

SUMMARY OF LECTURE NOTES ON

COURSE TITLE: AGRICULTURAL FINANCE

COURSE CODE: AEM 508

NO.OF UNITS : 3 UNITS

COURSE SYNOPSIS:

1. Introduction to the Course
 - *Concept and Scope of Agricultural Finance
 - * Scope of Agricultural Finance as a field of Study in Agricultural Economics
 - * Basic Concepts of Credit) introduced
2. Needs and Roles of Credit in Agricultural Development
3. Sources of Agricultural Finance
4. Decision Criteria in Agricultural Investment
5. Factors affecting supply and effective use of Credit
6. Classification of Credit
7. Credit Assessment: (The 5Cs of Credit)
8. Project and Economic Development:
 - Project Cycle
 - Determination of project Needs
 - Criteria for selection of projects
9. Project Appraisal, Monitoring and Evaluation
10. Project Re-financing

Requirements for the Course :

- (i) Regular and prompt attendance at Class;
- (ii) Participation on Continuous Assessment Test(C.A.T) and other Class Assignment and Group presentations (if any);
- (iii) Functional Scientific Calculator;
- (iv) Discounting and Compounding Table

1.0 Introduction

1.1 Preamble

The study of “**Agricultural Finance**” varies in scope from the “**micro concept**”, which involves the financing and liquidity services provision through credit, to the “**macro concept**”, such as the examination of the agricultural sector’s role in the entire

economy. Both concepts are important except that one is a subset of the other. For an instance, the study of a farm operator's behaviour at the micro level, can be used as the basis to understand the determinants of macro-economic outcomes in the agricultural sector. In addition, understanding the effects of changes in the nation's economic and financial policies as it may affect agriculture in relation to other sectors of the economy, is quite relevant with the advent of increasing use of manufactured farm inputs, external financing and off-farm employment of farm family members.

1.2 Concepts of Agricultural Finance

"Agricultural Finance", according to Tandon and Dhondyal (1991), could be considered as a branch of Agricultural Economics that deals with the provision and management of Bank services and financial resources related to individual farm units.

"Agricultural Finance" deals with the financial,(micro and macro aspects of a farm business in an economy.

"Agricultural Finance" is the economic study of the acquisition and use of capital in agriculture. So it deals with the demand for, and supply of funds in the agricultural sector of the economy (W.F Lee, 1980)

"Agricultural Finance" is the study of financing and liquidity services as well as credit provision to farm Borrowers.

"Agricultural Finance" is the study of financial intermediaries who provide loanable funds for agricultural production and that of financial markets in which these intermediaries obtain their loanable funds (Penson and Lins, 1990).

The study could be broadened to mean the analysis of financial structure of Agriculture and the wealth position of farm owners.

Broadened further, **"Agricultural Finance"** involves the study of all economic and financial interface between agriculture and the rest of the macro economy ; including the effects that changes in the national economic policies could have on the economic performance of agriculture as well as the financial positions of individual farm families.

1.3 Scope of Agricultural Finance

The study of **"Agricultural Finance"** varies in scope from the **"micro concept"** to **"macro concept"**. From the points of view of both concepts, aspects of the study under individual farm units include:

1.3.1(a) Financial Management of Farms

Has to do with :

(i) **Decision making** (e.g. decision to invest on a farm machinery)

* Investment decisions

* Financing decisions

* Dividend decisions

Notes: These decisions together determines the rate at which any farm business can grow over time.

None of the decisions could be made independent of the other.

Effective decision making however requires a comprehensive knowledge of financial Accounting system in order to :

(i) Identify the extent and the correct time of financing that could facilitate production and marketing plans;

(ii) Provide information on the farm's financial position as well as the efficiency and profitability of farm operations

(b) Organisation of Financial Accounting system

Important for sound financial Management . Farm operator would need the knowledge keeping financial records and Accounts like the Balance Sheet, Income Statement, Cash flow Statement, Statement of changes in ownership farms and investments.

(c) Organisation and Growth of Farms

Involves the :

(i) Identification of the Input-output combinations for maximization of goals;

(ii) Determination of size and rate of growth as well as the rate of growth and expansion that will justify financial investments in the agricultural enterprise(s);

(iii) Study and understanding of determinants of the growth rate, namely

Internal factors

(Can be controlled by the Farm Operator)

* Rationing of Credit use

* Policies on Capital structure (Equity/Liability structure)

* Policy made on the use of net farm Income for Consumption and/or non-farm Investments)

External factors

(Beyond the control of the Farm Operator)

* External Credit rationing

* Taxation Policy

* Government Regulations

* Government policies affecting Agric. & Financing

(d) Investment and Financing

Involves the study of the:

(i) Concepts of Time value of Money, Present worth of future flow of Income and future value of present stream of Income through (Discounting and Compounding methods respectively);

(ii) Project planning and appraisal for investment decision making;

- (iii) Criteria used for Investment selection: Economic, financial technical, social analysis of farm business etc.
- (iv) Determination of farm business and financial risks
- (v) Legal considerations in investment and financing decisions;
- (vi) Issues relating to Taxation like handling and management of after-tax profits, Tax Laws etc.

1.3.2 Agricultural finance study at Aggregate/Macro level

1.3.2(a) Study of Sectoral financial Statements

1.3.2.(b) Study of the Aggregate Investment and financing Behaviours

Has to do with the:

- * Determination of Investment and financing behaviours of farms;
 - * Demand for Money and non-money Assets;
 - * Appreciable Business /farm Assets
 - * Land for agric. Purposes
 - * Farm Inventories etc
- } Provide the basis for understanding the effects of policies relating to growth & financial Positions of farms

1.3.2 (c) National Economic policy Instruments

- * Interest rate ceiling;
- * Concessionary rates of Interest for agric. Loans;
- * Policies on microcredit financing through the Micro-finance Institutions (MFIs) etc.

