Landscape of Higher Agricultural Education in India

2020

Agricultural Education Division
Indian Council of Agricultural Research
Krishi Anusandhan Bhavan-II, Pusa, New Delhi 110 012
www.icar.org.in

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Printed :
June, 2020

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Design and Production
Dr. V.K. Bharti, Chief Production Officer, DKMA
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Published by
Agricultural Education Division
Indian Council of Agricultural Research
Krishi Anusandhan Bhavan-II
Pusa, New Delhi 110 012

ISBN: 978-81-7164-193-2

Printed by Dr S.K. Singh, Project Director, Directorate of Knowledge Management in Agriculture, Krishi Anusandhan Bhavan I, Pusa New Delhi 110 012; Lasertypeset and printed at M/s Royal Offset Printers, A-89/1, Naraina Industrial Area, New Delhi 110 028.

त्रिलोचन महापात्र, पीएच.डी.
सचिव एवं महानिदेशक
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SECRETARY & DIRECTOR GENERAL

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कृषि अनुसंधान और शिक्षा विभाग एवं
भारतीय कृषि अनुसंधान परिषद
कृषि एवं किसान कल्याण मंत्रालय, कृषि भवन, नई दिल्ली 110 001
GOVERNMENT OF INDIA
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FOREWORD

INDIAN agriculture has continuously evolved to remain responsive to meet the growing and diversified needs of stakeholders in the entire production to consumption area. Creation of skilled, talented and entrepreneurial human resources to harness demographic dividend in an equitable manner is one of the crucial parameters for sustainable development of agriculture in India. To realize the targets of growth rate set out in the agriculture policy, adequate trained manpower, that is professionally competent, socially sensitive and ethically strong, is required to provide the technical backstopping.

In order to address the challenges for manpower development in agriculture, ICAR has fostered a countrywide arrangement with the universities under the Indian Council of Agricultural Research-Agricultural University (ICAR-AU) system to set aside 15% and 25% of their seats for Bachelor and Master's degree programmes to be filled through All India Entrance Examination for Admission (AIEEA) conducted annually by Agricultural Education Division. The centralized admission to 25% seats of doctoral degree programmes of these universities through All India Competitive Examination for the award of Junior/Senior Research Fellowship, AICE-JRF/SRF(PGS), was also introduced by the Council from the Academic Session 2015-16. The online counseling for admission to different disciplines of agriculture & allied sciences in UG, PG and Ph.D. degree programmes was introduced by the Council w.e.f. the Academic Session 2017-18. From the Academic Year 2016-17, admissions through the ICAR's All India Entrance Examination are not allowed for non-accredited colleges and programmes. Since 2019, these examinations are being conducted in LAN based CBT mode by the National Testing Agency (NTA), an autonomous premier testing organization under the aegis of Department of

Higher Education, Ministry of Human Resource Development, Government of India. From 2020-21, the Council will conduct a single entrance examination for admission to doctoral degree programmes in the universities, including all the four ICAR-DUs, under the ICAR-AU system.

The Agricultural Education Division has brought out a utilitarian compilation of the trends in UG, PG and Ph.D. examinations conducted by the Council over the years. In comparison to 2014, the number of female applicants during 2019-20 has increased to the tune of 7% each in UG & PG and 11% in Ph.D. reflecting a gradual increase in the interest of girls towards higher agricultural education in the country. A critical analysis of the trends about the talent getting attracted towards higher agricultural education over the years coupled with comparative performance-based ranking of different universities reflects that SAUs need to play a more proactive role for creating the awareness to attract best talent and generation of competent human resources to address challenges being faced by Agricultural Sector.

This document is expected to provide insights into the dynamics of talent required for Higher Agricultural Education System and provide a framework for policy planning to generate competent 'human capital' which is central to an efficient National Agricultural Research, Education and Extension (NAREE) System.

I congratulate the Agricultural Education Division for bringing out this publication and hope that it will go a long way in strengthening information sharing to all stakeholders of the higher agricultural education in the country.

(Trilochan Mohapatra)

PREFACE

ENHANCING quality of human resource is a pre-requisite for implementing and upgrading research programmes, developing technologies, evolving institutional arrangements to face challenges and harness opportunities in the agriculture sector.

To cater to the requirement of talented pool in the field of agriculture and allied science disciplines in the country, the Agricultural Education Division of ICAR annually conducts All India Entrance Examination for Admission (AIEEA) to undergraduate [AIEEA (UG)] and postgraduate [AIEEA (PG)] programmes along with the All India Competitive Examination for admission to doctoral degree programmes [AICE-JRF/SRF(PGS)] in Agriculture and Allied Science subjects in the accredited universities under the ICAR-AU system. The basic objective of these examinations is to curtail academic inbreeding in agricultural education by promoting national integration through mobility amongst students, infuse merit, encourage talent and promote uniform examination standards across the universities thereby leading to an overall improvement in the quality of Higher Agricultural Education in the country. In 2019, ICAR conducted 24th All India Entrance Examination through NTA in LAN based CBT mode for filling 2,784 seats in UG, 3,075 seats in PG and 905 seats in Ph.D. programmes in 67 Agricultural Universities. The number of applicants for AIEEA (UG)-2019 and AICE-JRF/SRF(PGS)-2019 registered a remarkable increase of 60.45% and 49.40% respectively in comparison to preceding year's examination conducted by the Council in offline mode. There was 9.22% increase in the number of applicants for AIEEA (PG)-2019 in comparison to last year. The percentage of candidates for AIEEA (UG) from rural areas has more or less remained static at least over the last three years warranting shift in strategies to popularise agricultural education amongst the rural youths/students in the country.

The present report containing an assessment of the past examination trends and providing insights into future examination trends is the third in the series on Examination Statistics published by the Agricultural Education Division. The earlier publications; *All India Entrance Examination for Admission to Bachelor and Master's degree programmes (AIEEA-UG & PG) in Agriculture &*

Allied Sciences and SRF(PGS) – At a Glance and *Talent for Responsive Agriculture* encompassed Examination Statistics for the Academic Session 2007-08 to 2012-13 and 2007-08 to 2013-14, respectively. The present publication containing Examination statistics from 2014-15 through 2019-20 is expected to provide necessary inputs for evidence-based policy making. This publication is also intended to provide pointers to the low performing universities so that they can take required curative measures in order to offer a competition to the universities giving better performance.

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List of Acronyms

Sr. No.	Acronym	Expansion
1	ABC	Agriculture, Biology, Chemistry
2	ADG	Assistant Director General
3	AECI	Agricultural Education Council of India
4	AES	Agricultural Education System
5	AICE	All India Competitive Examination
6	AICE-JRF/SRF(PGS)	All India Competitive Examination for the award of Junior/Senior Research Fellowship (Post Graduate Studies)
7	AIEEA	All India Entrance Examination for Admission
8	AIIMS	All India Institute of Medical Sciences
9	AISHE	All India Survey on Higher Education
10	APMC	Agricultural Produce Market Committee
11	B.F.Sc.	Bachelor of Fisheries Science
12	B.Sc.	Bachelor of Science
13	B.Tech.	Bachelor of Technology
14	CAFT	Centres of Advanced Faculty Training
15	CAU	Central Agricultural University
16	CBP	Capacity Building Programme
17	CBSE	Central Board of Secondary Education
18	CBT	Computer Based Test
19	CIFE	Central Institute of Fisheries Education
20	CSR	Corporate Social Responsibility
21	CUs	Central Universities
22	DARE	Department of Agricultural Research and Education
23	DDG	Deputy Director General
24	DG	Director General
25	DoAC&FW	Department of Agriculture Cooperation and Farmers Welfare
26	EdCIL	Educational Consultants India Ltd.
27	EL	Experiential Learning

Sr. No.	Acronym	Expansion
28	e-NAM	National Agriculture Market
29	EWS	Economically Weaker Section
30	GDP	Gross Domestic Product
31	GEN	General
32	GER	Gross Enrolment Ratio/Rate
33	GHI	Global Hunger Index
34	GVA	Gross Value Added
35	HOT	Hands-on Training
36	HRD	Human Resource Development
37	IAMR	Institute of Applied Manpower Research
38	IARI	Indian Agricultural Research Institute
39	ICAR	Indian Council of Agricultural Research
40	ICAR-AUs	Indian Council of Agricultural Research-Agricultural Universities
41	ICAR-DUs	Indian Council of Agricultural Research-Deemed-to-be-Universities
42	ICAR-PDF	ICAR-Post-doctoral Fellowship
43	ICCR	Indian Council of Cultural Relations
44	ICT	Information Communication Technology
45	IIM	Indian Institutes of Management
46	IIT	Indian Institute of Technology
47	IPR	Intellectual Property Rights
48	IVRI	Indian Veterinary Research Institute
49	JRF	Junior Research Fellowship
50	LAN	Local Area Network
51	M.Sc.	Master of Science
52	NAARM	National Academy of Agricultural Research Management
53	NABARD	National Bank For Agriculture & Rural Development
54	NAHEP	National Agricultural Higher Education Project
55	NAIP	National Agricultural Innovation Project
56	NAREE	National Agricultural Research, Education and Extension

Sr. No.	Acronym	Expansion
57	NDRI	National Dairy Research Institute
58	NET/ARS	National Eligibility Test/Agriculture Research Services
59	NTA	National Testing Agency
60	NTS	National Talent Scholarship
61	OBC (NCL)	Other Backward Classes (Non-Creamy Layer)
62	PCA	Physics, Chemistry, Agriculture
63	PCB	Physics, Chemistry, Biology
64	PCM	Physics, Chemistry, Mathematics
65	PG	Post-graduate
66	Ph.D.	Doctor of Philosophy
67	RAWE	Rural Agriculture Work Experience
68	READY	Rural Entrepreneurship Awareness Development Yojana
69	RLBCAU	Rani Lakshmi Bai Central Agricultural University
70	SAUs	State Agricultural Universities
71	SC	Scheduled Caste
72	SDG	Sustainable Development Goal
73	SRF	Senior Research Fellowship
74	ST	Scheduled Tribe
75	STEM	Science, Technology, Engineering and Mathematics
76	STEAM	Science, Technology, Engineering, Agriculture and Mathematics
77	SWS	Summer/Winter School
78	UG	Under-graduate
79	UN	United Nations
80	USD	United States Dollar
81	UTs	Union Territories
82	VCI	Veterinary Council of India
83	WTO	World Trade Organization

1 INTRODUCTION

"Education makes life self-reliant. It inspires man to live with dignity in the society."

–Narendra Modi

THE establishment of Govind Ballabh Pant University of Agriculture & Technology in the country during 1960, the first State Agricultural University (SAU), on the Land grant pattern of the US, has been a climacteric moment in the history of agricultural education system in India. Significant contributions have been made by this and subsequently created centres of learning in the form of development of trained scientific human resource, generation and assessment of new technologies and their dissemination to the farming community. Presently, the agriculture is shaping up as a professionally driven industry that requires human resources with multiple and diverse skill set to cater to the growing demands of the expanding food processing industry, corporate and unorganized sector.

