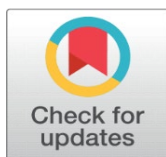


# UNDERGRADUATE AGRICULTURE EDUCATION IN NEPAL: A COMPREHENSIVE REVIEW

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## ABSTRACT

Higher education is perceived as a capital outlay and a potential transformer of the socio-economic and cultural development of a nation. Nepal has a very brief history of modern educational systems which traces back to 1959 when Tribhuvan University was established as the first university in the country. Though the formal education in agriculture began in 1968 with the upgrade of the School of Agriculture into the College of Agriculture launching a two-year Intermediate of Science in Agriculture program, the institutes offering the undergraduate-level Bachelor of Science in Agriculture are recorded to stretch out only after the 1990s. The trend of establishment of undergraduate agricultural colleges has faced many ups and downs but the highest number of agricultural colleges were found to be established in the year 2018 i.e., 10. In the current situation, seven universities and their thirty-three constituent and affiliated colleges are offering bachelor's degree in agriculture. Regardless of the ample expansion of agricultural institutes throughout the country, agricultural education is still an underrated subject in comparison to other fields. There is limited information available about the current status of the agricultural education system in Nepal; in fact, the secondary-level graduates lack proper information and guidance related to higher education in agriculture. This paper explores the history of agricultural education in Nepal; trend of agricultural institutional development; quota distribution, eligibility criteria and admission procedures for undergraduate studies in different universities; and has been prepared with a motive to shed light on agricultural academics, and guide students who are seeking a bright future in the agriculture sector.

**Keywords:** Nepal, Formal Education, Agricultural Institutes, Guidance, Undergraduate Studies

## 1. INTRODUCTION

Agriculture is the mainstay of livelihood for the majority of the population in Nepal with the direct engagement of around 66 percent of people in the agricultural sector [Ghimire et al. \(2021\)](#). It is a way of life; a religion [Timilsina \(2021\)](#) for Nepalese as the agriculture in the nation has been shaped by cultural and traditional beliefs passed down through generations. Agriculture is the foundation for economic and social transformation in Nepal. According to the [MoF \(2020\)](#), agriculture contributes 25.8 percent to the Gross Domestic Product (GDP) of the country thus, is considered the major backbone of the Nepalese economy. The

United Nations envisions a global partnership for peace and prosperity for people and the earth through the 2030 Agenda for Sustainable Development which is a blueprint containing 17 Sustainable Development Goals (SDGs) [UN \(n.d.\)](#). Agriculture is the common thread that holds those 17 SDGs together [Defait \(2019\)](#). The achievement of those goals for under-developed countries like Nepal is a challenge and agriculture is such a sector that maintains a mountain of hope. Moreover, the role of agriculture in sustainable development extends beyond food production to encompass economic advancement, poverty alleviation, environmental preservation, and social integration.

The Nepalese agriculture sector is in the verse of vulnerability to natural disasters and climate change like earthquakes and aftershocks; floods and landslides; irregularities in the monsoon rainfall pattern, temperature, winds, fogs, and hailstorms [Vulnerability Profile of Nepal \(2018\)](#). Besides these factors, technological limitations, traditional farming methods, unskilled farmers, poor mechanism of agriculture service delivery system, lack of government support to the farmer, unstable state policy, lack of storage facilities and access to markets, policy gap between formulation and implementation [Shahi \(2022\)](#), scant inputs, etc. are the other undeniable reasons behind low agricultural productivity and food insecurity. The extent of vulnerability has even been worsened by the most recent pandemic, the coronavirus (COVID-19) as agriculture is one of the sectors completely exposed to the impacts of the pandemic. In the first quarter of 2020, an overall decrease in agriculture production was 3.11% (17.03 million tons) in Southeast Asian countries. But the farmers were compelled to dump the crops in various parts of Nepal due to excessive production. The coping strategies adopted included modernization and transformation like mechanization, and post-harvest management through hermetic packaging and triple bagging technology [Sridhar et al. \(2022\)](#).

Agriculture education is fuel to agricultural transformation and modernization. It has a crucial role in terms of intellectual leadership for agriculture and contribution to learning and knowledge generation [Atchoarena & Holmes \(2005\)](#). Further, it aids in the advanced technology generation via research and innovation, aligning the indigenous knowledge of farmers and also bridges the gap between technology generation and adoption through extension services. [Chaudhary & Pasa \(2015\)](#) also mentioned that rural transformation and development is only possible through the provision of accessible and affordable agriculture education opportunities to socio-economically backward students. Thus, realizing the importance of agricultural education in the nation's development, Nepal has implemented National Education Policy, 2019 under the Nepal National Framework of SDG4: Education, 2030 which focuses on technical education to improve the quality of education and increase the relevance of higher education to national priorities and sustainable development [Amgain & Adhikari \(2022\)](#).

