E)	600,000	(F)	2,750,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	3,350,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	1,020,000	(I)	2,750,000
Total Value of Inputs	(J) = (H) + (I)		(J)	3,770,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sugarcane sold	Kg						
Sugarcane Consumed by Family	Kg						
Sugarcane given to other people	Kg						
Sugarcane exchanged with other	Kg						
Sugarcane for Seed	Kg						
Sugarcane in the stock	Kg	40,001	121			40,001	4,840,121
Waste Product Sold	Kg					192	240,000
Total			(K)	(L)	0	(M)	4,840,121
Total Value of Outputs			(O) = (L) + (M)	(O)	4,840,121		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sugarcane Loss				

Causes of the loss: _____

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)	
Cash Balance	(P) = (L) - (H)	(P)	-1,020,000
Gross Margin	(Q) = (O) - (J)	(Q)	1,070,121

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	8,232
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	2,229,419

Form 9: Economic Calculation Tool for Galangal Seed Production

1. General Information

Name and Family Name of Farmer	Village		
Date of Data Collection	District	Total Production (Kg)	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) **(T)**	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg						
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Bag							
Other							
Total				**(A)**		**(B)**	
Total Value of Input			**(C) = (A) + (B)**	**(C)**			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Planting						
Weeding						
Maintaining						
Harvesting						
Drying						
Transporting						
Others						
Total		**(D)**	**(E)**		**(F)**	
Total Value of Labor Cost		**(G) = (E) + (F)**	**(G)**			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	**(H)**	**(I)**
Total Value of Inputs		**(J) = (H) + (I)**	**(J)**	

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Galangal Seed sold							
Galangal seed Consumed by Family							
Galangal seed given to other people							
Galangal seed exchanged with other							
Galangal seed in the stock							
Galangal Bulb							
Galangal Shoot							
Total			**(K)**	**(L)**		**(M)**	
Total Value of Outputs			**(O) = (L) + (M)**	**(O)**			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Galangal Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	**(P) = (L) - (H)**	**(P)**
Gross Margin	**(Q) = (O) - (J)**	**(Q)**

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	**(R) = (Q) ÷ (D)**	**(R)**
Gross Margin / 1 ha	**(S) = (Q) ÷ (T)**	**(S)**

Form 9: Economic Calculation Tool for Galangal Seed Production

1. General Information

Name and Family Name of Farmer	Village		
Mr. Bounthong	Nongthao		
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
3/6/2008	Nga	1,600	1,600
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	
6/2007 to 5/2008	Oudomxay	1	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seed	kg	50	800			50	40,000
Organic Fertilizer							
Chemical Fertilizer	kg	175	14,000	175	2,450,000		
Pesticides							
Bag	Each	10	2,500	10	25,000		
Others					-		
Total				(A)	2,475,000	(B)	40,000
Total Value of Input		(C) = (A) + (B)		(C)	2,515,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	24	20,000			24	480,000
Burning	1	20,000			1	20,000
Cleaning	12	20,000			12	240,000
Fencing	2	20,000			2	40,000
Planting	8	20,000			8	160,000
Weeding						
Maintaining	28	20,000			28	560,000
Harvesting	6	20,000			6	120,000
Drying	4	20,000			4	80,000
Transporting						
Others						
Total	85	(D)	(E)	0	(F)	1,700,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	1,700,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	2,475,000	(I)	1,740,000
Total Value of Inputs		(J) = (H) + (I)	(J)	4,215,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Galangal Seed sold	kg	1,600	6,000	1600	9,600,000		
Galangal seed consumed by Family	kg	2	6,000			2	12,000
Galangal seed given to other people	kg	30	6,000			30	180,000
Galangal seed exchanged with others							
Galangal seed in the stock							
Galangal Bulb							
Galangal Shoot							
Total	kg	1,632	(K)	(L)	9,600,000	(M)	192,000
Total Value of Outputs		(O) = (L) + (M)		(O)	9,792,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Galangal Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	7,125,000
Gross Margin	(Q) = (O) - (J)	(Q)	5,577,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	65,612
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	5,577,000

