3.3.5 Nutrients sources

The majority of the farmers i.e. 58% used FYM and chemical fertilizer such as Urea, Diammonium Phosphate (DAP), Muriate of Potash (MOP) as a nutrient source for vegetable farming, 18% of the respondent used FYM in integration with poultry manure and chemical fertilizer, 16% of the respondent used FYM with goat manure and chemical fertilizer as a nutrient source for vegetable farming and 8% of the respondent used organic manure only. According to Dahal and Manandhar (2021), farmers commonly combine FYM and poultry manure with chemical fertilizers to enhance crop productivity. However, declining availability of FYM due to reduced livestock rearing has increased farmers' reliance on chemical inputs to maintain soil fertility and high yields.

3.4 Marketing of vegetables

3.4.1 Means of vegetable product selling

The marketing of vegetables involves different actors and paths based on farmer's market access, production volume, and market connections. The farmers in the survey area apply both direct and indirect methods to market their products. Majority of farmers relied on middlemen because of the convenience of collection, transportation support, and better access to larger markets.

Of the respondents, 55% of them sold their vegetable product through middlemen, making it the most common marketing method. 30% of the vegetable products were sold through co-operatives. And the remaining 15% of the vegetable products were sold by themselves to local markets or to direct consumers. The results show that while certain farmers access markets directly, numerous farmers relies on third person to sell their products.

3.4.2 Marketing channel

The marketing channel involved multiple stakeholders including farmers, cooperatives, traders, wholesalers, and consumers. The diversity provided farmers with various options for selling their products based on their production capacity and market access. Some farmers sold their products directly to the local markets and consumers, while others marketed their vegetables through cooperatives, which is then supplied to wholesalers and urban markets like Kathmandu. A considerable number of farmers also depend on middlemen, who collected vegetables from farms and supplied them to wholesalers and urban consumers. In some cases, farmers sold their produced to contract buyers or companies. These channels indicate that vegetable marketing in the study area includes both direct and intermediary based systems, with cooperatives and middleman playing important roles in connecting rural producers with urban markets.

The following mentioned are the four marketing channels they used:

(1) Direct marketing channel

Farmers → Local Markets → Consumers

Some farmers sold their vegetables directly in nearby local markets. This helped farmers to directly communicate with consumers and retain control over the selling process.

(2) Cooperative-based marketing channel

Farmers → Cooperatives → Wholesalers → Urban Markets (Kathmandu) → Consumers

Through the cooperatives, farmers collectively marketed their produced and accessed larger markets. Cooperatives acted as a connecting bridge between producers and wholesalers, and helped farmers in collecting and transportation of fresh produced.

(3) Middlemen based marketing channel

Farmers → Middlemen → Wholesalers → Urban Markets → Consumers

This was the most common way of marketing in the study area. Middlemen collected vegetables from farmers and supplied them to wholesalers and urban markets.

(4) Contract based marketing channel

Farmers → Contract Buyers/Companies → Consumers