THE FINANCIAL PLANNING OF A FARM: A NEW DIRECTION

ABF Rüsch, PC van Rooyen, IA Walton and R Wilsnach
Agricultural Department, Commercial Services Division, Standard Bank of South Africa Limited, Johannesburg

Abstract

The article first discusses the financial environment of the agricultural sector and then proceeds to a discussion of the credit assessment done by banks to ensure the viability of farming enterprises for lending purposes. Conclusions drawn are that farmers will have no other option but to keep better records to enable them to convince lending institutions of the viability of their enterprises.

1. Introduction

Agricultural finance is a highly challenging subject. A new political dispensation in the field of agriculture will pose great challenges to financiers of Agriculture. However, because we cannot fully predict the political future, we have to develop techniques that are valid for all political systems and environments.

Agricultural financing has evolved considerably during the past decade or so. Today agriculture, in contrast to the 60s and early 70s, is every bit as sophisticated as the commercial sector of the economy. Some farming enterprises overlap with the corporate sphere, which supports this statement.

Players in the financing arena of agriculture are aware that profit margins are declining and that risk is steadily increasing. New risk evaluating techniques are developed daily, but the principles of sound risk management never change.

The purpose of this paper is to indicate a new direction which could be useful in risk assessment and the financial planning of a farm.

2. Financing environment

When discussing agricultural financing it is also necessary to describe the environment. In this section the agricultural sector's debt position, income and costs will be highlighted. Further, it is indicated that the importance of commercial banks as agricultural financiers is steadily rising.

2.1 Total debt

Figure 1 shows the total debt position of agriculture for the past decade in real and nominal terms (deflated by CPI). Although the debt has risen considerably from R3 500 million to approximately R16 000 million, the real debt position has not increased. There was, however, a higher real debt load in the mid eighties (Department of Agriculture, 1991).

2.2 Sectoral solvency

Figure 2 gives a net solvency picture of the agricultural sector as a whole. The assets and liabilities of the total agricultural sector were used to arrive at this figure. This shows that the agricultural sector as a whole is in a fairly healthy state if a norm of about 50% (Reynders *et al*, 1987) is taken. We must however, bear in mind the distribution of debt within the farming community. This will show that a number of farms do not have any debt but others are virtually insolvent.

Exact figures on the distribution of debt would be interesting to the community as a whole, particularly when we consider Figure 3 and look at the amounts in arrears with the Land and Agricultural Bank of South Africa (Land and Agricultural Bank, 1990).

2.3 Income potential of agriculture

Figure 4 shows the gross and net income of the farming community. Debt, however, can only be repaid with net income. Figure 4 shows that real net income is steadily decreasing. This decreasing net income may in part be the result of the cost-price squeeze which is illustrated in Figure 5. Obviously some parts of the agricultural sector perform better than others, but illustrating this goes beyond the scope of this discussion.

2.4 Agricultural debt - who finances how much?

Figure 6 gives the breakdown of lending to agriculture by institutional grouping (Department of Agriculture, 1991). This shows that commercial banks have gradually become the major financiers of agriculture. This can be attributed to specialisation and to the decreasing interest rate differential between institutional groupings.

Looking at the rand values involved one can understand why this segment is important to commercial banks. Commercial Banks have to improve the value of shareholders' interests in the long term. They do this by trying to achieve real growth in assets and profits and to maintain a market share that will optimise investment.

Agriculture is a specialised sector of the economy and a difficult segment to which to lend money. As with most disciplines, the financing of agriculture has changed significantly over the recent decades.

3. Functions of agricultural economists in commercial banks

The public often views commercial banks as being unsympathetic to clients' needs. Commercial banks, however, have to be very understanding of their clients needs (Standard Bank, 1991b). In agricultural finance the agricultural economist has an important role to play.

3.1 The functions of the agricultural economist in the financial institution (Basson, 1986)

The main reason for the involvement of the agricultural economist in the financial institution is to safeguard the investment the financial institution makes in agriculture. The increasing level of loans and the changing structure of the loans to the agricultural community, referred to above, increases risk. A single error can have serious consequences.

