

## **Determinants of Smallholder Dairy Farmers Access to Credit: A Case of Uasin Gishu County**

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### **Abstract**

*In Uasin Gishu County, smallholder dairy farming is of great importance as it provides a means of livelihood. Among other constraints, lack of finance is one of the fundamental problems plaguing dairy productivity and denying stabilising household income amongst the smallholder farmers. A substantial increase in provision of financial services by financial institutions to the smallholder dairy producers has been recorded in the recent past. However, there is limited information on their effective facilitation on access to credit and ultimate impact on performance in dairy production in Uasin Gishu County. The main objective of this study was to ascertain socio-economic factors that affect smallholder dairy farmer's access to formal and informal credit and also to evaluate its impact on animal performance in Uasin Gishu County. A sample of 64 smallholder dairy farmers was selected from Eldoret East, Eldoret South and Eldoret North districts of the County. Determinants of access to credit were estimated using descriptive statistics. The significant socio-economic determinants influencing borrowing were gender, age, marital status, religion, education, family size, farm size and interest rate. Results also revealed that access to credit enhanced animal performance and increased household income. Results obtained further indicated that commercial banks remain leading source of credit and, closely followed by friends, neighbours and relatives, with least attractive source being money lenders and traders. It is concluded from the study that socio-economic factors and collateral were highly important in influencing access to credit. Therefore, policy aimed to accelerate dairy productivity in Uasin Gishu County could be successful if these factors and problems are taken into consideration to access credit from both the formal and informal financial sources.*

**Keywords:** *Determinants, Credit, Dairy, Uasin Gishu*

### **Introduction**

The credit accessibility by rural households has increasingly been regarded as an important tool for raising the incomes to meet short-term requirements for working capital and for long-term investment in agriculture. Access to credit by smallholder dairy farmers is, by and large, seen as one of the constraints limiting their benefits from credit facilities. Smallholder dairy farming is often defined to include family farming, subsistence farming and low-income farming owning between one to three dairy cows. This sector is faced by various production constraints such as low reproductive performance, calf mortality, low growth rate and weight gain that requires working capital obtained from credit institutions. They comprise the largest group of the rural and peri-urban population, who are still poor, but actively trying to earn a significant part of their livelihood from farming activities. Thus, they are by far the most challenging potential client segment for the providers of financial services (Boucher *et al.*, 2005b). However, smallholder dairy farmers of the country who do not have access to capital, encompasses the largest portion of the population. This lack of access to financial services is one of the reasons for rural households to live in the vicious circle of poverty for long period. The formal financial sector in Kenya has stringent lending conditions and therefore will not provide their services to the rural poor farmers.

According to Conning *et al* (2005), access to credit occurs when there is no non-price or credit rationing. Credit rationing is defined as a restriction of credit availability: the restriction or refusal of the availability of credit, even when an applicant is willing to pay more than existing borrowers, or when he/she cannot obtain the credit required. Access to credit can therefore be defined to include availability of finance, that is, when needed/desired, convenience, continuity and flexibility are guaranteed, and willingness to pay the price of the loan. Alternatively, access to credit can also be defined as a situation in which a borrower is able to obtain some amount of capital, either in cash or kind, regardless of his/her willingness to pay a higher price for credit, referring to an interest rate at which a loan is granted, from the particular source of capital, though he/she may choose not to borrow. Therefore, a household has access to a particular source of credit if it is able to borrow from that source. The extent of access to credit is measured by the maximum amount a household can borrow, that is, its credit limit. If this amount is positive, the household is said to have access to credit. Agricultural activities in rural areas are typically seasonal, and households need credit to smooth out seasonal fluctuations in earnings and expenditure. Agricultural dairy production is strongly conditioned by the fact that inputs are transformed into outputs with considerable time lags (Conning *et al.*, 2005), causing the rural household to balance its budget during the season when there are high expenditures for input purchases and consumption and few revenues. Moreover, rural households need credit for other different types of consumption. These include expenditure on food, housing, health and education.