Dr. Rajendra Prasad, one of the chief architects of modern India and its first President and Union Minister of Food and Agriculture, had in true spirit, imbibed the Gandhian concept that agriculture is the backbone of the Indian economy. A firm believer in the maximization of agricultural production and amelioration of the lot of the peasants, he gave the slogan - "***Grow More Food***" that holds true today even after seventy years.

After independence, from the state of deficiency, the country has reached the stage of self-sufficiency in food grain production thereby making a visible impact on the national food and nutritional security. The key to success has been the establishment of institutions of higher agricultural education under ICAR-AU system leading to development of new breed of quality human resource for generating new technologies.

Currently, the number of AUs in the country under the NAREE system has swelled up to 74. The intake capacity of students in these institutions, which was less than 5,000 in 1960, has now gone up to > 45,000. With about 410 constituent colleges, these AUs enroll, on annual basis, about 28,000 students at UG level and over 17,500 students at Masters and Ph.D. level. In addition to this, there are >400 private affiliated colleges also enrolling the students

for higher agricultural education. Degree courses at undergraduate level are offered in 11 subjects with an emphasis on learning through hands on practice sessions and rural work experience and at postgraduate level in 95 subjects.


Drone assembling session at MPKV, Rahuri

To achieve the objective of becoming a USD 5 trillion economy by 2024-25, as envisioned by the Hon'ble Prime Minister, India needs to sustain a real GDP growth rate of 8%. The growth of agriculture sector has, however, been fluctuating: it increased from -0.2% in 2014-15 to 6.3% in 2016-17, and then declined to 2.9% in 2018-19. The contribution of agriculture to the GVA has decreased from 15% in 2015-16 to 14.4% in 2018-19. Therefore, concerted efforts are required to bring transformation in agriculture sector in the country. The Hon'ble Prime Minister has also given slogan of ***'Per drop more crop'***.

The Government of India has also set an ambitious target to double the income of farmers by 2022-23, which corresponds to targeted annual agricultural growth of more than 14 per cent per year. To realize this goal, quality manpower and policy actions along with scientific interventions are imperative for Indian agriculture.

AUs in partnership with ICAR are striving hard in imparting quality education to the students. Human resource has been developed to meet not only the regional needs but also the states' and country's requirements to refurbish the growth rate in agricultural sector. AUs are also pursuing research projects relevant to some of the emerging regional problems being faced by the farmers and striving hard to develop linkages between learning and research for the betterment of life of the farmers in the country.

1.1 Agricultural Education System (AES) in India

It is one of the largest national networks of AES in the world, comprising 63 State Agricultural Universities (SAUs), 4 Deemed-to-be-Universities, 3 Central Agricultural Universities and 4 Central Universities with agriculture faculty. ICAR works in a partnership mode with SAUs and has contributed significantly in developing first rate human resource by way of co-ordinating, supporting and guiding various aspects of higher agricultural education. It provides funds for development and strengthening facilities in vital areas, creation of teaching and learning facilities, capacity building of faculty and scholarships/fellowships to the students for quality assurance. To reduce the academic inbreeding in agricultural education, students are being encouraged to go to other states for pursuing higher studies by facilitating item with grant of National Talent Scholarship, ICAR-PG Scholarship and ICAR-JRF/SRF (PGS), which are revised from time to time.

1.2 Emerging Challenges in Agriculture Sector

Today, agriculture faces several grave concerns such as stagnating/declining productivity and profitability, depleting quality of natural resources, biotic and abiotic stresses, inefficient use of agro-inputs, unsafe livelihoods for millions of small and marginal farmers, regional imbalances in agricultural productivity, a general lack of qualified manpower in the frontier areas to deliver at grassroots level, rising input costs, changing food habits and quality concerns, fragmented processing industry, high post-harvest losses, lack of value addition and processing, fossil fuel crisis and growing emphasis on biofuels, emerging climate change, rising quality competitiveness under the pressure of globalization, etc. Persistent problems like poverty, debt-trap, vulnerable markets and poor access to credits, etc. are dragging the sector into distress conditions. To address these challenges, some extraordinary efforts are required to be made especially for development of quality human resource that is critical for sustaining, diversifying and realizing the potential of agriculture. High-tech agriculture could be one of the options and for that high-end research is needed and to achieve this highly motivated world class human resource and facilities are required that can flow from world class agricultural institutions and AUs which at present are lacking in the country.

1.3 Role of Agricultural Education in Food and Nutritional Security

In 2019, on Global Hunger Index (GHI), India ranked 102 out of 119 countries, with a Global Hunger Index score of 30.3 (https://www.globalhungerindex.org/results.html), placing the country in the "serious" category. More than 20% of Indian children under the age of five have lower weight in relation to their height and about 33% are too short in relation to their age. Despite India being the world's second largest food producer, it has second highest under-nourished population in the world. This requires sustained efforts to feed the burgeoning population of country that is poised to eclipse the population of China by 2027 to attain the status of the most populous nation on the planet.

As per 4th Advance Estimates for 2017-18 (DOAC&FW, 2018-19), total food grain production in the country is estimated at 284.83 million tonnes which is higher by 9.72 million tonnes than the previous record production of food grain of 275.11 million tonnes achieved during 2016-17. The production during 2017-18 was also higher by 24.66 million tonnes than the previous five years' (2012-13 to 2016-17) average production of food grain. The growth achieved in agricultural sector has been attributed to the concerted efforts of skilled human resource developed through AES. After independence, from the state of deficiency, country has moved to the stage of self-sufficiency in food grain production. It has enabled the country to increase production of food grains by 4-fold, horticultural crops by 6-fold, fish by 9-fold (marine 5-fold and inland 17-fold), milk by 6-fold, and eggs by 27-fold since 1950-51, thus making a visible impact on the national food and nutritional security. Thus human resource developed through AES in the country has primarily been responsible for various agricultural

revolutions, *viz.* green, white, blue, yellow, pink leading to enhanced agricultural production and productivity. Not only this, the scientific expertise developed and research facilities manned by highly skilled and trained persons have been internationally recognized and a number of developing and developed countries have shown keen interest to work together and get mutually benefited through exchange programmes and collaborative research projects. Due to shrinking resources, there is a need to shift from input-based to knowledge-based increase in agricultural production to produce "***More from Less for More***". Though the country has achieved self-sufficiency in cereal (starch) production, there is need to shift from starch to protein and fat (oil) self-sufficiency to combat the widely prevalent hidden hunger and malnutrition in rural women and children.

1.4 Talent Getting Attracted Towards Higher Agricultural Education

Generally, there is an impression that meritorious students are not opting Agriculture as subject of their choice to pursue their higher studies. As per the analysis of the aggregate marks secured by admitted candidates in qualifying (10+2) examination during 2019-20, it emerged that the efforts of the ICAR-Education Division, by way of publicizing the scope and relevance, e-initiatives like online submission of application and payment of examination fee, online examination in CBT mode, online counseling and observance of "Education Day" in ICAR institutes and SAUs have started paying dividends in the form of growing attraction of talented youth towards Agricultural Education. This was evident by the startling revelation that out of 2,189 candidates admitted in 59 accredited Agricultural Universities through AIEEA (2019-20) conducted by the Council for UG admissions, 52% candidates had secured 80% and above marks in their qualifying Intermediate Board Examinations. (Fig.1).

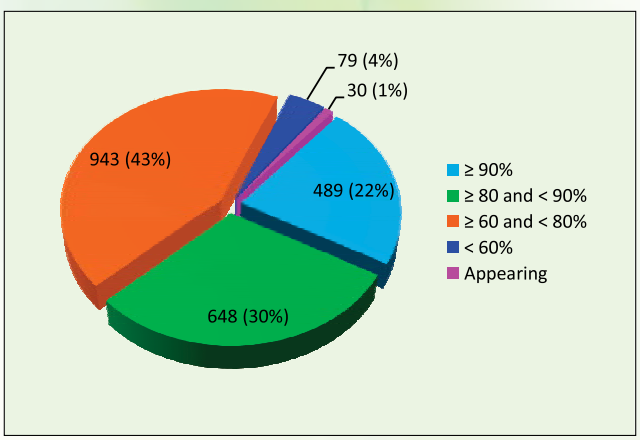

Fig.1. Marks profile of candidates admitted to UG programmes during 2019-20

It is encouraging that many talented students are offering agriculture as their subject of first or second choice for the profession.

1.5 New Initiatives in Agricultural Education

UG students undergoing Group Activity on Developing Managerial Skills

The Govt. of India has decided to recast the country as a 'knowledge economy' by making higher education a top national agenda. Agricultural education has to evolve in sync with the fast changing national and international scenario and facilitate human capacity for developing self-motivated professionals and entrepreneurs. ICAR with the assistance of World Bank and Govt. of India, on a 50:50 cost sharing basis, has embarked upon an ambitious National Agricultural Higher Education Project (NAHEP) by investing on infrastructure, competency and commitment of faculty, and attracting talented students to agriculture with a total cost of US$ 165 million (~ ₹ 1100 crores) with the major objectives like accentuation of the relevance and quality of higher agricultural education in selected AUs, student and faculty development, improvement in learning outcomes, employability and entrepreneurship and enhancement of institutional and system management effectiveness.

To make the agricultural education more need-based, multi-pronged efforts are being undertaken by the Council. Realizing that the system should move from the Land-Grant to a "World Grant" pattern, the V Dean's Committee has recommended new curricula, courses and contents that have been designed to duly inform the students of the new global initiatives, such as Global Green Economy; Knowledge Economy; Global Zero Hunger Challenge; UN International Year themes viz. International Years for Pulses, Family Farmers and Small holder Farmers, Soil and Water; Sustainable Development Goals, 2030; and International Agriculture and Development Challenge, 2050. Agriculture curricula are gradually required to put Agriculture in the middle of Science, Technology, Engineering and Mathematics ("STEM") to make it "STEAM", where A means Agriculture. It is expected that the revised curricula would increasingly be internalizing the "STEAM" concept (Fifth Dean's Committee Report, 2017).

Some of the new initiatives undertaken by Agricultural Education including those for All India Entrance Examination are as under:

(a) Ranking of agricultural universities

In line with the National Initiative on Ranking of Indian Institutions, ranking of Agricultural Universities has been initiated by ICAR with a larger objective to improve ranking of Indian Universities in World University Rankings. The ranking process is done annually and top three ranking universities are annually awarded on 16thJuly, the Foundation Day of ICAR. It is expected that the process of ranking would help agricultural universities to self-assess themselves on the quality and enhance their abilities.