Form 10: Economic Calculation Tool for Sticklac Production

1. General Information

Name and Family Name of Farmer	Village	Total Dried Sticklac (kg)
Date of Data Collection	District	Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Pigeon Pea Seed							
Sticklac seed							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Bag							
Drying materials							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Planting pigeon pea						
Releasing sticklac on pigeon pea						
Maintaining						
Weeding						
Processing or drying						
Transporting						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sticklac sold							
Sticklac Consumed by Family							
Sticklac given to other people							
Sticklac exchanged with other							
Sticklac for seed							
Sticklac in the stock							
Pigeon pea							
Fresh sticklac							
Processed sticklac							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sticklac Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 10: Economic Calculation Tool for Sticklac Production

1. General Information

Name and Family Name of Farmer	Village	Total Dried Sticklac (kg)
Ms. Onephanh	Dinaen	62
Date of Data Collection	**District**	**Yield (kg/ha)**
4/6/2008	Nga	310
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**
11/2007 to 5/2008	Oudomxay	0.2

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Pigeon Pea Seed	kg	0.50	4,000			0.50	2,000
Sticklac seed	kg	12	18,000	12	216,000		
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Bag							
Drying materials							
Other							
Total				(A)	216,000	(B)	2,000
Total Value of Input		(C) = (A) + (B)		(C)	218,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	4	15,000			4	60,000
Burning	1	15,000			1	15,000
Cleaning	2	15,000			2	30,000
Fencing						
Planting pigeon pea	2	15,000			2	30,000
Releasing sticklac on pigeon pea	1	15,000			1	15,000
Maintaining	24	15,000			24	360,000
Weeding	6	15,000			6	90,000
Hawesting	2	15,000			2	30,000
Processing or drying	3	15,000			3	45,000
Transportation						
Others						
Total	45	(D)	(E)	0	(F)	675,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	675,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	216,000	(I)	677,000
Total Value of Inputs		(J) = (H) + (I)	(J)	893,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Sticklac sold	kg	53	15,000	53	795,000		
Sticklac Consumed by Family	kg	5	15,000			5	75,000
Sticklac given to other people	kg	1	15,000			1	15,000
Sticklac exchanged with other	kg	3	15,000			3	45,000
Sticklac for seed	kg	0	0			0	0
Sticklac in the stock	kg	0	0			0	0
Pigeon pea	kg			20	200000	50	500,000
Fresh sticklac							
Processed sticklac							
Total	kg	62	(K)	(L)	995,000	(M)	635,000
Total Value of Outputs		(O) = (L) + (M)		(O)	1,630,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Sticklac Loss	kg	20	15,000	300,000

Causes of the loss: Young Pigeon Pea trees were died

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	779,000
Gross Margin	(Q) = (O) - (J)	(Q)	737,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	16,378
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	3,685,000

Form 11: Economic Calculation Tool for NTFP Production

1. General Information

Name and Family Name of Farmer	Village	Type of NTFP
Date of Data Collection	District	Total Production (Kg) / Yield (kg/ha)
Production Period (One production period)	Province	Total Production Area (ha) (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seeding	kg						
Plastic bag for seedling							
Organic Fertilizer							
Chemical Fertilizer							
Pesticides							
Bag							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing						
Burning						
Cleaning						
Fencing						
Constructing Nursery						
Land Preparation						
Seedling preparation						
Seedling maintenance						
Planting						
Maintaining						
Harvesting and drying						
Transportation						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
NTFP sold							
NTFP Consumed by Family							
NTFP given to other people							
NTFP exchanged with others							
NTFP in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
NTFP Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)