## 2. MATERIALS AND METHODS

This paper uses secondary sources of data gathered through an intensive desk review of newsletters, bulletins and admission notices from websites of different universities like Agriculture and Forestry University, Tribhuvan University, Kathmandu University, Purbanchal University, Far Western University, Mid-West University and Madhesh University; research reports, books and book sections of different organizations like Ministry of Finance; relevant research articles from different scientific journals and websites.

### 3. RESULTS AND DISCUSSION

#### 3.1. HISTORY OF AGRICULTURE EDUCATION IN NEPAL

Agriculture education in Nepal dates back to 1937 when the first vocational agriculture school was started. However, formal education in agriculture started in 1957 AD when the first school 'The School of Agriculture' was established in Putali Bagaincha of Kathmandu as a part of the Department of Agriculture to train lower-level technical manpower called Junior Technical Assistants (JTAs). Realizing the fact that trained field extension workers were lacking for agriculture development, the school was later upgraded to the College of Agriculture in 1968 and a two-year Intermediate of Science in Agriculture degree program was initiated to produce middle-level technical manpower called Junior Technicians (JTs) in Jagadamba Bhawan of Lalitpur district. In 1972 with the introduction of the 'new education system' in the country, this institute was renamed as Institute of Agriculture and Animal Science [IAAS/TU. \(2023\)](#) and brought under Tribhuvan University. Later in 1974, this institute was transferred to Rampur, Chitwan [About us. \(n.d.\)](#), [Amgain & Adhikari \(2022\)](#), [Background \(n.d.\)](#).

The trend of establishing agricultural colleges increased following the year of the relocation of [IAAS](#) to Chitwan. It started Lamjung Campus at Sundarbazar of Lamjung and the Paklihawa Campus at Paklihawa of Rupandehi as two satellite campuses in 1975 and 1978, respectively [IAAS/TU. n.d.](#)). Similarly, the Bachelor of Education in Agriculture began in 1977/78. Later in 1984/85, a three-year Bachelor of Science in Agriculture program was initiated to further provide higher education to the students completing the Intermediate of Science in Agriculture, especially from government offices; and a five-year Bachelor of Science in Agriculture program was launched targeting the School Leaving Certificate (SLC) students from 1988 to 1993. Simultaneously, a four-year Bachelor of Science in Agriculture program focusing on the students who completed their Intermediate of Science in Agriculture began from 1992/93 onwards [Amgain & Adhikari \(2022\)](#).

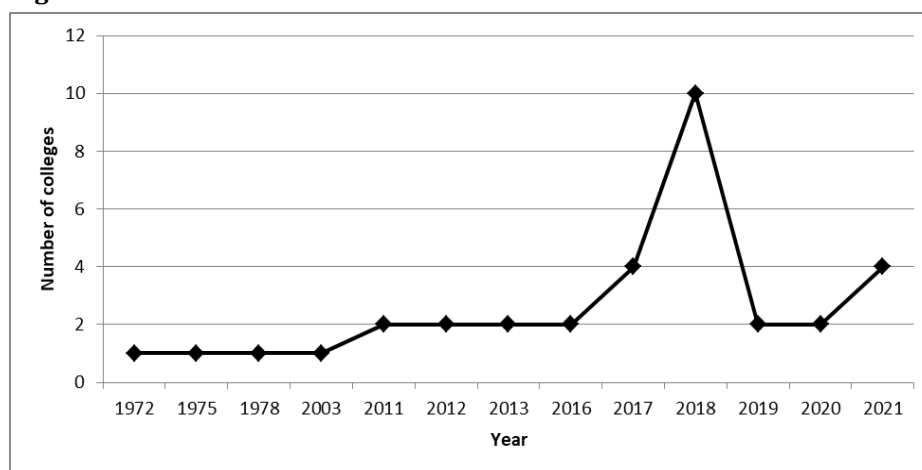
The two-year Intermediate of Science in Agriculture was phased out from [IAAS](#) in 2001. During that time, the Lamjung and Paklihawa Campuses of [IAAS](#) were running two years of initial semesters of four years of Bachelor of Science in Agriculture. The four-year Bachelor of Science in Agriculture program was launched at these satellite campuses of [IAAS](#) only after the amalgamation of the Rampur Campus to the Agriculture and Forestry University in 2013 [Amgain & Adhikari \(2022\)](#). Moving back to history, in 1995, the National Planning Commission formed the first nine-member committee which suggested the establishment of a single university combining Agriculture and Forestry. Though different committees were formed at different times to address the issue, a final five-member committee was formed in 2007 which suggested combining Agriculture, Forestry, and Food Technology into a single university. This committee ultimately resulted in the establishment of the Agriculture and Forestry University at Rampur, Chitwan in 2010 [AFU \(n.d.-b\)](#).