While evaluating the agricultural universities, emphasis is laid on parameters such as students' performance, academic excellence, faculty profile, research product, research impact, research excellence, technologies transferred to farmers, spread/adoption of technologies and increase in agricultural growth in the area of jurisdiction of the university. During the first ever ranking conducted by ICAR, 63 agricultural universities were evaluated and the top three ranking universities, viz. ICAR-National Dairy Research Institute, Karnal; ICAR-Indian Agricultural Research Institute, New Delhi and Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, were awarded on ICAR Foundation Day Award Ceremony held on 16 July 2018.

(b) Student READY programme

The Student READY programme was launched by Hon'ble Prime Minister of India on 25th July, 2015 consisting of 5 components, *viz.* Experiential Learning (EL), Rural Agriculture Work Experience (RAWE), In Plant Training/Industrial Attachment, Hands-on Training (HOT)/Skill Development Training and Student projects. This programme funded by ICAR, being the integral part of the degree programmes, is expected to make the agricultural graduates more capable and confident in handling the field and industry problems. Following the recommendations of V Dean's Committee Report, a new programme Food Nutrition & Dietetics was introduced for admission through AIEEA (UG) w.e.f. 2018-19.

Experiential Learning Programme

(c) Declaration of UG degrees as professional degree

ICAR has declared UG degrees in agriculture and allied subjects (13) as professional degree courses which has encouraged the pursuit of learning in agriculture and allied subjects for the purpose of scholarship abroad/prizes/medals/certificates and other academic titles.

(d) Reforms pertaining to All India Entrance Examination

Some of the reforms undertaken by the Agricultural Education Division in respect of the ICAR's All India Entrance Examination are as under:

- The centralized admission to 25% seats of doctoral degree programmes of these universities through All India Competitive Examination for the award of Junior/Senior Research Fellowship, AICE-JRF/SRF (PGS), was also introduced by the Council from the Academic Session 2015-16.
- Based on the decision taken by Governing Body of ICAR in its 234th meeting held on 25.06.2015, w.e.f. the Academic Session 2016-17, admissions through the entrance examinations conducted by ICAR are permitted only to ICAR accredited programmes and colleges of universities under ICAR AU-system.

- The online counseling for admission to different disciplines of agriculture & allied sciences in UG, PG and Ph.D. degree programmes was introduced by the Council w.e.f. the Academic Session 2017-18.
- A decision was also taken in the Annual Vice-chancellors' Conference held on 16-17 January, 2019 at New Delhi regarding admission of candidates passing out from private agricultural colleges/universities in view of the Gujarat High Court Order and Hon'ble Apex Court Order. Based upon this decision, the candidates passed out from private Agricultural Universities/Colleges not accredited by ICAR, even though affiliated to public funded/Govt. institutions, are not eligible for admission through ICAR's PG and Ph.D. examinations.
- Since 2019, ICAR's AIEEA are being conducted in LAN-based CBT mode by the National Testing Agency (NTA), an autonomous premier testing organization under the aegis of Department of Higher Education, Ministry of Human Resource Development, Government of India.
- From 2020-21, the Council will conduct a single entrance examination for admission to doctoral degree programmes in the universities, including all the four ICAR-DUs, under the ICAR-AU system.
- From 2020-21, the AICE-JRF/SRF (Ph.D.) examination instead of Major Subject Group-wise will be conducted for 73 separate specialized Subjects for admission to doctoral degree programmes.

Rearing of green lace wing predator by the students

Students harvesting cucumbers in greenhouse

2 SCHEMES FOR ATTRACTING THE TALENTED STUDENTS AND CAPACITY BUILDING OF FACULTY

"By education I mean an all-round drawing out of the best in child and man-body, mind and spirit. Literacy is not the end of education or even the beginning."

–Mahatma Gandhi

TO attract students to higher agricultural education and to achieve educational excellence in teaching, research and capacity building of faculty in the cutting-edge areas of agriculture and allied science subjects, Agricultural Education Division operates a number of schemes as under:

2.1 For Students

2.1.1 National Talent Scholarship (NTS)

NTS is awarded @ ₹3000 per month, for pursuing undergraduate studies, to all those students who take admission outside their state of domicile and maintain prescribed academic standards.

2.1.2 Post Matric Scholarship for Scheduled Caste and Scheduled Tribe Candidates

This is provided to Scheduled Caste and Scheduled Tribe students for pursuing Bachelor degree programme in agriculture and allied sciences, with the basic objective to support the students from the weaker sections of the society. The scholarship is provided @ ₹1000/- per month per student.

2.1.3 Merit-cum-Means Scholarship for undergraduate studies

This scholarship aims to attract meritorious undergraduate students belonging to below poverty line families, with an annual income below ₹1.00 lakh, to pursue higher studies in agriculture and allied sciences. The scholarship is provided @ ₹1000/- per month per student.

2.1.4 Junior Research Fellowship (JRF)/Senior Research Fellowship (SRF) for Ph.D. program

Junior Research Fellowship (JRF)/Senior Research Fellowship (SRF) for pursuing Ph.D. program in ICAR-AU System is awarded @ ₹31,000 per month during 1st & 2nd year and ₹35,000 during the 3rd year.

2.1.5 International Fellowships

Capacity and competence of ICAR-AU system has now been recognised world over. Students from a number of developing countries are being attracted and benefited from research and teaching facilities developed in Agricultural universities by pursuing their higher studies.

Scientist briefing students on food processing machineries at CFTRI, Mysore

DARE/ICAR facilitates annual admission of over 250 foreign students of more than 20 countries to various degree programmes in agriculture, horticulture, forestry, veterinary, agricultural engineering, etc. in universities under ICAR-AU system by considering the applications received through Department of Agricultural Research & Education (DARE), Educational Consultants India Ltd. (EdCIL), and Indian Council of Cultural Relations (ICCR).

As more jobs are being created in private sector in the developing countries including India, there is a growing interest among the students from the developing countries to come and study in India to understand Indian Agriculture.

To support their higher studies in India, a number of programmes/fellowships have been initiated as under:

2.1.5.1 Netaji Subhas-ICAR International Fellowship

This fellowship was instituted with the objectives to develop competent human resource trained in the identified best laboratories in the world and showcasing the strength of NAREE system and also expose overseas candidates to the best AUs under ICAR-AU system for creating a pool of scientist-envoys for enhanced future co-operation. There are thirty fellowships available every year for a programme leading to Ph.D. degree under this scheme. Apart from to and fro economy class air fare, the fellowship amount earmarked for Indian fellows (going abroad) and Overseas candidates is US $ 2,000/- and ₹40,000/- p.m., respectively along with a lumpsum preparatory & contingency amount of US $ 1,000/- and ₹25,000/- per annum, respectively.

2.1.5.2 India-Africa Fellowship

India-Africa Forum Summit III (IAFS-III) ensued allocation of 500 seats under Special Agricultural Fellowships for African nationals to conduct higher degree programme from Indian Agricultural Universities. During 2018-19, a total of 156 applications (108 PG, 48 Ph.D.) of African nationals from 13 countries (Botswana, South Sudan, Kenya, Tanzania, Nigeria, Eritrea, Ghana, Malawi, Egypt, Zimbabwe, Uganda, Mozambique and Ethiopia) were recommended. Out of these, 88 (62 PG, 26 Ph.D.) candidates were provisionally selected and 26 (21 PG,

05 Ph.D.) have joined. IAFS-I (2010-14) programme has been summed up and 188 African nationals have successfully graduated from 36 Indian Agricultural Universities.

2.1.5.3 India-Afghanistan Fellowship

India also offers fellowships every year to Afghan nationals for pursuing Master and PhD programmes in Agriculture in Indian AUs. During 2018-19, 75 candidates (7 Bachelors, 63 Masters and 5 Doctoral) were provisionally selected and 33 (3 Bachelors, 28 Masters and 2 Doctoral) candidates had joined.

2.2 For Faculty

2.2.1 ICAR Post-doctoral Fellowship

The ICAR Post-doctoral Fellowship (ICAR-PDF) is a new programme introduced w.e.f. Academic Session 2019-20 under the ongoing 'Strengthening and Development of Higher Agricultural Education in India' Scheme of Agricultural Education Division, ICAR to identify and support motivated young researchers for conducting research in frontier areas of agriculture and allied sciences to build the national capacity and provide them a platform to develop as an independent researcher capable of initiating a new programme in nationally important priority areas under the supervision of a mentor. There are 25 positions of PDFs at the four ICAR-DUs (10 for IARI and 5 each for IVRI, NDRI and CIFE). The PDF will be provided @ ₹75000/- p.m. and contingency of ₹2.00 lakhs per annum for a period of one year.

2.2.2 ICAR National Professor/National Fellow Scheme

This scheme was conceptualized to promote excellence by establishing and nurturing novel school of thought and developing strong centres of agricultural research and education around outstanding scientists through 10 positions of National Professorial Chairs and 25 positions of National Fellows. The scheme of National Professorial Chairs includes the prestigious BP Pal Chair in Genetics and Plant Breeding at IARI, New Delhi and Norman Borlaug Chair in International Agriculture located in the ICAR-AU system. The contribution of National Professors and National Fellows in the form of technologies, patents, copyrights has immensely benefited the knowledge pool of the country.

2.2.3 ICAR Emeritus Professors

The ICAR Emeritus Professor program is a relatively new initiative for tapping brain and skill bank of the outstanding superannuated professionals of NAREE system. It strives to utilize their talent in teaching courses and other related activities, student research guidance and developing instructional material/text books including e-learning resources for use in national agricultural education programme and distance education in the field of agriculture, veterinary science & animal husbandry, fisheries, community science, dairy technology and allied sciences.

This initiative is expected to improve the quality of education in most of the universities by addressing the shortage of faculty.

2.2.4 ICAR Emeritus Scientists

This programme aims at utilizing services of outstanding superannuated scientists/teachers from NAREE system for supporting ongoing nationally important research, teaching specialized courses, developing quality instructional material for use in national agricultural education programme including distance education. The programme has helped to make use of the experience of retired professionals for remedying manpower imbalances in some of the crucial areas of research. This initiative besides primarily focusing on completion of the on-going research projects also aims to initiate new programmes in nationally important priority areas.

Student briefing on handling Scanning Electron Microscope

2.2.5 Centres of Advanced Faculty Training (CAFT)

40 Centres of Advanced Faculty Training are approved across the country for undertaking discipline oriented advanced training for teaching, research and extension in cutting edge areas of agriculture and allied sciences for enhancing the capabilities of faculty for use in educational innovations, modern teaching and research methodologies along with serving as repository of ideas and information in concerned disciplines.

