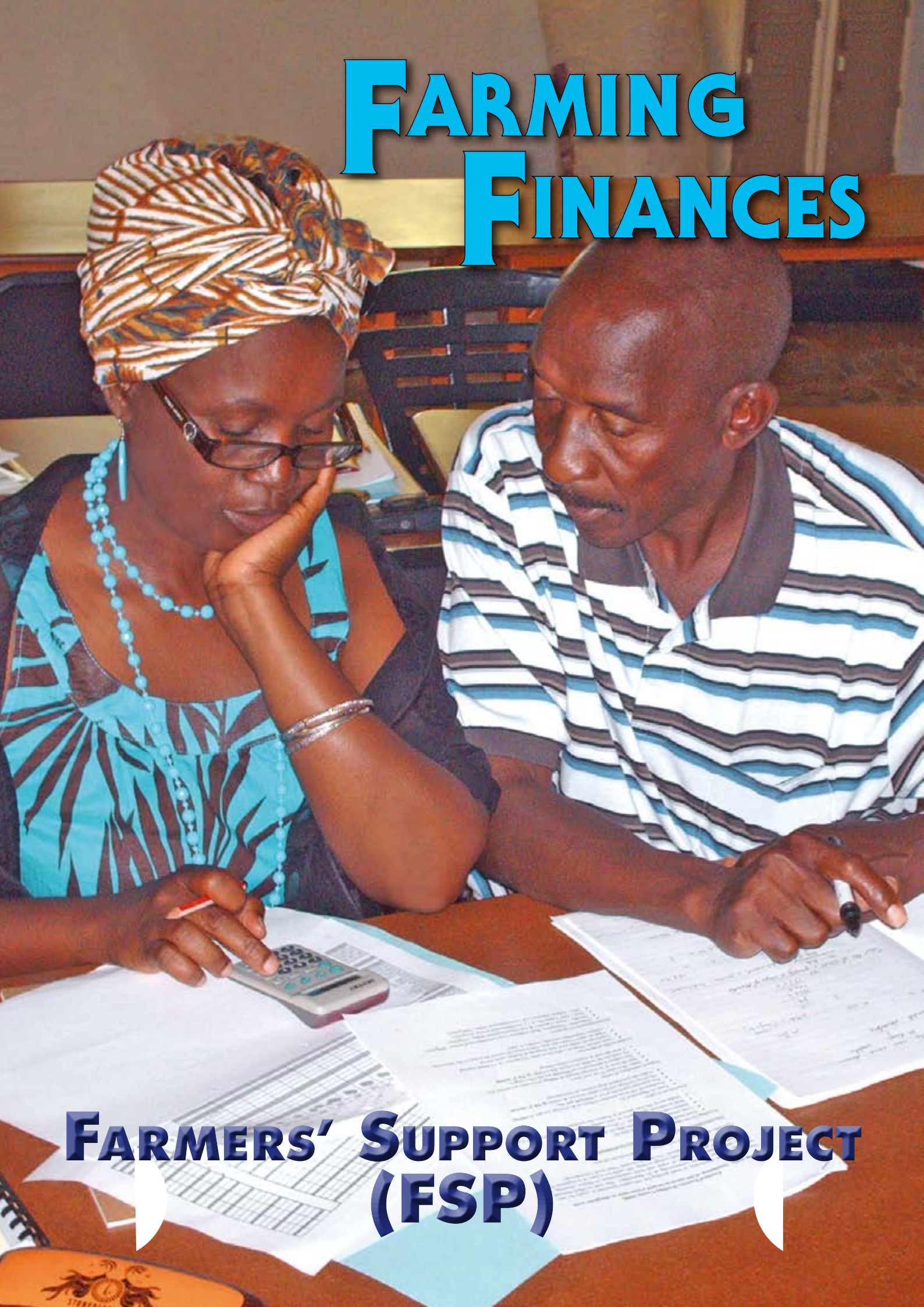
Farming Finances



Farmers' Support Project (FSP)

FARMING FINANCES

Guidelines for Financial Planning

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NAU – NLU

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Ingo Jacobi
(Project consultant)

Preface

It is with great pleasure, gratitude and pride that the JPC presents this production manual.

After years of deliberation, careful planning, and a lot of dedication the NAMIBIA AGRICULTURAL UNION and the NAMIBIA NATIONAL FARMERS' UNION jointly embarked on the EMERGING COMMERCIAL FARMERS' SUPPORT PROGRAMME. This programme resulted from the realisation that the new group of emerging commercial farmers who, having been previously disadvantaged and mostly coming from the background of communal farming, were in dire need of basic (sophisticated) skills training to manage modern farming techniques. The planning phase entailed, amongst others, a need assessment way back in 2004/5, which clearly identified the areas of assistance required. After having analysed all the relevant data, the two unions set about structuring a two-year programme which would address the challenges faced by new farmers so that ultimately they would be able to deal with the daunting task of becoming successful commercial farmers. Besides a dedicated programme of lectures, training courses, study tours and mentoring, it was decided to also produce and publish a set of eight PRODUCTION MANUALS which would serve as valuable training guides with technical details, but would also be a source of reference for future everyday practical farming in Namibia.

It is with gratitude that we acknowledge the unrelenting support of many individuals, too numerous to name, and certain institutions which supported and still support the whole Emerging Commercial Farmers' Support Programme.

We sincerely hope that this initiative will make a lasting contribution to sustainable agricultural land utilisation and to the goals of land reform in Namibia.

On behalf of the JPC,

Ryno van der Merwe
(President, Namibia Agricultural Union)

Pintile Davids
(President, Namibia National Farmers' Union)

Windhoek, 2009

Foreword

Agriculture as the backbone of Namibia's economy has a major role to play in achieving Vision 2030. However, to be able to make a significant contribution towards the growth of the economy and thus wealth creation, agricultural production/output has to increase manifold. For the realisation of such an increase the following crucial issues have to be addressed. Subsistence farming should become commercialised, e.g. landownership in some form or other should be allocated to individuals, underutilised areas should be developed and put into production and the problem of bush encroachment should be addressed and solved at national level.

Food production at competitive and affordable prices for the consumer is the biggest challenge that farmers worldwide have to face. With input costs increasing at a higher rate than the increase in prices realised for produce from the farm, it is clear that productivity and the production capacity on farms have to improve continuously. This also applies to Namibia's agricultural sector.

Furthermore, if we want to participate in international trade with our export commodities, currently being beef, mutton, Karakul pelts and grapes, we have to be able to compete worldwide against all the countries exporting the same commodities. Apart from being price competitive we also have to be competitive in satisfying the needs of the sophisticated consumer in terms of quality, health issues, traceability, animal welfare and other ethical production norms, e.g. personnel management, conservation of biodiversity/ecology (fauna, flora and water resources), etc.

Agricultural production is no longer just a matter of producing whatever the farmer is able and willing to produce and then expecting to achieve good prices for the product.

Farmers have to become more involved in the value chain, and should become much more market orientated by being sensitive to the needs and preferences of the consumer whom they want to serve. In addition they have to adhere to international trading rules and regulations as prescribed by the World Trade Organisation (WTO), and also comply with the Sanitary and Phytosanitary (SPS) requirements of the various countries with which they want to trade. Norway, for instance, has zero tolerance for salmonella in beef/mutton, which is imported into that country, thus making it very difficult to serve this lucrative market.

*It is obvious that survival and growth in the agricultural sector can only be achieved if the farmer in future **pays greater attention** to the world around him, as has been the case in the past.*

Skills development and training of farmers and their employees are becoming imperative, and are of national interest.

Being a farmer and thus the owner of agricultural land in Namibia should be regarded as a privilege. Not every citizen in Namibia, as in countries all over the world, can own agricultural land. There is just not enough land available. Therefore every farmer has a responsibility to use his piece of land in a productive but also a sustainable way. Productive means exploiting the full production potential of the farm, furthermore contributing towards job creation in the primary and secondary sector, towards food production on national and international level and towards revenue for Government in terms of taxes paid. Sustainable means preserving and even improving the production potential, so that the generations to come can still make a living from that land. It should be the aim of every landowner to leave behind a farm that is in a better condition than the one he started off with, including production capacity, infrastructure and natural resources, e.g. underground water, fauna (game) and flora (plants).

Commercial farmers in general are often perceived as being wealthy, which, however, is not the case. Becoming a successful farmer in Namibia may take years and even generations, and requires love for and dedication towards farming, hard work, good management skills, financial discipline, persistency and a positive attitude.

Climate (rainfall) and other external unforeseen events can have a major influence on the progress made on the farm, and can ruin achievements made over years within a matter of time.

To get an indication of the current gross/net income on a cattle farm, the following indicators could serve as a guideline.

The average stocking rate on cattle farms in Namibia is ± 25 kg biomass (live mass) per ha. In old terms this meant ± 14 ha for every animal on the farm. In a cow/ox production system the production of beef (live mass) should be about 35 % of the stocking rate.

This means that if no herd building takes place, the farmer has 25 kg x 35 % = 8,75 kg live mass/ha available for sale every year.

At an average selling price (cows, oxen, heifers combined) of N$9.00/kg live mass he/she would be able to generate a gross income of N$9.00 x 8,75 kg = N$78.75/ha (± N$80.00).

The operational costs will be at least around 50 % of the gross income, which leaves a net income of N$80.00 x 50 % = N$40.00/ha.

On a 5 000 ha cattle farm the gross income will thus be ± N$400 000 and the net income, if operational expenditure is well managed, ± N$200 000. This amount is available for interest and capital repayments (Agribank), new improvements/replacements on the farm and private expenditures.

These indicators clearly show that a 5 000 ha cattle farm will not enable a farmer to become wealthy overnight. To the contrary, for those farmers to survive they often either create additional income with employment elsewhere, or they venture into diversification on the farm, e.g. guest farms, hunting, crops, hay, olive and charcoal production, etc.

It is advisable not to diversify as long as the main production line is not well managed and exploited to its full potential.

Although the commercial farmer functions in isolation on his property and to a great extent depends on himself concerning the day-to-day activities and progress on the farm, it is still important to establish and maintain good relationships with the neighbours. The control of stock theft and illegal hunting, predator control and the maintenance of border fences, etc. require good and open communication with, and trust in the neighbours.

In conclusion, farming should be a constant process of learning. Even farmers with formal agricultural qualifications still have to keep in touch with the latest developments concerning farming practices, market requirements, consumer preferences, etc. It is advisable to make use of every opportunity to improve their own knowledge and skills, to enable themselves to adjust and therefore survive and prosper in an ever-changing world. Farmers' days, study groups and established successful farmers can be a good source of knowledge and new ideas and are often a stimulation to creative thinking.

INTRODUCTION

Farmland and natural resource management is an important subject in Namibia, as it is concerned with conservation and sustaining its natural resources. Influencing factors are the country's population in relation to available farmland, farmers who currently own farmland, sustainable management and its demands, Namibian farmlands and their land uses, potentially achievable farming productions and economic benefits, and a focus on commercial farming/ production.

Namibia has a population of about 2,1 million people and 58 million hectares of farmland suitable for livestock production. Equal distribution of farmland would result in 276 hectares being allocated to a family of ten, and this would not be sustainable. Therefore, Namibian farmers who currently own farmland or have access to it ought to be reminded that they are privileged, because there are farmers who sacrifice their right to own farmland for those who do not have farmland.

Farmers owning farmland are the custodians of Namibia's national resources. Being granted the privilege to own farmland and to be custodians of the country's natural resources is a responsibility. That responsibility is for farmers to produce from their farmland with their farming activities, to utilise all natural resources sustainably, and to be accountable for it. It is also important that farmers understand that underutilising natural resources is as unacceptable as exploiting them would be.

Sustainable land management, inclusive of agriculture, is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development, 1987). This statement clearly stipulates that it is every Namibian farmer's responsibility to produce optimally on the farmland, while at the same time focusing to restore and maintain the potential future production of their farmland as a foundational resource.

Sustainably managed farming units have to adhere to the following criteria to be sustainable:

- Economic viability – the farming income must exceed the farming related payments
- Environmental soundness – farming activities must focus on the conservation and restoration of natural resources
- Social acceptability – the community at large must approve of farmers' resource management

Namibian farmland is divided into communal, commercial, and resettlement farmland, each with its unique challenges and opportunities. But irrespective of the formal framework and access to the resource-based farmland, it is imperative that this national asset is both utilised and managed in a sustainable, responsible and accountable manner.

People occupying farmland are generally referred to as farmers. These farmers are subdivided into commercial and subsistence farmers, or simply landowners. Commercial producers (farmers) strive at all times to optimise production and income. Their contribution to Namibia's economy is invaluable, specifically through creating jobs (employment and income-generating opportunities) and, as a result, alleviating poverty.

A stable and growing economy like Namibia's would be enhanced if its resources, including farmland, were utilised optimally. This would also require every Namibian farmer who has

access to farmland, to become a commercial farmer and to produce at a commercial standard, irrespective of their access to farmland or type of landownership.

Commercial farming and production requires sound farm management. Sound farm management is the only effective and measurable farming method, the only one that can be used to evaluate the performance of the farming and its production, and to identify ways of improvement.

The basic steps of financial farm management include:

- Defining and quantifying the resource base and its production potential
- Analysing and evaluating every individual farming enterprise separately
- Identifying other potential opportunities to generate a farming income
- Drawing up a detailed financial business plan for every farming enterprise
- Setting achievable goals and targets, aligned with acceptable norms

OUR LAND – OUR FUTURE

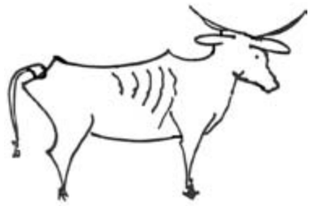
CHAPTER 1
Introduction to Financial Farm Management

The overall objective of any farming enterprise should be to generate an income that is sufficient to cover all farm-related costs, honour loan obligations and provide for a decent standard of living. This is achieved by a sustainable use of all natural resources available on the farm to generate an income.

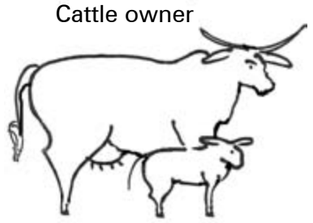
1. Objectives of agricultural production

People who have access to or own farmland do so for the following reasons:

- Farming is a part of their culture and tradition.
- Farmland provides a secure home for their family.
- Livestock can be kept and crops can be grown on farmland.
- Natural resources (the environment and wildlife) can be conserved.
- Farmland provides valuable resources which can be used to generate income.



Cattle owner



Cattle producer

It is important to define clear objectives and a plan to effectively use farmland, because this will determine the kind of approach and farm management technique(s) the farmer has to apply. Owning farmland (or livestock) for the simple reason of sustaining oneself is completely different from commercial farming, which focuses on optimising production and income. The latter is regarded as a national responsibility of people occupying farmland.

Therefore, the overarching objective of this manual is to guide farmers to optimise income from their respective farming units by utilising all resources available on the farm in a sustainable manner.

Ask yourself: Are you a cattle owner or a beef producer?

2. Objectives of commercial farming

The overall objective of any commercial enterprise, including farming operations, is to optimise profits over an extended period. It is not about maximising income (and profits) for a short period only, and in the process overexploiting the natural resource base that will lead to an irreversible state of degradation. Many farmers are pressurised by their financial situation, and this causes them to maximise the farming income short-sightedly at substantial costs to the resource base. And this again negatively influences the maintained long-term production potential of the resource base (the farm).

For example, overstocking the farm with livestock and exploiting game generate a high income for a short period only. But in the long run it is impossible to continue generating an income as the production potential of the resource base is drastically reduced or even destroyed.

Most farmers purchase farmland and other capital goods with the aid of loans granted by financial institutions. Loans, together with interest, have to be repaid over an extended period, which requires substantial amounts of cash. Farmers must at all times be in a position to pay scheduled instalments; otherwise they stand the chance of losing their farm, and, with it, the opportunity to make a decent living and even to become an exemplary farmer.

Taking existing financial obligations into consideration, it should be every farmer's objective to generate sufficient income (both on and off the farm) to pay their scheduled instalments and other farming costs, while enjoying a decent standard of living.

Objective of a commercial farming unit

To generate sufficient income on a sustainable basis to repay all loans as scheduled, pay all farming costs, improve farming infrastructure, and acquire a surplus amount for oneself to maintain a decent standard of living.

3. Income and production costs

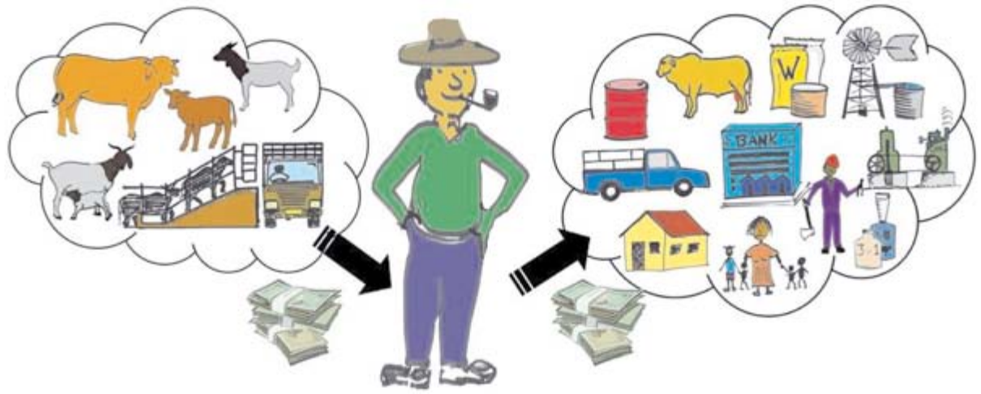
The cash required to meet the financial obligations is sourced from the sale of products produced or harvested on the farm. This, for example, includes the sale of livestock, game and wood. Additional cash can be sourced from the farmers' off-farm income, such as a salary or any other source of income they may have.

For a farming enterprise to be financially viable and feasible, the enterprise should be in a position to generate an income which is high enough to meet all (or at least most of) financial obligations, including an acceptable management fee that will reimburse the farmer for his/her management inputs.

Income generation (from production) by the farming enterprise(s) requires production inputs that range from consumables to labour. Without these inputs the enterprise cannot be functional. It is important that the income from each individual enterprise exceed the cost of production inputs (production costs). This is only possible if the enterprise is viable and is efficiently managed.

To calculate the surplus (or the gross profit), the cost of inputs (production costs) is deducted from the income generated by sales of products. The costs of all inputs have to be taken into consideration.

	Income from sales	**N$100,000.00**
Less:	**Production costs**	**N$ 60,000.00**
Equals:	**Surplus from the enterprise**	**N$ 40,000.00**



The surplus of each enterprise can be increased by:

- Increasing the income
  - –Increased production (units)
  - –Increased price for product (price per unit)
  - –Increased production and increased price
  - –Decreased production and increased price (less is more!)
- Decreasing the costs
  - –Decreasing quantity of inputs (units)
  - –Decreasing costs of inputs (cheaper price per unit)
  - –Decreasing quantity and costs of inputs
- A combination of both
  - –Increasing cost of inputs to increase income exceeding extra costs
  - –Decreasing input costs more than the resultant decrease in income

Note: A decrease in inputs, which decreases income at a higher rate, reduces the surplus!

For example, the amount of savings on supplements usually leads to reduced production, which will "cost" the farmer much more than the initial savings. If the farmer, for example, cuts the lick cost by N$50,000.00, but this leads to production losses of N$80,000.00 because fewer calves are born as a result, the farmer actually loses N$30,000.00.

Examples of increasing income by means of additional inputs:

- Supplementation of cattle increases production and reproduction
- Quality bulls produce heavier calves fetching a higher price
- Additional labour facilitates increased resource utilisation and income

4. Income-generating opportunities

People have various needs, ranging from food to leisure. They are prepared to pay for the satisfaction of their needs. Farmers have the potential to satisfy people's needs and receive a reimbursement (cash) in return. This is the basic principle on which various farming operations are based.

There are numerous opportunities for the farmer to generate an income. This could simply be by satisfying the needs of people not living on a farm, e.g. those living in urban areas.

A few examples of people's needs are:

- Meat – sourced from livestock and game
- Milk – sourced from lactating cows and goats
- Crops – grown on the farm (dryland and irrigation)
- Firewood for cooking, recreation (braai) and heating – collected on the farm
- Poles used as fencing materials – cut on the farm
- Trophies to be hunted – taken from game herds
- Entertainment and education – accommodating people at a fee (working holidays)

There are many more specific needs that the farmer can satisfy. Always be aware of what these needs are and how your enterprise could possibly answer to them.

CHAPTER 2
Guidelines for Financial Farm Management

Farmers owning farmland have a wide range of financial obligations, generally referred to as farm overhead costs, and including farm maintenance, loan repayments, taxes and maintaining the family. An income has to be generated by utilising all of the farm's resources to cover these costs.

1. The case study

This manual (guideline) is based on the analysis of a representative farming unit in central Namibia measuring 5,000 hectare. The farm is suitable for cattle and goat production, its high bush density allows intensive harvesting of wood and a stable game population has been established. Ten years ago, the acquisition of the farm was financed with an AALS bank loan of N$1,25 million, repayable over 25 years.

The potential financial performance of the farming enterprise is analysed for one (financial) year. This is done with the objective to establish whether it is possible to generate an income which is sufficient to meet all financial obligations and provide an acceptable management fee to the owner of the farm.

The basic annual financial obligations of the farming enterprise are as follows:

• Bank instalment (loan to buy farm)	N$157,549.06
• Bank instalment (loan to buy pick-up)	N$ 57,095.88
• Land tax (based on the Unimproved Land Site Value)	N$ 7,875.00
• Personal cost of living (N$5,000.00 per month)	N$ 60,000.00
• Total financial obligations	N$282,519.89

Therefore, it is the farmer's financial objective to generate a net cash surplus (after tax) of about N$300,000.00 for the financial year. Only if this target can be achieved, can the farming enterprise be regarded as financially independent and viable. Financial budgeting for this case study, as explained in detail, will reveal if this is practically possible.

The following enterprises are accommodated in this case study. Each of them was individually analysed and evaluated for its viability:

- Cattle farming
- Goat farming
- Sale of venison
- Trophy hunting
- Supply of biofuel (firewood and charcoal)
- Supply of fencing material

If all enterprises together generate a cash income of N$300,000.00, then the farming enterprise as a whole is financially independent and allows the owner to become a full-time farmer – the ultimate goal.

The BIG question: Can the farmer generate an income which is sufficient to repay the loan granted to purchase the farm and enjoy a decent living from being a full-time farmer?

2. The individual farming enterprises

The farming income is usually generated from a range of different farm-based activities, referred to as farming enterprises. Each of these enterprises needs to be analysed separately for its financial viability. It occasionally happens that some enterprises indeed generate a loss, but this is never realised, as income from other successful enterprises make up for these poorly performing enterprises. Therefore, it is imperative that the farmer calculate precisely the expected income and costs of each individual enterprise. The farmer will only be in the position to improve the overall financial performance of the farming enterprise once this has been accomplished.

Different farming enterprises are based on various natural resources available on the farming unit. They can be subdivided into natural pastures and water, and woody species. Game itself is a natural resource as well, but as it can be managed it is approached in a different way.

Figure 1 (on the opposite page) provides an overview of the different farming enterprises.

Rangelands (and water) are utilised by free-ranging game herds (oryx, kudu, hartebeest, eland, etc.) and by livestock (goats and cattle).

Owners and managers of commercial farmlands are privileged to (conditionally) utilise free-ranging game to generate an income. Game on farmlands is a national asset under the custodianship of farmers.

Livestock, on the other hand, belongs to the farmer and is regarded as the farmer's individual property. Livestock is introduced by the farmers to utilise rangelands, while game forms part of the natural resource base.

Woody species provide browse for both livestock (especially goats) and game. If the density exceeds the ideal (or natural) state, the thinning thereof is recommended. This can be achieved at a cost. At the same time bush provides an excellent opportunity to generate an additional farming income, as it provides biofuel which is highly in demand, both nationally and internationally.

Farming income is generated by the sale of cattle and goats, trophies and venison (game), and firewood, charcoal and poles. The expected income and production costs of each of these enterprises have to be calculated (budgeted for) accurately to determine the anticipated gross surplus of each individual enterprise and the cumulative gross surplus to all enterprises.

The baseline of the analysis is that all enterprises cumulatively generate a cash surplus (the total gross surplus), which is high enough to cover all other farming or overhead costs (also referred to as indirect production costs) and other farm-related payments, such as the payments of taxes and instalments.

Farming overheads include all costs that cannot directly be allocated to individual farming enterprises. These include fuel to pump water, fuel for and maintenance of the pick-up, basic maintenance of the farm infrastructure and wages of labour required for basic activities, such as farm maintenance and fence clearing.

The net surplus of the farming enterprise is calculated by deducting overhead costs from the cumulative gross surplus of all the enterprises. The net surplus represents the amount that the farming enterprise as a whole has earned for the period.

The net surplus goes to the "pocket" of the farm owner, who transfers a portion thereof to the government by paying income tax. Other payments, such as instalments and farming investments are paid out of the farmer's own pocket. It is of utmost importance that net surplus generated is sufficient to repay the instalment on the loan(s) and income tax due.

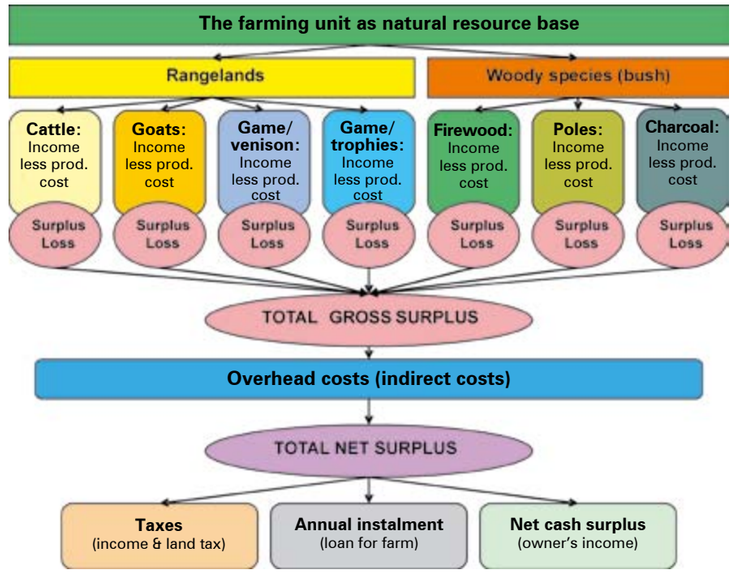


Figure 1: Individual farming enterprises

3. Requirements of farming enterprises

The feasibility, viability and even the success of individual farming enterprises depend on a number of crucial factors, inclusive of the following:

- Management capacity (skills and knowledge)
- Availability of skilled labour
- Initial and additional capital investment
- Viability – expected net surplus from the enterprise
- Sustainability (social acceptability and environmental soundness)

3.1 Management capacity

Efficient enterprise management requires the knowledge and understanding of core principles enhancing sound decision making. In addition, sufficient time must be available to manage an additional enterprise. Most importantly – farmers must be committed to make a success of the enterprise to be established, and must be determined to overcome initial challenges.

3.2 Availability of skilled labour

Most farming enterprises' day-to-day activities are executed by hired labour (workers employed or contracted). This requires that skilled and committed labour be sourced, afforded and managed.

Remember: People make or break the business!

