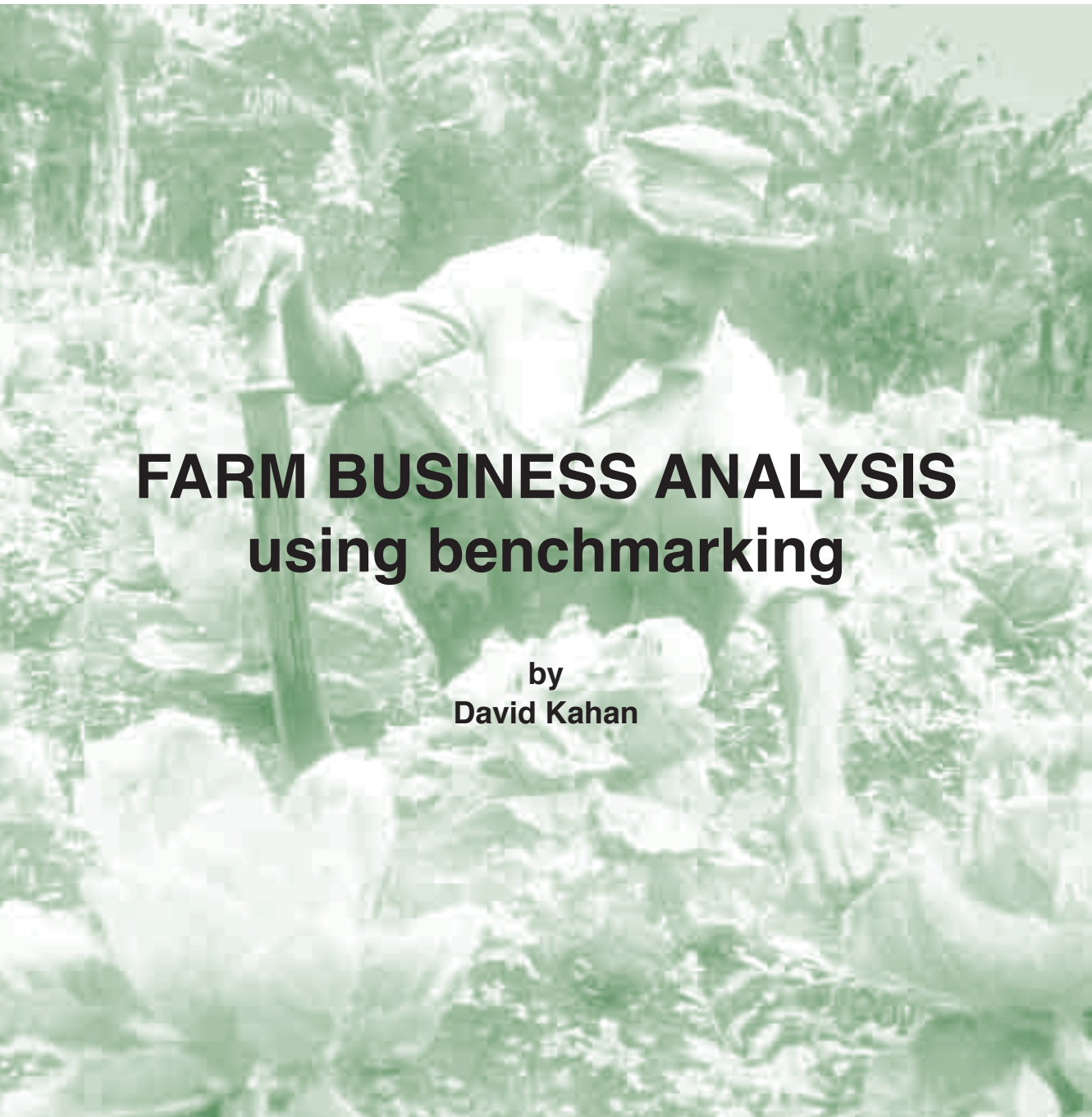


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Farm management extension guide



FARM BUSINESS ANALYSIS **using benchmarking**

by
David Kahan

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Preface

Farming for profit calls for a different approach to farming. Farmers are not only concerned with the day to day tasks involved in making a living but they increasingly plan for the future in an effort to make money. For business minded farmers profit is viewed as the goal; the goal that ensures survival of the business. The performance of the farm can best be explained by better understanding the farm business, identifying the goals set by the farmer and examining the factors that affect them.

Performance is concerned not only with the 'bottom line' of making money but also technical aspects of farming that contribute to making the farm business profitable and efficient. Improving the performance of the farm business requires a good understanding of both the business and technical aspects of farming. 'Benchmarking' is a concept that is used to analyse and better understand the farm as a business. To do this benchmarking is conducted in a way similar to a doctor diagnosing the condition of a patient. Diagnosing performance means understanding business concepts such as profitability and efficiency, identifying the problems that prevent the farm from achieving its potential and formulating strategies and actions to improve its business performance.

How do you, as an extension worker, assist farmers in finding ways of making improvements to the farm business? How do you as an extension worker help farmers improve profitability and performance?

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Attention extension workers

The methods recommended in this guide require familiarity with basic farm management economics as covered in Farm Management Extension Guide 2. The guide is expected to be used by extension workers with university level training and at least an introductory training in farm management economics. In countries where extension workers do not have this background, the more likely user of the guide would be farm management specialists. The role of farm management specialists is broad and their responsibilities are covered in Farm Management Extension Guide 4.

While benchmarking is useful for all types of small-scale farmers, family farmers that produce mainly for household consumption as well as market-oriented farmers, its practical use in farm business analysis will be more appreciated among commercially minded farmers that wish to improve their profitability and competitiveness.

While the guide draws on known farm management methods and experiences, the recommendations on approaches and activities for benchmarking are new and mostly untested. This guide is therefore being made available to stimulate innovation and adaptation.

Benchmarking may at first seem somewhat complex, but when the procedure is carefully explained and given an operational structure to follow, the process becomes much easier. This guide sets out to do just that. How the guide has been structured and what the reader can expect to find is briefly described below.

Part 1: Introduction to benchmarking and overview.

This part begins with a discussion on benchmarking and how it is applied (informally, formally, internally, externally) followed by an introduction to the key concepts needed to analyse and measure farm and enterprise performance (profit, profitability, efficiency). A brief overview of a ten-step process to conduct a benchmarking exercise is also given. This part ends with a section on benchmarking and its application in extension work.

Part 2: Step-by-step field guide. *This part has been structured to provide detailed guidance for extension workers on how to undertake a benchmarking exercise: A ten-step process is described. Readers are urged to study the sequence from beginning to end until the process is clearly understood. Benchmarking procedures and data collection are discussed including some things 'to do' and some things 'not to do' in the field.*

Each of the ten steps includes 'Tips' and 'Questions to initiate discussion' when conducting an exercise. This is to help and support you in the practical application of benchmarking.

Undoubtedly, during the course of reading, you will develop ideas of your own on how you plan to conduct your field exercises. These should be listed. Space has been provided for notes and observations. The material that has been covered here, together with your list of ideas, is intended to be used as a field guide. Remember, the best way to learn how to benchmark is by practice.

Part 1

Introduction to benchmarking

Chapter 1

Benchmarking in farm business analysis

OVERVIEW OF THE MAIN CONCEPTS

Benchmarking

The process used to identify, learn from and adapt better practices from other farmers to help improve farm performance.

*Benchmarking
can lead to
increased
profit ...*

*... and
profitability ...*

Profit

The difference between money that comes in from the sales of a product and the money that goes out to produce it. Profit is used to measure the success of the farm business and is vital for its survival and growth.

*... and
to improved
efficiency
in the
farm business*

Profitability

A measure of performance that shows how well the resources available to the farmer are used to generate income and profit.

Efficiency

Efficiency is the careful use of the resources available to the farmer. Efficiency can be either technical (producing the highest possible output from a given set of inputs) or economic (the financial returns from resources used).

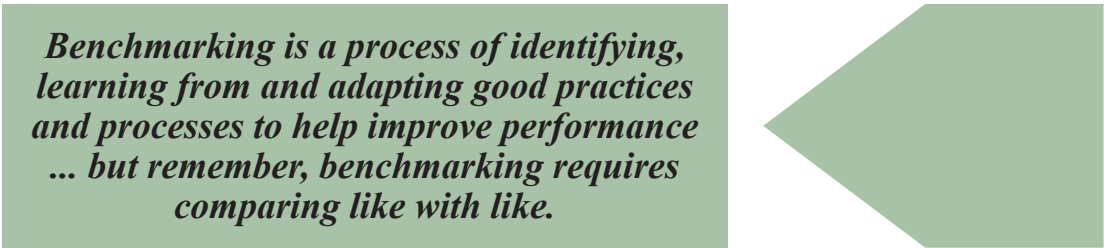


BENCHMARKING

What is benchmarking?

The term 'benchmarking' is used to cover a number of practices found in farming that are designed to highlight the good and make it possible to avoid the harmful. Benchmarking, in business practice, is used to signify a particular systematic approach in which a business evaluates its own operations and procedures through a detailed comparison with those of another business, in order to establish best practices and improve performance.

When using benchmarking in farming, it involves gathering data about the best performing farms and comparing them with other farms. Benchmarking can show how higher levels of performance can be achieved. Many insights can be gained through a benchmarking exercise. It can uncover problems of production, management practices and other factors that affect productivity, cost of production and profitability. These insights and discoveries can be used to improve farm performance.



Benchmarking is a process of identifying, learning from and adapting good practices and processes to help improve performance ... but remember, benchmarking requires comparing like with like.

The process starts by identifying farms and farmers that are performing well and are successful at what they do. It requires a thorough understanding of their farming practices in order to identify strengths and weaknesses and steps needed to improve performance. The performance of these 'benchmark' farms are set as a standard for farmers to compare themselves against.

There are two main parts in benchmarking ...

... collecting data from farms and comparing this data against a benchmark farm ...

... to make meaningful comparisons, it is necessary to collect similar data

Informal benchmarking can help improve performance ...

Informal benchmarking

Farmers often do benchmarking informally. A farmer sees another farmer with a larger harvest or one who gets a better price for the same product at the same market. *Why is this so?* A farmer hears of another farmer who reduces costs by introducing a new technology. *Should she or he do the same?* By observing and talking to successful farmers, others can learn how to improve the performance of their farms. Informal benchmarking can result from something as straightforward as a walk around someone else's farm. Farm visits are considered an important part of benchmarking and will be discussed later.

... however, to be efficient farmers need to approach the process in a more structured, formal manner

Formal benchmarking

However, for best results farmers will need to learn how to benchmark through a more systematic approach. Formal benchmarking takes farmers through the following steps:

- examine their own farms and look for areas for improvement;
- identify a similar farm that is performing better;
- study that farm in detail and try to find out what it is that the farmer does better;
- compare the performance of the two farms and understand the reasons for differences;
- plan and introduce changes to their farms based on what they have learned.

Formal benchmarking provides a standard for comparison. It can be applied to:

- compare the performance of any farm with a more successful farm;
- compare the past performance of a farm;
- compare a farm plan with the actual outcome;
- compare production levels to check if the farm is technically efficient;
- compare production costs to check if the farm is economically efficient;
- examine the production and marketing processes to determine if they are sound;

- learn from the experience of other farmers and generate new ideas.

Benchmarking can be internal to the farm business or external by comparing one farm with another

Internal benchmarking

Internal benchmarking takes place when the performance of the farm business is compared with itself. This is an internal assessment of past results to determine ways to improve. Over time the farm business is analysed, performance is measured, weaknesses and opportunities are identified, and on this basis improvements can be made. Good farm records are of great help with this.

Results of internal benchmarking can often be quite quick. The challenge is to know what farmers can do to improve performance once these lessons have been learned. The solution for farmers, however, often lies beyond the farm boundaries. This leads to external benchmarking.

External benchmarking

External benchmarking involves comparing the performance of a farm business with the performance of other farms that have similar farm enterprises. The benchmark may be a competing farmer or simply a successful one who is ready to share his or her good farm management practices with other farmers in the vicinity. Either way, the benchmark farm serves as a demonstration of how things should be done. It can be studied, learned from and copied. (Depending on the farm enterprises and operations that are being examined, there could even be a number of benchmark farms selected for comparison.)

When should benchmarking be conducted?

Benchmarking can be conducted at all times and at all stages of the farm decision-making cycle, from diagnosis and planning to implementation.

Comparative analysis

In developed countries, benchmarking has taken the form of detailed studies of the performance of farms located in the same area. Farms are usually clustered around similarity of the farming system and technology base. Benchmarks are identified by averaging data collected on farm performance from surveys of large groups of farms. The data collected is usually averaged out and standardised data is used for comparison. Sets of data are often calculated for different sub-groups of farms. Benchmarks on farm and enterprise profitability are commonly calculated. High profit benchmarks can be derived by selecting the farms in a group that are most profitable. Similarly other farms can be categorised as “weak” and average” performing.

There are many developing countries that have also institutionalised the tradition of collecting farm management data for comparative analysis. Annual or six-monthly reports are often prepared on a regular basis. The performance measures derived from the data are used at local levels in farm advisory work and at national levels to inform agricultural policy. This form of benchmarking is complex and requires the use of spreadsheets to analyse detailed financial and physical data. Within the farm management discipline this has traditionally been called comparative analysis.

Using ‘benchmarking’ as a tool for improved farm production and income

A small-scale farmer has a two hectare farm. She grows beans, cassava and millet. Half of her crop is sold at market and the rest is used by her family. She would like to do better and increase her yields and income. It seems that there are a few farmers in her area who do very well. They grow similar crops, produce more food and have higher incomes. She wants to understand how they do it. She contacts the local extension worker for advice.

The local extension worker suggests that together they visit a ‘better’ performing farm to gather information on methods of production, management and marketing practices. With this information they can identify ‘good practices’ as benchmarks for comparison. Using these as a guide she discovers new production practices and begins to experiment with small-scale drip irrigation, the better use of fertilizer and better harvesting practices.

She also knows that she should be making more money at the market. She learned from the ‘successful’ farmer that keeping an eye on the market and understanding market price information better is important. She collects market price data and finds that her main crop is harvested when prices are usually low. She knows from this exercise that the successful farmer either planted early or late in the season in order to avert low prices at harvest time. She learns to take more care about when to plant her crops.

*After following these practices
our farmer finds herself with an
increase in production and surpluses
to sell in the market at better prices.
This she understands will improve
the livelihood of her family.*



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Women in Sierra Leone discussing farm enterprise alternatives

*'Benchmarking'
can be used at
all stages in the
production cycle ...*

*... from planning,
to planting and
marketing*



© FAO/J Spaul/21640

A farmer in South Africa diversifying her enterprises by introducing tomatoes



© FAO/J Thompson/24306

Improved handling and marketing of horticultural produce in Thailand



© FAO/15110/L Callenholm

Learning group discussing suitable formats for record-keeping – Sierra Leone



© FAO/17816/A Conti

Filling out a data sheet on market prices for record-keeping – Zambia

*It's a good thing
to keep detailed
records of farm
activities ...*

*... it will make
benchmarking
much easier!*



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Farmers discussing and comparing benchmarking data – El Salvador



FARM BUSINESS ANALYSIS

To use benchmarking effectively, extension workers need to understand and apply the concepts of profitability, technical efficiency and economic efficiency as they relate to the farm business. Further, the relationships between inputs, costs, outputs and income also need to be clearly understood. The key concepts of profit and efficiency are explained below. For more detailed understanding the reader should refer to the Annex on Business Concepts for Benchmarking.

*Profit is necessary
to ensure the
survival and
growth of the
farm business*

Profit

Profit is the difference between the money that comes in to the farm business from the sales of a product and the money that goes out to produce it. The money coming in is expressed as the total value of production. The money spent is expressed as costs.

Profit shows whether it is worthwhile engaging or remaining in the business. A number of reasons follow.

Profit is necessary to keep the farm business going.

If inadequate profits are generated the farmer will have to sell equipment, farm implements and other assets in order to find the money to cover everyday costs. If the situation carries on for too long the farmer may end up selling the farm. The farmer would then be out of business.

Profit is necessary for growth of the farm business.

A farm business needs money in order to develop and grow. Profit generates this money. The money accumulated from profits can be used to buy new machinery, equipment and implements. It can also be used to rent or buy additional land. In this way, the farm business can grow and expand.

Profit is used to measure the success of the farm as a business. Profit can be used as an indicator showing the success of the business. The more profit the farmer makes the more successful the business is and the more likely it is to survive.

Profit is a reward. Farmers and their families put in their time and effort to work on the farm to earn ‘benefits’. In most cases, the family members are not paid a salary like other workers. Profit represents their ‘wages’. It can also be understood as a reward for their energy, time and effort in managing and working the farm. Profit can be seen as a return for the time and capital invested.

Profit provides money for the farm family. Profit provides the money farmers and their families need to buy additional goods and services and to pay for education and health care. The greater the profit, the more farmers can provide for their families.

Profit is a wage, profit is a reward for effort, and profit is a return on investment.

Profitability

Profitability measures how well the farm business uses the resources available to generate income and profit. Profit and profitability are not the same. As mentioned before profit is the amount of money earned after total costs are deducted.

Two farmers may show the same profits but may not be equally profitable. This could be a result of the way farmers use their resources. In order to compare these farms, we need to see exactly how the farmers make use of their resources to generate profits. As an example, if a farmer makes a profit of \$1 000 we do not know if this level is high or low. Could the farmer have earned more by using the resources differently?

Using profitability as a basis for comparison instead of profit means that one can compare like with like. A farm of 2 hectares can be compared with a farm of 20 hectares.

*Profit is a wage,
profit is a reward
for effort, and
profit is a return
on investment*

*Profitability is
a measure that
attempts to answer
the question
“Are we making
enough money for
the effort?”*



© FAO/20887

These farmers in Senegal used their profits to invest in a new cucumber enterprise

*Profits
are very
important
for the
farm family*



© FAO/22882/G Diana

Profits can mean farm families in Bangladesh have more and different foods to eat



© FAO/13210/F Mc Dougall

Profits mean that farmers in Sudan can send their children to school

It may well be that while the farm of 2 hectares makes less profit than the farm with 20 hectares; the small-scale farm may be more profitable.

To compare profitability and performance, a farmer can use common measures such a gross margin, enterprise profit and farm profit *.

