

Development and Retention of Trained Human Resource in Horticulture in Nepal

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Abstract

Nepal is rich in terms of agro-climatic variability. Almost all kinds of horticultural crops can be grown including fruits, vegetables, plantation crops, medicinal plants, spices and flowers in Nepal. Nepal has great potentiality of exporting horticultural products after meeting the internal demand. However, this fact is not much realized and harnessed due to various factors including poor development and retention of trained human resources in horticulture. Though Nepal has long history of human resource development, organizational anomalies and frequent change in policy and organizational structure has constrained development and retention of expertise in this sector. There are various institutions that produce human resource and requirements in the country not matched and there is a constant brain-drain from Nepal agriculture graduates for better opportunities and handsome salaries. Those who are employed in horticulture are also not properly placed and given opportunities for carrier development. The introduction of promotion system laterally through open competition at the top management level of horticulture demoralised the experts who are devoted in their work since long. As the country has entered into a new governance system (federal), there is a need to plan the type of human resource required at all levels analysing the professional HR requirement from a leader farmer to high level experts, academicians for research, extension and development. Only academic qualification from universities also not sufficient for expertise development. Therefore, it is recommended that the graduate or masters in horticulture must gain experience in research farm/centres before they are placed in Agriculture Knowledge Centre for extension. Even for the retired horticulturist, Government may form and favour a forum of Retired horticulturists as well as may use them as advisors and also as part-time researchers and development experts in different (Federal, Provincial and Local) level government depending upon their availability in specific areas. Human resource development and retention is always influenced by government policies. Inter alia, one simple effort that the government can do to retain experts in their respective areas of expertise is introduction of vertical promotion system within the horticulture faculty and no lateral entry.

Keywords: *agro-climatic variability, climate change, lateral entry, vertical promotion*

1. Introduction

It is well-established in Nepal that horticulture gives as high as 8-10 times higher employment opportunity per unit area and as high as four-fold income per unit area as compared to traditional food crops. Nepal is South Asian land-linked country between China and India with 13 North-South road corridors. Nepal is rich in agro-climatic variability and bio-diversity. It has mainly five physiographic regions High Mountain (in the North), Mid-lands (High Hill, Mid-hills, Siwalik) and Terai/Plain (in the South). All most all types of climate such as Alpine in Mountains, Temperate in High hills, Warm Temperate in Mid-hills and Sub-tropical in Siwalik and Terai. Nepal has four main seasons Spring March to May, Summer/rainy June to August, Autumn September to November and Winter December to February. Because of the combination of these physiographic regions, climate and seasons almost all kinds of horticultural crops can be grown *including fruits, vegetables, plantation crops, medicinal plants, spices and flowers*. As Nepal is located between two densely populated huge markets of India and China, there is a great potentiality of exporting horticultural products from Nepal after meeting the internal demand of many horticultural crops. However, this fact is not much realized and harnessed due to several reasons. Many youths are going abroad for better employment opportunities and country has not been able to retain them for exploring horticultural opportunities and benefit. In this context, this paper has tried to analyse the patterns of developing trained human resources in horticulture sector based on the review of literature and secondary information collected from various sources. Further, conclusions and ways forward for retaining trained human resource are based on triangulation of review, discussion and personal experiences of the authors.