Financial institutions use the agricultural economist predominantly in a staff function within the organisation, principally supplying advice on the servicing of the agricultural sector.

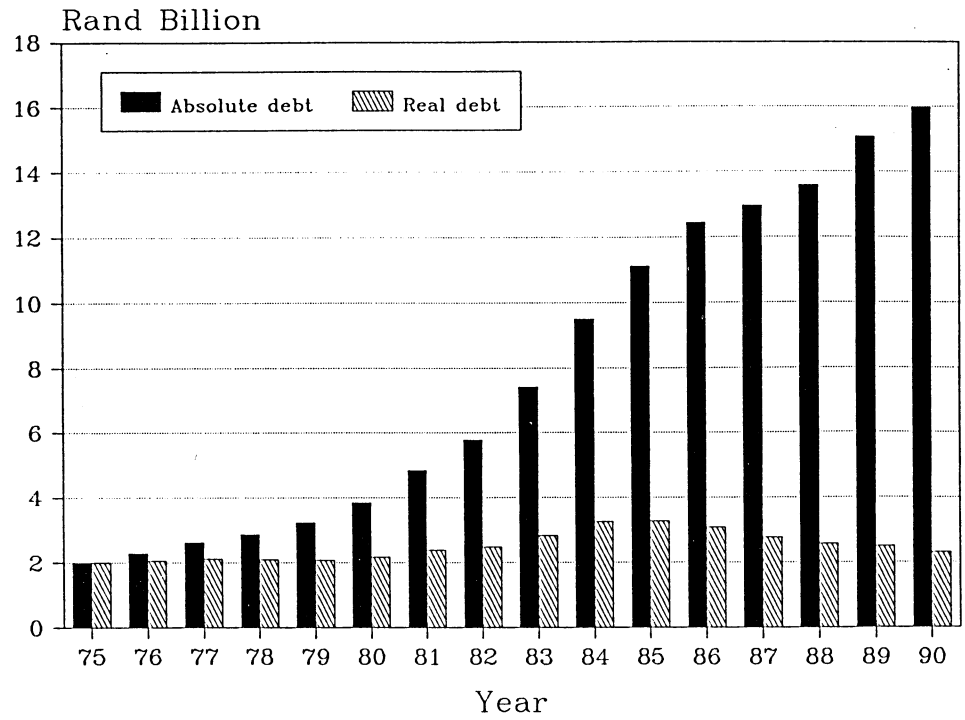
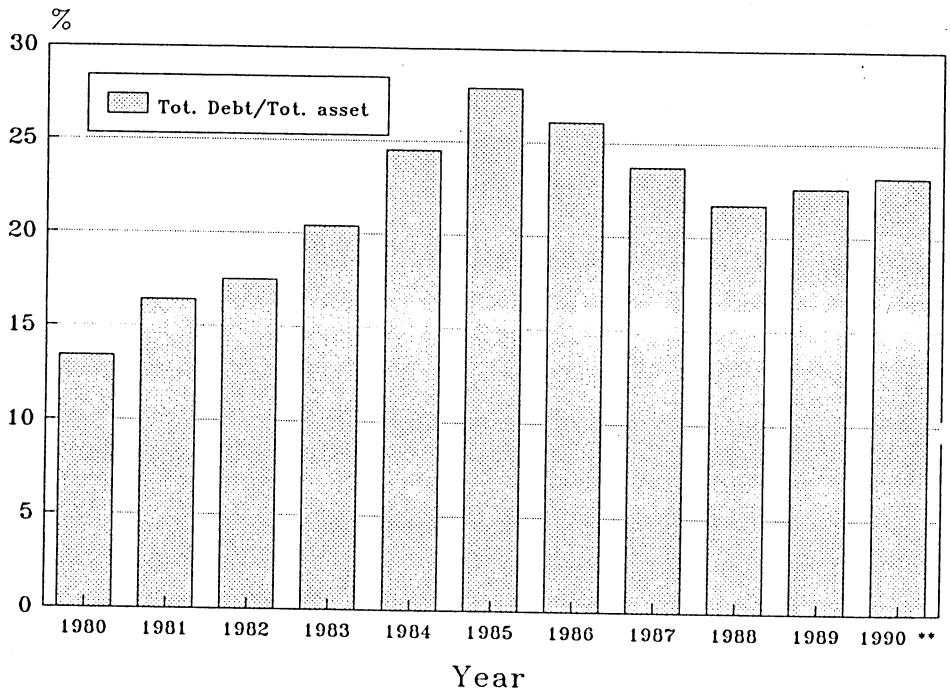