Over the course of time, several government and private academic institutes have been established to aid quality education in the field of agriculture. Currently, agriculture education in Nepal is operating in two different ways; a) Universities, which offer degree-granting programs in agriculture, and b) Technical schools and Polytechnics, which offer a mix short of short and long-term training programs in agriculture and related fields. The allocation of colleges in different parts of the country has helped in diffusion of the agricultural education to remote rural areas.

### 3.2. TREND OF INSTITUTIONAL DEVELOPMENT

Nepal has seen a drastic change in agricultural academics regarding the establishment of agricultural institutions in different parts of the nation. Since the inception of Rampur Campus in 1972 through 2003, one agricultural institute was established in each 1975, 1978, and 2003. The total number of institutions offering agriculture reached 12 in 2016 with the addition of two institutions each in years 2011, 2012, 2013, and 2016. A visible change was observed in 2017 when four more agricultural colleges initiated the program. In 2013/14, Rampur Campus at Chitwan stopped admitting new students [Amgain & Adhikari \(2022\)](#) and the program was continued by the Central Campus of Rampur under [AFU \(2022\)](#). The year 2018 can be celebrated as a golden era for agricultural educational development, characterized by a notable increase in agricultural institutions. Specifically, 10 new agricultural institutions were added to the roster in the year, among which six were AFU affiliated private colleges. Two institutions were started the program in the years 2019 and 2020 each, and four more were added in 2021. As of 2021, a total of 34 institutions have been offering the program ([Figure 1](#)).

**Figure 1**



**Figure 1** Establishment of Agricultural Institutions Over the Years

### 3.3. UNIVERSITIES OFFERING BACHELOR DEGREE OF SCIENCE IN AGRICULTURE

Bachelor of Science in Agriculture is a four-year undergraduate degree program after completion of an Intermediate level (2 years) of education in Science or Agriculture or a relevant field. This degree program aims to train academically competent and practical-oriented professional agriculturists and is offered by different constituent and affiliated colleges of seven universities namely, Tribhuvan University (TU), Agriculture and Forestry University (AFU), Purbanchal University (PU), Far Western University (FWU), Kathmandu University (KU), Mid-West University (MWU), and Madesh Agricultural University (MAU).

#### 3.3.1. TRIBHUVAN UNIVERSITY-INSTITUTE OF AGRICULTURE AND ANIMAL SCIENCE (IAAS)

Established in 1959 A.D., Tribhuvan University (TU) is the oldest and most prestigious academic institution in Nepal. The Institute of Agriculture and Animal

Science (IAAS), established in 1972, is an independent academic center of Tribhuvan University offering a Bachelor of Science in Agriculture [IAAS/TU. \(2023\)](#). It is the oldest institution for formal training in agriculture in Nepal which provides academic, research, and extension programs [Paudel et al. \(2013\)](#).

IAAS runs the agriculture undergraduate program through its constituent and affiliated colleges and programs. Lamjung Campus and Paklihawa Campus established in 1975 and 1978, respectively, are the first colleges under IAAS to offer agriculture courses. In 2018, it launched an agriculture degree program in Rampur Campus located at Khairahani of Chitwan district and Gauradaha Agriculture Campus of Jhapa as its constituent colleges. Besides these colleges, IAAS has provided affiliation to different colleges at different times to expand agriculture education. The Agriculture and Animal Science Community Campus at Gokuleshwor of Baitadi district was established in 2011; the Campus of Life Sciences at Tulsipur of Dang, and Prithu Technical College at Lamahi of Dang was established in 2013; the Nepal Army Agriculture Science Campus at Bagalegaon of Lamjung established in 2021 are the affiliated colleges of IAAS offering the program. Similarly, the Bachelor of Science in Horticulture at Mahendra Ratna Multiple Campus of Ilam is an IAAS-affiliated program launched in 2012 [Amgain & Adhikari \(2022\)](#), [BSc Ag All Colleges List of Nepal with their Total Seats, Total Scholarship Seats, Quota Scholarship Seats & Paying Seats Information. \(2022\)](#).

### **3.3.2. AGRICULTURE AND FORESTRY UNIVERSITY (AFU)**

Agriculture and Forestry University was founded in 2010; and it is the first university in Nepal that is based on a land grant model similar to that of the US, which conducts instruction via teaching, research, and extension programs for agricultural and forestry development in the country [Paudel et al. \(2013\)](#). This university is formed by merging Rampur Campus, Institute of Agriculture and Animal Science (IAAS), and Forestry Campus, Hetauda of the Institute of Forestry of Tribhuvan University. This university is considered as the second-generation university which addresses the current needs by exploiting its specific and standard organizational structure, academic programs, and curricula developed by highly qualified professionals. Strengthening the educational program, it established the College of Natural Resource Management as a constituent college at Puranchaur of Kaski district in 2016 [AFU \(n.d.-a\)](#). Following this establishment, it has expanded its constituent colleges to Pakhribas of Dhankuta district, Kapilakot of Sindhuli, Tikapur of Kailali in the year 2017; Bardibas of Mahottari in 2018; Madichaur of Rolpa and Khajura of Banke in 2019; and Dullu of Dailekh in 2020.

