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Import-Export and Marketing of Horticultural Crops in Nepal

Govinda Prasad Sharma*, Reeti Singh and Ranju Maharjan

Department of Agriculture, Hariharbhawan, Lalitpur

*Orcid Id: https://orcid.org/0000-0003-0688-4874

Abstract

This paper analyses the import-export and marketing of horticultural crops and commodities in Nepal. The overall import value outweighs the export value. The import shows an increased pattern particularly for vegetables, fruits, floriculture products and resource materials. A higher increment is witnessed in value than their volume resulting to the increased trade loss. A substantial import is reported for onion and potato among vegetables; apple, lime and walnut among fruits. The floriculture industry, the resource materials for vegetables (seeds) and fruit crops (fruit saplings) are also increasing over the years. On the contrary, the exports are limited and inconsistent for horticultural commodities. The major export by value comprises large cardamom, ginger, medicinal plants, tea and coffee. There is increased demand for fruit and vegetables both in fresh and processed form. The marketing of horticultural crops shows an increased risk to producers' income characterized by production uncertainties, natural disasters, lack of post-harvest technology, breaching of production and supply contract, inadequate market infrastructure, poor market mechanisms and price fluctuation. Strategic actions with comprehensive plan on horticulture sector are recommended led by dedicated team members with institutional reform to minimize trade loss through increased domestic production.

Keywords: Demand, domestic production, income risk, market governance, trade deficit, strategic actions.

Introduction

Improving livelihood of farm households through agricultural development, diversification and modernization of farm in developing countries including in Nepal has been an important policy concern. The success of policy to improve farm household welfare largely depends on how these policy instruments are designed considering the farm household contexts, their resource mobilisation as well as the national strategies, priorities and implementation capacities.The overall development of Nepalese agriculture[1] depends on sustainable development and modernization of sub-sectors such as cereals, horticulture, livestock, fisheries and agro-forestry sub-sector.

Agriculture in Nepal is characterised primarily by subsistence farming (Acharya, 2006; NARC 2010) and partly by its semi-commercial nature of production (Ghimire, 2009; Brown and Shrestha, 2000). In recent years, its moving towards commercialization. Government of Nepal (GoN) identified agriculture as the engine of economy through its commercialization, diversification and modernization. Agriculture

[1] Agriculture in Nepal comprises crop, livestock, fisheries and floriculture sub-sectors.

is one of the major sectors that contributes to substantial share to gross domestic products (GDP) and export trade. Agriculture contributes about 27 to national gross domestic products (GDP) and engages 65% of the labour force in the country (MoALD, 2020).

Horticulture is one of the prioritized sub-sectors within agriculture for food security and agriculture modernization. Horticulture also receives prime importance as a strategy for reducing trade balance of Nepal. Further, it contributes to household income by offering a better income opportunity for farm households through domestic market promotion and export opportunity and also by providing environmental benefits such as soil, water and biodiversity conservation. The development of horticulture sector in Nepal accelerated with the establishment of different government farms for research and extension, promotion of extension activities by the government extension as well as institutional reforms in different time periods. This sub-sector received the status of separate department within ministry in the past from 1966 to 1972.

The overall achievement in the horticulture development shows a mixed experience over a period of six decades of planned development intervention in Nepal. The positive results are witnessed in the production, productivity, commercialization and modernization of the sub-sector. The

Materials and Methods

The paper is based on desk review based on literature on national and international studies, journal papers, newspapers, reports of concerned government offices etc. The data on import and export trade of commodities from agriculture sectors and horticulture sub-sector are not quite clear due to cross clustering of commodities across categories. Further, a substantial trade through informal cross border flow is reported particularly across Indian borders. Similarly, uniform invoice rate and under invoicing reflects limited reliability of the trade figures across the borders. We, therefore, portray approximate figures that appear in formal reports of customs and other government portals. For some cases, we use data generated by commodity and trade associations and informal sectors as well. Available details were assembled, synthesized, triangulated and presented to meet the objective of study.

Result and Discussion:

The overall trade balance and the agriculture sector

The overall trade balance of Nepal is deficit with import far exceeding the export value. The total import and export of Nepal in fiscal year (FY)[2] 2076/77 were 1196.8 Rs billion and Rs 97.71 billion showing the trade deficit of Rs 1099.09 billion (Chart 1). The imports-to-exports ratio in FY 2067/68 was 6.22 and reached to 12.25 in 2076/77 i.e., Nepal imported Rs 12.25 for every Rupees exported. The trade deficit was Rs 327 billion almost a decade ago and reached to its peak at Rs 1418.54 billion in 2075/76. The total trade and its deficit reduced in 2076/77 mainly due to impact of COVID-19 on global trade. The overall share of export to trade is 7.54 percent which was almost 13. 85 percent a decade ago showing a continuous decline of the export to total trade value. India, China and Argentina are the major suppliers of the import trade by value comprising 64.2, 13.7 and 2.2 percentages respectively. India, USA and Germany are the major destinations of export trade comprising 72.9, 2.8 and 2.8 percentage of export share respectively (DoC, 2020).