2.2.6 Niche Area of Excellence

Niche Area of Excellence (NAE), one of the most prestigious programmes of ICAR, aims to create global competitiveness in agricultural education and research. It was initiated during 2006-07 with an overall objective to achieve educational excellence in teaching, research and capacity building in frontier areas of agriculture and its allied disciplines. It is aimed that, at least in each SAU, one centre of excellence is developed to promote research through excellence in teaching, research, consultancy and other services in chosen niche/specific areas to compete with the best in the world. The NAEs supported by ICAR have accomplished the task in diverse areas, focusing on sustenance of quality of natural resources through diversification and productivity enhancement.

2.2.7 Summer/Winter Schools (SWS) and Short Courses

Since 1967, the ICAR has been sponsoring the organization of Summer School/Winter School/Short Courses in the discipline of Agriculture, Veterinary, Animal Sciences, Fisheries and Food Technology, etc. across the ICAR-AU system. The purpose of organizing these

Fig. 2. Number of professionals trained under Capacity Building Programme

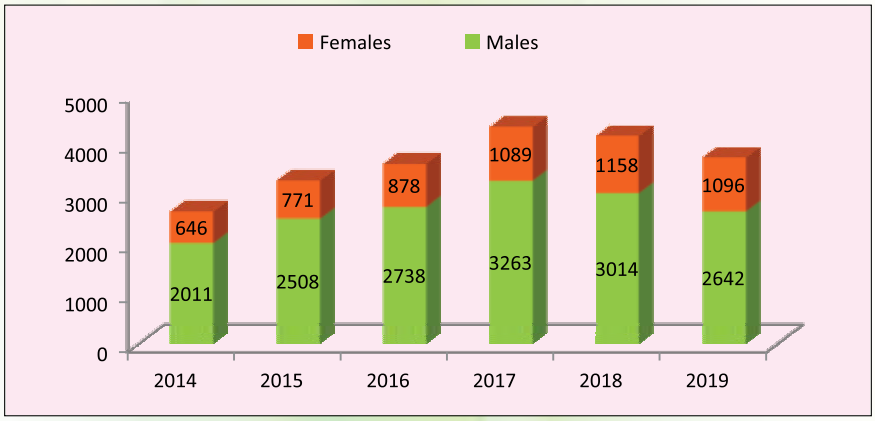

Fig. 3. Gender-wise distribution of trainees under Capacity Building Programme

courses is to bring about qualitative improvement and to update the teachers, researchers and extension specialists with the latest knowledge and techniques in the field of their specialization, provide necessary orientation to contemporary problems, provide a common forum for co-professionals to interact and exchange experiences and also to maintain feedback to make research and education more relevant. This activity has helped to bring out qualitative improvement in their pedagogical skills and also updated their knowledge in the specialized/emerging areas thereby contributing to development of skilled

TANUVAS students at a simulation facility at WSU, USA during their clinical internship

human resources for making research and education more relevant. A Capacity Building Program (CBP) portal is operational as a workflow based online management system of all training programs sponsored by Agricultural Education Division. It provides information on all training programmes, training proposal submission and evaluation, submission of application by a trainee, availability of e-books/lecture notes of a training and reports for all categories of users and several other features. Figs. 2 and 3 indicate the number and gender-wise distribution of faculty/Scientists trained under ICAR's CBP over the years. Since 2014 till December 2019, around 22,000 teachers/scientists have been trained through this programme.

Training of teachers for teaching at different levels needs to be provided at regular intervals. Such trainings and re-trainings need to be made mandatory for senior teachers also to keep them updated with the latest developments in the field of agricultural science & technology, extension and education etc.

National Academy of Agricultural Research Management (NAARM)

Need-based capacity building of NAREE system through foundation courses, refresher courses, workshops, seminars and international programmes is carried out by ICAR-NAARM, Hyderabad. The Academy also provides policy support, facilitates national dialogues and undertakes consultancies for performance enhancement of NAREE system.

Students undergoing training at IIFPT, Thanjavur

3 ALL INDIA ENTRANCE EXAMINATIONS FOR ADMISSION (AIEEA)

"Education is the most powerful weapon which you can use to change the world."

–Nelson Mandela

WITH an aim to reduce academic inbreeding in agricultural education by encouraging mobility amongst students to go for study outside their home states, infuse merit and encourage the talent and national integration and promote uniform examination standards across the AUs, Council made an arrangement with Agricultural Universities to set aside 15% of their seats for Bachelor's and 25% seats for Master's degree programmes to be filled through All India Entrance Examinations. Accordingly, ICAR conducts two All India Entrance Examinations for Admission (AIEEA)-one for Bachelor's degree and another for Master's degree programme, every year. For the ICAR-Deemed-to-be-Universities such as IARI, IVRI, NDRI and CIFE, 100% seats are filled through the above examinations. The programme started in the year 1996-97, and so far, Agricultural Education Division has conducted 24 All India Entrance Examinations for Admission (AIEEA) to various UG and PG Degree programmes. Besides these, since 2015-16 ICAR has been conducting centralized admission to 25% seats of Ph.D. degree programmes at AUs under the ICAR-AU system through AICE-JRF/SRF (PGS), presently renamed as AICE-JRF/SRF (Ph.D.) examination. Since 2019, these examinations are being conducted in LAN-based CBT mode by the National Testing Agency (NTA), an autonomous premier testing organization under the aegis of Department of Higher Education, Ministry of Human Resource Development, Govt. of India.

National Testing Agency (NTA)

To assess competence of candidates for admissions and recruitment has always been a challenge in terms of matching with research based international standards, efficiency, transparency and error free delivery. The NTA (www.nta.ac.in) has been established as a premier, specialist, autonomous and self-sustained testing organization under Department of Higher Education, Ministry of Human Resource Development, Govt. of India to conduct entrance examinations for admission/fellowship in higher educational institutions.

Mission

To improve equity and quality in education by administering research-based valid, reliable, efficient, transparent, fair and international level assessments with the best subject matter experts, psychometricians and IT delivery & security professionals to ensure that the current gaps in existing assessment systems are properly identified and bridged.

Core Values

NTA strongly believes in quality, efficiency, effectiveness, equity and security of assessments. To realize this, NTA will create a system that will promote teaching (by teachers), learning (by students) and assessment (by parents and institutions). To practice these values, NTA will constantly engage with its stakeholders, viz. students, parents, teachers, experts and partner institutions.

Objectives

To conduct efficient, transparent and international standards tests in order to assess the competency of candidates for admission, and recruitment purposes.

- To undertake research on educational, professional and testing systems to identify gaps in the knowledge systems and take steps for bridging them.
- To identify experts and institutions in setting examination questions.
- To produce and disseminate information and research on education and professional development standards.

Functions

- To identify partner institutions with adequate infrastructure from the existing schools and higher education institutions which would facilitate conduct of online examinations without adversely impacting their academic routine.
- To create a question bank for all subjects using the modern techniques.
- To establish a strong R&D culture as well as a pool of experts in different aspects of testing.
- To help individual colleges and universities in the field of testing and to provide training and advisory services to the institutions in India. To provide quality testing services to the academic institutions in India.
- To develop a state of the art culture of testing in India by using domestic and international expertise. To collaborate with international organizations like ETS to achieve the same.
- To undertake any other examination that is entrusted to it by the Ministries/Departments of Government of India/State Governments.
- To undertake the reforms and training of school boards as well as other bodies where the testing standards should be comparable with the entrance examinations.

Through AIEEA, degree courses at the undergraduate level are offered in 11 disciplines with emphasis on learning through hands-on-practice sessions and field experience training. As per 5th Deans Committee report, the admission to Agri. Marketing & Cooperation has been discontinued from the Academic Session 2017-18 while one new degree programme on Food Nutrition and Dietetics has been introduced in the SAUs. The PG programmes are offered in 96 disciplines while Ph.D. programmes are offered in 73 disciplines.

As per the provisional figures of HRD Ministry (2012), by 2029, the Gross Enrolment Ratio (GER) is expected to achieve the figure of 30-35%. The ratio for developed countries is 35-40%, whereas the world average is 23%. In case of higher education, GER of girls is marginally lower than that of boys at all India level and also in respect of most of the States. Lower GER of girls in higher education as compared to that of boys could be attributed to factors such as social, cultural and religious beliefs, attitudes and practices, poverty and poor learning environment (Ministry of HRD, 2017). The GER for all categories of students for higher education in India has shot up from 8.1 in 2001 to 26.3% (AISHE Report, 2018-19). An encouraging pattern that has emerged is that GER for male population is 26.3% while for females, it is 26.4%. The Gross Enrolment Rate for Agricultural Education, out of the total eligible population in the country, is below 1% which is abysmally low. In the recent past, the number of applicants especially for UG admissions has increased significantly showing growing interest towards higher agricultural education. During AIEEA-2019, for each seat in UG, there were around 85 applicants and for PG there were 10. For UG, in comparison to AIEEA-2014, when the number of applicants per seat was 53, though the competition has remarkably increased, still in comparison to medical courses where for each seat there are about 50,000 candidates, we need to go a long way.

* *Gross Enrolment Ratio (GER) or Gross Enrolment Index (GEI) is a statistical measure used in the education* sector *to determine the number of students enrolled in school at different grade levels in a country that indicates the ratio of the number of students who live in that country to those who qualify for the particular grade level.*

3.1 All India Entrance Examination for UG Admissions [AIEEA (UG)]

ICAR's 24thAIEEA (UG)-2019 examination was conducted in LAN-based CBT mode at 128 examination centers, involving 796 venues, across the country to enable a large number of candidates to appear in this examination. A record number of 2,36,931 candidates applied (Fig.4) for this examination registering a phenomenal increase of 60.46% in comparison to previous year's examination held in offline mode. The ratio of the number of seats to the applicants was 1:85. Off 2,36,931 applicants, 1,08,979 (46%) appeared in the examination which is remarkably higher (124.94% increase) than 48,446 candidates appeared in offline mode during 2018 [Fig. 5(a)]. Candidates from 36 states/UTs appeared in the examination. A total of 1,08,591 (99.64%) candidates from 36 states/UTs (including erstwhile J&K state) were eligible for registration and choice-filling during online counseling for admission to various Bachelor degree programmes.