Agriculture and Forestry University, in 2018, provided affiliation to six private colleges viz., Bright Mid-Western Agriculture and Forestry Science Campus at Birendranagar of Surkhet district, Valley Agriculture Campus at Chapagaun of Lalitpur, Ramnagar Technical and Management College at Sunwal of Nawalpur, Purbanchal Agriculture Campus at Gauradaha of Jhapa, Jibika Agriculture Science College at Itahari of Sunsari, Gorkha United Public School under project Gorkha Polytechnic College and Research Centre at Baijnath of Banke [About us. \(n.d.\)](#), and Himchhaya College at Gaidakot of Nawalparasi [BSc Ag All Colleges List of Nepal with their Total Seats, Total Scholarship Seats, Quota Scholarship Seats & Paying Seats Information. \(2022\)](#).

### **3.3.3. PURBANCHAL UNIVERSITY (PU)**

Faculty of Science and Technology under Purbanchal University has been offering B.Sc. (Honors) Agriculture program. Similar to IAAS and AFU, this university is also offering agricultural courses for undergraduates through its constituent and affiliated colleges. Girija Prasad Koirala College of Agriculture and Research Centre (GPCAR) at Gothgaun of Morang district is the only constituent college under this university established in 2017. The degree program was later expanded to the Himalayan College of Agriculture Science and Technology (HICAST) of Kathmandu, Nepal Polytechnic Institute (NPI) at Bharatpur of Chitwan, and Ilam Community Agriculture Campus of Ilam in 2003, 2011, and 2021 respectively via affiliation [Amgain & Adhikari \(2022\)](#).

### **3.3.4. FAR-WESTERN UNIVERSITY (FWU)**

Far Western University launched the Bachelor of Science (B.Sc.) in Agriculture in the academic year 2018 under the Faculty of Agriculture Science at Tikapur Multiple Campus of Kailali district [Amgain & Adhikari \(2022\)](#). The agriculture course at FWU has been designed to impart the best quality education in Agriculture and its sub-branches to ultimately contribute to producing qualified professionals in the field.

### **3.3.5. KATHMANDU UNIVERSITY (KU)**

The School of Science under Kathmandu University launched a Bachelor of Science in Agriculture (B.Sc. Ag.) under the Department of Life Sciences in 2020 [Amgain & Adhikari \(2022\)](#). This interdisciplinary program encompasses many different aspects of agriculture. Courses usually include the study of plant science, animal science, soil and pesticides, weed management, agricultural extension, ecology, natural resources management, horticulture, farming system, and production technology.

### **3.3.6. MID-WEST UNIVERSITY (MU)**

Mid-West University launched the undergraduate course in Agriculture under the Faculty of Agriculture and Forestry at Birendranagar of Surkhet in 2021.

### **3.3.7. MADHESH AGRICULTURAL UNIVERSITY (MAU)**

Madhesh Agricultural University was founded in 2021 in Rajbiraj, Saptari of Madhesh Province. It is the first autonomous agricultural university in the Madhesh Province launched under the Madhesh Agricultural University Act 2079. This university offers a Bachelor of Science in Agriculture (Hons.) program [MAU \(2021\)](#).

## **3.4. QUOTA DISTRIBUTION IN DIFFERENT UNIVERSITIES**

The universities which offer Bachelor of Science in Agriculture degree enroll students once a year under different categories and are referred to as Quota. There are different types of Quotas, and a definite number of students are provided admission under each quota. The major aim of classifying the available seats into different categories is the inclusion of students coming from remote areas, disadvantaged communities, indigenous groups, victims of wars and conflicts, those

facing extreme levels of poverty, and many more. Though the universities have defined the numbers of enrollment under each quota, they have been reported to increase these numbers every year, leading to the increase in the average rate of enrollment in the subsequent years.

The allocation of seats differs from university to university and even college to college. The Agriculture and Forestry University announced a call for 584 students under different quotas for its eight constituent colleges and the Department of Agriculture at Rampur in 2079/80 (Table 1) where 234 seats were for Merit students; 70 for students of the same province; 14 for each Dalit, Janajati, and Madhesi; 11 for each differently-abled and conflict victims; 10 for each martyr family; 25 for women; 18 for full paying residents; 10 for full paying staff quota and 12 concession fee for staff; and 141 for full paying UDF/CDF (University and College Development Fund). Hence, a total of 162 intakes were announced for Agriculture Department, 54 for each college at Kaski, Sinduli, Kailali, Dhankuta, Mahottari, and Dailekh; and 49 for Banke, Rolpa. In the case of private colleges, each college called for 50 students in the same year.