1.3.2 (d) Effects of changes in agricultural finance policies

1.3.2 (e) Study of Financial Intermediaries serving Agricultural Sector including sources of Agricultural finance

2.0. Needs and the Roles of Credit in Agricultural Development.

2.1. Basic Concepts of "Agricultural Credit"

The word "**Credit**" is derived from a Latin word "**Credo**", meaning "**I Believe**". The Latin verb "**credere**" means "**to repose confidence in**".

Note that borrowing is a function of ability to command capital or services currently with a promise to repay it in future i.e obtaining certain amounts of money as loan to be repaid as specified in the Agreement between the concerned parties. This is often based on confidence in the borrowers' future solvency and repayment.

Credit means the ability to command other peoples' capital in return for a promise to repay at some specified time in future. It is therefore the combination of the "ability to borrow" and "willingness to borrow". It can also be regarded as an economic good to be produced, managed and marketed.

Credit also means the control over money, materials, goods or services in the present in exchange for a promise to repay at some future dates. This implies that, lenders forgo the use of money or its equivalent in the current time by making loans available or extending the credit to the borrower who promises to repay on terms specified in the loans Agreement or debt Instruments. Borrowers obtain resources to use for current production/consumption purposes before generating savings that could be used to repay the goods.

Credit is an advance of money or its equivalent given by a Lender to a Borrower for repayment at maturity, which may range from a few days to several years.

Credit is the monetary financial aspect of capital resources which is generally considered as goods employed but not used up in the course of production. Credit in this case could take the forms of biological or physical capital purchased and supplied to the producer

Credit is the acquisition and control over funds at a cost for specific period at the end of which the control ceases and the funds revert back to the creditors.

Agricultural Credit is the temporary inputs transferred to a willing borrower for agricultural purpose, with the borrower's potential willingness and promise to repay in a particular for after use and the confidence by the Lender that the Borrower will comply with terms, utilization and repayment with, or without monitoring.

Agricultural Credit is the capital or money rented by a farmer in the present,(with a specific interest rate charge and future repayment period), from a Lender in a credit institution, for agricultural production and marketing activities.

Credit is a combination of "potentiality" (with a promise to repay money) and "actuality" (obtaining goods and services). It is the present right to future payment or power of borrower, where the Borrower has the power to borrow and lender the right to execute actions against the Borrower.

Credit involves the element of obligations for the Borrower to make a return and confidence by the lender on the Borrower's faith and ability to repay.

Credit is a device for facilitating temporary transfer of purchasing power from an individual/Organization to another.

Credit is the overall arrangement through which inputs,(cash) and kind), are made available to farmers who repay such inputs as stated in the repayment schedule with due interest.

Agricultural Credit encompasses all loans and advances granted to a borrower to finance activities relating to agriculture, fisheries, forestry and for processing and distribution of products resulting from these activities.

2.2 The Continued Needs for Credit for Agricultural Development

Agricultural Credit is an important instrument for channeling funds from Savers to borrowers in amount necessary to finance production expenses and capital expenditures.

With the removal of subsidies on inputs in the 1990s and the increasing costs of the inputs required to carry out farming operations, there is always need by farmers for credit to be able carry out the operations, purchase the inputs and fulfill his domestic obligations. Farmers need credit to expand their scales of operations and improve on the levels of technology, as accessibility has implications for technology adoption.

For the agricultural sector to perform creditably well, credit is essential for the achievements of sound economic and social development, which the nation requires.

Farmers are poor-resource. They therefore need money to purchase their requirements and increase productivity in growth and output. This could be achieved through credit supply.

Suitable credit delivery and collection system can be used to facilitate the procurement of production needs of farmers

Credit is needed to break the persistent vicious cycle of poverty among farmers . Farmers need credit to practise commercial production.

2.3 The Roles of Credit for Agricultural Development

Adoption of modern technologies require capital. Farmers' income are seasonal while his working expenses are usually spread over time. However, farmers' inadequate savings require that some credit be harnessed to meet the increasing capital requirements.

Credit is a unique resource that provides the opportunity to use additional inputs and capital items in the present to pay for them from future earnings.

Credit has both static and dynamic characteristics. In its dynamic nature, when farmers adopt improved agricultural production technologies, institutional credit can be used for increasing agricultural production and proceeds will be available for both production and consumption rather than for the payment old debts . Note that , under this situation, it is important that institutional credit are not only supplied in due time but also adequately. This implies that credit can only play its dynamic role , only in relation to agricultural production technology and in the presence of credit absorption capacity.

Credit fills the gap between demand and supply resulting from investments

Stimulates agricultural production especially in the rural areas.

Helps production to meet up with current expenses.

Stimulates production and raise the levels of income of farmers.

Given the peculiar problem of agriculture in Nigeria, start-up credit is needed to create effective demand or ability to pay back.

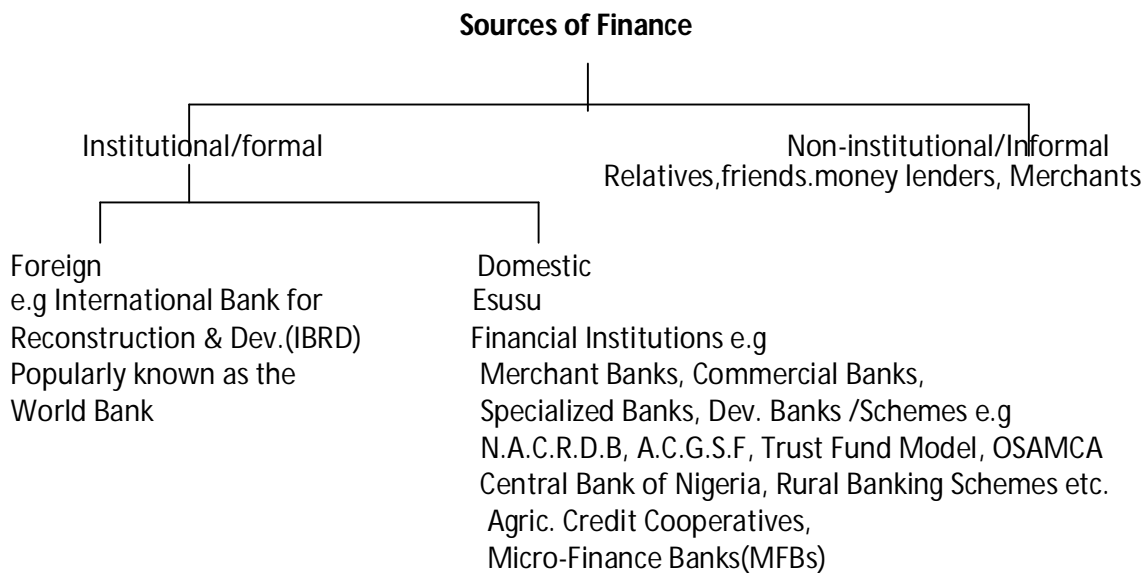
Credit can induce profitability of current economic activities but also shifts production from subsistence to commercial and induce employment among those who lack basic necessities to engage in productive activities.