2. History of Institutional Development and Trained Human Resources

Development of trained human resource (HR) in horticulture sector in Nepal started with the establishment of Aristocratic Fruit Orchards by collecting different fruits from India and abroad in different climatic zones of Nepal by Ranas Prime Minister Jung Bahadur Rana introduced European vegetables in Kathmandu valley and some farmers within the palace learned the technology and developed expertise. During this period, training and development of HR was simply based on learning by doing and there was no documentation of technology being used that could be passed to the future generation. Further impetus on HR development was given by Chandra Shamser in 1937 by establishing Agricultural Council. The Council was transformed to the Department of Agriculture (DoA) in 1952. There was a separate horticulture section under DoA dealing with horticulture issues which supported to establish several farms and station in various parts of the country (Nuwakot/Kakani, Kaski/ Pokhara and Bara/ Parwanipur) along with Horticultural Officers. With the realization of trained human resources in agriculture in Nepal, the then Ministry of Agriculture started a School of Agriculture in 1957 that started producing Junior Technical Assistants (JTAs). This school was upgraded to College of Agriculture in 1968 and was run by the Ministry of Agriculture. This college was handed over to the Tribhuvan University in 1972 to produce Bachelors in agriculture. From then onwards, there have been several colleges established under various universities that give degree in general agriculture that include significant number of courses in horticulture. In this regard, Agriculture and Forestry University (AFU) has been established in 2010 as the 1st state owned technical university with focus on agriculture and forestry. However, agricultural/horticultural organization/institution development and human resource development grew simultaneously but independently without need based in the past and same trend may continue in future too.

Currently, there are 19 colleges or affiliated programs providing bachelor and above degrees in agriculture. Among them, nine are under Tribhuvan University, three under Purvanchal University, six constituent campuses are under Agriculture and Forestry University and one under Far Western University. Likewise, there are more than 25 technical schools that give certificates like Diploma in Agriculture or JTA in Agriculture or JTA in Plant Science (Annex 1). Likewise, there are several secondary schools also giving certificate of JTA in Agriculture.

3. Production of Trained Human Resource in Horticulture

Trained Experts and Academicians

The human resource development in horticulture started from the creation of post of Fruit Specialists when two B.Sc. Ag Officers Mr. Satya Lal Ranjitkar and Mr. Dibya Bahadur Basnyat appointed as horticulture specialist by Padma Samsher JBR in 1941. Then the number of horticulturists steadily grew who has been working after B.Sc.Ag. and acquiring expertise in this field by working in horticulture farms/centres in different eco-region and in different horticultural crops. Department of Horticulture was established in 1967, this gave further impetus to develop expertise establishing horticulture farms and expertise developed with learning by doing. In 1972, five agriculture related departments were merged to create the Department of Agriculture for both research and development under one command and specific Horticulture Faculty was created and HR development during 1972 to 1990 flourished well and to some extent commodity specific expertise was developed and number of horticulture human resource also increased (Table 1). Horticulture expertise steadily grew farms/centres in different eco-region and in different horticultural crops. Realizing the contribution of horticulture sector, Department of Horticulture was re-established in 1948, however it was demolished without proper analysis.

The period from 1967 to 1990 can be called as the golden period for horticulture expertise development in the country. Horticulturists worked for both research and development long time (at least 6 years) in farm/centre. Crop specific experts were designated by the Ministry as Apple expert, Citrus expert, Mango expert, Vegetable seed expert etc. This led to commodity specific expertise development and were motivated until 1990. In Marpha and Jumla class one Horticulturists were deployed. There was no lateral entry in the higher post of horticulture and were motivated to work develop expertise. The senior horticulturists developed expertise working lifelong in horticulture farm /centers, Divisions and Departments and Ministries, there were senior Horticulturist as Deputy Director Horticulture and Horticulture Advisor in the Ministry.

During 1990 when the master plan for horticulture development was prepared 123 officer level (Gaz III to I) and 259 technicians were reported (MPHD, 1990). The number of technical human resources working in horticulture under the Ministry of Agricultural Development are presented in Table 1.