3.3 Initial capital investment

Most new enterprises require a substantial investment to be established, such as infrastructure, tools and equipment. Access to capital remains a challenge, especially if the farmer cannot provide the required collateral, even if the envisaged business venture indicates to be viable. This often prevents the development of new enterprises. There are, however, alternative options enabling the farmer to at least partially benefit from the utilisation of the farm's resources.

3.4 Viability

Each potential business opportunity (planned enterprise) has to be tested for viability. Viability is the potential to generate an income exceeding all production costs, including cost of capital (interest) and its loan repayment ability. Compiling a detailed financial business plan for each envisaged (and established) enterprise is strongly recommended.

3.5 Sustainability

It is imperative that whatever the farmer does on his farm is environmentally sound and socially acceptable. If the applied production (or resource utilisation) practices are not approved by the workforce, the Namibian society or even the buyers/consumers of the product, the business is not regarded as sustainable and therefore has no chance to survive in the long run. For example, various markets require that farmers adhere to a wide range of ethical production practices, including refraining from the indiscriminate removal of predators, applying sound animal welfare practices and maintaining acceptable working conditions for people employed or accommodated.

4. Options for resource utilisation

There are numerous possibilities to financially benefit from the utilisation of the resources on the farm:

- Farmer/owner establishes the enterprise
- Farmer/owner makes resources available to another party at a fee
- Farmer/owner engages in a partnership with another entrepreneur

4.1 Establishing enterprises

The farmer provides infrastructure and working capital, and hires people to manage the enterprise on a day-to-day basis. The farmer receives the income generated, but is responsible for all production costs.

Example: The farmer acquires and manages a cattle herd.

4.2 Renting out (leasing) farm resources

The farmer transfers the right to utilise resources to another party at a fee. The other party establishes the enterprise based on these resources to generate an income.

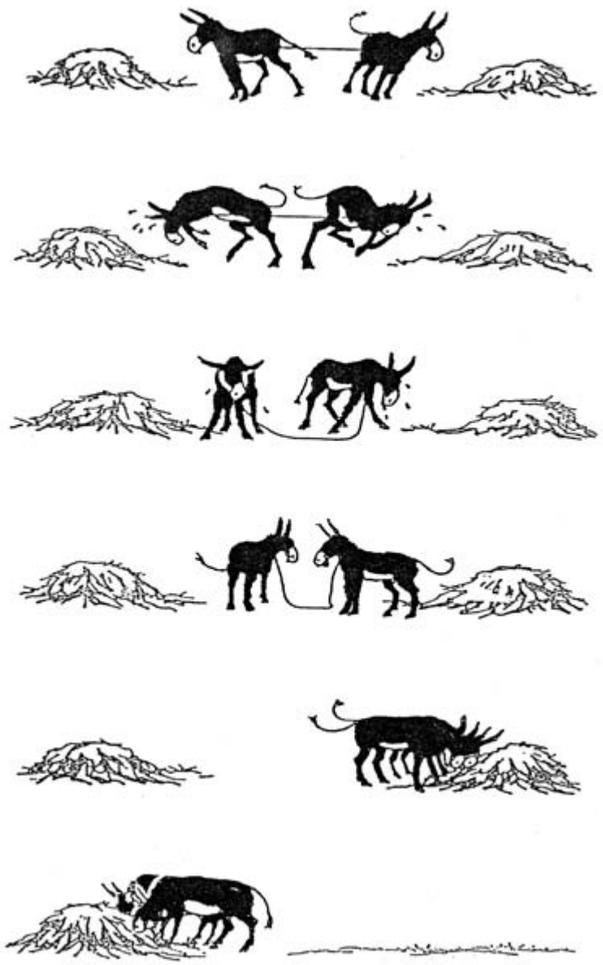
Example: The farmer leases the farm (grazing) to someone else.

4.3 Partnership with another entrepreneur

The farmer and another entrepreneur pool their resources (rangeland, cattle, labour and capital) to establish the enterprise. Income and production costs (surpluses) are shared pro rata related to inputs.

Example: The farmer provides grazing and labour, the partner provides cattle and lick. The surplus from this business venture is divided in equal shares.

An innovative approach to resource utilisation is required, which takes the farmer's unique situation, such as the farmer's personal preferences, work-related commitment and the financial situation into consideration. The opportunity to generate a substantial farming income exists; it is up to the farm owner to identify ways and means to realise it.



CHAPTER 3
Planning for Income and Payments (Budgeting)

Farmers need to have an overview of the possible financial performance of their farming operation. This requires them to calculate the expected income and payments over a period (a year). Based on the budgeted figures, an income statement reflecting expected profits can be compiled.

1. Budgeting for the farming enterprise

Financial planning or budgeting for the farming operation requires the farmer to gain a clear overview of the expected performance of each individual enterprise and the farming enterprise as a whole. This requires that the expected net surplus (income less payments) be calculated.

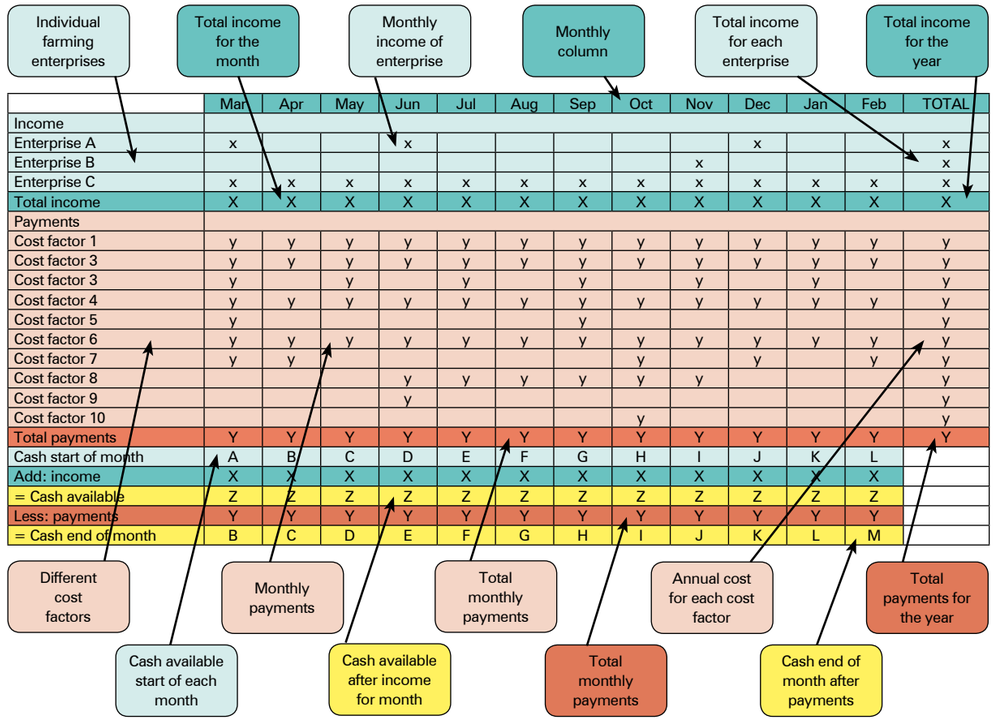
In addition, it is required that the farmer plans for the cash flow over an extended period (one year). This is necessary to ensure that sufficient cash is available at all times to make all the payments as scheduled. Periods in which cash flow constraints (shortages) are expected, need to be proactively addressed. Timely arrangements for bank overdraft facilities or other sources of cash might provide an option.

2. The cash flow forecast

The cash flow forecast is a practical tool assisting and guiding the farmer with the financial planning activity. It is a simple summary of all the expected income and payments recorded in a logical and structured way. Data (amounts) recorded in the cash flow matrix serve as basis for further analysis (see Figure 2 on page 23).

Five steps to compile the cash flow forecast:

1. Draw up a matrix with one column for each month and one row for each income and cost factor.
2. In the left column, list all sources of farming income (= cash inflow) and payments (= cash outflow).
3. Record the expected income and payments as calculated in the relevant month.
4. Add up the total monthly income and payments (both in the rows and in the columns).
5. Calculate the cash balance at the end of each month by adding the income of the month to the month-end balance of the previous month and deducting the calculated payments for the month.



	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income													
Enterprise A	x			x						x			x
Enterprise B									x				x
Enterprise C	x	x	x	x	x	x	x	x	x	x	x	x	x
Total income	X	X	X	X	X	X	X	X	X	X	X	X	X
Payments													
Cost factor 1	y	y	y	y	y	y	y	y	y	y	y	y	y
Cost factor 3	y	y	y	y	y	y	y	y	y	y	y	y	y
Cost factor 3	y		y		y		y		y		y		y
Cost factor 4	y	y	y	y	y	y	y	y	y	y	y	y	y
Cost factor 5	y						y						y
Cost factor 6	y	y	y	y	y	y	y	y	y	y	y	y	y
Cost factor 7	y	y						y		y		y	y
Cost factor 8				y	y	y	y	y	y				y
Cost factor 9				y									y
Cost factor 10								y					y
Total payments	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Cash start of month	A	B	C	D	E	F	G	H	I	J	K	L	
Add: income	X	X	X	X	X	X	X	X	X	X	X	X	
= Cash available	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	
Less: payments	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
= Cash end of month	B	C	D	E	F	G	H	I	J	K	L	M	

Figure 2: The cash flow forecast matrix

3. The income statement

The income statement is a summary of the farming operation's income and expenses. It is compiled at the end of the financial year to calculate the profit made during the year. For budgeting purposes the income statement is based on calculated amounts (expected income and expenses).

Income Statement			
	Income from sales		300,000.00
Less:	Total direct production costs		103,000.00
	Marketing	20,000.00	
	Feeds and licks	70,000.00	
	Animal health	3,000.00	
	Purchase of livestock	0.00	
	Labour (direct)	10,000.00	
	Gross farming income		197,000.00
Add:	Increase/decrease in stock		50,000.00
	Stock end of year	1,200,000.00	
	Less: stock beginning of year	1,150,000.00	
Less:	Total indirect costs		164,000.00
	Labour	40,000.00	
	Fuel	20,000.00	
	Repairs and maintenance	20,000.00	
	Administration	12,000.00	
	Insurance	12,000.00	
	Interest payable	50,000.00	
	Depreciation	10,000.00	
	Net farming income		83,000.00

Selling price of livestock and other products

Cost directly related to the production of livestock or any other enterprise

Surplus from livestock production or any other enterprise

Change in value of livestock or any other stock over the year

Total costs which cannot be directly allocated to individual enterprises

Interest on all loans (this is the interest portion of instalments only)

Loss of value of equipment (e.g. pick-up) for the year (non-cash expense)

Total indirect costs of the farming enterprise

Figure 3: Example of an income statement

While the cash flow forecast only focuses on the cash income and cash payments, the income statement in addition accounts for non-cash income and expenses. It, however, does not account for payments of capital nature. Transactions of capital nature are reflected in the **balance sheet**.

Expenses/Payments

Expenses include everything that is related to the production process:

Production inputs – recorded in income statement:

- Repairs, replacements and consumables
- Cost of labour
- Interest on loans (the interest portion of the instalment)
- Loss of value of production items (depreciation)
- Difference between selling price and book value of asset if negative

Expenses NOT recorded in the income statement (as this is listed in the balance sheet):

- Purchase of capital goods and fixed improvements (assets)
- Loan repayments (the capital portion or actual loan repayments of the instalment)

Income

Income in principle includes everything that adds value to the farming enterprise, even if it is not cash.

Income recorded in income statement:

- Income from sale of products (or rendition of services)
- Interest and dividends received
- Difference between selling price and book value of assets (if positive)

Income NOT recorded in the income statement:

- Total proceeds from sale of assets (only the difference to the book value), for example the sale of the pick-up or machinery
- Capital introduced (for example loans received or other capital introduced)

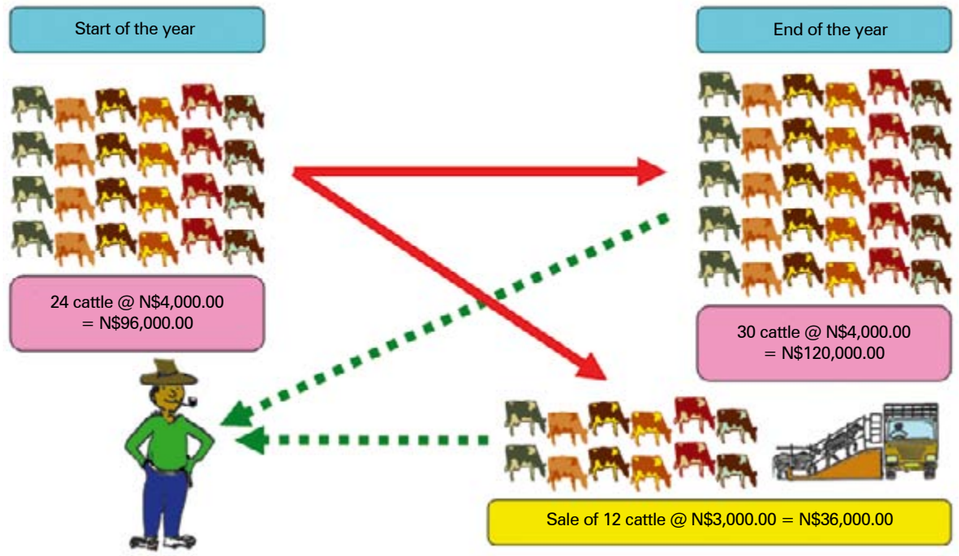
The **net farming income** calculated reflects the financial performance of the farming enterprise. It gives a clear indication of the actual earnings, including cash and non-cash gain (or loss).

It must be noted that the net farming income is NOT the same as the cash generated over the period (year). If cash generated is, for example, invested in the business (the farm) or used to reduce the outstanding loan amount, it reduces the cash surplus but not the farming income or profit. Investments are accounted for in the **balance sheet**.

Change in value of livestock

Livestock represents a substantial portion of the capital invested in the farming enterprise. Farmers establishing their enterprises strive to build their livestock herds until they reach a sustainable level. This requires that more livestock be produced than sold each year. Consequently, the income from the sale of livestock is less than the actual production from the livestock herd. To account for the increase in herd numbers (and the value of the herd) it is necessary to add this to the income of the farming enterprise. The same principle applies if the herd number is decreased and the income is higher than production. The increase or decrease in the value of the herd therefore needs to be accounted for when calculating the gross and the net farming income to give a true reflection of the performance of the enterprise.

The same principle applies to all other consumable stock kept on the farm. It is especially relevant if substantial amounts of cash (capital) are invested in stock, such as fuel, licks and feeds, fertiliser, building materials, etc., which are kept (stocked) on the farm.



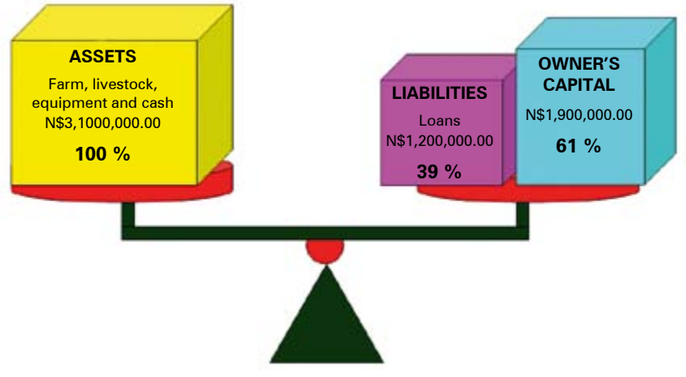
At the start of the year the farmer had 24 head cattle at a value of N$96,000.00. 18 calves were born, of which 12 were sold for N$36,000.00 while 6 were held back. At the end of the year the farmer had 30 head of cattle at a value of N$120,000.00 (N$4,000.00 each).

The farmer gained N$60,000.00. This is from the sale of cattle for N$36,000.00 (the cash income) and an increase in the value of the herd of N$24,000.00 (from N$96,000.00 to N$120,000.00).

The total income generated over the year is thus N$60,000.00.

4. The balance sheet

The balance sheet is a complete list of what the farmer owns (assets) and owes (liabilities). The difference between assets and liabilities represents the farmer's own share in the farming enterprise. Furthermore, the balance sheet reflects how the assets are financed. For example, the total assets of N$3,1 million are financed with a loan of N$1,2 million (39 %) and by the farmer with N$1,9 million (61 %).



Balance Sheet – 01 March 2008			
Assets – what the farmer owns:		Liabilities – what the farmer owes:	
Farm	N$1,500,000.00	Bank A	N$1,040,434.00
Cattle	N$1,298,000.00	Bank B	N$170,961.00
Goats	N$73,100.00	Bank C	N$32,500.00
Vehicles	N$200,000.00	Unpaid accounts	N$0
Equipment	N$50,000.00		
Cash	N$50,000.00	Total liabilities	N$1,243,895.00
Total value	N$3,171,100.00	Owner's capital	N$1,927,205.00

The ASSETS represent everything the farmer owns. It is based on the inventory of the enterprise at a specific point of time, usually at the end of the financial year.

The OWNER'S CAPITAL or NET WORTH represents the amount the farmer would retain if all assets were sold and all debts/loans paid. This is the DIFFERENCE between assets and liabilities.

The LIABILITIES represent all the outstanding loans and other debts (accounts) of the farming enterprise at a specific point of time, usually at the end of the financial year.

Figure 4: Example of a balance sheet

The owner's capital reflects the amount the farmer would keep if he/she sold (cash) all assets and repaid all loans (liabilities/debts).

The owner's capital, or the owner's share in the business (the farm) is the calculated difference between the total assets and the total liabilities. An increase in the owner's capital is equal to the net profit of the enterprise.

5. Comparing the balance sheets

A balance sheet is drawn up at the end of the financial year. Comparing this with the balance sheet of the previous year (a year ago) gives a good overview on how the enterprise performed by revealing changes which occurred during the year. The value of the asset base changes as assets lose value during the production process (depreciation), additional assets are acquired, and livestock numbers and the cash balance constantly change. Liabilities do not remain the same as outstanding loan amounts are reduced with instalments paid, while additional loans are received to fund additional investments. This again changes the owner's share in the business; an increase reflects profits made during the year and a decrease refers to actual losses of the enterprise.

When comparing the two balance sheets, the **owner's capital increased by N$180,037.00**, which represents the net profit of the enterprise.

The **value of the assets increased by N$109,237.00** as a result of a decrease in the value of the herd by N$3,000.00, the decrease of all other assets by N$60,000.00 and an increase in cash by N$172,237.00.

Balance Sheet – 01 March 2008			
Assets – what the farmer owns:		Liabilities – what the farmer owes:	
Farm	N$1,500,000.00	Bank A	N$1,040,434.00
Cattle	N$1,298,000.00	Bank B	N$170,961.00
Goats	N$73,100.00	Bank C	N$32,500.00
Vehicles	N$200,000.00	Unpaid accounts	N$0
Equipment	N$50,000.00		
Cash	N$50,000.00	Total liabilities	N$1,243,895.00
Total value	N$3,171,100.00	Owner's capital	N$1,927,205.00

Balance Sheet – 28 February 2009			
Assets – what the farmer owns:		Liabilities – what the farmer owes:	
Farm	N$1,500,000.00	Bank A	N$1,018,142.00
Cattle	N$1,293,000.00	Bank B	N$137,255.00
Goats	N$75,100.00	Bank C	N$17,698.00
Vehicles	N$150,000.00	Unpaid accounts	N$0
Equipment	N$40,000.00		
Cash	N$222,237.00	Total liabilities	N$1,173,095.00
Total value	N$3,280,337.00	Owner's capital	N$2,107,242.00

Figure 5: Example of the comparison between two balance sheets

The **total liabilities decreased by N$70,800.00**, resulting from the payments of instalments. *(Here it should be noted that only the capital portion of instalments reduces the loan amount and not the interest portion of the instalment – interest is an expense (cost of capital) which is accounted for in the income statement.)*

The combined increase of the value of the asset base (N$109,237.00) and the decrease in liabilities (N$70,800.00) is the reason (cause) for the increase in the owner's capital (share) of N$180,037.00.

CHAPTER 4
The Overhead Costs of the Farming Enterprise

Financial planning requires the farmer to quantify expected income and payments. Payments can be subdivided into direct production costs allocated to individual enterprises and overhead costs which cannot be allocated. As a point of departure, the farmer has to start calculating the overhead costs as they are expected to occur during the year (or planned for the year).

1. Overhead costs

Farm overhead costs (overheads) represent all those cost factors that cannot at all, or only with difficulty, be allocated to individual farming enterprises. These costs are usually fixed and do not vary by much, irrespective of the extent of the other farming enterprises (it is also referred to as fixed costs). Farm overheads have to be carried (paid for) by the cumulative cash surpluses generated from individual farming enterprises.

The following are representative examples:

- **Water is required by livestock, game and people on the farm.**
- **Maintenance of farming infrastructure supports all enterprises.**
- **Travelling to town takes care of the delivery of products and collection of production inputs for all enterprises.**
- **Interest payable on the loan acquired to purchase farmland, as the farm carries all the different enterprises.**

When planning for the financial needs of the farming operation, the farmer first has to clearly define the farm's expected (budgeted) overhead costs. This will give a clear indication of the total net cash surpluses (cash surpluses of individual enterprises) required to cover these costs.

Example of the farm's overhead costs

As an example, the following farming costs are identified and calculated:

- Annual instalment on farm loan payable in May: N$157,549.06
- Monthly instalment on pick-up: N$4,758.00
- Land tax at a rate of 0,75 % on Unimproved Site Value of N$210.00/ha: N$7,875.00
- Monthly premium of farm insurance: N$800.00
- Average monthly portion of Social Security (0,09 % of wages): N$360.90
- Annual premium to Workmen's Compensation Fund: N$1,000.00
- Annual membership fee(s): N$1,500.00 (payable in June to the affiliated union)
- Monthly banking fees for cheque account: N$300.00
- Interest on overdraft: May – N$2,600.00, June – N$1,400.00, July – N$2,600.00
- Monthly fuel cost for farm vehicle (pick-up): N$1,000.00[1]
- Monthly fuel cost for water pump: Jan to April: N$600.00, May to Dec: N$1,200.00[2]
- General farm labour (3 people paid at an average of N$800.00 per month): N$2,400.00
- Monthly personal drawings = farmer's own management fee: N$5,000.00 per month
- Repairs and maintenance of vehicles: N$1,000.00 per month[3]
- Repairs and maintenance of water pumps: Jan to April: N$600.00, May to Dec: N$1,200.00[4]
- Repairs and maintenance of windmill: N$100.00 per month[5]
- Replace pipe, rod and washer of windmill in August at N$500.00
- Repairs, maintenance and replacement of tools and equipment: N$300.00 per month[6]
- Monthly budgeted cost of repairs to farm infrastructure: N$200.00
- General farm repairs and sundry expenses budgeted at a rate of N$500.00 per month

[1]4 trips to town per month at N$200.00 per trip (fuel only) and N$200.00 for driving on farm
[2]2 litres per day from Jan to April and 4 litres per day from May to Dec at N$10.00/litre
[3]Budget for repairs and maintenance equal to fuel costs of vehicle
[4]Budget for repairs and maintenance equal to fuel costs of water pump
[5]Cost of overhauling windmill head: N$12,000.00 expected every 10 years – budget N$1,200 per year
[6]Value of tools and equipment: N$18,000.00 – budget for replacement at rate of 20 %. Thus N$3,600/12 months = N$300.00 per month

The calculated overheads are summarised by recording each of them in the cash flow forecast matrix, as displayed in Table 1 below:

Note: The amounts recorded reflect expected payments for the period.

Cash flow forecast	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Payments													
Instalment – farm			157,549										157,549
Instalment – pick-up	4,758	4,758	4,758	4,758	4758	4,758	4,758	4,758	4,758	4,758	4,758	4,758	57,096
Land tax				7,875									7,875
Insurance farm	800	800	800	800	800	800	800	800	800	800	800	800	9,600
Social Sec. & Workmen's Comp.	361	1,361	361	361	361	361	361	361	361	361	361	361	5,331
Membership fees				1,500									1,500
Banking fees	300	300	300	300	300	300	300	300	300	300	300	300	3,600
Interest on overdraft			2600	1,400	2,600								6,600
Fuel – vehicles	1,000	1,000	1000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Fuel – water pumps	600	600	1200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	600	600	12,000
Labour – general	2,400	2,400	2400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	28,800
Drawings – private	5,000	5,000	5000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	60,000
Repairs: vehicles	1,000	1,000	1000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Repairs: water pumps	600	600	1200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	600	600	12,000
Repairs: windmill head	100	100	100	100	100	600	100	100	100	100	100	100	1,700
Repairs: tools and equipment	300	300	300	300	300	300	300	300	300	300	300	300	3,600
Repairs: infrastructure	200	200	200	200	200	200	200	200	200	200	200	200	2,400
Sundry expenses	500	500	500	500	500	500	500	500	500	500	500	500	6,000
Total payments per month	17,919	18,919	179,268	29,894	21,719	19,619	19,119	19,119	19,119	19,119	17,919	17,919	399,651

Table 1: The cash flow forecast summarising overhead costs

2. Making provision for maintenance and repairs

Maintenance and repair costs cannot be predicted accurately. However, it is important and it would be wise for the farmer to have a sum of money set aside for it. Scheduling maintenance and repairs ahead of time seems impractical. Normally these costs only occur once there is breakage or a need to repair or replace something. Based on the example, the total amount allocated for repairs and maintenance is N$31,700.00 (see Table 2). For fuel-consuming machinery, provision made is equal to fuel costs. This seems to be a reasonable annual budget for repairs and maintenance.

Provision for repairs and maintenance													
	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Repairs: vehicles	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Repairs: water pumps	600	600	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	600	600	12,000
Repairs: windmill head	100	100	100	100	100	600	100	100	100	100	100	100	1,700
Repairs: tools and equipment	300	300	300	300	300	300	300	300	300	300	300	300	3,600
Repairs: infrastructure	200	200	200	200	200	200	200	200	200	200	200	200	2,400
Monthly provision	2,200	2,200	2,800	2,800	2,800	3,300	2,800	2,800	2,800	2,800	2,200	2,200	31,700

Table 2: Summary of provision for repairs and maintenance

Theoretically this requires the farmer to continuously deposit the calculated amount in a separate savings account, “Saving for Repairs and Maintenance”. If breakage occurs, these funds can be used to cover the costs.

3. Compiling a list of overhead costs

The information collected in the cash flow matrix is then summarised by compiling a simple list of expected payments (see Table 3). The total overheads budgeted for amount up to N$399,650.74. This is the amount of cash (the cumulative net cash surplus of all individual enterprises) that needs to be earned during the year to make all the required overhead payments.

In addition, this list serves as a basis to compile the projected income statement.

Budget overhead payments for the year		
Payments: farming overheads		399,650.74
Instalment – farm	157,549.06	
Instalment – pick-up	57,095.88	
Land tax	7,875.00	
Insurance farm	9,600.00	
Insurance workers	5,330.80	
Membership fees	1,500.00	
Banking fees	3,600.00	
Interest on overdraft	6,600.00	
Fuel – vehicles	12,000.00	
Fuel – water pumps	12,000.00	
Labour – general	28,800.00	
Drawings – private	60,000.00	
Provision for repairs and maintenance	31,700.00	
Sundry expenses	6,000.00	

Table 3: Budgeted overhead payments for the year

The direct production costs of individual enterprises are not included in this list, as they are allocated to the respective enterprises. The viability of individual enterprises is analysed separately.

4. Evaluating cost factors

Each individual cost factor needs to be critically evaluated in the light of possible cost reduction.