3.0. Sources of Agricultural Finance

3.1 Preamble

Sources of finance for agricultural projects are quite many and in this context refer to the lenders, ranging from the relatives of the Borrowers to Government. The various sources are derived from two major sources, namely, Institutional/formal sources and non-institutional/informal sources.

Institutional credit sources can further be divided into domestic and foreign sources.



3.2.1. Non-Institutional /Informal Sources

* includes relatives, friends , Merchants, money Lenders

* Loans are made directly on personal basis from Lenders to Borrowers, especially where the individuals are familiar with some level of confidence in one another

*Methods of obtaining the loans are relatively easier and there is rare tendencies for administrative delays

*Non-instistence on security /collaterals by Lenders

*Flexibility is associated with repayment schedule with high rates of interest

*The flexibility built into the repayment makes this source very popular among peers and farmers.

Demerits

*More expensive supply of credit because of high interest rate

*Inadequate credit supply and on terms required by farmers for farm expansion and modernization

* There are differences in the process of acquiring loans from one source to another e.g relatives and friends have no laid down procedures and no repayment arrangements specified. Interest is usually free.

*Money Lenders charge exorbitant rates of interest, though prompt and timely in disbursement of funds required.

Esusu

Management depends on culture under which they have been organized.

Ajo.

Usually organized by self-appointed itinerant Collectors who keep encouraging individuals to save money. He goes round to collect money according to the financial strength of the participants. Usually, the first day's contributions represent the Collectors' charges on banking services rendered and whatever the Contributor can add during the month will be refunded on the first day of the following month, if so desired. The savings attract no interest but save time and costs.

Money Lenders

Some of the Ajo Collected also perform the roles of money lending, giving out some of the Contributors' to Borrowers who would be expected to pay back fully (Principal + Interest). Before the end of the month, when the Contributors will expect some refunds.

2.3.2 Formal/Institutional Sources

2.3.2.1 Financial Institutions (Domestic)

Essentially "Financial Institutions " refer to:

- (i) Bank Financial Institutions (BFIs) and
- (ii) Non- Bank Financial Institutions (NBFIs) .

In Nigeria, financial system, there are four categories of Banks which are directly or indirectly involved and connected to agricultural financing. These are:

- (i) Commercial Banks
- (ii) Merchant Banks
- (iii) Development Banks
- (iv) Specialized banks

Note: The Central Bank of Nigeria is the apex of the Nigerian Banking System.

Commercial Banks

Dominates the financial intermediation process and are commonly referred to as 'retail banks' due to services extended to farmers as individuals rather to corporate entities. The primary role of the commercial Banks is to intermediate funds between the surplus and the deficit economic units of the economy, especially at the retail segment of the markets. The Banks are to mobilise savings, stimulate investments and economic growth through lending operations, assist in resource allocation and promote domestic and international trades. Therefore, apart from the main lending activities of commercial banks, provision of short-term financing, they also render ancillary services such as keeping safe custody of the customers' valuable items, acting in trust and execution of capacities for customers' will.

Merchant Banks

Commonly referred to as the "wholesale banks", Merchant banks engage in the intermediation between the surplus and the deficit sector through wholesale banking to large scale investors/Corporate bodies and Institutional clients by financing medium and long term credits. They do this through activities like equipment leasing, loan syndication, debt financing , apart from rendering assistance as issuing agents and advise on funds sourcing.

Development Banks

Micro-finance Banks

Micro-finance Banks in Nigeria are self-sustaining financial institutions owned and managed by local communities to render services to their respective communities. They are meant to promote agriculture, rural as well as economic growth through development at grassroots level. Though their activities are geared towards rural banking, they are also noted for accepting deposits, running other banking services and investing funds in agriculture apart from providing facilities to farmers.

Nigerian Agricultural Credit and Rural Development Bank (NACRDB)

In view of the short comings of the Commercial and Merchant banks, the Nigerian Agricultural Bank Limited was established in 1973 by the federal Government to deal exclusively with agricultural loans. The bank was established to meet the needs of the national agricultural credit institutions following regional establishments. The provision for the establishment of the bank was “knotted in the bud” during the 1st national development plan period of 1962-1968 but was not implemented until the 2nd period which spanned between 1970 and 1974.

The establishment of this specialized bank was actualized following the acceptance of the recommendations made in Stoneham’s report and subsequent inclusion in the 1970-1974 Development plan. By the plan, the proposed agricultural cooperative bank which was meant to operate in all states of the federation, will assist farmers in the area of cooperative farming and agricultural marketing cooperatives.

The bank was meant to make funds available directly to cooperatives, credit-worthy individuals and Governments. The objective for which it was established was therefore to “ provide credits and loans for agricultural development projects thereby enhancing the level of and quality of agricultural production.....”. The name of the bank was changed to the Nigerian Agricultural Cooperative Bank (NACB) in 1978 with a mandate to give loans to cooperative societies as on-lending and in turn to individual farmer-members. No collateral security is expected to be charged though the bank charges reasonable amount as interest based on its policy of subsidy on agric. loans and operated 100% security on loans except those granted to small-holder farmers under the Small Holders Loan Scheme (SHLS). The requirements for the Certificate of occupancy, survey plans and real assets securities are usually waived.

