FACTORS AFFECTING THE FORMAL AGRICULTURE CREDIT ACCESS IN KAILALI DISTRICT, NEPAL

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ABSTRACT

Nepal relies heavily on agriculture for economic growth. The availability of agricultural loans is crucial for promoting the growth and advancement of Nepal's agricultural sector. Although the number of formal financial institutions is increasing in Nepal, access to credit among the majority of agricultural households remains limited. Getting credit from banks and other financial institutions was a challenging process. This study aimed to identify the factors affecting formal agriculture credit access among the farmers of the Kailali district of Nepal. Ward number one of Janaki Rural Municipality, Lamkichuwa, and Tikapur Municipalities of the Kailali district were purposively selected for the study. The primary data were collected through a household survey focus group discussion (FGD) and key informants interview (KII) whereas secondary data were obtained through a review of relevant literatures and publications like books, journals, articles. A random sampling technique was used to select 120 sample respondents, and a pre-tested semi-structured interview schedule was used to collect data from the respondent. Both descriptive and inferential statistics were used to analyze the data. Results of the logistic regression model revealed that cultivated land area, extension contact, membership of a farm-based organization, and training had a significant positive influence on farmers' access to formal credit. Whereas, agriculture credit access was negatively and significantly influenced by the age of the household head.

***Keywords**: bank, farm, loan, regression, variable*

INTRODUCTION

Agriculture is the prime source of income in Nepal, which accounts for approximately one-third of the national GDP and around 60% of the Nepalese rely on agriculture for their livelihood (MoF, 2023). Poverty and food insecurity have been major complications for years and are expected to endure for many more decades (Pokharel, 2015). Due to small farm holdings, a lack of infrastructure, and a lack of investment capacity, the majority of farmers are forced to practice subsistence agriculture and traditional farming methods (Shrestha, 2012). In Nepal, modern agriculture is crucial for economic growth, which is possible after meeting the financial needs of farmers (Rimal, 2014). Access to convenient and affordable credit is the quickest way to boost agricultural productivity (Abedullah et al., 2009). Agriculture credit refers to the loans and advances made available by the banking sector to farmers, agricultural cooperatives, or any agriculture-related businesses (FAO, 2020). Farmers need to integrate advanced agricultural technologies to improve agricultural production and productivity. Nevertheless, the adoption of these modern techniques involves substantial expenses, leading to limited utilization among farmers (Lemessa & Gemechu, 2016). Therefore, agricultural credit can play a crucial role in ensuring farmers proper access to enhanced agricultural technology (Mishra, 2021). Formal credit can be used to invest in irrigation facilities, machinery, and draught animals, which represent credit for capital stock development to support agricultural production (Narayanan, 2016). However, Nepalese individuals persist in depending on conventional finance options, which are expensive and less reliable, such as seeking loans from family members or local lenders (Kharel, 2017).

Banks are indirectly guided by the principle that the manufacturing sectors of the economy are more productive than the agricultural sectors (Dahal & Thapa, 2020). As a result, banks and financial institutions are reluctant to lend to the agricultural sector, particularly to farmers (Bashir & Azeem, 2008). Moreover, financial institutions prioritize lending to groups rather than individual farmers. This approach ensures that credit is provided to farmers who are part of associations, credit unions, or cooperatives. These organizations facilitate the securing, sharing, and repayment of funds among their members (Hananu et al., 2014). Although farmers can get agricultural credit from financial and non-financial institutions, most farmers cannot meet the requirements for formal credit, particularly the requirement to pledge collateral for loans, which is a basic requirement for credit transactions with formal financial institutions (Soundrya & Jayabal, 2020). The unwillingness of banks and financial institutions to invest in the agriculture sector, complex procedures, and impractical criteria for agriculture credit approval limited the farmer's credit accessibility in Sudurpaschim province (MoLMAC,

2021). Although, agriculture makes a substantial contribution to the national economy of Nepal, the allocation of budget expenditure for this sector lacks consistent prioritization (Paudel, 2016). Credit plays a crucial role in enabling farmers to expand their operations or adopt new technologies. However, various factors are believed to hinder farmers' access to credit. Thus, this study aimed to identify the factors influencing farmers' access to formal credit in the Kailali district, Nepal.