However, in most cases the access problem, especially among formal financial institutions, is one created by the institutions mainly through their lending policies. This is displayed in the form of prescribed minimum loan amounts, complicated application procedures and restrictions on credit for specific purposes (Schmidt & Kropp, 1987). For smallholder dairy farmers, reliable access to short-term and small amounts of credit is more valuable, and emphasizing it may be more appropriate in credit programmes aimed at such enterprises. Credit duration, terms of payment, required security and the provision of supplementary services do not fit the needs of the smallholder dairy producers, which renders them to be credit constrained, that is, they lack access to credit or cannot borrow as much as they want. Therefore, the budget balance within the year can become a constraint to dairy production and household income for consumption and welfare outcomes. When liquidity is a binding constraint, the amounts and combinations of inputs used by a farmer may deviate from optimal levels that in turn limit the optimum production or consumption choices. The marginal contribution of credit accessibility therefore brings input levels closer to the optimal levels, thereby increasing yield and output (Feder *et al.*, 1990). In view of this, credit inaccessibility has significant adverse effects on farm dairy output, farm dairy investment, and farm dairy profit (Carter & Olinto, 2003). As is the case in many agricultural enterprises, smallholder dairy producers have been suffering from a lack of access to credit for capital (International Fund for Agricultural Development, 2001).

Despite the importance of smallholder dairy farming in Kenya, the strategic conceptual and empirical analysis in the context of the credits, which would guide policymakers and development practitioners in their efforts to revitalize dairy production through access to credit, is sparse. Knowledge in this area, especially a quantitative analysis of the main pre-requisites for accessibility to credit and the choice of credit sources is fragmentary. Further, there is limited knowledge on the extent to which socio-economic factors influence access to credit by smallholder dairy farmers. There is, therefore, need to analyse the access to credit in the formal and informal credit associations with the view of establishing their role in determining the access to credit. The main objective of this study was to ascertain socio-economic factors that affect smallholder dairy farmer's access to formal and informal credit in Uasin Gishu County.

## Materials and Methods

Many surveys on formal and informal credit sources in Kenya have been mainly qualitative in nature (Daniels *et al.*, 1995). Zeller *et al* (1997) used a univariate probit model to estimate the factors that determine an individual's borrowing decisions, in terms of their participation in informal credit markets. The results from several studies have always shown that among the formal and informal lenders, age, schooling, wage income, sick days and household headship are significant determinants of applications for credit. On the other hand, gender and social events are not significant. Age, the years of schooling and the ratio of outstanding loans increase the probability of being supply constrained. Higher household wealth reduces the probability of being constrained.

### **Conceptual Framework**

A number of conceptual difficulties have been identified in estimating credit demand, especially in fragmented markets with imperfect information. In most models where there is the possibility of loan default due to imperfect contract enforcement, and an upward sloping supply curve, it is assumed that lenders offer borrowers a choice of points on the supply curve, to which they are restricted. It therefore becomes difficult to identify the loan demand schedule using information on observed loan amounts since this reflects only the existing supply. The credit demand function can only be identified from the borrower's participation decision; namely, the decision to borrow or not and from which sector to borrow. Apart from the conceptual difficulties in identifying demand for credit, Nagarajan *et al.* (1995) note that estimates of loan demand are often biased because they use models that do not adequately correct for selectivity bias or they use data that do not account for the existence of multiple loans.

### **Data Types, Data Sources and Data Collection Methods**

In this study, data were collected on all loans from different formal and informal credit institutions available to the smallholder dairy farmers. Structured questionnaire was prepared to collect quantitative data for the study. Primary data sources were the sample farm households both male and female headed from different key informants. The questionnaire was pre tested to evaluate for consistency, clarity and to avoid duplication and to estimate the time requirement during data collection. To achieve the stated objectives, the study used descriptive methods. The study used mainly primary data from individual smallholder dairy farmers receiving credit from formal and informal credit institutions as well as those who did not. Informal finance has been used to refer to all transactions, loans and deposits occurring outside the regulation of a central monetary or financial market authority (Aryeetey & Udry, 2000).