As a result of the merger policy on the Peoples’ bank of Nigeria, the Better Life for rural Dwellers Scheme and the NACB, the bank was transformed into the Nigerian Agricultural Credit and Rural Development Bank (NACRDB) in the year 2000 to cater for other aspects of rural development.

Agricultural Credit Guarantee Scheme Funds (ACGSF)

The funds was established by the Federal Government of Nigeria Decree No. 20 of 1977 to guarantee in respect of loans granted by commercial and merchant banks for agricultural purposes, with the ultimate aim of increasing banks' lending to agricultural sector. The scheme took off with a joint contributory grant by the Central Bank of Nigeria and the Federal Government at 40 % and 60% respectively. Under the Scheme, bank loans were guaranteed at 75% of the amount in default, net the amount of the security. The is operated using the working guidelines to cover the financing of all crops including tree crops fish farming and fish capture and animal husbandry, farm machinery, hire services as well as integrated agricultural projects.

Security require included charge on land, movable properties of borrowers, life insurance policy stocks and shares of personal guarantee on security acceptable to the facilitating commercial banks. loans were initially guaranteed under the concessionary interest rate up to August 1978, when the de-regulation of interest started.

Other Development Banks in Nigeria

These include:

- (a) The Nigerian Industrial Development Bank (NIDB)
- (b)The Nigerian Bank for Commerce and Industries (NBCI)
- (c) The defunct Federal Mortgage Bank (FMB)

Specialized Bank

Created by the Federal Government to cater mainly for the banking needs of the relatively suppressed segments of the Nigerian society. Examples include :

- (i) The defunct peoples' bank of Nigeria (PBN)
- (ii) The Community Banks (now transformed into the micro-finance Banks)
- (iii) Urban Development Banks (UDB)

Non-Bank financial Institutions (NBF)

Commonly called "other financial Institutions and funds", they intermediate in the wider financial system. Examples are Nigerian deposit insurance Corporation(NDIC), Insurance

companies , finance houses , Discount houses , Bureau de Change, National Providence Funds etc.

Other Domestic Sources.

Financial Markets

Represents a forum where surplus funds are channeled into productive use through a process of financial intermediation. It consists of the money markets for short term funds and capital market for long term funds . Not necessarily a physical location as we have in the goods market but a mechanism through which funds are transferred (bought and sold) through the banks (physical location) or through telecommunication system (non-physical location), using financial instruments.

Note that the process through which funds are channeled from the surplus (depositors) to the deficit (borrowers/Needs) units for a return (interest) is called financial intermediation.

4.0 Classification of Credits

Credit can be classified on the basis of time, purpose, security, Lenders and Borrowers.

A. Classified on the basis of Time

This classifies credit into three major areas as short, medium and long-term.

A(i) Short-term Loans

The short- term loans are generally advanced to meeting annual recurring purchases like seeds, feeds, fertilizers, hired labour, expenses on herbicides, pesticides and machinery service charges. It is therefore termed “seasonal loans or production loans or crop loans” and it is usually expected that the loans (principal) and the interest would be repaid through the income received through the enterprise in which it is invested. Time limit to repay such a loan is one year or at most 18 months.

A(ii) Medium-term Loans

Are advanced for comparatively longer span assets like machines, wells threshers, sheds for livestock, shelter and farm structures, diesel engine, irrigation structure etc. The returns accrued from the use of such assets are usually spread over more than one production season. Repayment period spans between 15 months and 5 years.

A(iii) Long-term Loans

These are related to long life assets like land, farm buildings construction of permanent drainages or irrigation system etc. which require large sum of money as initial investment. Benefits generated through such assets are spread over the entire life span of the asset. Repayment period ranges from 5 years to 20 years.

B. Classification according to Purpose of the Loan

Credit could be classified based on the purpose of the loan as crop loan, poultry/dairy/piggery loan, machinery and equipment loan, forestry loan, fishery loans etc. This type of loan signifies relationship between time of usage and the rate of returns (profitability).

Sometimes loans could be classified as “production loan” or “consumption loan”

C. Classification according to Security offered

Loans can be classified as secured and unsecured loans. Security are usually advanced against tangible assets like land, livestock or any capital asset, as either medium or long term loans. Note that credit worthiness may sometimes count much more than the security offered, which if doubtful, may result in willful default.

Secured loans can be further classified on the basis of the type of security offered as:

(i) Mortgage loans

Where legal mortgage of tangible and intangible properties like land, land improvement and other infrastructures are offered.

(ii) Hypothecated loans

Where legal ownership of assets e.g. machinery and equipment, financed remains with the lender though physically possessed by the borrowers. The private lenders often ask for gold, jewelry and/or land as security reminds the borrower of his obligations towards repayment.

D. Classification according to the Lenders

Classified as Institutional and non-institutional credit.

Classification according to Borrowers

Credit can be classified on the basis of the borrower as producers, business concerns etc. Such classification has equity considerations.

5.0 Credit Assessment: The 5 Cs of Credit

The **5Cs of Credit** that must be considered in lending are:

- (i) Character
- (ii) Capacity
- (iii) Capital
- (iv) Condition and
- (v) Credit worthiness

(i) Character

The term "Character" implies credit characters related to the qualities of individuals which make him conscious of the debt obligations. These characters include the borrowers' moral characters like honesty, integrity, sense of responsibility and trustworthiness.

It is one of the basic cornerstones in assessing the risk-bearing ability of the borrower. Borrowers with highly rated credit character can withstand unforeseen events and save themselves insolvency. A borrower noted for timely repayment shows a reflection of an ideal credit character. Character is also correlated with the returns and repayment capacities of the borrowers.

(ii) Capacity

Shows the capacity of the borrower to pay his debts as at when due. Since payments often depend in part on income, the capacities of borrowers to pay will depend on the income rather than on savings.