METHODOLOGY

The research was carried out in August, 2022 in the Kailali district of Nepal. Ward number one of Janaki Rural Municipality, Lamkichuwa, and Tikapur Municipalities were purposively selected for the study. Out of 1148 households listed in the sampling frame, only 120 households were surveyed by simple random sampling techniques. 40 households (20 with access to credit and 20 without access to credit) were selected from each of the three local bodies. A pretested semi-structured interview schedule was used to conduct the household survey with the head of the household. Focus Group Discussion (FGD) and Key Informant Interview (KII) were conducted to supplement the data acquired from the household survey. Descriptive statistics and a binary logistic regression model were used for analysis, with the assistance of Stata version 12.1. Kailali district was purposively selected as there are a large number of banks and financial institutions and the credit flow from the bank and financial institutions was higher there (NRB, 2021).

Binary logistic regression model

To determine the factors affecting the agriculture credit access by farmers, a binary logistic regression analysis was carried out. Using this model, ten different factors hypothesized to affect agriculture credit access were taken as independent variables. Similarly, access to agriculture credit was taken as the dependent variable.

$$Y = \beta 0 + \beta 1 X 1 + \beta 2 X 2 \ldots + \beta 10 X 10$$

Where, Y is a binary dependent variable (1, if agriculture credit was taken, 0 if not taken)

$\beta 0$ = constant term

$\beta 1 \ldots \beta 10$ = regression coefficient to be estimated

X 1… X 10 = independent variables explained below

X 1 = Sex of the household head (1 = male, 0 = female)

X 2 = Age of the household head (continuous)

X 3 = Year of schooling of household head (continuous)

X 4 = Primary occupation of household (1 = agriculture, 0 = non-agriculture)

X 5 = Cultivated land of the respondents (continuous)

X 6 = Farming experience of the household head (continuous)
X 7 = Training related to agriculture credit (1 = taken, 0 = not taken)
X 8 = Extension contact (1 = yes, 0 = no)
X 9 = Membership in farm-based organization (1 = yes, 0 = no)
X 10 = BFIs distance (continuous)

RESULTS AND DISCUSSION

Socio-economic and institutional characteristics of the respondents

The socio-economic and institutional characteristics of respondents are presented in Table 1. Results indicated that the majority (70.83%) of the farmers were males with an average age of 46.28 years. Farmers spent an average of 5.17 years in formal school. The average farming experience and farm size of respondents were 18.98 years and 0.74 ha respectively. Agriculture was the primary occupation of most respondents in the study area. About 90% of the respondents were involved in agriculture as a major occupation and 10% were involved in the non-agricultural sector. Only 44.17% of the respondents had regular contact with the extension worker and 41.5% of the respondents were involved in farm-based organizations. Similarly, 45.83% of the respondents received training related to agriculture credit. The average distance of BFIs from the respondent's residence was 1.64 km.

Table 1. Socio-economic and institutional characteristics of the respondents in the study area

Variable	Credit users	Credit non-users	Overall
Sex			
Male	43(71.67)	42(70)	85 (70.83)
female	17(28.33)	18(30)	35 (29.17)
Primary occupation			
Agriculture	59(98.33)	49(81.67)	108 (90.0)
Non-agriculture	1(1.67)	11(18.33)	12(10.0)
Training received			
Yes	46(76.67)	9(15)	55(45.83)
No	14(23.33)	51(85)	65(54.17)
Extension contact			
Yes	44(73.33)	9(15)	53(44.17)
No	16(26.67)	51(85)	67(55.83)

Member of a farm-based organization			
Yes	40(66.67)	11(18.33)	51(41.5)
No	20(33.33)	49(81.67)	69(57.5)
Age	43.65	48.92	46.28
Years of schooling	6.7	5.26	5.17
Cultivated land	0.875	0.604	0.740
Farming experience	17.22	20.73	18.98
BFIs distance	1.63	1.66	1.64

Note: Figure in the parenthesis indicates percentage [Source: Field Survey (2022)]

Factors affecting the agriculture credit access

The logit model was used to analyze the effect of different factors on the agriculture credit access of the households in the Kailali district. The model has good explanatory power with a highly significant LR (Likelihood Ratio) and a chi-square value of 90.86 at 1% significance level. The model has a pseudo R^2 value of 0.5462 showing that the independent variables used in the model can explain 54.6% of the variation in agriculture credit access of households. The overall correct prediction of the model is 85.83% indicating good predictive power. The goodness of fit test is insignificant, indicating the fit is good for the model. The link test revealed that the hat is significant at 1% level of significance and the hat square is insignificant.