The following questions need to be asked:

- **Is the payment really necessary?**
- **Can the payment be omitted?**
- **Can the payment be reduced?**
- **Is the budgeted cost based on realistic figures/values?**
- **What are the consequences of reduction or cancellation of listed cost factors?**

The most important aspect of this exercise is for farmers to get an overview of the overheads of the farming enterprise. It makes the farmer aware of how much money will be needed for what purpose. Furthermore, it motivates the farmers to strategically plan for the generation of the required cash.

CHAPTER 5
Aligning Cattle Numbers with Forage Availability

When determining the income of any farming enterprise, it is imperative to first quantify the resource base, and only then derive the income of the enterprise aligned with the potential of the resource base. In the particular case of a cattle herd, the farmer needs to align the herd size with forage availability before the expected off-take and income can be calculated.

Financial planning and budgeting requires the farmer to calculate the expected income from the cattle herd. This can only be done once the number of cattle that can be kept on the farm for a period of time has been determined. This again directly depends on the amount of forage available.

The following steps have to be followed:

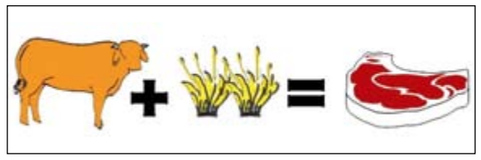
1. Quantify the amount of forage available on the farm
2. Determine the forage requirements of the cattle herd currently on the farm
3. Adjust the herd size to forage availability:
   - If forage that the cattle require exceeds available forage, reduce the herd number by timely marketing
   - If available forage exceeds what the herd requires, then increase the herd number by either acquiring more cattle or leasing out grazing

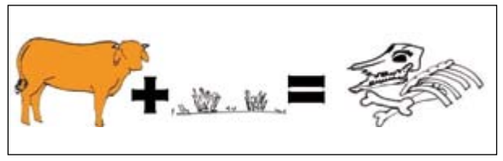
1. Determining forage availability

The farmer or an appointed specialist needs to quantify the available forage. The amount of forage used by goats, game (ungulates) and the farm ecosystem (inclusive of the mineral cycle) also needs to be taken into consideration.

The map of the 5,000-hectare farming unit (see Figure 6) gives an overview of the farm and its camps. Table 4 next to the map indicates the size of each of the ten camps, the quantity of forage available per hectare converted to the amount of forage per camp, as well as for the entire farm. This gives an indication that 971,000 kg of pasture is available on the farm.

Varying pasture availability and the general condition of individual camps result from the topography, past grazing patterns and stocking rates of individual camps. It is important for farmers to know and note that proper pasture management and alignment of herd size with available forage are two equally important aspects of farming. Proper pasture management involves practising short grazing periods and having long resting periods during the growing season (rotational grazing).





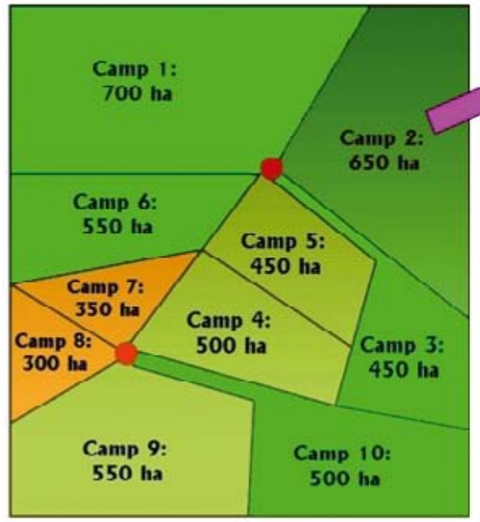


Figure 6: Farm map with camps

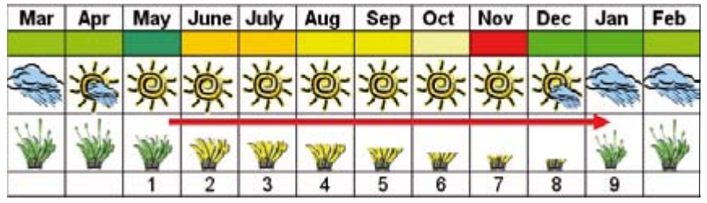
Estimated forage availability of the farm

Camp number	Size per camp (ha)	Forage per ha (kg/ha)	Forage per camp (kg)
1	700	300	210,000
2	650	140	91,000
3	450	240	108,000
4	500	190	95,000
5	450	170	76,500
6	550	230	126,500
7	350	100	35,000
8	300	90	27,000
9	550	140	77,000
10	500	250	125,000
Hectare:	5,000	Total kg:	971,000

Table 4: Calculated forage availability

971,000 kg of forage is available on the 5,000-hectare farm, which can be utilised by cattle

It is recommended that the forage availability is determined in April at the end of the active growing season (rainy season). Available forage should last until the onset of the next rainy season, which can be as late as January the following year. Therefore, farmers are advised to be risk-aversive and plan accordingly. It is better to leave some pastures unutilised than to lose cattle due to starvation or, alternatively, to buy fodder/feed.



2. Forage requirements of the herd

The amount of forage required by cattle on a daily basis (in order to be reproductive) is 3 % of their body mass, based on dry forage weight. A cow that weighs 500 kg thus requires 15 kg per day, 450 kg per month, and 4,050 kg of forage for a nine-month period (from May to January).

Based on this guideline, the total amount of forage required by the cattle herd can be calculated. It is necessary to know the average weight of the different groups of cattle (bulls, cows, calves, heifers and oxen) and their numbers. In addition, the grazing period and the envisaged time of marketing the cattle need to be taken into consideration.

Figure 7: Daily forage requirements of cattle: 3 % of their body weight

The forage requirements of the cattle herd can be calculated (based on weights provided) as shown in Table 5.

The composition of a herd in April is as follows:

- 8 breeding bulls (of varying ages and quality)
- 200 cows with 140 calves, right at the end of the calving season in March (60 calves are planned to be sold in August, while the remaining 80 will be kept on the farm)
- 40 heifers just older than a year (weaned the previous year)
- 40 heifers just older than two years, which were mated in January
- 30 young oxen, which are planned to be sold by the end of September

	Number of cattle	Average weight of cattle (kg)	Forage required per day (kg)	Forage required per month (kg)	Number of months on farm – max until Jan.	Forage requirements for the season (kg)
			3 %			
Bulls	8	800	24	720	9	51,840
Cows	200	500	15	450	9	810,000
Calves to keep	80	150	4,5	135	9	97,200
Calves to sell	60	150	4,5	135	4	32,400
Heifers 1–2	40	350	10,5	315	9	113,400
Heifers 2+	40	450	13,5	405	9	145,800
Oxen	30	450	13,5	405	5	60,750
Total calculated forage requirements of the cattle herd						1,311,390

Table 5: The calculated forage requirements of the cattle herd

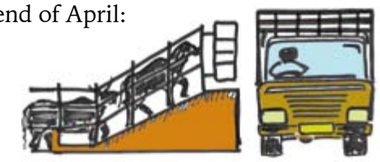
The tabular calculation reveals that 1,311,390 kg is required by the herd until the end of January, while only 971,000 kg is available. There is a shortage of 340,390 kg of forage! It is evident that it is not sufficient for the herd, and that reducing the herd numbers (herd reduction) is necessary.

3. Reduction of the herd size

The farmer must identify unproductive and least productive cattle, and market them timely. For example, the sixty cows not raising calves are highly unproductive.

Keeping proper records is important to identify poor producers!

The following cattle are identified and marketed at the end of April:



- 3 old and weak bulls
- 50 unproductive cows
- 10 old cows with their 10 calves
- 10 young heifers that do not have the required traits
- 10 mated heifers that are either not pregnant or do not have the required traits

After selling cattle (or having planned for sales) the farmer needs to recalculate whether forage is sufficient for the reduced herd or whether additional reduction is required (see Table 6).

After selling cattle accordingly (as in the example), the herd requirements and the forage availability are balanced. 968,625 kg is required, while 971,000 kg is available.

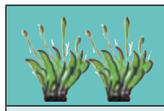
	Number of cattle	Average weight of cattle (kg)	Forage required per day (kg)	Forage required per month (kg)	Number of months on farm – max until Jan.	Forage requirements for the season (kg)
			3 %			
Bulls	5	800	24	720	9	32,400
Cows	140	500	15	450	9	567,000
Calves to keep	65	150	4,5	135	9	78,975
Calves to sell	65	150	4,5	135	4	35,100
Heifers 1–2	30	350	10,5	315	9	85,050
Heifers 2+	30	450	13,5	405	9	109,350
Oxen	30	450	13,5	405	5	60,750
Total calculated forage requirements of the cattle herd						968,625

Table 6: The revised forage requirements of the cattle herd

It is of utmost importance to first adjust the herd size to the available forage for the year, and only then calculate the expected income as derived from the herd.

4. The importance of budgeting for the resource base

Refraining from reducing the cattle herd would result in financial losses due to the following:

- Loss of cattle due to starvation
- Low calving rate the next year due to poor condition of cattle – cows do not come on heat
- Low weaning weights of calves and low weight gain of oxen
- Pasture deterioration caused by overstocking
- Emigration of wildlife resulting in loss of income (from this opportunity)

The loss of twenty cows at a value of N$5,000.00 each due to starvation would result in a loss of N$100,000.00 for both the farmer and the Namibian economy.

The same applies to goats and game herds kept on the farm. Forage for goats, which are predominantly browsers, is usually sufficient due to prevailing bush encroachment and relatively small goat herds. Most farms have the capacity to keep much larger goat herds than are currently kept. Game, especially grazers, competes with the resource base of cattle. As it is unethical to remove all game from farmland, farmers should rather consider utilising wildlife on a sustainable basis instead to make up for potential losses. Utilising game is a lucrative form of generating an additional income.

The availability of water is another possible limiting resource. In this case cattle numbers have to be aligned with the availability of water, even if it means that no cattle are to be kept on the farm throughout the year. Grazing can thus only be utilised when water is available.

The same principle applies to all natural resources on the farm. The available resources have to be quantified before the potential income from the utilisation thereof can be calculated.

CHAPTER 6
The Cattle Farming Enterprise

Cattle can use the forage base (natural pastures) of farms efficiently, but the production potential is limited to the size of the herd and its sustainable use of the natural pastures. Production costs and expected income from the cattle herd has to be quantified to determine if a surplus would be generated. Based on that, the performance of the cattle enterprise could be measured, and it would also enable the farmer to identify ways of improvement.

1. Defining the herd composition

Once the herd size has been aligned with the resource base pasture, the expected off-take (production) can be determined. Production levels should compare favourably to generally acceptable norms such as calving and/or weaning percentage and daily weight gain. Any substantial deviations must be identified and proactively addressed.

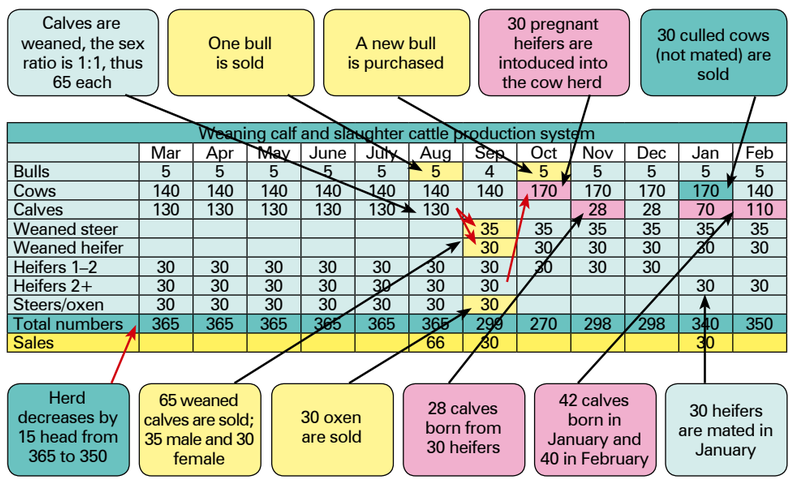
The production base, namely the cattle herd, consists of the following at the beginning of the financial year (1 March 2008):

- 5 breeding bulls (bull: cow ratio is 1:28)
- 140 cows, of which 30 will be culled and sold in January
- 130 suckling calves (male and female) born in January and February
- No weaned calves
- 30 replacement heifers which were born a year before (15 months old)
- 30 replacement heifers (27 months old), which were mated in January
- 30 steers/oxen (15 months) to be sold in September

	Mar
Bulls	5
Cows	140
Calves	130
Weaned steer	–
Weaned heifer	–
Heifers 1–2	30
Heifers 2+	30
Steers/oxen	30
Total numbers	365
Sales	

2. Cattle number matrix

Cattle numbers for each month have to be determined for at least a period of one year. Births and sales of cattle must be recorded. In addition to that, it is required that cattle are shifted from one group to the next during the given year. For example, pregnant heifers become cows.



Weaning calf and slaughter cattle production system

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Bulls	5	5	5	5	5	5	4	5	5	5	5	5
Cows	140	140	140	140	140	140	140	170	170	170	170	140
Calves	130	130	130	130	130	130			28	28	70	110
Weaned steer							35	35	35	35	35	35
Weaned heifer							30	30	30	30	30	30
Heifers 1–2	30	30	30	30	30	30	30	30	30	30		
Heifers 2+	30	30	30	30	30	30	30				30	30
Steers/oxen	30	30	30	30	30	30	30					
Total numbers	365	365	365	365	365	365	299	270	298	298	340	350
Sales						66	30				30	

Figure 8: Cattle number matrix

The summary as per cattle number matrix gives a clear overview of the cattle numbers of the year. It accounts for:

- Sales – the marketing plan
- Birth of calves – reproduction
- Shifts from one category to another – example heifers to cows
- Cattle numbers for each month required to calculate other production costs

3. Calculating the expected income

The numbers of and the months cattle are marketed can be derived from the cattle number matrix and are as follows:

- August: 1 bull, 35 weaned steers and 30 weaned heifers
- September: 30 slaughter oxen
- January: 30 cows

To determine the expected income, the farmer needs to know the approximate weight of the cattle, as prices are provided per kilogram of live weight or per kilogram of carcass weight. The carcass weight of cattle is approximately half the live weight. Prices are influenced by the condition of cattle at the time of marketing or the grade of the carcass.

The expected price per head of cattle is calculated by multiplying the weight (live weight or carcass weight) of cattle with the expected selling price per kilogram. Prices are readily provided by auctioneers, abattoirs, butchers and the Meat Board of Namibia.

Table 7 summarises the expected income from sales, as derived from the marketing plan.

Calculated income from sale of cattle						
	Number	Live weight (kg)	Price/kg	Price/head	Total income	Month to sell
Bulls	1	700	8.00	5,600.00	5,600.00	August
Cows	30	500	10.00	5,000.00	150,000.00	January
Calves steers	35	230	14.00	3,220.00	112,700.00	August
Calves heifers	30	210	13.00	2,730.00	81,900.00	August
Steers/oxen	30	450	11.00	4,950.00	148,500.00	September
Total income	126				498,700.00	

Table 7: Calculated income from sale of cattle

The estimated sales, based on weights and prices provided, are calculated at N$498,700.

Financial planning (budgeting) is based on expected prices and weights, which need to be estimated realistically but conservatively. Current market prices provide a reliable guideline. In addition farmers should continuously think of possible ways to increase their income. An increase in kilograms marketed (weight and number of cattle) increases the income.

The income calculated is recorded in the cash flow matrix in the respective month, as per example below. This forms part of the financial planning process.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income from sales						200,200	148,500				150,000		498,700

Table 8: Monthly recording of the income from sale of cattle

4. Production costs of the cattle farming enterprise

Successful livestock production, inclusive of cattle management, requires an optimal production environment. To be able to reach and maintain optimal levels of production, the farmer must provide for supplements (licks), animal health and parasite control. Good breeding bulls are equally important. Capable and committed people are additionally required to manage the herd on a day-to-day basis.

All factors mentioned must be quantified to weigh whether costs are less than the income, and to compare production costs with a generally acceptable standard.

5. The management calendar

The annual management calendar, or the farmer's year planner for the cattle herd, serves as a basis to calculate the production costs. Other cost factors such as labour, which do not form part of the management calendar but do form part of the cattle farming enterprise, must also be included.

<table>
<tr><th colspan="11">Management calendar: cattle</th></tr>
<tr><th>Mar</th><th>Apr</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>weaning calves</td><td></td><td></td><td></td><td></td><td colspan="2">cows are calving</td></tr>
<tr><td></td><td>mating of cows</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>mating of heifers</td><td></td></tr>
<tr><td></td><td></td><td>vaccinate calves</td><td>vaccinate all cattle</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>external parasite control</td><td></td><td>external parasite control</td><td>internal parasite control</td><td>internal parasite control</td><td></td><td></td><td></td><td></td><td></td><td>external parasite control</td><td></td></tr>
<tr><td colspan="3">green veld lick</td><td colspan="5">dryveld lick</td><td colspan="3">green veld lick</td></tr>
<tr><td></td><td></td><td></td><td colspan="4">veld finisher lick</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>marketing</td><td>marketing</td><td></td><td></td><td></td><td>marketing</td><td></td></tr>
</table>

Table 9: Example of a management calendar for cattle

6. Quantifying production costs

6.1 Marketing costs

- All cattle are marketed on auction 100 km away from the farm. The transportation costs are N$25.00 per freight kilometre, thus a load of cattle to the auction will cost N$2,500.00. Two trips in August (65 calves and 1 bull), one trip in September (30 oxen) and another trip in January (30 cows) have to be paid for.

- Commission on the sale of cattle is payable to the auctioneer for the services provided, and is calculated at a rate of 6 % on the proceeds from sales. The estimates are N$12,012.00 for sales in August, N$8,910.00 for September, and N$9,000.00 for January. (Example: Sales in August: N$200,200.00 x 6 % = N$12,012.00).
  (The commission is directly deducted by the auctioneer, but for financial planning and bookkeeping purposes the farmer needs to record this separately.)

6.2 Vaccination programme

- In May, all 130 calves are vaccinated with a combined botulism and black quarter vaccine. A bottle of 100 ml containing 50 doses costs N$230.00. The cost of the required three bottles is N$690.00. (Calves need a booster vaccine 3–4 weeks later.)

- In June, the entire cattle herd is vaccinated with a 3-in-1 vaccine (anthrax, black quarter, and botulism). A 100 ml bottle containing 50 doses costs N$340.00. The entire herd of 365 cattle would require 8 bottles of vaccine, which cost N$2,720.00.

- Also in June, the herd is vaccinated against rabies. A bottle of vaccine containing 10 doses (10 ml) costs N$36.00 and 40 bottles are bought to vaccinate the herd. The cost is N$1,440.00.

- All 65 suckling heifers receive a brucella S19 vaccination in May. Four packets of vaccine (20 doses) at N$80.00 each are thus required at a total cost of N$320.00.

6.3 Internal parasite control programme

- The entire herd of 365 head is consecutively dosed at 4-week intervals with the onset of the dry season in June. On average, 30 cattle can be treated once with one litre of the dosing remedy that costs N$180.00. Accordingly, thirteen litres are needed in June and in July respectively. Thirteen litres cost N$2,340.00.

- All cattle are treated three times during the year (March, May, January) against external parasites by applying an environmental-friendly pour-on. Approximately 30 cattle can be treated with one litre costing N$380.00. For both March and May, 13 litres are needed at a cost of N$4,940.00, while only 11 litres are required in January at a cost of N$4,180.00.

6.4 General medication

Each farm has a veterinary chest (animal first aid kit) which is stocked with a collection of remedies and medicines, such as various antibiotics used to treat sick animals. Stock not used, expires (see expiry date) and has to be disposed. Replacement of stock has to be budgeted for. In May and January (as per example) the veterinary chest is re-stocked at an approximate cost of N$1,000.00.

6.5 Supplementation programme

The cattle herd is provided with a greenveld lick (mineral lick) from December to May, and a dryveld lick (protein lick) from June to November. The thirty oxen to be marketed in September receive a veld finisher lick (protein-energy lick) from June until September.

- Greenveld lick is a mixture of 50 kg coarse salt (N$30) and 50 kg P12 (N$420.00). The recommended daily intake is 150 g per day.

  For the period March to May, 16 bags of salt and 16 bags of P12 are required each month, costing N$7,200.00 per month. In December, only 13 bags each are needed at a cost of N$5,850.00, while 15 bags, which will cost N$6,750.00 are required for January and February. The following table explains the calculation in further detail.

	Number of cattle	Daily intake per head (g)	Monthly intake per head (g)	Monthly intake for entire herd (g)	Monthly intake for herd (kg)	Number of 50 kg bags	Half of bags = coarse salt	Half of bags = P12
March–May	365	150	4,500	1,642,500	1,642.5	32,85	16,43	16,43
December	298	150	4,500	1,341,000	1,341	26,82	13,41	13,41
Jan–Feb	340	150	4,500	1,530,000	1,530	30,6	15,30	15,30

Example March: 16 bags salt @ N$30.00 = N$480.00 + 16 bags P12 @ N$420.000 = N$6,720.00 = a total of N$7,200.00

- **Dryveld lick** is provided at the recommended rate of 500 g per head per day from June to November. The herd's requirements are calculated in the following table:

	Number of cattle	Daily intake per head (g)	Monthly intake per head (g)	Monthly intake for entire herd (g)	Monthly intake for herd (kg)	Number of 50 kg bags
June–Aug	365	500	15,000	5,475,000	5,475	109,5
Sept	299	500	15,000	4,485,000	4,485	89,7
Oct–Nov	270	500	15,000	4,050,000	4,050	81

(*Note: The 28 calves born in November are excluded from the calculation.*)

As a bag of dryveld lick (50 kg) costs N$150.00, the lick cost for June to August is N$16,500.00, N$13,500.00 for September, and N$12,150.00 for October and November respectively.

- **Veld finisher lick** is provided to the thirty slaughter oxen at 1 kg per head per day. This means that 18 (50 kg) bags are provided per month from June to September at a total cost of N$2,160.00. One bag costs N$120.00.

- Additional costs have to be budgeted for to account for additional transport to collect supplements. The overall budget is based on one town trip per week, which is not sufficient to collect the supplements as required. Accordingly, two additional town trips at a cost of N$400.00 per trip (2 x N$200.00) have been added from June to September. (The normally planned town trips have been quantified under farm overhead costs/indirect costs.)

6.6 Other direct costs

- One cattle herd manager solely responsible for the herd is employed and remunerated at a rate of N$1,000.00 per month. An assistant is temporarily appointed from November to March each year to assist with calving during the calving season and with the aftercare. The assistant receives a package of N$700.00 per month.

- It is planned to buy a bull in October, and N$30,000.00 is allocated for this purpose.

7. The cash flow matrix

The quantified production costs are recorded in the cash flow matrix in the month they will occur. The cash flow matrix on the next page (see Table 10) is an example based on this case study.

The total expected income and production costs (payments) are calculated by adding up the figures appearing in the respective rows. This information is used to compile the budgeted income and payment statement for the cattle production enterprise.

8. Budgeted income statement for the cattle farming enterprise

The total expected income from sales and the total production costs are summarised by compiling an income statement as per Table 11.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
INCOME FROM SALES						200,200	148,500				150,000		498,700
PRODUCTION COST													
Marketing:													
Transport to market						5,000	2,500				2,500		
Commission on sales						12,012	8,910				9,000		
Total marketing cost:						17,012	11,410				11,500		39,922
Supplements (licks):													
Greenveld lick	7,200	7,200	7,200							5,850	6,750	6,750	
Dryveld lick				16,500	16,500	16,500	13,500	12,150	12,150				
Veld finisher lick				2,160	2,160	2,160	2,160						
Additional town trips				800	800	800	800						
Total cost of supplements	7,200	7,200	7,200	19,460	19,460	19,460	16,460	12,150	12,150	5,850	6,750	6,750	140,090
Animal health:													
2-in-1 vaccine for calves			690										
Brucella S19 – suckling heifers			320										
3-in-1 vaccine for all cattle				2,720									
Rabies for all cattle				1,440									
Internal parasite control				2,340	2,340								
External parsite control	4,940		4,940								4,180		
General medication			1,000								1,000		
Total cost for animal health	4,940	0	6,950	6,500	2,340	0	0	0	0	0	5,180	0	25,910
Other direct costs:													
Labour	1,700	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,700	1,700	1,700	1,700	15,500
Purchase of new bull								30,000					30,000
Total other costs	1,700	1,000	1,000	1,000	1,000	1,000	1,000	31,000	1,700	1,700	1,700	1,700	45,500
Total production costs	13,840	8,200	15,150	26,960	22,800	37,472	28,870	43,150	13,850	7,550	25,130	8,450	251,422

Table 10: Cash flow forecast for the cattle farming enterprise

Income Statement: Cattle Farming		
Income from sale of cattle:		498,700.00
Less direct production costs		251,422.00
Marketing	39,922.00	
Supplements & feed	140,090.00	
Animal health programme	25,910.00	
Labour	15,500.00	
Purchase new bull	30,000.00	
Surplus from cattle farming		247,278.00

Table 11: Income statement for cattle

The calculated surplus of the cattle farming enterprise is **N$247,278.00**. Direct production costs are about half (50 %) of the income, which is acceptable.

Supplementation is a substantial costing factor that boosts the overall farming production. Without supplementation at the correct levels, income is expected to be much less than the cost of supplementation (licks).

Required production inputs are unique for each enterprise, depending on the type of cattle (breed), the farming area, quality of pastures and the management style. Farmers have to determine direct production costs according to their specific needs. An expert's advice in this regard is recommended.

CHAPTER 7
The Goat Farming Enterprise

Goat farming can be a profitable enterprise provided that the herd is efficiently managed and is highly productive. This requires a suitable resource base, healthy goats and a balanced diet. To determine the potential income from the goat herd, production costs need to be offset from the income of sales.

1. Goat herd composition

The goat herd, as analysed per example, consists of 80 does (ewes) in production mated in August (for 45 days) and kidding five months later in January when feeding (browsing) conditions are optimal. Two bucks (rams) are used during the mating season, of which one is replaced each year. On average, 120 kids (lambs) are born of which 100 survive until weaning in June. A total of 30 weaned does and 25 wethers (*kapaters*) are sold in November each year when prices are expected to be highest. In addition, 20 culled does are sold at the same time, which are replaced by does kept back the previous year and are mated at 1½ years (when they have two teeth). In December 25 two-year old wethers are sold, when there is a high demand for slaughter goats.

2. Goat number matrix

Goat Farming Enterprise												
	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Bucks	1	1	1	2	2	2	2	2	1	1	1	1
Does	80	80	80	80	80	80	80	80	80	80	80	80
Culled does not mated						20	20	20	20			
Suckling kids	100	100	100								120	110
Weaned does				50	50	50	50	50	50	20	20	20
Weaned wethers				50	50	50	50	50	50	25	25	25
Young does	20	20	20	20	20							
Wethers 1–2	25	25	25	25	25	25	25	25	25	25		
Total numbers	226	226	226	227	227	227	227	227	226	151	246	236
Sales									75	25		

Purchase of a new buck

Mating goats for 45 days

20 culled does are not mated

Sale of buck, culled does and weaners

Sale of 25 slaughter goats

120 kids born, expected losses 20

Figure 9: Goat number matrix

The information provided is recorded in the matrix (Figure 9). This gives an overview of the goat numbers throughout the year and indicates the numbers and months of planned marketing.

In addition, the matrix provides an overview of goat numbers on a monthly basis required to calculate the production costs of the herd.

