# CHAPTER FIVE

# 5. FARM PLANNING AND BUDGETING

## 5.1. Farm Planning

Farm planning can be defined in different ways. Some of these are:

Farm planning is a basic but complex management function combining financial, physical and technical aspects of the farm for selecting and developing the best of the alternative way of achieving the stated objectives.

Farm planning a basic management function that involves selecting a particular strategy or course of action among alternative courses of action with the objective of obtaining the greatest satisfaction of the firm’s goals.

Farm planning is a process to allocate the scarce resources of the farm and to organize the farm production in such a way that to increase the resource use efficiency, the production and the income of the farmer. In general, it is an approach which introduces desirable changes in farm organization and operations and makes the farm viable unit by making rational decision regarding the organization and operation of a farm business.

Farmers may have some personal preferences and motivations that must be taken care of in practical planning, which may include maximizing security, minimizing risk, minimizing investment, etc. However, the main objective of farm planning is the improvement in the standard of living of the farmer and its immediate goal is to get the greatest return interims of cash and food, for his effort both in the short and long run.

**5.1.1. Why Farm Planning**

Some of the importance or advantages of farm planning. Without planning, farm business decision would become random, add-on choices. The following concrete reasons explain the paramount importance of farm planning.

**i. Income improvement**

Farm planning primarily concerned with making choices and decisions: selecting the most profitable alternative from all possible alternatives, and seek to present an opportunity to cultivators his level of income. It is this opportunity of income maximization that induces farmers to adopt desirable changes. Such income maximization could be achieved from a given bundle of resources by re-organizing present type of production as well as introducing changes in technology.

**ii. Focuses attention on the farm organization’s goals**

Farm planning helps the manager to focus attention on the organization’s goals and activities. This makes it easier to apply and coordinate the resources of the farm more effectively. The whole organization is forced to embrace identical goals and participate in achieving them. It also enables the farm manager to outline in advance an orderly sequence of steps for the realization of organizations goals and to avoid a needless overlapping of activities.

**iii. Educational process**

Farm planning is an educational tool to bring about a change in the outlook of the cultivators and the extension workers. Knowledge of the latest technological advances in agriculture is a pre- requisite for better farm planning; so farmers or farm managers keep their information up-to-date through this forced action situation of farm planning process. This act is used as a self-educating tool for the farmers. The farmers or farm managers can closely study their own business and see more clearly their opportunities and limitations, thus, improving their managerial ability.

**iv. Desirable organizational change**

Planning helps to introduce desirable change in farm organizations and operations. In its broad sense, it may mean any contemplated change in the method or practices followed on the farm. The advantage of farm planning lies in its treating the farm as an operational unit and tailoring the recommendation to fit into the individual farmers' opportunities, limitations, problems and resource position.

**v. Minimizes risk and uncertainty**

By providing a more rational and fact based procedure for making decision; farm planning allows managers and organizations to minimize risk and uncertainty.

**vi. Facilitates control-** In planning, the farm manager gets goal and develops plans to accomplish these goals. These goals and plans then become standards or benchmarks against which performance can be measured. The function of control is to ensure that the activities confirm to the plans. Thus, control can be exercised only if there are plans.

* It allows management to forecast credit requirements, timing and the need for capital purchases, production alternatives and structural changes over the planning period.
* Help farmers to become more effective managers of farming enterprises. Careful planning is often critical to the success of a business in every sector of the economy.
* Help a farmer to decide how to combine new ideas & old ones to his best advantage. By identifying his credit & supply needs, the farm plan helps him to arrange for the timely supplies of credit, seeds, fertilizers, etc.
* It allows manager/farmers to test on paper the viability of a proposed plan, before committing it to action.

**5.1.2. Features of a Good Farm Plan**

A good farm plan should ensure maximization of the objectives envisaged. Since the primary objective is to achieve maximum profits on a continuing basis, a good farm plan should ensure the organization of an enterprise and allocation of resources in such a way that it helps to increase and stabilized farm earnings.

- It is should be written;

- It should be flexible;

- It should provide for efficient use of resources;

- Farm plan should have balanced combination of enterprises. Such combination in turn ensures,

* Production of food, cash and fodder crops.
* Maintain soil fertility.
* Increase in income.
* Improve distribution of and use of labour, power and water requirement throughout the year.