Agriculture has been a great concern to import and export trade of Nepal. Unlike aggregate trade balance, agriculture sector including the horticulture sub-sector has trade deficit for many

[2] Fiscal year (FY) in Nepali calendar resemble the periods from 1st of Shrawan (Mid July) to end of Ashar (Mid July) of following years.

years. This deficit is expected to expand further unless this sector receives priority with clear policy departure with strong implementation arrangement. DoC (2020) reflected annual trade of import and export for agricultural commodities equivalent to NRs 250 billion and NRs 52.70 billion respectively. Looking at the horticultural and associated commodities, the aggregate import and export figures reached around NRs 63.63 billion and NRs 15.43 billion respectively in FY 2076/77. Horticulture sub-sector comprised around 25 percent and 29.28 percent respectively for import and export trade of the total agriculture trade in FY 2076/77 showing the scope for improving trade balance through development of this sector. Large cardamom, tea (black, green tea), ginger, juices, plants and plant parts, floriculture products, (seed, saplings and flowers) catechu, broom grasses, cinnamon, coffee, rudrakshya seed, spices, vegetables, medicinal and aromatic plants, citrus, vegetable seeds are the major export commodities (TEPC, 2021 & DoC, 2020). The export statistics clearly show a high potentiality of horticulture and allied sectors in reducing the trade deficit of Nepal. The major imported commodities witnessed in horticulture sub-sector include fruits (apple, citrus, lemon, walnut, kiwi, avocado, pomegranate, banana, grapes, areca nuts, coconuts, pear, pineapples, almonds, etc), onions, potato and potato products, vegetables (including dry vegetables), vegetable seeds, fruit saplings, coriander, fruit saplings, tomato, vegetable seeds, cardamom, garlic, juices, spices, cloves and black pepper, pineapples, black tea, roasted coffee, etc.

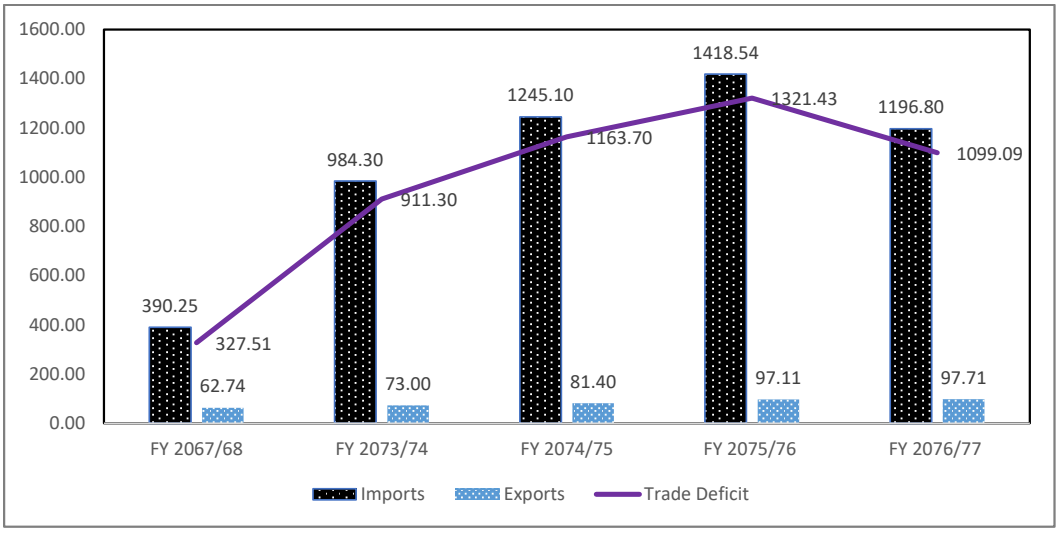


Chart 1. Overall Import, export and trade deficit (Billions NRs) by fiscal years

Import and export of the horticultural commodity

As portrayed above, the trade deficit is increasing over periods for major commodities. In this section, we discuss import and export of major commodities particularly, vegetables, potato, onions fruits, floriculture industry plants and products. Our discussions are based on the production potentialities of the commodities that can contribute to import substitution through enhanced self-sufficiency and export promotion.