3. Resource utilisation

Goats are primarily browsers, feeding mostly on shrubs found on the farm. The amount of forage available depends on the bush density, species composition, and height of shrubs or trees. On most farms, the feed resource base for goats exceeds the goat herd(s) requirements by far.

A 300-head goat herd browsing in a radius of 2 km (yellow circle on map) around a water point only utilises 600 ha of the farm. A farm measuring 5,000 ha can thus accommodate 8 goat herds of similar size (eight yellow circles on the map).

The farmer has the resource "browse" available – it's up to him to optimally utilise it.

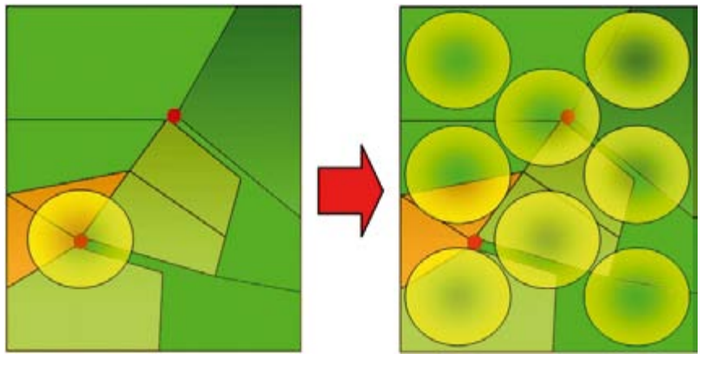


Figure 10: Area used by goat herd(s)

While goats are predominantly browsers, 30 % of the forage they consume is grass. Therefore, to a certain extent, goat herds compete with cattle herds for grazing. To accommodate the increasing number of goats, the cattle herd needs to be reduced at a rate of 1 LSU to each additional 20 goats. (1 LSU = 6 SSU; 1 SSU @ 30 % grazing = 3.33 @ 100 % grazing; 1 LSU = 20 SSU @ 30 % grazing.)

4. Calculating the expected income

According to the marketing plan the following goats will be sold:

- November: 1 buck, 20 culled does, 30 one-year-old does, and 25 one-year-old wethers.
- December: 25 two-year-old slaughter goats

The expected selling prices of the goats are determined by their weights and the market-related prices (per kilogram live weight). Weights can be derived from the farmer's records and market prices can be sourced from small stock auctioneers and local butchers. The prices are calculated by multiplying the weight of the goats by the expected price (N$/kg live weight).

The income of the goat herd, as per case study discussed, is summarised in Table 12.

Calculated income: sale of goats						
	Number	Live weight (kg)	Price/kg	Price/head	Total income	Month to sell
Bucks	1	75	9.00	675.00	675.00	November
Does	20	40	10.00	400.00	8,000.00	November
Weaned does	30	24	17.00	408.00	12,240.00	November
Weaned wethers	25	27	18.00	486.00	12,150.00	November
2-year old wethers	25	45	12.00	540.00	13,500.00	December
Total income	101				46,565.00	

Table 12: Calculated income from sale of goats

The expected income from the goat herd is N$46,565.00, calculated according to prevailing market prices. Farmers that sell high-quality goats used for breeding purposes, might receive much higher prices for the goats they sell.

Livestock losses that occur during the year are not accommodated in this budget. To account for losses, the income needs to be reduced according to the loss rate. This is reflected by lower sales.

The calculated income is recorded in the cash flow matrix as per example:

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income from sales									33,065	13,500			46,565

Table 13: Monthly recording of income from sale of goats

5. Production costs of the goat farming enterprise

Like the cattle farming enterprise, a productive goat herd requires various inputs ranging from animal health programmes to labour needed to manage the herd on a daily basis. Costs must be quantified accurately and matched with the expected income to find out whether goat farming is indeed as profitable as expected.

The farmer's "Goat Management Calendar" (Table 14) provides a good guideline to plan for income and expenses. Other cost factors not listed need to be quantified and accounted for as well.

Management calendar: goats												
Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb
		weaning of all kids			mating & culling of ewes					main kidding season	
vaccinate all goats				vaccinate all ewes to be bred					vaccinate against Orf*		
				internal parasite control			internal parasite control		Internal & external parasite control		
		external parasite control									external parasite control
				flush feed all ewes to be mated			protein lick – all				
provide mineral lick blocks throughout the year											
								marketing	marketing		

* Orf: scabby mouth

Table 14: Example of a management calendar for goats

6. Quantifying production costs

Production costs are calculated by determining the quantity of inputs required and the cost thereof, based on prevailing or expected market prices.

6.1 Marketing costs

- Goats are transported to the auction on the farmer's pick-up truck, which can load up to 25 goats at a time. One return trip to the auction costs N$400.00. The farmer schedules three trips in November, and two more trips in December. (N$1,200.00 for November and N$800.00 for December.)
- Auctioneers charge a commission on sales at a rate of 6 %. After calculations, an estimated commission on sales of N$1,984.00 and N$810.00 is calculated for November and December respectively.
  (N$33,065.00 x 6 % = N$1,983.90/N$13,500.00 x 6 % = N$810.00)

6.2 Vaccination programme

- The entire herd of 226 head is vaccinated with a combined vaccine in March. One bottle of vaccine (500 ml) contains 125 doses and costs N$900.00. Two bottles are needed at a cost of N$1,800.00 to vaccinate 226 goats.
- In addition, the herd is vaccinated against rabies in March. Vaccine costs N$36.00 for a bottle of 10 ml, with a dose of 1 ml per head. 25 bottles are needed at a cost of N$900.00.
- Prior to mating (in June), all ewes are vaccinated against enzootic abortion. Two bottles (each with 50 doses costing N$550.00) are needed. The total cost is N$1,100.00.
- In June the two bucks are vaccinated against brucella ovis before being introduced in the herd. Two single doses are purchased from the veterinarian at a cost of N$100.00.
- Before the kidding season in December, the entire herd is vaccinated against orf (scabby mouth). The vaccine for the entire herd costs N$200.00.

6.3 Parasite control programme

- The entire herd is treated against external parasites in February and May by applying an environmental-friendly pour-on. Two litres at a cost of N$100.00 will be used each time. One treatment of the herd costs N$200.00.
  (8 ml per goat x 230 goats = 1,840 ml = 2 litres.)
- All goats are dosed in July and October (after the first frost and with the onset of budding) against internal parasites. Two litres at a cost of N$120.00 will be used each time. One treatment of the herd costs N$240.00.
  (8 ml per goat x 230 goats = 1,840 ml = 2 litres.)
- In December, the herd is injected with a remedy controlling both internal and external parasites. The recommended dose is 1 ml per head (up to 50 kg), with 125 animals to be treated. Three bottles of 50 ml at a price of N$250.00 are required. The total cost is N$750.00.
- The cost of the general medication (antibiotics, etc.) of the goat herd is estimated at N$1,000.00 per year. Remedies will be acquired in May and January respectively.

6.4 Supplementation programme

- Mineral lick blocks are provided throughout the year at a rate of four blocks per month. The monthly cost thereof is N$120.00, based on a price of N$30.00 per block.

- All does are provided with flush feed (an energy-protein supplement) from July to September at a rate of 50 grams per day. Accordingly, 3 bags at a cost of N$150.00 per bag are needed each month, costing N$450.00 per month. (100 x 50 g x 30 days = 150,000 g = 150 kg = 3 x 50 kg bags)

- During the months of October and November, when feeding conditions are poor, the herd is provided with a protein lick at a rate of 50 g per head per day. 7 bags at N$150.00 per bag are needed each month – thus the lick costs N$1,050.00 per month. (227 x 50 g x 30 days = 340,500 g = 340 kg = 7 x 50 kg bags.)

- The breeding bucks are kept away from the herd in an enclosure (small camp) except for the breeding season, and therefore need to be fed. Apart from grass harvested on the farm, each buck receives half a bag of lucerne pellets per month (cost per bag is N$150.00), and energy supplements at a cost of N$25.00 per month. The feeding cost per buck is thus calculated at N$100.00 per month.

6.5 Other direct costs

- One goat herd manager (herder) is employed throughout the year and receives a remuneration package of N$700.00 per month. During the kidding season an assistant to the herd manager is employed temporarily and earns N$350.00 per month. In July, when the herd manager is on leave, another herder is employed temporarily.

- The dog food of the two guard dogs costs N$100.00 per month. In addition, they are de-wormed in March and October (N$100.00), and vaccinated in October (N$100.00).

- Each year one buck is replaced. It is planned to buy a new buck in June at a price of N$3,500.00.

7. The cash flow matrix

The expected income and the calculated production costs (as set out) are recorded in the cash flow matrix in the column representing the month in which they occur. The total for each row is added up to give the total expected income and production costs. The cash flow matrix chart serves as an excellent tool to summarise the expected income and costs required to compile the income statement.

Table 15 is an example of a summary of the income and production costs in a cash flow matrix.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income from sales									33,065	13,500			46,565
Production cost													
Marketing:													
Transport to market									1,200	800			
Commission on Sales									1,984	810			
Total marketing cost:									3,184	1,610			4,794
Supplements (licks):													
Mineral blocks	120	120	120	120	120	120	120	120	120	120	120	120	
Flush feed & protein lick					450	450	450	1,050	1,050				
Buck maintenance – at kraal	100	100	100	200	200	200	200	200	100	100	100	100	
Total cost of supplements	220	220	220	320	770	770	770	1,370	1,370	220	220	220	6,690
Animal health:													
Combined vaccine all	1,800												
Rabies all	900												
Enzootic abortion – ewes to mate					1,100								
Orf vaccine – all										200			
Vaccinate bucks								100					
Internal parasite control					240			240		750			
External parasite control			200									200	
General medication			500								500		
Total cost for animal health	2,700	0	700	0	1,340	0	0	340	0	950	500	200	6,730
Other direct costs:													
Labour	700	700	700	700	1,400	700	700	700	700	700	1,050	1,050	9,800
Dog food & health	200	100	100	100	100	100	100	300	100	100	100	100	1,500
Purchase of new buck				3,500									3,500
Total other costs	900	800	800	4,300	1,500	800	800	1,000	800	800	1,150	1,150	
Total production costs	3,820	1,020	1,720	4,620	3,610	1,570	1,570	2,710	5,353.9	3,580	1,870	1,570	33,013.9

Table 15: Cash flow matrix for goats

8. Budgeted income statement of the goat farming enterprise

The total expected income from sales and the total calculated production costs are put against each other in the budgeted income statement as per Table 16.

The calculated cash surplus generated by the goat farming enterprise is N$13,551.10, or approximately one third of the income from sales.

The potential to increase the net surplus from the enterprise by multiples exists if the size of the herd is expanded (increased), and also considering the capacity of the farm to maintain eight herds of 300 goats.

Income statement: goat farming		
Income from sale of goats:		46,565.00
Less: direct production costs		33,013.90
Marketing	4,793.90	
Supplements & feeds	6,690.00	
Animal health programme	6,730.00	
Labour	9,800.00	
Guarding dogs	1,500.00	
Purchase new buck	3,500.00	
Surplus from goat enterprise		13,551.10

Table 16: Income statement for goat farming

The surplus from goat farming could be at an estimate of about N$108,408.80, thus eight times the current surplus, if the whole farm were utilised for the purpose.

On the other hand, the farmer should question the viability of the goat farming enterprise, considering the relative small surplus compared to both the capital investment in the herd and management inputs (time) required. Farmers should therefore question the validity of keeping small goat herds with the aim of generating an income.

The highest production cost is the cost of labour (herd manager). Herding is required to protect the herd from predators and even theft. Added to that, the farmer should know that the consumer does not approve of the indiscriminate removal of predators. Furthermore, it is necessary to appoint someone to manage a herd of close to 300 goats, otherwise it won't generate a surplus at all.

CHAPTER 8
Financial Performance of a Livestock Farming Enterprise

With the rewards and great potential benefits that farming entails, it has become a challenge and a daunting task for most farming enterprises to generate a viable cash flow from livestock farming (cattle and goats) alone. Farmers are faced with high overhead costs, loans to pay back, other farming financial costs, and the need to sustain a decent living standard, with which they continue to battle. Therefore, additional income is often required to make ends meet – which could be sourced right from the farm itself.

1. The performance of the livestock farming enterprise

After analysing the financial performance of the livestock farming enterprises (goats and cattle) in the case study presented, it becomes apparent that the income generated is insufficient to meet the farmer's financial obligations. The calculations have indicated that there is a **cash shortage of N$138,821.64**.

The expected financial performance of the farming enterprise is reflected in Table 17. This is a summary of the expected income and payments over a 12-month period (annual budget).

The budgeted scenario of the combined farming livestock enterprises looks as follows:

- Farming overheads: N$399,650.74
- Surplus: cattle farming: N$247,278.00
- Surplus: goat farming: N$13,551.10
- Cash deficit: N$138,821.64

After budgeting for income and production costs, both directly and indirectly, it becomes clear that the expected farming income derived from goat and cattle farming is not high enough to meet all the financial obligations. In other words, the income is not enough to pay a bank instalment on the loan for the farm of **N$157,549.06**.

If the farmer did not have to pay the instalments on the farm and the pick-up, an expected **cash surplus of N$75,823.30 apart from personal drawings of N$60,000.00** would be generated. This is why farmers without loans (loan obligations) are better off.

Summary of income and payments		
Cattle farming enterprise		
Income from sales	498,700.00	
Less direct production costs	251,422.00	
Equals gross surplus		247,278.00
Goat farming enterprise		
Income from sales	46,565.00	
Less direct production costs	33,013.90	
Equals gross surplus		13,551.10
Total gross farming surplus		260,829.10
Payments: farming overheads		399,650.74
Instalment – farm	157,549.06	
Instalment – pick-up	57,095.88	
Land tax	7,875.00	
Insurance farm	9,600.00	
Insurance workers	5,330.80	
Membership fees	1,500.00	
Banking fees	3,600.00	
Interest on overdraft	6,600.00	
Fuel – vehicles	12,000.00	
Fuel – water pumps	12,000.00	
Labour – general	28,800.00	
Drawings – private	60,000.00	
Repairs & maintenance: vehicles	12,000.00	
Repairs & maintenance: water pumps	12,000.00	
Repairs & maintenance: windmills	1,700.00	
Repairs & maintenance: tools & equipment	3,600.00	
Repairs & maintenance: infrastructure	2,400.00	
Sundry expenses	6,000.00	
Cash surplus / shortage		–138,821.64

Table 17: Summary of budgeted income and payments

The farming enterprise itself is profitable, but the cash surplus generated is simply not enough to repay the loan. And that is the objective of the farmer: to generate enough cash to meet all the financial obligations of the farming enterprise, and to have an acceptable management fee included.

In order to balance income and required payments, the farmer must increase his income and/or reduce his payments/spending. A farmer must always have options open, and explore/analyse those options in great detail. Below is an example of two options a farmer might have.

To increase the income, the farmer has two options:

- Introduce off-farm income to balance/meet cash shortages (i.e. income sourced from the personal income or salary of the farmer)
- Utilise other resources available on the farm to generate an income

Sourcing an amount of N$140,000.00 per year from off-farm sources is in most cases very difficult, thus leaving the farmer with no choice than to utilise other resources available on the farm.

Buying a farm basically means acquiring the right to utilise all the resources available on the farm. The farmer thus paid a price for the utilisation of not only the pastures, but also the right to utilise woody species (e.g. bush, shrubs, trees), wildlife, water, etc. The opportunities for resource utilisation are in principle unlimited: all that is required is to implement structures to utilise these resources, and this does not always require substantial capital investments.

For example, the net income of the goats can be increased by approximately N$95,000.00 if the herd size is aligned with the production potential of the farm.

In addition, there is the opportunity to use the following resources, which will be outlined in the following chapter.

- Utilisation of wildlife (venison and trophies)
- Utilisation of woody species (poles, firewood and charcoal)

Furthermore, overhead costs can be substantially reduced, especially when focusing on the following:

- Instalment on the pick-up – a cheaper pick-up would require a lower instalment
- Labour – the cost of labour can be reduced by employing fewer people (not ideal!)
- Drawings (funds used for private purposes) – decrease personal expenses

Taking the abovementioned into consideration, it seems possible to increase the income to higher levels, thereby meeting all the required financial needs. This will be analysed in further detail in the following chapters.

It is of utmost importance that the farmer bases the budget on realistic figures. A conservative approach, thus budgeting for a lower income and higher payments, is generally recommended.

CHAPTER 9
The Utilisation of Game on Farmland

Game on farmland is a natural resource that can be conditionally utilised by farmers to generate an additional income. Trophy hunting and sale of venison provide a suitable opportunity. It is important that game is jointly managed by neighbouring farmers and is at all times sustainably utilised.

1. Income opportunities arising from game on the farm

1.1 Trophy hunting

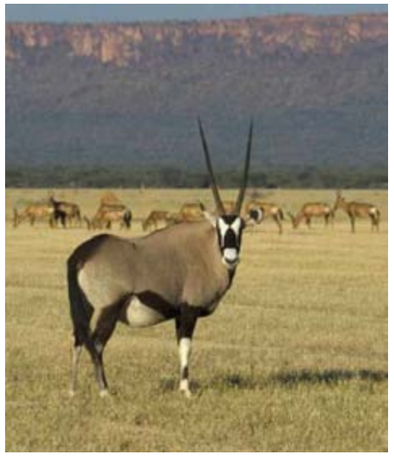
Worldwide, trophy hunting is a popular activity; and in Namibia it is a fast-growing industry. Hunters love to travel to other countries to shoot trophies of indigenous species. Namibia with its variety of huge and free-ranging game herds is a popular destination for adventurous trophy hunters. Trophy animals suitable for hunting are found on farms. Farmers therefore have the opportunity to sell these trophy animals to trophy hunters and thereby earn an additional income.

1.2 Venison

Meat of game (venison) is very popular and highly in demand, both locally and abroad, because it is healthy, tasty and naturally produced. It makes excellent biltong, sought after by the South African market. Game herds, from which venison is sourced, are found on farms and can therefore be conditionally utilised to earn an income.

2. Game as a natural resource

Game is a natural resource which can and should be utilised on a sustainable basis. Game herds compete for limited pastures and therefore reduce the potential income from livestock herds. Utilising game to earn an income makes up for reduced income from livestock farming. It is even possible to earn a higher income from utilising game than from livestock on a farm.



All wildlife, including huntable game, is a national asset. Commercial farmers are privileged to be allowed to fully utilise this resource, while individual user rights on resettlement farms and in communal farming areas are subject to stringent regulations.

Because game moves over vast areas beyond farm borders, it is required that farmers jointly manage this resource. Nothing is more detrimental to this national asset than its over-exploitation by individuals. Managing wildlife within an organised framework such as conservancies has proved to be effective and beneficial for individual farmers.

3. Quantifying the resource base

Farmers jointly need to determine the game numbers of their farming area on an annual basis. This can be effectively done by conducting 24-hour water hole counts in the dry season. Sustainable levels of off-take should be defined accordingly and be fairly allocated to individual farmers. Specialist advice is recommended in this regard, as game herd management needs to be based on sound knowledge.

Table 18 gives an example of the expected game species, numbers and composition found on the farm.

Once the resource base has been determined, sustainable levels of off-take can be defined. This should be done in collaboration with neighbouring farmers and professional experts. Defined levels should at all times be sustainable and in line with a long-term management plan.

Estimated game numbers and species composition					
Species	Counted number	Males	Females	Juveniles	Potential trophies
Oryx	130	50	60	40	30
Kudu	180	50	80	50	25
Hartebeest	58	20	25	13	10
Eland	98	25	50	23	5
Warthog	176	30	40	106	10

Table 18: Estimated game numbers and species composition

3.1 The number of trophy animals

It takes several years (6–10 years) for an animal to reach the trophy stage. The top trophy animals are the best breeding males, and they should therefore only be shot once they have passed their main reproductive phase. Although the number of potential trophy animals counted is quite high, farmers are advised to use only a few of them each year. This provides for next year's hunting opportunities and enables males with good traits to reproduce before being shot. This applies to all farmers in an area. It is agreed to allow the hunting of 5 x oryx, 4 x kudu, 2 x hartebeest, 1 x eland and 5 x warthogs. (This is subject to a permit to hunt trophy animals issued by the Ministry of Environment and Tourism.)

3.2 Number of animals to be harvested for venison

Game is reproductive and herds are growing. This requires the size of game herds to be controlled. If production levels exceed own consumption (and trophy hunting), additional culling is necessary to keep the size of game herds in line with the capacity of the farmland. Older females, weaker males and some juveniles should be harvested. The numbers should be determined in close consultation with neighbours, supported by professional advice. It must also be kept in mind that game provides the prey bases for predators, which take their fair share as well. Maintaining a healthy game population on the farm therefore prevents and/or reduces livestock losses to predators. It is planned to cull 15 x oryx, 20 x kudu, 5 x hartebeest and 5 x eland during the year.

4. A practical approach to game utilisation

Once the farmer has determined the numbers and species of game to be utilised during the year, he must think of the most suitable and also profitable options to realise this potential income.

4.1 Trophy hunting

Trophy hunting entails the guiding of the paying hunter to the trophy. This can be done by the farmer him/herself (if he/she is a registered hunting guide) or by a professional hunter becoming involved. Substantial investment, ranging from acquiring the necessary qualification to the required infrastructure and facilities, is needed before the farmer can engage in trophy hunting. As this is often not possible (for various reasons) or simply not envisaged, the farmers need to explore alternative options. For example, the trophies can be sold to a professional hunter (PH), who, in turn, will sell the trophies to the hunter-client. This, in principle, means that the hunting rights on the farm are sold to an independent hunter in the form of a hunting concession. It is common practice that the PH pays the farmers half of the trophy price.

The potential income from the sale of the trophies can be calculated as going market prices for trophies are freely available. Table 19 gives an indication of the potential income. In addition, the farmer keeps the carcass of the animal (only the trophy, thus head and hide, is sold), which can generate an additional income if sold.

Proceeds from trophy hunting					
Species	Price per trophy	Number of trophies	Total proceeds	50 % received by the farmer	50 % earned by the hunter
Oryx	6,000.00	5	30,000.00	15,000.00	15,000.00
Kudu	10,000.00	4	40,000.00	20,000.00	20,000.00
Hartebeest	6,000.00	2	12,000.00	6,000.00	6,000.00
Eland	12,000.00	1	12,000.00	6,000.00	6,000.00
Warthog	5,000.00	5	25,000.00	12,500.00	12,500.00
			119,000.00	59,500.00	59,500.00

Table 19: Proceeds from trophy hunting

The calculated income from the sale of trophies is N$119,000.00. In this case study, the trophy hunting enterprise is based on the sale of trophies to a PH; thus selling a specific hunting concession on the farm. The price of the concession is based on half of the expected proceeds from the sale of trophies (the farmer has the option to negotiate for a better deal). It is agreed that the PH pays the amount of N$59,500.00 in advance in April. The PH earns the other 50 % of the trophies in addition to the fees charged for guiding, (tented) accommodation on the farm and transport.

This business venture does not include any direct production costs. Proceeds are therefore equal to the net cash surplus for the farming operation.

4.2 Sale of venison

Sale of venison (game meat) includes hunting, slaughtering and delivery of carcasses to the butcher. The farmer can do this, provided the necessary infrastructure, such as a cold room and proper slaughter facilities, is in place. Alternatively, the farmer can sell the game quota to a meat processor, who takes care of the harvesting process and pays a fixed price as agreed upon. This has the advantage that the whole quota is harvested within a day or two. Professional operation minimises damages to the carcass and thereby increases the price. The second option (selling the quota) is pursued in this case study with harvesting taking place in June when game is still in a good condition.

The potential income from the sale of venison is derived from the number of animals to be harvested, their respective carcass weights and the kilogram price for the carcass. Prices can be sourced from local venison processors and butchers. Table 20 gives an overview of the calculated income with the sale of venison based on the number and species to be harvested. No direct production costs are applicable and the income therefore is the gross surplus from the enterprise. The potential income from this enterprise is calculated at N$91,475.00. No direct production costs apply as the meat processor harvests and collects the product at own cost. The income therefore represents the net surplus.

Proceeds from sale of venison						
Species	Number	Live weight (kg)	Carcass weight (kg)	Price/kg for carcass	Proceeds unit (N$)	Proceeds all (N$)
Oryx	15	220	110	17.00	1,870.00	28,050.00
Kudu	20	220	110	17.00	1,870.00	37,400.00
Hartebeest	5	130	65	15.00	975.00	4,875.00
Eland	5	470	235	18.00	4,230.00	21,150.00
Total proceeds						91,475.00

Table 20: Proceeds from the sale of venison

Namibian farmers have the opportunity to utilise game to earn an additional income. The key to success lies in partnerships with both hunting safari operators and processors of venison.

CHAPTER 10
The Utilisation of Woody Species

Bush encroachment is regarded as a major challenge in Namibia. But instead of regarding it as a threat, farmers should realise that woody species indeed provide a viable opportunity to generate an income. Woody species provide browse, firewood, charcoal and poles which can be marketed.

1. The demand for products from woody species

1.1 Firewood and charcoal (biofuel)

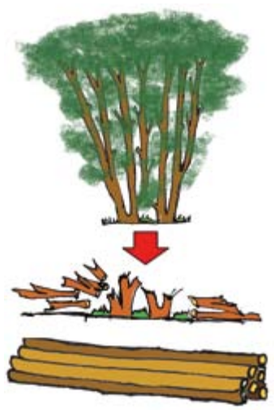
Firewood and charcoal are used, throughout the world, on a daily basis by many households to cook food. This is often the only or the cheapest source of energy available for this purpose. Electricity and gas are substitutes, which are often not freely available or simply unaffordable.

A firewood-consuming suburb with, for example, 1,000 households uses firewood to the value of N$120,000.00 per month, if the daily demand of one household is quantified at N$4.00. This essentially means that the farmer has the potential to become a supplier and earn an income.

Firewood and charcoal are also used for leisure, such as for popular week-end barbeques (braais) and indoor fireplaces used for heating of lounges in upper-class households. This provides for another potential market in Namibia, neighbouring South Africa and even in Europe.

Industries, such as the smelters of mines, use huge amounts of fuel for heating purposes. Whereas mined coal is currently used as the main source, it is increasingly being substituted by biofuel, such as charcoal. This is another growing market from which farmers can benefit.

In Namibia, trials are under way to test the viability of using intruder bush to generate electricity. If this proves to be a viable operation, farmers will ultimately become the suppliers of fuel (bush) to these electricity-generating plants.



1.2 Poles

Larger trees and shrubs provide poles which are used for various purposes, including fencing and building. For example, a fence line of 1 km requires 55 poles and 450 suspended poles (droppers). The going market price for a pole is N$40.00 and N$6.00 for a dropper. The cost of poles per kilometre fence line is approximately N$5,000.00. As many kilometres of fence lines in Namibia are planned to be erected and/or need to be maintained, there is a continued demand for poles. Farmers could be the potential suppliers.

If it is assumed that an average sickle-bush bush provides five droppers (and the off-cuts firewood), and each dropper is sold for N$3.00, then each bush has the potential to generate a net income of about N$15.00, off-cuts included. At a rate of 500 bushes per hectare this could give the farmer an income of N$7,500.00 per hectare!

2. Woody species as a natural resource

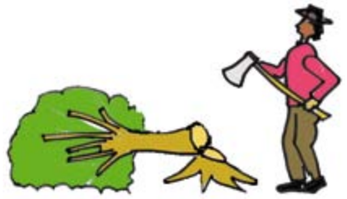
It is estimated that bush-encroached farmland has the potential to provide on average 10 tons of wood per hectare, and this by bush thinning only. If wood (harvested bush) is valued at only N$200.00 per ton, this would mean that the average farmer owns wood (bush) to the value of N$10 million on a 5,000-ha farm. (N$2,000.00 per ha x 5,000 ha). This is many times the farm price paid. Regrowth of bush makes continued harvesting possible. Bush thus provides an enormous potential to generate an income, and should therefore not be regarded as a threat, but rather as an opportunity.