Table 1: The number of trained human resources in horticulture working in Nepal						
Human Resources	1990			2014		
	Central offices	District offices	Total	Central offices	District offices	Total
(A) DOA						
Officer level (Gztt. Class III-I)	109	14	123	146	75	221
Assistant level (JT/JTAs)	191	68	259	191	71	262
Total	300	82	382	337	146	483
(B) NARC	Up to 1990 There was no NARC					
Scientists level (S1 to S5)						45
Officer level (T6 to T9)						51
Total						96

Among 96 human resources of NARC, in Horticulture only 12 scientists and three Technical Officers are engaged in horticulture research including fruits and vegetables (HRD/NARC, 2017) Horticulturist both in NARC and DoA work interchangeably in fruits and vegetable (including potato and spice crops). Besides the human resources shown in the table above, a significant number of horticulturists are working in I/NGOs. The fact that the number of horticulture human resources from two in the year 1941 has increased nearing to 600 including all categories (JTAs to Class one and senior scientists). However, the senior horticulturists have retired, and young horticulturists have little interest to work in farms/centres due to low facilities in farms/centres of DOA. In the NARC, the number of horticulturists working are limited and there is no separate Horticulture Director and specialized horticulturists in sufficient number. There are also approximately 10-15 faculty members in AFU and TU together exclusively involved in horticulture related teaching and research activities.

The table above shows that number of horticulturists under the Department of Agriculture at central level seems quite high, however the number in farms/centres is scarce with very general and not specific to fruits and vegetable research and variety breeding. Moreover, the existing district level horticulturists who are also responsible for horticulture development have been reorganized in Agriculture Knowledge Centre as per the federal and provincial adjustment.

When restructuring of the Department of Agriculture was done in 2002, it was reported that there were about 800 officer level technicians and 2,200 junior level technicians under the Ministry of Agriculture. This gives a ratio of 1:2.75 (officer to junior technician). There were 142 (17.75%) officer level technicians working in horticulture extension. By using the ratio of 1:2.75; it gives an estimate of 390 junior technicians working for horticulture development in Nepal. It is usually observed that about 25 percent of these numbers are working in the other sectors (teaching, private business, I/NGOs and agro-vets). This gives an estimate of about 1,000 officer level technicians and about 2,800 junior technicians working in the country in agriculture sector.

There is no authentic data available about the production of number of trained human resource in horticulture sector in Nepal. Some references show that country produces about 250 agriculture graduates every year. With this estimate, it was further estimated that the about 3,500 agricultural graduates were working in Nepal by 2013.

Even at the rate of 25 students graduating per year per campus, the number of campuses (19) presented in Annex 1 indicate that there are about 445 agriculture graduates are trained with at least BSc Ag degree who have also done some courses on horticulture. Since 2013, this gives an estimate of 2,225 agriculture graduates trained in last five years. Including the 3,500 working in 2013, this gives an estimate of 7,525 agriculture graduates available in Nepal in 2018 (expert estimate).

There is a constant brain-drain in Nepal including the draining of agriculture graduates. It is believed that 30 percent of the agriculture graduates produced annually go abroad either to study or for employment. It gives an estimate of 2,257 graduates going abroad and 5,268 graduates working in Nepal in 2018. By using 17.75% factor working in horticulture, this gives an estimate of 935 agriculture graduates available for horticulture in Nepal in 2019.

Production of Trained Mid-level Technicians

There are various institutions that produce mid-level technicians such as junior technicians (JTs) and junior technical assistants (JTAs). As presented in Annex 1, there are 27 institutions accredited by CTEVT to conduct academic programme to produce mid-level agriculture technicians who are given certain level of knowledge on horticulture. Depending upon the number of courses taught and credit hours covered they offer different types of certificates namely Diploma in Agriculture, JTA in Agriculture and JTA in Plant Science. Even if they produce 30 students per year per institution, there are 810 JT/JTAs produced each year in the country. If we take average of the last 15 years, there should be 12,150 actively available in the job market. By using 17.75% working for horticulture, 2,156 junior technicians are available for horticulture in 2019.

Development of Trained Leader Farmers

The regular agriculture training programme of the then District Agriculture Development Office includes around 20 trainings on various fruit development and around 20 trainings on vegetable development (including potatoes and spices). On an average there are 40 trainings per district per year in 75 districts including 25 participants per training gives an estimate of 72,000 farmers trained in horticulture development sector. By taking an average of last 30 years, it gives an estimate of 2,160,000 leader farmers trained in horticulture sector in Nepal. The rate of self-involvement in the field where the farmer has received training is usually 25 percent. This gives an estimate of 540,000 leader farmers having training in the respective horticulture commodity sector in Nepal. However there is very little follow up for use of training and really the trained farmers are working in the field. Now local governments are in place and they should start keeping the record and profile of such trained farmers.