1. Vegetables

Vegetables contribute about 2 percent of national GDP in Nepal. Vegetables production over the decade is increasing. Compared to 2009/10, area and production of vegetable crops increased by 26.4 percent and 42.37 percent and reached to 297190 ha and 4271300 MT respectively in the year 2018/19. However, the yield raised steadily from 12.77 to 14.37 MT/ha over the period (NPVSDC, 2019). Per capita consumption of vegetables in Nepal has reached

to 128.04 kg in 2017 from 57 kg in 1997 (GCDL, 2021). However, the standard requirement for vegetable consumption recommended by FAO is 104 kg/head/annum.

The import of vegetables is increasing despite an increased domestic production over time implying a growing demand for vegetable consumption. The import of the vegetables is skyrocketing from 8.8 percent of domestic production in 2009/10 to 33.3 percent in 2018/19. Of the total import, more than 90 percent comes from India. The reasons are mainly the higher cost of vegetables production in Nepal than in India, increasing demand due to limited domestic production and population growth

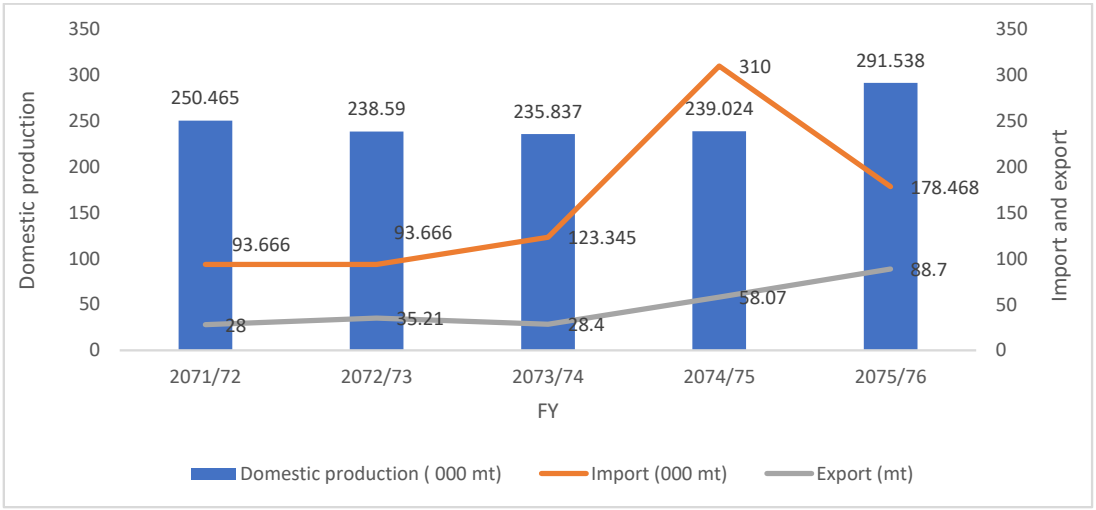
Table 1. Domestic production, import and export of vegetables

	Domestic production (000 MT)	Import (1000 MT)	Import value (Crore)	Export (100 MT)	Export value (Crore)
2009/10	3003.82	264.397 (8.80)	451.5	45.94 (1.53)	508.2
2015/16	3929.03	617.504 (15.71)	2132.6	14.70 (0.37)	160.2
2016/17	3749.80	706.04 (18.83)	2303.8	13.45 (0.36)	108
2017/18	3958.23	636.105 (16.07)	1797.7	15.42 (0.39)	113.9
2018/19	4271.27	1422.877 (33.31)	2284.6	22.63 (0.53)	143.13

Figures within parenthesis indicate percentage share to domestic production.

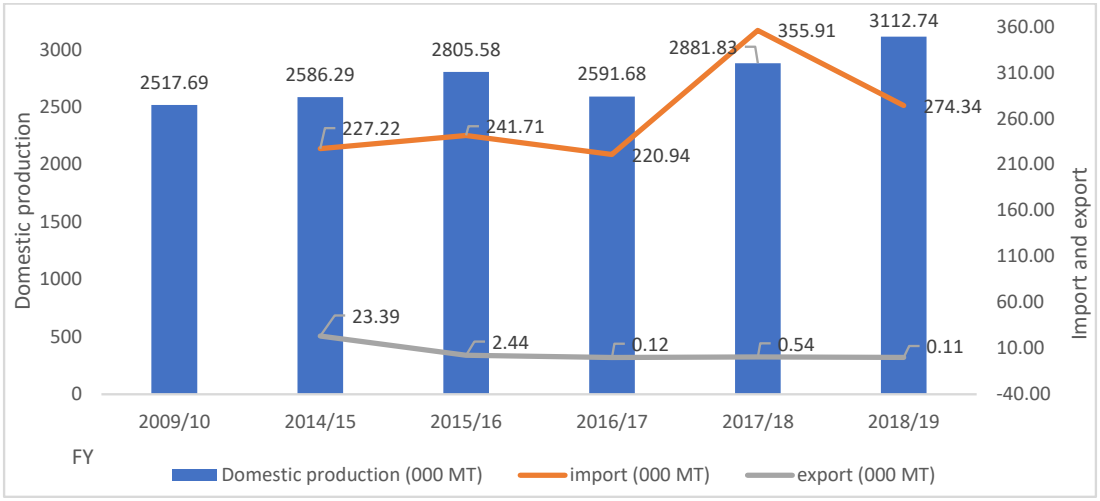
Source: MoALD (2020) & NPVSCD (2019)