Woody species (bush) play an important role in the farm ecosystem. Bush does not only provide feed to browsers, but it also provides a habitat for many animals and fertilises the pastures by means of the natural mineral cycle (which is based on the deep-root system and the nitrogen-fixing capacity of acacias). Its contribution to the farm's maintained productivity is difficult to quantify. The total removal of bush should therefore NOT be envisaged, it should rather be focused on bush thinning with the aim of restoring pastures to their natural state, including bush.

On the other hand, it is a well-known fact that bush encroachment affects the production potential of natural pastures and the water cycle negatively. Thinning of bush is therefore required; but instead of doing this at a cost, it should be utilised to generate an income.

Woody species indeed create a viable opportunity to earn the much-needed additional income – and this to such an extent that more money is earned from bush utilisation than from livestock farming. Maybe a shift of perception is required: **"Being a 'bush farmer' instead of a 'livestock farmer'."**

3. Quantifying the resource base



Each farm is unique, and so is its potential to utilise woody species. Farmers therefore have to assess the production potential of their farms, taking all relevant factors into consideration, before planning for the utilisation of this resource and budgeting for an income. It needs to be clearly determined how much firewood can be harvested, how much charcoal can be produced and how many poles can be cut. Expert advice is extremely valuable in this regard.

The production of poles is usually limited, as large trees should not be excessively removed, for various reasons. The same applies to the production of charcoal and firewood. Charcoal production depends on the density, species composition and height of the bushes, whereas firewood is usually limited to dead trees, and the fact that only selected species provide suitable firewood. It is important to remember that the utilisation of bush should focus on bush thinning rather than on bush clearing.

4. A practical approach to resource utilisation

In this case study, woody species will be utilised to produce charcoal, to sell firewood and to cut poles. Each of these enterprises will be separately analysed for its financial viability. In addition, the environmental impact of these activities has to be considered. For example, does an increase in human activity, such as bush harvesting, cause migration of wildlife and thereby reduce the potential income on game-based enterprises. It is important to strike a balance.

4.1 Charcoal production

Charcoal can be produced from most bushes on bush-encroached farms. The quality and quantity, however, depends on the species used for production. Furthermore it is necessary to sift charcoal, with the price per ton increasing with diameter. There are a number of markets for charcoal in Namibia, and it is up to the farmer to identify the most suitable one.

The charcoal production enterprise is based on the following assumptions:

- One person has the capacity to produce two tons of charcoal per month
- Two tons of charcoal can be produced per hectare
- The selling price is N$1,000.00 per ton, collected on the farm (every 2nd month)
- It is planned to produce 20 tons of charcoal per month
- The charcoal burner is paid N$500.00 per ton of bagged charcoal
- The cost per bag is N$2.50 and takes 50 kg of charcoal
- The charcoal production team will consist of ten people
- In addition, the following overheads are expected:
  - Instalment on initial investment (kilns, housing, tools) at N$1,622.53 per month (The initial investment is N$32,500.00, as listed in Table 21.)
  - Replacements of axes – at a rate of one per month at N$150.00
  - Continuous replacement of protective clothing at a rate of N$300.00 per month
  - Insurance (N$1,200.00 payable in May) and social security at N$20.00 per month
  - Additional travelling to manage enterprise quantified at N$200.00 per month

A gross cash surplus of N$6,607.47 per month or N$79,289.64 per year is calculated. Table 22 provides the details of the calculation, based on the case study outlined on page 56. The income from charcoal production can be drastically increased, especially if one takes into consideration that under the given scenario only 120 hectares are used per year while the farmer has 5,000 hectares available. The limiting factors, however, are equipment, labour and markets.

Initial investment: charcoal			
Kilns	10	1,500.00	15,000.00
Protective clothing	10	300.00	3,000.00
Axes	10	200.00	2,000.00
Files	5	100.00	500.00
Tents	2	5,000.00	10,000.00
Toilets	1	2,000.00	2,000.00
Total initial investment			32,500.00
Monthly instalment (2 years)			1,622.53

Table 21: Initial investment: charcoal production

Monthly sale of charcoal		20,000.00
Monthly production costs		13,392.53
Labour based on N$500.00/ton	10,000.00	
Monthly instalment	1,622.53	
Replace axes – one per month	150.00	
Replace protective clothing	300.00	
Insurance & social security	120.00	
Packaging – 400 bags @ N$2.50	1,000.00	
Additional travelling	200.00	
Gross surplus from charcoal prod.		6,607.47

Table 22: Monthly income and payments: charcoal

The calculated income and payments of the charcoal production enterprise are recorded and summarised in a cash flow matrix. Table 23 reflects the scenario discussed.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income from sales		40,000		40,000		40,000		40,000		40,000		40,000	240,000
Production cost													
Labour	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	120,000
Monthly instalment	1,623	1623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	19,476
Replace axes	150	150	150	150	150	150	150	150	150	150	150	150	1,800
Replace protec. cloth.						1,800						1,800	3,600
Insurance & social sec.	20	20	1,220	20	20	20	20	20	20	20	20	20	1,440
Packaging	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
Additional travelling	200	200	200	200	200	200	200	200	200	200	200	200	2,400
Total prod. costs	12,993	12,993	14,193	12,993	12,993	14,793	12,993	12,993	12,993	12,993	12,993	14,793	160,716

Table 23: Cash flow forecast – charcoal production enterprise

Another option would be to outsource the charcoal production activity to an independent entrepreneur. This would relieve the farmer of this management responsibility while a small income (for example 10 % of sales) could still be earned. In addition, the farmer would benefit from the results of bush thinning, and any sustainable form of bush utilisation is therefore recommended.

4.2 Firewood

Dead trees provide good firewood for both the recreational (braai) and household (fuel to cook food) markets. Most farms have plenty of this resource available, which can be sold at a good price after it has been processed (cut in pieces and bagged if required) and a secure market has been established.

The firewood enterprise is based on the following assumptions:

- One ton (full pick-up load) of cut firewood fetches a price of N$400.00
- A secure market is established taking one load per week (in bulk)
- Firewood is delivered with the weekly town trip – thus no extra delivery cost arises
- Farm labour is used to collect and cut firewood, thus no extra labour cost is involved
- The annual income is based on 52 weeks, thus 2 months @ 4 loads and 1 month at 5 loads
- No direct production costs are applicable, the income equals the gross cash surplus
- The annual income (gross cash surplus) is calculated at N$20,800.00 per year

The income is summarised in the cash flow matrix as per example.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income from sales	1,600	1,600	2,000	1,600	1,600	2,000	1,600	1,600	2,000	1,600	1,600	2,000	20,800

Table 24: Monthly recording of income from sale of wood (bush) products

The "firewood" business cannot actually be regarded as an enterprise, but rather as an approach to utilise the empty pick-up going to town on a weekly basis. The income generated is more than the annual fuel costs budgeted for and therefore a worthwhile approach.

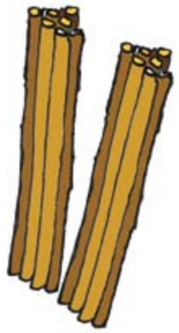
The full potential income from harvesting firewood depends on the following factors:

- Firewood available (all inclusive) – this is on average 8–10 ton per hectare
- Price per ton – N$400.00 for low quality and N$700.00 for high quality (average N$550.00/ha)
- Potential average income per hectare: N$4,950.00 (9 ton/ha x N$550.00/ton)
- Processing costs – these can be estimated at 50 % of the income
- Area to be harvested per year – spreading the income over a few years
- Secure market – which absorbs the produce at a reasonable price

4.3 Production of poles

Bushes like the purple-pod terminalia and the sickle-bush are suitable to cut suspended poles (droppers), which can be sold if a market can be established. The potential of this enterprise, however, needs to be analysed.

The pole cutting enterprise is based on the following assumptions:



- The retailer buying the poles pays N$4.00 per pole, collected on the farm
- Poles must have a diameter of at least 40 mm and be cut at a length of 110 cm
- The agreement is to deliver 6,000 poles every three months
- One person can cut 50 poles a day, or 1,000 per month (20 working days)
- Two people are employed on a piece work basis to cut poles
- Pole cutters are paid N$1.50 per pole cut to the required length
- The monthly expected production is 2,000 poles

Based on the information provided, the direct production costs are calculated at N$3,000.00 per month consisting of payment of pole cutters. There are no other relevant production costs. An income of N$24,000.00 realises every three months when poles are collected. This information is recorded and summarised in the cash flow matrix (Table 25). The expected annual cash surplus from the enterprise is **N$60,000.00**, after **N$36,000.00** has been deducted from the annual sales of **N$96,000.00.**

The income of this enterprise can also be increased, subject to the availability of a market, suitable species and densities and skilled and committed people.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Income: sale of poles			24,000			24,000			24,000			24,000	96,000
Payment of pole cutters	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	36,000

Table 25: Monthly recording of purchase and sale of poles

5. Income from woody species utilisation

Bush encroachment is commonly perceived as a threat which is drastically reducing the potential for livestock production. On the contrary, it provides an excellent opportunity to generate an income.

The income which farmers can generate by utilising woody species on their farmland can be substantial. It is stated that there are farmers in Namibia who earn a higher income from the sale of firewood and charcoal than from livestock production, while they, at the same time, restore the production potential of the resource. This again positively reflects on the future income from livestock production. It is up to each individual farmer to use the full potential of these resources.

Based on the scenario analysed, an annual cash surplus of **N$160,089.64** is calculated from the utilisation of woody species. It is derived as follows: charcoal N$79,289.64, firewood N$20,800.00 and poles N$60,000.00. As stated before, this can be increased if the resource is optimally utilised.

The woody species on the farm have the potential to pay the annual instalment of the loan acquired to purchase the farm.

CHAPTER 11
Financial Summary of the Farming Enterprise

Once each individual farming enterprise has been analysed, and the income and costs have been calculated, recorded and summarised in the cash flow forecast, the budgeted profit and loss statement (and the balance sheet) can be drawn up. Further analysis will reveal the expected financial performance of the overall farming operation and point out weak points, which need to be proactively addressed.

1. Analysing summarised budgets

The envisaged financial performance of the farming operation has been analysed in detail by budgeting for (calculating) expected income and payments of each individual enterprise and by defining the overhead costs of the farming operations as a whole. All this information needs to be summarised to find out whether the farming enterprise is indeed generating enough cash to meet all the financial obligations and if the farming operation as such is profitable, taking all factors into consideration.

The amount of cash generated does not reflect the profit of the enterprise, there are some differences:

- The cash surplus only accounts for the net cash amount generated
- The profit, in addition, accounts for non-cash expenses and income such as
  – increase or decrease in stock on hand (livestock and consumables)
  – loss of value of assets (depreciation)
- The calculated cash surplus accounts for the payment of the instalment
- The calculated profit only accounts for the interest portion of the instalment

When analysing the farming enterprise the following consecutive steps have to be executed:

1. Budget for income and payments of each individual farming enterprise
2. Compile a complete cash flow matrix (recording all cash receipts and payments)
3. Compile a summary of income and payments
4. Compile the profit and loss statement derived from the summary of income and payments
5. Compile the balance sheet and compare it with the balance sheet of the previous year

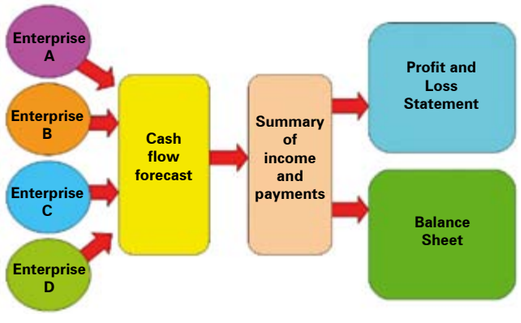


Figure 11: Analysing figures

2. Analysing the cash flow forecast

The complete cash flow forecast is a simple tool summarising all expected income and payments in a logical and chronological sequence. It provides the basis for any further analyses. Table 27 (on page 62) provides a summary of all income and payments budgeted for during the year for all individual farming enterprises.

Adding up the rows provides the totals for each income and payment factor. These amounts are further summarised by compiling a simple statement of income and payments, from which eventually the profit and loss statement is derived.

For each month (for each monthly column) the total expected income and payments are added up (Table 26). This reflects the monthly cash inflow and outflow. As farmers receive an irregular income but have more regular payments to do, the total payments for some months might be more than the income for the relevant month. Provision must be made for this situation.

Table 26 provides an example of a summary of the expected monthly income and payments for the year, as derived from the example (or case study) analysed in the previous chapters.

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Cash start of month	50 000.00	28.11	56 996.22	–130 334.73	–71 226.62	–133 748.51	55 997.60	140 545.71	97 673.82	102 423.03	111 281.14	201 969.25
Add cash received	1 600.00	101 000.00	26 000.00	133 075.00	1 600.00	266 200.00	150 100.00	41 600.00	59 065.00	55 100.00	151 600.00	66 000.00
= Cash available	51 600.00	101 128.11	82 996.22	2 740.27	–69 626.62	132 451.49	206 097.60	182 145.71	156 738.82	157 523.03	262 881.14	267 969.25
Less cash payments	51 571.89	44131.89	213 330.95	73 966.89	64 121.89	76 453.89	65 551.89	84 471.89	54 315.79	46 241.89	60 911.89	45 731.89
= Cash end of month	28.11	56 996.22	–130 334.73	–71 226.62	–133 748.51	55 997.60	140 545.71	97 673.82	102 423.03	111 281.14	201 969.25	222 237.36

Cash on hand start of the year
Expected cash shortage
Cash on hand end of the year

Table 26: Cash at the end of the month

The cash on hand on 1 March 2001 is **N$50,000.00**. After the income for March has been added and the payments deducted, a cash balance of N$28.11 is calculated, which equals the cash balance at the start of February. This step is repeated for all the months. The cash balance calculated at the end of February is **N$222,237.36**. This means that cash to the amount of **N$172,237.36** will be generated, which is the difference between the cash balance at the beginning and at the end of the year.

The calculated cash balance for the months May, June and July is negative. In practical terms this means that the farmer does not have any money available to make the required payments. This requires the farmer to proactively address the situation. Possible options to do this include the following:

- Negotiating for a postponement of the instalment of N$157,549.06 from May to September
- Negotiating for a bank overdraft facility (a short-term loan)
- Selling weaning calves of 4–5 months of age in May instead of in August

The last option of selling weaning calves will cause the farmer to incur substantial losses as calves are prematurely sold with a low weight and will consequently generate a much lower income. And this while they are in their prime time to grow and earn money for the farmer. The first two options need to be pursued. Interest will accrue, but it will be much less than the loss of potential income from selling calves too early in May at far below their optimal weight.

75 calves @ 220 kg @ N$13.50/kg = N$222,750.00 versus
75 calves @ 180 kg @ N$14.00/kg = N$189,000.00
Difference in income from calves = N$33,750.00 versus
Interest on overdraft (loan) =N$6,600.00

	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	TOTAL
Cash received:													
Income from sale of cattle						200,200.00	148,500.00				150,000.00		498,700.00
Income from sale of goats									33,065.00	13,500.00			46,565.00
Income from sale of trophies		59,500.00											59,500.00
Income from sale of venison				91,475.00									91,475.00
Income from sale of charcoal		40,000.00		40,000.00		40,000.00		40,000.00		40,000.00		40,000.00	240,000.00
Income from sale of firewood	1,600.00	1,600.00	2,000.00	1,600.00	1,600.00	2,000.00	1,600.00	1,600.00	2,000.00	1,600.00	1,600.00	2,000.00	20,800.00
Income from sale of poles			24,000.00			24,000.00			24,000.00			24,000.00	96,000.00
Total cash received	1,600.00	101,100.00	26,000.00	133,075.00	1,600.00	266,200.00	150,100.00	41,600.00	59,065.00	55,100.00	151,600.00	66,000.00	1,053,040.00
Cash payments:													
Production costs: cattle													
Total marketing cost						17,012.00	11,410.00				11,500.00		39,922.00
Total cost of supplements	7,200.00	7,200.00	7,200.00	19,460.00	19,460.00	19,460.00	16,460.00	12,150.00	12,150.00	5,850.00	6,750.00	6,750.00	140,090.00
Total cost for animal health	4,940.00	0.00	6,950.00	6,500.00	2,340.00	0.00	0.00	0.00	0.00	0.00	5,180.00	0.00	25,910.00
Labour	1,700.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,700.00	1,700.00	1,700.00	1,700.00	15,500.00
Purchase of new bull								30,000.00					30,000.00
Production cost: goats													
Total marketing cost									3,183.90	1,610.00			4,793.90
Total cost of supplements	220.00	220.00	220.00	320.00	770.00	770.00	770.00	1,370.00	1,370.00	220.00	220.00	220.00	6,690.00
Total cost for animal health	2,700.00	0.00	700.00	0.00	1,340.00	0.00	0.00	340.00	0.00	950.00	500.00	200.00	6,730.00
Labour	700.00	700.00	700.00	700.00	1,400.00	700.00	700.00	700.00	700.00	700.00	1,050.00	1,050.00	9,800.00
Dog food and health	200.00	100.00	100.00	100.00	100.00	100.00	100.00	300.00	100.00	100.00	100.00	100.00	1,500.00
Purchase of new buck								3,500.00					3,500.00
Production cost: charcoal													
Labour	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	120,000.00
Monthly instalment	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	1,623.00	19,476.00
Replacement axes	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1,800.00
Replacement protective clothing						1,800.00						1,800.00	3,600.00
Insurance workers	20.00	20.00	1,220.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	1,440.00
Packaging	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	12,000.00
Additional travelling	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	200.00	2,400.00
Production cost: poles													
Purchase of poles	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	36,000.00
Overhead costs:													
Instalment – farm			157,549.06										157,549.06
Instalment – pick-up	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	4,757.99	57,095.88
Land tax				7,875.00									7,875.00
Insurance farm	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	9,600.00
Insurance workers	360.90	1,360.90	360.90	360.90	360.90	360.90	360.90	360.90	360.90	360.90	360.90	360.90	5,330.80
Membership fees				1,500.00									1,500.00
Banking fees	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00	3,600.00
Interest on overdraft			2,600.00	1,400.00	2,600.00								6,600.00
Fuel – vehicles	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	12,000.00
Fuel – water pumps	600.00	600.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	1,200.00	600.00	600.00	12,000.00
Labour – general	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	2,400.00	28,800.00
Drawings – private	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	60,000.00
Provision for repairs & maintenance	2,200.00	2,200.00	2,800.00	2,800.00	2,800.00	3,300.00	2,800.00	2,800.00	2,800.00	2,800.00	2,200.00	2,200.00	31,700.00
Sundry expenses	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	6,000.00
Total monthly payments	51,571.89	44,131.89	213,330.95	73,966.89	64,121.89	76,453.89	65,551.89	84,471.89	54,315.79	46,241.89	60,911.89	45,731.89	880,802.64
Cash start of month	50,000.00	28.11	56,996.22	–130,334.73	–71,226.62	–133,748.51	55,997.60	140,545.71	97,673.82	102,423.03	111,281.14	201,969.25	
Add: cash received	1,600.00	101,100.00	26,000.00	133,075.00	1,600.00	266,200.00	150,100.00	41,600.00	59,065.00	55,100.00	151,600.00	66,000.00	1,053,040.00
= Cash available	51,600.00	101,128.11	82,996.22	2,740.27	–69,626.62	132,451.49	206,097.60	182,145.71	156,738.82	157,523.03	262,881.14	267,969.25	
Less: cash payments	51,571.89	44,131.89	213,330.95	73,966.89	64,121.89	76,453.89	65,551.89	84,471.89	54,315.79	46,241.89	60,911.89	45,731.89	880,802.64
= Cash end of month	28.11	56,996.22	–130,334.73	–71,226.62	–133,748.51	55,997.60	140,545.71	97,673.82	102,423.03	111,281.14	201,969.25	222,237.36	

Table 27: The complete cash flow forecast for the farming enterprise (based on the case study)

3. Compiling the income statement

Summary of Income and Payments	
Cash received:	
Income from sale of cattle	498,700.00
Income from sale of goats	46,565.00
Income from sale of trophies	59,500.00
Income from sale of venison	91,475.00
Income from sale of charcoal	240,000.00
Income from sale of firewood	20,800.00
Income from sale of poles	96,000.00
Total cash received:	1,053,040.00
Cash payments:	
Production costs: cattle	
Total marketing cost	39,922.00
Total cost of supplements	140,090.00
Total cost for animal health	25,910.00
Labour	15,500.00
Purchase of new bull	30,000.00
Production cost: Goats	
Total marketing cost	4,793.90
Total cost of supplements	6,690.00
Total cost for animal health	6,730.00
Labour	9,800.00
Dog food and health	1,500.00
Purchase of new buck	3,500.00
Production cost: charcoal	
Labour	120,000.00
Monthly instalment	19,476.00
Replacement axes	1,800.00
Replacement protective clothing	3,600.00
Insurance workers	1,440.00
Packaging	12,000.00
Additional travelling	2,400.00
Production cost: Poles	
Purchase of poles	36,000.00
Overhead costs	
Instalment – farm	157,549.06
Instalment – pick-up	57,095.88
Land tax	7,875.00
Insurance farm	9,600.00
Insurance workers	5,330.80
Membership fees	1,500.00
Banking fees	3,600.00
Interest on overdraft	6,600.00
Fuel – vehicles	12,000.00
Fuel – water pumps	12,000.00
Labour – general	28,800.00
Drawings – private	60,000.00
Provision for repairs and maintenance	31,700.00
Sundry expenses	6,000.00
Total monthly payments	880,802.64
Cash generated	172,237.36

Income Statement			
Gross surplus: cattle			247,278.00
Income		498,700.00	
Less: direct production costs		251,422.00	
Total marketing cost:	39,922.00		
Total cost of supplements	140,090.00		
Total cost for animal health	25,910.00		
Labour	15,500.00		
Purchase of new bull	30,000.00		
Gross surplus: goats			13,551.10
Income		46,565.00	
Less: direct production costs		33,013.90	
Total marketing cost	4,793.90		
Total cost of supplements	6,690.00		
Total cost for animal health	6,730.00		
Labour	9,800.00		
Dog food and health	1,500.00		
Purchase of new buck	3,500.00		
Gross surplus: trophies			59,500.00
Income		59,500.00	
Less: direct production costs		0.00	
Gross surplus: venison			91,475.00
Income		91,475.00	
Less: direct production costs		0.00	
Gross surplus: charcoal			79,284.00
Income		240,000.00	
Less: direct production costs		160,716.00	
Labour	120,000.00		
Monthly instalment	19,476.00		
Replacement axes	1,800.00		
Replacement protective clothing	3,600.00		
Insurance workers	1,440.00		
Packaging	12,000.00		
Additional travelling	2,400.00		
Gross surplus: firewood			20,800.00
Income		20,800.00	
Less: direct production costs		0.00	
Gross surplus: poles			60,000.00
Income		96,000.00	
Less: direct production costs		36,000.00	
Purchase of poles	36,000.00		
Total gross surplus from all enterprisses			571,888.10
Total overhead costs			399,650.74
Instalment – farm	157,549.06		
Instalment – pick-up	57,095.88		
Land tax	7,875.00		
Insurance farm	9,600.00		
Insurance workers	5,330.80		
Membership fees	1,500.00		
Banking fees	3,600.00		
Interest on overdraft	6,600.00		
Fuel – vehicles	12,000.00		
Fuel – water pumps	12,000.00		
Labour – general	28,800.00		
Drawings – private	60,000.00		
Provision for repairs and maintenance	31,700.00		
Sundry expenses	6,000.00		
Net surplus from farming enterprsise			172,237.36

Summary of Income Statement				
Gross surplus: cattle		247,278.00		
Income	498,700.00		43 %	
Less: direct production costs	251,422.00			46 %
Gross surplus: goats		13,551.10		
Income	46,565.00		2 %	
Less: direct production costs	33,013.90			
Gross surplus: trophies		59,500.00		
Income	59,500.00		10 %	
Less: direct production costs	0.00			26 %
Gross surplus: venison		91,475.00		
Income	91,475.00		16 %	
Less: direct production costs	0.00			
Gross surplus: charcoal		79,284.00		
Income	240,000.00		14 %	
Less: direct production costs	160,716.00			
Gross surplus: firewood		20,800.00		
Income	20,800.00		4 %	28 %
Less: direct production costs	0.00			
Gross surplus: poles		60,000.00		
Income	96,000.00		10 %	
Less: direct production costs	36,000.00			
Total gross surplus from all enterprsises		571,888.10	100 %	
Total overhead costs		399,650.74	70 %	
Net surplus from farming enterprsise		172,237.36	30 %	

Step1

Compile a list of the totals as derived from the cash flow forecast.

Step 2

Compile the income statement by summarising the total amounts in a structured way (see example). The cash surplus for each individual enterprise should be calculated separately, as this gives an indication of how the cash required to cover farming overheads is sourced.

Step 3 (optional)

The income statement can be further summarised to give a comprehensive reflection of the financial performance of the enterprises. The percentages on the right indicate the relative cash contribution of individual enterprises and resources.

The budgeted income and payments recorded in the cash flow forecast matrix and summarised in the income statement provide the following relevant information:

- Total income (cash): N$1,053,040.00
- Total payments: N$880,802.64
- Cash surplus (cash earned): N$172,237.36

The individual enterprises contribute as follows, after direct production costs allocated have been deducted:

- Cattle: N$247,278.00 (43 %)
- Goats: N$ 13,551.10 (2 %)
- Trophies: N$ 59,500.00 (11 %)
- Venison: N$ 91,475.00 (16 %)
- Charcoal: N$ 79,284.00 (14 %)
- Firewood: N$ 20,800.00 (4 %)
- Poles: N$ 60,000.00 (10 %)

Percentages based on natural resources utilised:

- **Pastures: 46 %**
- **Game: 26 %**
- **Woody species: 28 %**

When analysing the figures it is interesting to note:

- The goat farming enterprise contributes only 2 % to the farming operation, while it requires a lot of management energy. The farmer should therefore consider to either terminate the enterprise or intensify it (the potential is there to multiply it eight times!)

- The sale of firewood is also negligible. Nevertheless, it generates a remarkable amount of cash over the year without any substantial management or other inputs. The capacity is limited by the existing market and 'free' transport available (the empty pick-up driven to town).

In addition, it needs to be mentioned that only the natural resources 'pasture for cattle' and 'game' are fully utilised. The potential for goat farming and the use of woody species is by far underutilised and active resource utilisation can be expanded. This essentially means that the farmer is in a position to increase the income (and profits) of the farming enterprise remarkably. This requires excellent farm management skills and some additional investments. Furthermore, a market is required to absorb (buy) the products at a reasonable price.

As stated before, it remains the farmer's responsibility to optimally utilise all resources on a sustainable basis. This is important to contribute to the country's GDP, but also to alleviate poverty by creating jobs and other income-generating opportunities. Unemployment is one of Namibia's biggest challenges; and each individual landowner has the capacity and responsibility to address it.

It is each farmer's responsibility to optimally utilise all natural resources on a sustainable basis. By doing so, farmers contribute to the well-being of our beloved country.

Compiling the statements is a time-consuming but essential exercise, which requires farmers to spend many hours 'in the office'. When these statements have been compiled, the anticipated performance can be analysed, corrective measures implemented and the performance improved.