Efficiency

Efficiency is the careful use of the resources available to the farmer. While the farm business may generate profits and be profitable, an important question to ask is whether or not the farm business is efficient. A farm that is efficiently run is more likely to be profitable than a farm that is not. There are two forms of efficiency ...technical and economic

Technical efficiency: There is usually more than one way to grow a crop or raise livestock. It is possible to produce farm products by farming a small quantity of land very intensively, combining a lot of labour and capital. It is also possible to produce the same product by farming the same land area extensively, with only small amounts of labour and capital. Technical efficiency is producing farm products with the best combination of resources or inputs. Technical efficiency measures the farmer's skill and success in producing the highest possible level of output from a fixed amount of inputs. It can be calculated by estimating crop and livestock yields, and the use of inputs such as fertilizer and labour. Technical efficiency is measured as yield per unit of a specific input as, for example, kilograms of fertilizer or seed.

*Technical
efficiency
occurs when the
maximum amount
is provided given
a set of inputs*

Economic efficiency: Economic efficiency measures the financial returns on resources used. Economic efficiency looks at the cost of using resources to produce a given level of output. The most economically efficient method of production is the one that costs the least.

It should be mentioned that methods that are technically efficient may not be economically efficient.



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Is this method of fertilizing a crop in Burkina Faso technically efficient?

Technical efficiency is producing farm products with the best combination of resources or inputs



© FAO/11852/C Errath

Or is this method more technically efficient in the use of fertilizer?



© FAO/22285/A Proto

Is this method of watering small vegetables in Mozambique technically efficient?

© FAO/23030/K Iversen



Is this small plot of intercropping in Ecuador economically efficient?

© FAO/18309/P Cenini



Or is this larger plot of intercropping in Ghana more economically efficient?

*Economic
efficiency
measures the
financial
returns on
resources used*

© FAO/22842/G Diana



Is using a motor tiller economically efficient for planting rice?

*To use benchmarking effectively,
farmers need to understand
and apply the concepts of profitability,
technical efficiency and economic efficiency
as they relate to the farm business.*

*Further, the relationships between
inputs, costs, outputs and income
also need to be clearly understood.*

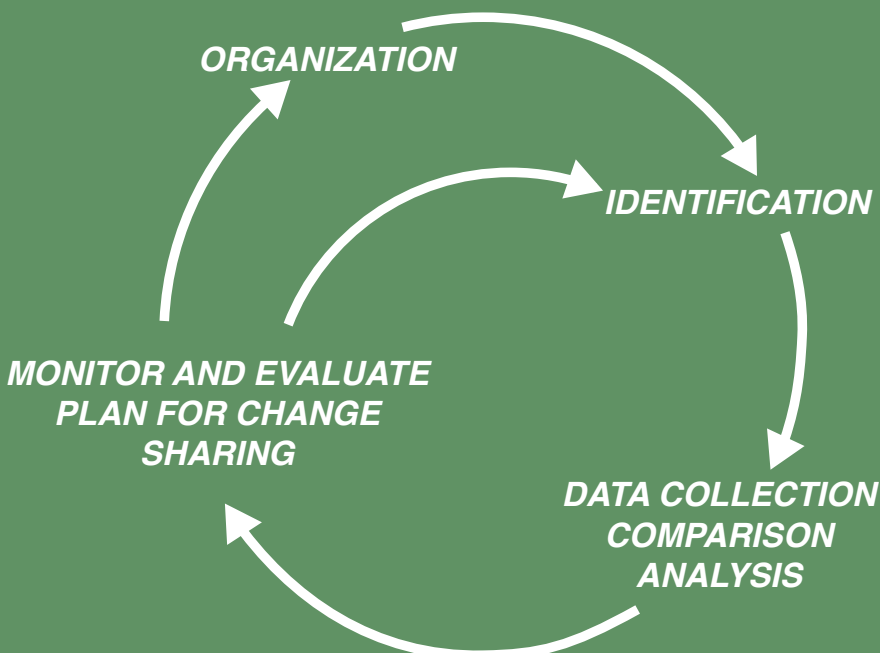
Chapter 2

Steps involved in benchmarking

THE BENCHMARKING PROCESS

An overview of the benchmarking process is outlined in Figure 1. Figure 2 presents the ten step process in more detail. In most cases this exercise is conducted by extension workers and farmers together. The objective is to compare the profitability of the farms selected for study in order to improve their farm business performance and profitability. The information gained can be shared with other farmers which, in itself, can add to the learning process. It may also lead to new business opportunities. The benchmarking process can be continuous, with farmers constantly checking their performance against that of others and working to improve their profitability. It should be noted that the steps in the benchmarking process can overlap.

Figure 1
The four working
categories in the
benchmarking
process



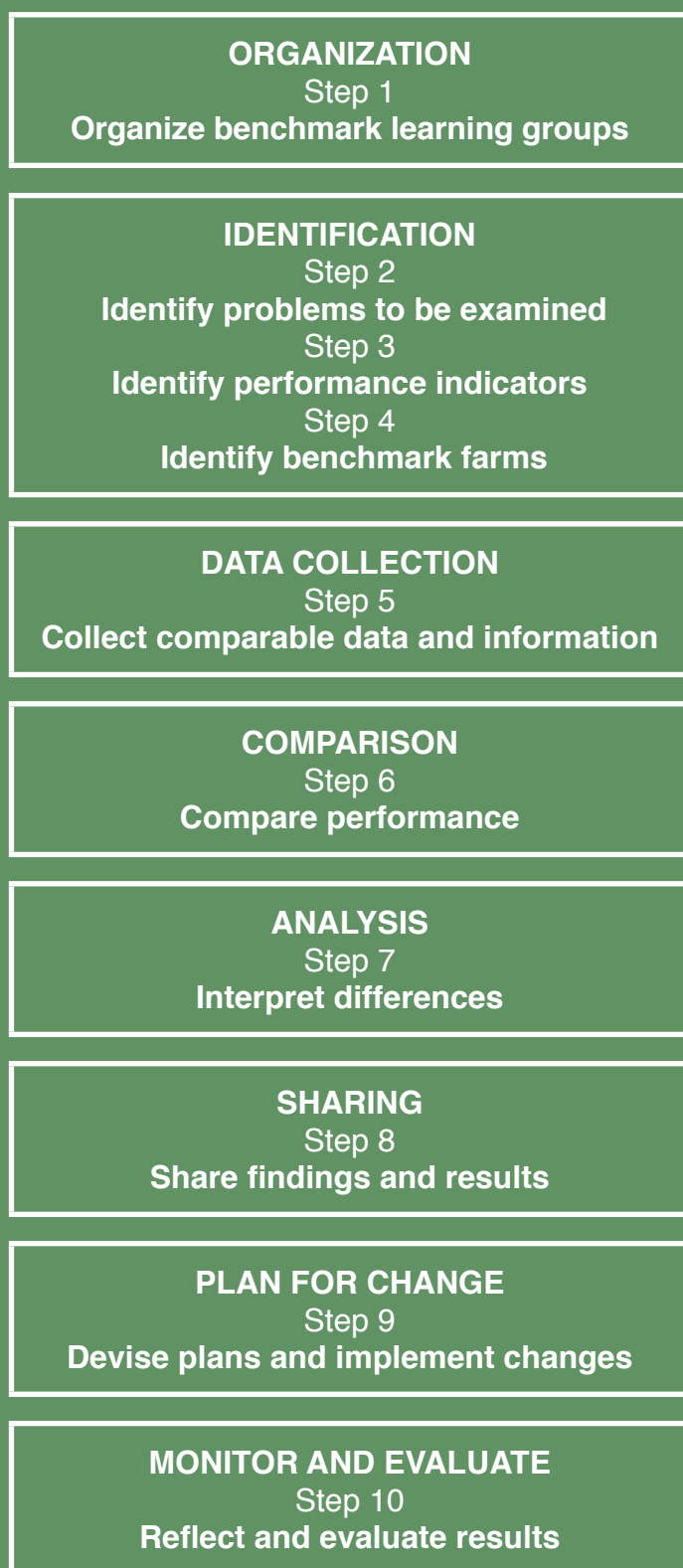


Figure 2
The ten basic
steps in the
benchmarking
process

ORGANIZATION

Step 1 Organize benchmark learning groups

In preparing for the benchmarking process, farmers should form learning groups where issues of farm management and farm productivity can be discussed. Farmers do not usually come together by themselves and often need someone to facilitate this process. So, as an extension worker, you may be required to assist in the formation of learning groups.

IDENTIFICATION

Step 2 Identify problems to be examined

Problems can be identified and examined by holding discussions in the learning group and arriving at a consensus. You may need to engage in a discussion about aspects of their farms that they are satisfied with and aspects that they are dissatisfied with. Such discussions provide a good foundation for the selection of indicators and benchmark farms.

IDENTIFICATION

Step 3 Identify performance indicators

This involves identifying measures that best illustrate and describe farm performance. Performance measures can be described in both physical and financial terms. They can be applied to the whole farm business as well as to individual farm enterprises. Farmers in the learning group need to know their own farms well. A good understanding of the farming system in which the farmers operate will greatly increase the success of any plan made at the end of the benchmarking process to improve the performance of their own farms.

IDENTIFICATION

Step 4 Identify benchmark farms

It is important to identify farmers in the learning group or in the area who are performing well and can be regarded as benchmarks. With technical guidance from you the extension worker, farmers should agree on the farm or farms to be used. It is also important that those considered are representative of a known farm type, so that those conclusions drawn would have the widest possible application.

DATA COLLECTION

Step 5 **Collect comparable data** **and information**

This requires the collection of data from both the learning group and the benchmarking farms. Information and data from all sources should be consistent since this will form the basis for the comparisons to be made of the farm businesses in question. Some other factors to be considered are: (i) the quality of the data, (ii) the cost and time involved in collecting it, and (iii) ways in which the data can be shared with other farmers.

COMPARISON

Step 6 **Compare performance**

Comparisons of the performance of the farm business with the benchmark farm are made at this step in the process. Financial and technical indicators are used to compare performance and identify differences (gaps). These differences can suggest weaknesses within the farming system and its parts and the reasons for them. Alternatively the differences may suggest strengths in the farming system and its parts as well as the underlying reasons for them. This in turn, could suggest opportunities for improvement. The performance comparisons results in a better understanding of the causes of a problem and these in turn can lead to finding solutions.

ANALYSIS

Step 7 Interpret differences

Once areas of improvement have been identified, it is useful to examine the benchmark farms in more detail. Digging beneath the data will help to understand what a particular farmer is doing better than the farmers in the learning group. More importantly, it will help them to understand how it is being done.

SHARING

Step 8 Share findings and results

The sharing of findings and results of the benchmarking process is invaluable. Discussions with members of the learning group as well as other farmers located in the vicinity are important to ensure that the information derived from the benchmarking process is put to best use. You may find it difficult to convince farmers to share experiences about their farm business. Again, you will have to help farmers to see the value of sharing with one another. The information collected should provide benefits to all concerned.

PLAN FOR CHANGE

Step 9 **Devise plans and implement changes**

The purpose of identifying performance gaps and causes is ultimately to introduce actions and devise plans that the farmers in the learning group can use to improve the performance on their farms. Plans should include realistic targets for each farmer to achieve. You can encourage, and support farmers and guide them in action planning, but the preparation of the plan ultimately rests in the hands of the individual farmer.

MONITOR AND EVALUATE

Step 10 **Reflect and evaluate results**

The last step in the process is to reflect on and evaluate the results. This requires that the plan be monitored. The farmers can reflect on the outcome and decide on the next course of action. You can facilitate this learning process and help farmers in the learning group to increase the benefits received from the benchmarking process.

Chapter 3

Benchmarking in extension



EXTENSION ROLES

Benchmarking can take place more or less accidentally, as a consequence of passing by other farmers' fields, through exchange of labour and/ or by chatting with farmers in a market place. But it is an activity that can be deliberately supported and stimulated by extension workers such as you.

Benchmarking can be easily incorporated into your extension work. If you have good knowledge of the performance of farmers in your area, you will be in a good position to facilitate benchmarking analyses with farmers. If you do not have this knowledge it is advisable that you survey the area under your responsibility to gain an understanding of the farming system, the problems that farmers face and identify well performing farmers.

*Benchmarking
can easily be
incorporated into
the daily routine of
the extension
worker*

Some of the indicators that can be used in benchmarking are simple and part of your every day work as front line extension workers. It should be simple to compare crop yields, costs of production and some of the technical processes – time of sowing, time of harvesting, etc. – between farmers. For these benchmark comparisons you do not need to be an expert. Benchmarking, however, can become more complex in particular when making comparisons of farm enterprises and whole farm performance. This could be a task for a Farm Management Extension Specialist with a background in economics or farm business management. A description of the role and tasks of the Farm Management Specialist is the topic of Extension Guide 6.

While most farmers want to improve the productivity and profitability of their farms, they may not know how or where to start. They may not have the discipline or self-assessment needed to objectively analyse the

performance of the farm business. Your support as an extension worker is essential to facilitate the process.

As extension workers you should be able to assess the level of complexity of a benchmarking exercise that you will need to conduct and the skills that you will require to do so. FAO has also prepared more specialised training materials that have been developed to improve your skills in conducting more advanced benchmarking exercises looking at the performance of farm enterprises and the farm as a whole. This will require an understanding of the concepts of gross margins, enterprise budgets and whole farm profitability, subjects covered in depth in FAO training materials on farm planning and management¹⁾.

Benchmarking, whether conducted by front line extension workers or farm management specialists can be applied by working with farmers individually or with groups of farmers organized into farmer associations, cooperatives or specially formed 'study groups'. Working with farmer study groups has considerable benefits for learning and sharing of information.

* * * * *

¹⁾ Reference materials include Market-oriented Farm Management for trainers of Extension workers in Africa. Farm Planning and Management for Trainers of Extension Workers in Asia.

BENCHMARKING AND LEARNING

Learning is a process that involves experience, practice and insight and can occur through observing the actions of other farmers and their consequences. Benchmarking is essentially a learning tool, where imitating successful farms or avoiding the actions of unsuccessful ones, can enhance the capacity and speed of learning. Learning, information sharing and the adoption of best practices to improve farm performance are crucial to benchmarking.

Benchmarking has a strong social dimension especially when conducted in 'learning groups'. Conducting benchmarking exercises in this way has been seen to lead to changes in practices and identifying new ways of reducing costs and increasing profitability. Unsustainable businesses can become economically sustainable. It can drive learning at different levels. Farmers have been seen to start keeping records, whilst developing an understanding of business management concepts and the factors that affect farm profitability. Learning from others often leads to the idea of learning with others through networks of farmers and even farmer organizations.

Farmers who are usually more willing to adopt new ideas and methods are often leaders within their community. They can be a good example for farmers in the community and could assist in forming learning groups and take the lead in facilitating benchmarking. These farmers should be identified and approached first.

In preparing for benchmarking, farmers could form groups where issues of farm management and farm productivity can be discussed. Farmers do not usually come together by themselves and often need someone to facilitate this process. So, as an extension worker, you may be required to assist in the formation of learning groups.

A key to success in small group benchmarking is trust and a sense of collaboration. The willingness of farmers to share data, to keep good records and the social factor of groups meeting on each other's farms and in social spaces, make learning through these groups worthwhile and enjoyable. They also appeal to the habit that farmers have of 'peering over their neighbour's fences' to judge the performance of their own farm against that of others. Membership of a group can give the confidence to make changes, based on the experience of others, and to experiment with new innovations.

In short, a 'learning group' has the potential to:

- Create motivation for change;
- Provide a vision for what a farm can look like after change;
- Provide data, evidence and success stories for inspiring change;
- Identify best practices for how to manage change;
- Create a baseline or yardstick by which to evaluate the impact of changes.

Notes

BENCHMARKING SKILLS

To be effective, you will need to acquire a range of skills that complement your current technical and extension training. These skills include:

- group formation;
- farm diagnosis;
- farm business management
- technical aspects of farming;
- facilitation;
- learning.

Facilitating learning is the skill of helping farmers increase their ability to assess their circumstances, weigh up options, see the consequences of various possibilities and then to make informed decisions as to the actions they need to take on their farms.

As extension workers you should be aware that in the end, it is the farmer's choice about what to do or not to do. But it is your responsibility to help the farmer understand the positive and negative outcomes of choices and decisions made. This is a high-level skill for most extension workers because this is where the real learning from benchmarking takes place. So extension workers have to have the skills to know how to facilitate learning.

* * *

Skills required for benchmarking

Group formation and extension, such as:

- group development;
- group performance;
- principles, techniques and tools of group dynamics;
- facilitation.

Agricultural production and technical knowledge

for assessing the technical efficiency of a farm, such as:

- the relationship between soil, climate, moisture, and crops and livestock;
- the relationship between inputs (e.g. fertilizer, pesticide, labour) and yields for crops and livestock;
- the various production processes in growing crops and raising livestock.

Farm management skills for assessing the economic efficiency of a farm, such as:

- calculating profit;
- calculating gross margins;
- the relationship between market prices and income;
- the relationship between input prices and income.

• **Diagnostic skills** for identifying key performance measures, and later for identifying gaps and causes.

Facilitation skills for helping farmers to understand the positive and negative outcomes of their choices and decisions. A required skill is knowing how to facilitate learning.

*A summary of
the knowledge
and skills needed
to facilitate
benchmarking ...*

KEY POINTS IN BENCHMARKING

The key points when conducting benchmarking exercises are that:

- Farmers need accurate information on their own farms in order to compare their farm businesses with others.
- Since their farms are to be compared with farms similar in type and size, benchmarking is usually conducted among farms in the same area
- When conducting benchmarking exercises remember to:
 - o compare like with like;
 - o be methodical about your work; record all of your findings;
 - o focus on negative gaps; these represent opportunities for improvement;
 - o try to establish the level of significance of the differences identified. (Highlight those with high impact on farm performance and profitability); and
 - o adequately cover all of the agreed measures.

As part of your extension role in working with farmers within a 'learning group' is to raise awareness amongst them that:

- There is a need for farmers to have improved business skills to effectively compete in modern farming.
- There is a need for farmers to be more competitive, profitable and efficient in their use of inputs.
- Competition is increasingly beyond the borders of their region and country.
- Benchmarking calls for farmers to be open and willing to share their experiences.

- Record keeping is essential to capture the data necessary for analysis.
- Learning groups are vital to build trust and openness.
- Good facilitation is essential to effectively run the learning group.

Do ...