Among the vegetables, onions and potato are imported in large quantities and are shown in the following graphs. The import of onion is subject to domestic production and the prices. The import steadily raised from the 37.4 percent in FY 2071/72 to 61.2 percent of domestic production in 2075/76 with an exceptional higher amount of import than domestic production in the year 2074/75. The import is expected to raise in future unless improved seed availability and post-harvest storage facilities are improved for onion crop in Nepal. For potato, only 8 to 12 percent of potato are being imported in Nepal with less than one percent of domestic production being exported abroad. The figures clearly indicate Nepal can meet domestic need from increased production by increased yield which is still low than the potential yield.



Source: MoALD (2020) & NPVSDC (2019)

Chart 2. Domestic production, import and export of onions in Nepal

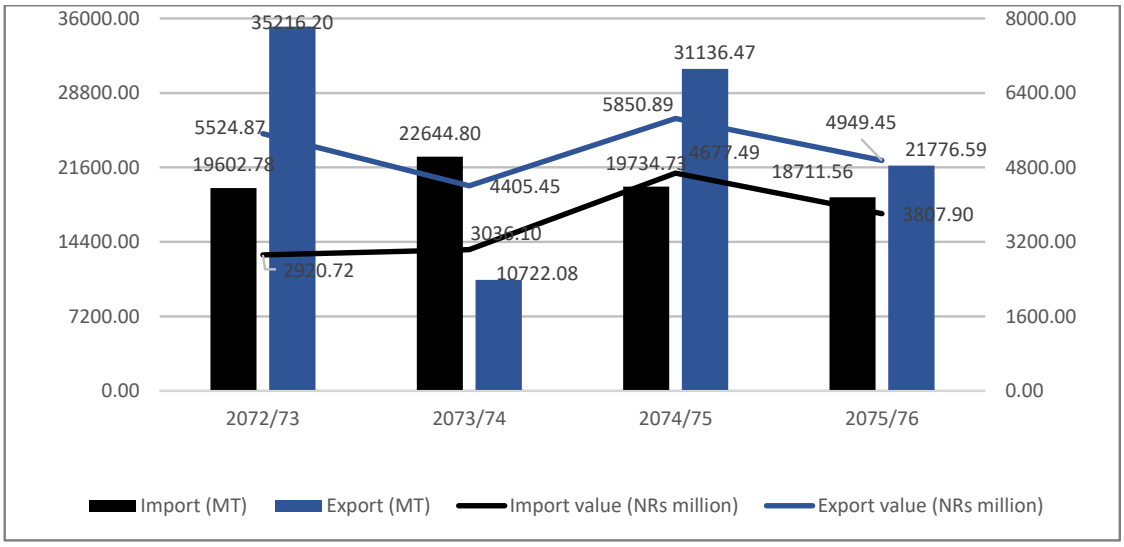


Source: MoALD (2020) & NPVSDC (2019)

Chart 3. Domestic production, import and export of potato

2. Spice and spice crops

A large chunk of spice and spice crop are imported annually in Nepal. The major spice crops imported in Nepal include large and small cardamom, cinnamon, cloves, cumin, spice mixture, fenugreek, nutmeg, mace, ginger, saffron, turmeric and the other spice crops. Similarly, major exported commodities include large cardamom, small cardamom, ginger, nutmeg and other spice mixtures (DoC, 2020). The trade status (Table 2) shows a high prospect for export of spice crops from Nepal to neutralize trade deficit particularly through large cardamom and ginger. A steady growth in export of large cardamom is witnessed and correlated with national production with variation in price. A substantial amount of domestic production (46-79 percent) is exported above. An increase in value chain, quality enhancement and auction market would enhance domestic and export trade. The export trend in ginger is however reverse and maximum of about 10 percent of domestic production is exported. The export is often restricted in ginger. The reasons are mainly price variation, quarantine issue, quality issue arising from processing and the Indian production that largely influence price leveraging choices to traders.