4. Requirement of Trained Human Resource in Horticulture Sector

Requirement of Trained Leader Farmers (Entrepreneurs)

More than 512,000 labour enter labour market annually in Nepal. Nepal's current level of labour absorption capacity is about 250,000. The remaining 262,000 have to find job elsewhere – either in newly coming-up enterprises in the country or abroad. At the rate of absorbing 8 labours per enterprise, we need 32,750 enterprises to come-up in the new sector in Nepal to absorb the extra labour force that seeks job and plans to go abroad. If this employment opportunity has to come from

agriculture (which is possible if the abandoned agriculture Bari land is brought back to production by planting perennial horticultural crops, commercial vegetable and spice crops), then we need to support at least 32,750 leader farmers with entrepreneurship development as well as regular technology transformation and business plan preparation and its operation trainings in horticulture. If this employment generation is planned to be achieved in 10 years, then annually we need to prepare 3,275 entrepreneurs. At the rate of 25% success rate of entrepreneurship development, we need to give training to 13,100 each year for 10 years to achieve this target of developing 3,275 entrepreneurs per annum.

Requirement of Trained Junior Technicians

In order to conduct 13,100 entrepreneurship development trainings in horticulture sector each year, we need to conduct about 818 new mid-level technicians coming to labour market each year. This is almost equal to 810 JT/JTA produced each year. This indicates that the planned level of junior level technician production and the national requirement matches for another 10 years given the current development targets and pace of human resource development.

Requirement of Experts – Research, Extension and Teaching

In the field of horticulture, there are immense opportunities and possibilities to develop and contribute to Nepal's development, food and nutrition security, import substitution, export promotion and attain the goal of prosperous Nepal and happy Nepali. The horticulture sector is itself very huge with wide range of crops and varieties. In this context, specialized HR in this sector is required main crop wise which is now lacking. Major horticultural commodities include tropical fruits, citrus, temperate fruits and newly introduced unusual fruits; similarly major vegetables, Cole crops, solanaceous crops, cucurbits, legumes, onions and allied, spices and huge field of floriculture and ornamental horticulture including avenue plantation all along the roads for environment protection. To mitigate climate change vulnerability and develop appropriate technologies in horticultural crops team of experts is required in research station including breeder, pathologist, entomologist and soil scientist specific to the crops in questions. Considering vast research works required to develop varieties, climate resilient production technologies, value chain development, post-harvest handling and marketing, a detailed calculation of required human sources deemed necessary. As there are 27 farms/centres and stations under NARC and DoA at different ecological regions, being involved in the research and development of horticultural crops, there are additional specific experts required. Presently there are 54 Agriculture Knowledge Centres under the new governance structure. This number is envisaged to increase to 77 in seven provinces. The most important service delivery units are the 753 local governments. To develop and commercialize selected horticultural crops in these local government units specially trained professional/technicians are required. For teaching, there are three universities and 19 colleges and many CTEVT vocational schools. Since its establishment in 2010 under Land Grant Model Agriculture and Forestry University (AFU) has established 2 Agriculture Science Centers (ASC) one at Palung, Makwanpur and another at Ghyalchok, Gorkha that are mainly involved in the extension activities. The rough estimates of required additional human resources are presented in Table 2

Table 2: Rough and conservative estimation of additional human resources required for horticulture R&D

S.N.	Organizations	Quantity	Human resource required				Total
			Technicians	Graduate	Master	PhD	
1	Farm/Centres (Research)	27	108	81	54	27	270
2	Agriculture Knowledge Centre	77	385	154	154		693
3	Local Government	753	3765	753			4518
4	Universities (Teaching/ Research and Extension)	3	30	27	18	27	102
5	Colleges	19	76	76	38	57	247
			4364	1091	56	84	5830

However, as majority of trained HR in horticulture sector have not been properly recruited, retained and given proper recognition and are in mood to migrate to the developed countries for further study as well as for better working environment and handsome salary.