(iii) Capital

Capital refers to the equity or net worth of a farm business. It assures that funds are available to repay loans if character, capacity prove to be inadequate. Capital also represents one of the cornerstones for measuring the risk bearing ability of the borrower.

(iv) Condition

Also signifies the financial conditions of the borrower which has direct relevance with the risk bearing ability as well.

(v) Credit worthiness

6.0 Decision Criteria for choice of Agricultural Investments /Projects

Investment in agriculture is a combination of “ability and willingness to invest”. In investment, certain level of infrastructure is essential to absorb production-oriented loan, thus making development financing a pre-requisite for the production financing. Financial management is generally meant to involve decisions made towards investment, production, and dividend handling. Together, these decisions are not always made independent of one another and they determine the rate at which the farm business will grow over time. Effective decision making in agri-business therefore requires a comprehensive farm management and accounting system to identify the level and timing of financing needed to facilitate production and marketing of the farm produce.

The basis for identifying and choosing viable agricultural investment will depend on the type of enterprise to be established and the motive of establishing it. Generally, factors to consider include:

(i) Feasibility of the project /investment

(ii) socio-political factors;

(iii) economic significance of the project;

(iv) sociological considerations;

(v) organisational and managerial considerations;

(vi) Resource availability;

(vii) Comparative advantage of the project over other alternative and similar projects;

(viii) Financial consideration etc.

In all efforts need to be made to consider whether the cost of the investment can be reduced through group farming;

Benefits derivable from the investment;

Volume or quantity of produce / services meant to be provided;

Extent of managerial and technical skills required for the investment to be viable and profitable etc.

Socio-political factors

The success of any agricultural investment will depend on the compatibility of such an investment with the social norms and culture of the people. It is therefore important to study the locality's characteristics in terms of the literacy levels, age distribution, wealth distribution of the people, interest in farm business enterprises. The characteristics of the people too will determine the type and complexity of the agricultural enterprise. If such is considered to be socially viable, efforts should be made to explore the political feasibility from policy and legal points of view. Institutional supports from governments and other external agencies could be considered so the investment will not stop during implementation. The effects of the investment on the society should also be considered.

Economic significance of the project

Whatever the type of investment, the profitability in terms of either least cost or increased returns should be the major goal. The investment should contribute significantly to the development of the society in which it is established and justify use of resources committed to the investment. Where justifiable answer can be given to some of the under-mentioned questions, then the project can continue, otherwise, get at alternative investments. These questions include the following.

(i) What is the trend of production for a similar investment?

(ii) Are there necessary changes in the production practices and what are the likely effects ; if any, on the production level, if technologies were to change?

(iii) What are the likely effects of the changes on price ?

Note that monetary values should be attached to inputs and outputs so that profitability of the investment can be easily determined. Produce from the investment should be such that the investors can produce profitably and in reasonable quantities. Estimation of the inputs requirements, availability of these inputs and the possible changes in their prices as well as their likely effects on the outputs should be considered as well. There is a need to estimate the cost of production and the gross returns per unit. Administrative and running costs should be estimated to ensure sustainability of the investment.

It is also important to identify agricultural commodities that the public will be interested in , the volume to be produced or handled per unit time , availability of the food crops and its effect on demand for the commodities. Also important are the trends in the demands for the proposed produce from the investment in terms of seasonality, other sources of the same produce if any, the distance of the farm enterprise to the various sources around as well as the ability of the sources to meet public demands for the commodities.

The performance of the existing similar agricultural investment producing the commodities and substitutes, the profitability such that the gross margins can easily be estimated. These values need to be compared with similar agricultural projects in the area to ensure that available resources are committed to the best use .

Some of the required facilities like water supply, medical services , electricity, transportation should be ensured before the implementation of the investment projects. This therefore requires the need to identify the goods that the community really needs, the estimated life span of the required equipment , their costs and ability to maintain them, their sources of procurement as well as availability of their parts etc.

Financial considerations

The success of any investment is a function of the ability to handle all financial obligations. This has to do with the consideration of the financial effects of the investment on the community. There is therefore the need to consider all the capital requirements, when and where it can be raised (time required). Amounts of capital that can be generated from the various sources. Efforts should be made to distinguish between the long term capital requirements for fixed assets and the short term requirements for operating expenses so that the sourcing of the required capital can justify the expected returns for it.

Technical considerations

In selecting a viable agricultural project, some of the technical factors to be considered include:

- (i) Size of the Investment – should be optimal so that resources are not underutilized. It is a function of resources availability.
- (ii) Environmental and climatic conditions
- (iii) Availability of physical resources
- (iv) Transportation to ensure access to inputs and sales of produce
- (v) Adequate storage facilities
- (vi) Availability of trained personnel and labour for the business etc.

Organisational/ managerial considerations

There are needs to consider:

- (i) if the lines of authority are clear, properly linked and coordinated.
- (ii) If the organisational design encourage delegation of authority ? .
- (iii) If it take proper care of the custom and organisational procedures common in the area?
- (iv) If the projects have enough authority to keep its accounts and make prompts disbursement when needed/ Do the project personnel require training on managerial skills?

Competitive advantages

The nature and severity of competition in any investment vary from one enterprise to the other. It is important to know the level of advantages the investment will have over the others in the area, in terms of the production, transportation, storage cost etc. and to compare with other similar investments around and outside the community,. The quantity,

quality and timeliness of the produce should all be taken into consideration in order to ensure that the competitors do not take over the markets. Technological changes and advantages should be recognized along with their effects on the produce to meet consumers' tastes. New methods of production should reduce the total cost of production.

Resource Availability

Facilities required for the project need to be determined from the onset. The capital for the project, the sources of funds as well as the proportion of equity to the borrowed funds must be determined. The capacity, the farm location, and the number of plants as well as available labour force (skilled and unskilled), all have to be put into consideration. The marketing channel for the farm produce must also be determined to ensure continuous production and sustainability of the project.