-It avoids excessive risks;

-Utilize farmer’s knowledge and experience and take account of his likes and dislikes; Provide for efficient marketing; Provision for borrowing, using and repayment of credit; Provide for the use of latest technology.

**5.2 The Steps in Farm planning**

In developing an optimum farm plan with the following steps are generally followed.

**There are six steps in farm planning**

1. Define the business opportunity/change
2. SWOT analysis
3. Setting up objectives
4. Developing functional plans and budgeting
5. Implementation
6. Monitoring and adjusting.

**1/ Define the business opportunity:**

This is mainly a process to acquire information relevant to the farm business. Technical and business information is essential, Such as new technology of cropping and Livestock rearing, price trends, market demands and potential capital resources.

Several factors have been identified as being associated with competence in opportunity / problem recognition Included are:

(a) Experience (growing up on a farm or having farming experience) ,

(b) Level of schooling (exposure to a broad range of ideas and approaches to problem solving),

c) Motivation by accomplishing a goal, and (d) Willingness to take risk

**2/ The SWOT Analysis**

SWOT analysis is concerned with the identification of specific views, feelings and information that is directly collected from different sources such as customers, managers, labours, competitors, etc. Issues to be identified include the strength or achievements, the weakness or constraints, the opportunities for improvement and the threats which are considered as external negative forces which increase the risks of failure.

SWOT is therefore the abbreviation formed by the first letters of the words. Strengths ( s) , weaknesses (w) , opportunities ( o) and Threats ( T) . The SWOT analysis is to identify the internal and external factors of a farm.

SWOT is a tool to help a manager /farmer to identify the advantages and disadvantages of a farm undertaking by analyzing the internal forces (strengths and weaknesses) and the external forces (opportunities and threats) that affect the development process/ production process (respect of these and other variables.

## 

## Analyzing Farm Business

A SWOT analysis is a particularly valuable tool for determining the ability of your/one business to compete and survive in a competitive environment. It is the first step in recognizing your options and potential problems and in preparing a strategy to act. *SWOT* is an acronym formed from: *S*trengths, *W*eaknesses, *O*pportunities and *T*hreats.

It helps business to identify their own strengths and weaknesses (such as the business resources, experience, structure, management, skills, products etc.) arising from the internal environment as well as the opportunities and threats arising from the external environment.

External environmental issues may include political, economic, social and technological issues as well as demographic and ecologic factors. The competitive environment will also need to be considered including competitors, customers, suppliers and new products on the market.

**3/Setting up objectives**

In would make little sense to start out on a trip without a pretty of idea where you are going. The objective answer the question'' what are we trying to accomplish'' It gives purpose and direction to decisions and actions. For planning purposes it is necessary that a farm's objectives specifically indicate the direction in which the resources of the organization should be pointed. They must be defined so as to serve as a measure of success or failure therefore, the importance of objectives is (a) set direction, (b) provide performance targets, and (c) constrain decisions.

Objectives should answer a number of fundamental questions about the farm’s future growth and development. For example:

* What is the economic mission of the farm?
* What kind of business should be the farm be in?
* What goods and services should be sold?
* What markets should be served?
* What share of the market is desired?
* What are the profit objectives?
* The rate of growth is required in sales, profits, assets, and values of equity capital investment.

Objectives, therefore establish a direction in which the management of the farm wishes to be heading. The attainment of the objectives should be measurable in some way and ideally people should be motivated by them.

**4/ developing functional plans and budgeting**

Functional plans include market, production, people and finance plan. To develop the functional plans we have to follow the following steps:

A/Resource inventory

B/Identifying enterprises and resource requirements

C/Budgeting

D/ Developing plan

**A/** **Resource inventory:** resource inventoryfrom the book to list all the resources available for production, including land, buildings, labour, mainliner, capital and management. Once the resources are inventories, and the strengths and limitations identified, a manager is nearly ready to develop a plan.

**(B) Identifying enterprises and resource requirements**

Potentials crop and livestock enterprises are identified and listed. Any enterprise which is obviously unprofitable or which requires a resource which is not available should be eliminated. However, if there is any question about an enterprise's profitability, it should be considered. The interaction of the various resource requirements will sometimes cause one of the less profitable enterprises to be included in the final plan. The resource requirements per unit of each enterprise must be estimated.