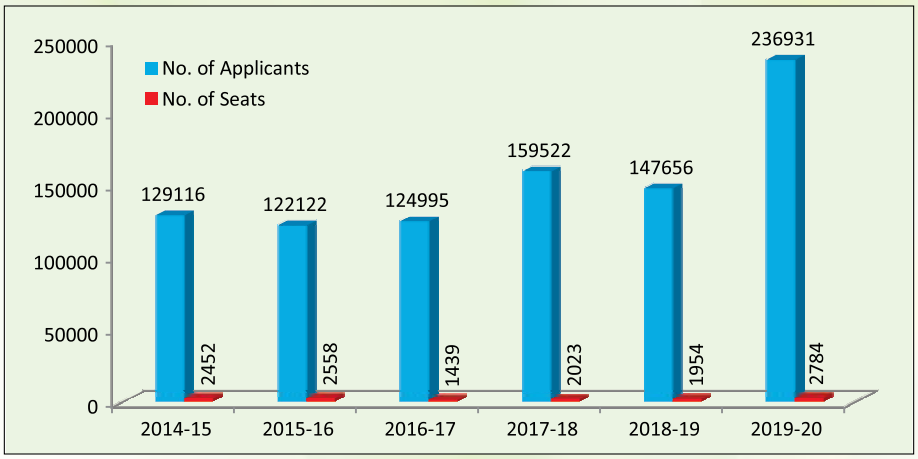

Fig.4. Temporal pattern of applications received for AIEEA (UG)

The top three states with the highest number of applicants were (i) Kerala (38,651) (ii) Bihar (33,948) and (iii) Rajasthan (29,025), whereas those with the highest number of candidates that appeared were (i) Rajasthan (17,991), (ii) Bihar (16,714) and (iii) Kerala (8,558). The states with the highest number of candidates that were eligible for registration and choice filling for participation in counselling were (i) Rajasthan (17,953) (ii) Bihar (16,554) and (iii) Kerala (8,536) (Table-1).

Table 1. Domicile State-wise distribution of candidates applied/appeared in the examination and eligible for registration and choice filling for AIEEA (UG)-2019 counselling

Sr. No.	Domicile State	Applicants	Appeared in exam	Eligible for registration and choice filling for counselling	Eligible for registration and choice filling for counselling (%)
1.	Andaman & Nicobar Islands (U.T.)	153	92	92	100.00
2.	Andhra Pradesh	12213	5624	5612	99.79
3.	Arunachal Pradesh	930	257	256	99.61
4.	Assam	1746	689	685	99.42
5.	Bihar	33948	16714	16554	99.04
6.	Chandigarh (U.T.)	91	51	51	100.00
7.	Chhattisgarh	4961	2380	2375	99.79
8.	Dadra & Nagar Haveli (U.T.)	9	4	4	100.00
9.	Daman & Diu (U.T.)	3	1	1	100.00

Sr. No.	Domicile State	Applicants	Appeared in exam	Eligible for registration and choice filling for counselling	Eligible for registration and choice filling for counselling (%)
10.	Delhi (U.T.)	2402	1418	1417	99.93
11.	Goa	39	22	22	100.00
12.	Gujarat	428	198	196	98.99
13.	Haryana	7203	4026	4018	99.80
14.	Himachal Pradesh	2812	1238	1236	99.84
15.	Erstwhile Jammu & Kashmir	686	363	363	100.00
16.	Jharkhand	4547	2548	2539	99.65
17.	Karnataka	6522	2802	2799	99.89
18.	Kerala	38651	8558	8536	99.74
19.	Lakshadweep (U.T.)	35	9	9	100.00
20.	Madhya Pradesh	11651	7364	7332	99.57
21.	Maharashtra	3438	1684	1679	99.70
22.	Manipur	2225	792	783	98.86
23.	Meghalaya	508	201	201	100.00
24.	Mizoram	42	15	15	100.00
25.	Nagaland	329	89	89	100.00
26.	Odisha	11104	5043	5033	99.80
27.	Puducherry (U.T.)	315	117	117	100.00
28.	Punjab	1550	815	814	99.88
29.	Rajasthan	29025	17991	17953	99.79
30.	Sikkim	37	12	12	100.00
31.	Tamil Nadu	16895	5807	5794	99.78
32.	Tripura	180	31	31	100.00
33.	Uttarakhand	1693	1025	1024	99.90
34.	Uttar Pradesh	13965	7775	7755	99.74
35.	West Bengal	14357	6702	6691	99.84
36.	Telangana	12238	6522	6503	99.71
	Total	**236931**	**108979**	**108591**	

The majority of the candidates preferred Biology-based streams over Mathematics or Agriculture-based streams as was evident from 83.66 % of the candidates opting for this stream. The highest number of candidates appeared for the stream PCB (57.98%) followed by those in the streams ABC (25.67%), PCM (14.47%) and PCA (1.86%) (Table-2). The number

of candidates opting for Agriculture stream was insignificant with < 2% of the total candidates having appeared in this stream. This could be attributed to the reason that Agriculture as a subject in school curriculum is available only in very few states and that too is optional instead of being compulsory. The average score obtained for PCM, PCB, PCA and ABC subject groups/ streams was 103.27, 153.65, 94.66 and 146.76, respectively (Table-3). Frequency distribution of marks secured by the candidates indicates that the highest number of candidates securing marks above 60% belonged to Stream PCB followed by those with Stream ABC and PCM, respectively. None of the candidates from Stream PCA could secure>60% marks (Table-4). This might indicate that either the Agriculture paper was relatively tougher than Biology paper, or more talented and meritorious candidates did not opt for Stream PCA for appearing in the examination.

Table 2. Subject Stream-wise number of candidates appeared in AIEEA (UG)-2019

Subject Stream	Appeared	Appeared (%)
ABC	27976	25.67
PCA	2032	1.86
PCB	63195	57.98
PCM	15775	14.47
Total	**108978**	

Table 3. Subject Stream-wise average score of candidates appeared in AIEEA (UG)-2019

Exam Subject Stream Name	Average score
ABC	146.76
PCA	94.66
PCB	153.65
PCM	103.27

Table 4. Frequency distribution of marks secured by the candidates in AIEEA (UG)-2019

Marks Secured (%)	Marks Secured	No. of candidates in Stream-ABC	No. of candidates in Stream-PCA	No. of candidates in Stream-PCB	No. of candidates in Stream-PCM
<10	≤72	3467	712	13835	6123
10-20	73-144	11992	1062	20136	6176
20-30	145-216	8080	204	13548	2348
30-40	217-288	3185	41	9003	843
40-50	289-360	1083	9	4821	248
50-60	361-432	161	4	1650	35
60-70	433-504	8	0	197	2

Marks Secured (%)	Marks Secured	No. of candidates in Stream-ABC	No. of candidates in Stream-PCA	No. of candidates in Stream-PCB	No. of candidates in Stream-PCM
70-80	505-576	0	0	5	0
	Total	**27976**	**2032**	**63195**	**15775**
Note: Maximum Marks: 600; Highest scores: PCM - 480, PCB - 525, PCA - 412 and ABC - 459					

The integrated trend for the past six years with respect to the number of candidates applied/ appeared for the examination and eligible for registration and choice filling for counseling vis-a-vis the number of seats available along with the category-wise distribution of applicants for AIEEA (UG) is depicted in Fig. 5a & b.

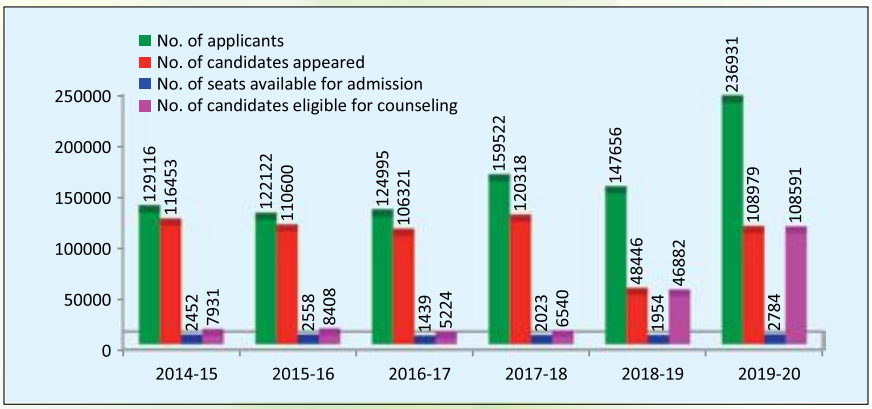

Fig. 5a. No. of candidates applied/appeared for AIEEA (UG)-2019 and eligible for counselling vis-a-vis the number of seats

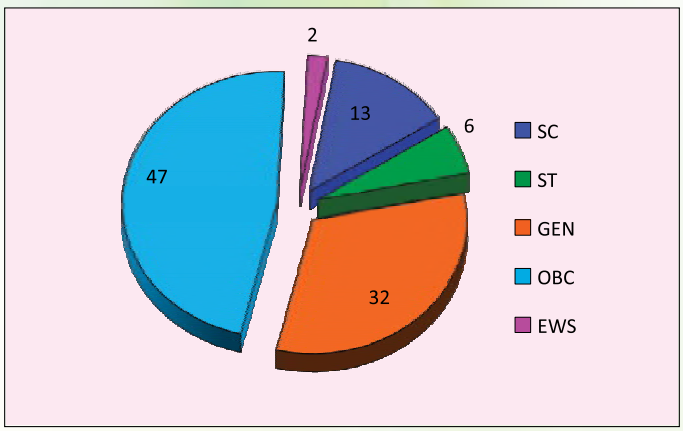

Fig. 5b. Category-wise percent distribution of applicants for AIEEA (UG)-2019

3.1.1 Trends in UG Admissions

A total of 1,08,591 candidates–54,517 boys (50.2%), 54,074 girls (49.8%) were eligible for registration and choice filling for participation in counselling against 2784 seats received from 59 accredited AUs including non-accredited RLBCAU, Jhansi. From PCM, PCB, PCA and ABC streams 15708, 62936, 2022 and 27925 candidates, respectively were invited for online counselling. As may be seen from Table-5, there is a progressive increase in the number of seats being received from the Universities, indicating rising demand amongst the students at state level for pursuing their career in agriculture sector. In comparison to 2018-19 (1,954 seats), the number of seats has increased by 830 (42.50%) during 2019.

During 2019-20, 2.189 seats (79%) were filled up in comparison to 77% seats filled-up during 2018-19. In the subjects namely Agriculture, Agricultural Engineering and Dairy Technology, more than 80% seats were filled up, reflecting preference for these subjects by the candidates. There was a remarkable increase in the number of candidates preferring Community Science (previously Home Science) which was evident by the fact that 50% seats in the subject were filled during 2019-20 in comparison to only 3% seats filled-up during 2014-15. The change in nomenclature of this degree programme might have been one of the reasons for attracting more number of candidates towards this discipline.

State-wise number of candidates admitted

The top five states from which the candidates were recommended for admission were Rajasthan with 408 candidates followed by Bihar (402), Kerala (260), Odisha (170) and Andhra Pradesh (149). From the states like Gujarat (2), Assam (5), Erstwhile Jammu & Kashmir (5), Punjab (7), Uttarakhand (8), Maharashtra (9), Karnataka (15), Tamil Nadu (16), the number of admitted candidates was very low. Out of 36 states/UTs, the eight states/UTs namely Mizoram, Sikkim, Nagaland, Chandigarh, Lakshadweep, Puducherry, Dadra & Nagar Haveli, and Daman & Diu, remained unrepresented.