Form 11: Economic Calculation Tool for NTFP Production

1. General Information

Name and Family Name of Farmer	Village	Type of NTFP	
Mr. Thaeng	Donaen	Puak Muak	
Date of Data Collection	**District**	**Total Production (Kg)**	**Yield (kg/ha)**
4/6/2008	Nga	1,280	1,280
Production Period (One production period)	**Province**	**Total Production Area (ha) (T)**	
1/2007 to 12/2007	Oudomxay	1	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Seeding							
Plastic bag for seedling	kg	2	12,000	2	24,000		
Organic Fertilizer							
Chemical Fertilizer							
Pesticides	can	2	17,000	2	34,000		
Bag							
Others							
Total				(A)	58,000	(B)	0
Total Value of Input			(C) = (A) + (B)	(C)	58,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Clearing	40	20,000			40	800,000
Burning	2	20,000			2	40,000
Cleaning	12	20,000			12	240,000
Fencing	1	20,000			1	20,000
Constructing Nursery	1	20,000			1	20,000
Land Preparation						
Seedling preparation	11	20,000			11	220,000
Seedling maintenance						
Planting	11	20,000			11	220,000
Maintaining	30	20,000			30	600,000
Harvesting and drying	180	20,000			180	3,600,000
Transportation						
Others						
Total	288	(D)	(E)		(F)	5,760,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	5,760,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	58,000	(I)	5,760,000
Total Value of Inputs	(J) = (H) + (I)		(J)	5,818,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
NTFP sold	kg	1,280	6,500	1,280	8,320,000		
NTFP Consumed by Family							
NTFP given to other people							
NTFP exchanged with others							
NTFP in the stock							
Total	kg	1,280	(K)	(L)	8,320,000	(M)	0
Total Value of Outputs			(O) = (L) + (M)	(O)	8,320,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
NTFP Loss	kg	20	6,500	130,000

Causes of the loss: Flooded

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	8,262,000
Gross Margin	(Q) = (O) - (J)	(Q)	2,502,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	8,688
Gross Margin / 1 ha	(S) = (Q) ÷ (T)	(S)	2,502,000

Form 12: Economic Calculation Tool for Poultry Production

1. General Information

Name and Family Name of Farmer	Village	Type of Poultry	
		☐ Chicken	☐ Duck
Date of Data Collection	District		
		☐ Turkey	☐ Gees
Production Period (One production period)	Province	Total Animal Quantity in the period (T)	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Poultry in opening stock							
Purchased new poultry							
Concentrate Feed							
Regular feed (rice brand, broken rice, Maize, etc.)							
Vaccines							
Medicines							
Veterinary Services fee							
Materials for housing maintenance							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Build/fixed animal housing						
Feeding						
Maintaining						
Transportation						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Poultry sold							
Poultry Consumed by Family							
Poultry given to other people							
Poultry exchanged with other							
Poultry in the stock							
Egg Sold							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Poultry Loss or Died				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)	
Cash Balance	(P) = (L) - (H)	(P)	
Gross Margin	(Q) = (O) - (J)	(Q)	
4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	
Gross Margin / 1 Head of poultry	(S) = (Q) ÷ (T)	(S)	