Other Criteria for consideration

Other criteria that could be considered in the choice of an agricultural investment project include:

***The presence of business and financial risks**

Farm operators' risk-returns preferences (i.e. whether they are risk averse, risk neutral or risk taker), can have effects on the ranking and acceptance of alternative agricultural investment projects. To reduce exposure to risks, farm operators can adopt one or combinations of strategies like product diversification, sequential marketing of produce, insurance, and forward contract using either future market contract or cash forward contract

*Terms of loans can also have effect on the decision to invest when at least part of the assets purchase cost can be debt-financed.

* Different methods of computing interest charges for loans can also have effects on the explicit cost of the debt capital. Note that when making investment decisions, both explicit and implicit costs of debt capital should be accounted for as both will affect the Manager's desired use of the capital as well as the rate of growth in the farm business.

* Legal considerations in the investment

* Return on capital employed

- * Forms of security on loans
- * Net profit/gross margin
- * Lending terms and conditions i.e
 - Amount of loan portfolio
 - security requirements
 - Interest rates and fees
 - Repayment schedules etc.

Traditional Investment criterion

This is based on the principle of productivity which believes that resources are best committed to projects in which input-output ratio is high.

Factor Intensity criterion

The principle is to make maximum use of abundant resources and minimum use of the apparently scarce resources. Project can therefore be justified on the basis of justifying employment of abundant resources and facilities like labour. Emphasis on employment of resources is justified in situations when human resources are drifted.

Capital output criterion

This criterion is considered highly relevant if the overall goal of the society is on growth maximization. The principle of growth argues that growth could be attained by selecting projects which promises highest rate of investment potentials in a way that the maximization of capital-output ratio is ensured. The essence of using the criterion is to differentiate between the use of salaries, profits and wages for re-investment. The principle assumed that all profits should be saved while salaries and wages could be consumed. Since investment = f (savings) and economic growth In a society = f (re-investment), this principle favours project that promises highest returns to capital.

Foreign Exchange criterion

The criterion supports that projects which have potentials for savings and foreign exchange earnings should be given high priority. However, a number of constraints like inflation in product prices, crops/agricultural facilities, war etc. can all affect the use of the criterion.

Integrated productivity criterion

The principle is based on the variance of the benefit: cost ratio (total or marginal, discounted or undiscounted). The crucial issue is that the additional contribution to the society which is often referred to as the "social marginal productivity" (SMP), should be as high as possible i.e the principle agrees to the choice of projects based on the net contributions of the marginal units to the national production. A project should therefore be selected when it has a high SMP irrespective of whether it s capital or labour intensive.

Use of Financial and Economic Analysis of the Project

Use of project Analysis Measures

Economic analysis of an investment is based on the total returns to community in relation to the committed resources while the financial analysis of investment measures the productivity of the resources to the individuals demanding the product of the investment. Both are useful in providing the basis for evaluating all aspects of the project in a more coordinated and systematic way. In both cases, the benefits and costs of the projects are imputed to determine its viability and to take decisions for choice.

Two major methods usually used are:

- (i) Discounted measures and**
- (ii) Undiscounted measures**

The discounted measures take time value of money into consideration while the other uses the rule of thumb like the payback period i.e. the length of time a project takes to recoup the initial investment from the net cash flow generated by the investment.

Undiscounted Measures

- (i) Ranking by Inspection
- (ii) Use of pay back period
- (iii) Rate of Returns
- (iv) Proceed per ₦ invested
- (v) Average Annual Proceed per ₦ invested

(a) Ranking by Inspection

By this the Assessor will be interested in the

- (i) Investment cost of the project
- (ii) Cash flow patterns and rates

Note: Examples and Class work to be given during Lectures.

(b) "Pay Back Period" as a criterion for agricultural project choice

- Also referred to as the "Cash recovery period" and "Pay off period"
- Period of time it takes for an investment to generate net incremental cash that would be sufficient to recover its initial incremental capital layout in full.
- Can be used as an initial criteria or screening device to see if the project can or cannot pay back its initial capital.
- Note: If the net cash flow is constant over an infinite period of time, the reciprocal of the undiscounted cash flow of the pay back sum = to IRR or the yield
- Among alternative projects, the one with the shortest payback period is more desirable. This measure does not consider the time value of money.
- **Disadvantages as an investment criterion**
 - It fails to measure profitability
 - It considers the net cash flow only to the point where they are equal to the initial capital outlay i.e. it does not account for any additional cash flow generated beyond the pay back period.

(c) Rate of Returns (RR)

Estimated as the ratio of profits net taxes and depreciation on capital employed

$$RR = \frac{\text{Profits (net of taxes \& depreciation)}}{\text{Capital used}}$$
$$= \frac{\pi}{K}$$

Where: π = Net profit and K = Capital used

Decision Rule: Project is considered worthwhile for choice and acceptance if, the rate of Returns (RR) is greater or equal to the cost of capital employed.

RR could be calculated using different approaches.

Net profits as Initial profit i.e profit in the 1st year of operating the project

OR

Average profit i.e over the life span of the project or profit in the first 5 -10 years of the project.

Capital : Initial capital or average capital employed

Disadvantages of using Rate of Returns criterion

Fails to account for the time value of the capital outlays and earnings i.e ₦1 earned is also assumed to be the same value in future which is not so.

It underestimates yield if it fails to take into consideration the earnings and capital employed throughout the life span of the project.

Cannot be used to compare internal investments (within the farm) and external investments (outside the farm) which yield over time. It is therefore difficult to use the rate of returns measures to determine the worthiness of investment and compare it with other investment opportunities

(c) **Proceeds per ₦ invested**

This is the ratio of the net value of production to the total volume of the capital invested.

$$\text{Proceed per ₦ invested} = \frac{\text{Net value of production (₦)}}{\text{Total volume of capital invested}}$$

Weakness

This criterion also fails to consider timeliness in returns on investment because it does not take care of the time value of money.

(d) **Average Annual Proceeds per ₦ invested**

Another investment choice criterion which does not consider the length of time of the stream of benefits , hence used with bias especially for short term investments with high cash proceeds .