**Table 1**

	Agriculture Department, Rampur	Puranchaur, Kaski	Kapilakot, Sindhuli	Tikapur, Kailali	Pakhribas, Dhankruta	Bardibas, Mahottari	Khajura, Banke	Madichaur, Polpa	Dullu, Dailekh
Merit	74	20	20	20	20	20	20	20	20
Provincial	-	10	10	10	10	10	5	5	10
Dalit	6	1	1	1	1	1	1	1	1
Janajati	6	1	1	1	1	1	1	1	1
Madhesi	6	1	1	1	1	1	1	1	1
Differently abled	3	1	1	1	1	1	1	1	1
Martyr Family	2	1	1	1	1	1	1	1	1
Conflict victims	3	1	1	1	1	1	1	1	1
Women	9	2	2	2	2	2	2	2	2
Concession fee, Staff Quota	4	1	1	1	1	1	1	1	1
Full Payment Staff Quota	2	1	1	1	1	1	1	1	1
Full Payment UDF/CDF	45	12	12	12	12	12	12	12	12
Full Payment Local Quota	2	2	2	2	2	2	2	2	2
Total	162	54	54	54	54	54	49	49	54

**Note** The Quota provision doesn't include the personnel recommended by Nepal Government, Nepal Agriculture Research Council (NARC), and other organizations who have done MOU with AFU; those students need not sit for the entrance examination. The enrollment number for Private Colleges is defined based on the recommendation of the Monitoring Report.

**Source** AFU (2022)

Similarly, or IAAS called for 360 students under similar quotas for its five constituent colleges in 2079/80 Table 2. The seat provision was made in such a way that 121 were Merit quota; 9 for women which were sub-classified as Open, Dalit, and Muslim; 7 for indigenous; 6 for Madhesi, further classified into Open and Dalit; separate 4 seats for each Dalit, and differently-abled students; 1 for Muslim; 5 for Tharu; 3 for students belonging to remote districts; 60 for IDF (Institutional Development Fund); 6 for residents. Moreover, there were 6 seats reserved for families of staff working in the university which was divided into concession fee (3) and full fee (3). A total of 124 seats were classified as Annex quota and 4 as other quotas. Regarding the affiliated colleges, the number of intakes announced in each affiliated college and program was 50.

Table 2

Table 2 Undergraduate Quota Distribution in IAAS 2079/80						
Quota types	Lamjung	Palkihawa	Rampur	Gauradaha	Nepali Army	Total
Merit	27	27+1*	26	26+1*	13	121
Women						
Open	1	1	2	2	1	7
Dalit					1	1
Muslim	1					1
Adibasi-Janajati	1	2	2	1	1	7
Madhesi						
Open	1	1	1	1	1	5
Dalit				1		1
Dalit	1	1	1	1		4
Differently abled	1	1	1	1		4
Muslim	1					1
Tharu	1	1	1	1	1	5
Remote district	1	1	1			3
Other Quota	1	1	1	1		4
IDF	13	13	14	14	6	60
Total	50	50	50	50	24	224
Annex Quota	50	50			24**	124
Local Quota	3***	3***				
Staff Quota						
Fee types	For teachers and staff of TU		For teachers and staff of IAAS			Total
Concession fee	1			2		3
Full fee	1			2		3
Total Staff Quota	2			4		6

\*The 2 Muslim quotas have been included in the Palkihawa campus and Gauradaha campus each due to the insufficient number of required examinees passing the entrance examination.

\*\*The mentioned quota will be based on the operating regulations of the Nepali Army Institute of Agriculture Sciences.

\*\*\*The admission in mentioned quota will be based on the agreement between the respective campus and local government.

**Note** 10% scholarship quota and local quota are also included in the defined number of enrollments (50).

**Source** IAAS/TU. (2023)



The Purbanchal University in 2079/80 announced a total of 336 seats for undergraduate studies where Nepal Polytechnic Institute, Himalayan College of Agricultural Sciences and Technology called for 96 each; and G.P. Koirala College of Agriculture and Research Centre, and Ilam Community Agriculture Campus for 48 [Amgain & Adhikari \(2022\)](#). The university does not have a provision for Quota but evaluates the students' eligibility for admission by giving some preferences to students coming from Dalit, indigenous, Madhesi, Muslim, disadvantaged remote areas, martyr's families, differently abled students, war or conflict victims, women, financially weak and under poverty, etc. [Table 5](#).

Kathmandu University intakes 30 students each year under two categories; Open or Merit-based 27 and Reserved 3 based on KU provision [KU \(2021a\)](#). Similarly, a total of 100 students are admitted annually to Far-Western University which is categorized as 25 scholarship seats and 75 paying seats [BSc Ag All Colleges List of Nepal with their Total Seats, Total Scholarship Seats, Quota Scholarship Seats & Paying Seats Information. \(2022\)](#). Mid-West University announces 48 seats for students annually where 6 are scholarship and 42 are full-paying seats [Edusanjal \(2023\)](#).