Marginal effects after logit were calculated to determine the impact of the unit change in independent variables on household agriculture credit access. The age of the household head, training received, extensions contact received, member of a farm-based organization and total cultivable land holding of the household were found to affect the agriculture credit access significantly while the other independent variables like primary occupation, BFIs distance, farming experience, years of schooling, and sex of the household head were non-significant. Independent variables like training received, extension service received, member of a farm-based organization and total cultivated land holding of the household positively affected the agriculture credit access, while independent variables like the age of the household head negatively affected the access to agriculture credit. The age of the household head had a negative but significant ($p < 0.1$) impact on agriculture credit access. This is because older people are risk-averse and find the procedure for credit-taking difficult and complex. The conclusions made

by Mohamed and Temu (2008), Owusu (2017), Mpuga (2004), Sebopetji and Belete (2009), Chitungo and Munongo (2013), and Katchova (2005) were also in line with our findings. However, Abraham (2014) discovered that as age increases, demand for credit by smallholder farmers also increases, which is not in line with our current findings. This is due to the assumption that older farmers possess accumulated expertise and experience in agricultural practices and are knowledgeable about lending institutions. This has led to the increment in both demand and access to agricultural credit. Additionally, credit institutions place more trust in older individuals with extensive life experiences, as they are deemed mature enough to handle family obligations and make sound credit decisions (Diagne & Zeller, 2001).

Agriculture credit access had a positive and highly significant ($p < 0.01$) relationship with the area of cultivable land which indicates an increase in credit access with an increase in cultivated land. These results confirmed the findings of Lemessa and Gemechu (2016), Komicha (2007), Owusu (2017), and Lazaro and Alexis (2021). This is because increased cultivated land requires more farm inputs, which demands the acquisition of additional capital. Moreover, a large farm owner would require greater capital, potentially prompting them to seek external financing. Conversely, smallholder farmers, owning more land, are more inclined to seek additional agricultural credit due to the availability of more collateral. The study by Oboh and Ekpebu (2011) also highlighted the significant role of land as collateral security in the credit-granting process.

Extension contacts showed a positive and significant relationship with credit accessibility, suggesting that the provision of extension services improves farmers' ability to obtain credit. This is likely because extension agents serve as an important information resource for numerous rural farmers. Extension agents also assist in connecting farmer groups with the sources of credit. The result agrees with Muhongayire et al. (2013), Komicha (2007), Owusu (2017), Yehuala (2008), Lazaro and Alexis (2021), Dzadze et al. (2012), Bagi (1983), and Benjamin et al. (2015). Besides, as the number of visits with agricultural extension officer's increases, the household is more likely to improve its knowledge of credits. Enhanced knowledge status could result in greater credit demand. These findings are consistent with that of Beck (2007), who emphasized the importance of extension services in providing farmers with farming techniques, knowledge, and farm management skills. Improvement in extension service delivery is therefore vital for enhancing agricultural credit access.

Membership in farm-based organizations was found to be significant at a 5 percent level of significance. This implies that when farmers join social groups, the possibility of them requesting credit from BFIs to support their farming activities increases. The

desire to gain access to financial services, particularly credit from BFIs, drives most people to join such social groups. This finding is consistent with the findings of Agbodji and Johnson (2021), Assogba et. al. (2017), Lazaro and Alexis (2021), Akudugu (2012), Aghion and Morduch (2006), and Hananu et. al. (2014). The involvement of household members in training showed a positive and significant ($p < 0.05$) impact on agriculture credit status. The chance of the loan being taken increased by 43.54% when the household had received some training.

This study revealed that years of schooling had non-significant influence on access to finance. The results deviated from the earlier reports of Tang et.al. (2010), Nwaru (2005), and Shah et.al. (2008). This may be because illiterate farmers are engaged in farm-based organizations and are involved in financial and credit-related training. In addition, literate farmers gather information on agriculture credit through various sources while illiterate farmers gather information from extension agents and related institutes.

BFIs distance was found non-significant with agriculture credit access of the farmers. However, Ayamga et.al. (2006), Rahji and Fakayode (2009), and Henri-Ukoha et al. (2011) reported different results. This may be due to easier connectivity to the area where BFIs are available. The easier connectivity is likely due to the availability of roads and means of transport.

The study discovered that the farming experience had no significant effect on access to agriculture credit. This finding disputed the findings of Njoku and Odii (2019), Owusu (2017), and Sebopetji and Belete (2009). This is because young people are more interested in agriculture. Youth returning from abroad get priority on agricultural enterprise and need a loan to start a new business. However, old and experienced people don't take the risk of taking loans, mostly for agricultural purposes.