Source: MoALD (2020) & NPVSDC (2019)

Chart 4. Import and export of spice crop and products from Nepal

Table 2. Domestic production, import and export of large cardamom and ginger

	Domestic production (MT)	Import (MT)	Import value (NRs million)	Export (MT)	Export value (NRs million)
Large cardamom					
2072/73	6438.6	1.86	4.14	3438.35 (53.4)	4614.61
2073/74	7520.7	0.71	0.45	3457.03 (45.97)	3905.03
2074/75	6848.9	0.27	0.08	5402.01 (78.97)	4849.16
2075/76	7954.0	0.46	0.23	5240.40 (65.88)	4284.20
Ginger					
2072/73	271862.7	3907.40	329.82	28347.2(10.43)	642.82
2073/74	279503.5	1988.73	159.79	4384.62 (1.57)	241.75
2074/75	244296.5	444.85	87.10	23053.69 (9.44)	771.33
2075/76	297512	484.28	109.41	14919.20 (5.01)	512.30

Source: MoALD (2020) & NPVSDC (2019)

3. Fruit and fruit products

Table 3 shows the domestic production, import and export statistics along with their value. The statistics shows a steady growth in the domestic production of fruits and a sharp growth at their imports over a decade. In the same time, the import value skyrocketed more than twenty times against the four times growth in the quantity of fruits imported. On the contrary, the shrinkage in export and its value is witnessed by 96 and 98 percent respectively. Comparing this figure against domestic requirement of 1900000 MT, the net deficit is estimated about 700000 MT. As the current consumption 37.68 kg/head/annum is far below than total requirement of 60.68 kg/head/annum, the domestic production need to be boosted up.

Table 3. Domestic production, Import and export of fruits

FY	Domestic production (MT)	Import values (NRs million)	Import quantity (MT)	Export quantity (MT)	Export value (NRs million)
2009/10	706972.17	906.66	60736.00	8023	482.80
2015/16	976461.34	7853.89	167440.00	1588	185.39
2016/17	1018307.92	11298.14	197451.00	940	29.19
2017/18	1086930.58	14692.11	321463.00	1120	55.41
2018/19	1177640.00	18106.13	383350.00	295	8.95
2019/20		18222.45	248203.48	307.98	8.00

Table 4. Domestic production and import of major fruits

	2015/16	2016/17	2017/18	2018/19	2019/20
Apple					
Domestic production (MT)	4396.5	41011.1	19850	28895	31386
Import quantity (MT)	61916.3	82976	93482.6	73231	65250
Import values (NRs million)	3480.9	4879.98	5632.23	4934.34	4608.43
Walnut					
Domestic production (MT)	7839.1	7951.7	8213	8213	8934
Import quantity (MT)	241.8	364.87	602.37	779.4	2453.4
Import values (NRs million)	50.95	90.74	144.21	217.85	774.48
Lemon and lime					
Domestic production (MT)	26953	27017	30939	31003	39580
Import quantity (MT)	5344.48	4977.9	4014.39	6763.77	18427.06

Table 5. Import and export of beverage crop (Tea)

	National production (MT)	Import (MT)	Import value (NRs million)	Export (MT)	Export value (NRs million)
2072/73	24263.71	363.46	67.99	13286.85	2398.96
2073/74	24409.29	363.19	90.67	11866.50	2533.88
2074/75	24803.567	371.37	120.91	15684.54	3251.69
2075/76	25205.85	343.35	117.73	15043.80	3203.91

Source: MoALD, Trade & Export Promotion Center and Department of Customs

Table 6. Import and export of beverage crop (Coffee)

	National production (MT)	Import (MT)	Import value (NRs million)	Export (MT)	Export value (NRs million)
2072/73	434	105.04	55.54	111.17	107.91
2073/74	466	99.37	50.41	94.61	84.54
2074/75	513	163.38	65.89	84.22	93.72
2075/76	530	126.24	98.01	84.15	99.71

Source: MoALD, Trade & Export Promotion Center and Department of Customs

4. Floriculture

Floriculture industry is lately introduced but getting its momentum in the recent years.