- Make sure that the enterprise, activity or function selected is the most critical to the farm business.
- Ensure that the problem is well defined and can be taken up quickly, preferably before the next crop or livestock cycle.
- Seek agreement regarding the choice of enterprises and problems to focus on.
- Give notice of the benchmarking exercise to other farmers in the area.
- Keep the exercise simple and match the level of complexity with the interest and skills of the farmers.

Do not ...

- Benchmark topics where learning group performance has been good.
- Benchmark topics or processes that are not important to your farmers.
- Benchmark processes that are so broad in scope and so poorly defined that your learning group cannot agree on the purpose of the exercise and will not focus its efforts.
- Undertake major strategic benchmarking initiatives if your farmers are not committed to change their current practices.

*Things 'to do'
and things
'not to do' in
benchmarking*



BENCHMARKING: SOME CONCERNS

Benchmarking is not without weaknesses that need to be understood. Some of these are discussed here.

Finding comparable benchmarks

The diversity of the farming systems in some areas may make it hard to find comparable benchmarks. Each farm family is unique. Their goals, resources, abilities and Attitudes to risk are unique. No two farms are exactly the same. The differences in the ecology and the resource base of the farms sometimes make it difficult to find a standard of comparison. If farms are grouped by the main farm enterprise, they may come from different areas with different soils and climate. Each farm has different objectives and resources. In all cases the extension worker has an important role to facilitate the process to find the best or most representative benchmark farm possible.

Construction of averages and standards

In some situations specialists may be employed to construct benchmarks. This requires collecting data from similar farms in the vicinity and calculating standards based on average performance. The averages created provide a theoretical 'benchmark'. There are, however, limits to the usefulness of constructing averages as a standard for comparison. Averages are artificial and do not always represent reality. There are always some farms in any group that are more profitable and efficient than the average farm. Also, average cost is an average for the whole year. It does not take into account seasonal variations and price variations. It is important for the extension worker to understand these limitations, especially when helping farmers to develop action plans that include projected outcomes. These outcomes will vary, and the variations may discourage farmers.

*Benchmarking
is not without
weaknesses
that need to be
understood.
Some of these
are discussed here*

Deficiencies in record-keeping

In many cases farmers do not record data in sufficient detail to allow meaningful comparisons to be made. Extension workers should be aware of this reality when setting up the farmer learning group. Positive results from a benchmarking exercise can alert farmers to the value of keeping records on their farms.

Inadequate diagnostics

Benchmarking may suggest a weakness but it does not determine the cause of the weakness. The weakness is not the cause of the gap in performance. It is merely a symptom of a missing element in farm management. There is often a tendency to stop the diagnosis once the weakness has been identified. The extension worker will need to encourage digging deeper until the root cause is found.

*Differences
in performance
should be traced
to all parts of
the enterprise
budget and to the
profit of the farm
as a whole*

Sharing of information among farmers

Farmers are often reluctant to show their financial position as they are afraid of competition. Even where information is recorded there is a lack of willingness to be open and frank about the problems of the business. Poor results tend not to be discussed.

* * *

A FINAL WORD

Market-oriented farmers need to look at their profitability and efficiency in order to be competitive in farming. These are critical dimensions of the performance of the farm business. It is therefore vital for market-oriented farmers to benchmark profitability and efficiency as a starting point in better management of their farms. But benchmarking should not stop there if it is to be useful to farmers. Farmers also need information on why their profits or efficiency are low – or high as the case might be. Therefore, it is good practice in benchmarking to compare additional performance indicators that help to explain the performance of the farm as a whole. A wide range of potential performance indicators are discussed in Part 2 of this guide which can help in analysing and explaining profits and efficiency. One of the key challenges, however, is that there are costs involved in collecting this additional data as explained later in the guide. When providing support on benchmarking, it is important to discuss with farmers and agree in advance on the key practices or problems that are likely to be most important in influencing farm performance, and particularly farm profitability and efficiency.

Part 2

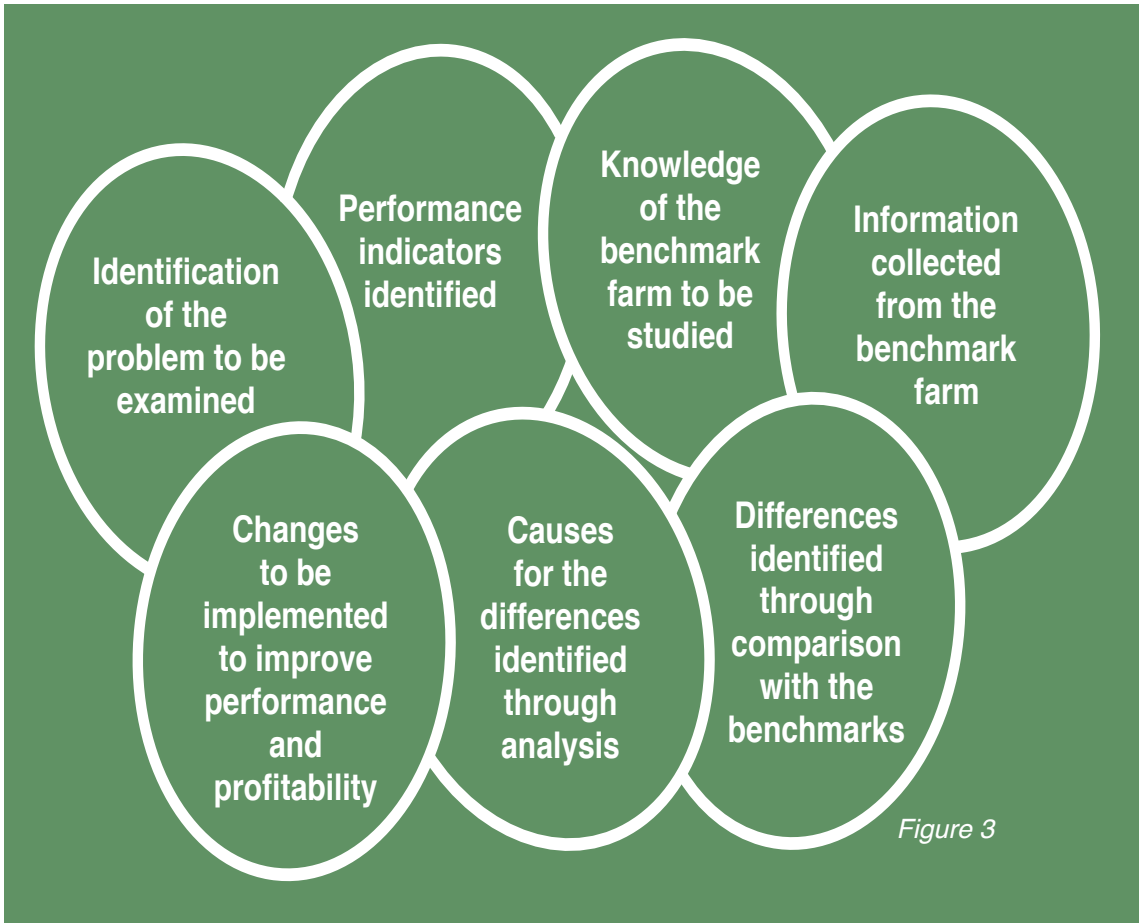
Step-by-step field guide

This part of the guide has been designed to be used in the field when you begin to lead farmers in exercises. Each step provides practical guidance in conducting benchmarking exercises which should be of help to you and farmers alike during the entire process. Of course, and it cannot be stressed too highly, the best way to become proficient is to apply the steps in the field.



KEY ELEMENTS OF BENCHMARKING

Performance benchmarks must be found and used as the basis for comparison. The comparison between the farms will highlight performance differences. Further investigation will identify what causes the differences. Understanding the causes will help farmers identify changes that could be undertaken to improve their own farm performance and profitability. Comparisons can be made either for the farm as a whole or at the level of the individual farm enterprise.





Notes

O R G A N I Z A T I O N

Step 1
Organize benchmark
learning groups

This step of the process should be familiar to most extension workers. You should understand the value of establishing learning groups to help carry out the benchmarking exercise. To successfully form and facilitate a learning group, you should have a sound understanding of:

- how to form groups;
- how groups develop over time;
- how groups perform well;
- how extension is affected by group dynamics;
- the principles of group leadership;
- group self-management and leadership.

Extension workers are often expected to form a learning group, organize regular meetings and ensure that the group performs well when meetings are convened. The following are some things to consider.

How to start a learning group ...

- Familiarize yourself with the farmers situated in your area and identify their strengths and weaknesses.
- Organize introductory meetings.
- Identify common interests among farmers as a basis for group formation.
- Ensure that the purpose of the group is clear to all its members.
- Ensure that farmers in the group are like minded, interested and motivated.

How to form a group ...

- Organize no more than 20 farmers into a learning group.
- Ensure that all farmers understand the learning objectives.
- Organize a timetable for learning group meetings.
- Gain consensus among farmers on length, duration and frequency of meetings.
- Encourage group motivation, participation and commitment.
- Select an appropriate venue for group meetings.
- Develop rules all group members agree to and will respect.

Notes

How to conduct meetings ...

- Plan meetings in advance.
- Discuss the topics to be covered.
- Make sure that the interests of both men and women members are addressed.
- Make sure that priorities are agreed upon.
- Understand what the members expect to learn from the meeting(s).
- Have clear objectives for each meeting.
- Encourage members to manage the meetings themselves.
- Make adequate provision for training materials and resources.
- Designate a person to keep meeting minutes.
- Periodically check the interest and availability of farmers to meet regularly.

Notes

For effective group functioning ...

- Make sure that all members are given an opportunity to contribute their ideas.
- Facilitate learning within the group.
- Facilitate group discussions and decision making.
- Ensure that communications between members are clear and timely.
- Periodically reflect and assess group performance.
- Try to avoid conflicts among participants.
- Develop skills to resolve conflicts when they occur.

As a facilitator you should objectively assess your knowledge and skills to see if they match the tips provided on the opposite page. If they do, you are in a good position to lead a learning group. If you do not have all of the knowledge and skills listed, or have them only to a limited degree, then more training in group formation and management will be needed.*

ATTRIBUTES OF A GOOD FACILITATOR

- | | |
|------------------------------------|---|
| • <i>good listener</i> | • <i>good communicator</i> |
| • <i>open minded</i> | • <i>well prepared</i> |
| • <i>patient and understanding</i> | • <i>willing to learn from mistakes</i> |
| • <i>accepting different views</i> | • <i>well mannered</i> |
| • <i>inclusive</i> | • <i>composed and confident</i> |
| • <i>respectful</i> | • <i>in control</i> |
| • <i>impartial</i> | • <i>time conscious</i> |
| • <i>dynamic</i> | |

* For additional information on group promotion published by FAO see FAO. 2000.

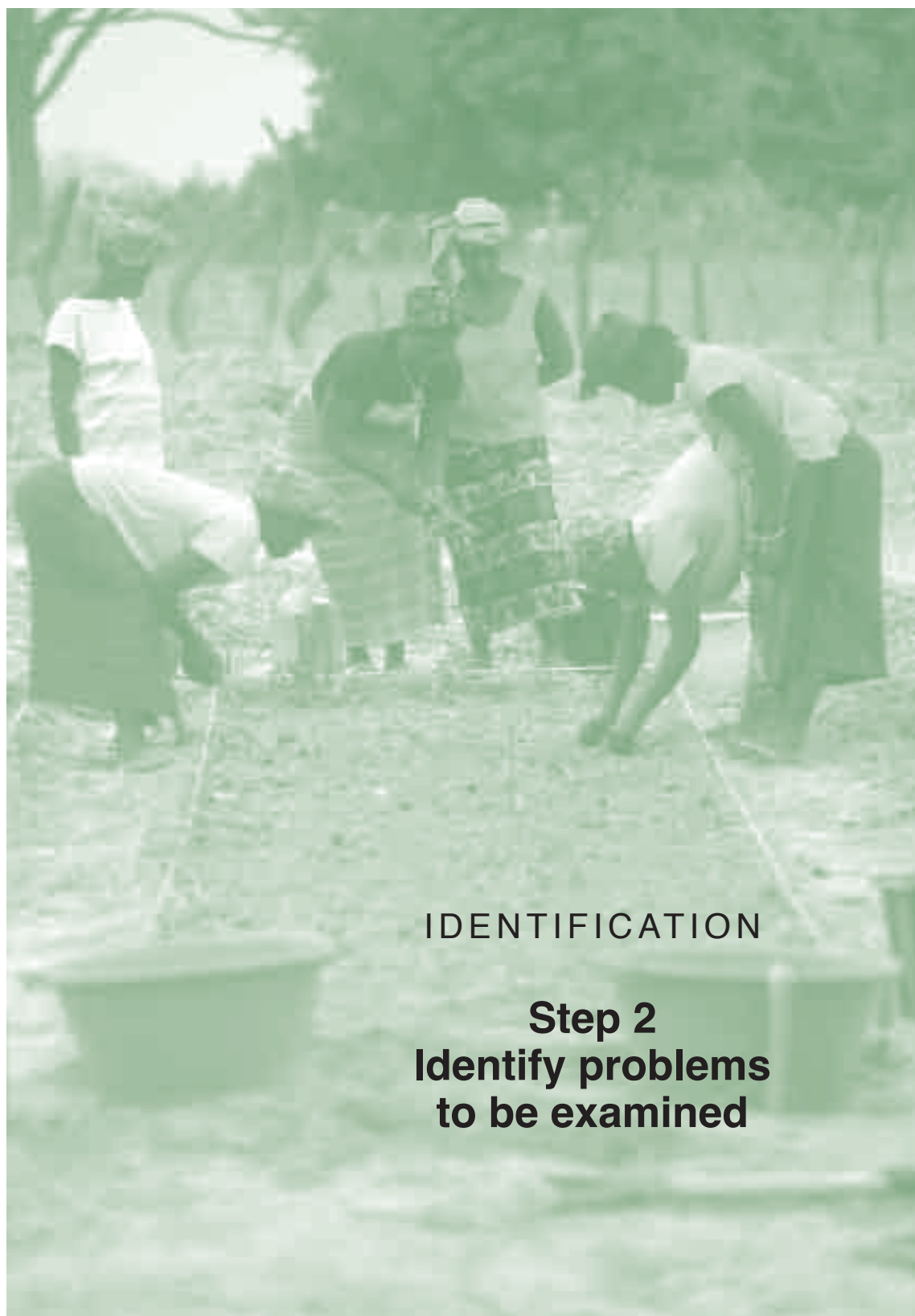
The group promoter's resource book, by V. Groverman, Rome

Tips for facilitation ...

- Facilitation involves communication.
- A good facilitator will consider all modes of communication.
- Communication requires the facilitator to:
 - convey information, ideas and emotions to others in such a way that they are received as intended;
 - engage in active listening;
 - develop good questioning skills-the ability to ask for information and opinions in a way that gets relevant, honest and appropriate responses;
 - engage in verbal communication;
 - use and interpret non-verbal communication;
 - facial expressions, body movements and physical contact;
 - provide constructive feedback for the others involved.
- Encourage communication between group members.
- Limit how much you talk in meetings.
- Help the participants to listen to each other.
- Help them understand and accept that all opinions have value.
- Encourage the participants to discover solutions for themselves and take responsibility for their own learning.
- Manage conflict - it can be good for ideas to clash. It is not good for participants to clash.
- Be aware and act when someone tries to dominate.
- Be aware and act when a participant is shy.

Notes

Notes



IDENTIFICATION

Step 2 **Identify problems** **to be examined**

Notes

I D E N T I F I C A T I O N

Step 2
Identify problems to be examined

Farmers have to understand that the problems that impact on farm business performance need to be well understood and articulated before benchmarking exercises are conducted. As a starting point, they need to have a good understanding of their farm as a business. This is important to ensure that benchmarking exercises are not carried out needlessly and the results do not contribute to farm performance.

Problems need to be defined carefully. *“A problem well defined is a problem half solved.”* This is far from an easy task and requires some discussion among the members of the learning group. As it is too time consuming to try to analyse every possibility, you should look for those factors that have a critical influence on bottom line profitability. This will often entail collecting data and information on farm and enterprise profitability from your farms and analysing them to define the most critical problems for analysis.

Furthermore, there should be a common interest among some or all of the farmers to address the problems identified. It is your job to ensure that the group members agree on these problems. If the problems have not been well defined and it is not apparent to all members the benchmarking process will be of little value. Understanding, agreement and consensus are required by farmers, before proceeding with the subsequent steps in the benchmarking process.

It is important to note that symptoms of a problem should not be confused with the problem itself. For example, low yields are a symptom of a problem that stems from the method of production and inputs used by the farmer. The real problem might be the inappropriate

use of fertilizer, the inefficiency of irrigation and poor crop spacing while planting.

You could pose probing questions to engage the group in a discussion on problems and opportunities on their farms. Such discussions could highlight the critical issues for benchmarking analysis.

* * *

CONDUCTING GROUP DISCUSSIONS ON PROBLEM IDENTIFICATION

What are the kind of problems that you are facing that are impacting negatively on your farm performance? Any suggestions?

Some of you have mentioned low profitability of your maize crop and others have identified low yields. A few of you highlighted the problems that you're experiencing in producing tomatoes. Is this a problem of low yields, high cost of inputs or low prices that you're getting for sales?

Let's study this in greater detail and form two groups: one group will analyse the factors that affect the profitability of maize and the other group will look at tomatoes. Do you agree on the topics? If so, we'll discuss the way forward.

* * *

As the leader of a learning group you would be expected to carry out the following:

- Ensure that all farmers have a chance to express their problems openly and that all problems are discussed.
- Facilitate open discussion so that the real problem(s) surface.
- List all the problems and rank them in order of importance.
- Ensure that there is a consensus and that the problems are fully understood.

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In some situations farmers may be reluctant to talk openly about financial aspects of their farm business. It is important that you recognize this and find ways to build confidence and create an atmosphere of trust.