The Madhesh Agricultural University admits a total of 50 students annually where 10 are merit quota; 1 each Madhesh Province, Dalit, Adibasi Janajati, differently abled, martyr family, war victims, female, staff and local quota; and 31 University/College Development Fund [Table 3](#).

**Table 3**

Table 3 Quota Distribution in Madhesh Agricultural University in 2079/80			
Quota description	Full Scholarship	Partial Scholarship	Full payment
Merit	10		
Madhesh Province		1	
Dalit		1	
Adibasi-Janajati		1	
Differently-abled		1	
Martyr family		1	
War victims		1	
Female		1	
Staff quota		1	
Local residents' quota		1	1
Full payment (UDF/CDF)			30
Total	10	9	31

Source [MAU \(2022b\)](#)

### 3.5. PROCEDURE OF APPLICATION AND ADMISSION

#### 3.5.1. ELIGIBILITY

The eligibility of a student to apply for the program differs with the university. Each university has defined a different set of criteria that a student should meet to be qualified for the application process. Though the criteria differ from university to university, there is a common thread; all of them need the students to have completed their intermediate level [Table 4](#).

**Table 4**

<b>Table 4 Required Qualifications for Application to Different Universities</b>	
<b>Universities</b>	<b>Eligibility</b>
TU	A minimum of 50% in each subject of English, Physics, Chemistry, Biology, and Math and a 'C+' (2.4 CGPA/GPA) in aggregate in 10+2 Science or I.Sc. (Agriculture or Animal Science or Forestry) or Equivalent level.
AFU	At least Second Division or 'C' grade in SEE or Equivalent examination. and, A minimum of 50% or a 'C' grade in each subject English, Chemistry, Biology, Math, and Physics and a 'C+' (2.4 GPA) in aggregate in I.Sc. Science or 10+2 Science or 10+2 Technical level in Agriculture Science or Equivalent level where English, Chemistry, and Biology each carry 100 marks and Math, Physics carry 50.
PU	Must have scored minimum C+ or GPA 2.00 in SEE or equivalent; And, Must have passed +2 science/A level or equivalent Physics. Chemistry. Biology and English from any recognized University with a minimum 45% marks or GPA of 2.0 in aggregate
FWU	Must have passed 10+2 or I.Sc. Ag with at least 50% or C' grade (2.4 CGPA); And, Must have taken English, Chemistry, and Biology with 100 marks each and Math and Physics with 50 marks each.
KU	Must have taken PCB (Physics, Chemistry, and Biology) in both Grades 11 & 12; And, A minimum of 2.0 GPA in aggregate and a minimum C in each subject; Or, 50% aggregate marks and minimum 50% in PCB (Physics, Chemistry, and Biology) in 10+2 or I.Sc. Agriculture or equivalent
MU	Must have passed SLC or equivalent; And 10+2 or I.Sc. (Bio/Physics) or I.Sc. Agriculture in at least third division
MAU	At least Second Division or 'C' grade in SEE or Equivalent examination; and, A minimum of 50% or a 'C' grade or 2.0 CGPA/GPA in aggregate (of subjects English, Physics, Chemistry, Biology, and Math) in I.Sc. Science/I.Sc. Agriculture/I.Sc. Animal Science or 10+2 Science or 10+2 Agriculture science or Equivalent level If the transcript of 10+2 Agriculture Science doesn't include Math, then an additional mark sheet of Math with at least 50% or a 'C+' (2.4 GPA) is mandatory.

**Source** IAAS/TU. (2022), AFU (2022), PU. (2021a), Notice for BSc Ag, FWU (Far Western University) Entrance Exam Appearing Students! 2021; KU (2021a), Edusanjal (2023), 2022, MAU (2022b)

### 3.5.2. ENTRANCE EXAMINATION

Passing an entrance examination is a requisite for acceptance in the undergraduate degree program. Interested students have to take and pass this test conducted by the universities they are interested in attending. The call for applications usually starts from Kartik/Mangsir and the test is scheduled 1-2 months after the announcement. Every university has its exam syllabus where Multiple Choice Questions (MCQs) are asked. The questions cover different topics in these subjects: English, Chemistry, Physics, Botany, Zoology, Math, General Knowledge and Agriculture studied at the intermediate level. However, the number of questions from each subject differs between the universities. The total marks for the test in AFU are 120 AFU (2022) whereas 100 for TU IAAS/TU. (2022), PU PU. (2021a), FWU (Notice for BSc Ag, FWU (Far Western University) Entrance Exam Appearing Students!, 2021) and MAU MAU (2022b) it is 100 Table 5.