Figure 1: Agricultural debt in South Africa 1975 - 1990 (Base Year = 1975)
Source: Department of Agriculture, 1991



** Estimates

Figure 2: Total debt : Total assets
Source: Department of Agriculture, 1991

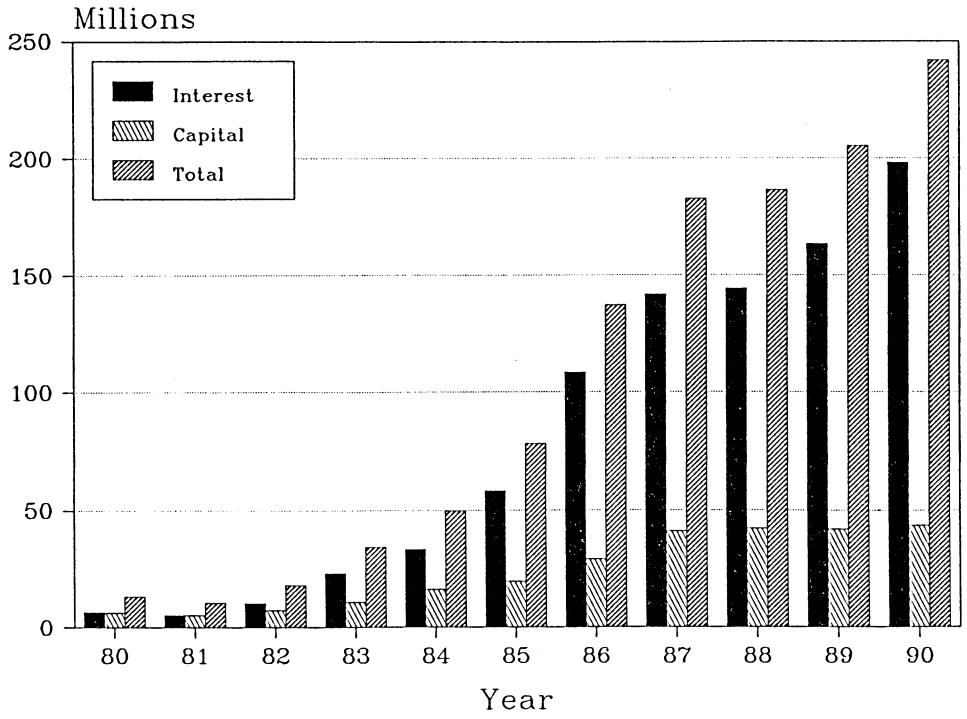


Figure 3: Long term loans to farmers - amounts in arrears
Source: Land and Agricultural Bank, 1990