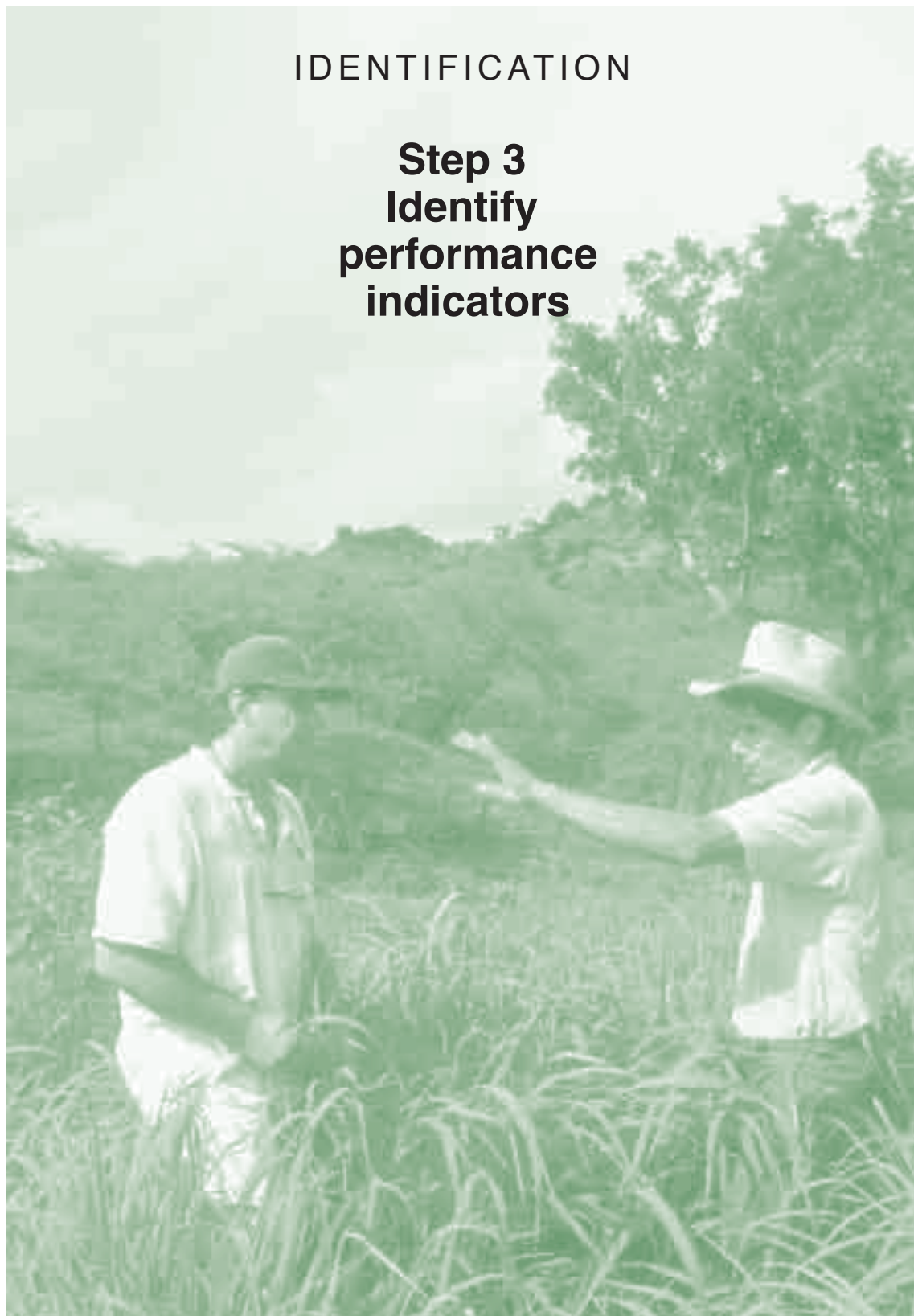
Tips for analysing farm enterprise profitability and performance ...

- Conduct a problem analysis for selected enterprises.
- Assist farmers in understanding market costs and margins in calculating the farmgate price.
- Understand the reasons why prices change in both the short and long term.
- Analyse market information over the season.
- Draw up gross margin or enterprise budgets for different farm enterprises.

Notes

IDENTIFICATION

Step 3 Identify performance indicators



Notes

I D E N T I F I C A T I O N

Step 3
Identify performance indicators

Establishing accurate measures and indicators is vital to the benchmarking process. Too many indicators will make the comparison difficult and time consuming. Too few indicators will not give sufficient information to help the farmers make decisions about ways to improve their performance. Successful benchmarking relies on selecting indicators that are most appropriate for the comparison being made.

Deciding on indicators is not simple but it is a task of the utmost importance. The indicators should reflect the most critical problem of the farm business that prevents it from performing better. It should be possible to look comprehensively at all aspects of the farm to arrive at indicators that appear to be the most important. Taking a view of the farm business as a whole and examining the complete range of possibilities can without doubt be time consuming. A practical way is to list those aspects of the farm business that have a critical influence on the bottom line – farm profitability.

Participation of farmers in defining indicators is a vital part of the process. They need to select key performance indicators that reflect the problems identified at the beginning of the benchmarking process. This involves identifying those that best illustrate or describe farm performance. The skills needed to identify performance indicators require a basic knowledge of farm business management. The more farmers are involved the more likely they are to understand and make use of indicators for farm management decision-making.

Prior to this, farmers need to have good knowledge of their farms and in particular their performance. To successfully manage this step, they must understand the farm as a system including the links that extend beyond the boundary of the farm itself. To be able to conduct a meaningful benchmarking exercise, information showing the relationship between inputs used and outputs is needed from the farm or farms being studied by the learning group as well as from the benchmark farm. These relationships are critical factors in analysing farm performance. Extension workers should be familiar with the concepts of profit and efficiency and be in the position to select indicators that reflect all aspects of the performance of the farm and its enterprises. It is important to remember that indicators can be used to measure the performance of the farm as a whole and its individual enterprises. This can be described in both physical and financial terms. Indicators can also be prioritized or ranked according to their contribution to farm and enterprise profitability. A small improvement in the indicators chosen should result in a significant improvement in the profitability of the farm.

Benchmarking, however, is not only concerned with the indicators of performance but also the processes that lie behind the measures. This includes the activities involved in transforming the farm inputs into outputs. The level of inquiry drills below the indicators of farm and enterprise performance down to the actions that farmers undertake and if improved could also result in greater efficiency and profitability. This requires better understanding of the decisions that successful farmers take to improve the performance of their farms. As such it is not only a comparison of economic results and indicators, although these are often used as a starting point, but also an analysis of each step in the production and marketing processes of farm products, identifying what can be done better and improving one's own farm operations. The measures used for comparison of these processes and activities are often technical and

Notes

qualitative in nature. Examples include the correct timing of field operations, the use of inputs, selection of markets and the quality of supporting services on offer.

Selecting accurate measures and indicators can take time and it must be done with care to ensure that the indicators are reliable. The choice of measures is influenced by:

- what the farmers want to achieve;
- the problems that farmers are facing; and
- the factors that have the greatest potential for increasing farm income.

Some indicators fall outside of the control of the farmer's influence. Thus, it is useful to divide indicators between those that can be affected by better management and those that cannot. It would not be worthwhile to collect data on indicators of which little can be done to improve performance.

Tips on indicators

- Select indicators that accurately measure the problem(s) identified.
- Indicate the types of data needed (e.g. land, labour, capital, production, market, input supply, infrastructure, enterprise and farm profitability).
- Remember that farmers need to have an in-depth understanding of the problems in order to select appropriate indicators.
- Make sure that you identify the main factors that influence farm or enterprise profitability and performance.
- Remember that input-output relationships are critical in analysing farm or enterprise performance.
- Point out that either too many indicators or too few indicators could make comparison difficult.
- Ensure that all farmers understand the indicators and that there is agreement on those to be used.
- Ensure that all farmers in the learning group participate.

Combinations of indicators

It is often of little value to compare a single indicator and take action to improve it. Many other efficiency factors could be derived to suit specific needs. It is also important to realize that many of the indicators in most farm businesses are interrelated. The ability to increase profit, for example, depends on production levels, prices received for produce sold and costs of production. Profitability is linked to efficiency and this in turn depends on the wise management and use of inputs and resources.

Improvements in some or all of these areas can make a considerable difference to farm performance. But which indicators are critical for the farm business? The question to ask is: What needs to be done to improve farm performance? It is often found that farm performance is influenced by combinations of factors that should be looked at as part of a system. Indicators should be considered together when diagnosing the problem.

* * *

It is therefore usually wiser to address the broader problem of low profitability by selecting, for example, a combination of indicators that cover productivity, efficiency and other aspects of farm or enterprise performance. Many other indicators could be derived that reflect the problem to be addressed. Because of the multiple causes of a problem, comprehensive strategies that relate to many aspects of the farming system are often necessary to improve farm and enterprise performance.

Notes

Crops – A list of benchmark indicators

BACKGROUND CHARACTERISTICS

General

Possible indicators: climate, land under cultivation, cropping intensity, topography, soil quality, availability of water, irrigation management

Crop characteristics

Possible indicators: crop varieties, quality of seeds, source of seeds, stability of crop rotation, crop calendar

PRODUCTION OPERATIONS

Preplanting

Possible indicators: timing of planting, quality of planting (depth consistency of line) spacing, row spacing, seeding rate

Fertilizer use

Possible indicators: application of fertilizer, type of fertilizer applied, application rate (for each dressing), use of compost, rate of compost use

Weed control

Possible indicators: timing of weeding, frequency of weeding, use of chemical and sprays, application of chemicals per weeding, if weeding was conducted

Pests and diseases

Possible indicators: if pest and disease control conducted, chemicals used, sources of chemicals, rate of application

Irrigation

Possible indicators: form of irrigation, water use per hectare, frequency of irrigation

Notes

Crops, continued

PRODUCTION OPERATIONS, continued

Crop growth

Possible indicators: rate of growth,
quality of growth (uniformity, height, vigour), coverage

Harvest

Possible indicators: timing of harvest,
quality of harvest operations, yield

Machinery

Possible indicators: condition of machinery, condition of equipment,
use of machinery, timing of operations, maintenance of machinery

POST-PRODUCTION OPERATIONS

Post-harvesting

Possible indicators: quality of post harvest handling,
storage practices (if any), quality of packaging

Marketing

Possible indicators: price of produce sold, marketing channel,
marketing margin, form of transport, reliability of transport

Economics

Possible indicators: gross income per hectare, total variable costs per hectare,
labour costs per hectare, machinery operations per hectare, fertilizer costs per hectare,
marketing costs per tonne, gross margin per hectare

Notes

Livestock (Dairy) – A list of benchmark indicators

BACKGROUND CHARACTERISTICS

Herd performance

Possible indicators: general state of herd: average milk yield; stocking rate; calving rate; culling rate; mortality rate

Pasture management

Possible indicators: pasture type and condition, type of rotation, fencing, irrigation, quality of pasture

Fodder management

Possible indicators: type of feeds grown, type of fertilizer used, rate of fertilizer application, frequency of application, timing of fertilizer application, quality of weeding operations, timing of weeding, quality of pest and disease control, quality of fodder growth, timing of fodder harvesting, yield of fodder, quality of fodder

Notes

Livestock, *continued*

HUSBANDRY OPERATIONS

Feeding

Possible indicators: production of silage, quality of silage,
feeding cattle rations, quality of purchased feed,
quantity of concentrates, quality of feed machinery

Breeding

Possible indicators: use of improved breeds, use of artificial insemination

Disease control

Possible indicators: incidence of cattle diseases, type of diseases,
frequency of dipping, frequency of veterinary visits,
effectiveness of vaccination programme

Milking

Possible indicators: form of milking (manual or machine),
state of dairy machinery, frequency of milking, quality of milking operations

Marketing

Possible indicators: price of produce sold, marketing channel,
marketing margin, form of transport, reliability of transport

Economics

Possible indicators: gross income per litre, total variable costs per litre,
labour costs per litre, marketing costs per litre, gross margin per litre

Notes

*Indicators
can be found
that describe
all aspects of
the farming system*

© FAO/21441/A Odoul



Number of weedings – a process indicator for a cabbage enterprise – Nicaragua

© FAO/11974/I Bara



Checking egg quality – a marketing indicator for a poultry enterprise – Bangladesh

© FAO/21647/J Spaull



Number of cows – a production indicator for livestock – South Africa

Selecting indicators

Successful benchmarking relies on selecting indicators that are most appropriate for the comparison being made. Too many indicators will make the comparison difficult and time consuming. Too few indicators will not give sufficient information to help the farmers make decisions about ways to improve their performance. Following are two useful guidelines.

Priority indicators. Indicators can be prioritized or ranked according to their contribution to farm and enterprise profitability. A small improvement in the indicators should result in a significant improvement in profitability.

Controllable indicators. Some indicators fall outside of the control of the farmer's influence. Thus, it is useful to divide indicators between those that can be affected by better management and those that cannot. It would not be worthwhile to collect data on indicators of which little can be done to improve performance.

Deciding on indicators is not simple but it is a task of the utmost importance. The indicators should reflect the most critical problem of the farm business that prevents it from performing better. It should be possible to look comprehensively at all aspects of the farm to arrive at indicators that appear to be the most important. Taking a view of the whole farm and examining the complete range of possibilities without doubt can be time consuming. A more practical way is to list those aspects of the farm business that have a critical influence on the bottom line – farm profitability.

MORE INFORMATION

BENCHMARKING MEASURES AND INDICATORS

Indicators can be found at all levels of the farm system. A full benchmarking analysis could follow a sequence that starts with a diagnosis of the performance of the farm as a whole and from there to move on to an examination of the performance of the individual enterprises of the farm. This breaks down the problem of diagnosis. It initially looks at the 'big picture' and moves to more detailed investigation of the individual enterprise and its parts.

A. General indicators

The farm and its environment: These indicators provide the context of the farming system and general indicators of the farm. More specifically indicators could include:

- Climate, topography, soil quality
- Roads, communications, energy
- Land tenure and methods of land acquisition
- Farm area
- Plot sizes
- Distances from the homestead
- Soil quality

- Availability of water
- Management of irrigation.
- Conditions of buildings, implements, equipment and machinery.
- Use and maintenance of machinery

Household level: Household indicators are also important in that they affect the overall level of farm household income. While household indicators focus largely on non-farm activities they have an impact on the overall performance of the farm as they influence productivity and financial decisions. The indicators include, among others:

- Family size
- Number of household members
- Age structure of family labour
- Division of labour between family and hired labour
- Division of labour between gender
- Division of labour between age
- Social commitments
- Family health
- Literacy of adults
- Debt repayment capacity;
- Income per household member;

B. Volume of business, level of production, costs and marketing indicators

The performance of the farm business includes indicators that relate to the volume or scope of the business, the level of production, farm and enterprise profitability and economic and technical efficiency.

Volume of business. The volume of business can be measured by physical and financial indicators. The physical indicators include the area of land under production and the number of livestock kept. The financial volume of business includes indicators that measure the value of capital assets, for example buildings, machinery and equipment which serve the whole farm.

Notes

Notes

Indicators include the following:

Physical indicators:

- Number of enterprises
- Number of head of livestock
- Area of land
- Area of land under cultivation
- Area of individual crops or mixtures
- Area of land under irrigation
- Number of trees and age
- Number of draught animals
- Number of family labour
- Number of hired labour
- Total person days
- Size, quantity and capacity of capital items

Financial indicators:

- Total fixed capital value
- Amount of working capital requirements
- Value of fixed capital per hectare
- Value of fixed capital per labour unit
- Value of irrigation equipment per hectare
- Value of field equipment per hectare
- Value of storage facilities

Level and costs of production, sales and input supply:

The level of production includes the basic data used to measure the agricultural productivity of the farm enterprises. Information about prices, supply, demand, buyers and sellers, sources of suppliers, prices and quality of inputs available to the farmers in the learning group. Farmers have to adapt their production to the demand from the market. As such they are influenced by the prices received for products sold. Some of the indicators that can be used to measure the performance of farm enterprises as they relate to marketing include: Indicators include:

Notes

- Total level of production
- Amount of yield harvested
- Amount of spoilage
- Amount of production consumed by the family
- Amount of production stored
- Amount of production used as seed
- Amount of production used as livestock feed
- Amount of production sold

- marketing channel selected,
- form of transport
- reliability of transport
- market prices attained;
- percentage of post harvest loss
- the quality of harvested produce;
- level of marketing costs;
- marketing costs per ton
- price of produce sold,

- Cost of fertilizer
- Cost of seed
- Cost of pesticide
- Cost of herbicide
- Cost of hired labour
- Cost of transport

C. Performance indicators

Profitability: This includes indicators that describe the overall performance of the farm business as a whole as well as individual enterprises that include indicators that describe the individual farm enterprise budgets.

- Total gross farm income;
- Total variable costs;

Notes

- Total fixed costs;
- Total farm profit;
- Total farm gross margin per hectare;
- Total farm gross margin per person day
- Total farm gross margin per \$000 unit of capital;
- Profit per \$000 unit of capital.

When using gross margin as an indicator of profitability, a decision should be taken regarding the resource that is most limiting to the development of the farm business. It must be decided whether to use total gross margin per hectare, total gross margin per person-day or total gross margin per \$ unit of capital.

Farm enterprise profitability:

The more detailed the budgets are, the more effective the indicators are likely to be in identifying causes of problems. Indicators could include:

- Value of production;
- Costs of production;
- Gross margin per hectare;
- Gross margin per person day;
- Gross margin per litre or per kg;
- Total variable costs per hectare, or per litre/ kg;
- Costs of marketing per litre or per kg.
- Costs of production of input items as a percentage of total costs

Efficiency: Indicators can also be selected to measure the efficiency of the farm enterprise. As mentioned earlier indicators of efficiency can be grouped as technical and economic efficiency measures.

Technical efficiency. There are many different technical efficiency measures that can be used. Crop enterprises usually include:

- *Yield per hectare.* Most crops can be assessed on the basis of production per unit of land. The most common

measures for specific crops are kilograms or tons per hectare.

- *Yield per person day*
- *Yield per tree.* Tree crops are usually assessed in terms of average production per tree, for example, tons per tree.
- Fertilizer use per hectare
- Crop yield index
- Cropping intensity

For livestock enterprises, technical efficiency is usually expressed in physical terms such as:

- Birth and death rates for livestock (%)
- Liveweight gain per head
- No. of draught cattle per ha.
- Litres of milk per cow,
- Litres of milk produced per kilogram of feed
- Number of eggs per layer
- Kilograms per broiler
- Number of pigs per litter.

Economic efficiency. Measures of economic efficiency differ from physical measures primarily because they are expressed in monetary terms. Following are some examples of indicators used to measure economic efficiency:

- *Feed cost per kilogram of production gain.* This is used in livestock production and is calculated by dividing the total feed cost for each enterprise by the total kilograms of production. This measure, which is affected by both feed and livestock values, should be compared only with the same type of livestock.
- *Value of crop production per cultivated area.* This value measures the intensity of crop production. It is calculated by dividing the total value of all crops produced during the year by the area under cultivation.
- *Rate of capital turnover.* This is an indication of how efficiently capital is being used in production. It is

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determined by dividing the value of farm production by the total capital used in the business. Higher rates of return mean that it takes fewer years to produce products with a value equal to the capital investment. The rate of capital turnover will vary by farm type. It is an indicator that should be compared only with farms of the same type.