### **Data Analysis**

Qualitative data that were obtained by observation and interview were organized in the field. Data collected on factors influencing credit access was analysed using descriptive statistics such as means, percentages, tabulation, ratios and frequency distribution. Further, the t-test and Chi-square statistics were employed to measure the mean and percentage differences of the study. A binary logit, model which best fits the analysis for determinant factors that affects small holder dairy farmers' access to credit was employed (Yehuala, 2008).

### **Sampling Frame, Target Population and Research Sample Size**

The target population or population of interest of the study was made up of all smallholder dairy farmers in entire Uasin Gishu County. The sampling frame was identified using all smallholder dairy farmers based on ownership of 1 to 3 dairy cows. This was those farmers who own at least a piece of land measuring not more than 2.5 acres, or, those who are living in rental houses but rearing dairy cattle and those who have no land but depend on road reserves as their grazing fields in the study area. Then sample farm households were taken from farm households with a total of 64 farm households.

## **Results and Discussion**

### **Demographic Characteristics of Sample Households**

Table 1 shows the family size of the sample respondents. Accordingly, the average family size of the sample respondents was found to be 2 persons. The largest family size was 5 and the smallest was 1. The result from the table shows that the total sample households about 60.9 percent of the respondents had the family size that ranges from 3-5.

**Table 1. Family Size of the Respondents**

| Family Size | Credit users |       |
|-------------|--------------|-------|
|             | N            | %     |
| 1-2         | 4            | 6.3   |
| 3-5         | 39           | 60.9  |
| 6-8         | 17           | 26.6  |
| 9-10        | 2            | 3.1   |
| >11         | 2            | 3.1   |
| Total       | 64           | 100.0 |

Source: Survey results (2013)

With regard to sex the sample was composed of 75% male headed households and 25% female headed households (Table 2). The implication is that male headed households had more access to credit from the formal and informal financial sources. About 6.3 per cent of the sample households were illiterate, while 23.4 per cent of the sample households were primary. At the same time, 26.6 per cent of the sample households were secondary, 29.7 per cent college and 14.1 per cent university. This may probably mean that farmers with primary and above level of education have more exposure to the external environment and information that assists them easily access to sources of credit. Of the total sample respondents 17.2, 73.4, 4.7, 4.7 per cent of respondents were for single, married, divorced and widowed respectively (Table 2). This may imply that married farmers are more stable and focused than other groups. According to the survey result, 85.9 per cent of the sample respondents were Christians, 3.1 per cent Muslims and 10.9 per cent none Christians (Table 2). The percentage difference between religions in household heads in terms of faith mean that access to use credit could probably be influenced by their strong hope in succeeding. It was apparent in the results of the study that other sources of income were embraced to compliment income from dairy production. The survey result found out that 39.1 per cent of sample households also carried out small business. On the other hand, 9.4 per cent of sample households were dairy farmers who are also teachers. Among those sample respondents who owned land, 59.1% had land measuring 2.1-2.5 acres, while those who owned land measuring <0.5 acres were about 2%. Implying that probably those with land measuring 2.1-2.5 acres were able to access credit with ease.

**Table 2. Demographic Characteristics of Sample Household Heads**

| Characteristics                          | Respondents (N=64) |      |
|------------------------------------------|--------------------|------|
|                                          | N                  | %    |
| <b>Sex:</b>                              |                    |      |
| Male                                     | 48                 | 75.0 |
| Female                                   | 16                 | 25.0 |
| <b>Literacy level:</b>                   |                    |      |
| Illiterate                               | 4                  | 6.3  |
| Primary                                  | 15                 | 23.4 |
| Secondary                                | 17                 | 26.6 |
| College                                  | 19                 | 29.7 |
| University                               | 9                  | 14.1 |
| <b>Marital Status:</b>                   |                    |      |
| Single                                   | 11                 | 17.2 |
| Married                                  | 47                 | 73.4 |
| Divorced                                 | 3                  | 4.7  |
| Widowed                                  | 3                  | 4.7  |
| <b>Religion:</b>                         |                    |      |
| Christians                               | 55                 | 85.9 |
| Muslims                                  | 2                  | 3.1  |
| None                                     | 7                  | 10.9 |
| <b>Income from non-dairy activities:</b> |                    |      |
| Small business                           | 25                 | 39.1 |
| TSC                                      | 6                  | 9.4  |
| Civil servants                           | 22                 | 34.4 |
| Private employee                         | 11                 | 17.2 |
| <b>Size of land in acres:</b>            |                    |      |
| 0.5                                      | 2                  | 3.1  |
| 0.6-1                                    | 6                  | 9.4  |
| 1.1-1.5                                  | 6                  | 9.4  |
| 1.6-2                                    | 19                 | 29.7 |
| 2.1-2.5                                  | 31                 | 48.4 |