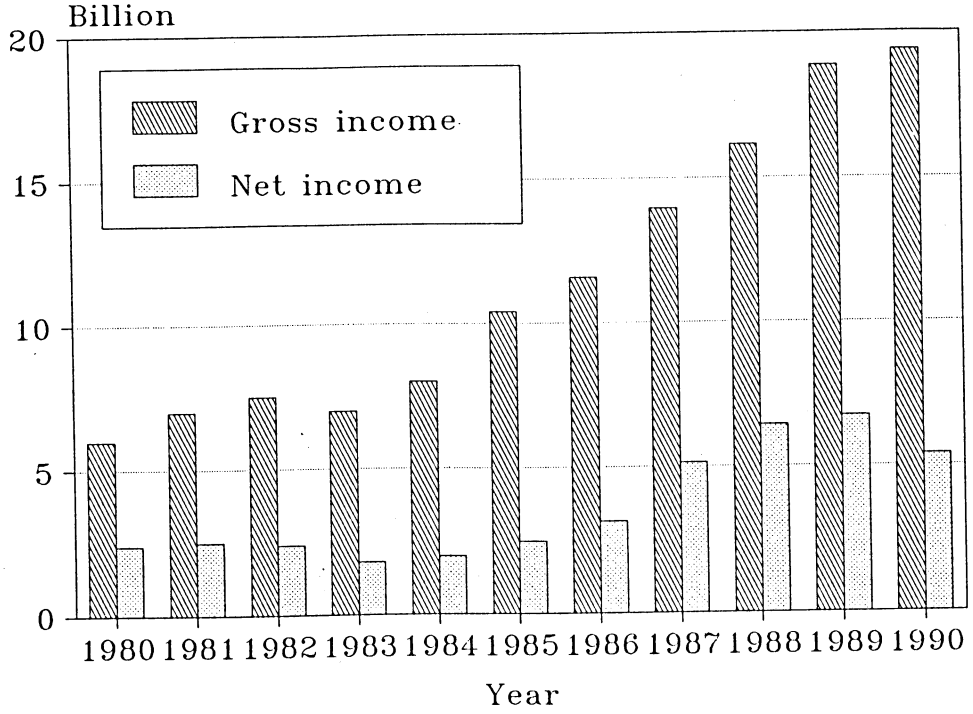


Figure 4: Gross and net farming income 1980 - 1990 (January to December)
Source: Department of Agriculture, 1991

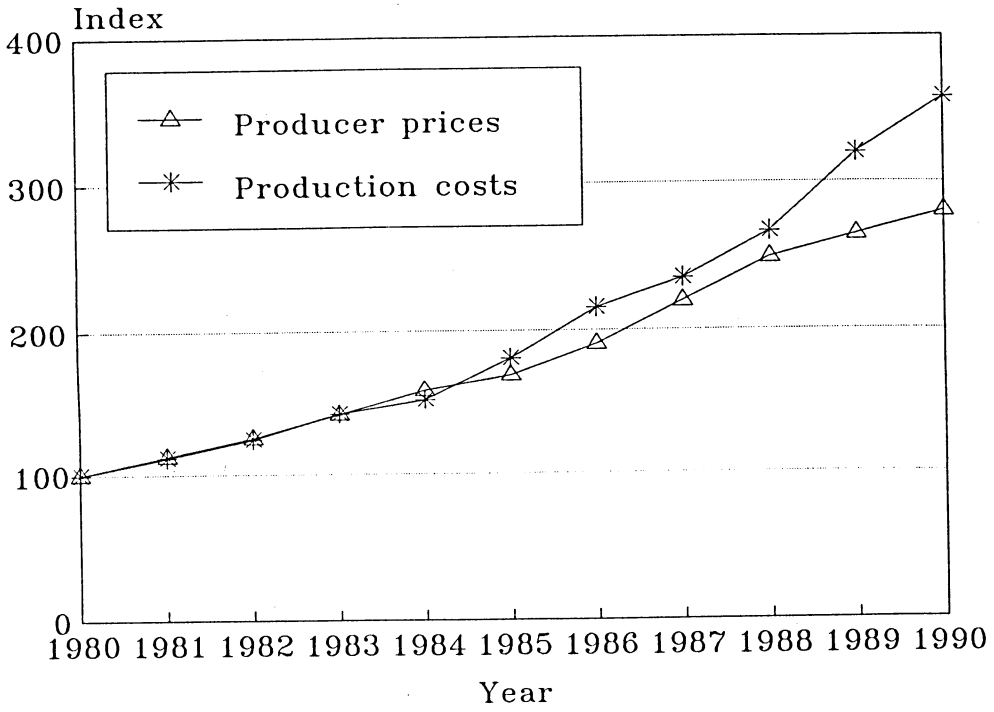


Figure 5: Cost/Price Squeeze (1980 = 100)
Source: Department of Agriculture, 1991