Form 12: Economic Calculation Tool for Poultry Production

1. General Information

Name and Family Name of Farmer	Village	Type of Poultry	
Mr. Somchan	Donaen	☑ Chicken	☐ Duck
Date of Data Collection	**District**		
4/6/2008	Nga	☐ Turkeys	☐ Gees
Production Period (One production period)	**Province**	**Total Animal Quantity in the period (T)**	
6/2007 to 5/2008	Oudomxay	58	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Poultry in opening stock	head	30	15,000			30	450,000
Purchased new poultry	head	8	18,000	8	144000		
Concentrate Feed	kg	3	4,000	3	12000		
Regular feed (rice brand, broken rice, Maize, etc.)							
Vaccines							
Medicines							
Veterinary Services fee							
Materials for housing maintenance							
Others							
Total				(A)	156,000	(B)	450,000
Total Value of Input		(C) = (A) + (B)		(C)	606,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Build/fixed animal housing	6	15000			6	90,000
Feeding	20	15000			20	300,000
Maintaining						
Transportation						
Others						
Total	26	(D)	(E)	0	(F)	390,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	390,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	156,000	(I)	840,000
Total Value of Inputs		(J) = (H) + (I)	(J)	996,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Poultry sold	Head	10	20,000	10	200000		
Poultry Consumed by Family	Head	5	20,000			5	100,000
Poultry given to other people							
Poultry exchanged with others	Head	3	20,000			3	60,000
Poultry in the stock	Head	40	20,000			40	800,000
Egg Sold							
Total	Head	58	(K)	(L)	200,000	(M)	960,000
Total Value of Outputs			(O) = (L) + (M)	(O)	1,160,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Poultry Loss or Died	Head	6	20,000	120,000

Causes of the loss: Chicken were died, stolen, and car accident

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	44,000
Gross Margin	(Q) = (O) - (J)	(Q)	164,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	6,308
Gross Margin / 1 Head of poultry	(S) = (Q) ÷ (T)	(S)	2,828

Form 13: Economic Calculation Tool for Pig Production

1. General Information

Name and Family Name of Farmer	Village	Variety of Pig
		☐ Local ☐ Hybrid
Date of Data Collection	District	
Production Period (One production period)	Province	Total Animal Quantity in the period (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Pig in opening stock							
Purchased new poultry							
Concentrate Feed							
Regular feed (rice brand, broken rice, Maize, etc.)							
Vaccines							
Medicines							
Veterinary Services fee							
Fire wood							
Materials for housing maintenance							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Build/fixed animal housing						
Feed preparation and Feeding						
Maintaining and cleaning the housing						
Transportation						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Piglets sold							
Pig sold							
Pig Consumed by Family							
Pig given to other people							
Pig exchanged with other							
Pig in the stock							
Piglets in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Pig Loss or Died				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)
4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 Head of Pig	(S) = (Q) ÷ (T)	(S)

Form 13: Economic Calculation Tool for Pig Production

1. General Information

Name and Family Name of Farmer	Village	Variety of Pig	
Ms. Chanhorm	Donaen	☑ Local	☐ Hybrid
Date of Data Collection	**District**		
4/6/2008	Nga		
Production Period (One production period)	**Province**	**Total Animal Quantity in the period (T)**	
1/6/07 to 31/5/08	Oudomxay	17	

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Pig in opening stock	Head	4	600,000			4	2,400,000
Purchased new poultry	Head	5	100,000	5	500,000		
Concentrate Feed							
Regular feed (rice brand, broken rice, Maize, etc.)	Bucket	720	4,000	240	960,000	480	1,920,000
Vaccines							
Medicines							
Fire wood							
Materials for housing maintenance							
Others							
Total				(A)	1,460,000	(B)	4,320,000
Total Value of Input		(C) = (A) + (B)		(C)	5,780,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Build/fixed animal housing						
Feed preparation and Feeding	120	15000			120	1,800,000
Vaccinating and disease treatment	1	45000	1	45000		
Maintaining and cleaning the housing	20	15000			20	300,000
Transportation						
Others						
Total	141	(D)	(E)	45000	(F)	2,100,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	2,145,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	1,505,000	(I)	6,420,000
Total Value of Inputs		(J) = (H) + (I)	(J)	7,925,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Piglets sold	Head	5	100,000	5	500,000		
Pig sold	Head	4	500,000	4	2,000,000		
Pig Consumed by Family	Head	1	500,000			1	500,000
Pig given to other people							
Pig exchanged with other							
Pig in the stock	Head	4	600,000			4	2,400,000
Piglets in the stock	Head	3	200,000			3	600,000
Total	Head	17	(K)	(L)	2,500,000	(M)	3,500,000
Total Value of Outputs			(O) = (L) + (M)	(O)	6,000,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Pig Loss or Died				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	995,000
Gross Margin	(Q) = (O) - (J)	(Q)	-1,925,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	-13,652
Gross Margin / 1 Head of Pig	(S) = (Q) ÷ (T)	(S)	-113,235