- *Input costs:* These are also efficiency indicators that cover the input costs of production and marketing. Input costs include the cost of materials; seeds, fertilizer, pesticides as well as operations – machinery and labour. In order to make comparisons the costs are brought down to a common unit – per litre, per kilogramme, per hectare, as examples.

D. Technical Practices

These are concerned with field and postharvest operations. They describe the level of inputs used and outputs produced. In many smallholder farms, processes may be carried out in a certain way simply because it is a long-standing practice. Measuring these objectively can be challenging but very rewarding in terms of farm performance.

Crop management

- Crop varieties,
- Type of seeds used
- Quality of seeds,
- Source of seeds,
- Stability of crop rotation
- Crop calendar
- Rate of growth of crop/ livestock
- Quality of growth (uniformity, height, vigour)
- Timing of land preparation
- Preplanting - timing of planting, quality of planting (depth consistency of line) spacing, row spacing, seeding rate
- Fertilizer use - application of fertilizer, type of fertilizer applied, application rate (for each dressing), use of compost, rate of compost use

- Weed control - timing of weeding, frequency of weeding, use of chemical and sprays, application of chemicals per weeding, if weeding was conducted
- Pests and diseases - if pest and disease control conducted,
- chemicals used, sources of chemicals, rate of application
- Irrigation - form of irrigation, water use per hectare, frequency of irrigation
- Timing of harvest, quality of harvest operations, yield
- Post-harvesting - quality of post harvest handling, storage practices (if any), quality of packaging

Livestock management

- Livestock numbers, the age and condition of livestock,
- Herd performance: average milk yield; stocking rate; calving rate; culling rate; mortality rate
- Pasture management: pasture type and condition, type of rotation, fencing, irrigation, quality of pasture
- Fodder management: type of feeds grown, type of fertilizer used, rate of fertilizer application, frequency of application, timing of fertilizer application, quality of weeding operations, timing of weeding, quality of pest and disease control, quality of fodder growth, timing of fodder harvesting, yield of fodder, quality of fodder
- Feeding: production of silage, quality of silage, feeding cattle rations, quality of purchased feed, quantity of concentrates, quality of feed machinery
- Breeding: use of improved breeds, use of artificial insemination
- Disease control: incidence of cattle diseases, type of diseases, frequency of dipping, frequency of veterinary visits, effectiveness of vaccination programme
- Milking: form of milking (manual or machine), state of dairy machinery, frequency of milking, quality of milking operations

* * *

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*Participation of farmers
in defining indicators is important.
The more farmers are involved
the more likely they are to understand
and make use of indicators
for farm management decision-making.
Indicators can be used for ...*

*setting performance targets
and assessing progress
toward achieving them;*

*identifying problems to allow
corrective action to be taken.*

IDENTIFICATION

Step 4 Identify benchmark farms

Notes

I D E N T I F I C A T I O N

Step 4
Identify benchmark farms

When selecting a benchmark farm you should consider identifying lead farmers in the vicinity who are considered to be successful by other farmers, extension workers and others involved.

Selection of the benchmark farm should reflect the basic characteristics of farms in the area. Benchmark farms can be selected on the basis of:

- the *quantity and quality of available resources*, which includes the amount of land of various soil types, amount of labour, capital for variable expenses, the capacity and standard of buildings;
- the *level of technology used on the farm*, which includes both the resource requirements of the various enterprises involved and the level of outputs that are obtained;
- the *level of commercialization and the proportion of produce sold in the market*.

Benchmark farms are relatively easy to locate as most people are well aware of how their neighbours are performing – especially if these farmers are more successful than the average farmer in the vicinity. You could get assistance in identifying successful farmers by inquiring with village leaders and others – such as school teachers, local officials, and other extension workers. Information can also be gathered from local business persons. If such sources single out the same person as a benchmark farmer, then you can be sure you are on the right track. Even if a number of successful farmers are identified, once the same name begins to be repeated consensus is more likely to be reliable.

Once the benchmark farmers have been identified they should be invited to an informal meeting with the learning group. At this meeting mutual topics of interest should be raised for more detailed investigation during the farm visit.

OVERCOMING RESISTANCE

Sometimes successful benchmark farmers may be reluctant to discuss aspects of their farm business with a fear that others will learn their closely-guarded secrets and compete with them.

To overcome this natural resistance, it is helpful if you inform the successful farmer that he or she has been identified by neighbours as successful in a chosen enterprise. This will often appeal to the farmer's pride and arouse interest in contributing to the process.

At this point, the benchmark farmer should be informed that they are being identified to assist their neighbours in improving their farm business performance. This introduces the possibility that the successful farmer will be elevated to the role of 'lead farmer' in the locality

Organised farm visits to the benchmark farm are crucial to enable farmers in the 'learning group' to discuss problems and experiences with lead farmers and also among themselves. This is necessary for effective exchange of information.

You may find it difficult to convince farmers to share experiences about their farm business. Again, you will have to help farmers to see the value of sharing with one another. The information collected should provide benefits to all concerned.

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Tips on Benchmarking

Sometimes successful benchmark farmers may be reluctant to discuss aspects of their farm business with a fear that others will learn their closely-guarded secrets and compete with them.

To overcome this natural resistance, it is helpful if you inform the successful farmer that he or she has been identified by neighbours as successful in a chosen enterprise. This will often appeal to the farmer's pride and arouse interest in contributing to the process.

At this point, the benchmark farmer should be informed that they are being identified to assist their neighbours in improving their farm business performance. This introduces the possibility that the successful farmer will be elevated to the role of 'lead farmer' in the locality.

The organization of the visit to the benchmark farm is an important aspect of the process.

Some guidelines are listed on the following page.

Organizing the farm visit

Pre-visit arrangements. Necessary arrangements should be made well before the field visit. Find out before hand the enterprises being grown on the benchmark farm that you intend to visit. Interview the farmer and ensure that he or she has been fully informed of the purpose of the visit and has the time to participate. Discuss the requirements of the exercise with individual farmers to determine how they will cooperate. Finally, ensure that sufficient transportation will be available, that the needed equipment and materials for the visit are ready, and that arrangements are well in hand for lunches, snacks and drinking water during the visit. To avoid last minute problems, double-check all of these items prior to the day of the visit.

Field visit. Divide the participants into teams of three or four according to their interest. Match the team interests to the relevant benchmark farm. Discuss how the visit should be conducted and decide what role each member should play (i.e. who will be the team facilitator, who will record information and take notes, who will be the main interviewer). Suggest to the group that it might be useful to switch roles in the course of the visit so that each member of a team has the chance to lead in the discussion.

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DATA COLLECTION

Step 5 **Collect comparable** **data and information**

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D A T A C O L L E C T I O N

Step 5

Collect comparable data and information

Benchmarking is based on data and information. Data and information are needed to help farmer groups identify factors that effect performance. Information is needed on the relationship between the inputs used, the production process and the output. This is the basis for identifying the critical areas of interest and the topics that should be covered by the benchmarking exercise.

Data and information

Data are raw numbers and facts such as soil type, yields, prices, costs and quantities. Information is data that is processed in a way that makes it useful. Data and information are crucial as they provide the basis for a successful benchmarking process.

Benchmarking requires that data and information be collected from both the learning group members and 'successful' farmers. This is needed to construct the indicators. The information collected should cover aspects of input provision, production and marketing.

You can obtain information by collecting data first hand from farmers. Some farmers may keep records and this is a valuable source of data. If records are not available, you will have to collect the information by interviewing the benchmark farmer and discussing selected issues.

First of all you should facilitate discussion among the learning group members and try to arrive at an agreement on the measures chosen. For example, previously you may have identified maize and tomato as priority crops for the learning group to compare and analyse performance.

You may have selected gross margin per hectare, yield per hectare, percentage cost of fertilizer from total cost of production and tonnes of fertilizer per hectare as indicators for comparison.

At this step of the benchmarking process data is collected from the farmers in your learning group. Differences between the experiences of different farmers in the group should be discussed to arrive at a common agreement on the results. You will need to help farmers gather data about the performance of their farm and enterprises. Some things to keep in mind are:

- Make sure data collected is reliable and adequate.
- Discuss and list the kinds of information required.
- Ensure that the participants are familiar with the items selected before going to the field.
- Prepare a suitable form to record data collected.
- Participate, encourage and support farmers during data collection.
- Ensure that data is presented in common units to allow comparisons to be made.
- Remember that data provided by those in the learning group should be similar to that collected from the benchmark farm so that meaningful comparisons can be made.

When working with data collected from the study farm(s) or the benchmark farm, care must be taken to ensure the data is reliable and adequate. It is important to verify that there are no other factors that might hide the real situation and that no mistakes were made in recording the data. The information should be organized and calculated in common units to enable comparison of different size farms.

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The actual collection of data itself should last about half a day. Make sure the participants are familiar with the list of questions that you have prepared before visiting the benchmark farm. The data collected could be used to calculate gross margins for selected farm enterprises and identify the reasons for low or high performance.

You would be expected to ensure that the members of your learning group have suitable data collection instruments to record what they observe. It is your responsibility as an extension worker to support your farmers in this process and be of help if needed.

* * *

A CHECKLIST OF QUESTIONS TO ASK FARMERS WHOSE FARMS HAVE BEEN SELECTED

Production

- *What are the main crops grown and livestock reared, including varieties and breeds?*
- *When are the crops harvested?*
- *What are the yields per unit, the prices received and the volume produced?*
- *What are the advantages of these crops or of livestock over others in terms of yield, quality, price, and seasonality?*
- *Is your produce graded? If so, into what grades?*
- *What is the break-even price for each enterprise?*
- *What are the costs of growing, harvesting and transporting the crops or livestock?*
- *What new technologies or practices have you introduced?*
- *Have they been successful?*
- *What are your main production problems?*

* * *

* * *

Input supply and finance

- *How readily available are your inputs and where do you buy them?*
- *Can you receive inputs on credit?*
- *Are the inputs of good quality?*
- *Do you receive technical advice from your input suppliers? Is it good advice?*
- *Do you have the money to pay for these inputs?*
- *Do you have access to credit for working capital and long-term loans?*
- *What are your sources of credit? What types of collateral is required?*

* * *

Marketing

- *How do you market your produce?*
- *Who buys and when?*
- *What are your main markets for the produce sold?*
- *Who are your intermediaries or buyers?*
- *Which buyers have the best reputation?*
- *What prices are paid?*
- *Do you transport produce to the market?*
- *Who provides transport?*
- *What form of transport should be used to get the produce to the market? Is the transport pooled or is produce sent individually?*
- *How much contact do you have with the market?*
- *What is your source of information and how quickly do you get market information on prices, volumes and quality requirements?*

* * *

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Tips on collecting information from the benchmark farm ...**The meeting**

- *Study your checklist of questions* and be completely familiar with it. This will enable you to discuss informally with the farmer without disrupting the flow of conversation.
- *Secure the confidence of the farmer.* Identify yourselves, the purpose of your visit and the importance of his or her cooperation.
- *Suggest a suitable place to meet.* It should be a place free from inconveniences such as direct sunlight or noisy traffic.
- *Be friendly but business-like.* The interest of the farmer depends largely on the way you explain what is wanted. Explain the purpose of the visit in a simple but direct manner and the information that is needed.
- *Be direct.* Questions should be direct and clear. For example, it is better to ask, "What is the area planted with maize last month?" than to ask, "Now, let's see, what about your maize last month?"

Recording information

- *Record and convert later.* Information should be recorded in the unit given by the farmer. Conversion to different units of measure and other calculations must be done later.
- *Devise ways of 'rough checks.'* If the answer given does not seem right in view of other information recorded, you should draw the farmer's attention to this. For example: the area planted with maize, may not tally with the total

area reported previously. The quantity sold may exceed the quantity produced. Use common sense.

- *Never assume an answer.* It is a serious mistake to assume answers without asking them. Just because several cases have been reported uniformly, there is no reason to assume that all cases are the same.
- *Be thorough.* Record all the information needed. By approaching the problem from different angles, it is possible to find some estimates. Example: An estimate of area planted with a crop may be made by assessing the rate of seeding or the distance of planting.
- *Before leaving, go over the data collected and see if all items are covered.*

As an extension worker there are a number of things that you can do to facilitate data collection. You can assist your farmers by setting up a record-keeping system, which should be designed to the needs of individual farmers. You should also be ready to train farmers in record-keeping if need be.

You could also assist in collecting data on the profitability of the farm enterprises in your area as well as some of the issues that farmers are facing even before conducting a benchmarking exercise. This data can be collected from discussions with other farmers outside the learning group.

As an extension worker you should also be in the position to collect data and information on marketing. For instance, to identify local buyers for crops and livestock products and find out what prices they are paying while enquiring about the terms and conditions of transactions. You could also gather information about regional or urban markets situated at a distance from your locality.

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Care should be made that only vital information required by the farmer is collected and recorded. The following principles could guide you in designing a system. Records should be:

- appropriate;
- accurate;
- filled in as soon as possible after the activity;
- neatly written and kept;
- complete by not leaving out any information;
- simple to follow;
- easy to keep and retrieve information;
- easy to analyze.

Type of data needed
to construct a gross margin ...

- list of field operations and their timing;
- inputs and materials used in producing the enterprise;
- list of local suppliers of inputs and materials;
- quality and cost of input items;
- amount of family labour used;
- level of production;
- quantity of produce consumed;
- list of market outlets;
- prices of produce sold at different times of the year.

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Tips for preparing gross margins by consensus

Objective

The intention is to construct a ‘typical’ gross margin budget that reflects those found among the farmers in the learning group. This can be used as a standard for comparison with the benchmark farm.

Procedure

Select about five farmers as ‘key informants’, chosen on the basis of their experience in growing the same crop on a similar land size and using a similar technology. These farmers should be well informed with good technical knowledge of the crop cultivation practices. Gross margins should be constructed based on consensus between the key informants on production levels, technologies used, inputs and materials, and levels of costs and prices. Consensus should be reached even though individual farmers may vary in the husbandry techniques used. Your role is to facilitate the group discussions, contribute technically and keep discussion on track.

The gross margin could be used as a ‘template’ for comparison against a budget that is prepared from the data collected on the benchmark farm.

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MORE INFORMATION

Data is needed not only on production issues but on management and marketing as well. One of the challenges of data gathering is that farmers' circumstances are not static and frequent changes that occur in and around a farm influence farming operations. As an example, price variations and relative price changes might lead to changes in farm enterprise combinations as well as in the use of resources and management practices. Such changes require a review of the farm business.

For **inputs**, farmers may need to know ...

- *What inputs are available and which are the most appropriate to use?*
- *Who are the reliable suppliers?*
- *Where can credit be obtained?*
- *What is the cost of inputs bought?*

For **production**, farmers may need to know ...

- *What resources do they have available and what is their condition?*
- *What crops or enterprises are best suited to their resources?*
- *What skills are needed for each productive activity?*
- *What inputs and labour are required for each productive activity?*
- *What technologies are most appropriate for their resources?*

For **marketing**, farmers may need to know ...

- *What markets exist?*
- *What products are in demand and represent opportunities to compete?*
- *Where can they sell their products?*

- *What are the quality requirements?*
- *What are the packaging and related requirements?*
- *How can they get their products to the various markets and what will this cost?*
- *What prices can they expect for their products?*

Each of these questions can generate a great deal of data and information. Successful benchmarking depends on good, reliable and relevant information.

The data required for a farm enterprise analysis is easier to collect than that needed for a whole farm analysis. The level of data requirements for the farm enterprise is of course more basic. Farmers may need assistance in obtaining information on farm enterprise profitability and the technical processes of growing the crop or rearing livestock.

Data collected through the learning group on topics for benchmarking can best be carried out by participatory, group approaches. Much of the basic information required for benchmarking can be collected quite effectively on a group basis.

*Three forms of data collection
and information generation that can be used*

Observation. Data and information can be collected simply by observation. For example, by observing how the benchmark farmer plants crops or rears livestock or how the farm area is laid out can provide an important insight.

Interviews. This method requires careful questioning. A list can be drawn up in advance of the interview with the selected benchmark farmer. The checklist has to be thought out carefully to ensure that questions are relevant and useful and can guide the learning group to better understand the 'good' practices.

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Key-informant interviews. This method lies at the core of the benchmarking exercise and refers to interviews with benchmark farmers and other knowledgeable persons. Discussing with key-informants provides an excellent opportunity to identify successful farmers in the area.

When working with data collected from the study farm(s) or the benchmark farm, care must be taken to ensure that the data is reliable and adequate. It is important to verify that there are no other factors that might hide the real situation and that no mistakes were made in recording the data.

The information should be organized and calculated in common units to enable comparison of different size farms. Crop yields are usually expressed on a per hectare basis, as are labour and other inputs, which is a convenient way of relating inputs to outputs.

Farm records

Keeping records is part of good farm management and record-keeping is the process by which this kind of data is systematically collected, organized and saved so that it can be used, put together in different ways and then analysed – thus turning data into information. Well kept and accurate farm records can play an important part in the benchmarking process.

Records are important to capture past production and market information and understand farm performance better. For example crop yields, livestock production and cost information generated from farm records provide an account of what has been achieved by the farm business. Records can also assist farmers in monitoring and evaluating over the course of the year.

Simplicity is the key to record-keeping. It should be practical and easy, so it does not take up too much time. This requires commitment, consistency, self-discipline and regularity. There are many simple methods that have

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Farmers interviewing at a successful rice enterprise - Burkina Faso

*The importance
of good record
keeping can
never be stressed
too highly*

© FAO/14187/R Faidutti



An extension worker and farmers discussing possible farms to visit – Yemen

*Data can be
collected through
interviews with
farmers or
key informants ...*

© FAO/22855/G Diana



Women, part of a small-scale cooperative, filling out farm records – Bangladesh

*... as well as
by using
farm records*

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been devised for farmers to keep records even though they may not be literate. Various types of farm records can be introduced for literate, semi-literate and illiterate farmers using pictures and symbols.

Care should be taken that only the really vital information required by the farmer is collected. One of the main purposes of record-keeping is to improve farm performance and so there is no value in spending time on records and calculations of profit and production in individual activities, if no use is made of them. All of the results should be compared with indicators as discussed in the previous chapter.