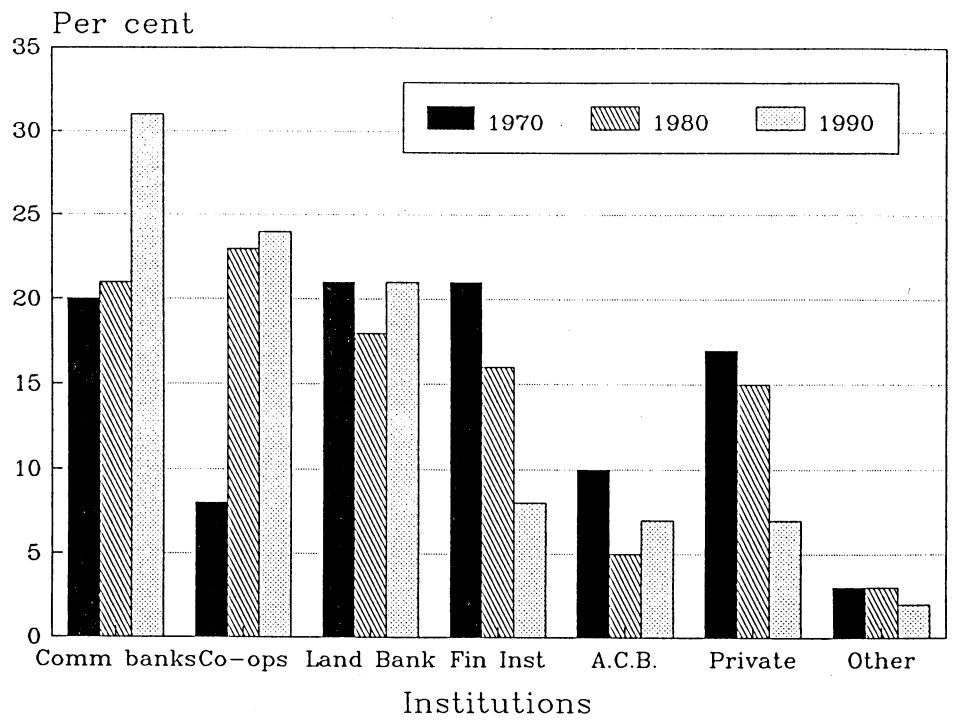


Figure 6: Agricultural debt according to sectoral breakdown
Source: Department of Agriculture, 1991

Other duties of the agricultural economist in a financial institution include training within the organisation. Internal training is especially aimed at staff who are directly concerned with servicing and financing the agricultural sector.

Agriculture contributes about 5% to gross domestic product. It is unrealistic to expect commercial banks to have more than 10% of their assets tied to agriculture. The major involvement of banks is therefore non-agricultural business and the agricultural department has to educate staff in agricultural financing and provide instruments for evaluating the financial risk of the farmer.

The commercial banks' main function is lending. The work of all staff will evolve around this in some way. As a direct result of this, extension may be given to clients who wish to tackle new projects, where problems arise or if farmers desire financial planning advice in order to support the financing decision.

3.2 Problems encountered by Agricultural Economists

The financial function of farm management is often neglected and records are often of a more academic nature than of any real value to the farmer or outside parties.

Evaluating the financial risk of a farmer without proper records poses challenges to commercial banks. This is, in fact, a means of describing the work of agricultural economists in the banking sphere - where they have to apply physical and financial standards which are not always readily available. These standards or norms are different for virtually every region, area and district.