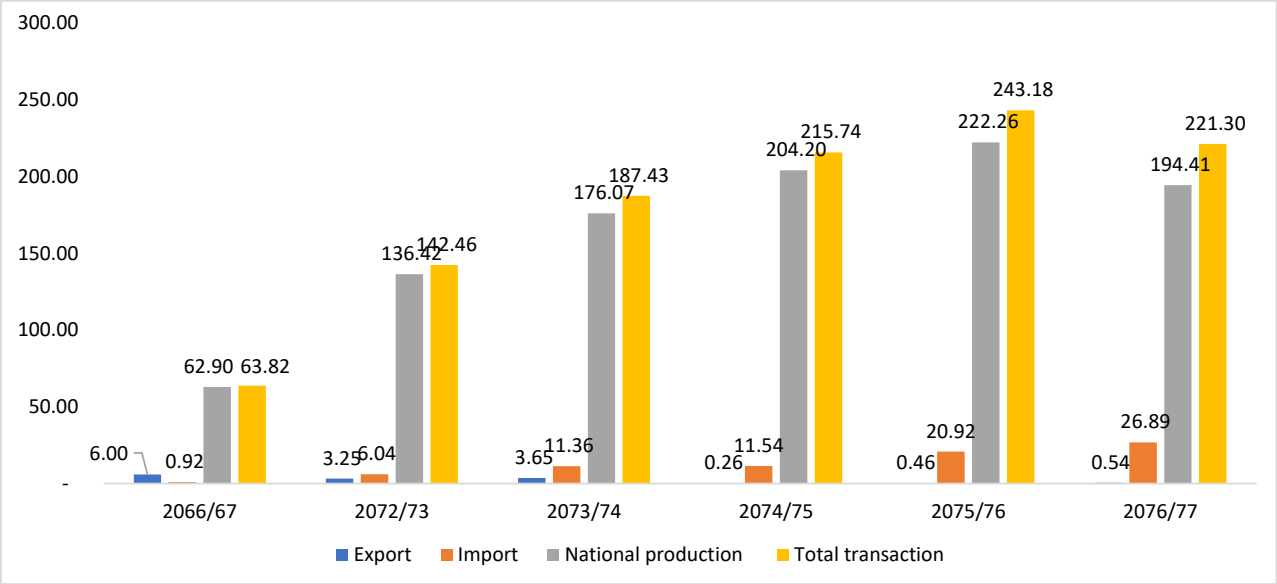


Chart 5. Domestic production, import and export of floriculture industry.

5. Resource materials

Nepal imports a large quantity of resource materials for horticulture. The vegetable seed, fruit plants and floriculture plants and seeds are imported in Nepal. Almost 75 percent of vegetable seed demand is full filled by import of which 90 percent (more than two thirds of total demand) come from informal trade. Another striking feature is that the informal seed import is growing gradually over the years. The reasons behind this are reported to be impractical provision in regulation regarding registration of seed including hybrid seed, a higher cost involved in the process of registration, probability of being rejection of variety registration and often technology becoming irreverent within few years.

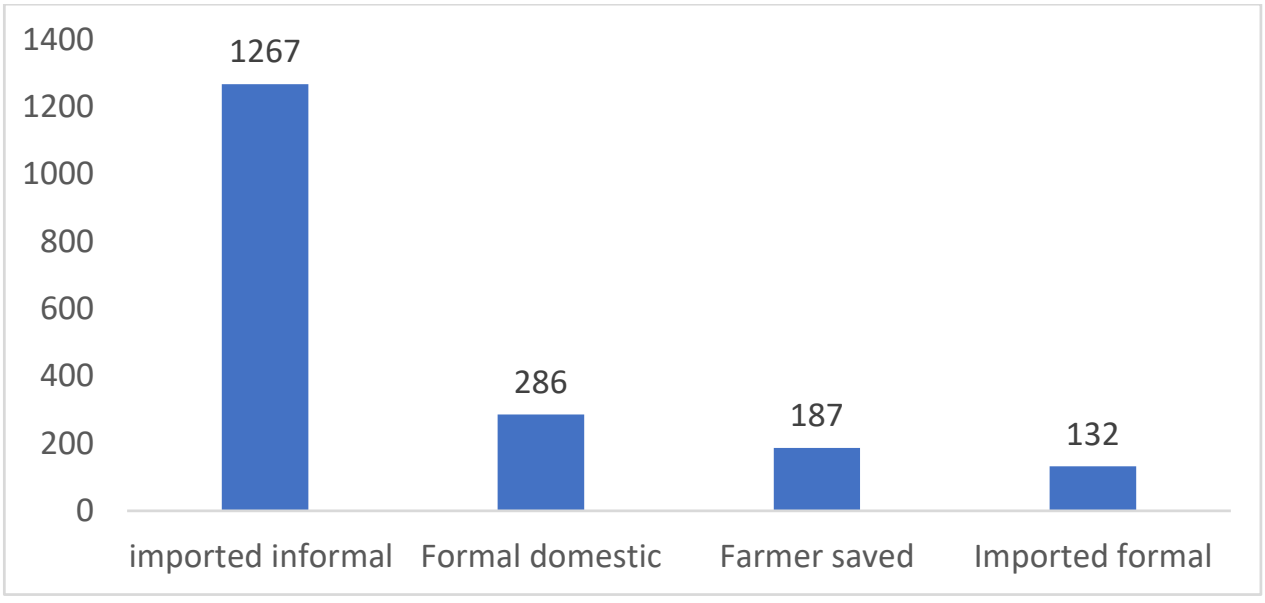


Chart 6. Vegetable seed trade status of Nepal (MT)