Out of the total 2,189 candidates granted provisional admission, 1,018 (46.5%) were female candidates. Out of 260 candidates admitted from Kerala, the highest number of 212 (81.5%) candidates were girls (Table-6). It may be observed that the female candidates from Andhra Pradesh, Arunachal Pradesh, Jharkhand, Telangana, Andaman & Nicobar Islands (U.T.), Chhattisgarh, Delhi (U.T.), Goa, Erstwhile Jammu & Kashmir, Manipur and Meghalaya also outnumbered male candidates for admission to UG programmes.

Table 5: Subject-wise seats filled for UG admissions during last six years

Subject	No. of Seats						No. of Seats allotted						No. of Seats filled (%)					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
B.Sc. (Hons.) Agriculture	1255	1306	789	1162	1000	1490	1135	1306	789	975	877	1268	90	100	100	84	88	85
B.Sc. (Hons.) Horticulture	264	290	178	240	280	385	127	194	171	148	202	285	48	67	96	62	72	74
B.Sc. (Hons.) Forestry	93	100	66	72	92	117	43	74	64	40	50	82	73	74	97	56	54	70
B.F.Sc.	95	102	34	90	111	144	30	54	28	47	72	93	32	53	82	52	65	65
B.Sc. (Hons.) Community Science (Formerly Home Science)	159	161	91	104	122	148	5	16	19	22	47	74	3	10	21	21	39	50
B.Sc. (Hons.) Sericulture	14	14	6	7	8	13	4	1	5	3	2	6	29	7	83	43	25	46
B.Tech. Agricultural Engg.	235	241	120	196	159	238	231	241	120	131	131	198	98	100	100	67	82	83
B.Tech. Dairy Tech.	107	129	32	83	75	120	103	129	32	50	59	97	96	100	100	60	79	81
B.Tech. Food Technology	104	96	60	29	37	42	78	86	60	10	24	33	52	65	100	35	65	79
Agri. Mkt. & Coop*	41	39	25	0	0	0	24	25	25	0	0	0	58	65	100	0	0	0
B.Tech. Biotechnology	85	80	38	40	70	87	80	79	38	21	44	53	97	99	100	53	63	61
Total	**2452**	**2558**	**1439**	**2023**	**1954**	**2784**	**1860**	**2205**	**1351**	**1447**	**1508**	**2189**	**76**	**86**	**94**	**72**	**77**	**79**

* Based on V Deans Committee recommendations, the admission to Agri. Marketing & Cooperation was discontinued from the Academic Session 2017-18.

Table 6. Domicile State-wise/Gender-wise number of candidates admitted through AIEEA (UG)-2019

State	Female	Male	Total
Andaman & Nicobar Islands (U.T.)	3	1	4
Andhra Pradesh	81	68	149
Arunachal Pradesh	11	5	16
Assam	1	4	5
Bihar	193	209	402
Chhattisgarh	12	8	20
Delhi (U.T.)	13	11	24
Goa	4	1	5
Gujarat	1	1	2
Haryana	36	54	90
Himachal Pradesh	4	7	11
Erstwhile Jammu & Kashmir	3	2	5
Jharkhand	35	20	55
Karnataka	3	12	15
Kerala	212	48	260
Madhya Pradesh	33	94	127
Maharashtra	3	6	9
Manipur	8	4	12
Meghalaya	3	0	3
Odisha	64	106	170
Punjab	2	5	7
Rajasthan	125	283	408
Tamil Nadu	7	9	16
Telangana	75	63	138
Tripura	2	2	4
Uttar Pradesh	40	74	114
Uttarakhand	4	4	8
West Bengal	40	70	110
Total	**1018**	**1171**	**2189**

The State-wise number of candidates admitted with/without NTS (UG) through AIEEA (UG)-2019 to different AUs is presented in Table-7. A total of 2,189 candidates comprising 1781 with NTS (UG) and 408 without NTS (UG) were admitted to 59 AUs.

Table 7. Number of candidates admitted to different AUs with/without NTS (UG)

Sr. No.	University	No. of candidates admitted		Total
		With NTS (UG)	Without NTS (UG)	
1.	Acharya N.G. Ranga Agricultural University, Guntur (Andhra Pradesh)	47	27	74
2.	Agricultural University, Kota (Rajasthan)	1	3	4
3.	Agriculture University, Jodhpur (Rajasthan)	5	4	9
4.	Anand Agricultural University, Anand (Gujarat)	38	0	38
5.	Assam Agricultural University, Jorhat (Assam)	27	1	28
6.	Banda University of Agriculture and Technology, Banda (Uttar Pradesh)	20	2	22
7.	Bidhan Chandra Krishi Viswavidhyalaya, Mohanpur (West Bengal)	14	11	25
8.	Bihar Agricultural University, Sabour (Bihar)	13	13	26
9.	Birsa Agricultural University, Ranchi (Jharkhand)	9	5	14
10.	Central Agricultural University, Imphal (Manipur)	29	0	29
11.	Chandra Shekhar Azad University of Agriculture and Technology, Kanpur (Uttar Pradesh)	10	7	17
12.	Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana)	26	6	32
13.	Chhattisgarh Kamdhenu Vishwavidyalaya, Durg (Chhattisgarh)	6	0	6
14.	CSK HPKV, Palampur (HP)	16	0	16
15.	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli (Maharashtra)	35	0	35
16.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Krishi Nagar, Akola (Maharashtra)	55	0	55
17.	Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur (Bihar)	141	107	248
18.	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan (Himachal Pradesh)	9	3	12
19.	Dr. Y.S.R. Horticultural University, Venkataramannagudem (Andhra Pradesh)	14	12	26
20.	Faculty of Agriculture, Institute of Agricultural Sciences BHU, Varanasi (Uttar Pradesh)	21	1	22
21.	G.B. Pant University of Agriculture and Technology, Pantnagar (Uttarakhand)	57	2	59

Sr. No.	University	No. of candidates admitted		Total
		With NTS (UG)	Without NTS (UG)	
22.	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab)	8	1	9
23.	ICAR-National Dairy Research Institute, Karnal (Haryana)	32	17	49
24.	Indira Gandhi Krishi Vishwavidyalaya, Krishi Nagar, Raipur (Chhattisgarh)	95	8	103
25.	Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur (Madhya Pradesh)	34	10	44
26.	Junagadh Agricultural University, Junagadh (Gujarat)	33	1	34
27.	Karnataka Veterinary, Animal & Fisheries Sciences University, Bidar (Karnataka)	7	0	7
28.	Kerala Agricultural University, Thrissur (Kerala)	29	20	49
29.	Kerala University of Fisheries and Ocean Studies, Kochi (Kerala)	5	5	10
30.	Kerala Veterinary and Animal Sciences University, Wayanad (Kerala)	5	1	6
31.	Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan)	13	12	25
32.	Maharashtra Animal & Fishery Sciences University, Futala Lake Road, Nagpur (Maharashtra)	10	1	11
33.	Mahatma Phule Krishi Vidyapeeth, Rahuri (Maharashtra)	86	4	90
34.	Nagaland University, SASARD, Medziphema (Nagaland)	8	0	8
35.	Navsari Agricultural University, Navsari (Gujarat)	60	0	60
36.	Odisha University of Agriculture and Technology, Bhubaneswar (Odisha)	29	27	56
37.	Professor Jayashankar Telangana State Agricultural University, Hyderabad (Telangana)	28	6	34
38.	Punjab Agricultural University, Ludhiana (Punjab)	24	1	25
39.	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Gwalior (Madhya Pradesh)	28	5	33
40.	RLBCAU, Jhansi (U.P.)	100	18	118
41.	Sardar Vallabh Bhai Patel University of Agriculture & Technology, Modipuram (Uttar Pradesh)	10	6	16
42.	SDAU, Dantiwada, Gujarat	36	1	37
43.	Sher-e-Kashmir University of Agricultural Sciences & Technology, Srinagar (Jammu & Kashmir)	38	3	41

Sr. No.	University	No. of candidates admitted		Total
		With NTS (UG)	Without NTS (UG)	
44.	Sher-e-Kashmir University of Agricultural Sciences & Technology, Jammu (Jammu & Kashmir)	14	1	15
45.	Sri Karan Narendra Agricultural University, Jobner (Rajasthan)	9	8	17
46.	Sri Konda Laxman Telangana State Horticultural University, Hyderabad (Telangana)	11	7	18
47.	Sri Venkateswara Veterinary University, Tirupati (Andhra Pradesh)	1	3	4
48.	P.V. Narsimha Rao Telangana Veterinary University, Rajendranagar, Hyderabad (Telangana)	4	0	4
49.	Swami Keshwanand Rajasthan Agricultural University, Bikaner (Rajasthan)	2	4	6
50.	Tamil Nadu Agricultural University, Coimbatore (Tamil Nadu)	76	9	85
51.	Tamil Nadu Dr. J. Jayalalitha, Fisheries University, Nagappatinam (Tamil Nadu)	6	1	7
52.	Tamil Nadu Veterinary and Animal Sciences University, Chennai (Tamil Nadu)	5	0	5
53.	University of Agricultural and Horticultural Sciences, Shivamogga (Karnataka)	30	3	33
54.	University of Agricultural Sciences, Bengaluru (Karnataka)	115	4	119
55.	University of Agricultural Sciences, Dharwad (Karnataka)	44	3	47
56.	University of Horticultural Sciences, Bagalkot (Karnataka)	49	3	52
57.	Uttar Banga Krishi Vishwavidyalaya, Cooch Behar (West Bengal)	8	6	14
58.	Vasantrao Naik Marathwada Krishi Vidyapeeth, Krishinagar, Parbhani (Maharashtra)	89	2	91
59.	West Bengal University of Animal & Fishery Sciences, Kolkata (West Bengal)	7	3	10
	Total	**1781**	**408**	**2189**

3.2 All India Entrance Examination for PG Admissions [AIEEA (PG)]

During 2019-20, for admission to Master's degree programmes in 64 accredited Agricultural Universities (including non-accredited RLBCAU, Jhansi) and award of ICAR-PG Scholarship, the examination was conducted in LAN-based CBT mode in 20 Major Subject Groups at 87 Examination City centers (129 venues) across the country.

Out of the total of 31,486 candidates that applied (Fig. 6), 27,164 (86.27%) appeared in the examination registering an appreciable increase (51%) over 17,997 candidates appeared in offline mode during 2018 [Fig. 7a]. The ratio of the number of seats to the applicants was 1:10. Against 3,075 seats, 19,266 candidates – 10,194 males (53%) and 9,072 females (47%) were eligible for registration and choice-filling during online counseling in 2019. In comparison to 2014, there has been a 17% increase in the number of applicants for postgraduate examination. A lot still needs to be required to motivate agricultural graduates to pursue higher education to meet the increasing demand of manpower for teaching, research, and extension. The number and amount of ICAR-PG scholarship and NTS (PG) can be increased to achieve this goal.