The most influential environmental factor is undoubtedly climate. The agricultural banker has to use his own judgement and knowledge of a local area in his recommendation and financial risk assessment.

3.3 Training of agricultural bankers or managers (Groenewald & Spies, 1987; Kassier, 1987)

To enable agricultural managers to use this judgement and knowledge of the area, they have to be trained adequately in the fields of economics, banking, financial management, accounting, business economics, statistics, agricultural economics and tax, besides having a technical insight into the enterprise(s) under investigation.

A sound understanding of day-to-day farming activities is just as essential. A good agricultural manager is a "Jack of all trades", and a master of most. With this knowledge agricultural managers are in demand. They should perhaps be employed for their ability to think in marginal terms, study the effect of change (what-if) and determine probabilities of events (Boulding, 1977).

4. Financing of farming operations - evaluation of financial risk

This subject is very broad and it is impossible to cover the entire ground in just a few words. The three basic principles of lending:

- profitability
- desirability, and
- safety

will be discussed briefly.

4.1 Profitability of the client - bank relationship

This highly emotional issue is still the principle reason for both parties to enter a relationship. This implies that both parties stand to gain from this relationship (Van Zyl, 1988). The "value of connection" a client has may influence the profitability of the client - bank relationship when a more holistic view is taken.

Current account or cheque account and other banking services are offered by the bank. Bank charges are levied for these and are not associated with the cost to the bank of funds loaned to bank clients.

4.2 Desirability

Banking relations have to be desirable. Clients who abuse their banking relationships and enter into any unlawful or immoral acts are also considered undesirable.

A commercial bank has to have an acceptable profile to all of its customers, and thus has to be apolitical in its affiliations and show the highest level of integrity.

4.3 Safety

To satisfy the profit-seeking motive of both parties and to prevent unnecessary losses the safety aspect must not be neglected. The losses that may be incurred by the bank are the funds advanced to the client, while the client may lose all means of self support.

Both parties have a responsibility to assess the financial implications of the proposed venture. A thorough assessment is the best way to ensure the long term profitability of the relationship for both parties.

A credit assessment is done to evaluate the financial risk of the proposed venture. The elements of the assessment are:

- management
- environment
- financial
- security

4.3.1 Management

The ability of the management of the business or farm to adapt to changing business needs is assessed. Technical skills and management capabilities are an area of great concern. Evaluating the management of a company, business or farm is often very problematic. The success of the whole enterprise hinges on sound management. Management cannot be stressed enough in correctly evaluating an enterprise. We therefore cannot stress enough the importance of correctly evaluating the management of an enterprise.

Management can be divided into financial and technical components. As management cannot be measured objectively, it becomes an art to subjectively make the right decision. Management will be rated as good, acceptable or bad. Competence to evaluate management is gained only through experience (Schonberger, 1985).

4.3.2 Environment would include any factors influencing the business.

The internal environment of the farming business refers to any factor that can be influenced by the farmer himself. The external environment refers to all factors beyond the control of the farmer.

The result of the environmental analysis is, once again, very subjective. The environment will be favourable, acceptable or unfavourable (Schonberger, 1985).

4.3.3 Financial state of affairs.

The business's past successes and failures are hidden in balance sheet and income statements. Most references to financial management value of various ratios. The solvency and liquidity ratios are among the more useful ratios (Reynders *et al*, 1987).

Norms for ratios are established, but they may not prove useful when viewed in isolation. The relationship between ratios, the factors that determine those ratios and the trends followed by the ratios are indicative of the health of the business (Horngrem & Sundem, 1987).

A proper knowledge of accounting principles and the interdependence of ratios are needed to make sound decisions and recommendations on the financial position of a farmer. Experience and knowledge of the industry influence the ability to rate the financial position. The position may be rated as good, acceptable or bad. One should note that different ratios apply to different businesses. Ratios may therefore differ from farm to farm. The trends indicated by the ratios are important. Even more important is the interpretation of these trends (with the limitations of the accounting method in mind).

