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Problems and Prospects of Vegetables Farming in Kalika Municipality

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Abstract

Vegetable is one of the important cash crops of Nepal; however, contribution of vegetable in national GDP is not so high. Nepal Rastra Bank Report 2023 showed that vegetable contributed the 9.7percent of total GDP of the nation. In Kalika municipality 77% population followed agriculture as main profession. All of them are involved in vegetable farming. In this context, the study analyzed the problems and prospects of vegetable farming in Kalika municipality. The study followed the mixed method research design. Both primary and secondary source of data were used in this study. Findings and conclusion of this study is based on primary data. From the analysis data analysis, it is found that there Kalika Municipality can be pocket area of organic vegetable farming; however, government has only provided limited supported for vegetable farming. There are various problems existed in vegetable farming such as irrigation, disease and market. If these problem in time there will be increased the quality and quantities of vegetable production in study area.

Keywords: farming problems, prospects, vegetable market, production

Introduction

Nepal is known as agricultural nation. *The Global Economy.com (2024)* and *Wikipedia contributors, (2024)* highlighted that 60 to 62 percent people engaged in agriculture sector, however, it contribute only 24 percent in national GDP. Annually the GDP contribution of agriculture sector is decreasing in Nepal. In 1970, the contribution of agriculture on National GDP was 66.9% that annually decreased and reached about 25% in 2021 but now it is only limited 21 to 24 percent. (*Trading Economics, 2024*). The statistics noted that there are problems in agriculture sectors because GDP contribution is decreasing years by years,

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however, it is staid that there is high possibility of agriculture sectors in Nepal. Similarly, overview can be seen in vegetable farming in 2022, Nepal imported a total of 687,000 metric ton valued Rs 23 billion in 2024 in increased and reached 26 billion (Research Gate. (2024). It shows that the investment in vegetable import is high that is necessary to reduce the decrease the import quantity through enhancing the local problems. In this context the study focused on the problems and prospects of vegetable farming in Kalika municipality Chitwan which is one of the possible areas for vegetable farming. Youth returned from foreign job also involved in commercial vegetable framing in the study area. Chitwan post (2025 May, 20) noted that farmers of faced in communal vegetable faming" (p1). Another news published in the Kalika news about the irrigation problem in Kalika municipality "Vegetable farming boosts income in Kalika Municipality (Kalika News, 2024 April 20). There news noticed that there is both problems and prospects in vegetable farming in Kalika municipality, however, large portion of population are involved in agriculture. Municipality report 2024 showed that 77% population is followed agriculture as main source of livelihood. Among 77% 40% are directly involved in commercial vegetable farming, however, there is no vegetable collection centre and cold store in the municipality. In this context the study analyzed the problems and prospects of vegetable farming in study area.

Objectives of this study

Objectives are to analyze the current situation of vegetable farming in terms of problems and prospects in the context of the market and production process. The study seeks the answers of the research questions how is the situation of vegetable faring in study and what are the major problems farmers have facing in day-to-day life in the process of vegetable production and marketing.

Literature Reviews

Various authors and researchers, including Basneyat (2018), Maduekwe and Obansa (2013), Thapa (2009), and Joshi et al. (2006), have investigated various aspects of vegetable cultivation. Thapa (2009) pointed out that wage workers in the vegetable sector represent a significantly smaller segment of the overall wage labor force in the non-agricultural sector. Additionally, Rajbhandari (2011) undertook a comprehensive eight-year research project focused on bio-intensive farming (BIF) in the Udayapur district of Nepal, contributing valuable insights into sustainable agricultural practices in the region. The National Agriculture Research Council (NARC) established its vegetable development division in 1972 to oversee seed production and vegetable crop research in Nepal. In 1987, NARC gained the authority to conduct agricultural research, marking the start of modern vegetable farming in the country. Ghimire (2005) studied the vegetable farming in kitchen garden. Kitchen gardening plays a vital role in meeting household dietary needs, providing fresh produce and promoting self-sufficiency. In contrast, large-scale commercial vegetable farming is typically found near major highways and urban areas, facilitating efficient distribution and market access for fresh vegetables. BIF enhanced crop diversity, yield efficiency, food security, and rural livelihoods. Participating farmers sold their crops, using the income for basic needs and reinvestment.