4. The profit and loss statement

The (budgeted) profit and loss statement gives a true reflection of the performance of the farming enterprise. It accounts for factors which are not clearly or not at all reflected in the cash flow forecast, as this is only based on actual cash receipts and payments.

Budget: Profit and Loss Statement (Income Statement)		
Gross surplus: cattle		247,278.00
Income	498,700.00	
Less: direct production costs	251,422.00	
Total marketing cost	39,922.00	
Total cost of supplements	140,090.00	
Total cost for animal health	25,910.00	
Labour	15,500.00	
Purchase of new bull	30,000.00	
Gross surplus: goats		13,551.10
Income	46,565.00	
Less: direct production costs	33,013.90	
Total marketing cost	4,793.90	
Total cost of supplements	6,690.00	
Total cost for animal health	6,730.00	
Labour	9,800.00	
Dog food and health	1,500.00	
Purchase of new buck	3,500.00	
Gross surplus: trophies		59,500.00
Income	59,500.00	
Less: direct production costs	0.00	
Gross surplus: venison		91,475.00
Income	91,475.00	
Less: direct production costs	0.00	
Gross surplus: charcoal		94,091.80
Income	240,000.00	
Less: direct production costs	145,908.20	
Labour	120,000.00	
Interest on monthly instalment	4,668.20	
Replacement axes	1,800.00	
Replacement protective clothing.	3,600.00	
Insurance workers	1,440.00	
Packaging	12,000.00	
Additional travelling	2,400.00	
Gross surplus: firewood		20,800.00
Income	20,800.00	
Less: direct production costs	0.00	
Gross surplus: poles		60,000.00
Income	96,000.00	
Less: direct production costs	36,000.00	
Purchase of poles	36,000.00	
Total gross surplus from all enterprises		586,695.90
Stock on hand adjustments (increase/decrease)		-3,000.00
Cattle	-5,000.00	
Goats	2,000.00	
Consumables	0.00	
Total overhead costs		343,651.53
Interest on instalment – farm	135,256.50	
Interest on instalment – pick-up	23,389.23	
Land tax	7,875.00	
Insurance farm	9,600.00	
Insurance workers	5,330.80	
Membership fees	1,500.00	
Banking fees	3,600.00	
Interest on overdraft	6,600.00	
Fuel – vehicles	12,000.00	
Fuel – water pumps	12,000.00	
Labour – general	28,800.00	
Provision for repairs and maintenance	31,700.00	
Sundry expenses	6,000.00	
Depreciation – vehicle	50,000.00	
Depreciation – tools and equipment	10,000.00	
Net profit of farming enterprise		240,044.37
Less drawings for private purposes		60,000.00
Profit after drawings for personal use		180,044.37

Actual loan repayment is reflected in the **balance sheet**.

Only the portion of interest is regarded as a cost; the actual loan repayment is not a cost, but an investment in the business and therefore accounted for in the balance sheet.

Increase or decrease of stock on hand is quantified.

Only the interest portion is listed as an expense – not the loan repayment.

Loss of value of machinery and equipment (depreciation) is accounted for.

Funds taken from the enterprise for personal use are deducted after the enterprise as such is evaluated.

The cash surplus generated is N$172,237.36, while the actual profit is N$180,044.37. The profit reflects the actual growth of the enterprise and is reflected as such in the change of owner's equity in the balance sheet.

Income Statement		
Gross surplus: cattle		247,278.00
Income	498,700.00	
Less: direct production costs	251,422.00	
Total marketing cost:	39,922.00	
Total cost of supplements	140,090.00	
Total cost for animal health	25,910.00	
Labour	15,500.00	
Purchase of new bull	30,000.00	
Gross surplus: goats		13,551.10
Income	46,565.00	
Less: direct production costs	33,013.90	
Total marketing cost	4,793.90	
Total cost of supplements	6,690.00	
Total cost for animal health	6,730.00	
Labour	9,800.00	
Dog food and health	1,500.00	
Purchase of new buck	3,500.00	
Gross surplus: trophies		59,500.00
Income	59,500.00	
Less: direct production costs	0.00	
Gross surplus: venison		91,475.00
Income	91,475.00	
Less: direct production costs	0.00	
Gross surplus: charcoal		79,284.00
Income	240,000.00	
Less: direct production costs	160,716.00	
Labour	120,000.00	
Monthly instalment	19,476.00	
Replacement axes	1,800.00	
Replacement protective clothing	3,600.00	
Insurance workers	1,440.00	
Packaging	12,000.00	
Additional travelling	2,400.00	
Gross surplus: firewood		20,800.00
Income	20,800.00	
Less: direct production costs	0.00	
Gross surplus: poles		60,000.00
Income	96,000.00	
Less: direct production costs	36,000.00	
Purchase of poles	36,000.00	
Total gross surplus from all enterprises		571,888.10
Total overhead costs	399,650.74	
Instalment – farm	157,549.06	
Instalment – pick-up	57,095.88	
Land tax	7,875.00	
Insurance farm	9,600.00	
Insurance workers	5,330.80	
Membership fees	1,500.00	
Banking fees	3,600.00	
Interest on overdraft	6,600.00	
Fuel – vehicles	12,000.00	
Fuel – water pumps	12,000.00	
Labour – general	28,800.00	
Drawings – private	60,000.00	
Provision for repairs and maintenance	31,700.00	
Sundry expenses	6,000.00	
Net surplus from farming enterprsise		172,237.36

4.1 Compiling the profit and loss statement

When deriving the profit and loss statement from the income statement (or from the summary of all income and payments) the following is required:

- Divide the instalments paid into the interest and 'capital' portion. Only the cost of capital, namely the interest, is an expense, not the capital portion. The capital portion is reflected in the balance sheet.
- Determine the increase or decrease of stock on hand, occurring during the financial year.
- Quantify the loss of value (depreciation) of all assets (vehicles, machinery and equipment) used for the production process. These are hidden costs or non-cash costs that need to be included.
- Isolate funds used for personal purposes (drawings), and calculate the profits without this amount. Only this gives a true reflection of the performance of the enterprise itself.

The composition of the three instalments paid during the year is as follows:

Details of loan	Instalment	Interest	Capital repayment
Loan: Charcoal equipment	N$19,476.00	N$4,668.20	N$14,807.80
Loan: Purchase of farm	N$157,549.06	N$135,256.50	N$22,292.56
Loan: Pick-up	N$57,095.88	N$23,389.23	N$33,706.65

Table 31: Composition of instalments (capital repayment and interest)

This information has to be provided by the financial institution granting the loan.

- The interest, as the cost of capital, is an expense. It is listed in the profit and loss statement.
- The capital repayment is reflected in the balance sheet, as the outstanding loan amounts are reduced.

More detailed information on the composition of a loan is provided in Chapter 12.

4.2 Determining the increase/decrease of stock on hand

If the farmer builds the herd (increases the number), fewer cattle than produced are sold and the potential cash income is therefore reduced. To account for reduced sales, the increased value of the herds needs to be taken into consideration by adding the value with which the herd increased to the farming income.

The opposite applies if the herd is reduced: an increased income is generated at the cost of the herd.

The same principle applies to all other stock kept on the farm, such as feeds and licks. If the farmer purchases stock which is not consumed during the period, this means that more is paid for production than is actually used for it. To account for this situation, the amount of feeds and licks not utilised needs to be quantified and reconciled. This is achieved by regarding the increase in stock as an income, which counters high costs.

As per example, the value of the cattle herd decreased by N$5,000.00 (there are 20 less calves and 5 more oxen) and the value of the goat herd increased by N$2,000.00 (there are 20 more kids).

	Mar 01	Unit N$	Total N$		Feb 02	Unit N$	Total N$
Bulls	5	5,600.00	28,000.00	Bulls	5.00	5,600.00	28,000.00
Cows	140	5,000.00	700,000.00	Cows	140.00	5,000.00	700,000.00
Calves	130	1,500.00	195,000.00	Calves	110.00	1,500.00	165,000.00
Weaned steer			0.00	Weaned steer			0.00
Weaned heifer			0.00	Weaned heifer			0.00
Heifers 1–2	30	2,700.00	81,000.00	Heifers 1–2	30.00	2,700.00	81,000.00
Heifers 2+	30	4,800.00	144,000.00	Heifers 2+	30.00	4,800.00	144,000.00
Steers	30	5,000.00	150,000.00	Steers	35.00	5,000.00	175,000.00
Total numbers	365		1,298,000.00	Total numbers	350.00		1,293,000.00

Table 32: Change in value of cattle

4.3 Quantify the loss of value of assets (depreciation)

Tools, machinery and equipment lose value while being used during the year. This is another hidden or non-cash cost of the farming enterprise that needs to be quantified and accounted for. Therefore, the cost factor, depreciation, is created, which accounts for quantified loss of value of assets.

The best way for the farmers to determine real loss of value would be to ask him/herself how much they would be prepared to pay for respective assets at the end of the financial year. The difference between two consecutive years reflects the depreciation, in this case, as perceived by the farmer.

There are various approaches to calculate depreciation for different purposes. The scenario discussed below is based on the following guidelines:

- The expected lifetime of the pick-up is 5 years, and the purchase price is/was N$250,000.00. If the value at the end of 5 years is zero, it loses value at a rate of N$50,000.00 per year.
- All other tools and equipment are valued at N$50,000.00. An acceptable rate of depreciation is 20 % of the value per year (based on the value at the end of the year). In this example it is N$10,000.00.

For tax purposes, depreciation is calculated at a rate of 33,3 % of all new assets acquired. In the fourth year, the book value is zero and no further depreciation can be deducted from the taxable income.

Depreciation is furthermore reflected in the balance sheet, as the value of assets decreases in line with calculated depreciation. A **decrease in value of assets** leads essentially to **decreased owner's equity**.

4.4 The balance sheet

The balance sheets of two consecutive years reflect the development of the business (see Chapter 3).

Balance Sheet – 01 March 2008			
Assets – what the farmer owns:		Liabilities – what the farmer owes:	
Farm	N$1,500,000.00	Bank A	N$1,040,434.00
Cattle	N$1,298,000.00	Bank B	N$170,961.00
Goats	N$73,100.00	Bank C	N$32,500.00
Vehicles	N$200,000.00	Unpaid accounts	N$0
Equipment	N$50,000.00		
Cash	N$50,000.00	Total Liabilities	N$1,243,895.00
Total value	N$3,171,100.00	Owner's capital	N$1,927,205.00

Balance Sheet – 28 February 2009			
Assets – what the farmer owns:		Liabilities – what the farmer owes:	
Farm	N$1,500,000.00	Bank A	N$1,018,142.00
Cattle	N$1,293,000.00	Bank B	N$137,255.00
Goats	N$75,100.00	Bank C	N$17,698.00
Vehicles	N$150,000.00	Unpaid accounts	N$0
Equipment	N$40,000.00		
Cash	N$222,237.00	Total Liabilities	N$1,173,095.00
Total value	N$3,280,337.00	Owner's capital	N$2,107,242.00

Profit as per profit and loss statement ← Increase of N$180,037.00

The increase or decrease in the owner's equity reflects the profit or loss generated by the enterprise during the year. As per example, the owner's equity increased by N$180,037.00 from N$1,927,205.00 on 1 March 2008 to N$2,107,242.00 on 28 February 2009. This is (must be) equal to the profit (after drawings) generated over the year as calculated in the profit and loss statement on page 65.

(Note: The difference of N$7.37 to the calculated profit of N$180,044.37 is due to rounding.)

In addition the balance sheet reflects how the cash surplus generated was used. This is either to increase the cash on hand (as per example), purchases of assets inclusive of stock or repayment of loans.

The increase in the owner's equity is caused by –

- increase in value of assets
- increase in cash on hand
- decrease of outstanding loan amounts, or
- a combination of the above

CHAPTER 12
Loans and Instalments

Loan amounts granted are repaid, together with interest, over an extended period. This essentially means that each instalment (loan repayment) is a combination of the actual loan repayment and the accrued interest for the period. Instalments are calculated by the bank in such a way that at the end of the loan repayment period the loan is fully repaid.

1. The definition of a loan

A loan is foreign capital (someone else's capital) temporarily introduced into the business, and it has to be paid back after some time. A loan represents capital that is "rented" from someone (the bank) at a fixed rate, which is expressed as a percentage (%) of the amount. The "rent" is the fee charged for using the funds (money) for the time and it is referred to as interest payable.

2. The purpose of loans

Loans used by the enterprise (business) provide cash to finance additional investments or pay ongoing production costs. Whatever the purpose, the following important factors are imperative:

- The ability to repay the loan according to schedule as agreed.
- The returns on the investment must be higher than the cost of the capital (interest).

Only when the two abovementioned criteria are met, is the use of loans acceptable.

3. Collateral requirements

Financial institutions (banks) must ensure that money lent out is paid back. Banks as lenders run the risk that the grantee of the loan will not be in a position to repay the loan. To prevent the possible loss of the money lent, banks must think of other possibilities to retrieve funds, such as selling the grantee's assets. The farmer's assets thus provide the security or collateral for the loan amount granted. If the farmer does not have the required collateral serving as a security for the loan, banks are hesitant to provide the money because of the risk of losing the money lent to the farmer.

4. Instalments payable

Banks granting loans agree with the beneficiary on clear terms for loan repayment, which include the amount of each instalment (regular payment) and the number of payments over the defined period. The amount of each instalment is calculated according to the prevailing interest rate, the loan amount and the repayment period and schedule. Instalments remain constant for the loan repayment period provided that interest rates remain unchanged. With the payment of the last instalment the loan is repaid.

5. Composition of instalments

A loan is repaid in a number of equal instalments. Each instalment includes the "rent" of capital (the interest) for the period and an additional amount to repay a portion of the loan.

INSTALMENT = INTEREST FOR THE PERIOD + PARTIAL LOAN REPAYMENT

Example of the repayment of a loan

The farmer borrows N$200,000.00 at a rate of 18 % per annum (per year) to buy a pick-up. The loan has to be repaid over five years in five equal annual instalments commencing one year after the loan has been granted. The annual instalment is N$63,955.57.

Year	Annual instalment	Annual interest	Annual loan repayment	Outstanding loan amount
		18 %		200,000.00
Year 1	63,955.57	36,000.00	27,955.57	172,044.43
Year 2	63,955.57	30,968.00	32,987.57	139,056.86
Year 3	63,955.57	25,030.23	38,925.34	100,131.52
Year 4	63,955.57	18,023.67	45,931.90	54,199.63
Year 5	63,955.57	9,755.93	54,199.64	–0.01
	319,777.85	119,777.84	200,000.01	

The interest payable for the first year is N$36,000.00 (18 % on N$200,000.00). Therefore the instalment must be higher, as some capital repayment has to be included as well. Table 33 provides a detailed overview. (The same example was used when compiling the profit and loss statement.)

Table 33: Composition of annual instalments

What the farmer pays:

The actual loan amount of N$200,000.00
Interest over the 5-year period of N$119,777.84
A total amount over five years of N$319,777.85

Year 1:

- *The annual instalment remains constant at N$63,955.57, as calculated by the bank*
- *The interest for the first year is N$36,000.00 (18 % on N$200,000.00)*
- *The difference between the interest and the total payment (instalment) is N$27,955.57, which is the capital portion, and thus the actual loan repayment for the first year*
- *The outstanding loan amount is reduced by the capital portion to N$172,044.43*

Year 2:

- *The annual instalment remains constant at N$63,955.57, as calculated by the bank*
- *The interest for the second year is N$30,968.00 (18 % on N$172,044.43)*
- *The difference between the interest and the total payment (instalment) is N$32,987.57, which is the capital portion, and thus the actual loan repayment for the second year*
- *The outstanding loan amount is reduced by the capital portion to N$139,056.86*

The repayment of the loan amount is graphically displayed in the bar chart (Figure 12). It becomes clearly visible that the interest gradually decreases (as the outstanding loan amount decreases). The capital portion increases, as the instalment (payment) stays constant and the interest decreases.

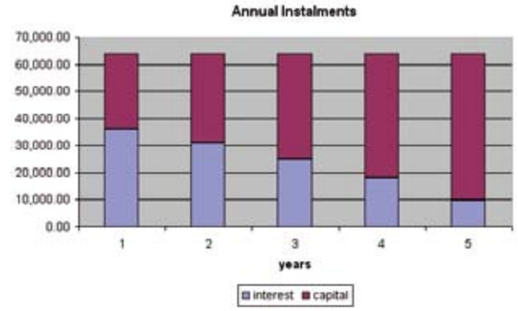


Figure 12: Loan composition to buy pick-up

6. The subsidised loans to purchase a farm (AALS)

The Affirmative Action Loan Scheme (AALS), administered by the Agribank of Namibia, provides loans to farmers at subsidised rates. The Namibian Government pays a portion of the interest for the first years, which is the subsidy. In addition, the government provides additional collateral providing security for the loan amount. Different interest rates apply, linked to the income of the beneficiary.

The repayment of a loan

The repayment schedule of a loan granted to buy a farm is analysed according to these figures:

- *Purchase price of the farm: N$1,250,000.00 (5,000 ha @ N$250.00/ha).*
- *The loan was granted in 1996, and the repayment period is 25 years.*

The loan is repaid according to the following schedule, as calculated by the bank:

- *Year 1–3: Only 2 % interest payable*
- *Year 4–6: Instalment based on 4 % interest – N$ 86,498.51 p.a.*
- *Year 7–8: Instalment based on 6 % interest – N$101,815.23 p.a.*
- *Year 9: Instalment based on 10 % interest – N$132,984.80 p.a.*
- *Year 10–25: Instalment based on 13 % interest – N$157,549.06 p.a.*

(Note: The prevailing interest rate, linked to the prime rate, is applicable from year 10–25.)

Table 35 summarises the loan repayment schedule for the entire 25-year period.

Some explanations

- The annual instalment is calculated according to the applicable interest rate and loan amount.
- The interest portion is calculated on the outstanding loan amount of the previous year.
- The outstanding loan amount decreases by the actual repayment of the loan, which is the difference between the annual instalment and the interest payable for the period.

1996	Year	Interest %	Interest	Loan repay	Instalment	Outstanding loan
1997	1	2 %	–25,000.00	0.00	–25,000.00	1,250,000.00
1998	2	2 %	–25,000.00	0.00	–25,000.00	1,250,000.00
1999	3	2 %	–25,000.00	0.00	–25,000.00	1,250,000.00
2000	4	4 %	50,000.00	36,498.51	86,498.51	1,213,501.49
2001	5	4 %	48,540.06	37,958.45	86,498.51	1,175,543.03
2002	6	4 %	47,021.72	39,476.79	86,498.51	1,136,066.24
2003	7	6 %	68,163.97	33,651.26	101,815.23	1,102,414.98
2004	8	6 %	66,144.90	35,670.33	101,815.23	1,066,744.64
2005	9	10 %	106,674.46	26,310.33	132,984.80	1,040,434.31
2006	10	13 %	135,256.46	22,292.60	157,549.06	1,018,141.71
2007	11	13 %	132,358.42	25,190.64	157,549.06	992,951.07
2008	12	13 %	129,083.64	28,465.42	157,549.06	964,485.65
2009	13	13 %	125,383.13	32,165.93	157,549.06	932,319.73
2010	14	13 %	121,201.56	36,347.50	157,549.06	895,972.23
2011	15	13 %	116,476.39	41,072.67	157,549.06	854,899.56
2012	16	13 %	111,136.94	46,412.12	157,549.06	808,487.44
2013	17	13 %	105,103.37	52,445.69	157,549.06	756,041.75
2014	18	13 %	98,285.43	59,263.63	157,549.06	696,778.12
2015	19	13 %	90,581.16	66,967.91	157,549.06	629,810.21
2016	20	13 %	81,875.33	75,673.73	157,549.06	554,136.48
2017	21	13 %	72,037.74	85,511.32	157,549.06	468,625.16
2018	22	13 %	60,921.27	96,627.79	157,549.06	371,997.37
2019	23	13 %	48,359.66	109,189.40	157,549.06	262,807.97
2020	24	13 %	34,165.04	123,384.02	157,549.06	139,423.95
2021	25	13 %	18,125.11	139,423.95	157,549.06	0.00

Table 34: Repayment schedule for an AALS loan

Figure 13 is a graphical summary of the loan repayment schedule as per Table 35.

The following clearly shows:

- Instalments increase over the first 10 years due to increasing interest rates and are constant from year 10 onwards.
- Interest constitutes the main portion of the instalment in the first years.
- Interest gradually decreases and the actual loan repayment increases over the years.
- The loan is repaid with the last instalment.

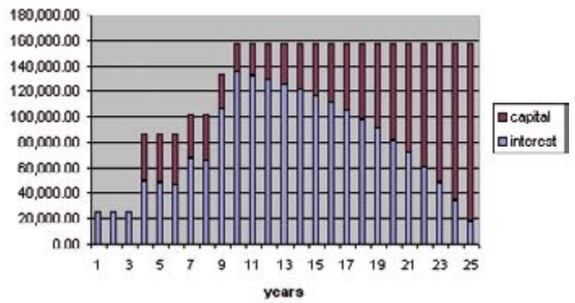


Figure 13: AALS loan repayment composition

7. Subsidised interest rates of AALS

Interest rates, and thus the interest payable by the farmer, are subsidised with the AALS. Agribank as a financial institution charges the market-related rate (13 % in example) throughout the loan repayment period. As the farmer pays only a portion of the interest during the first 10 years, the government has to pay the difference so that Agribank receives the interest as charged. Essentially this means that the government pays the difference between the 13 % interest charged by the bank and the percentage the farmer pays in the relevant years. Table 35 calculates the amount of interest paid by the farmer and the government respectively during the first 10 years.

1996	Year	Interest rate per year	Annual instalment	Annual interest payable	Annual repayment of loan	Outstanding loan amount end of the year		Annual interest at 13 %	Interest paid by beneficiary (farmer)	Interest paid by Governemnt (subsidy)
1997	1	2 %	25,000.00	25,000.00	0	1,250,000.00		162,500.00	25,000.00	137,500.00
1998	2	2 %	25,000.00	25,000.00	0	1,250,000.00		162,500.00	25,000.00	137,500.00
1999	3	2 %	25,000.00	25,000.00	0	1,250,000.00		162,500.00	25,000.00	137,500.00
2000	4	4 %	86,498.51	50,000.00	36,498.51	1,213,501.49		162,500.00	50,000.00	112,500.00
2001	5	4 %	86,498.51	48,540.06	37,958.45	1,175,543.03		157,755.19	48,540.06	109,215.13
2002	6	4 %	86,498.51	47,021.72	39,476.79	1,136,066.24		152,820.59	47,021.72	105,798.87
2003	7	6 %	101,815.23	68,163.97	33,651.26	1,102,414.98		147,688.61	68,163.97	79,524.64
2004	8	6 %	101,815.23	66,144.90	35,670.33	1,066,744.64		143,313.95	66,144.90	77,169.05
2005	9	10 %	132,984.80	106,674.46	26,310.33	1,040,434.31		138,676.80	106,674.46	32,002.34
2006	10	13 %	157,549.06	135,256.46	22,292.60	1,018,141.71		135,256.46	135,256.46	0
2007	11	13 %	157,549.06	132,358.42	25,190.64	992,951.07		132,358.42	132,358.42	0
Cumulative interest subsidised by government over a ten-year period										928,710.03

Table 35: Summary of subsidised interest rates

Some explanations:

The interest for year 1–3 on N$1,250,000.00 at 13 % is N$162,500.00, of which
- the farmer pays N$25,000.00, and
- the Government N$137,500.00 (this is the subsidy that the farmer receives).

The difference between the interest charged by the bank and the interest paid by the farmer is carried by the government. This subsidy that the farmer receives is the interest paid by the government.

As per example analysed, the farmer receives a subsidy (interest paid by the government) over the ten-year period of N$928,710.03. This is close to the purchase price of the farm.

8. Change in interest rates

The instalments over a defined period remain constant subject to unchanged interest rates. If interest rates increase/decrease from time to time, the instalments themselves will increase/decrease in order to account for increased/decreased amounts of interest payable.

Table 36 gives an overview of how the instalments are affected by a change in interest rate, if the loan is N$1,000,000.00. For example, an increase of the interest rate by 2 % (from 13 % to 15 %) would increase the annual instalment by N$16,275.27. A decrease of 3 % would decrease the annual instalment by N$23,268.00.

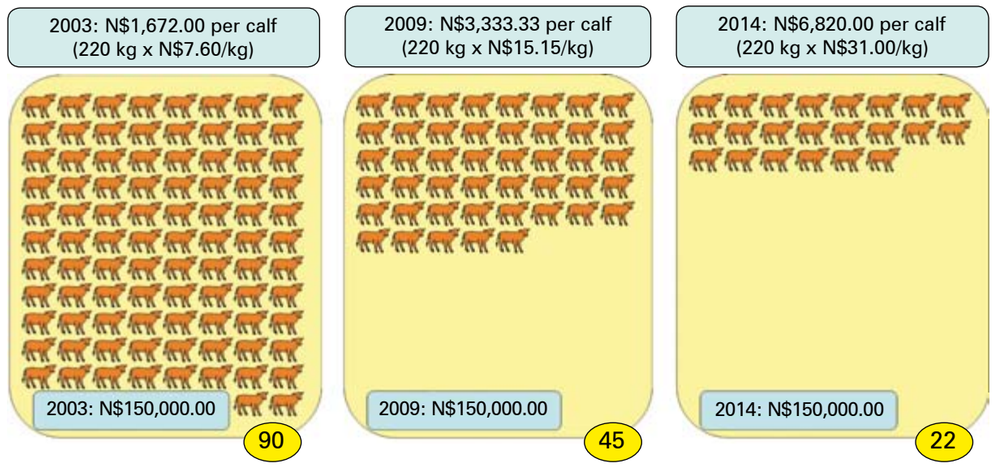
Interest rate	Interest per year based on N$1,000,000.00	Annual instalment		Difference
10 %	100,000.00	131,473.78		
				23,268.00
13 %	130,000.00	154,741.78		
				16,275.27
15 %	150,000.00	171,017.05		
				42,865.07
20 %	200,000.00	213,882.12		

Table 36: Change of interest rates

9. The relative costs of instalments

The farmer sells products, such as weaning calves, to generate an income. While the product prices gradually increase with time, the instalments remain constant. It therefore makes sense to determine, for example, how many weaning calves must be sold each year in order to generate enough cash to pay the instalments. The cost of the instalment is thus defined as number of calves instead of Namibia dollars.

In 2003, the average price for weaning calves was N$7.60/kg; today the farmer receives N$15.15/kg. Farmers can expect that the price for calves will further increase over the next five years. For the purpose of the calculation, the expected price is N$31.00/kg in 2014. The number of calves to be sold each year to earn N$150,000.00 required to pay the instalment, can be calculated.



Although the instalment remains the same, the farmer has to pay less in terms of calves each year. This is for the simple reasons that gradually fewer calves need to be sold to generate the required amount of N$150,000.00. In 2003, 90 calves had to be sold, 45 calves in 2009, and in 2014 it is expected that 22 calves will generate enough cash to pay N$150,000.00. The farmer thus pays less each year!

CHAPTER 13
Taxes and the Farming Enterprise

In any economic system, taxation of income is applied. Taxation (paying taxes) is a mechanism facilitating the transfer of a portion of the income to the government to pay for services rendered. Various taxes are applicable to the farming operation, and have to be paid for by the farmer.