4.3.4 Security

Security is the bank's insurance against the risk of a potential loss. Different types of security include bonds, guarantees (suretyships), session of book debts or crops, pledges and, least desirable, notarial general bonds. Security has to be clearly identifiable, tangible, of a consistent value and easily realisable. In agricultural finance, financiers often rely on mortgage bonds over property for their security. The determination of the security value is critical. This value is usually based upon the productive value of the property concerned (Van Zyl, 1988). This approach to security is the traditional approach to financial risk assessment.

5. Repayment ability

The above are necessary but not necessarily sufficient conditions for a profitable client - bank relationship. Repayment ability is influenced by numerous factors. The concept of repayment ability is elusive and to address this problem Standard Bank's Agricultural Department developed a model to qualify and evaluate this concept.

5.1 Theoretical background of repayment ability

The ability of the farm business to meet its debt commitments is directly influenced by the amount of cash available after direct and indirect production costs have been covered. By means of a cashflow budget one can determine what the expected cash surplus will be at the end of a particular production period or year. If the cash surplus for each of a number of consecutive years is determined, one may obtain an idea of expected future cash surpluses. There are two types of repayment ability that can be determined:

- Survival repayment ability
- Total debt repayment ability. (Ferreira, 1986)

5.1.1 Survival repayment ability

This indicates the ability of the business to repay all current liabilities and short term debt (bank overdraft). The cash surplus is calculated after all medium term liabilities, in terms of current nature and term structure, are repaid.

5.1.2 Total Debt Repayment Ability

This indicates the ability of the business to cover all outstanding liabilities irrespective of the present term or structure of repayment. Thus, this determines the ability of the business to repay all debt.

Repayment ability is calculated by discounting future income prior to any debt repayment. These values are then summed over appropriate periods to calculate the repayment ability over that period (Van Zyl, 1988).

5.2 Repayment ability - two possible methods of calculation

To establish the repayment ability we have to model the financial condition on the farm (Barnard & Nix, 1984). This is represented by a comprehensive total farm business budget. This total budget is compiled using standard agricultural economic terminology and concepts (Department of Agriculture, 1986)

The model can be a deterministic or a stochastic model. Both approaches have their advantages and disadvantages. The most important fact in the use of either model is that the user has to keep the constraints of the model in mind. Due to cost and time constraints, the deterministic models are generally used. Efforts are, however, being made to make stochastic models more user friendly and quicker to use.

5.2.1 Deterministic models - the quick way out

Most budgets, Linear Programming, Motads and other relevant methods are constructed with a single set of fixed prices and relationships. The results produced are valid only when the assumptions are valid.

These assumptions are made at the initial construction of the model and are often adjusted to fit a specific purpose. Yields and prices are often altered (Barnard & Nix, 1984).

Some advantages of deterministic models are:

- The models (especially budgets) can be built quickly;
- they do not take a lot of time to solve;
- the software is available over the counter;
- computer skills needed are limited, and
- software is competitively priced.

Some disadvantages of this type of model are:

- It is valid only under the assumptions;
- extrapolation is difficult;
- it has limited "what if" capabilities, and
- it is possible to change only one variable at a time (Hazel & Norton, 1986).

5.2.2 Stochastic analysis - only for experts?

A sound knowledge of statistics and good programming skills were essential for simulations a few years ago (Barnard & Nix, 1984; SBL Lectures, 1991). With the broad introduction of personal computers in the office environment, simulations are within the reach of every PC-literate person. However, a word of warning has to be issued. A sound knowledge of statistics is essential for the interpretation of the results of stochastic analysis. Experience indicated that the results can be interpreted widely and these models have to be used very carefully, otherwise the results can be very misleading.

The advantages of simulations are:

- These models are very flexible;
- it can be used to analyse large and complex real world situations;
- sometimes simulation is the only method available;
- simulation models are built for management problems and require management input;
- simulation allows various simultaneous what-if types of questions;
- simulations do not interfere with the real-world system;
- simulation allows the study of the interactive effect of individual components or variables in order to determine which ones are important;
- "time compression" is possible with simulation, and
- simulation allows for the inclusion of real world complications.