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Rajbhandari (2011) undertook a comprehensive research project spanning eight years, concentrating on bio-intensive farming (BIF) in the Udayapur district of Nepal. The findings revealed that BIF had a beneficial impact on crop diversity, yield efficiency, food security, and the overall livelihoods of rural communities. Farmers who adopted BIF practices were able to sell their produce, utilize the income to fulfill their basic needs, and reinvest in their agricultural endeavors. Pradhan et al. (2013) studied the Bhaktapur district's organic vegetable farming, finding it more profitable than traditional methods. Farmers used the profits for home improvements, healthcare, education, and community activities. The study concluded that organic farming improved farmers' social and economic status and boosted their confidence. Obansa and Maduekwe (2013) published a comprehensive paper titled "Agriculture Financing and Economic Growth in Nigeria." This significant study utilized secondary data sources to analyze the relationship between agricultural financing and economic growth within the Nigerian context. To achieve their objectives, the authors employed a variety of econometric techniques, including Ordinary Least Squares (OLS) for regression analysis, the Augmented Dickey-Fuller (ADF) unit root test to assess the stationarity of the data, and the Granger Causality test to explore the directional influence between agricultural financing and economic growth. Gurung et al. (2016) studied vegetable farming in Kapilbastu and Kaski districts, finding a notable increase in cultivation after the PRISM program. Farmers were attracted to this sector due to organized markets and income potential, aided by better access to agricultural inputs and technologies, leading to a shift from subsistence to commercial farming.

Similarly, Rahman (2017) wrote a thesis titled "Agricultural Productivity Growth and the Role of Capital in South Asia," which evaluated agricultural sustainability in Bangladesh, Pakistan, India, and Nepal. The study calculated multi-lateral Total Factor Productivity (TFP) indices over 34 years, revealing productivity growth rates of 1.05% for Bangladesh, 0.52% for India, 0.38% for Pakistan, and 0.06% for Nepal. It identified natural, human, and technological capital as key drivers of TFP growth, while financial capital and crop diversification had negative effects. Likewise, Basneyat (2018) conducted an in-depth study focusing on vegetable farming practices in Siddhiganesh, a locality in Sanothimi, which is part of the Bhaktapur District in Nepal. The findings of this research emphasize the crucial importance of agriculture not only in the cultivation of food grains but also in the production of vegetables and fruits, as well as in the rearing of livestock and poultry. This underscores the significant impact that agricultural activities have on the practice of vegetable cultivation in the region. The contributions of agriculture are especially prominent among many Jyapu families residing in Thimi, a community situated within the Kathmandu valley, where these practices are integral to their livelihoods. In the same way Paudel and Bhandari (2021) undertook a comprehensive research study in Dhankuta, Nepal, aimed at evaluating how vegetable farming affects the livelihoods of local farmers. Their findings indicated that engaging in vegetable cultivation had a beneficial effect on the socioeconomic conditions and overall livelihoods of those who participated in this agricultural practice. Key elements that played a crucial role in the success of vegetable farming included the enhanced use of local resources, the establishment of

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cooperative groups among farmers, and the development of effective transportation systems to facilitate the distribution of produce.

Above reviews indicate about various aspects of vegetable farming in different part of Nepal, however, I have not found detail study of the problems and prospects of vegetable farming in the context of Kalika municipality of Chitwan district so that the study carried out the them and analyzed the issue.

Methods

Mixed method research design was used in this study and both primary and secondary source of data were used. Books, articles, journal, reports and web-based information were the main source of secondary data that were collected through library and internet search. Primary data were collected through field survey through structured questionnaires, interviews, and field observations. Field survey was conducted in Kalika municipality ward no 8. 100 respondents were selected as sample population in this study. A purposive random sampling technique was employed for the household survey to obtain the primary data. The data collected from the field survey, along with other data, were organized and analyzed.

Study Area

Kalika municipality is located north east part of Chitwan district. It is six kilo meter east from the Bharatpur, district head quarter of Chitwan. It is located 156 kilometer south from the Kathmandu capital city of Nepal and 60-kilometer m south from the Hetunda, capital city of Bagmati province. The area is famous for green vegetable production and people are highly involved in vegetable farming.

Socio Status of the Respondents

In this study 100 vegetable farmers of Kalika municipality ward 8 were participated in this study socio economic status of the respondents are involved in this study.