Brain and Brawn (Muscle) Drain from the Country

As said earlier, about 30% of the agriculture graduates produced annually go abroad either to study or for employment. In the more recent studies, the further worsening situations have been presented. In a study, it has been found that more than half of the students from agriculture sector intend to go abroad after graduation.

Low investment in agriculture has created slackness in technology generation thereby appropriate technologies to meet the need of diverse clients are limited. This has affected the efforts to retain the technicians in their respective fields.

About 1,700 youths are going abroad in search of better employment opportunity. As the major chunk of this labour force is coming from agriculture, this has created labour shortage in agriculture, consequently abandoning many fertile agricultural lands of hills, mountains and even in Terai. The rate of agricultural land abandonment is as high as 47% in the hills and mountains. This has strongly provided evidence on the requirement of retaining the trained graduates and farmers in the country.

5. Placement of Right Person at Right Place

Despite the fact that the horticulture experts developed their expertise in the respective areas based on the ecological zones of the farms and stations they worked and extension programmes they were involved-in, there was a big flaw in trained human resource management. There is a regular transfer of experts and technicians from Terai to High hill farms/stations and vice versa, which hampered the use and/or retention of expertise gained in one Eco-region and crop of that

region. Further inter faculty transfer and lateral entry in higher post also hampered the expertise. When five agriculture related departments were merged to create the Department of Agriculture for both research and development under one command and human resource development in 1972, this led to commodity specific expertise development until 1990. This period was called as the golden period for horticulture expertise development in the country. Until 1990, the research and extension programmes were under the DOA. The major anomaly in the recognition of expertise and their retention in the field of their expertise took place when government established NARC. Government divided farms and stations under NARC system and DOA structure. As there was not a good homework done and there was a political influence, the division of farms and stations under NARC and DOA could not take into account the nature and importance of the farms and stations. Consequently, some farms that should have been under NARC remained under DOA and some farms that should have been under DOA were handed over to NARC and also some farms were handed over to other ministries. Likewise, another glitch that affected retention of expertise in their field of interest and competence was badly affected when experts and technicians were asked to choose whether to continue working under DOA or go to NARC system. Though there was one step upgrading of staff after one year who joined NARC, this was not announced in the beginning. Due to fear of losing the earned credit and promotion, many experts who should have gone to NARC, remained with DOA without research function. Many important and critical horticulture research stations like Marpha, Kirtipur, Sarlahi etc. remained with DOA without research functions. Retaining experts, that is why, in their field of expertise and interest was not motivational. On the other hand, the introduction of promotion system laterally through open competition at the top management level of horticulture demoralised the experts who are devoted in their work since long. Low investment and no research functions in DOA farm/centres has created slackness in technology generation and expertise development and retention.

6. Challenges and Way Forward in Retaining Trained HR in Horticulture

As the country has entered into a new governance system (federal), there is a need to plan the type of human resource required at all levels –federal, state and local to harness the potential for horticulture development in the country. Government has to analyse professional HR requirement from a leader farmer to high level experts, academicians for research, extension and development. In the absence of proper analysis and recognition, even the trained leader farmers are abandoning agriculture land and are going abroad for employment. Likewise, government does not have a plan for junior technicians, mid-level technicians and high level professionals in horticulture sector for region specific and crop specific expert development to be utilized at different levels of government. As horticulture accommodates large number of crops requiring specific technology, breeders, horticulture agronomist crop protection specialists, soil scientists specific to horticultural crops are required. Now, the required HR development plan is the immediate need at the changed context of federalism and to attain the goal of Prosperous Nepal and Happy Nepali as have been publicly announced.