The main disadvantages of simulation or stochastic models are:

- Good simulation models can be very expensive. It may take a long, complicated process to develop a model.
- Simulation does not generate optimal solutions to problems as do other techniques.
- Each simulation model is unique and results are not applicable to other problems.
- Managers must generate all of the conditions and constraints for solutions that they want to examine. The simulation model does not produce answers by itself (Hazel & Norton, 1986; SBL Lectures, 1991).

5.3 Simulation on a normal model (Barnard & Nix 1984; SBL Lectures, 1991)

For the construction of a normal model the prices, yields and costs are determined beforehand and entered as "absolute" values. These values are often averages without an indication of the variance around the average. Good simulation techniques would ask for the replacing of these "absolute" values with probability distributions or cumulative probabilities.

The simulation software will handle the replacement of the "absolute" values with statistical distributions with the relevant α and β parameters. The output of such a simulation does not resemble the output of a normal repayment ability calculation (Van Zyl, 1988) but rather gives a range of repayment ability.

A cumulative probability can be calculated to enable the agricultural managers to make a statement such as: Farmer X has a 50% chance of repaying his overdraft within three years.

5.4 Providing distributions

In the simulation model absolute values are replaced with distributions or cumulative distributions. Distributions are in effect a frequency table of the yield, price or cost under investigation. To determine the distribution of prices a database was established. This database enables us to provide internal users with the relevant distribution parameters.

5.4.1 Determining a yield distribution

A major project was launched to determine yield distributions for major field crops. The approach followed is perhaps not completely new, but the system is fully automated and can determine yield distributions throughout the country. Diagram 1 outlines the approach followed to determine the yield distribution.

Diagram 1: Schematic outline to determine yield distribution

Generate rainfall for the area	100 years
Generate evaporation for the area	100 years
Determine water requirements for the crops each year	
Determine management factors influencing the yield	
Determine yield for every year of the 100 years	
Calculating frequency table of yields (distribution)	

A typical yield distribution for wheat in the Eastern Free State is given in Table 1. The skew distribution with a long tail is clearly deviant from a normal distribution around the average.

Table 1: Typical yield distribution for wheat in the Eastern Free State

Yield	Frequency
0 - 0,5	8
0,5 - 1	17
1 - 1,5	22
1,5 - 2	20
2 - 2,5	15
2,5 - 3	8
3 - 3,5	5
3,5 - 4	3
> 4	1
	100

Source: Department of Agriculture, 1991b

6. The farmers' viewpoint

Most of the above discussion revolved around the skills of the agricultural economist. However, these principles can be applied by farmers themselves. In future, agricultural financiers will expect farmers to be responsible for their own analysis and proposals to banks. These farmers will be in a position to negotiate favourable loan conditions. Unfortunately these farmers will often not be in a position to supply their own backup service. This backup service, or price information, will be obtained through agricultural information services.

6.1 A look at Europe - are we heading that way?

European farmers operate in general on very narrow margins. Under these circumstances errors are costly and risk management has to be exceptional to achieve real growth.

In certain areas European farmers have organised themselves into groups of various sizes. Farmers can even be part of several groups. Often these groups employ professional advisors who supply the farmers with the required services. Some advisers may have a bigger influence than the farmer himself. The renumeration structure of these advisers more often, than not determine the actual success of the farmers' group as such. Through this system the farmers within the group regularly exchange knowledge, expertise and information (Agric Lectures, 1983).

This system may alleviate some problems of Southern African farmers. Farmers will be required to do more planning and critical evaluation of their own enterprise than in the past.

7. Conclusions

We presented with this contribution a new approach to evaluating the viability of farming enterprises. Actually, there is no "new" approach to credit, but only a new approach to interpreting the real results of farming.

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