**(C)** **Budgeting:** is a method of comparing alternatives on paper before committing resources to a particular plan or course of action. It is a forward planning tool, as budgeting is used to develop plans for the future and can be applied to a single enterprise, a part of the form business, or the whole farm business. Various kinds of budgeting skills are used to develop the functional plans, including enterprise, partial and complete budgeting. Enterprise budgeting could be used to estimate the gross margins of each enterprise. Partial budgeting could be used to estimate the profitability of changes on the form. Complete budgeting could be used to estimate the net farm income by listing all costs and returns, which affect a business.

**(D) Developing plan**: planning is primarily making choices and decisions. Select the most profitable alternative from among all possible alternatives. The primary value of this step lives in providing a logical and systematic procedure to carry out a chosen course of action. The basic planning rule for identifying profitable plans is to select enterprise and investments that yield the highest return to scarce resources. The form planning, given specific goals and resource limitations, is to select a combination of enterprises that maximizes profit the planning rule is select enterprises that yield the highest return to scarce resources.

**5/ implementing the plan:** select a plan and put it into operation. Once the planning process is completed the best alternative must be selected and action taken to place the plan in to operation. The selected plan should be implemented with all the efforts to meet the expected objective. It is important to recognize that preparation and completion of the document itself is not the end of successful planning. This requires the acquisition and organization of the necessary land, labour, machinery, livestock, and annual operating inputs.

The contents and intent of the plan should be understood and accepted by all employees on the farm. Clear responsibility and indexes should be assigned to specific person. The objective of the plan should be closely related with the benefits of each department and individual. An important part of the implementation function is the financing of the necessary resources. Since implementation can take time, it must begin early enough that all required resources are available at the proper time. Information system, including statistics system, technical testing system and accounting system, should be set up to collect all necessary information for the farm management.

**6/ Monitoring and adjusting**

The operation plan is dynamic. It means the implementation of farm plan can be affected by the changes in natural, social and economic conditions, which may not have envisaged in your original plan. The plan should be monitored and adjusted constantly. It is important to recognize that preparation and completion of the document itself and then implementing of the plan is not the end of successful business planning. You now have the initial task of undertaking follow-up exercise and making adjustment if there is any deviation from the original plan.

## 5.3 Farm Budgeting

**5.3.1 What is farm budgeting?**

Farm budgeting is a method of analyzing plans for the use of agricultural resources at the command of the decision maker. A farm budget is a statement giving an estimate of all the farm receipts and expenses to be incurred for the agricultural year. In other words, it is the expression of a farm plan in monetary terms by estimation of receipts, expenses and net income of a farm or a particular enterprise is called budgeting.

Budgeting is a very simple and straight forward exercise, which can be used to select the most profitable plan among a number of alternatives and used to test the profitability of any proposed change in a plan. It is a way ‘try it out paper’ before a plan or a proposed change in a plan is implemented. Therefore, farm planning and budgeting go side by side.

Basically budgeting involves two steps:

1. Preparation of description and specification of the proposed plans,
2. Estimation of the expected cost and returns.

**Types of Budgeting**

There are different types of budgeting, each of which is adapted to a particular size, purpose and type of planning problems. Basically the following types of budgets are known to exist:

1. Partial budget,
2. Enterprise budget,
3. Whole farm (complete) budget.

Whole farm budgeting typically involves plan for the entire farm business while partial and enterprise budgeting are used to analyze only a part of the whole farm. Each of these budgeting techniques is discussed in separate classes.

1. **Partial budgeting**

Improvement in agricultural production technology is necessary for agricultural development. Agricultural scientists usually develop new production technologies to improve farmers’ welfare.

Farm managers adopt new production technology that is economically superior to the existing one(s). However, before changing from one production method to another, the farm managers consider many factors, such as agro-ecological requirements, availability of required additional production resources (labor, credit, skill, farmland, equipment etc.), additional costs, and additional income resulting from the change. Particularly, farmers want to know the implication of the proposed change on costs and incomes, or whether the extra incomes earned by changing to the new technology justify the extra cost, etc. One of the tools in economics used to compare the economic benefits of such a change is partial budget analysis.