1. Different taxes applicable

Most Namibian farmers have to pay three types of taxes, namely:

- Land tax
- Value-added tax (VAT)
- Income tax

1.1 Land tax

Land tax is annually payable by owners of commercial agricultural land in June.
The amount of land tax payable is calculated on "Unimproved Site Value" (USV) as determined by the government and adapted from time to time.

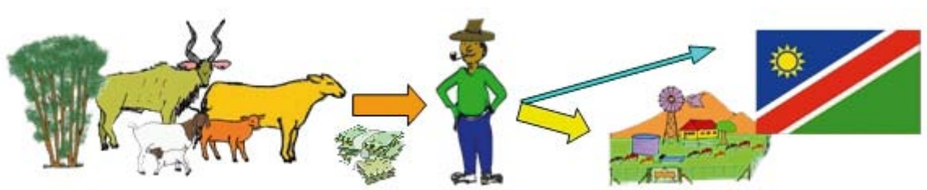
Land tax is calculated at a progressive rate on the value (USV) for each farming unit. The applicable rate is 0,75 % for the first farming unit, increasing with 0,25 % for each additional farming unit. The basic rate for foreign landowners is 1,75 %, increasing at the same rate.

Example:

- Farm 1: 5,000 ha with USV of N$210.00 = N$210.00 **x** 5,000 ha **x** 0,75 % = N$7,875.00
- Farm 2: 3,000 ha with USV of N$210.00 = N$ 210.00 **x** 3,000 ha **x** 1,00 % = N$6,300.00
- Land tax payable: N$14,175.00

1.2 Income tax

Income tax is based on the age-old principle that people who earn an income, transfer a portion of their income to their governing body as reimbursement for services rendered. These funds are used, amongst others, to cover the costs of governing the country, which is ultimately to the benefit of the person earning an income by either being self-employed or earning a salary.



In Namibia every person earning an income of more than N$36,000.00 per year is obliged to pay income tax. The amount payable gradually increases with increasing income.

Employed people earning a salary pay income tax in the form of "Pay As You Earn" (PAYE), which is deducted from the salary and paid over to the Receiver of Revenue by the employer. Self-employed people, including farmers, who do not earn a salary but an income, are obliged to pay tax on their income at the same rate as salary receivers. The profit of any business represents the income of the owner(s) and is therefore taxable. **A more detailed explanation will follow.**

1.3 Value-added tax

Value-added tax (VAT) is calculated on the amount of value added to a product (or service) during the production and processing process along the value chain. It is calculated at the rate of 15 %.

Figure 14 gives an overview of the calculation of value-added tax along the value chain:

1. The farmer produces a slaughter ox and sells it for N$5,000.00 to the abattoir. The farmer receives N$5,750.00 for the ox, which includes N$750.00 VAT. It is the farmer's responsibility to pay the VAT amount over to the Receiver of Revenue (RoR).
2. The abattoir slaughters the ox and sells the carcass to the butcher for N$7,500.00. He receives N$8,625.00 from the butcher, which includes VAT of N$1,125.00. The abattoir has already paid VAT of N$750.00 to the farmer, and thus only has to pay the difference of N$375.00 to the RoR.
3. The butcher (meat processor) sells the processed carcass to the consumer for N$17,250.00 including VAT. N$2,250.00 of VAT is received, of which N$1,125.00 has already been paid to the abattoir. The difference of N$1,125.00 has to be paid over to the RoR.

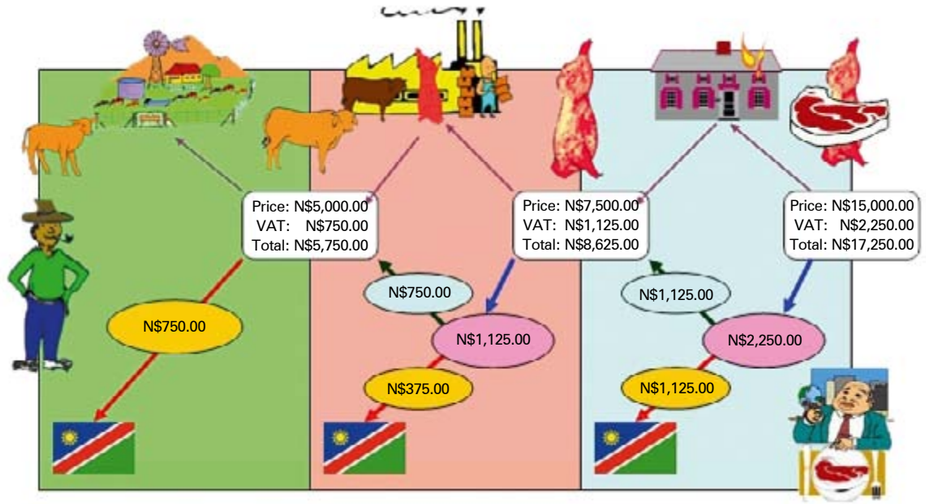
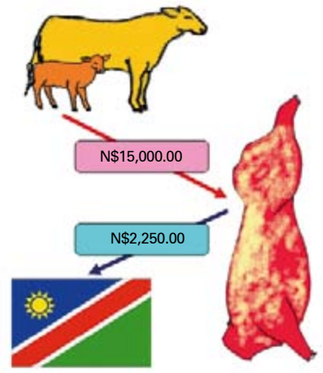


Figure 14: The value chain and VAT

The RoR receives VAT on the total amount of the value added to the calf born (N$0.00), which is sold in its processed form for N$15,000.00 some time later. The RoR is entitled to N$2,250.00, which it receives with time from the producers and processors along the value chain; this is N$750.00 from the farmer, N$375.00 from the abattoir and N$1,125.00 from the butcher.



The farmer who produces the calf, has to buy production inputs such as licks and animal health remedies. The price paid includes VAT, which can be offset from the VAT received with the sale of the slaughter ox to the abattoir.

Figure 15 outlines the consecutive steps, which explain how the farmer is affected by VAT.

1. Production inputs are purchased for N$2,000.00 plus 15 % VAT of N$300.00. This means that the farmer already transferred N$300.00 VAT to the supplier, who has to pay it over to the RoR. (This is Input VAT.)
2. The slaughter ox is sold for N$5,000.00. The farmer receives N$5,000.00 for the ox and N$750.00 VAT, which he/she has to pay over to the RoR. (This is Output VAT.)
3. VAT of N$750.00 is owed the RoR, but N$300.00 has already been transferred via the supplier. The farmer thus only needs to pay over the difference of N$450.00 to the RoR.

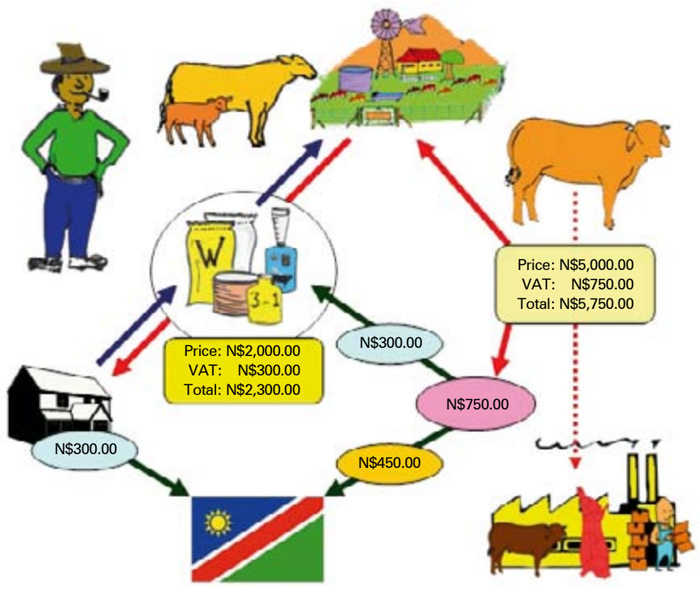


Figure 15: VAT on the farm

Value-added tax is divided into Input and Output VAT:

- VAT charged and received with sales (or rendering a service) is called **Output VAT**.
- VAT paid with purchases (or receiving a service) is called **Input VAT**.

The difference between Output VAT and Input VAT calculated for an interval is –

- paid to the RoR if positive (Output VAT is more than Input VAT)
- claimed from the RoR if negative (Output Vat is less than Input VAT)

VAT is divided into the following categories where different rates apply:

- Exempt – not applicable for VAT, thus not VAT charged (e.g. duties, levies, licences, interest)
- Zero-rated – VAT is calculated at a rate of 0 % (e.g. diesel, petrol, maize meal and bread)
- Taxable at 15 % – VAT is calculated at a rate of 15 % (e.g. licks, medicine, services, materials)
- Not applicable for VAT purposes – invoices excluding VAT, wages and rations, any private expenses and payments

VAT on the sale of cattle

- Taxable at 15 %: If cattle are slaughtered and the carcass is sold (versus on the hoof)
- Zero-rated 0 %: If cattle are sold on the hoof (alive)
- Selling and buying breeding animals
- Selling and buying cattle for speculation purposes
- Selling cattle at livestock auctions

Registration for VAT

Any business with a turnover exceeding N$200,000.00 per year has to be registered with the RoR. With registration the business (or business owner) receives a VAT registration number which must appear on all invoices submitted.

VAT returns have to be submitted at defined intervals (usually two months). Returns have to clearly stipulate Input and Output VAT, as well the difference which is either payable or claimable. Penalties and interest apply if VAT remittances are not submitted in time. It is required that farmers keep proof of payments (cash slips) and statements of receipts for a period of five years.

2. Calculating income tax

The applicable rate of income tax progressively increases with increasing income. The higher the income, the higher the tax rate according to which income tax is calculated.

The Statutory Tax Rates, provided by the RoR as per Table 37, presents a self-explanatory explanation on how income tax is calculated.

Persons or businesses earning less than N$36,000.00 per year are exempted from paying tax. Earnings to the excess of the N$36,000.00 threshold are taxed progressively as per provided statutory rates.

The annual net profit of businesses, including farming enterprises, forms the basis for the calculation of income tax payable. This in principle means that the realised net profit is the taxable amount.

A number of tax allowances are granted. These are not discussed in detail in this manual. Farmers are therefore advised to seek professional advice when compiling their tax returns.

Income tax payable is calculated according to the calculated net profit before drawings. Some basic adjustments are, however, required:

- Any taxes paid (land tax, income tax and value-added tax) are not tax deductible.
- Depreciation is calculated at a rate of 33,3 % on all new assets acquired. After a period of three years the depreciation of assets no longer qualifies for tax purposes, as the book value of these assets is zero. (*Based on the case study analysed, only the depreciation on the new pick-up acquired two years ago is brought into account. The purchase price was N$250,000.00; consequently the annual depreciation for tax purposes is N$83,250.00.*) Other assets were already written off in previous years and have a zero book value and thus do not qualify for tax-deductible depreciation.

INLAND REVENUE 2007–2008

TAX TABLE E: PART-TIME EMPLOYEES
Deduct employees' tax at the rate of 17,5 % from renumeration paid.

TAX TABLE F: STATUTORY RATES

Taxable amount	Rates of Tax
Where the amount –	
Does not exceed N$36,000	No tax payable
Exceeds N$36,000 but does not exceed N$40,000	17,5 per cent of each N$1 of the taxable amount
Exceeds N$40,000 but does not exceed N$80,000	N$700 plus 29,5 per cent of the amount by which the taxable amount exceeds N$40,000.
Exceeds N$80,000 but does not exceed N$200,000	N$12,500 plus 34,5 per cent of the amount by which the taxable amount exceeds N$80,000.
Exceeds N$200,000	N$53,900 plus 35 per cent of the amount by which the taxable amount exceeds N$200,000.
Retirement annuity contributions plus study policy premiums together may not exceed 40,000 limited tax-free amount.	
Companies	35 %

Table 37: Statutory tax rates

The "Taxable Net Profit before Drawings" (as based on the case study) is calculated at **N$224,586.04** after adjustments for depreciation and land tax were made. (Table 39 provides the details.)

The amount of income tax payable is calculated as follows:

- The taxable income (net profit) "Exceeds N$200,000.00" – as per "Statutory Tax Rates"
- The tax amount due is **N$62,505.11** calculated as follows:
  N$53,900.00 plus 35 % of N$24,586.04, which is an additional **N$8,605.11**.

If the farming enterprise were a company, the tax would be calculated at 35 % of the net profit:
N$224,586.04 x 35 % = N$78,605.11.

Provision for income tax payable must be made when drawing up the cash flow forecast.

Table 38 is an example of the profit and loss statement adapted for the purpose of calculating income tax. The taxable amount (net profit before drawings) is N$224,586.04.

Budget: Profit and Loss Statement (Income Statement)			
Gross surplus: cattle			247,278.00
Income		498,700.00	
Less: direct production costs		251,422.00	
Total marketing cost:	39,922.00		
Total cost of supplements	140,090.00		
Total cost for animal health	25,910.00		
Labour	15,500.00		
Purchase of new bull	30,000.00		
Gross surplus: goats			13,551.10
Income		46,565.00	
Less: direct production costs		33,013.90	
Total marketing cost:	4,793.90		
Total cost of supplements	6,690.00		
Total cost for animal health	6,730.00		
Labour	9,800.00		
Dog food and health	1,500.00		
Purchase of new buck	3,500.00		
Gross surplus: trophies			59,500.00
Income		59,500.00	
Less: direct production costs		0.00	
Gross surplus: venison			91,475.00
Income		91,475.00	
Less: direct production costs		0.00	
Gross surplus: charcoal			94,091.80
Income		240,000.00	
Less: direct production costs		145,908.20	
Labour	120,000.00		
Interest on monthly instalment	4,668.20		
Replacement axes	1,800.00		
Replacement protective clothing	3,600.00		
Insurance workers	1,440.00		
Packaging	12,000.00		
Additional travelling	2,400.00		
Gross surplus: firewood			20,800.00
Income		20,800.00	
Less: direct production costs		0.00	
Gross surplus: poles			60,000.00
Income		96,000.00	
Less: direct production costs		36,000.00	
Purchase of poles	36,000.00		
Total gross surplus from all enterprsises			586,695.90
Stock on hand adjustments (increase or decrease)			–3,000.00
Cattle		–5,000.00	
Goats		2,000.00	
Consumables		0.00	
Total overhead costs			359,109.86
Interest on instalment – farm	135,256.50		
Interest on instalment – pick-up	23,389.23		
Land tax	0.00		
Insurance farm	9,600.00		
Insurance workers	5,330.80		
Membership fees	1,500.00		
Banking fees	3,600.00		
Interest on overdraft	6,600.00		
Fuel – vehicles	12,000.00		
Fuel – water pumps	12,000.00		
Labour – general	28,800.00		
Provision for repairs and maintenance	31,700.00		
Sundry expenses	6,000.00		
Depreciation – vehicle	83,333.33		
Depreciation – tools and equipment	0.00		
Net profit of farming enterprsise			224,653.54
Less drawings for private purposes			60,000.00
Profit after drawings for personal uses			164,653.54

Table 38: Taxable net profit

2.1 Reducing the taxable amount

The taxable amount can be reduced by the following:

- Purchase of cattle – the total purchase price can be deducted.
- Purchase of assets (vehicles, machinery and equipment) – one third of the purchase price can be deducted (depreciation at a rate of 33,3 %).

2.2 Combining salary and farm profit or loss

The salary (package) and the farming profit are combined for income tax purposes, if the farming enterprise is registered under the same name as the salary receiver. If the farming enterprise generates a profit, the salary and the profit are taxed as one combined income.

The same applies if the farming enterprise generates a loss. In this case the combined income (farming loss and salary) is less than the salary that was taxed when earned. The taxed person thus paid too much tax and therefore he/she can claim back a calculated portion of the income tax paid.

Example:

- *Annual income (salary): N$200,000.00*
- *PAYE (tax paid): N$53,900.00 p.a.*
- *Loss on farming operations: N$100,000.00*
- *Combined income: N$100,000.00*
- *Taxable amount: N$100,000.00*
- *Income tax due: N$19,400.00*
- *Tax to be claimed back: N$34,500.00*

Farmers are advised to make use of professional advice (bookkeeper, accountant or tax consultant) to assist with compiling and submitting income tax returns. Potential tax savings usually exceed the costs of this service rendered by far.

3. Value-added tax (VAT)

Table 40 provides an example of an income statement, which accounts for VAT.

No VAT is calculated on the sale of cattle which are sold on the hoof at an auction. VAT is calculated on cattle sold to the abattoir, as the abattoir buys the carcass. In this example, VAT of N$22,275.00 is applicable to the sale of slaughter oxen of N$148,500.00.

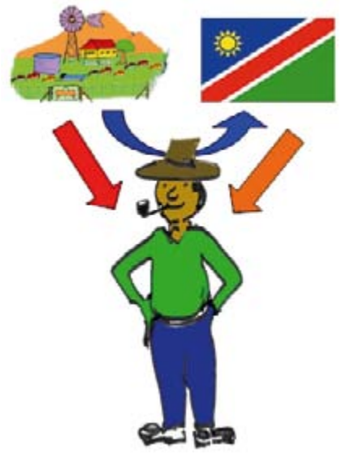
VAT is calculated on all production inputs where applicable. No VAT is applicable for cost of labour, purchase of cattle (bulls), interest payable and fuel.

Income	498,700.00	*(22275.00)*	498,700.00
Marketing costs	39,922.00	5,988.30	45,910.30
Cost of supplements	140,090.00	21,013.50	161,103.50
Cost for animal health	25,910.00	3,886.50	29,796.50
Labour	15,500.00	0.00	15,500.00
Purchase of new bull	30,000.00	0.00	30,000.00
Insurance farm	9,600.00	1,440.00	11,040.00
Insurance workers	5,330.80	799.62	6,130.42
Membership fees	1,500.00	225.00	1,725.00
Banking fees	3,600.00	540.00	4,140.00
Interest on overdraft	6,600.00	0.00	6,600.00
Fuel – vehicles	12,000.00	0.00	12,000.00
Fuel – water pumps	12,000.00	0.00	12,000.00
Repairs and maintenance	31,700.00	4,755.00	36,455.00
Sundry expenses	6,000.00	900.00	6,900.00
Total production costs	339,752.80		379,300.72
Net surplus	158,947.20		119,399.28
Total VAT paid (Input VAT)		39,547.92	

Table 39: Income Statement accounting for VAT

The net surplus of the farmer not registered for VAT

- Income from sale of cattle: N$498,700.00
- Production costs inclusive of VAT: N$379,300.72
- **Net surplus:** N$119,399.28



The farmer does not qualify to claim Input VAT as he is not a registered VAT vendor. VAT thus forms part of the total production costs.

The net surplus of the farmer registered for VAT

- Income from sale of cattle (excl. VAT): N$498,700.00
- Production costs exclusive of VAT: N$339,752.80
- **Net surplus:** **N$158,947.20**
- Less: Fee to compile VAT returns: N$ 6,000.00
- Net surplus after fees payable: N$152,947.20

The farmer registered for VAT generates a higher net surplus compared to his non-registered counterpart, as his production inputs are lower because **Input VAT is excluded from the costs** (it is paid but claimed back and therefore not regarded as a cost). The farmer, however, has to (is advised to) pay a professional person or organisation to compile and submit the two-monthly VAT remittance. Even when accounting for this additional cost, the surplus is still much higher.

The VAT remittance (based on annual figures) –

Output VAT: N$22,275.00 (15 % on sale of slaughter cattle at N$148,500.00)
Input VAT: N$39,547.92
VAT claimable: N$17,272.92

VAT payable is not a cost to the farmer; it is only the transfer of money charged on behalf of the Receiver of Revenue.

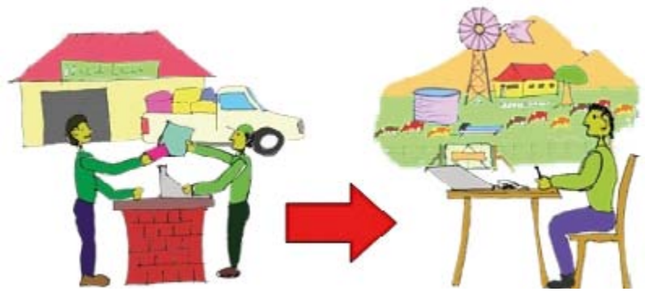
CHAPTER 14
Financial Record-keeping

Budgeting refers to forecasting the expected performance of the farming enterprise, whereas financial record-keeping is the first step in analysing the actual performance. This requires that all income and payments be recorded in a structured form, which serves as a basis for further analyses.

1. Keeping record of payments

"I don't know where my money went," you often hear farmers say. The only answer to this repeatedly raised question is proper recording, summarising and analysing all payments. This requires discipline of the farmer to keep track of all payments by recording them in a well-structured way and keeping (filing) proof of all payments. Professional financial services (bookkeepers and accountants) are freely available to assist farmers to analyse their payments and income. This, however, requires the farmers to provide them with complete and correct information on all payments made and income received for the specific period to be analysed.

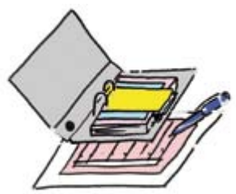
With any purchase, either cash, by cheque or on account, the farmer will be issued with a proof of the transaction, such as an invoice or a cash slip. This proof of payment has to be kept safely and proper filing is recommended. In addition, each purchase needs to be recorded in a well-structured format. Table 41 provides a practical example.



2. Good reasons for keeping records

It is a legal-institutional requirement that any business, farming enterprises included, keep proof of payments made and income received for a period of at least five years. In addition, this serves as verification for all expenses listed in the annual income tax return and the periodic VAT remittance.

Furthermore, the farmer's bookkeeper requires the client to provide him/her with complete and well-structured information of all income and payments. Only if this is available and submitted, the bookkeeper can compile financial statements reflecting the financial performance of the farming enterprise – and can compile VAT remittances and the income tax returns.



And last but not least, the farmer has to compare the actual payments or expenses with budgeted figures. Any substantial deviations have to be identified in time and corrective measures need to be taken.

3. Basic steps to keep records

The following basic steps should be followed:

- Collect proof of the transaction/proof of payment with any purchase
- Record any purchase in a well-structured way (see example)
- File proof of each transaction for safekeeping
- On a monthly basis, summarise the records to gain an overview
- Compare actual payments with budgeted figures and address deviations.

Please note that there are many possibilities of recording income and payments. Farmers are therefore advised to work out a practical and applicable solution (format) with their bookkeepers or accountants.

4. Grouping of payments

When keeping records of payments it is beneficial (and recommended) to allocate each payment to a specific cost factor (account), such as licks, animal health, fuel, repairs, etc. The same principle applies to the recording of income. This simplifies the analysis of recorded figures at the end of the month, as it can easily be calculated how much was spent for what purpose. Table 40 provides an example of possible cost factors (accounts) with a code allocated to each of them. Farmers need to adapt the list to meet with own requirements.

5. Recording transactions

Transactions occurring on a day-to-day basis need to be systematically recorded. Below is a list of representative transactions, summarised in a simple record sheet, as per example on page 85. Please note that this is a practical example only, and farmers have to adapt it to meet their specific needs.

The following transactions are recorded:

Town trip on 13 October

- *Buy from Agra on account for N$7,750.00 inclusive of VAT. The following is purchased:*
  Licks – N$3,450.00,
  Diesel – N$2,000.00,
  Rations – N$1,500.00 and
  groceries for household N$800.00.
- *Withdraw N$1,000.00 from bank account with a cash cheque.*
- *Refuel the pick-up for N$800.00 cash at XY Service Station.*

Coding: Income and payments	
Code	Income/Cash received
1	Sale cattle
2	Sale goats
3	Sale venison
4	Trophy hunting
5	Sale of poles
6	Sale of capital
7	Capital introduced
8	VAT claimed and received
9	Income tax reimbursed
10	Other
Code	Payments
11	Transport (goats/cattle)
12	Marketing costs (goats/cattle)
13	Licks (goat/cattle)
14	Vet.remedies (goats/cattle)
15	Purchase cattle
16	Wages
17	Fuel – vehicles
18	Fuel – water pump
19	Repairs – vehicles
20	Repairs – water infr.
21	Repairs – fencing
22	Repairs – building
23	Repairs and replacements
24	Insurance farm
25	Insurance workers
26	Telephone and postage
27	Bank fees
28	Bank interest
29	Membership
30	Sundry expenses
31	Loan repayment
32	Interest on loan
33	VAT – paid
34	Income tax paid
35	Land tax paid
36	other ……..
37	other ……..
38	other ……..
39	other ……..
40	Drawings (private)

Table 40: Codes for accounts

- *Buy parasite remedies from SWAVET for N$2,300.00 and pay by cheque.*
- *Buy groceries for household from Spar for N$700.00; cheque payment.*
- *Pay N$575.00 by cheque to Waltons for stationery bought.*

Town trip on 22 October

- *Pay N$1,150.00 membership fees to the NAU/NNFU by e-banking.*
- *Buy from Agra on account for N$6,680.00 inclusive of VAT. The following is purchased:*
  Licks – N$2,300.00,
  Battery for pick-up – N$690.00,
  Rations – N$1,000.00,
  Ear tags – N$115.00,
  Oil – N$575.00 and
  Diesel – N$2,000.00.
- *Withdraw N$4,000.00 from bank account with a cash cheque.*
  Buy groceries for household from Pick 'n Pay for N$930.00 and pay cash.
  Refuel the pick-up for N$680.00 at XY Service Station.
- *Pay workers' wages in cash to the amount of N$2,820.00.*
- *Pay the Agra account of N$7,750.00 by e-banking.*

Transfer from bank statement at the end of the month:

- *Monthly farm insurance premium of N$1,150.00 deducted by stop order.*
- *Service fees of N$230.00 and interest of N$150.00 deducted by the bank.*
- *Monthly insurance premium of N$350.00 deducted by stop order.*

Table 41: Record sheet for monthly payments

Record sheet: Payments for October													
Details				Amount			Type of payment						
Date	Purchased from/ Payment to:	Stock purchased/ Services received/ Accounts, etc. paid	Code	Amount incl. VAT	VAT amount	Amount excl. VAT	Cheque/ Transfer	Stop order Bank deduction	E-Banking	Cash	Account	Other	Specify other
13 Oct.	Agra	Licks	13	3,450.00	450.00	3,000.00					3,450.00		
13 Oct.	Agra	Fuel	18	2,000.00	–	2,000.00					2,000.00		
13 Oct.	Agra	Rations (wages)	16	1,500.00	–	1,500.00					1,500.00		
13 Oct.	Agra	Private	40	800.00	–	800.00					800.00		
13 Oct.	Bank account	Cash withdrawal	39	1,000.00	–	1,000.00	1,000.00						
13 Oct.	XY Service Station	Fuel pick-up	17	800.00	–	800.00				800.00			
13 Oct.	Swavet	Vet. remedies	14	2,300.00	300.00	2,000.00	2,300.00						
13 Oct.	Spar	Private	40	700.00	–	700.00	700.00						
13 Oct.	Waltons	Stationery	30	575.00	75.00	500.00	575.00						
22 Oct.	NAU/NNFU	Membership	29	1,150.00	150.00	1,000.00			1,150.00				
22 Oct.	Agra	Licks	13	2,300.00	300.00	2,000.00					2,300.00		
22 Oct.	Agra	Battery for pick-up	19	690.00	90.00	600.00					690.00		
22 Oct.	Agra	Rations (wages)	16	1,000.00	–	1,000.00					1,000.00		
22 Oct.	Agra	Ear Tags	30	115.00	15.00	100.00					115.00		
22 Oct.	Agra	Oil	30	575.00	75.00	500.00					575.00		
22 Oct.	Agra	Diesel	18	2,000.00	–	2,000.00					2,000.00		
22 Oct.	Bank account	Cash withdrawal	39	4,000.00	–	4,000.00	4,000.00						
22 Oct.	Pick 'n Pay	Private	40	930.00	–	930.00				930.00			
22 Oct.	XY Service Station	Fuel pick-up	17	680.00	–	680.00				680.00			
30 Oct.	Farm workers	Monthly wages	16	2,820.00	–	2,820.00				2,820.00			
30 Oct.	Agra	Pay Account	38	7,750.00	–	7,750.00			7,750.00				
	From bank statement				–	–							
30 Oct.	Welwitschia	Farm insurance	24	1,150.00	150.00	1,000.00		1,150.00					
30 Oct.	Bank	Service fees	27	230.00	30.00			230.00					
30 Oct.	Bank	Interest	28	150.00	–	150.00		150.00					
30 Oct.	Old mutual	Pension – private	40	350.00	–	350.00		350.00					
					–	–							
				39,015.00	1,635.00	37,180.00	8,575.00	1,880.00	8,900.00	5,230.00	14,430.00	–	–

State who is paid or purchased from

State what is purchased or paid for

Coding of transaction

Amount inclusive of VAT

VAT amount if applicable

Amount exclusive of VAT

Type of bank transfer

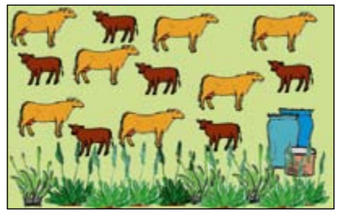
Amount paid for in cash

Amount bought for on account

CHAPTER 15
Basic Financial Farming Principles

Basic financial principles should guide the farmer to take sound management decisions which have direct financial implications. This is relevant for a number of situations with which the farmer is confronted on a daily basis. Some of the principles are outlined in this chapter according to applicable examples.