Computation

Stage 1 : Calculate the Average annual proceed or Proceed per year

$$\text{Average Annual proceeds} = \frac{\text{Total proceeds (N)}}{\text{Total number of investment years or project life span}}$$

Stage 2: Calculate the average annual proceeds per Naira invested

$$\text{Average Annual proceeds per Naira invested} = \frac{\text{Average proceeds/ year}}{\text{Initial capital invested}}$$

Note : Examples to be given as class work during the Lectures.

Discounted cash flow Criteria

- (i) Benefit /Cost Analysis **OR** Cost/ Benefit Analysis
- (ii) Net present Values
- (iii) Internal Rate of Returns on Investment etc.

Note : Students will be taught the concepts and principles of compounding and discounting as the basis for calculating the time values of money.

Knowledge of calculating the Simple interest, time, due dates for loans, maturity value or Sum etc, will also be introduced.

Discounted Measures

A. Net Present Value (NPV)

This is the present worth of the incremental net benefits derivable from an investment. It is the difference between the present worth of the stream of benefits and the present worth of the stream of costs.

$$NPV = \sum_{t=1}^n \frac{B - C}{(1 + i)^t}$$

where NPV = Net Present Value

n = Expected lifespan of the project

B = Benefits (Inflows)

C = Costs (out flows)

I = interest rate

T = specified years of investment

Decision Rule: The Net Present Value (NPV) criterion stipulates that the project should be accepted if ,the NPV is positive . A positive NPV indicates a viable project . This implies that NPV Benefits > NPV of Costs.

Note : This decision rule assumes that the optimal scale of investment and starting time are already given and do not have to be determined simultaneously with the project choice.

Examples will be given as class work on the calculation of NPV and present Values of Annuities.

B. Benefit: Cost Ratio Analysis

In comparing alternative investment for decision making on choice of the investments, there is a need to compare the costs and benefits in relation to the time of the streams, by discounting method. One of such measures of project worth is the Benefit/Cost ratio or the Cost/Benefit ratio. This is the ratio of the discounted stream of project benefits to the discounted stream of project costs. A Benefit /cost ration greater than one implies a potentially viable project and such project could be chosen. Often used in economic analysis to measure the social benefits of investments.

$$\text{Benefit: Cost} = \frac{\text{Present Values of Benefits (PVB)}}{\text{Present Values of Costs (PVC)}}$$

Computed as :

$$\frac{\sum_{t=1}^n \frac{B_n}{(1+r)^n}}{\sum_{t=1}^n \frac{C_n}{(1+r)^n}}$$

where: Σ = the sum of

n =Number of years for which the stream of benefits are expected or costs incurred

B_n = Benefit in each year or Year n

C_n = Cost in each year or Year n

t = time beginning from the 1st year of project stream of income or costs

Steps in Calculating the B: ratio

Step1: Decide on the discount rate to use.

There are 3 options

(i) Opportunity cost of capital

(ii) Borrowing rate

(iii) Social rate of returns

Step2: Discount the streams of benefits and costs to their present values.

Step3: Divide the sum of present value of benefits by the sum of present value of costs.

Examples will be illustrated during class Lectures.

Decision Rule:

(i) **B:C < 1 implies PVB < PVC.** The cost may not be recovered It is better not to invest but to save the money at the existing interest rate . Note that the absolute value of Benefit :Cost ratio depends on the interest rate charges . The greater the rate of interest the less the Benefit : Cost

(ii) **B:C > 1 implies PVB > PVC.** Accept the project

(i) **B:C = 1 implies PVB = PVC.** Break-even point

C. Internal Rate of Returns (IRR)

This is the interest rate that equates the net present worth of a stream of benefits to zero.

$$\text{IRR} = \sum_{t=1} \frac{B_t - C_t}{(1+r)^n} = 0$$

It represents the average earning power of the money invested over the entire period of the project as well as the maximum real interest rate that the project can pay for if, it is to recover its investment and operating cost and still break even. Estimation of the Internal Rate of Return could be made through extrapolation method in which two discount factors are used against their respective cash flows. The net benefits from the cash flow relating to the lower discount factor is always negative while the one with the higher factor will be positive. This implies that the IRR lies in between the discount factors.

The formula for calculating the Internal Rate of Returns (IRR) is represented as”

$$\text{IRR} = I + C (PV_1/E)$$

Where:

I = Lower Discount rate

C = Difference between the two discount rate

Pv₁= Present value of the lower discount rate

E = Absolute difference between the PVs of cash flows at the two discount rates.

Example will be illustrated during class Lectures.

Note: In choosing the discount factors, the efficiency of the estimates is enhanced if the difference is not more than 5 %. The decision rule is to accept the project if the IRR is greater than the Interest rate. Absolute difference is the sum of the values ignoring the signs attached to the figures. Always round off to the nearest whole % figures

Comparisons of the Net Present Value (NPV) and Internal Rate of Returns (IRR) Techniques as Project Selection Criteria.

*NPV technique appraises investment opportunities by estimating the sums of their future cash flows discounted at some discount rates. It represents the change in value of the farm measured in current terms.

*Using IRR involves finding which discount rate gives NPV of zero when applied to project outflows. It represents a break even discount rate. Projects which have IRR higher than the farm's rate of return are acceptable while projects with IRR below the required rate should not be accepted.

*For a single investment opportunity, NPV AND IRR criteria will lead to the same conclusion.

*NPV reduces as discount rate increases. Therefore at interest rate below IRR it will be positive and vice versa.

* The NPV technique has the advantage of measuring the value of the farms in absolute terms. Where discount rates fluctuate over the project life span, it is possible to discount at different rates in each year. The technique therefore relies heavily on the estimation of the correct discount rates.

*Discount rates used for calculating NPV and IRR should represent the opportunity cost of capital needed and generated by the investment opportunity. The method of calculating the cost of capital is difficult and uncertain. Therefore, farms need to be cautious of using high positive NPV in calculating the cost of capital.

IRR though gives no indication on how valuable a project might be, in absolute terms, has two advantages over the NPV technique

(i) The technique is easier to visualize and interpret because of the concept of returns and percentages.