Table 2. Binary logistic regression analysis and marginal effect for factors affecting the agriculture credit access

Variables	Coefficients	Std.Error	P value	dy/dx[b]	Std.Error[b]	P value[b]
Sex	0.0068	0.7523	0.993	0.0017	0.1851	0.993
Age	-0.0994	0.0548	0.070	-0.0246*	0.0137	0.072
Years of schooling	-0.0742	0.0694	0.285	-0.0184	0.0173	0.288
Primary Occupation	1.8718	1.2465	0.133	0.4116	0.1984	0.038
Cultivated land	0.0952	0.0325	0.003	0.0236***	0.0079	0.003
Farming experience	-0.0717	0.0681	0.292	-0.0177	0.0167	0.289
Training	1.9021	0.8801	0.031	0.4354**	0.1734	0.012

Extension contact	1.5689	0.8704	0.071	0.3661**	0.1816	0.044
Member of a farm-based organization	1.8481	0.7320	0.012	0.4213***	0.1421	0.003
BFIs distance	0.1632	0.3509	0.642	0.0404	0.0867	0.642
Constant	0.0725	2.0762	0.972			

Note:, ** and *** indicates significance at 10%, 5% and 1% levels respectively*
Note: [b]Marginal change in probability (marginal effects after logit) evaluated at the sample means [Source: Field Survey (2022)]

CONCLUSION

Agricultural credit is one of the most fundamental inputs for farmers involved in commercial agriculture as well as for small land-holding farmers. The logistic regression analysis showed that farmers involvement in training related to finance and credit, participation in the farm-based organization, contact with extension personnel, and the cultivated land area were the principal factors that significantly and positively influenced farmers' access to formal credit in the study area. Credit accessibility decreases when the household head's age increases, implying that younger farmers are more interested in loan acquisition. To improve farmers' access to formal credit, the study recommended that efforts should be made by the government to amplify the contact between farmers' and extension agents and provide training concerning finance and credit acquisition. Also, young farmers should be encouraged through various credit schemes to improve access to formal credit. The study suggests that authorities should prioritize involving farmers in farm-based organizations, training programs, and increasing extension contact with farmers to improve their access to credit.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

REFERENCES

Abedullah, M. N., Khalid, M., & Kouser, S. (2009). The role of agricultural credit in the growth of livestock sector: A case study of Faisalabad. *Pakistan Veterinary Journal, 29*(2), 81–84.

Abraham, E. (2014). *Factors influencing SEDA agricultural credit rationing to smallholder farmers in Dodoma Municipality and Bahi District, Dodoma, Tanzania* [Unpublished Doctoral Dissertation, Sokoine University of Agriculture]. Morogoro, Tanzania.

Agbodji, A. E., & Johnson, A. A. (2021). Agricultural credit and its impact on the productivity of certain cereals in Togo. *Emerging Markets Finance and Trade*, *57*(12), 3320-3336. https://doi.org/10.1080/1540496X.2019.1602038

Aghion, B. A., & Morduch, J. (2005). *The Economics of Microfinance.* London, England: The MIT Press Cambridge, Massachusetts. 1-491

Akudugu, M. A. (2012). Estimation of the determinants of credit demand by farmers and supply by rural banks in Ghana's upper east region. *Asian Journal of Agriculture and Rural Development*, *2*(2), 189-200. http://dx.doi.org/10.22004/ag. econ.197959

Assogba, P. N., Haroll Kokoye, S. E., Yegbemey, R. N., Djenontin, J. A., Tassou, Z., Pardoe, J., & Yabi, J. A. (2017). Determinants of credit access by smallholder farmers in North-East Benin. *Journal of Development and Agricultural Economics, 9*(8), 210-216. https://doi.org/10.5897/JDAE2017.0814

Ayamga, M., Sarpong, D. B., & Asuming-Brempong, S. (2006). Factors influencing the decision to participate in micro-credit programmes: An illustration for Northern Ghana. *Ghana Journal of Development Studies, 3*(2), 57-65. DOI: 10.4314 /gjds. v3i2.35043

Bagi, F. S. (1983). A logit model of farmers' decisions about credit. *Southern Journal of Agricultural Economics*, *15*(2), 13-19. https://doi.org/10.1017/s0081305200016198

Beck, T. (2007, April). Financing constraints of SMEs in developing countries: Evidence, determinants and solutions. In *KDI 36th anniversary international conference* (pp. 26-27).