One of the major challenges faced is the small holding and difficulty in reaching the economies of scale. One way to reach the economies of scale in production is to rent-in the land from the neighbours on long-term basis. However, lack of security and confidence on the land owners on leasing out land has hampered the use of land. On the one hand, land owners feel insecure of

maintaining their ownership in share cropping or when leased-out. On the other hand, leaseholds are also not interested in farming due to insecure leasing terms. Absence of clear land contract/regulatory arrangement prevents agricultural entrepreneurs to engage in the farming business. In this context, a concept of a Land Bank should be introduced and piloted in selected municipalities with special attention to the livelihoods of the poor, Dalit and disadvantaged groups. It should be supported by a clear legal and regulatory provisions to facilitate leasing/contracting of agricultural land that ensures the protection of the interests of both land owners and the leaseholds.

Pulling land management under cooperative or company retaining ownership by land owner, but production management and marketing by cooperative or company for comparative crop commercialization also be initiated by provincial and local government

There is need to attract more youth and private sectors investments towards agriculture by promoting horticulture as a dignified and attractive enterprise. One must be achieved is transformation of farmers to entrepreneurs.

In order to attract and retain agricultural graduates in horticultural production and engage them in commercial farming, post-graduate scholarships should be provided through the Land Banks to study horticulture especially fruits. These graduates should be given land by the Land Bank including loans and subsidies for commercial farming and to continue their study simultaneously with government scholarship.

Realizing the fact of brain drain, some efforts are required to retain graduates in the country by creating suitable job opportunities and better facilities. Agriculture graduates should be provided with on the job scholarship to work in farm/centres to continue their master degree study on specific fruit crops as these are long term crops. Even Ph.D. programme may be provided to horticulturists to work in the farm/centers for expertise development in the subjects they are recruited.

Capacity building and entrepreneurship development in youth farmers is important to keep them going with the horticultural enterprises. They should be supported to commercialise their production through various support programmes. Impact of such programmes have been seen significant in PACT project area, RISMFP project area and HAVP project area.

Only academic qualification from universities also not sufficient for expertise development. Therefore, any graduate or masters in horticulture must work in research farm/centres before they are placed in Agriculture Knowledge Centre for extension. Fruit is long term crop and needs special study and expertise development. Therefore, on the job scholarship and thesis study in the farm centers where they work must be initiated to develop expertise and retain them to work in specific crops and eco-zones

HR development and retention is always influenced by government policies. Inter alia, one simple effort that the government can do to retain experts in their respective areas of expertise is introduction of vertical promotion system within the horticulture faculty and no lateral entry.

Government may form and favor a forum of Retired Horticulturists as well as may use them as advisors and also as part-time researchers and development experts in different level of government (Federal, Provincial and Local level as they are available in specific areas.

Annex 1: Agriculture /Horticulture Human Resource Development Institutions in the country.

Table 1: Academic Institutions giving various degrees and certificates in Agriculture¹		
Year	Institutional structure	Objective
Under Ministry of Agriculture		
1957	School of Agriculture under the Ministry of Agriculture in Kathmandu	To produce Junior Technical Assistant (JTA)
1968	College of Agriculture under Ministry of Agriculture (upgrading of School of Agriculture) in Kathmandu	To produce Junior Technician (JT) (ISc.Ag.)
Under Tribhuvan University		
1972	Institute of Agriculture and Animal Science (IAAS) until 2010 at Rampur and now at Khairahani, Chitwan	BSc Ag
2010	IAAS, post-graduate Program, Kirtipur	MScAg & PhD (Horticulture)
2018	IAAS, Gauradaha, Jhapa	BSc Ag
2012	Mahendra Ratna Multiple Campus, Ilam	B. Sc. Horticulture
2011	Mechi Campus, Jhapa	B.Sc. in Tea Technology
1975	Lamjung Campus, Sundarbazar, Lamjung	Initially JTA, currently BSc Ag
1978	Paklihawa Campus, Paklihawa, Rupandehi	Initially JTA, currently BSc Ag
2010	Gokuleshwor Campus under IAAS, Baitadi	BSc Ag
2013	Prithu Technical College, Deukhuri, Dang	BSc Ag
2013	Midwest Academy and Research Institute College of Live Science, Tulsipur, Dang	BSc Ag
Under Purvanchal University		
2000	The Himalayan College of Agriculture Sciences and Technology (HICAST), Bhaktapur	BSc Ag
2016	Girija Prasad Koirala College of Agriculture and Research Centre (GPCAR) Morang	BSc Ag
2011	Nepal Polytechnic Institute (NPI), Bharatpur, Chitwan	BSc Ag
Under Far Western University		
2018	Faculty of Agriculture, Tikapur, Kailali	BSc Ag
Under Agriculture and Forestry University		
2010	Faculty of Agriculture, Rampur	BScAg, MScAg & PhD (Horticulture)
2013	College of Natural Resource Management, Puranchaur, Kaski	BSc Ag