Farmers need to be given an incentive to keep farm records. Motivation can come from you enabling farmers to understand that by keeping farm records, income and profit improvements can be achieved.

*Records can be collected in two forms ...
physical and financial*

Physical records. These records cover the main farm productive activities: crop, livestock and household based food processing. They are used to produce specific kinds of information that relate to the quantities of inputs used and outputs obtained.

Financial records. These are used to evaluate the financial performance of either an individual productive activity or the whole farm. They are also used for cash flow analysis. Financial records help the farmer to know how well individual activities perform and contribute to overall farm profit at the end of the season or production cycle. Financial records include the main cash transactions on the farm: sales, purchases and money borrowed.

RECORD-KEEPING

Background and farm information

This information should be collected only once per production cycle of the farm enterprise.

Farm inputs

Indicates the inputs applied to the enterprise. This should be collected every time an input (with the exception of labour) is applied.

Labour

Indicates by date and day, the operations undertaken on a farm enterprise and the cost of labour engaged to perform them. This should be collected every time labour is used in a field operation.

Production and sales

Used to estimate and calculate the level of production and its value. This should be collected at the end of the production cycle of the farm enterprise.

Products and inputs that are not sold or bought

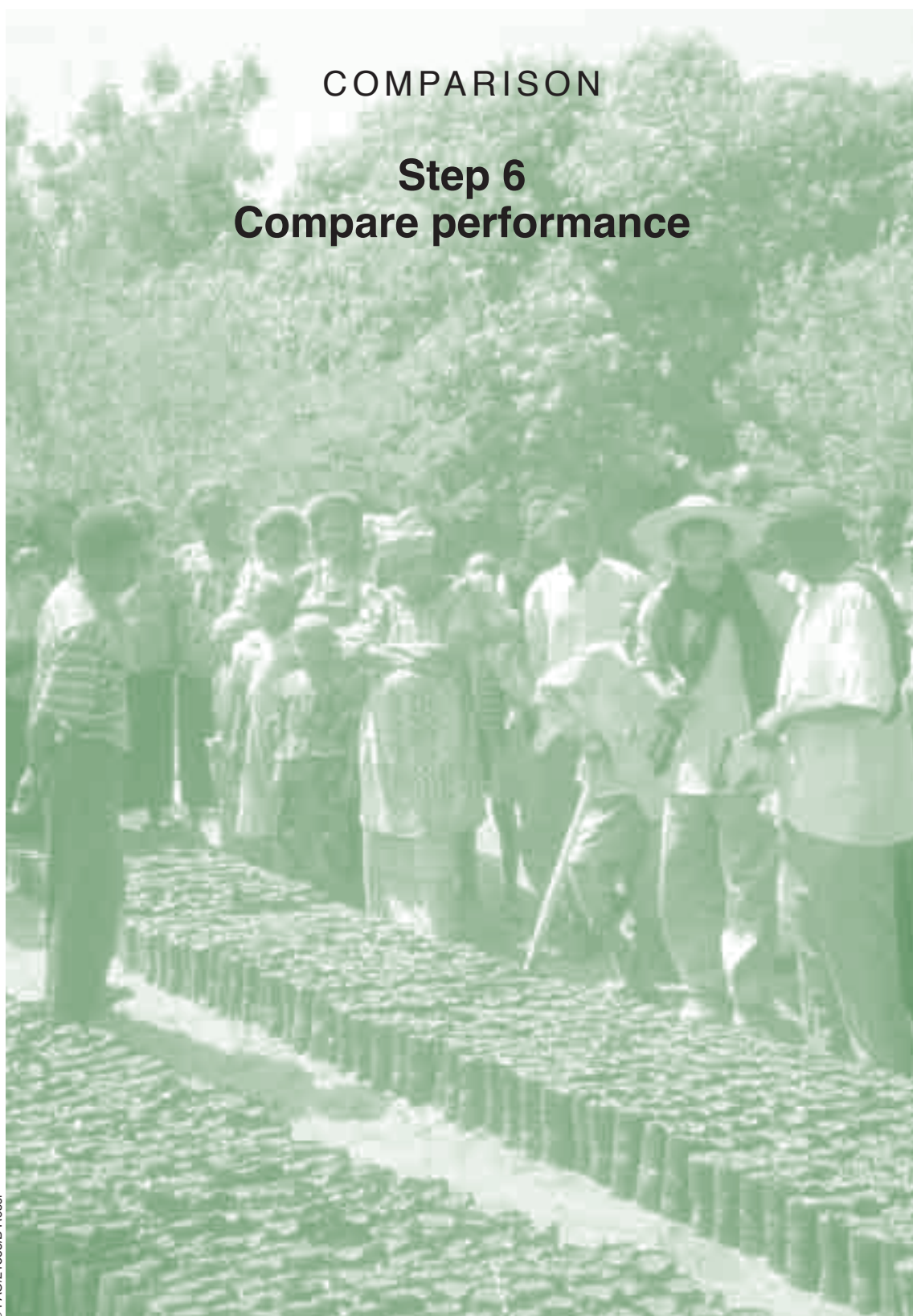
Gives information on the value of outputs consumed or stored on the farm and the cost of inputs that are not purchased. This also should be collected at the end of the production cycle of the enterprise.

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COMPARISON

Step 6 Compare performance



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C O M P A R I S O N

Step 6
Compare performance

This step requires that the learning group compares their performance against that of the benchmark farm and identifies differences (gaps). These differences can suggest weaknesses within the farming system and its parts and the reasons for them. Performance comparisons lead to a better understanding of the problem and these in turn can lead to finding solutions and opportunities for improvement.

Key areas of comparison are:

- physical and financial performance measures;
- gross margin performance of the enterprises;
- yields and selling prices;
- quantities of variable inputs used;
- total fixed costs;
- overall profitability of the farm;
- technical and management aspects of production and marketing.

As the facilitator of this process you will be expected to assist the farmers in preparing comparative data and information. As mentioned previously, comparisons can be made of the whole farm business as well as individual enterprises. During this process ensure that there is a good basis for comparisons to be made. In order to do this you may have to calculate the gross margin or enterprise profit of the benchmark farm for comparative purposes. You should encourage the group to share the data that they collected among themselves, facilitate discussion and highlight the gaps and areas where improvements can be made. Cover all aspects and make sure that all farmers understand the comparative results.

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Examples of a format for data comparisons

The two following formats are examples showing how to fill-in a data comparison inventory sheet. The categories and areas listed are taken from the basic indicators outlined earlier in Step 3. The enterprises used here are ‘Cotton’ and ‘Dairy’ for crop and livestock entries. A blank format to be used for data comparisons is also included.

Crop inventory

Cotton

(list crop)

Background characteristics

Indicators	Benchmark farm	Actual farm
General information		
Climate		
Topography		
Soil quality		
Availability of water		
Irrigation		

Crop characteristics

Crop varieties		
Quality of seeds		
Source of seeds		
Rotation stability		
Crop calendar		

Livestock inventory

Dairy (7 cows)

(list numbers and types of livestock)

Background characteristics

Indicators	Benchmark farm	Actual farm
------------	----------------	-------------

Herd performance

State of herd		
Average milk yield		
Calving rate		
Culling rate		

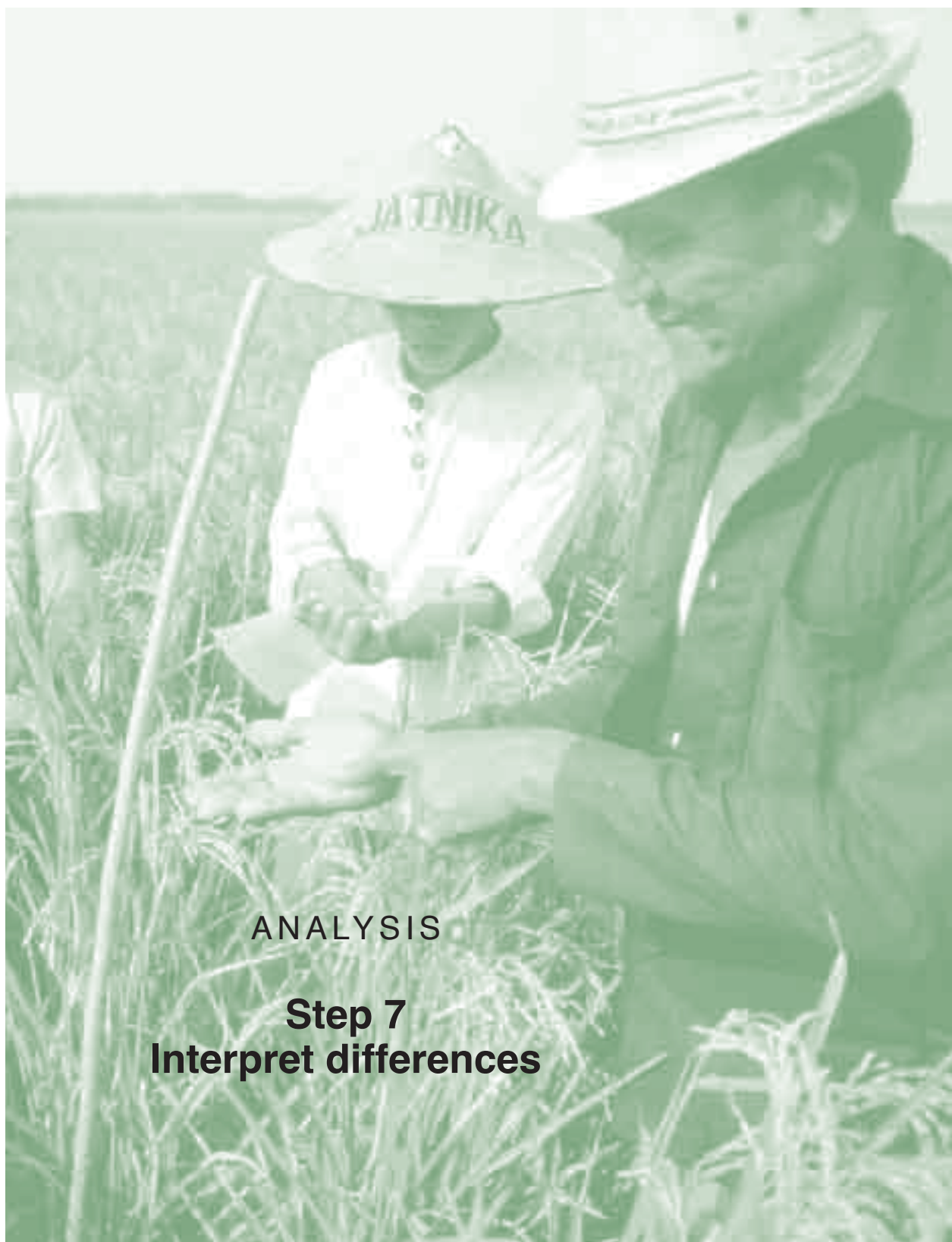
Fodder management

Type grown		
Type of fertilizer used		
Quality of fodder		
Yield of fodder		

Milking

Manual or machine		
State of dairy		
Frequency		
Milking quality		

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ANALYSIS

Step 7 **Interpret differences**

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A N A L Y S I S

Step 7
Interpret differences

Here you should be able to diagnose the difference in performance at the farm level or at the enterprise level. This is the most creative step in the benchmarking process and involves investigation of the root causes of a problem. It requires that you look beyond the obvious and at greater depth, seeing the whole picture.

Together with the group, you should be able to trace the causes of the performance gaps identified. For this you will need diagnostic skills. A creative extension worker could also use participatory methods to help farmers analyse why there are gaps between their farms or enterprises and those of the benchmark farmers.

The process of performance comparison requires that the organized data and information collected from the farms being compared are examined side-by-side. Care must be taken that the data and information being used covers the same performance measures. The two basic comparisons to be made are either the whole farm or the individual enterprise.

In most cases, low performance in comparison to the benchmark will require a combination of actions to be taken. Farming systems are integrated systems – changing one part usually impacts on another. Therefore, farmers must be prepared to implement all necessary actions at the same time. To guard against making too many changes, you will need to identify those measures, gaps, causes and solutions that show the greatest or most significant impact on the performance and profitability of the farm.

Tips for identifying root causes and gaps in performance ...

- Do not criticize the farmer's behaviour or farm management choices.
- Recognize that most farmers have 'rational' reasons for farming the way they do.
- Farmers can be very defensive about why they do things the way they do; create a 'safe' space for the farmers to share their stories.
- Remember to look for root causes; do not stop at identifying a symptom.

It is only when these causes have been identified, that other farmers will be in the position to make decisions about how to improve their farm performance.

A brief report should be prepared by the learning group with the aim being to describe the farming system, calculate the gross margins for the benchmarking enterprises, compare and interpret results and identify problems, solutions and proposed actions.

Take care during this step!

As farmers see the differences, they may become defensive about their own practices. However, do not engage in debates. First make the comparisons and identify the differences. Then 'digging' discussions can be held to explain reasons.

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QUESTIONS TO ASSIST IN ROOT CAUSE IDENTIFICATION

Product price

*Why is the farmer getting better prices
for his produce than he used to?*

*Is the benefit because of better packaging?
Or is it because of the quality of the product?*

Although farmers may or may not have any direct influence on the prices of products, they could identify performance and management gaps that do impact on price.

Yield

Why are the yields so high?

Begin to identify reasons for good performance. When a farmer is faced with a variety of possible causes, it is useful to check every aspect of the production programme. This would include quality of inputs purchased, planting times, weeding, fertilizing, pest control or harvesting times – in short any aspect of the production programme that may contribute to low yields. These may include, for example, unsuitable soils, insufficient rainfall, the level of fertilizer applied, labour efficiency, lack of the required farming skills or input costs.

Labour efficiency

Does the farmer use too much labour per hectare?

Is this an issue of productivity management?

Is it a health issue?

Input costs

*Is the farmer paying much less for inputs
(\$ per unit) than other farmers in the area? Why?*

* * *

MORE INFORMATION

SIMPLE BENCHMARKING EXAMPLE

Farm Enterprise Comparison

Instead of looking at the whole farm, a benchmark exercise can be conducted on a specific enterprise of the farm. Because it is more focused, performance can be looked at in greater detail. More specific measures can be used to identify the gaps. These will, in turn, lead to very specific actions that can be taken to improve farm performance. This is particularly useful for analysing technical and economic efficiency. It should be pointed out, however, that when conducting a performance benchmark exercise of a farm enterprise, gross margin analysis alone may be insufficient to trace the cause of low profits.

The following is an example showing how performance gaps can be found by comparing the profitability of the same enterprise on two farms: a benchmark farm and an actual farm. In both cases the farmers grow cotton. Similarly to the whole farm comparison, a farm enterprise can be compared at different levels of investigation.

An example of enterprise gross margin

The farmer concerned heard over the radio that the prices of cotton increased from \$1.00 per kilogram to \$1.20 per kilogram. The farmer contacted the extension worker and asked for help in examining the reasons why he was getting such a low price. The extension worker worked with the farmer to develop a farm enterprise benchmark. Gross margin analysis was used to examine its profitability. The results of the benchmarking comparisons are illustrated in the next table.

The process of investigation was to compare the overall gross margin per hectare. In this example the

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benchmark farm has a 46 percent greater gross margin per hectare. The gross margin can be divided into two parts: gross income and variable costs. The example shows that the gross income of the farmer is 40 percent lower than the benchmark farm. The gross income can be broken down even further into its price per kilogram and yield in kilograms and each part can be compared separately. The overall level of variable costs can also be broken down into each of the inputs and materials used and their costs.

The farmer learned that his yields are lower as is the price he gets for produce sold. He also found that he uses too many inputs. Labour and fertilizer application was much higher than the benchmark farm and some of the costs of materials purchased (chemicals and seed) were also higher.

The farmer was very impressed with what he had learned through benchmarking his cotton enterprise and decided to extend the exercise further to include other indicators that measure the performance of the overall farming system. While cotton is the main cash crop the farmer also grows others.

From the benchmarking analysis of the cotton enterprise the main factors that affect farm performance were identified as:

- product price;
- yield;
- fertilizer programme;
- labour efficiency;
- input costs.

Having identified these five factors, the next step was to dig deeper into the farmer's system to see what the causes of these gaps are. It is only when the root causes have been identified that the farmer can make a decision about how to improve farm performance.

An enterprise gross margin benchmark

Item	Benchmark farm		Actual farm	
Income				
Yield (kg)		2 500.00		1 800.00
Price/kg (\$)		1.20		1.00
Gross income (\$)		\$3 000.00		\$1 800.00
Variable costs				
Labour	2 hr/ha x \$15.00hr	30.00	3 hr/ha x \$15.00hr	45.00
Seed	10 kg/ha x \$4/kg	40.00	10kg/ha x \$5/kg	50.00
Fertilizer	80 kg/ha x \$0.6kg	48.00	60 kg/ha x \$0.7kg	42.00
Other chemicals	20 litres/ha x \$10/ha	200.00	20 litres/ha x \$11/ha	220.00
Packing		5.00		4.00
Transport		10.00		7.00
Total (\$)		333.00		368.00
Gross margin (\$)		\$2 667.00	\$1 432.00	

Cotton farm analysis: digging for gaps and causes

Initial examination of these figures shows that gross income, variable costs and gross margin per hectare are below the benchmark figures.

- Gross income:** 40% lower than the benchmark
- Variable costs:** 10% higher than the benchmark
- Gross margin:** 46% lower than the benchmark

Gross income: A closer look shows that the low gross income is the result of a low yield (28% lower than the benchmark) and a lower price (17% lower than the benchmark).

Variable costs: A breakdown of variable costs shows the following:

- Labour:** The study farm uses 50% more labour per hectare than the benchmark.
- Seed:** The same quantity of seed is used, but the study farm pays 25% more for seed.
- Fertilizer:** The study farm uses 25% less fertilizer, but pays 14% more for it. This is with a yield that is 40% lower than the benchmark.
- Chemicals:** The study farm pays 9% more for the same amount of chemicals.

It is sometimes useful to compare performance indicators to help isolate the most urgent or significant issues.
The next table shows a comparison of indicators.

Notes

Product price. *Why is the farmer receiving less for cotton than the benchmark farm? Is this a packaging issue? Or is it a quality issue?* The farmer, who may or may not have any direct influence on the price of cotton, should identify those performance and management gaps that do impact on price.