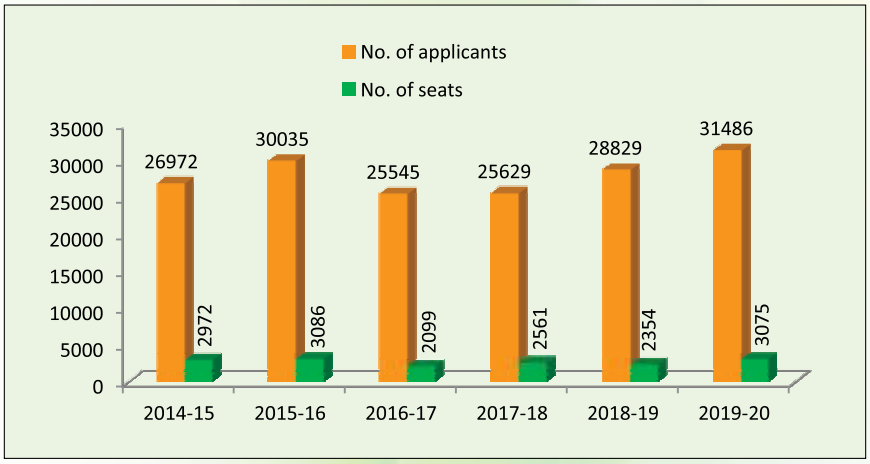

Fig. 6. Temporal pattern of applications received for AIEEA (PG)

The top ranking three states on the basis of the highest number of applicants and appeared candidates were (i) Andhra Pradesh (ii) Maharashtra and (iii) Karnataka. The states with the highest number of candidates that were eligible for registration and choice filling for participation in counseling were (i) Andhra Pradesh (ii) Karnataka and (iii) Maharashtra (Table-8).

Table 8. Domicile State-wise distribution of qualified candidates for AIEEA-PG-2019 Counselling

Sr. No.	Domicile State	No. of applicants	No. appeared	No. eligible for registration and choice filling for counselling	Percent eligible
1.	Andaman & Nicobar Islands (U.T.)	20	16	10	62.50
2.	Andhra Pradesh	3586	2992	2022	67.58
3.	Arunachal Pradesh	367	279	201	72.04
4.	Assam	418	347	277	79.83

Sr. No.	Domicile State	No. of applicants	No. appeared	No. eligible for registration and choice filling for counselling	Percent eligible
5.	Bihar	976	828	655	79.11
6.	Chandigarh (U.T.)	7	6	5	83.33
7.	Chhattisgarh	1015	832	529	63.58
8.	Dadra and Nagar Haveli (U.T.)	1	-	-	-
9.	Daman & Diu (U.T.)	1	1	-	-
10.	Delhi (U.T.)	201	166	136	81.93
11.	Goa	44	41	31	75.61
12.	Gujarat	723	647	503	77.74
13.	Haryana	813	688	499	72.53
14.	Himachal Pradesh	703	612	432	70.59
15.	Erstwhile Jammu & Kashmir	518	458	340	74.24
16.	Jharkhand	192	166	129	77.71
17.	Karnataka	2760	2578	1850	71.76
18.	Kerala	1202	1022	783	76.61
19.	Lakshadweep (U.T.)	3	3	2	66.67
20.	Madhya Pradesh	1179	1056	736	69.70
21.	Maharashtra	3559	2980	1826	61.28
22.	Manipur	347	301	218	72.43
23.	Meghalaya	173	153	110	71.90
24.	Mizoram	99	83	62	74.70
25.	Nagaland	157	131	110	83.97
26.	Odisha	898	831	721	86.76
27.	Puducherry (U.T.)	101	90	62	68.89
28.	Punjab	891	761	560	73.59
29.	Rajasthan	1982	1693	1184	69.94
30.	Sikkim	81	72	57	79.17
31.	Tamil Nadu	1985	1739	1201	69.06
32.	Tripura	248	206	161	78.16
33.	Uttarakhand	508	440	339	77.05
34.	Uttar Pradesh	2569	2112	1432	67.80
35.	West Bengal	916	843	612	72.60
36.	Telangana	2243	1991	1471	73.88
	Total	**31486**	**27164**	**19266**	**70.92**

The integrated trend for the past six years with respect to the number of candidates applied/ appeared for the examination and eligible for registration and choice filling for counselling vis-a-vis the number of seats available along with the category-wise distribution of applicants for AIEEA (PG) is depicted in Fig. 7a & b.

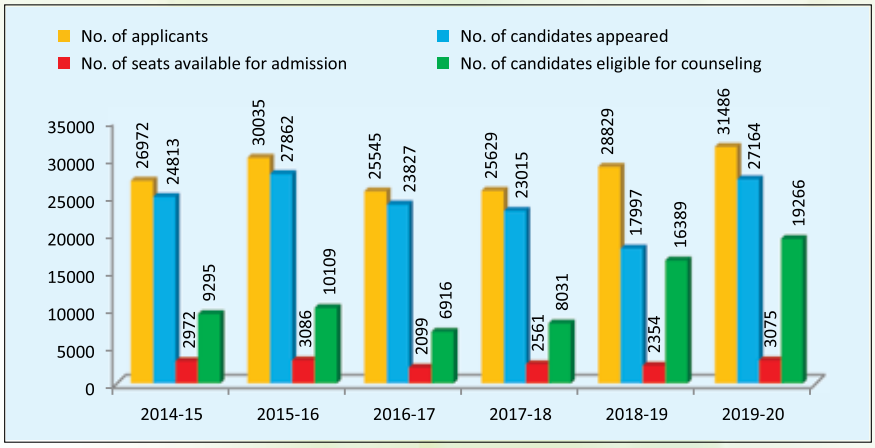

Fig. 7a. No. of candidates applied/appeared for AIEEA (PG)-2019 and eligible for counselling vis-a-vis the number of seats

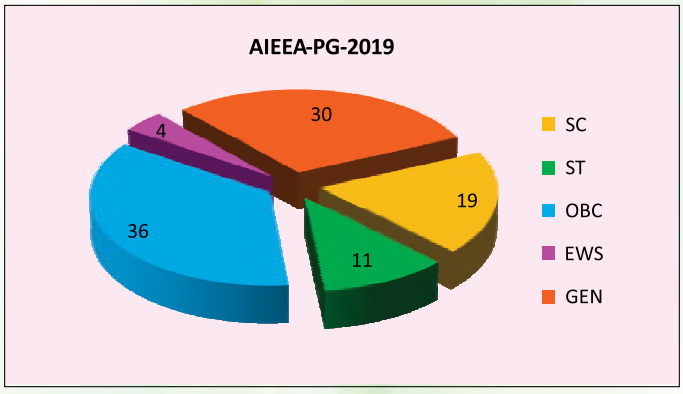

Fig. 7b. Category-wise percent distribution of applicants for AIEEA (PG)-2019

3.2.1 Trends in PG Admissions

A total of 19,266 candidates were eligible for registration and choice filling for participation in counselling against 3,075 seats received from 64 accredited AUs including non-accredited RLBCAU, Jhansi. A record number of 2,586 seats were filled up during this year. Out of the total candidates recommended for admission, 1,220 (47.17%) were girl candidates. Unlike UG,

in PG, the highest number of candidates admitted was from the states like Karnataka and Maharashtra (Table-9). This indicates that on account of more number of SAUs and availability of sufficient seats in these states for Bachelors programme, the candidates preferred to pursue their UG degree within the state. However, they expressed willingness to move outside their home states for pursuing their Masters degree.

Table 9. State-wise number of candidates admitted through AIEEA (PG)-2019 who graduated from AUs located in those states

Sr. No.	State	No. of SAUs, CAUs, Central Universities with Agriculture Faculty and ICAR-DUs	No. Admitted
1.	Andhra Pradesh	3	210
2.	Assam	1	47
3.	Bihar	3	33
4.	Chhattisgarh	2	45
5.	Delhi (U.T.)	1	0
6.	Gujarat	5	58
7.	Haryana	4	33
8.	Himachal Pradesh	2	41
9.	Erstwhile Jammu & Kashmir	2	64
10.	Jharkhand	1	14
11.	Karnataka	6	508
12.	Kerala	3	90
13.	Madhya Pradesh	3	68
14.	Maharashtra	6	261
15.	Manipur	1	86
16.	Nagaland	1	1
17.	Odisha	1	95
18.	Others	1	143
19.	Punjab	2	12
20.	Rajasthan	6	87
21.	Tamil Nadu	3	188
22.	Telangana	3	213
23.	Uttar Pradesh	8	120
24.	Uttarakhand	2	55
25.	West Bengal	4	114
	Total	**74**	**2586**

Amongst the 20 major disciplines, there were 12 major disciplines which could attract below 1,000 candidates only for appearing in the examination. Only in 8 disciplines, the number of candidates appeared in the examination was above one thousand (Table-10), the top three major subjects being Agronomy (4,567), Plant Sciences (4,435) and Horticulture (4,007).

Table 10. Subject-wise distribution of candidates applied/appeared and eligible for participation in counselling through AIEEA (PG)-2019

Code	Major Subject	Applied	Appeared	Eligible for participation in counselling
1.	Plant Biotechnology	1236	980	709
2.	Plant Sciences	5007	4435	2993
3.	Physical Science	1420	1275	955
4.	Entomology and Nematology	2127	1917	1304
5.	Agronomy	5320	4567	3108
6.	Social Sciences	1676	1457	1109
7.	Statistical Sciences	294	258	184
8.	Horticulture	4568	4007	2627
9.	Forestry / Agroforestry and Silviculture	637	520	373
10.	Agricultural Engineering and Technology	1521	1257	966
11.	Water Science and Technology	47	36	28
12.	Community Science (Formerly Home Science)	475	391	306
13.	Animal Biotechnology	375	267	185
14.	Veterinary Science	1851	1673	1327
15.	Animal Sciences	988	853	692
16.	Fisheries Science	862	787	572
17.	Dairy Sciences	316	247	142
18.	Dairy Technology	446	386	269
19.	Food Science Technology	1169	925	678
20.	Agri Business Management	1151	926	739
	Total	**31486**	**27164**	**19266**

For the subjects like Statistical Science, Horticulture, Forestry/Agroforestry and Silviculture, Fisheries Science, Dairy Technology, Dairy Science and Water Science & Technology, >90% seats and for Plant Biotechnology, Plant Sciences, Physical Science, Entomology and Nematology, Agronomy, Social Sciences, Agricultural Engineering & Technology, and Veterinary Science 80-90% seats were filled up. For Animal Biotechnology, there were only few takers as almost