2017	College of Natural Resource Management, Pakhribas, Dhankuta	BSc Ag
2017	College of Natural Resource Management, Tikapur, Kailali	BSc Ag
2017	College of Natural Resource Management, Sindhuli	BSc Ag
2018	College of Natural Resource Management, Bardibas, Mahottari	BSc Ag
Under Council for Technical Education and Vocational Training (CTEVT)		
1994	Dhaulagiri Technical School Mustang	JTA Agriculture
1982	Jiri Technical School (JTS) Dolakha	JTA-Diploma in Agriculture
1980	Karnali Technical School Jumla, CTEVT	JTA-Diploma in Agriculture
1993	Madan Bhandari Memorial Academy Nepal	JTA-Diploma in Agriculture
2017	Ratna Kumar Bantawa Polytechnic Institute, Sankhejung, Ilam	JTA-Diploma in Agriculture
1997	Sailaja Acharya Memorial Polytechnic, Morang	JTA-Diploma in Agriculture
1990	Seti Technical School, Doti	JTA-Diploma in Agriculture
2014	Sindhuli Community Technical Institute	JTA-Diploma in Agriculture
1980	Uttarpani Technical School (UTS), Dhankuta	Diploma in Agriculture
1997	Dolakha Multi Sectoral Training Institute	JTA Plant Science
2012	Gorkha Science and Technical Education	JTA Plant Science
	Kantipur Bahu Prabidhik Shikchhyalaya, Chitwan	JTA Plant Science
	Kantipur Community Health Services, Gangabu, Kathmandu	JTA Plant Science
	Kantipur Sudur Paschim Technical College, Dhanagadi, Kailaliadi,	JTA Plant Science
	Lahan Technical School, Siraha	Diploma in Agriculture
	Madan Bhandari Agriculture Technical School, Dang	Diploma in Agriculture
	Martyr Bris Bahadur Singh Polytechnic Institute, Bajhang, Aathala, Bajhang	Diploma in Agriculture
	Ramechhap Polytechnic Institute, Ramechhap, Manthali, Ramechhap	Diploma in Agriculture
	Rapti Technical School, Lalmatiya, Dang	Diploma in Agriculture
	School of Public Health and Technical Studies, Dhading	JTA Agriculture
	Singh Academy, Samakhushi, Kathmandu	JTA Agriculture

	Sumnima Polytechnic institute, Bhojpur	Diploma in Agriculture
	Tanahu Technical School, Tanahun	Diploma in Agriculture
	Tikapur Polytechnic Institute, Tikapur, Kailali	Diploma in Agriculture
	White Park College, Amargadhi, Dadeldhura	JTA Plant Science
	Agro-forestry Polytechnic Institute, Arghakhanchi	Diploma in Agriculture
	Dhawalagiri Polytechnic Institute, Balewa, Baglung	Diploma in Agriculture
	Various Secondary Schools	JTA Plant Science

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