Benjamin, T. A., Timo, S., Stefan, B., & Jukka, K. (2015). Factors influencing smallholder farmers access to agricultural microcredit in Northern Ghana. *African Journal of Agricultural Research*, *10*(24), 2460-2469. https://doi.org/10.5897/ajar2015.9536

By Various Financial Institutions In Tirunelveli District. *International Journal of Scientific & Technology Research, 9*(04), 2710-2718.

Chitungo, S. K., & Munongo, S. (2013). Determinants of farmers' decision to access credit: the case of zimbabwe. *Russian Journal of Agricultural and Socio-Economic Sciences, 17*(5), 7-12. https://doi.org/10.18334/np3499

Dahal, A. K., & Thapa, K. K. (2020). Agriculture Sector Credit and Output Relationship in Nepal. *Asian Journal of Economics, Business and Accounting*, *17*(2), 33-53. https://doi.org/10.9734/ajeba/2020/v17i230256

Diagne, A., & Zeller, M. (2001). *Access to credit and its impact on welfare in Malawi.* International Food Policy Research Institute (84-88). Retrieved from https:// www.i fpri.org/publication/access-credit-and-its-impact-welfare-Malawi

Dzadze, P., Osei Mensah, J., Aidoo, R., & Nurah, G. K. (2012). Factors determining access to formal credit in Ghana : A case study of smallholder farmers in the Abura- Asebu Kwamankese district of central region of Ghana. *Journal of Development and Agricultural Economics*, *4*(14), 416-423. https://doi.org/10.5897/JDAE12.099

Hananu, B., Abdul-Hanan, A., & Zakaria, H. (2014). Factors influencing agricultural credit demand in Northern Ghana. *African Journal of Agricultural Research*, *10*(7), 645-652. https://doi.org/10.5897/AJAR2014

Henri-Ukoha A., Orebiyi J. S., Obasi P. C., Oguoma N. N., Ohajianya D. O., Ibekwe U. C. and Ukoha I. I. (2011). Determinants of loan acquisition from the financial institutions by small-scale farmers in Ohafia Agricultural zone of Abia State, South East Nigeria. *Journal of Development and Agricultural Economics*, *3*(2), 69-74.

Katchova, A. L. (2005). Factors affecting farm credit use. *Agricultural Finance Review*, *65*(2), 17-29. https://doi.org/10.1108/00214660580001164

Khalid Bashir, M., & Azeem, M. M. (2008). Agricultural credit in pakistan : constraints and options. *Pakistan Journal of Life and Social Sciences*, *6*(1), 47-49.

Kharel, S. (2017). Rural Womens' Access to Community Finance. *Nepalese Journal of Development and Rural Studies*, *14*(1–2), 112-123. https://doi.org/10.3126/ njdrs. v14i1-2.19654

Komicha, H. H. (2007). Farm household economic behaviour in imperfect financial market: *empirical evidence and policy implications on saving, credit and production efficiency in Southeastern Ethiopia* [Unpublished Doctoral Dissertation, Acta Universitatis Agriculturae Sueciae]. Sweden.

Lazaro, A. M., & Alexis, N. (2021). Determinants of credit demand by smallholder farmers in Morogoro, Tanzania. *African Journal of Agricultural Research*, *17*(8), 1068-1080. https://doi.org/10.5897/ajar2020.15382

Lemessa, A., & Gemechu, A. (2016). Analysis of factors affecting smallholder farmers ' access to formal credit in Jibat district, west shoa zone, Ethiopia. *International Journal of African and Asian Studies*, *25*, 43-53. https://www.iiste.org/Journals/ index.php/JAAS/article/view/32990%0Awww.iiste.org

Mishra, B. P. (2021). Factors affecting use of formal agricultural credit among smallholder farmers in western Nepal. *International Journal of Social Sciences and Management*, *8*(4), 457-462. https://doi.org/10.3126/ijssm.v8i4.40497

MoF. (2023). *Economic Survey 2020/21.* Government of Nepal, Ministry of Finance, Singh Durbar, Kathmandu. Retrieved from https://www.mof.gov.np/up loads/ document/file/1633341980_Economic%20Survey%20(Engslish)%202020-21. pdf

Mohamed, K. S., & Temu, A. E. (2008). Access to credit and its effect on the adoption of agricultural technologies: The case of Zanzibar. *African Review of Money Finance and Banking*, 45-89.