Form 14: Economic Calculation Tool for Fish Production

1. General Information

Name and Family Name of Farmer	Village	Variety of Fish
Date of Data Collection	District	
Production Period (One production period)	Province	Total Fish Production in the period (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fingerling							
Concentrate Feed							
Regular feed (rice brand, broken rice, Maize, etc.)							
Animal Manure							
Medicines							
Green manure							
Lime							
Water							
Others							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fixing Fish pond						
Feeding						
Harvesting						
Transportation						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fingerling sold							
Fish sold							
Fish Consumed by Family							
Fish given to other people							
Fish exchanged with others							
Fish in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Fish Loss or Died				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 Unit of Fish	(S) = (Q) ÷ (T)	(S)

Form 14: Economic Calculation Tool for Fish Production

1. General Information

Name and Family Name of Farmer	Village	Variety of Fish
Mr. Maixai	Thin	Mix: Tilapia, Carps
Date of Data Collection	**District**	
3/6/2008	Nga	Total Fish Production in the period (kg)
Production Period (One production period)	**Province**	(T)
1 to 12 /2007	Oudomxay	190

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fingerling	each	5,000	100	5,000	500,000		
Concentrate Feed	kg	12	8,000	12	96,000		
Regular feed (rice brand, broken rice, Maize, etc.)	kg	180	800	180	144,000		
Animal Manure					-		
Medicines					-		
Green manure					-		
Lime	bag	20	8,000	20	160,000		
Water					-		
Others							
Total				(A)	900,000	(B)	0
Total Value of Input			(C) = (A) + (B)	(C)	900,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fixing Fish pond	2	15000			2	30,000
Feeding	12	15000			12	180,000
Harvesting	2	15000			2	30,000
Transportation						
Others						
Total	16	(D)	(E)	0	(F)	240,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	240,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	900,000	(I)	240,000
Total Value of Inputs		(J) = (H) + (I)	(J)	1,140,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fingerling sold							
Fish sold	kg	35	18,000	35	630,000		
Fish Consumed by Family	kg	145	18,000			145	2,610,000
Fish given to other people	kg	10	18,000			10	180,000
Fish exchanged with others							
Fish in the stock							
Total	kg	190	(K)	(L)	630,000	(M)	2,790,000
Total Value of Outputs			(O) = (L) + (M)	(O)	3,420,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Fish Loss or Died		200	100	20,000

Causes of the loss: Figerlings died before releasing

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	-270,000
Gross Margin	(Q) = (O) - (J)	(Q)	2,280,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	142,500
Gross Margin / 1 kg of Fish	(S) = (Q) ÷ (T)	(S)	12,000

Form 15: Economic Calculation Tool for Alcohol Production

1. General Information

Name and Family Name of Farmer	Village	
Date of Data Collection	District	
Production Period (One production period)	Province	Total Production (bottle or liter) **(T)**

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice	kg						
Yeast							
Water							
Fired wood bought							
Bottle for alcohol							
Equipment for lid							
Filter							
Fuel for car							
Plastic bag							
Rubber band							
Others							
Total				**(A)**		**(B)**	
Total Value of Input			**(C) = (A) + (B)**	**(C)**			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fermenting rice						
Seeking fired wood						
Distilling alcohol						
Transportation						
Others						
Total		**(D)**	**(E)**		**(F)**	
Total Value of Labor Cost		**(G) = (E) + (F)**	**(G)**			