Social Status of the Respondents

Table 1

Age, Caste/ ethnic, Education and Religious Statuses of the Respondents

S.N.	Age	No	%	Religions	No	%	Education	No	%	Caste/ Ethnic Status	No	%
1	20 to 30 Years	15	15	Hindu	55	55	Illiterate	2	2	Brahmin / Chhetri	15	15
2	30 to 40 Years	25	25	Christian	20	20	Literate (Primary)	60	60	Magar	10	10
3	40 to 50 Years	20	20	Buddhist	10	10	Secondary	18	18	Tamang	20	20

NPRC Journal of Multidisciplinary Research
Volume 2, Issue 8, August, 2025 Pages: 94-104
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4	50 to 60 Years	25	25	Animism	5	5	+2	15	15	Chepang	16	16
5	Above 60 years	15	15	Other	5	5	Bachelor and above	5	5	Gurung	15	15
6	Total	100	100	Total	100	100	Total	100	100	Sanyashi	10	10
7	-	-	-	-	-	-	-	-	-	Tharu	5	5
8	-	-	-	-	-	-	-	-	-	Dalit	5	5
9	-	-	-	-	-	-	-	-	-	Total	100	100

Source: Field Survey 2025

The majority of farmers are situated within the age ranges of 30–40 and 50–60 years, each accounting for 25%. The youngest demographic (20–30 years) and the oldest demographic (above 60 years) each represent 15%. This indicates that most vegetable farmers in the study are in their productive middle age, while also including individuals from both younger and older age categories. The predominant religion among the respondents is Hinduism, comprising 55%, which aligns with the national religious trend observed in Nepal. Christians constitute the second-largest group at 20%, signifying a significant presence. Buddhists account for 10%, while small minorities adhere to Animism (5%) or other religions (5%). This illustrates that, although the majority of farmers identify as Hindu, there exists a religiously diverse population. A significant portion of farmers (60%) possesses primary-level literacy, indicating that basic education is prevalent. 18% have completed secondary education, and 15% have achieved +2 level (higher secondary). Only 5% hold a graduate degree and 2% is illiterate. The participants represent a variety of age groups, predominantly consisting of middle-aged individuals. They encompass multiple religions, with Hinduism being the most widely practiced. The educational attainment is mainly at the primary level, with a limited number of individuals possessing higher education. The distribution of caste and ethnicity reflects considerable diversity, which is typical in rural areas of Nepal.

Economic Status of the Respondents

Respondents from various economic backgrounds were involved in this study. Farming is the main of the people living in study area so that vegetable is the main source of income. The table below displays the landholding size, income, and savings of the participants.

Table 2

Land Holing Size, Income and Saving

S.N.	Land size	No	%	Annual income in 000	No	%	Saving (000	No	%
1	Up to 10 Katha	45	45	Up to 100	25	25	0	25	25

NPRC Journal of Multidisciplinary Research
Volume 2, Issue 8, August, 2025 Pages: 94-104
ISSN: 3059-9148 (Online)
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2	10 to 1 Bigha	40	40	100 to 200	30	30	Up to 100	30	30
3	1 Bigha to 2 Bigha	15	15	200 to 400	20	20	100 to 200	25	25
4	Total	100	100	400 to 600	15	15	200 to 400	15	15
5	-	-	-	More than 600	10	10	More than 400	5	5
6	-	-	-	Total	100	100	Total	100	100

Source: Field Survey, 2025

This table presents the landholding size, annual income, and savings status of the respondents. The majority of respondents possess small landholdings, with 45% owning land up to 10 *Katha*, which indicates that they are marginal or small-scale farmers. Additionally, 40% own between 10 *katha* and 1 bigha, representing a slightly larger yet still modest area. Only 15% have land holdings between 1 and 2 bigha, demonstrating that large-scale landholders are quite rare. This situation implies that most farmers depend on limited agricultural land, which likely affects their income and savings. Most farmers earn below NPR 200,000 annually: 25% earn up to 100,000, while 30% earn between 100,000 and 200,000. Only 10% earn more than 600,000, indicating that high-earning farmers are uncommon. This data underscores the low to moderate income levels of vegetable farmers, which may reflect restricted productivity or limited market access. Furthermore, 25% of respondents report having no savings at all, highlighting their financial vulnerability. Additionally, 55% save less than 200,000, which again points to limited disposable income. Only 5% manage to save more than 400,000, suggesting that very few individuals are capable of accumulating significant savings. Most vegetable farmers have small landholdings, with 85% owning less than 1 bigha. The majority (55%) earn below 200,000 NPR annually, with only a small group (10%) exceeding the 600,000 NPR threshold. A significant portion of farmers (25%) are unable to save anything at all. The majority save only minimal amounts, indicating a lack of economic security.