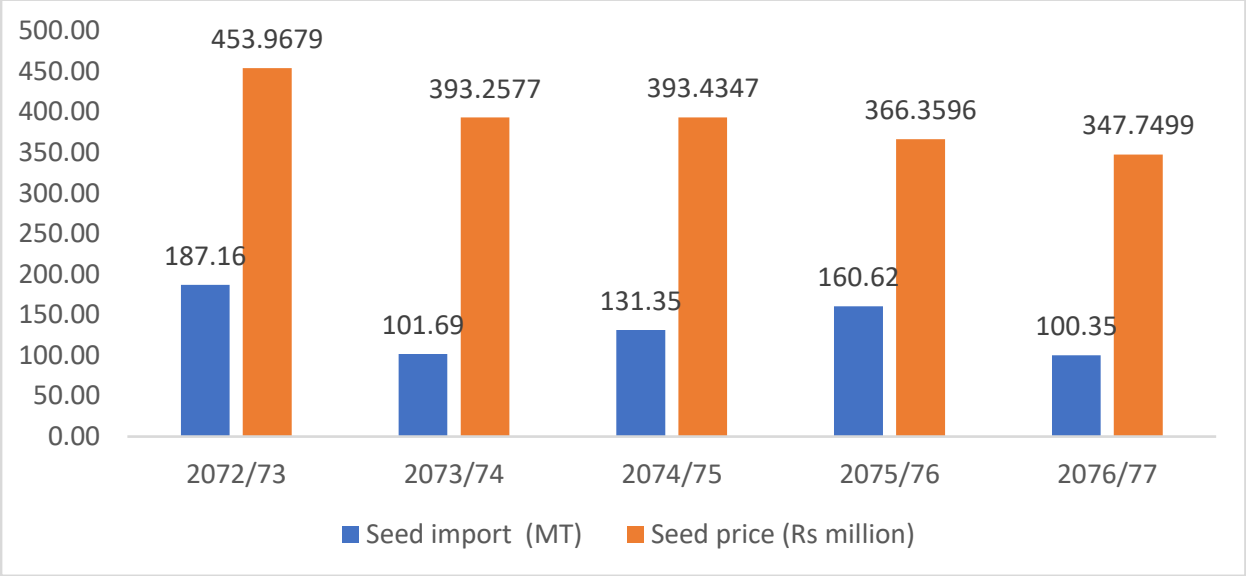


Chart 7. Vegetable seed import in Nepal

6. Fruit sapling import

Quality sapling is very important to increase production and productivity of any fruit species. Most of varieties of fruits are introduced from abroad and adapted in different ecological zones in Nepal. Now a days these trends are even increasing (Table 6). Mostly apple sapling suitable for high density planting are imported from European countries since 2015/16. Some other fruits like dragon fruits, kiwi fruits, citrus, mangoes and etc are imported from India, China and other Asian countries.

Table 7: Fruit sapling import status

FY	Fruit sapling import (Number)
2073/74	32035
2074/75	11225
2075/76	91290
2076/77	500000

7. Reasons for increased import

The net import of agricultural commodities has been increased over the periods. The increased import is often attributed to slow and steady growth of the total agriculture sector. The slow growth, in turn, is explained to be the result of inappropriate policy design, low institutional capacity, weak coordination among stakeholders to translate policy into actions, limited monitoring of the ongoing development activities, lack of critical review and timely correction measure in the policy (Khanal et al, 2020).

Despite steady increase in the production of the horticultural commodities, the import is plummeting for many reasons. Besides horticulture, the total import is increasing for total agriculture products and major reasons associated with increasing import are associated with increasing demand of the commodities, the limited domestic production, low productivity, economic reasons, increasing risk associated with agriculture sector, increasing number of food processing and feed companies, and national and international policy that influence agriculture competitiveness (Shimkhada, 2019). For horticulture, specific reasons associated with skyrocketing import are outlined below.

Firstly, the demand for fruit and vegetables as well as floriculture product is increasing. The demand mainly increased due to shortage in supply from limited domestic production for growing population. The recognized and increased health benefits of people, dietary diversification, raising of middleclass particularly the increased household income particularly from off-farm sources and remittances also led

to the increased per capita consumption for both fresh and processed products (UC DAVIS, 2005). The increased demand for floriculture plants and products particularly the cut flowers and loose flowers come from the increased demand in festive seasons particularly Dashain, Tihar, the formal events, special day celebration and other cultural ceremonies such as marriage ceremonies (Acharya, 2019).

Secondly the demand for new fruits came particularly from the higher productivity potentiality, market demand and consumer' preferences such as Fuzi and Gala for high density apple plantation, European walnut varieties, kiwi, dragon fruits, strawberry and the like.