Yield. *Why are the yields lower than the benchmark? Is it because of the limited use of fertilizer? The benchmark analysis seems to point to this as a strong possibility. Is it also linked to the use of pesticides?* When a farmer is faced with a variety of possible causes, it is useful to do a problem analysis and test every aspect of the production programme. This would include items such as quality of inputs purchased, planting times, weeding, fertilizing, pest control, harvesting times – in short any aspect of the production programme that may contribute to low yields.

Labour efficiency. *Why does the farmer use so much more labour per hectare than the benchmark? Is this an issue of productivity management? Is it a health issue?*

Fertilizer programme. The benchmark analysis indicates that this could be a cause of low yields.

Input costs. The farmer is paying much more for inputs (\$ per unit) than the benchmark. *Why?* Again a problem analysis may be helpful to identify the root causes.

Once the root causes are clearly and correctly identified as causes and not symptoms, the farmer, with support from the extension worker, will have the difficult task of developing the actions necessary. Some of these actions will be technical in nature, such as using different seed varieties, different chemicals, different production programmes and including pest management and fertilization. Some of the actions will be managerial, such as better management of labour, better handling of products en route to market, better packaging, better timing of sales and storage.

WHOLE FARM COMPARISON EXAMPLE

A comparison of gross margin and profit for the farm as a whole is a useful starting point to understand the performance of the farm business. If it is discovered that profits are low, the diagnosis could point to two possibilities: high fixed costs or low gross margin for the whole farm.

High fixed costs. If data has been gathered regarding the organization of fixed costs on the benchmark farm, some lessons can be learned about alternatives. For example, study farms may be using storage facilities inefficiently when compared with the benchmark farm. Perhaps the benchmark farm has fewer fixed assets burdening the farm. The study farm may want to sell or lease out unused or underutilized assets.

Low gross margin. If the total gross margin of a farm is low, the faults may be traced to one of two causes:

- Low gross margin per hectare or per unit of output of some of the farm enterprises. This may in turn result from low yields or high variable costs. In order to improve gross margins there may be a need to increase yields and reduce costs.
- The farming system may consist of low-value farm enterprises that are too extensive. It may be necessary to introduce high-value crops or livestock.

If a problem of low profitability can be traced to low yields, the farmer can investigate whether this is a result of technical inefficiency, lack of farm resources, or a mismatch of the resources used to grow the crop or raise livestock. If inadequate resources are employed, the farmer would do well to extend the area of land under cultivation or alternatively, increase labour supply, expand livestock, or obtain more capital. If the resource base cannot be increased, then fixed costs should be carefully evaluated. If production levels are satisfactory, low profitability may be traced to low prices attained for produce sold or high costs for purchased inputs used.

Notes

Notes

An example of whole farm benchmarking, illustrating a case of three neighbouring farms, is shown on the next two pages. It outlines the steps taken to identify a performance gap, discover the root cause, and make plans to fill the gap and improve farm profitability.

However, the performance gaps of a farm very often have more than a single cause. Farmers should identify all of the root causes. They may want to prioritize the causes depending on the importance of the contribution each makes to overall farm profit.

Gaps and causes

Three neighbouring farmers each have 5 hectares on which they produce rice, coffee, beans and maize. They have recently learned that the benchmark profit for a similar farm is \$613. They discussed this situation with their extension worker, who used the gross margin tool to analyse the performance of their farms. The extension worker helped them to create a benchmark based on their knowledge of the best performing farmer in a similar situation in order to compare their three farms with the benchmark. From this analysis, the farmers learned that they each had different causes for falling below the benchmark. The results are shown below.

Profit: Net farm income (\$)

	Benchmark	Farmer 1	Farmer 2	Farmer 3
Profit	\$613	\$224	\$526	\$513
Cause		Low productivity	Low intensity	High fixed costs

Details of whole farm gross margins

	Benchmark	Low productivity	Low intensity	High fixed costs
Rice	2.5 ha x \$220 per ha = \$550	2.5 ha x \$110 per ha = \$275	3.0 ha x \$180 per ha = \$540	2.5 ha x \$220 per ha = \$550
Coffee	0.8 ha x \$350 per ha = \$280	0.8 ha x \$300 per ha = \$240	0.8 ha x \$300 per ha = \$240	0.8 ha x \$350 per ha = \$280
Bean	0.5 ha x \$170 per ha = \$85	0.5 ha x \$70 per ha = \$35	0.5 ha x \$150 per ha = \$75	0.5 ha x \$170 per ha = \$85
Maize	1.2 ha x \$40 per ha = \$48	1.2 ha x \$20 per ha = \$24	0.7 ha x \$30 per ha = \$21	1.2 ha x \$40 per ha = \$48
Total gross margin	5.0 ha = \$963	5.0 ha = \$574	5.0 ha = \$876	5.0 ha = \$963
Fixed costs	5.0 ha x \$70 per ha = \$350	5.0 ha x \$70 per ha = \$350	5.0 ha x \$70 per ha = \$350	5.0 ha x \$90 per ha = \$450
Profit	\$613	\$224	\$526	\$513

Problem analysis results

The extension worker then helped each farmer to analyse the problem a little deeper to find the root cause of low profits compared with the benchmark.

The results were as follows:

Farmer 1. The yields of rice, beans and maize (and to a lesser extent coffee) were lower than the benchmark. The low yields (low productivity) were caused by poor soil fertility, a high incidence of pests and poor soil drainage. (This resulted in a low gross margin, which resulted in low profits.)

Farmer 2. The yields of rice, beans and maize are slightly lower than those of the benchmark farm. The low yields suggest a low intensity farming system, reflected by the use of less purchased inputs and capital intensive technologies. This resulted in a lower gross margin and profit in comparison to the benchmark farm.

Farmer 3. Yields were comparable to the benchmark, but fixed costs were much higher than the benchmark. The analysis indicated that permanent labour was underutilized and fencing was repaired instead of replaced. (The gross margin was 'eaten up' by the fixed costs, which resulted in low profits.)

What to do

A number of strategies were formulated.

Cause of low profits and proposed actions

Farmer 1 (Low productivity). Increase crop yields by improving soil fertility, addressing problems of drainage and reducing the incidence of crop diseases through better pest management.

Farmer 2 (Low intensity). Introduce new technologies and improved farm practices aimed at intensifying the farming system. Introduce new farm enterprises as part of a diversification process aimed at increasing on-farm income.

Farmer 3 (High fixed costs). Decrease the amount of permanent labour or increase their productivity by reducing the amount of hired labour. Be more cautious of the relative value of repairs and replacement of assets.

Notes



SHARING

Step 8
Share findings
and results

Notes

S H A R I N G

Step 8
Share findings and results

A key to learning is sharing findings and results. Information should be fed back to farmers soon after the benchmarking exercise is conducted. The timely feedback of information ensures that the lessons learned are consistent and well understood. The usefulness of the study will be improved if the results can be easily translated into action. Timeliness of communication is an important factor to ensure that the momentum is maintained.

The results should be discussed with members of the learning group as well as other farmers located in the vicinity. Farmers’ group meetings and discussions of results are of great importance in maximizing the use of the data that has been collected and analysed. The results of this analysis should form a vital component of any future learning group meetings.

Special attention should be given to the presentation of the results. Effective communication of benchmark findings is needed for the learning group to appreciate and understand the results. Farmers require information that is brief and clearly presented. As the facilitator you need to know how to communicate the findings of the benchmarking study to group members as well as other farmers in your vicinity in a way that the information can be easily understood. You should have the ability to turn data into information that can be effectively communicated to farmers. You should also encourage the team leaders and group members to share their experiences and present their results. Information should be presented both verbally and visually. Visual presentation of information using bar graphs or pie charts often conveys a message more effectively than the written or spoken word.

Essential questions ...

- Who is the information for?
- What is the most appropriate time to present the information?
- In what form should it be given?

It is your responsibility to make sure that the information generated is relevant and easily accessible to farmers in a timely manner.

Notes

Tips for presenting the findings ...

- To whom is the presentation to be made?
- How receptive are they likely to be?
- How much time will be available?
- Should the presentation be made verbally or graphically?
- Are graphic presentations likely to make the results more easily understood?
- Is the presentation being prepared with the participation of group members?
- Have the results been adequately discussed with the other members of the learning group?

PowerPoint slides, overhead transparencies and flip charts could be used to summarize the main points of the reports prepared. The presentation should be made to all members of the learning group as well as to other farmers and those with similar interests.

As a general guideline for visual presentations the following considerations should be kept in mind:

- The layout should be simple and clear.
- Diagrams, charts and graphics are particularly useful in focusing interest and aiding understanding.
- All headings of graphs and tables must be clear.

Notes

While there is a significant role for you to share and disseminate information, you have an equally important role to foster the practice and skill of open discussion and sharing of information within the learning group. In this way the learning process is complete.

**Sharing and communicating results ...
Tips for presenting the findings ...**

- Ensure that the information is well presented and easily understood.
- Disseminate and share the results with all farmers in the learning group and others.
- Make sure that there is a strong two-way communication.
- Prepare clear practical recommendations for the learning group members.

PRESENTING THE RESULTS

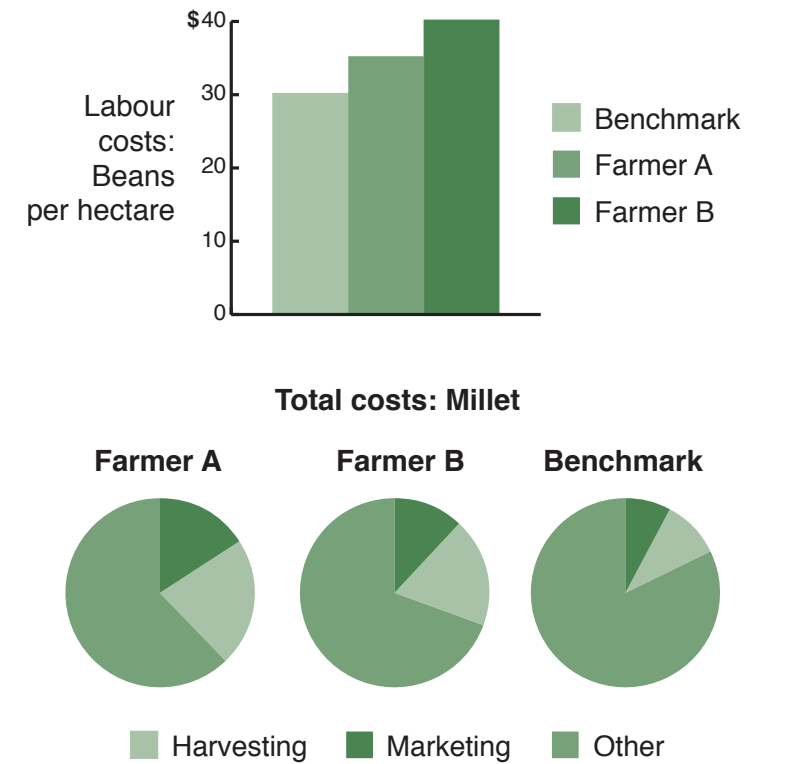
The examples on the following page show the use of both a bar chart and pie charts to illustrate the results of a benchmarking exercise. It is important to remember, however, that many people have difficulty in using charts to compare results. Visuals should only be used when the presenter is confident that it actually enhances the presentation. Graphics that have been prepared by the farmers themselves usually ensure that there is clarity in understanding of the information being presented. The graphics can be made to be more effective if they are printed or presented in colour.

Here both bar and pie charts have been used to compare the difference in costs between the benchmark farm and those of the other two farms. The graphics clearly show that both farmers spend more money on labour to grow beans in comparison to the benchmark farm.

An example of a benchmarking comparison

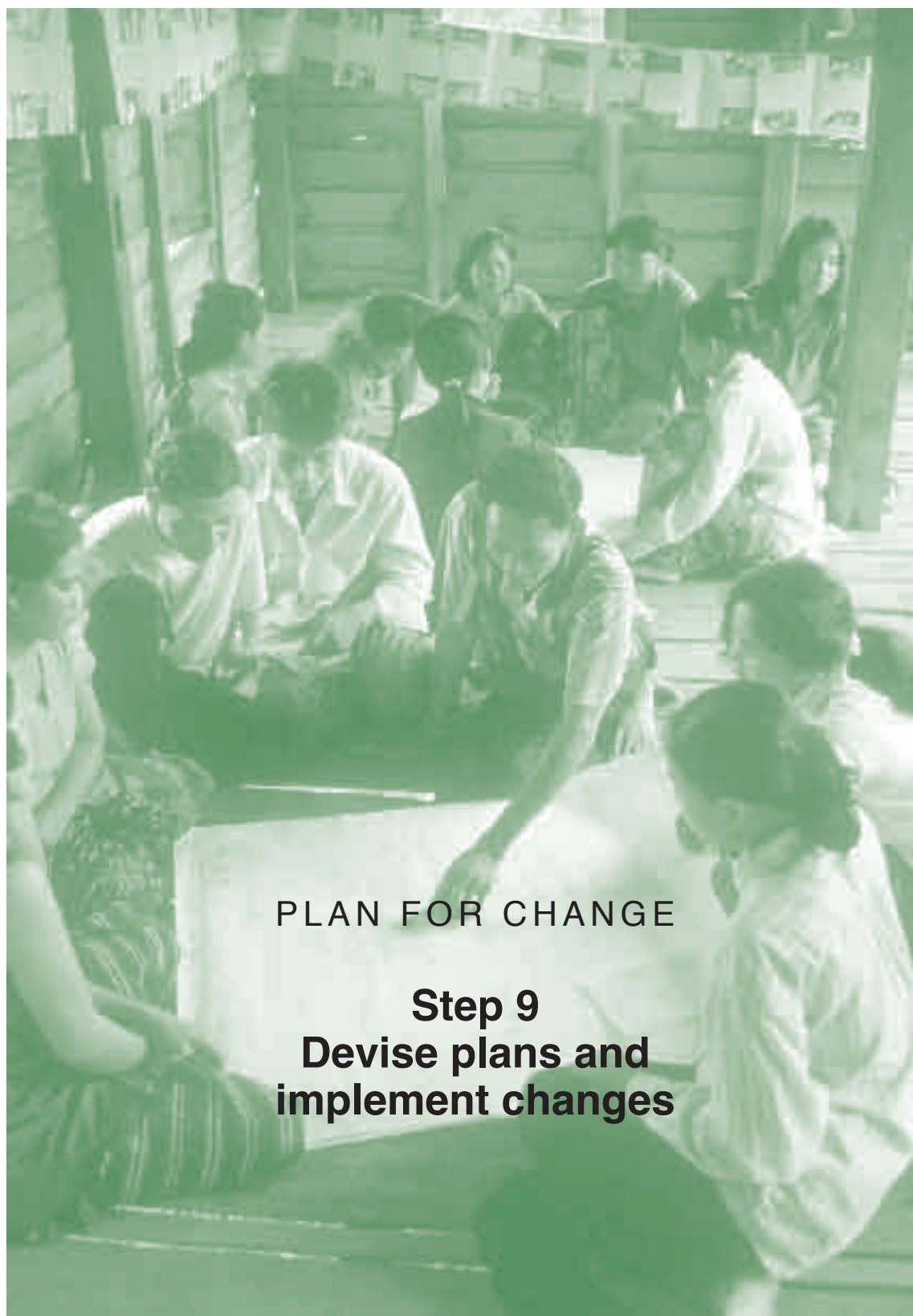
An extension worker takes his learning group to the farm which has been selected as a benchmark. The data that is collected is carefully compared to two of the ‘learning group’ farmers: Farmer A and Farmer B. They learn that the benchmark farm has a lower percentage of harvesting and marketing costs for millet than either of their two farms. They also learn that neither are very efficient in using labour for bean production. The extension worker decides to make a chart to show the comparison with the benchmark farm.

*It is often said
that ‘a picture
is worth a
thousand words’*



The graphics above clearly show in pictorial form that Farmer A and Farmer B both spend more money on labour to grow beans in comparison to the benchmark farm. The total costs of marketing and harvesting are also greater than that of the benchmark.

Notes



PLAN FOR CHANGE

Step 9 **Devise plans and** **implement changes**

Notes

P L A N F O R C H A N G E

Step 9
Devise plans and implement changes

The purpose of identifying performance gaps and causes is to introduce actions that improve farm performance and profitability. In many cases, improved farm performance will require a combination of actions to be taken. Those measures (gaps, causes and solutions) that show the greatest or most significant impact on the performance and profitability should be identified.

Some of these actions will be technical, introducing new technologies and practices such as improved seed varieties, integrated pest management and integrated plant nutrition systems. Some of the actions will focus on management and marketing issues, such as the more efficient use of labour, better handling of produce, improved packaging, storage and better timing of sales.

The key elements of this step are:

- understanding the range of decision options;
- facilitating learning;
- determining outcomes;
- preparing action plans;
- implementation.

Understanding the range of decision options. This is the stage where farm management decisions must be made. Up to this point, the benchmarking process has been purely analytical. But at this step, farmers must decide whether or not they want to take action to improve the performance and profitability of their farms.

Making and implementing decisions is core to the entire benchmarking process. Once the range of possible decisions has been identified, it is time to take action.

At this stage you may be tempted to tell farmers what is the best thing for them to do. While in some cases this may be appropriate, generally the most successful decision is the one made by farmers – who, after all is said and done, are going to reap the rewards or suffer the setbacks by whatever decisions are made and implemented.

The analytical approach followed will allow you to make connections between gaps and causes. For planning purposes the gaps should be traced to causes. Some of the causes will lead to simple things like changing the timing of planting or the amount of fertilizer. Some of the causes may lead to very complex decisions or even difficult decisions such as changing from one enterprise to another, replacing family labour, which may be inefficient because of illness, with hired labour, or setting up collective marketing structures.

Facilitating learning. You will need to be alert to the broad range of possibilities, including farm management decisions that may be difficult to make. In the end, it is the farmer's choice about what to do or what not to do. It is your responsibility to help farmers understand the positive and negative outcomes of their choices and decisions. This is a high-level skill for extension workers because this is where the real learning from benchmarking takes place. You will also need to understand:

- how people learn;
- learning styles;
- learning by doing.

Facilitating learning is not the same as facilitating behaviour change or even technology transfer. It is the skill of helping farmers to increase their ability to:

- assess their circumstances;
- weigh up options;
- see the consequences of various possibilities;
- make informed decisions as to the actions they will take regarding their farms.