A partial budget can be compiled more quickly and easily than a complete budget since it is only concerned with those costs and returns that are to be changed. However, when a major change is made, such as a tractor in place of hand labour, which can influence most of the existing input and output relationship of the farm, the whole pattern of farming will be modified. In this case, partial budgeting is unsuitable and complete budget is needed.

In general a partial budget used to estimate the effect of change(s) in farm operations. For example, farmers know that fertilizer application will likely increase maize yield, and thus the gross income. The use of fertilizer also results in additional costs. To decide whether to use fertilizer for maize production or not requires a partial budget analysis.

A partial budget usually prepared to ascertain the effect on the net benefit of the farm due to a small change in the farm plan such as:

Substituting one enterprise for another without any change in the entire farmland area, for example, substituting 1 ha of soybean for 1 ha of maize.

Changing to different levels of a single technology, for example, estimating the effect on net benefit of changing from one level of N-fertilizer application to another in maize production.

Changing to different technology (ies), for example, changing from hand weeding to herbicide use for weed control.

**The following four points are important in setting up a partial budget:**

* Additional returns from change - increased revenues due to more milk, calf and manure sale and sale of higher yield that obtained from new crop technologies.
* Reduction in unit cost – local livestock/ crop cost of production such as feed and veterinary service expenses/ fertilizer, chemical and management costs are considered as components of the reduced costs.
* Reduction in return - when local livestock/ crop or old practices are sold or partially or fully replaced, decreased revenues include incomes from sale of milk, beef, and calf, manure and crop products.
* Additional cost incurred - livestock/ crop technologies cost of production for the model includes feed expenses, transport cost and veterinary services expenses; and includes expense of fertilizer, chemical, labor and etc.

The **format** used for computing a partial budget is

|  |  |
| --- | --- |
| **Gain** | **Cost** |
| **a) Additional income** | **d) Reduced income** |
| **b) Reduced expenses** | **e) Additional expenses** |
| **c) Total gain**  Additional income plus reduced cost. | **f) Total cost**  Reduced income plus additional expenses. |
| **Net change** (change in net income)  The difference between total gain (c) and total cost (f) is net farm income. | |

The example below illustrates how a partial budget can be used to analyze the decision to substitute wheat for maize production.  The farmer has observed that the expected wheat price for the coming year appears to be somewhat more favorable than the projected maize price. Based on this information, that farmer is considering decreasing his maize production by 40 hectare and increases his wheat production by the same amount. The available additional information used to determine the profitability of the two alternative plans are:

* The farmer can produce 14 quintal of wheat and 18 quintal of maize per hectare.
* The farmer needs to use 3 quintal of wheat and 5 quintal of maize seed per hectare.
* The farmer needs to hire 41 and 47 hour of labour per hectare for wheat and maize production, respectively.
* The farmer can earn an income of birr 170 and 140 per quintal from the sell of wheat and maize products, respectively.
* The farmer costs birr 182.2 and 146.8 to purchase a quintal of wheat and maize seed, respectively. In addition, the farmer requires to pay birr 4.25 for an hour of labour used for wheat or maize production.

The question is to determine the profitability of the proposed plan.

**Solution**

|  |  |
| --- | --- |
| **Gain** | **Cost** |
| **a) Additional income**  Increased wheat income  14 qt. wheat output per ha.\* birr 170 per qt.\* 40 ha = 95200 | **d) Reduced income**  Loss of maize income  18 qt of maize output per ha.\* birr 140 per qt. \* 40 ha = 100800 |
| **b) Reduced expense**  Reduced maize cost  5 qt. maize seed per ha.\* birr 146.8 per qt.\* 40 ha. = 29360  47 hr of labour per ha\* birr 4.25 per hr \* 40 ha = 7990  Total Reduced Expense = 37350 | **e) Increased expense**  Additional wheat cost  3 qt. wheat seed per ha.\* birr 182.2 per qt.\* 40 ha. = 21864  41 hr of labour per ha\* birr 4.25 per hr \* 40 ha = 6970  Total Additional Expense = 27834 |
| **c) Total Gain** (a + b) = 132550 | **f) Total Cost** (d + e) = 129634 |
| **Net Gain =** 132550 - 129634 = 2916 | |

Conclusion: This analysis shows that the farmers could increase their returns from wheat production by birr 2916 by substituting the available 40 hectare of maize land to wheat production.