**Table 5**

<b>Table 5 Entrance Examination Syllabus in Different Universities</b>					
<b>Subjects</b>	<b>Number of questions AFU</b>				
	<b>AFU</b>	<b>TU</b>	<b>PU*</b>	<b>FWU</b>	<b>MAU</b>
English	20	15	15	14	15
Chemistry	20	15	20	14	10

Physics	10	15	15	14	10
Botany	20	12	35	15	15
Zoology	20	12		15	15
Math	10	15	15	14	10
General Knowledge	6	4		4	10
Agriculture	14	12		10**	15
Total	120	100	100	100	100

\*Topics for the subjects are from the syllabus defined for the entrance examination by PU

\*\*Agriculture and Animal Science

The students aspiring to study at Kathmandu University have to appear in Kathmandu University Common Admission Test (KUCAT-CBT) which is a computer-based mode called Computer Based Test (CBT) conducted in KU Main Campus Dhulikhel. Candidates have to choose the PCB (Physics, Chemistry, and Biology) test group which consists of 40 MCQs from each subject for a total of 120 marks [KU \(2021b\)](#). The questions are distributed uniformly across the topics of the syllabi provided by KU. Each subject syllabus has 40 topics, and one question is asked from each topic. CBT offers many advantages over PBT which include a larger score range, reduction of risk of unfair practice, automatic scoring, and flexibility in conducting tests.

In recent years, many institutions have been established that tutor students to prepare them for these entrance examinations. Vibrant, Name, NIMS, Web, and Orbit are among the popular ones.

### 3.5.3. ADMISSION

The students who pass the entrance examination are evaluated for their eligibility to get admitted. Admission is decided on the merit list prepared by the universities based on the marks secured in the entrance examination. However, the evaluation differs between the universities.

The basis for admission eligibility is somewhat similar in AFU and IAAS. The entrance examination weighs 100%, and an applicant must secure a minimum of 50% to pass the test. The admission offer list is published on a merit basis. If applicants secure equal marks in the entrance examination, the total percent/grade obtained in the I.Sc./10+2 examination (CGPA) followed by the total percent/grade obtained in SEE/SLC is considered. If the percent/grade of SEE/SLC is also equal then the percent/grade of subjects studied in 10+2 or equivalent are considered for the merit list. The subjects are Botany, Zoology, Chemistry, Physics, and Math in AFU, whereas, in IAAS they are Zoology, Chemistry, Physics, English, and Math.

The KU offers admission on merit based on CBT score (rank) for both open and reserved (quota) seat categories. The score of 480 is benchmarked as the minimum threshold (pass mark) [KU \(2021b\)](#). The students shall at least obtain this score to be eligible for admission.

The evaluation in PU is done on a scale of 100% out of which the different categories are considered [Table 6](#). However, the candidates who are unable to score a minimum of 33% in the entrance examination conducted by PU are not considered for evaluation.

**Table 6**

<b>Table 6 Evaluation for Admission Eligibility in PU</b>	
<b>Classification</b>	<b>Weightage</b>
Marks obtained in Entrance Examination	25%
SEE or equivalent	5%
+2 Science/ A level or equivalent	10%
SEE or equivalent from Community/Government School	5%
+2 science/ A level or equivalent from Community/Government School	5%
Female	10%
Dalit/Adhibasi/Janajati/Madheshi/Muslim	10%
Examinee from Disadvantaged Rural area	10%
Martyr's family/Differently abled/Injured in People's movement or Madhesh movement/War or Conflict victims/Displaced/Single woman	10%
Former Kamaiya/Haliya/Financially weak	10%

Source (PU, 2021b)

The pass mark for the entrance examination in FWU is 50 out of 100. Admission is based on the merit list. The entrance merit list is based on 80% of entrance scores out of 100, 10% of SEE, and 10% of +2/I.Sc.Ag. While for Madhesh Agricultural University, the students must score at least 40% to pass the entrance examination. If applicants secure equal marks in the entrance examination, the total percent/grade obtained in the I.Sc./10+2 examination (CGPA) followed by the total percent/grade obtained in SEE/SLC, and then, marks obtained in Botany, Zoology, Chemistry, Physics, Math is considered MAU (2022b).

### 3.5.4. SCHOLARSHIP SCHEME IN PU, FWU, AND KU

As per the scholarship provision 2078 of PU, there is an arrangement to provide a 10 percent (5 percent Open and 5 percent Reserved) scholarship. The open scholarship is provided to the candidates of the first semester scoring the highest marks in the entrance examination. These students get a scholarship of 80% of the total annual/semester fee as declared by their respective colleges. Similarly, the reserved scholarship is provided to 5% of the total students admitted to the respective colleges. Dalit, Janajati, Rural, differently abled, Female, economically weak, Martyr family, war victims, Madhesi, Muslim, etc. are given chances to fight for the reserved scholarship. These students do not need to pay fees other than fees for registration and exam.