Notes

Notes

Some tips for facilitating learning ...

- The farmer is responsible for his or her own learning.
- You should also be prepared to learn.
- Focus on learning in the context of a partnership as opposed to a teacher-student relationship.
- The best learning is by doing.
- Try to identify the farmer's preferred learning style and adjust the learning situation accordingly.
- Learning is a process of planning, action and reflection.

Determining outcomes. It is vital (particularly to the reflection process) that farmers are clear about what outcome they expect as a result of each decision they make. Just as indicators and measures were set to conduct the benchmark analysis, anticipated results for those indicators and measures need to be clearly identified. You should estimate the importance of the improvements and their effect on farm performance and profitability in collaboration with individual farmers. In this way you, as an extension worker, will need to guide farmers on what is reasonable and can be achieved. Be aware that farmers' expectations are often overly ambitious and as a result be careful not to raise them further. Be sure to point out the likely risks that can arise.

Preparation of action plans. The next task calls for the preparation of an action plan. The plans should address the most urgent problems identified by the farmers. This should be prepared jointly with the farmers concerned, but may also require the support of specialist extension workers. The plan should include a list of activities that are needed to make the changes to the farming system, together with the timing and resource requirements. Obviously the plan needs to meet the individual goals set by the farmer. It should also provide the best solution

that lies within the capacity of a farmer to implement. The plan of work should address those activities that will yield satisfactory results quickly and will encourage farmers to take part in follow-up learning group extension programmes.

A work plan is also needed that provides a detailed breakdown of activities and tasks showing how they will be carried out. A calendar of work should be prepared for the various operations to be carried out in the plan. Careful planning is necessary to prevent a waste of time, money and effort.

Implementation. Plans are not just a list of good ideas gathered from comparison with benchmark farms. They should take into account the resources needed to implement them. They should be developed in the context of the whole farming system. This will go a long way in ensuring that the plans can be implemented and are sustainable.

Planning and implementation of the changes to be made to the farming system as a result of the benchmarking exercise is the responsibility of the farmers. Naturally individual decisions will be implemented by individual farmers. Your role as an extension worker is to make sure that the farmers have supportive advice and access to the resources that they will need to implement their plans.

First, farmers should ensure that the changes they intend to make can, in fact, be implemented. For example, if the decision is to use a different seed variety (as may have been used on the benchmark farm), the farmer should ask questions such as:

- *Is the seed variety available?*
- *If so, from where can it be obtained?*
- *Is the seed variety accessible?*
- *Is it affordable?*
- *Do I know how to work with this new seed?*
- *Are there other considerations that I need to take into account?*

Notes

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It may be the case that some of these questions cannot be answered by the farmer. If so, you can assist the farmer to set up a small trial to test the seed variety and gain experience in growing it.

As an extension worker you have a role to assist farmers in assessing the impact of the change on the farming system and preparing action plans for implementation. As part of the benchmarking exercise, priorities could be set by estimating the 'potential benefits' of these changes on farm profitability. This should provide the farmer with valuable information to help prioritize the farm enterprises, technologies and activities needed to upgrade the farming system.

Tips from the field ...

- Advise farmers on ways of increasing efficiency and profitability.
- Replicate successful technologies and enterprises.
- Advise farmers on the profitability of introducing new enterprises to the farming system. (This may require identification of farmers growing that enterprise and understanding the technical and financial prerequisites needed as well as some of the expected weaknesses.)
- Organize demonstrations to test the profitability of new practices and technologies.
- Ensure that farmers have adequate resources to undertake action plans and are prepared to introduce the best practice findings.
- Disseminate the findings among the farmer group.

MONITOR AND
EVALUATE

Step 10
Reflect and
evaluate results

Notes

M O N I T O R A N D E V A L U A T E

Step 10
Reflect and evaluate results

Another key to learning is reflection on the results of decisions implemented. While there is a significant role for you, as an extension worker in this process, there is an even larger role for you to facilitate this learning process and help the farmers in the learning group increase the benefit from the benchmarking exercise.

One way in which you can facilitate this is by setting the right context. This would include reminding the farmers of why they chose what they chose and of what they expected to obtain from the decisions they made and implemented. This is critical because without such clear focus and criteria, the outcomes cannot be judged objectively.

As an extension worker, you may need to lead this process. This should be done as systematically as possible. The general pattern for reflection is to follow the questions listed here:

- What was done? What result did it achieve?
- How does this compare with what was expected?
- What are the reasons for the variations?
- What can we learn from these outcomes, variations and reasons?
- What action will be taken next?

The lessons learned in such reflections can be shared with other farmers in the group and beyond it.

While the plan is being implemented it should be regularly monitored to check that everything is going according to plan. It could also mean making adjustments to the plan if needed.

Following each benchmarking exercise an evaluation should be held on the key lessons learned. Evaluating the outcome allows the farmer to decide whether or not the plan worked and whether or not the goals were achieved. It involves taking a longer look at what has been done and measure it against the expectations. This, again, requires some form of record-keeping so that the farmer will have the data and information to determine if the plan is fulfilling the goals the farmer set out to achieve.

* * *

PROS AND CONS OF
MONITORING AND EVALUATION

Advantages

- Provides early feedback about what is or is not working, and why.
- Allows correction of problems as they emerge.
- Assists identification of unintended side-effects.
- Helps in prioritizing which issues to investigate in greater depth.
- Provides a basis to assess the likely impacts of the changes.

Disadvantages

- Can easily become overly complex if the scale of activities is large or if an exhaustive list of factors are assembled.
- Farmers might disagree about which of the causes are important and which can be time-consuming to address.

* * *

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Benchmarking is not a one-off event. It should be an on-going process. Thus one of the key aims for you would be to build the understanding, skill and interest on the part of the farmers in the learning group to continue with benchmarking on their own.

By this stage in the process your learning group will understand the value of benchmarking. They will have seen how the process is conducted and become aware of how it can be used to improve productivity and profitability. Farmers should be urged to continue to meet regularly and conduct further benchmarking exercises on new problems of common interest.

Notes

ANNEX
BUSINESS CONCEPTS FOR
BENCHMARKING

Profit is the difference between the money that comes in to the farm business from the sales of a product and the money that goes out to produce it. The money coming in is expressed as the total value of production. The money spent is expressed as costs. There are two types of costs: *variable* and *fixed*.

The value of production includes the money received

$$\text{Profit} = \text{Total value of production} - \text{Total costs}$$

from sales, the value of produce stored and the value of produce consumed by the farm family in the course of a year. The growth of young tree crops and livestock is also a form of production. Trees and animals gain in value as they grow. This is also included. Total production, therefore, includes produce sold, produce consumed on the farm and by the family and the growth of young trees and livestock. The value of production is sometimes called gross income.

*There are two types of costs:
Variable and Fixed*

These change as production increases or decreases. Variable costs apply to specific enterprises and they are no longer required if the enterprise is discontinued. For example, a farmer who decides to keep two cows rather than one would need twice as much feed, and if he or she chooses not to keep any dairy cows no feed would be needed. Variable costs include such things as the purchase of seeds, fertilizers, sprays, animal feed and veterinary medicines used for production.

These do not vary as production changes. Fixed costs apply to the farm as a whole and include such things as the cost of a hand cart, farm tools, a draught animal as well as full-time labour.

This is a simple and practical tool for assessing the comparative profitability of different farm activities,

enterprises or technologies. Gross margin is often used by small-scale farmers with few fixed assets and is particularly suitable for those who sell increasing amounts of their farm products in the market place. This can be calculated as follows:

Sara and Sam both grow potatoes.

$\text{Gross margin} = \text{Value of production} - \text{Variable cost}$

They want to compare profitability.

Sara grows 1 hectare of potatoes on her farm. She has an income of \$400 from sales and variable costs for \$200. Her gross margin is \$200 ($\$400 - \$200 = \200).

Sam grows 1.5 hectare of potatoes. He gets an income of \$600 from sales. His variable costs are \$300. The gross margin from potatoes is \$300 ($\$600 - \$300 = \300).

Sam appears to be making more money from potatoes than Sara but the area under production differs. In order to make a meaningful comparison the gross margin per unit of land (per hectare) should be calculated. Sam's gross margin needs to be calculated on a per hectare basis:

$$\$300 \div 1.5 \text{ hectare} = \$150$$

While Sam has a higher overall gross margin, his gross margin per hectare is lower than Sara's. Potato production on Sara's plot is more profitable than Sam's.

* For more on gross margin, enterprise profit and farm profit, refer to Farm management extension guide 1: Economics for market-oriented farming.

Efficiency is the careful use of the resources available to

the farmer. A farm that is efficiently run is more likely to be profitable than a farm that is not. Efficiency can take two forms; technical and economic. Measuring *technical* efficiency is important because greater efficiency can generate higher profits. Technical efficiency can be calculated as follows:

An example of technical efficiency
A farmer wants to produce 10 tonnes of tomatoes. Different methods of tomato growing can be used, such

$$\text{Technical efficiency} = \frac{\text{Production}}{\text{Resources used}}$$

as intercropping, organics, tunnels and in greenhouses. Growing tomatoes, for this example, requires two resources: capital and labour. Some growing methods require more capital while others require more labour (these are said to be capital and labour intensive).

The farmer would like to know ...

What is the most technically efficient way of producing 10 tonnes of tomatoes?

Which of the four methods listed above should be selected?

The farmer contacts
the local extension worker to find out
which method is technically more efficient.

The following table illustrates how each method uses capital and labour to produce 10 tonnes of tomatoes.

Table 1
Methods of tomato production

Technologies	Quantity of inputs required	
	Capital	Labour
Intercropping	10 units	250 units
Organics	6 units	200 units
Tunnels	12 units	150 units
Greenhouse	40 units	50 units

*From the table above
the farmer should understand that ...*

is technically less efficient than organics because it uses more of both resources and therefore is wasteful.

is technically more efficient than either tunnels or greenhouses in terms of capital, but less efficient in terms of labour.

are more technically efficient than intercropping in terms of labour, but less efficient in terms of capital. They are more efficient than greenhouse production in terms of capital, but less efficient in terms of labour.

production is more efficient in terms of labour than organics and tunnels, but is less efficient than both in terms of capital.

***Tomatoes under organics, tunnel
and greenhouse technologies are all
technically efficient because no single
technology uses less of both resources
than the other two.***

Economic efficiency measures the financial returns on resources used. Economic efficiency looks at the cost of using resources to produce a given level of output.

An example of economic efficiency
Knowing that organic, tunnel and greenhouse production methods are all technically efficient, the farmer wants to know which method is the most economically efficient. The extension worker explains that economic efficiency depends on the cost of each of the resources. Together they find out that capital costs \$50 per unit and labour costs \$3 per unit. With this information the extension worker and farmer calculate the costs for each method.

Organics (6 units of capital / 200 units of labour)

Cost of capital is $6 \times \$50 = \300

Cost of labour is $200 \times \$3 = 600$

Total cost = \$900

Tunnels (10 units of capital / 150 units of labour)

Cost of capital is $12 \times \$50 = \600

Cost of labour is $150 \times \$3 = 450$

Total cost = \$1 050

Greenhouses (40 units of capital / 50 units of labour)

Cost of capital is $40 \times \$50 = \$2\,000$

Cost of labour is $(50 \times \$3) = 150$

Total cost = \$2 150

The farmer understands that organic tomato production is the most economically efficient and plans to use this technology in the future. However, the extension worker warns the farmer to be very careful with this decision because the cost of resources change all the time. This means that the farmer must check on the cost of inputs regularly.

* * *

Note: There is not a very big difference in the economic efficiency between organic and tunnel methods of production; a change in cost of labour or capital may show that production under tunnels is more economically efficient.

Notes

Glossary

Benchmarking

The practice of comparing the performance of one farm with another. It usually starts by identifying farms that are performing well and farmers who are the best at doing something. It then requires one to understand how they do it in order to learn from them and improve farm performance.

Economic efficiency

The measure of financial returns on resources used. Economic efficiency looks at the cost of using resources to produce a given level of output. The most economically efficient method of production is the one that costs the least. (Note: economically efficient methods are usually selected only from technically efficient methods.)

Farm records

Data and information files kept by the farmer to monitor and evaluate farm performance and can also be used for farm planning. Farm records can be physical, such as the farm map and production records and financial, such as sales and purchases records.

Fixed costs	Costs that apply to the farm as a whole. These costs do not vary even when large changes are made in the amount, type and size of the farm enterprise.
Gross margin	The measure of what the enterprise is adding to farm profits. The gross margin for a crop or livestock product is obtained by subtracting the variable costs from the value of production
Net farm income	The money left over after the variable costs and fixed costs are paid. This also considers taking into account the cost of family labour.
Performance	Refers to indicators of profitability, efficiency as well as the processes underlying them.
Profit	The amount of money earned after covering all costs. It is the difference between the money that comes in from the sales of the product or service and the money that goes out to produce them. Profit is not the same as income. Profit means that there is more money coming in than there is money going out.

Profitability	The measure of how well the farm business uses the resources available to the farmer to generate income and profit.
Technical efficiency	The measure of the farms success in producing maximum output from a given set of inputs. It is often measured as the achievement of maximum output with given inputs or a given output with minimum inputs
Value of production	The money received from the sales of produce together with the value of produce that is consumed and stored.
Variable costs	Costs of production that vary as production changes. Variable costs include purchases of seeds, fertilizers, sprays, animal feed, veterinary medicines and fuel and oil for machinery used to produce crops and raise livestock. Variable costs apply specifically to a particular enterprise. These costs can be avoided if the enterprise is discontinued.

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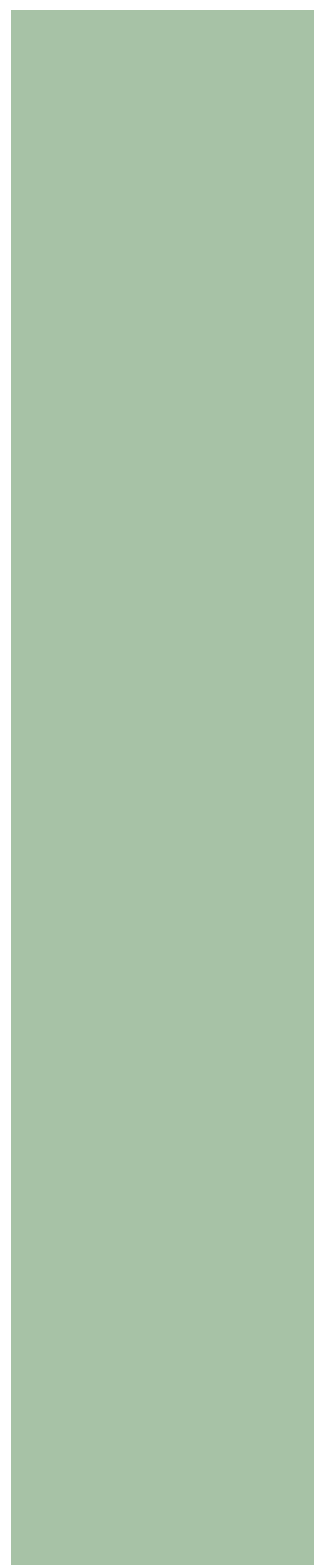
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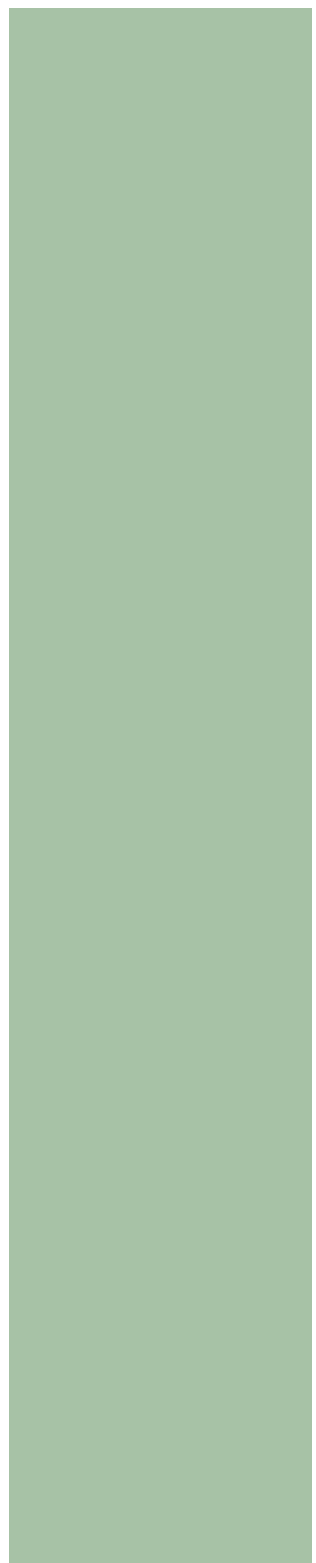
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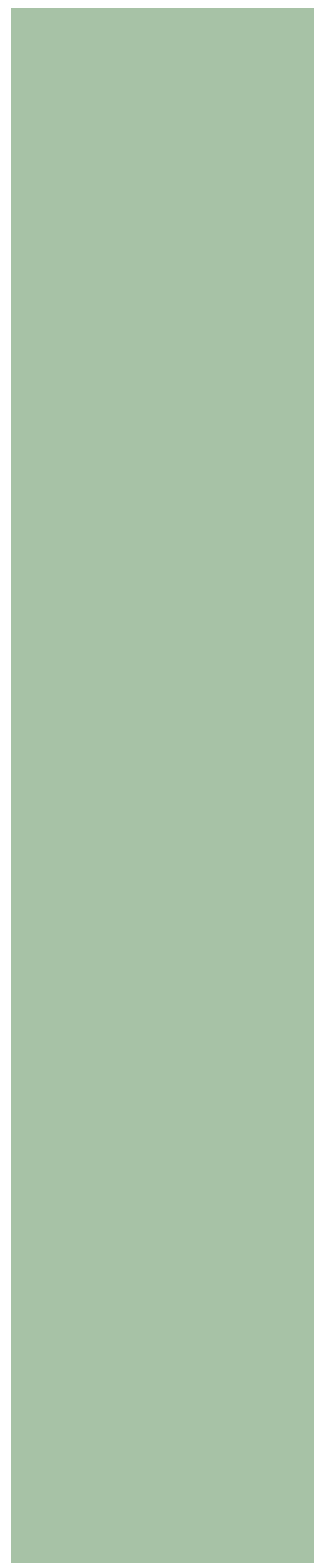
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