Total Input Cost	**(H) = (A) + (E)**	**(I) = (B) + (F)**	**(H)**		**(I)**	
Total Value of Inputs		**(J) = (H) + (I)**	**(J)**			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Alcohol sold							
Alcohol Consumed by Family							
Alcohol given to other people							
Alcohol exchanged with other							
Alcohol in the stock							
Total			**(K)**	**(L)**		**(M)**	
Total Value of Outputs			**(O) = (L) + (M)**	**(O)**			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Alcohol Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	**(P) = (L) - (H)**	**(P)**
Gross Margin	**(Q) = (O) - (J)**	**(Q)**

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	**(R) = (Q) ÷ (D)**	**(R)**
Gross Margin / 1 unit of alcohol	**(S) = (Q) ÷ (T)**	**(S)**

Form 15: Economic Calculation Tool for Alcohol Production

1. General Information

Name and Family Name of Farmer: Ms. Chansouk	Village: Thin	
Date of Data Collection: 3/6/2008	District: Nga	
Production Period (One production period): 4/2007 to 3/2008	Province: Oudomxay	Total Production (bottle or liter) (T): 1,910

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice	Bucket	50	50,000	48	2,400,000	2	100,000
Yeast	kg	24	9,000	24	216,000		
Water					-		
Fired wood bought	Time	3	150,000	3	450,000		
Bottle for alcohol					-		
Equipment for lid					-		
Filter					-		
Fuel for car	liter	96	15,000	96	1,440,000		
Plastic bag					-		
Rubber band					-		
Other					-		
Total				(A)	4,506,000	(B)	100,000
Total Value of Input			(C) = (A) + (B)	(C)	4,606,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Fermenting rice	48	20000			48	960,000
Seeking fired wood						
Distilling alcohol	48	15000			48	720,000
Transportation						
Others						
Total	96	(D)	(E)	0	(F)	1,680,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	1,680,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	4,506,000	(I)	1,780,000
Total Value of Inputs		(J) = (H) + (I)	(J)	6,286,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Alcohol sold	Bottle	1824	5,000	1824	9,120,000		
Alcohol Consumed by Family	Bottle	72	5,000			72	360,000
Alcohol given to other people	Bottle	6	5,000			6	30,000
Alcohol exchanged with other	Bottle		5,000			0	0
Alcohol in the stock	Bottle	8	5,000			8	40,000
Total	Bottle	1910	(K)	(L)	9,120,000	(M)	430,000
Total Value of Outputs			(O) = (L) + (M)	(O)	9,550,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Alcohol Loss	Bottle	38	5,000	190,000

Causes of the loss: Yeast was not good quality

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	4,614,000
Gross Margin	(Q) = (O) - (J)	(Q)	3,264,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	34,000
Gross Margin / 1 Bottle of alcohol	(S) = (Q) ÷ (T)	(S)	1,709

Form 16: Economic Calculation Tool for Jar Alcohol Production

1. General Information

Name and Family Name of Farmer	Village	
Date of Data Collection	District	
Production Period (One production period)	Province	Total Production (Jar) (T)

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice							
Rice Hush							
Yeast							
Straw							
Firewood							
Water fee							
Other.....							
Total				(A)		(B)	
Total Value of Input			(C) = (A) + (B)	(C)			

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Prepare raw materials						
Preparing the Jar Alcohol						
Seeking fired wood						
Transportation						
Others						
Total		(D)	(E)		(F)	
Total Value of Labor Cost		(G) = (E) + (F)	(G)			

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)		(I)	
Total Value of Inputs		(J) = (H) + (I)	(J)			

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Small Jar Alcohol sold							
Medium Jar Alcohol sold							
Large Jar Alcohol sold							
Small Jar Alcohol consumed by Family							
Medium Jar Alcohol consumed by Family							
Medium Jar Alcohol consumed by Family							
Small Jar Alcohol given to other people							
Medium Jar Alcohol given to other people							
Large Jar Alcohol given to other people							
Small Jar Alcohol Exchanged with other							
Medium Jar Alcohol exchanged with other							
Large Jar Alcohol exchanged with other							
Small Jar Alcohol in the stock							
Medium Jar Alcohol in the stock							
Large Jar Alcohol in the stock							
Total			(K)	(L)		(M)	
Total Value of Outputs			(O) = (L) + (M)	(O)			