Thus, partial budget deals with such changes in the farm organization which can increase farm income without changing the total farm organization. These minor changes (improvements) can be affected in the total farm organization as and when necessary. The farmer would know the total net benefit from the change, the details of what he should do at what cost and what he is not to do after the change and come out with higher profits.

1. **Enterprise Budget**

An enterprises budget is a listing of all estimated income and expenses associated with a specific enterprise to provide an estimate of its profitability. Therefore, one can develop an enterprise’s budget for each actual and potential enterprise in a farm plan such as cotton, wheat, maize, beef cows, dairy cows, and so forth.

Each enterprise budget is developed on the bases of a small common unit such as one hectare for crops or one head of livestock, which permit easier comparison of the profit for alternative and competing enterprises.

The primary purpose of budgeting an enterprise is to aid in selection of inputs and enterprises consistent with the resources available. In addition, it also aid to select combination (s) of enterprises that will increase income from the farm business so that it can be included in the whole farm plan because a whole farm plan often consists of several enterprises.

Although construction of an enterprise budget requires a large amount of data, once completed, it could be used as a source of data for other types of budgeting. Several kinds of data are necessary for budgeting, which includes:

Table 5.1 below is an example of crop enterprise budget. Although no single organization or structure is used by everyone, most budgets contain the section or parts included in the table. The cost section is generally divided into two parts, variable or operating costs and fixed costs. Income or revenue above variable cost is an intermediate calculation and shows the revenue remaining to be applied to fixed costs.

The estimated yield should be the average yield expected under normal weather condition, given the soil type and input level to be used. Input levels must be considered because seeding rates, fertilizer levels, chemical use, and tillage practice all affect yield. Since enterprise budgeting is used for forward planning, the output price should be the manager's best estimate of the average price expected during the next year or next several years depending on the planning horizon.

Table 5.1. An example of enterprise budgets estimate for wheat production (1 hectare).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Item | Unit | Quantity | Unit price | Value/ha |
| 1 | **Revenue** |  |  |  |  |
|  | Main product (wheat output) | Qt. | 50 | 250.00 | 12500 |
|  | By product (straw) | “ | 30 | 60.00 | 1800 |
|  | **Total Revenue** | Birr |  |  | 14300 |
| 2 | **Variable Cost** |  |  |  |  |
|  | Seed | Qt. | 5 | 260.00 | 1300 |
|  | Manure & fertilizer |  |  |  |  |
|  | Manure | Qt. | 50 | 20.00 | 1000 |
|  | Inorganic fertilizer | “ | 4 | 260.00 | 1040 |
|  | Chemical |  |  |  |  |
|  | Pesticide | Kg | 10 | 80.00 | 800 |
|  | Fungicide | “ | 10 | 70.00 | 700 |
|  | Machinery expense |  |  |  |  |
|  | Fuel | Lt | 50 | 4.00 | 200 |
|  | Oil | Kg | 5 | 35.00 | 175 |
|  | Lubricant | “ | 1 | 50.00 | 50 |
|  | Machinery repair | Birr |  | 500.00 | 500 |
|  | Labour |  |  |  |  |
|  | Normal | Hr. | 57 | 2.00 | 114 |
|  | Peak season | ” | - | - | - |
|  | Contractual | “ | 30 | 3.00 | 90 |
|  | Operating interest (@ 10% for 6 months) | Birr |  |  | 596.9 |
|  | **Total Variable Cost** | “ |  |  | 6565.9 |
| 3 | **Gross Margin (1-2)** |  |  |  | 734.10 |
| 4 | **Fixed Cost** |  |  |  | 7734.10 |
|  | Depreciation | Birr |  | 200.00 | 200 |
|  | Interest on investment (10%) | “ |  | 20.00 | 20 |
|  | Tax and insurance | “ |  | 100.00 | 100 |
|  | Land charge | “ |  | 300.00 | 300 |
|  | **Total Fixed Cost** | “ |  |  | 620 |
| 5 | **Total Cost (2+4)** | “ |  |  | 7185.9 |
| 6 | **Estimated Profit (1-5)** | “ |  |  | 7114.1 |

Variable costs, such as seed, fertilizer, and chemicals can be relatively easily estimated if the quantities to be used and the input prices are obtained. However, some variable costs such as fuel, machinery repairs, and labour are more difficult to estimate particularly on a per hectare base. These costs are depends on machinery type, size and the number of tillage operations to be performed. Therefore, records of several years and enterprise analysis are good sources of information.