The Faculty of Agriculture at the FWU offers a 25% scholarship to one/one student from the eight districts of the Far Western Development Region. Of the 8 earmarked scholarships, two are reserved for women, two for men, two seats for children of the working staff, two each from students from the so-called Dalit community, Madhesi community, Janajati community, Local community (Tikapur area), and 1 each for the differently abled person and person from a backward community Table 7.

**Table 7**

<b>Table 7 Scholarship Categories in FWU</b>	
<b>Categories</b>	<b>Number</b>
9 Districts of Far-Western Development Region	9 (1 per district)
Female	2

Male	2
Staff quota	2
Madheshi	2
Dalit	2
Janajati	2
Local (Tikapur area)	2
Differently abled	1
Remote area	1
Total	25

**Source** (Syllabus and Seats Information for BSc Ag, Vet, Forestry Entrance Exam of AFU, TU and FWU, 2020)

The Department of Life Sciences under KU offers a merit-based scholarship for entrance examination topper and semester topper. Additionally, loan scholarships and need-based partial tuition fee waiver scholarships are also provided as per KU provision.

### 3.5.5. FEE STRUCTURE

The students willing to be admitted at IAAS have to pay an admission fee of NRs.7,750. In addition to the admission fee, the students getting admitted to IDF quota pay the first installment NRs. 150,000 of total fee NRs. 250,000 for the course during the admission. In contrast, the students admitted via the Annex quota have to pay NRs. 300,000 during the time of admission along with the admission fee. Similarly, the admission fee of AFU for undergraduates in agriculture is NRs. 6,000. Besides this, the students have to pay the first installment NRs. 135,000 of the total fees at the time of admission. The total fee of the course for the full payment staff quota, UDF/IDF, and local quota is NRs. 270,000. The total fee for the course in KU is NRs.872,000 [KU \(2022\)](#). The semester fee for students admitted via the Scholarship category in FWU is 7,000 and via the Full paying category is NRs. 238,000; and in MU is around NRs. 50,000 and NRs. 370,000 respectively [BSc Ag All Colleges List of Nepal with their Total Seats, Total Scholarship Seats, Quota Scholarship Seats & Paying Seats Information. \(2022\)](#). Based on the merit rank, the first 10 students pay NRs. 22,000 for the first semester whereas, others pay NRs. 122,000 during the time of admission to the Madhesh Agricultural University [MAU \(2022a\)](#).

## 4. CONCLUSION

Agriculture education is a technical education of gaining knowledge, skills, and practical experience related to the field of agriculture. It plays a crucial role in generating skilled manpower in the field of agriculture who can contribute to the sustainable development of the agriculture sector. The agricultural graduates produced every year from a number of agricultural universities and colleges are the professionals who fit in various sectors like I/NGOs, governmental organizations, research and development centers, academic institutions, private firms, multinational agriculture companies, agriculture consultancies, business, and entrepreneurship, etc. who serve the nation as officers (agronomy officer, extension officer, horticulture officer, plant protection officer, etc.), professors/lecturers,

agriculture technicians, agriculture consultants, landscape designer, floriculturists, field inspector, trainers, agriculture entrepreneurs, etc. Besides all these, agricultural graduates are the technicians who can break down the chain of chronic poverty and food insecurity; and develop strategies to cope with the barriers to agricultural development such as natural disasters, climate change, and pandemics like COVID-19 through scientific innovations and advanced technologies like Climate Smart Agriculture, Genetically Modified Organisms (GMOs), vertical farming, precision agriculture, robotics systems, Smart Sensors, Geographic Information System (GIS), Global Positioning System (GPS), farmer-friendly mobile applications, etc.

Nepal is a country where agriculture is the major backbone of the national economy, but agriculture education is not blooming at its best. Currently, seven universities and their respective constituent and affiliated colleges are offering agriculture undergraduate degrees in different parts of the nation. Though the number of institutions is recorded to have increased significantly in the last few years, the quality of education is still a challenge. In addition to the immaturity of these institutions, many factors are hindering their growth and development which includes theory-focused and outdated course curriculum, lack of well-equipped laboratories, minimum professor-to-student ratio, lesser number of allocated seats, lack of hands-on training practices, political interference, etc. The major consequences are poor education quality and brain drain with thousands of students moving abroad for better education and job opportunities. The agricultural transformation and modernization which Nepal has dreamed of are not possible if the trend of graduates migrating to foreign countries doesn't slow down. There is an urgent call for the improvement of the education system with a more practical-based curriculum, job placement with better pay, highly qualified educators and trainers, more interaction programs with the technology generators like Nepal Agriculture Research Council (NARC) and the direct beneficiaries i.e., farmers, etc. For this, the collaborators should come from different sectors and all three tiers of government, i.e., local, provincial, and federal; with their unique ideas and strategies which when combined leads to the overall development of the nation.

### **CONFLICT OF INTERESTS**

None.

### **ACKNOWLEDGMENTS**

None.

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