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Alcohol Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula	Value (kip)
Cash Balance	(P) = (L) - (H)	(P)
Gross Margin	(Q) = (O) - (J)	(Q)

4.2. Analyses of Profit per Unit of Input		
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)
Gross Margin / 1 Jar of Alcohol	(S) = (Q) ÷ (T)	(S)

Form 16: Economic Calculation Tool for Jar Alcohol Production

1. General Information

Name and Family Name of Farmer: Ms. Onxai	Village: Donaen	
Date of Data Collection: 4/6/2008	District: Nga	
Production Period (One production period): 1 to 12 /2007	Province: Oudomxay	Total Production (Jar) (T): 262

2. Inputs

2.1. Intermediate Consumption	Unit	Qty	Unit Cost (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Rice	kg	576	3,500	576	2,016,000		
Rice Hush	kg	360	250	360	90,000		
Yeast	kg	30	8,000	30	240,000		
Straw	set	3	5,000	3	15,000		
Firewood	lot	2	100,000	2	200,000		
Water fee							
Others							
Total				(A)	2,561,000	(B)	0
Total Value of Input		(C) = (A) + (B)		(C)	2,561,000		

2.2. Labor Cost	No. of Labor day	Cost per labor day (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Preparing raw materials						
Preparing the Jar Alcohol	108	15000			108	1,620,000
Seeking fired wood	10	15000			10	150,000
Transportation						
Others						
Total	118	(D)	(E)	0	(F)	1,770,000
Total Value of Labor Cost		(G) = (E) + (F)	(G)	1,770,000		

Total Input Cost	(H) = (A) + (E)	(I) = (B) + (F)	(H)	2,561,000	(I)	1,770,000
Total Value of Inputs		(J) = (H) + (I)	(J)	4,331,000		

3. Outputs

3.1. Value of Outputs	Unit	Total Qty	Unit Price (kip)	Value (kip) Qty	Value in cash	Qty	Non-Cash value
Small Jar Alcohol sold	jar	70	15,000	70	1,050,000		
Medium Jar Alcohol sold	jar	80	25,000	80	2,000,000		
Large Jar Alcohol sold	jar	102	30,000	102	3,060,000		
Small Jar Alcohol consumed by Family	jar	1	15,000			1	15,000
Medium Jar Alcohol consumed by Family	jar	7	25,000			7	175,000
Medium Jar Alcohol consumed by Family	jar	2	30,000			2	60,000
Small Jar Alcohol given to other people	jar						
Medium Jar Alcohol given to other people	jar						
Large Jar Alcohol given to other people	jar						
Small Jar Alcohol Exchanged with other	jar						
Medium Jar Alcohol exchanged with other	jar						
Large Jar Alcohol exchanged with other	jar						
Small Jar Alcohol in the stock	jar						
Medium Jar Alcohol in the stock	jar						
Large Jar Alcohol in the stock	jar						
Total	jar	262	(K)	(L)	6,110,000	(M)	250,000
Total Value of Outputs			(O) = (L) + (M)	(O)	6,360,000		

3.2. Value of Production Loss	Unit	Quantity	Unit Price (kip)	Value (kip)
Alcohol Loss				

Causes of the loss:

4. Economic Calculation

4.1. Profit and Loss	Calculation Formula		Value (kip)
Cash Balance	(P) = (L) - (H)	(P)	3,549,000
Gross Margin	(Q) = (O) - (J)	(Q)	2,029,000

4.2. Analyses of Profit per Unit of Input			
Gross Margin / 1 Labor Day	(R) = (Q) ÷ (D)	(R)	17,195
Gross Margin / 1 Jar of Alcohol	(S) = (Q) ÷ (T)	(S)	7,744