Thirdly, the production could not raise due to economic reason. The farm business particularly the production of perishable and semi perishable fruit and vegetables at the household level is becoming riskier due to low production, pest and diseases, natural disaster and lower marginal rate of return from farm compared off-farm sector. On the other side, Nepali product has limited competitiveness compared to foreign product partly due to subsidy and low cost of production. For example, the production cost for potato in Nepal is 18 Rs/kg while this drops equivalent to NRs 4.67 to 6.53 along Indian Border States of Nepal. Similarly, cost of production for tomato is higher (open field: NRs 6.83 per kg, tunnel: Rs 15 per kg) in Nepal compared to Indian Border States (less than Rs 6.40 per kg). Competitiveness is also reduced from the open cross border flow of commodities, custom duty, poor implementation of quarantine protocols, limited restriction on quality control, trade liberalization policy, etc. The long insurgency period also influenced the horticulture sector particularly seed production and commercialization of this agriculture that coplied for dependency in this sector.

Finally, a natural growth in the international trade that comes due to rising income, reduced transportation cost, improved technology and international agreement also exert pressure for increased import particularly in the developing countries . China being the largest export of fruit and vegetables in international market and the India having cheaper production influence market in Nepal leading to increased import for these commodities.

7. Import and export policy facilitation

Government of Nepal (GoN) has declared several policies including comprehensive National Agriculture Policy (NAP) 2004, Agriculture Development Strategy (2015-2035), periodic plans and several sectoral policies such as National Coffee Policy (NCP) 2004, Agribusiness and Trade Promotion Policy 2006, and Agrobiodiversity Conservation Policy 2007. The aims of NAP and allied policies are to improve the livelihood of farmers through sustainable agriculture development by tranforming subsistence agriculture to commercial agriculture (MoALD, 2004). These policies identify priority commodities targeting food security, commercialisation, import substituion and export promotion.

a. Marketing of horticultural commodities (Pattern, trend, problems & issues)

The marketing of horticultural commodities run under conventional system. Horticultural product particularly the fresh vegetables, fruits and floriculture products undergo a huge post-harvest loss of the commodities in Nepal. The post-harvest loss of fruit and vegetable in Nepal ranges 20-50 percent from harvest to retail marketing points (Gautam & Bhattarai, 2006). All types of marketing approach ranging from own marketing by producers, whole sale market and retail marketing are existent in Nepal.

The major problems associated with the marketing of horticultural commodities include the post-harvest losses from farmer's field to retail markets, transportation, storage and

distribution. Of these losses, packaging, grading, handling and storage availability contributed the post-harvest losses. Lack of cold storage including cold chain facilities, inappropriate packaging and handling, poor quality product were the major causes for post-harvest losses. The losses were mainly caused by rotting, mechanical damage and the physiological injury (Devkota et al, 2014).

The major issues common for the growth of horticultural sector across the globe are recognized as market systems, postharvest systems and food safety, genetic resources conservation and development, sustainable production systems and natural resources management, capacity building, enabling environment, gender equity and nutrition and human health. Further looking at market component, small producers and processing firms are frequently eliminated from these facilities primarily due to limited ability to production, sanitary and quality standards. The changing technology including emergence of supermarket compel producers to meet quality, quantity and consistency in production which is quite challenging for smallholders of the developing country. The farmers need to have knowledge, ability to get access and essential market information of local, regional and export markets to get advantages out of it. Increased access to market information, strengthening producers and market institutions, coordination and information sharing between market actors increased investment for market and continuous research and development are required to strengthen the marketing system (UC DAVIS, 2005).

Strategic actions for trade facilitation and commodity promotion

i. Import substitution
ii. Export promotion
iii. Post-harvest management
iv. Quality assurance
v. Plant quarantine
vi. Good agriculture practice
vii. organic product development
viii. Market facilitation
    a. Market infrastructures
    b. Price parity support
    c. Good agriculture practice
    d. Post-harvest management and cold chain maintenance
    e. Price parity support
    f. Contract and collective farming
ix. Price parity support

Conclusions and recommendations

The increment rate is higher in value rather than volume of horticultural commodities. Huge amount of apple, lime and walnut in fruits, potato and onion among vegetables are imported. Vegetable seeds, fruit saplings and ornamental plants (seed and propagating media) are also increasing day by day. Tea and coffee are major plantation crops, spices like ginger and large cardamom are being exported. In comparison to import, export is limited in horticultural commodities. Now a days due to awareness and health concern among consumers both fresh and processed form or fruits and vegetables demand are increasing. Production uncertainties, natural calamities (drought & floods), lack of on hand production and processing technology, value chain actors along with poor market infrastructure are some major risks to producers. Organic product development, quality assurance, good agriculture practice, import substitution and post-harvest management are some strategic actions to be followed for proper horticulture sector development in Nepal.

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