**Source:** Computed from the field survey data, 2013

### **Source of Credit**

Table 3 below shows 25% of the respondents interviewed were getting their credit from commercial banks, while 23.9% get credit friends, relatives and neighbours and 18.5% get their credit from ASCAs & ROSCAs, 15.2% get their credit from coop. Societies and MFIs.

**Table 3. Sources of Credit**

| <b>Credit source</b>           | <b>Frequency</b> | <b>Percentage</b> |
|--------------------------------|------------------|-------------------|
| Private moneylenders           | 2                | 2.2               |
| Friends, relatives, neighbours | 22               | 23.9              |
| ASCAs & ROSCAs                 | 17               | 18.5              |
| Coop. Societies                | 14               | 15.2              |
| MFI                            | 14               | 15.2              |
| Banks                          | 23               | 25                |
| <b>Total</b>                   | <b>92</b>        | <b>100</b>        |

**Source:** Computed from the field survey data, 2013

#### *Private Moneylenders*

It is the lowest most attractive source of credit in the study area. The source of private moneylenders consists of those farmers who are better-off, tradesmen, and rarely government employees. The transactions are; private moneylenders provide cash advance before the milk is paid for by private buyers or milk processors and borrowers are then expected to repay in cash at the end of the month. However, low attraction to credit is probably due to characterized with higher interest rate (equal or greater than 100%). It was identified that sometimes there is a risk of default in case of drought and milk shortage due to a cow drying up.

#### *Friends, Relatives and Neighbours*

In Kenya, where there is a long tradition of mutual assistance, individuals who need funds call on friends, relatives and neighbours for help. Acceptance of such help, however, obligates the borrower to reciprocate by providing non-financial services or by supplying funds in turn when the lender needs to borrow. Lending between friends and relatives often carries low interest or no explicit interest charge. And oral promise, confidence, trust and mutuality are frequently all that is needed as collateral or security. In the study area friends, relatives and neighbours are the second most important sources of credit (Table 3). The credit from friends, relatives and neighbours was used for different purposes, like production, meeting consumption demands and social obligations. It is a custom of the people in the area to assist each other to smooth seasonal milk and cash flows. Credit from this source is not tied with any collateral requirements and no interest is charged from this source in the area.

#### *Rotating Savings and Credit Associations (ROSCAs) and Accumulating Savings and Credit Associations (ASCAs)*

ROSCAs are a form of social organization in which members come together for the purpose of savings in cash or in kind. The normal practice is that members contribute money or material on a monthly or a weekly basis, and lots are drawn every month so that the one who wins the chance gets the total sum. **ASCAs** are a type of traditional organization in which a small fraction of money is collected from members whose aim is to provide mutual aid and financial support under emergency situation. Though it is not common in the farming community, there are small numbers of accumulating savings and credit associations in the study area. It rarely provides cash in credit basis for members. ROSCAs and ASCAs are the third most important sources of credit in the study area.

#### *Banks, MFIs and Cooperative Societies*

Credit from these sources is tied with collateral requirements and interest is charged from this source in the area. However, banks remain most important source of credit in the study area with 25%. MFIs and coop. Societies tied with 15.2% in the context of popularity among the borrowers. This is probably associated with accessibility and availability of their services despite high interest rates.