1. Less is more – a higher income from a smaller herd



Many farmers are under the impression that income increases in proportion to the number of cows kept on the farm. This is not always true, as income is directly related to the number of calves produced.

Farmer A has 100 cows, does not supply licks and overstocks the farm. The annual net income generated is N$101,500.00.

Farmer B on the neighbouring farm of equal size, only keeps 70 cows, aligned with the forage availability of the farm. Lick is supplied at a cost of N$35,000.00 (N$500.00 per cow per year).

The net surplus is N$144,400.00. This is N$42,900.00 more than the farmer keeping 100 cows. This indicates the imperative of focusing on production rather than on cow numbers.

To improve the performance of Farmer A, it is recommended that cow numbers are brought in line with available forage availability or the farm's carrying capacity (for example 70 cows). The income from reducing sales (of unproductive cows) should be invested in a sound supplementation programme and a good bull.

	Farmer A	Farmer B
Number of cows	100	70
Calves (50 %)	50	60
Weaning weight (kg)	170	230
Price per kg	12.00	13.00
Price per calf	2,040.00	2,990.00
Income from sales	102,000.00	179,400.00
Less: licks	500.00	35,000.00
Surplus	101,500.00	144,400.00

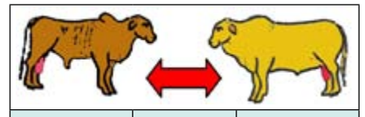
2. The return on investing in supplements

The cost of a complete supplementation programme is very high and many farmers are reluctant to invest (pay) this amount, although excellent returns can be expected. By comparing the scenario of the two farmers raising calves, it becomes evident that the farmer who invests in supplements earns N$1,265.00 more per calves raised; and this because supplements (licks) are provided at a rate of N$516.00 per head per year.

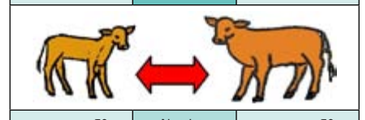
The same principle applies to the cow herd; supplementation increases the reproductive rate (calving percentage).

3. Investing in a good bull

Quality bulls cost much more than male uncastrated cattle (erroneously referred to as bulls). Quality bulls pass on required traits such as high weaning weights and fast growth. If it is assumed that a good bull produces weaning calves at an average weight of 220 kg, compared to the 180 kg calves of a poor quality counterpart, the price difference per calf is N$480.00. At a reproductive rate of 50 calves per year, the good bull earns the farmer N$24,000.00 more per year. This means that the good bull pays for himself in the first year already, and thereafter earns the farmer an additional income each consecutive year.



6,000.00		30,000.00
	24,000.00	



50	Number	50
180	Weight	220
12.00	N$/kg	12.00
2,160.00	Price	2,640.00
108,000.00	Income	132,000.00
	24,000.00	

4. Milking the cow

It is common practice that farmers milk their cows and sell the milk in the informal sector. This generates an additional income; but at the same time some losses are incurred because calves grow less and fetch a much lower price when sold. Therefore it is important to weigh up the income from the sale of milk against the lower selling price of the calves.

Case study

The farmer milks two litres from a cow per day (he milks only two of four teats, two are left for the calf) for six months and sells the milk for N$4.00 per litre. That generates an income of N$1,440.00 (2 litres/day x 6 months x 30 days x N$4.00/litres). In addition, the calf with a weight of 150 kg is sold for N$1,500.00 (150 kg x N$10.00/kg). The total annual income from the cow is N$2,940.00.

Calf	150 kg @ N$10.00/kg	=	N$	1,500.00
Milk	360 L @ N$4.00/kg	=	N$	1,440.00
	Total income		N$	2,940.00

If the cow were not milked, the calf would grow much better (as it would drink more milk) and reach a weight of 225 kg instead. The income from selling the calf would be N$2,700.00 (225 kg x N$12.00/kg).

Calf	225 kg @ N$12.00/kg	=	N$	2,700.00
Milk	0 L @ N$4.00/kg	=	N$	0.00
	Total income		N$	2,700.00

Based on the scenario outlined, it becomes clear that there is no substantial difference in the income generated from the cow (especially if the cost of labour is taken into account). Farmers should therefore seriously consider if it is indeed worthwhile milking cows and selling the milk.

Milk production, however, can be substantially increased if the cow receives a suitable supplement (additional feed concentrate). This directly results in a higher income from both the sale of milk and the sale of a heavier calf. It is important that the additional income derived from increased milk production exceed the additional cost of the feed concentrate supplied.

If it is, for example, assumed that the cow's milk production will increase to four litres per day for a seven-month period when the cow is fed 1 kg of feed concentrate per day, the scenario will look like this:

The income from the sale of milk is N$3,360.00 and N$2,400.00 is derived from the sale of the calf. The total annual income from the cow is thus N$5,760.00.

Calf	200 kg @ N$12.00/kg	=	N$	2,400.00
Milk	840 L @ N$4.00/liter	=	N$	3,360.00
	Total income before inputs		N$	5,760.00
Supplement	4 bags @ N$150.00/bag	=	N$	600.00
	Total income after inputs		N$	5,160.00

After deducting the cost of the concentrate of N$600.00, a net income of N$5,160.00 is calculated per cow; calculated as follows: 7 months x 30 days x 1 kg = 210 kg = approximately 4 x 50 kg bags @ N$150.00/bag = N$600.00).

5. Leasing out grazing

It occasionally happens that farmers have more grazing available on their farms than utilised by the cattle herd. They have in principle two options to utilise this resource: either leasing out grazing to another farmer or acquiring cattle themselves to use the available pastures. The potential income of these two ventures has to be compared with each other.

Question: Which options will benefit the farmer the most?

Option 1: Lease out grazing

Potential income from lease of grazing	
Lease per head per month	40.00
Number of cows & calves	50
Income per month	2,000.00
Income per year	24,000.00

Grazing is leased to another farmer (cattle owner) for one year at a fee of N$40.00 per cow and calf per month. The monthly income is N$2,000.00, or N$24,000.00 per year.

This in principle represents the net income of the farmer.

Option 2: Use grazing

Potential income from keeping 50 cows	
Number of cows	50
Number of calves (80 %)	40
Selling price per calf	3,200.00
Income from sales	128,000.00
Less direct prod. costs (50 %)	64,000.00
Less indirect prod. costs (5 %)	6,400.00
Surplus from 50 cows	57,600.00

50 cows have to be acquired by the farmer to utilise the available grazing. Either own capital (cash) or a loan is required to provide funding for purchasing the cattle.

Based on an 80 % weaning percentage, 40 calves will be produced and sold for N$3,200.00, each generating an income of N$128,000.00. Direct production costs are estimated at 50 % of the income, while another 5 % is added to account for an increase in overhead costs. The calculated surplus is thus N$57,600.00. This is N$33,600.00 more than leasing out grazing would generate. Furthermore, this represents the earnings of the farmer (cow owner) leasing the grazing.

Cost of aquiring 50 pregnant cows	
Purchase price per cow	6,000.00
Number of cows	50
Total purchase price	300,000.00

Financing the cow herd with a loan

If the purchase price of 50 quality pregnant cows is N$6,000.00 per cow, a loan of N$300,000.00 is required. The annual instalment, based on 15 % repayable over eight years is N$66,855.03 per year, as calculated by the bank.

Potential income from keeping 50 cows	
Income from sales	128,000.00
Less direct prod. costs (50 %)	64,000.00
Less indirect prod. costs (5 %)	6,400.00
Instalment on loan	66,855.03
Loss from 50 cows	–9,255.03

When it is accounted for the repayment of the instalment, a "loss" of N$9,255.03 is calculated.

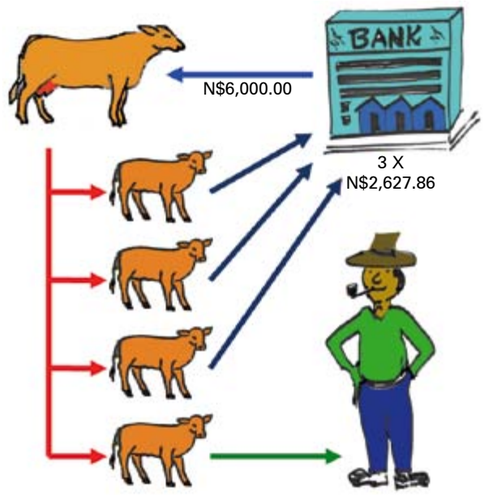
This means that the farmer is better off leasing out grazing than acquiring an own cow herd financed with a bank loan.

6. Financing a cow with a bank loan

Farmers often apply for an additional loan to acquire more cattle, with the intention of increasing the farming income, without considering the financial implication of the loan repayment.

Scenario 1

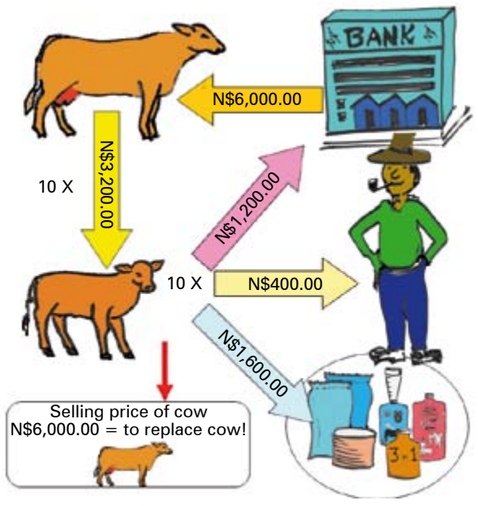
The cost of a pregnant cow is N$6,000.00. The cow is financed by a loan at an interest rate of 15 % per year, repayable over three years. The annual interest for the first year is N$900.00 (15 % x N$6,000.00). The calculated annual instalment (as calculated by the bank) is N$2,627.86.



The cow produces a calf each year, which can be sold for N$2,700.00. The proceeds from the sale of the first three calves are therefore required to pay the instalments to the bank. Only from the fourth year onwards does the farmer benefit from this investment. This essentially means that financing cows with a medium-term loan does not generate an immediate cash income.

Scenario 2

The cow (N$6,000.00) is financed by a loan at an interest rate of 15 % per year, repayable over ten years. The calculated annual instalment (as calculated by the bank) is N$1,195.51.



The calf produced is sold for N$3,200.00. Approximately half (50 %) of the income is used to pay for the direct production cost (licks and remedies) and marketing cost of the calf (N$1,600.00). In addition, the instalment of N$1,195.51 has to be deducted. The cash surplus generated per cow (over the ten-year period) is thus only N$400.00. The cow has to be culled and sold some time in the future. Proceeds should be used to buy a new cow (replace the cow).

This essentially means that the cow herd, financed by the bank (as per example), generates an income of only N$400.00 per cow per year until the loan is fully repaid after 10 years.

7. Financing a goat herd

The farmer considers taking up (or expanding) goat farming. An initial investment of N$80,000.00 is required to buy 80 does, 2 bucks and erect the basic required infrastructure. If the project is financed with a loan at a rate of 15 % repayable over five years, the calculated annual instalment payable is N$25,582.23.

Cost of acquisition of 80-doe goat herd		
Does	80 @ N$750.00	60,000.00
Bucks	2 @ N$3,500.00	7,000.00
Infrastructure		10,000.00
Cost of acquisition		3,000.00
Total cost		80,000.00

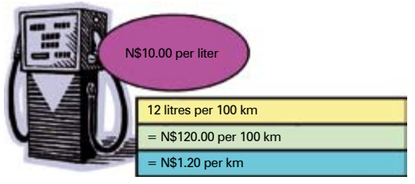
Income statement: goat farming		
Income from sale of goats		46,565.00
Less direct production costs		58,596.13
Marketing	4,793.90	
Supplements and feeds	6,690.00	
Animal health programme	6,730.00	
Labour	9,800.00	
Guarding dogs	1,500.00	
Purchase new buck	3,500.00	
Annual bank instalment	25,582.23	
Surplus from goat enterprisie		–12,031.13

Analysing the enterprise under the given circumstances reveals that a loss rather than a surplus is generated. The estimated income from the sale of goats of N$46,565.00 is not enough to cover direct production costs and to pay the instalment. The calculated "loss" is N$12,031.13.

Farmers are therefore advised to accurately analyse projects financed by loans.

8. The cost of the pick-up

The real cost of travelling does not only entail the cost of fuel, but also hidden costs such as basic vehicle maintenance, replacement of tyres, major repairs (engine or gearbox overhaul), insurance and licences. As a rule of thumb, "hidden" vehicle costs can be estimated to be equal to fuel costs per km.



If, for example, the pick-up uses 12 litres of fuel (diesel) per 100 km, it costs N$120.00 per 100 km or N$1.20 per km.

Hidden costs are calculated (as per example) as follows, based on an estimated 20,000 kilometres driven per year:

- A basic service is due every 10,000 km and costs N$3,000.00. Cost per km is N$0.30.
- Tyres are replaced every 40,000 km at a cost of N$3,200.00. Cost per km is N$0.08.
- Major repairs, budgeted at N$50,000.00, are expected within the range of each 100,000 km. The budgeted (calculated) costs are N$0.50 per km.
- The annual insurance for the pick-up costs N$6,000.00. Based on 20,000 km per year, it costs N$0.30/km.
- The licence for the pick-up costs N$400.00, or N$0.02 per km.

The total "hidden" costs per kilometre, as calculated in the example, are equal to fuel costs at N$1.20/km. This means that each kilometre driven costs the farmer N$2.40. As hidden costs are not paid per kilometre but only when they occur, the farmer must make provision for these costs. In principle this means that an amount equal to fuel costs should be saved continuously to pay for hidden costs once they occur.

Basic service	10,000 km	@	N$3,000.00	0,30/km
Replace tyres	40,000 km	@	N$3,200.00	0,08/km
Major repairs	100,000 km	@	N$50,000.00	0,50/km
Annual Insurance	20,000 km	@	N$6,000.00	0,30/km
Licences	20,000 km	@	N$400.00	0,02/km
Total cost per kilometre				1,20/km

Financing the pick-up

A pick-up is an essential "tool" to transport required farming inputs to the farm. Various models and makes in different prices ranges are available on the market, but in principle they all fulfil the same function: transport.

Cost price:	300,000.00
Financing: 18 % p.a., 60 months	
Instalments per year:	91,416.34
Insurance per year:	22,500.00
Total cost per year	113,916.34

Cost price:	120,000.00
Financing: 18 % p.a., 60 months	
Instalments per year:	36,566.54
Insurance per year:	9,000.00
Total cost per year	45,566.54

Difference: N$68,349.80

The farmer has the option to buy a brand-new pick-up for N$300,000.00 or one for N$120,000.00. If funded by a loan at 18 % repayable over five years, the annual instalment is N$91,416.34 for the expensive pick-up, but only N$36,566.54 for the cheaper make and model.

In addition, the annual insurance premium for the expensive pick-up is much higher (N$22,500.00 versus N$9,000.00).

The difference in the annual cost between the two different "tools" fulfilling the same function is N$68,349.80. Buying a cheaper pick-up leaves more funds available for other purposes, such as buying supplements (licks), a good bull, paying for repairs to water infrastructure or the bank instalment.

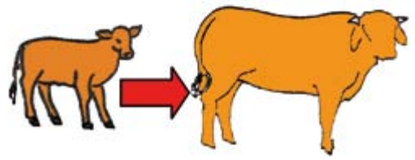
**"Luxury is if you buy things you don't need,
with money you don't have, to impress people you don't like."**

CHAPTER 16
Case Study

Free-range beef production is in itself a financially viable activity, provided cattle or cash to acquire cattle and own grazing (pastures) are available. But as soon as grazing is leased or capital borrowed to acquire cattle, these costs put pressure on the expected surplus from this business venture.

1. A case study: Purchase of 100 calves to be sold 12 months later as slaughter oxen

Mr Nepolo has the opportunity to lease grazing for **100 head of cattle** (from weaners to oxen) for one year, with the lease contract commencing on 1 September. The grazing fee is **N$30.00/head per month**, and includes the supply of water and basic maintenance of fences. Grazing is of good quality and sufficient to keep 100 head of cattle for the year; with an average rainy season expected. The farm is situated **70 km from Otjiwarongo**, where Mr Nepolo himself lives and works. Furthermore, Mr Nepolo has cash savings of **N$100,000.00** and the option to borrow another **N$300,000.00 at 17.5 % p.a.**, repayable after one year.



Mr Nepolo considers buying 100 quality weaning calves and selling them a year later as slaughter oxen. To analyse the financial viability of this proposed venture, he calculates the expected income from sales and all related costs to find out if an acceptable surplus can be expected. In addition, he consults an external expert to assist him.

The expected weight gain

Quality cattle have the potential to gain weight as set out in the table below. This, however, requires the availability of sufficient grazing, efficient supplementation, parasite control and a vaccination programme. It is assumed that the oxen will be marketed in a good condition with a weight of **465 kg**.

	Sep	Oct	Nov	Des	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
Weight kg	250	260	270	280	290	310	335	360	385	405	425	445	465
Gain kg	10	10	10	10	20	25	25	25	20	20	20	20	

Acquisition of cattle

100 quality weaners are purchased with an average weight of 250 kg for N$12.50 per kg. The purchase price is **N$312,500.00** (100 x 250 kg x N$12,50/kg). Two truckloads have to be paid for to transport the cattle to the farm (50 weaners per load). The freight km cost is N$24.00, and thus **N$3,360.00** is charged for transport. (2 x 70 km x N$24.00 per km = N$3,360.00)

Marketing of cattle

Two percent losses can be expected, meaning that only 98 oxen will be sold. The expected selling price is N$11.00 per kg, and the calculated income from sales is **N$501,270.00** (98 x 465 kg x N$11.00/kg). Three truckloads (33 per load) at a cost of **N$5,040.00** are required to transport the oxen to the auction (3 x 70 km x N$24/km). Commission on sales calculated at 6 % is **N$30,076.20** (6 % x N$501,270.00).

Parasite control

All weaners are dosed twice at an interval of three weeks upon arrival. Based on a dose of 25 ml per head, 5,000 ml or 5 litres are required. Therefore 5 litres @ N$360.00 have to be purchased for **N$1,800.00**.

In addition, all cattle are treated against external parasites in September, January and April with a pour-on. The average recommended dose is 30 ml (from 25 ml to 36 ml) per head. With each treatment 3 litres (100 x 30 ml = 3,000 ml) @ N$380.00 are needed, thus a total cost of **N$3,420.00** (3 x 3 x N$380.00).

Vaccination programme

Upon arrival all cattle are vaccinated with a combined vaccine (botulism, anthrax and black quarter) and against rabies. The combined vaccine costs N$340.00 for 50 doses. Therefore total costs are **N$680.00**. 10 bottles of rabies vaccine (10 ml) cost **N$360.00** (10 x N$36.00).

Supplementation programme

The planned supplementation programme is summarised in the table below.

Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Supplement	Mineral-Protein lick				Mineral lick (50 kg P12 & 50 kg salt)				Mineral-Protein lick		Veld Finisher lick	
Daily intake	500 g/day				166 g/day				500 g/day		1 kg/day	

Mineral protein lick

- Monthly requirements:
  500 g/head/day x 100 cattle x 30 days = 1,500,000 g = 1,500 kg = 30 x 50 kg bags
- Monthly cost:
  30 x 50 kg bags @ N$150.00 per bag = N$4,500.00 per month
- Total cost of protein lick:
  6 months @ N$4,500.00 per month = N$27,000.00

Mineral lick

- Monthly requirements:
  166 g/head/day x 100 cattle x 30 days = 498,000 g = 498 kg = 10 (5+5) 50 kg bags
- Monthly cost:
  5 x P12 (50 kg) @480.00 = N$2,400.00 + 5 x salt (50 kg) @ N$30.00 = N$150.00
- Total cost of protein lick:
  4 months @ N$2,550 (N$2,400.00 + N$150.00) = N$10,200.00

Veld finisher lick

- Monthly requirements:
  1 kg/head/day x 100 cattle x 30 days = 3,000 kg = 60 x 50 kg bags
- Monthly cost:
  60 x 50 kg bags @ N$120.00 per bag = N$7,200.00 per month
- Total cost of protein lick:
  2 months @ N$7,200.00 per month = N$14,400.00

Labour

One person is employed to look after the cattle for the entire year. The monthly wage (all inclusive) is N$750.00 with a bonus (13th wage) paid in December. The total cost of labour is therefore N$9,750.00.

Cost of travelling to the farm

Mr Nepolo travels to the farm twice per month to inspect cattle and deliver supplements. In July and August he has to travel three times per month because of the large volume supplements (60 bags per month) required. Each trip is 150 km inclusive of 10 km driving on the farm. (70 km + 70 km + 10 km). Fuel cost is calculated at N$1.00 per km (15 litres @ N$10.00 per trip). Budgeted costs are triple the fuel cost to account in equal parts for “hidden” vehicle costs and depreciation. One kilometre is calculated at a rate of N$3.00.

The travelling cost per month is N$900.00 (2 x 150 km x N$3.00/km), and for July and August N$1,350.00 (3 x 150 km x N$3.00/km).

Grazing fee (lease of pastures)

The monthly grazing fee is N$3,000.00 per month or N$36,000.00 per year. (100 x N$30,00 x 12 months).

Interest on the loan

The loan amount of N$300,000.00 together with the interest of N$52,500.00 (17,5 % x N$300,000.00) has to be repaid after one year. N$352,500.00 has to be paid to the bank after the cattle have been sold at the end of August.

2. The cash flow forecast

For detailed planning purposes, Mr Nepolo records all calculated figures in a cash flow matrix as per example below. This summary provides him with a detailed overview of the situation, which can be further analysed.

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	TOTAL
Buy and sell (numbers)	100											98	
Weight	250	260	270	280	290	310	335	360	385	405	425	445	465
Monthly weight gain	10	10	10	10	20	25	25	25	20	20	20	20	
Cash inflow (cash received):													
Own capital in project	100,000.00												100,000.00
Loan amount granted	300,000.00												300,000.00
Sale of cattle												501,270.00	501,270.00
Total	400,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	501,270.00	
Payments:													
Purchase cattle	312,500.00												312,500.00
Transport to farm/auction	3,360.00											5,040.00	8,400.00
Commission on sales												30,076.20	30,076.20
Dosing	1,800.00												1,800.00
Pour-on	1,140.00				1,140.00			1,140.00					3,420.00
Vaccination – Supavax	680.00												680.00
Vaccination – Rabies	360.00												360.00
Licks	4,500.00	4,500.00	4,500.00	4,500.00	2,550.00	2,550.00	2,550.00	2,550.00	4,500.00	4,500.00	7,200.00	7,200.00	51,600.00
Labour (wages – cash only)	750.00	750.00	750.00	1,500.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	750.00	9,750.00
Travelling cost	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	900.00	1,350.00	1,350.00	11,700.00
Grazing fees – lease	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	36,000.00
Loan amount repaid												300,000.00	300,000.00
Interest for year paid												52,500.00	52,500.00
Total	328,990.00	9,150.00	9,150.00	9,900.00	8,340.00	7,200.00	7,200.00	8,340.00	9,150.00	9,150.00	12,300.00	399,916.20	818,786.20
Cash start of the month	100,000.00	71,010.00	61,860.00	52,710.00	42,810.00	34,470.00	27,270.00	20,070.00	11,730.00	2,580.00	–6,570.00	–18,870.00	
add: cash inflow	300,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	501,270.00	
= cash available	400,000.00	71,010.00	61,860.00	52,710.00	42,810.00	34,470.00	27,270.00	20,070.00	11,730.00	2,580.00	–6,570.00	482,400.00	
less: payments	328,990.00	9,150.00	9,150.00	9,900.00	8,340.00	7,200.00	7,200.00	8,340.00	9,150.00	9,150.00	12,300.00	399,916.20	
= cash end of the month	71,010.00	61,860.00	52,710.00	42,810.00	34,470.00	27,270.00	20,070.00	11,730.00	2,580.00	–6,570.00	–18,870.00	82,483.80	–17,516.20

Mr Nepolo observes the following when analysing the income statement:

- The balance at the beginning of the year is **N$100,000.00** (own savings) while only **N$82,483.80** is left at the end of the period. The cash amount was **reduced by N$17,516.20**.
- A cash flow deficit or shortage is calculated for June and July, which means that he has to add an additional **N$18,870.00** to this business venture to make it work.

3. The income statement

The calculated figures listed and added up in the cash flow forecast are used to compile the budgeted income statement, as per example to the left.

The expected gross surplus from the project is **N$70,983.800**. This is what the farmer would earn from the 100 weaners if there were **NO lease** and **NO bank interest** to pay.

After deducting bank interest and lease payable, a loss of **N$17,516.20** is calculated. Consequently it becomes clear that the opportunity analysed (lease of grazing and purchase of cattle) is **NOT** financially viable.

- If the farmer had own grazing and only paid bank interest, the surplus would be **N$18,483.80**.
- If the farmer had his own capital (savings) and only paid lease, the surplus would be **N$34,983.80**.

Budgeted Income Statement		
Income		501,270.00
Income from sale of cattle	501,270.00	
Production costs		430,286.20
Purchase of cattle	312,500.00	
Transport to farm	3,360.00	
Transport to auction	5,040.00	
Commission on sales	30,076.20	
Dosing	1,800.00	
Pour-on	3,420.00	
Supavax	680.00	
Rabies	360.00	
Bush Improver lick	27,000.00	
P12/salt lick (P6)	10,200.00	
Super Finisher lick	14,400.00	
Labour	9,750.00	
Travelling cost	11,700.00	
Gross surplus		70,983.80
Other costs		88,500.00
Lease of pastures	36,000.00	
Interest on loan	52,500.00	
Net surplus/loss		–17,516.20

Producing slaughter cattle from weaning calves is only viable IF either own grazing or own capital is available.

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