MoLMAC. (2021). *Agriculture Development Strategy of Sudurpaschim Province (2079/80-2093/94)*. Government of Sudurpaschim Province, Ministry of Land Management, Agriculture and Cooperatives, Dhangadhi, Kailali.

Mpuga, P. (2004). Demand for credit in rural Uganda: Who cares for the peasants? In *A paper presented at the conference on growth, poverty reduction and human development in Africa. Centre for the Studies of African Economies*. (pp.1-46).

Muhongayire, W., Hitayezu, P., Mbatia, O. L., & -Mukoya-Wangia, S. M. (2013). Determinants of farmers' participation in formal credit markets in rural Rwanda. *Journal of Agricultural Sciences*, *4*(2), 87-94. https://doi.org/10.1080/09766898. 2013.11884706

Narayanan, S. (2016). The productivity of agricultural credit in India. *Agricultural Economics*, *47*(4), 399-409. https://doi.org/10.1111/agec.12239

Njoku, J. E., & Odii, M. A. (2019). Determinants of loan repayment under the special emergency loan scheme (seals) in Nigeria : a case study of Imo state: *African Review of Money Finance and Banking*. *1*(1), 39-52.

NRB. (2021). *Provincial Economic Activities Study (Sudurpaschim Province).* Nepal Rastra Bank, Dhangadhi, Kailali.

Nwaru, J. C. (2005). Determinants of farm and off-farm incomes and savings of food crop farmers in IMO state, Nigeria: Implication for Poverty Alleviation. *Nigeria Agricultural Journal*, 36, 26-42.

Oboh, V. U., & Ekpebu, I. D. (2011). Determinants of formal agricultural credit allocation to the farm sector by arable crop farmers in Benue State, Nigeria. *African Journal of Agricultural Research*, *6*(1), 181-185. https://doi.org/10.5897/AJAR10.023

Owusu, S. (2017). Effect of access to credit on agricultural productivity: evidence from cassava farmers in the Afigya-Kwabre district of Ghana. *International Journal*

of Innovative Research in Social Sciences & Strategic Management Techniques, *4*(2), 55-67.

Paudel, M. N. (2016). Prospects and limitations of agriculture industrialization in Nepal. *Agronomy Journal of Nepal*, *4*, 38-63. https://doi.org/10.3126/ajn.v4i0.15515

Pokharel, T. (2015). Poverty in Nepal : characteristics and challenges. *Journal of Poverty, Investment & Development*, *11*, 44-56.

Rahji, M. A. Y., & Fakayode, S. B. (2009). A multinomial logit analysis of agricultural credit rationing by commercial banks in Nigeria. *International Research Journal of Finance and Economics*, 1(2), 90-100.

Rimal, N. S. (2014). Agricultural credit flow of commercial banks and impact on agricultural production in Nepal. *Scholars Journal of Arts, Humanities and Social Sciences*, *2*(2C), 372-376.

Sebopetji, T. O., & Belete, A. (2009). An application of probit analysis to factors affecting small-scale farmers' decision to take credit: A case study of the greater Letaba local municipality in South Africa. *African Journal of Agricultural Research*, *4*(8), 718-723.

Shah, S. R., Bukhari, A. T., Hashmi, A. A., & Anwer, S. (2008). Determination of credit programme participation and socioeconomic characteristics of beneficiaries : evidence from sargodha. *The Pakistan Development Review, 47 (4)*, 947-959.

Shrestha, S. (2012). *Status of agricultural mechanization in Nepal*. Khumaltar, Lalitpur: United Nations Asian and Pacific Center for Agricultural Engineering and Machinery (UNAPCAEM).

Soundarya, M., & Jayabal, G. (2020). Farmers opinion towards agriculture credit sanctioned by various financial institutions in Trunelveli district. *International journal of Scientific & Technology Research*, 90(4), 2710-2718.

Tang, S., Guan, Z., & Jin, S. (2010). Formal and informal credit markets and rural credit demand in China. *Agricultural & Applied Economics Association,2010 AAEA, CAES, & WAEA Joint Annual Meeting* (pp. 1-26). Colorado: Agricultural & Applied Economics Association.

Yehuala, S. (2008). *Determinants of smallholder farmer's access to formal credit: the case of Metema Woreda, North Gondar, Ethiopia* [Unpublished Doctoral Dissertatio,. Haramaya University]. Ethiopia.