#### **Reasons for Borrowing**

In the study area, sources of credit and the percentage share of borrowing money varied from institution to institution and the purpose of borrowing too. For instance, households who have borrowed

from credit sources used almost equal proportion for education (26.8%), purchase of in-calf heifers (21.4%), land operations (16.1%) and purchase of dairy feeds (12.5%) purposes respectively.

**Table 4. Reasons for Borrowing in the Smallholder Dairy Farmers**

| <b>Purpose for loans</b>    | <b>Frequency</b> | <b>Percentage</b> |
|-----------------------------|------------------|-------------------|
| Land operations             | 9                | 16.1              |
| Purchase of in-calf heifers | 12               | 21.4              |
| Purchase of dairy feeds     | 7                | 12.5              |
| Veterinary and AI services  | 5                | 8.9               |
| Purchase of households      | 4                | 7.1               |
| Health                      | 1                | 1.8               |
| Education                   | 15               | 26.8              |
| Social ceremonies           | 3                | 5.4               |
| <b>Total</b>                | <b>56</b>        | <b>100</b>        |

**Source:** Computed from the field survey data, 2013

#### **Constraints Limiting Credit Accessibility**

Credit accessibility and factors affecting it were other features which this study undertook. These factors which were considered included high interest rates (60.9%), closely followed by inflexible repayment period (20%), demand for collateral (10.9%) and late loan approval and release (8.2%). Implication is that credit access from specific credit sources plagued by the above constraints may mean that the loans from them are not satisfying the credit requirements of smallholder dairy farmers in the study area.

**Table 5. Constraints Limiting Access to Credit from Credit Sources**

| <b>Credit source</b>           | <b>Frequency</b> | <b>Percentage</b> |
|--------------------------------|------------------|-------------------|
| High interest rates            | 39               | 60.9              |
| Inflexible repayment period    | 13               | 20.               |
| Late loan approval and release | 5                | 8.2               |
| Demand for collateral          | 7                | 10.9              |
| <b>Total</b>                   | <b>64</b>        | <b>100</b>        |

**Source:** Computed from the field survey data, 2013

#### **Conclusions and Recommendations**

From the results access to credit enabled smallholder dairy farmers to purchase in-calf heifers, dairy feeds or land operations, thus assisting to promote increased productivity and dairy production. Socio-economic factors played key role in determining access to credit among the dairy farmers. However, factors that affect participation in credit among households were high interest rates and inflexible repayment period. Likewise late loan approval and lack of collateral were additional constraints in accessing credit. Nowadays lending based on membership to ROSCAs and ASCAs becomes the most important method of providing rural credit to the poor who could not bring material collateral. However, poor farmers especially the very poor farmers find this type of lending inconvenient to access credit since they are rejected from the group by others. Therefore, there should be a policy environment whereby individuals may have access to ROSCAs and ASCAs credit, having advanced working capital by the government and without forming groups with savings as an initial requirement. Further, the results of the study revealed that most of the households borrowed relatively banks. Hence, there is need to formulate policies of agricultural credit whereby high interest rates and inflexible loan repayment and, even demand for collateral is addressed for smallholder dairy farmers to access credit with ease. The policies of credit like the loan size and duration should be designed according to the need of the local society, and the loan size ceiling should be flexible. Therefore, it is recommended that the government fund intervention should be injected in the whole activity to address this problem for smallholder dairy farmers' access to credit. Moreover, repayment period for smallholder dairy farmers' loans in the region is almost uniform and regular. These inflexible repayment schedules do not correspond to period of cash unavailability for the poor households. Therefore, participatory development of activity and income calendars could be used to synchronize repayment schedule with credit need and income flow of different households. The government can come up with strategy in supporting this viable intention in ensuring that loans from both informal and formal financial sector remain stable and running. Finally, the majority of the rural households, especially female headed households and the very poor farmers use credit from informal

financial sources. Therefore, high emphasis should be given in providing legal and policy framework to address the very poor and female headed households in the informal credit market.

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