Situation of Vegetable Farming

All the respondents are involved in vegetable farming; however, the quantity of land used in vegetable plantations is different. The following table shows the land size of respondents used in vegetable plantation;

Table 3

Land size used for Vegetable Farming

S.N.	Land size used for vegetable	No	%
1	Less than 1 katha	20	20
2	1 to 5 katha	40	40
3	5 to 10 katha	30	30
4	Above 10 katha	10	10
5	Total	100	100

Source: Field Survey, 2025

NPRC Journal of Multidisciplinary Research
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Above table illustrates the allocation of land size designated for vegetable farming among 100 respondents participating in the study. It classifies land size into four distinct ranges and details both the number and percentage of farmers within each category. 20% respondents cultivate vegetables on less than 1 katha of land. This suggests a demographic of very small-scale or subsistence-level farmers. These individuals are likely producing vegetables primarily for personal or family consumption, with little to no surplus available for market sale. Their limited land area may constrain crop variety, yield, and income generation. The largest segment of farmers 40% is situated within this category. These individuals farm vegetables on 1 to 5 kathas of land. Although still relatively small-scale, this group likely produces sufficient quantities to engage in local markets, augment family income, and potentially meet regular household vegetable requirements. This demographic may represent semi-commercial vegetable growers. Approximately 30% of the respondents utilize 5 to 10 kathas of land for vegetable farming. These farmers are likely more commercially oriented, engaging in market-driven production. With this land size, they may cultivate vegetables on a larger scale, diversify their crops, and generate moderate to substantial income. This group possesses a greater potential for profitability compared to the previous two categories. Only 10% of farmers grow vegetables on more than 10 kathas of land. These individuals can be classified as large-scale vegetable producers. They are most likely to adopt modern agricultural techniques, cultivate a diverse array of crops, and supply broader markets, including wholesalers, retailers, or cooperatives. Their larger land area provides them with comparative economic advantages, such as enhanced income and opportunities for mechanization. The table distinctly indicates that 70% of vegetable farmers operate on less than 5 kathas of land, highlighting a predominantly smallholder agricultural system. Only 10% have access to land exceeding 10 kathas, indicating that large-scale commercial vegetable farming is uncommon in the region.

Types of Vegetables Respondents Cultivate in Farming

Respondents cultivate both seasonal and off-season vegetable in study area. In both season they cultivate same types of vegetables like cauliflower, radish, beans, potato and other green vegetables. The following table shows the types of vegetables cultivate by the respondents;

Table 4

Types of Vegetables Respondents Cultivate in Farming

S.N.	Land size used for vegetable	No	%
1	Cauliflower	10	10
2	Potato	40	40
3	Radish	5	5
4	Beans	30	30
5	Green vegetable	15	15
6	Total	100	100

Source: Field Survey, 2025

The table above provides information regarding the various types of vegetables cultivated and the corresponding percentage of land area assigned to each type within a specific

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DOI: 10.3126/nprcjmr.v2i8.83836

study area. Cauliflower occupies 10% of the total land designated for vegetable cultivation, indicating a relatively minor share of land compared to other crops. Potatoes account for 40% of the total land utilized for vegetable farming, highlighting their economic or dietary significance. A minimal area of land, specifically 5%, is allocated for radish cultivation. Beans represent the second most widely cultivated crop, occupying 30% of the land, which suggests that they are either a staple food or possess considerable market value. This category encompasses leafy greens such as spinach and mustard greens, which utilize 15% of the land, reflecting a moderate level of preference or consumption. This confirms that all land utilized for vegetable farming is represented within the aforementioned five categories. Potatoes and beans emerge as the primary crops, collectively occupying 70% of the land, while cauliflower, radish, and green vegetables account for the remaining 30%, with radish having the least area dedicated to it. This distribution illustrates the agricultural priorities or local consumption trends within the study area.

Prospects of Vegetable Farming in Study Area

Chitwan has rapidly evolved from subsistence farming to a more commercial approach. It ranks among the leading districts in Nepal for vegetable cultivation, seed production, organic fertilizer manufacturing, and diverse agricultural practices such as floriculture and beekeeping. Expansion of Vegetable Farming the flat and fertile plains, are ideally suited for the growth of commercial vegetable farming. Adoption of Mobile Technologies the rise in digital literacy and the use of farming applications are improving productivity and market visibility for local farmers. Infrastructure Assets the availability of roads, irrigation supports and the municipality's initiative towards modern agricultural practices fosters the environment. The existence of organic fertilizer industries and seed production networks within the district enhances the local supply of inputs and lowers costs. The following table notes the prospects of vegetable farming.