(ii) IRR gives no margins for errors in the cost of capital estimate. Can be regarded as the upper limit in situations where the cost of capital is uncertain or likely to fluctuate. Provided

the IRR is greater than all the possible costs of capital estimates, NPV must be positive for project to be accepted. IRR is more widely used than the NPV technique.

Disadvantages

*Problem in using the IRR occurs in situations where the appraisal depends on choice among alternative projects. Choosing project on the basis of the highest IRR can lead to wrong decision because the technique is a relative measure of worth without regard for the scale of investment.

*Where cash flows are unconventional (i.e.) one or more outflows are followed by a number of inflows or vice versa), then there may be one or more discount rates giving rise to NPV of zero. Potentially, the number of IRR implies the number of times the flow changes from positive to negative or vice versa and that limits the usefulness of IRR as an appraisal technique. Since the IRRs may be above or below the cost of capital, none can be chosen as a measure of the value of investment capital but choice may depend on the pattern of cash flows and use of appropriate discount rates.

7.0 Project Cycle

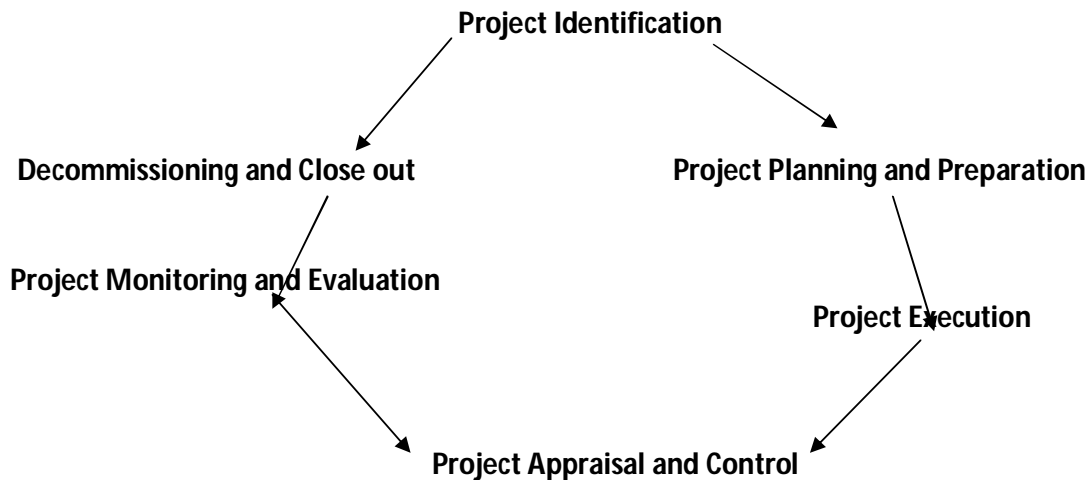
Preamble

Whether it is an investment or servicing project, every project is expected to take off with initiation of ideas and creation of such to achieve realizable goals. A number of overlapping phases organized in sequential order to achieve the goals can be regarded as a project cycle. These phases are:

- (i) Identification as a result of initiation of ideas or observation of the environment ;
- (ii) Project planning and preparation;
- (iv) Project Appraisal and control
- (v) Close out or project commissioning and hand over.

A simple schematic structure of a typical project cycle is as presented below

Schematic Structure of a typical Project Cycle



8.0 Effective Demand for Agricultural Credits

*Demand for agricultural credit is the willingness and ability of farmers to access existing sources of funds to meet farm investment needs .

*Effective demand for agricultural credit can be defined as the minimum volume of credit that would yield a minimum incremental growth in the profitability of agricultural production units which may be greater or equal to the cost of credit.

*It is the demand that is backed up by sufficient ability to repay with zero default risk.

Note that demand for credit goes beyond a desire to have a loan because it is available or because livelihood strategies are constrained to a desire to use the loan to initiate farm business or improve existing commercial farm business.

*Repayment ability of the borrower is therefore crucial to effective demand for agricultural credit.

To seek social optimum growth and equity , effective demand must be stimulated by a set of growth-inducing inputs in the production environment.

Based on the need for credits, farmers decision to borrow and not to borrow will depend on some indicators of demand which could be assessed through four dimensions of the borrowers' activities. These are:

- (i) Financial impact
- (ii) Economic impact
- (iii) Technological impact and
- (iv) Social impact

On the **Borrowers' side**, effective demand for credit requires that farmers make a choice between investing in one agricultural activity or the other or investing in an alternative non-agricultural project. It may also require decision to choose between consumption and

production in order to achieve a social optimum of generating income for repayment or returns to institutional cost of the credit programme.

From the **policy formulation and implementation** point of view, promoting effective demand requires the consideration of factors and a balanced judgement on whether to invest on institutional cost of credit delivery programme or to invest on some alternative development-enhancing programmes whose outputs could be inputs into farmers' production.

On the **supply side**, for credit to induce an overall development, it is important to consider the extent to which new entrants into farming business can be included in the credit programmes as they may likely have no repayment ability.

There is also a need to consider how liberalized credit markets and growth-inducing credit facilities can affect the agricultural investments to be established to promote effective demand for credit to the benefits of both the lenders and the borrowers.

Problems of Effective Demand for Credit in Nigeria

- (i) Availability of finance to back up the demands for credit
- (ii) Borrowers' willingness and abilities to access existing credit delivery programmes
- (iii) Socio-economic and cultural issues (Demand side)
- (iv) Capacity of the existing credit sources to meet up with demands
- (v) Policy environment under which credit options are provided
- (vi) Rigidity of the formal lending sources
- (vii) Unpredictable profits
- (viii) No secured tenure to land and other assets
- (ix) Illiteracy of majority of the farmers
- (x) Target groups are not always farmers
- (xi) Cumbersome procedure of application for the credit
- (xii) High level of centralized administration which restricts awareness and access to credit
- (xiii) Problems associated with infrastructures
- (xiv) Poor repayment culture of most farmers. etc