The operating interest cost reflects an interest cost for the amount of capital the farmer has invested in selected variable inputs of the enterprise. This charge varies according to the size of the expenditures involved, the rate of interest paid, and the amount of time the capital is invested. As it is indicated in Table 4.1 above, an average time period of 6 months is assumed and a 10 percent opportunity cost (interest of capital) is charged on the total of birr 5969 invested on variable inputs, which amount to birr 596.90.This operating interest charge when added to the other cash expenses of the enterprise gives the total expense for variable inputs of the enterprise, which is birr 6565.90.

The difference between the income and total variable cost gives us gross margin of the enterprise, which is an indication of how much of the total income is left to cover the total fixed costs of the enterprise.

The fixed costs such as costs for land, building, machinery etc. are also must be prorated to the specific enterprise on per hectare base. The amount of these fixed costs, except land, will be depends on the depreciation cost of that input.

## Complete Budgeting

The whole farm plan discussed earlier does not provide full and details information on sources and amounts of income, types and amount of expenses, and the total expected profit for the farm business using the plan. A whole farm budget is needed to provide additional details and the final estimate of farm profit. Therefore, a whole farm budget is a summary of the expected income, expenses, and profit for a given farm plan. It considers the cost and returns of all the crop and livestock enterprises in order to drive the net return of the whole farm.

For a given whole farm budget (Table 5.2), the total farm income is calculated for each of the enterprises included in the plan. The next step is to estimate the variable costs by type or category such as seed, feed, fertilizer, and repairs etc. Many of these variable costs are the same as those used to estimate the enterprise budget needed in the planning procedure. The total cost for each variable input can be found by calculating the total for each enterprise and then summing across the enterprises.

Notice that some variable cost items such as building repairs, auto and pickup expenses, utilities, and other farm overhead expenses are very difficult to allocate to specific enterprises and they are affected little by the final enterprise combination. If these and similar expenses are not included in the calculation of gross margins of an enterprise budget, they must be included in the complete budget. These will make income above total variable expenses of a combination of enterprises, greater than the total gross margin in the whole farm plan.

*Table 5.2 Whole farm budget showing projected income, expenses, and profit*

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Description |  | |
| 1 | Income |  |  |
|  | Cotton | 54000 |  |
|  | Milo | 43000 |  |
|  | Wheat | 13500 |  |
|  | Cattle | 40000 |  |
|  | **Total income** |  | **150000** |
| 2 | Variable expenses |  |  |
|  | Fertilizer | 11900 |  |
|  | Seed | 3600 |  |
|  | Chemical | 7900 |  |
|  | Fuel, oil, Greases | 4050 |  |
|  | Machinery repair | 2650 |  |
|  | Feed purchase | 1600 |  |
|  | Feeder livestock purchase | 29000 |  |
|  | Custom machine hire | 10250 |  |
|  | Operating interest | 7340 |  |
|  | Miscellaneous | 2450 |  |
|  | **Total variable expenses** |  | **80740** |
|  | Gross margin (1-2) |  | 69760 |
| 3 | Fixed expenses |  |  |
|  | Property taxes | 2600 |  |
|  | Interest on debt | 22000 |  |
|  | Insurances | 1250 |  |
|  | Machinery depreciation | 7200 |  |
|  | Building depreciation | 3200 |  |
|  | Other fixed costs | 3000 |  |
|  | **Total fixed expenses** |  | **39250** |
| 4 | **Total expense (2+3)** |  | **119990** |
| 5 | **Net farm income (1-4)** |  | **30510** |

The budget in Table 5.2 shows an estimated profit or net farm income of the whole farm if the price and yield estimates are actually realized. Changes in any of these factors will obviously affect the actual profit received from operating the farm under this plan. The estimated profit also needs to be carefully inter­preted.