Table 5

Prospects of Vegetable Farming

S.N.	Prospects of Vegetable Farming	No	%
1	Fertile Land	80	80
2	Support of Agriculture office	40	40
3	Market access	60	60
4	Irrigation	30	30
5	Labor	50	50

Source: Field Survey, 2025

Above table shows that 80% of the participants believe that fertile soil is a crucial advantage for vegetable farming. This reflects the natural suitability of the land in the region for cultivating vegetables. Additionally, 40% reported receiving assistance (such as training, seeds, subsidies, or advice) from local agricultural offices. This indicates that institutional support is available, although it may not be uniformly accessible to all farmers. Furthermore, 60% of respondents recognized easy access to markets as a potential benefit. This suggests that vegetable farmers have the opportunity to sell their products, either locally or through trading

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centers, thereby enhancing profitability. Conversely, only 30% of respondents indicated that they have adequate irrigation facilities. This suggests a potential limiting factor that could greatly enhance vegetable farming if irrigation is expanded. Half of the respondents mentioned that labor is sufficiently available for farming activities. This indicates moderate support from the local workforce, which may include family labor, hired help, or seasonal workers. Fertile land (80%), market access (60%), and labor availability (50%) are notable prospect of vegetable farming in the study area. Only 40% have benefited from government or agricultural office assistance. Irrigation appears to be a weaker aspect, merely 30% highlighting it positively indicating a need for enhancement.

Problems of Vegetable Farming in Study Area

Farmers in the study area face a variety of challenges when it comes to cultivating both seasonal and off-season vegetables. One of the most pressing issues is irrigation, which poses a significant obstacle during the dry season, making it particularly difficult to grow vegetables. In addition to irrigation, there are several other critical factors that contribute to the difficulties experienced by these farmers. Market pricing fluctuations can impact their profitability, while accessibility to labor can hinder their ability to manage crops effectively. Furthermore, the lack of technological support limits their capacity to adopt modern farming practices, and insufficient training related to pesticide usage raises concerns about crop health and safety. The following table provides a detailed overview of the major challenges encountered in vegetable farming within the study area.

Table 6

Problems of vegetable Farming in Study area

S.N.	Prospects of Vegetable Farming	No	%
1	Lack of Irrigation facilities	70	70
2	Lack of sufficient land	40	40
3	Low market price	60	60
4	Problems of Collection centre and storage	30	30
5	Pesticide and fertilizer	50	50
6	Other problems (labor, centre, transportation, brokers)	50	50

Source: Field Survey, 2025

Seventy percent of farmers have reported a deficiency in irrigation facilities, indicating that numerous agricultural regions, particularly those in upland areas, lack dependable irrigation systems. This reliance on rainfall confines vegetable cultivation to certain seasons, thereby diminishing both productivity and income potential. Forty percent of respondents indicate that they possess small or fragmented landholdings, which restricts their capacity to cultivate vegetables on a commercial scale. Sixty percent of farmers have observed low market prices. Even when production levels are satisfactory, price reductions during the harvest period adversely affect profitability. The instability of market prices discourages investments in high-quality or large-scale vegetable production. Half of the farmers encounter difficulties with chemical inputs, including high costs, poor availability, and a lack of knowledge regarding

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proper usage. Improper application can damage crops, lower yields, or even jeopardize consumer health and export opportunities. Labor shortages during planting and harvesting periods, particularly due to youth migration, inadequate transportation for timely market access, broker interference where intermediaries extract unfair profit margins, and poorly situated or underperforming market centers are additional challenges.

Conclusion and Implications

Vegetable is one of the main cash crops of the study area. 75% income of the farmers covers by the earning of vegetable so that most of the time respondents involved growing vegetable in their field. Mainly they grow potato, and bean like black bean, yellow bean and pink bean. They also involved in green vegetable production. While growing the vegetable they faced various problems like irrigation, market price, pest and chemical fertilizers, labor force and technical supports, however, there are suitable climate for vegetable farming, fertile and plain land, access of road transportation and local market, supports of non-government organization and government. Vegetable farming is a highly productive and essential economic activity in the study area. While farmers face multiple challenges particularly related to infrastructure, inputs, and support they also benefit from favorable natural conditions and increasing institutional assistance. Addressing the existing problems could significantly improve productivity, income, and sustainability in the region.

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NPRC Journal of Multidisciplinary Research
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