Table 11: Subject-wise seats filled for PG admissions during the last six years

Code	Subject	Total seats						No. of seats filled						No. of vacant seats						Seats filled (%)					
		2019	2018	2017	2016	2015	2014	2019	2018	2017	2016	2015	2014	2019	2018	2017	2016	2015	2014	2019	2018	2017	2016	2015	2014
01	Plant Biotechnology	133	101	116	107	151	146	109	85	99	98	124	129	24	16	17	9	37	17	82	84.2	85.3	91.6	82.1	88.4
02	Plant Sciences	412	311	338	256	380	354	351	275	298	252	368	345	61	36	40	4	12	9	85.2	88.4	88.2	98.4	96.8	97.5
03	Physical Science	207	152	176	123	199	187	174	135	165	122	198	183	33	17	11	1	1	4	84.1	88.8	93.8	99.2	99.5	97.8
04	Entomology & Nematology	184	133	150	108	163	156	164	115	135	107	162	155	20	18	15	1	1	1	89.1	86.5	90	99.1	99.4	99.4
05	Agronomy	218	158	170	112	170	164	191	143	159	112	170	164	27	15	11	0	0	0	87.6	90.5	93.5	100	100	100
06	Social Sciences	239	185	225	149	234	232	212	167	208	148	218	229	27	18	17	1	16	3	88.7	90.3	92.4	99.3	93.2	98.7
07	Statistical Sciences	57	44	46	40	46	44	55	42	43	37	44	41	2	2	3	3	2	3	96.5	95.5	93.5	92.5	95.6	93.2
08	Horticulture	246	190	200	153	248	239	227	165	191	152	245	236	19	25	9	1	3	3	92.3	86.8	95.5	99.4	98.8	98.7
09	Forestry/Agro-Forestry and Silviculture	27	23	30	31	59	61	25	20	26	31	58	54	2	3	4	0	1	7	92.6	87	86.7	100	98.3	88.5
10	Agril. Engineering & Technology	143	106	120	92	139	139	117	98	110	90	129	127	26	8	10	2	10	12	81.8	92.5	91.7	97.8	92.8	91.4
11	Water Science & Technology	3	2	9	9	7	2	3	2	9	7	5	2	0	0	0	2	2	0	100	100	100	77.8	71.4	100
12	Community Science (formerly Home Science)	78	65	61	60	109	116	61	54	46	59	82	88	17	11	15	1	27	28	78.2	83.1	75.4	98.3	75.2	75.8
13	Animal Biotechnology	76	54	57	60	71	74	36	30	34	34	46	38	40	24	23	26	25	36	47.4	55.6	59.7	56.7	64.8	51.4
14	Veterinary Science	328	246	299	274	371	348	275	192	245	250	327	316	53	54	54	24	44	32	83.8	78	81.9	91.2	88.1	90.8
15	Animal Sciences	286	210	258	252	315	317	216	167	224	232	246	221	70	43	34	20	69	96	75.5	79.5	86.8	92.1	78.1	69.7
16	Fisheries Science	174	134	120	106	145	134	157	122	111	106	144	134	17	12	9	0	1	0	90.2	91	92.5	100	99.3	100
17	Dairy Science	31	19	19	20	25	23	28	17	17	17	24	22	3	2	2	3	1	1	90.3	89.5	89.5	85	96	95.7
18	Dairy Technology	40	27	26	29	36	37	37	27	24	27	34	32	3	0	2	2	2	5	92.5	100	92.3	93.1	94.4	86.5
19	Food Science Technology	42	29	26	27	68	37	32	26	17	26	60	52	10	3	9	1	8	10	76.2	89.7	65.4	96.3	88.2	83.9
20	Agri. Business Management	151	165	115	91	150	62	116	120	91	79	81	85	35	45	24	12	69	52	76.8	72.7	79.1	86.8	54	62.1
	Total	**3075**	**2354**	**2561**	**2099**	**3086**	**2972**	**2586**	**2002**	**2252**	**1986**	**2765**	**2653**	**489**	**352**	**309**	**113**	**321**	**319**	**84.1**	**85**	**87.9**	**94.6**	**89.6**	**89.3**

half of the seats remained unfilled (Table-11). Trend of seat filling indicates decreasing interest of students towards Animal Sciences side subjects. Under 3 Major subjects, there were 5 sub-subjects in which less than 50% seats were filled (Table-12) which is a matter of concern considering the future need for teaching and research in these areas.

The highest number of 170 female candidates (out of 351 admitted candidates) took admission in Plant Sciences followed by 142 (out of 275) in Veterinary Science, 113 (out of 227) in Horticulture and 112 (out of 212) in Social Sciences (Table-13).

Based upon their merit in AIEEA (PG)-2019, the ICAR PG Scholarship, @ ₹12,640 per month + contingent grant of ₹6000/ per year was awarded to 600 candidates (100%) for pursuing postgraduate studies for a period of two years who got admission in universities located in states other than those from where they had graduated.

Table 12. Major Subjects/Sub-subjects in which less than 50% seats were filled up through AIEEA (PG)-2019 counselling

Sr. No.	Major Subject with Code	Sub-subject with Code	Total No. of Seats	No. of Seats Filled	Seats Filled (%)
1.	Animal Biotechnology (13)	13.1 Animal Bio-Technology	40	19	47.50
		13.2 Veterinary/Animal Bio-Chemistry	36	17	47.22
2.	Veterinary Science (14)	14.1 Veterinary Anatomy/ Veterinary Anatomy & Histology	22	10	45.45
3.	Animal Sciences (15)	15.9 Livestock/ Veterinary/ Animal Husbandry Economics	4	1	25.00
		15.10 Bio-Statistics	2	0	0

Table 13. Subject-wise/Gender-wise number of candidates admitted through AIEEA (PG)-2019

Code	Subject	M	F	Total
01	Plant Biotechnology	61	48	109
02	Plant Sciences	181	170	351
03	Physical Science	102	72	174
04	Entomology and Nematology	89	75	164
05	Agronomy	127	64	191
06	Social Sciences	100	112	212
07	Statistical Sciences	35	20	55
08	Horticulture	114	113	227
09	Forestry/Agroforestry and Silviculture	13	12	25
10	Agricultural Engineering and Technology	73	44	117

Code	Subject	M	F	Total
11	Water Science and Technology	3	0	3
12	Community Science (formerly Home Science)	1	60	61
13	Animal Biotechnology	20	16	36
14	Veterinary Science	133	142	275
15	Animal Sciences	113	103	216
16	Fisheries Science	78	79	157
17	Dairy Sciences	12	16	28
18	Dairy Technology	30	7	37
19	Food Science Technology	7	25	32
20	Agri-business Management	74	42	116
	Total	**1366**	**1220**	**2586**

The State-wise number of candidates admitted with PG Scholarship and with/without NTS (PG) through AIEEA (PG)-2019 to different AUs is presented in Table-14. A total of 2,586 candidates comprising 600 ICAR-PG Scholarship holders and 1,862 with NTS (PG) and 124 without NTS (PG) were admitted to 64 accredited AUs including non-accredited RLBCAU, Jhansi.

Table 14. Number of candidates admitted to different AUs with ICAR-PG Scholarship and with/without NTS (PG) through AIEEA (PG)-2019

Sr. No.	University	Admitted candidates			Total
		With PG Scholarship	With NTS-PG	Without NTS-PG	
1.	Acharya N.G. Ranga Agricultural University, Guntur (Andhra Pradesh)	11	16	1	28
2.	Agricultural University, Kota (Rajasthan)	0	3	0	3
3.	Agriculture University, Jodhpur	0	1	0	1
4.	Anand Agricultural University, Anand (Gujarat)	18	47	1	66
5.	Assam Agricultural University, Jorhat (Assam)	4	60	0	64
6.	BHU (Institute of Agricultural Sciences), Varanasi (U.P.)	23	7	1	31
7.	Bidhan Chandra Krishi Viswavidyalaya, Mohanpur (West Bengal)	7	42	3	52
8.	Bihar Agricultural University, Sabour (Bihar)	5	16	0	21
9.	Birsa Agricultural University, Ranchi (Jharkhand)	0	13	0	13
10.	Central Agricultural University, Imphal (Manipur)	2	46	0	48
11.	Chandra Shekhar University of Agriculture and Technology, Kanpur (Uttar Pradesh)	0	15	2	17

Sr. No.	University	Admitted candidates			Total
		With PG Scholarship	With NTS-PG	Without NTS-PG	
12.	Chaudhary Charan Singh Haryana Agricultural University, Hisar	19	28	0	47
13.	Chhattisgarh Kamdhenu Vishwavidyalaya, Durg (Chhattisgarh)	0	7	0	7
14.	CSK Himachal Pradesh Agricultural University, Palampur (HP)	1	18	2	21
15.	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli	0	15	1	16
16.	Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Krishi Nagar, Akola	1	47	1	49
17.	Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur (Bihar)	11	172	9	192
18.	Dr. Y.S. Parmar University of Horticulture & Forestry, Solan (Himachal Pradesh)	3	11	1	15
19.	Dr. Y.S.R. Horticultural University, Venkataramannagudem (Andhra Pradesh)	5	2	0	7
20.	Faculty of Agricultural Science, AMU, Aligarh	0	7	0	7
21.	G.B. Pant University of Agriculture and Technology, Pantnagar (Uttarakhand)	38	36	0	74
22.	Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana	1	31	0	32
23.	ICAR- Indian Veterinary Research Institute, Izatnagar (Uttar Pradesh)	52	66	2	120
24.	ICAR-Central Institute of Fisheries Education, Mumbai (Maharashtra)	17	65	14	96
25.	ICAR-Indian Agricultural Research Institute, New Delhi (including IARI-Assam and IARI-Jharkhand)	147	44	0	191
26.	ICAR-National Dairy Research Institute, Karnal (Haryana)	39	127	10	176
27.	Indira Gandhi Krishi Vishwavidyalaya, Krishi Nagar, Raipur (Chhattisgarh)	12	78	0	90
28.	Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur (Madhya Pradesh)	4	33	1	38
29.	Junagadh Agricultural University, Junagadh (Gujarat)	1	44	2	47
30.	Karnataka Veterinary, Animal & Fisheries Sciences University, Bidar	0	18	0	18
31.	Kerala Agricultural University, Thrissur (Kerala)	8	37	10	55

Sr. No.	University	Admitted candidates			Total
		With PG Scholarship	With NTS-PG	Without NTS-PG	
32.	Kerala University of Fisheries and Ocean Studies, Kochi (Kerala)	0	11	0	11
33.	Kerala Veterinary and Animal Sciences University, Wayanad (Kerala)	1	27	1	29
34.	Lala Lajpat Rai University of Veterinary & Animal Sciences, Hisar (Haryana)	1	8	1	10
35.	Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan)	5	19	1	25
36.	Maharashtra Animal & Fishery Sciences University, Nagpur	0	31	0	31
37.	Mahatma Phule Krishi Vidyapeeth, Rahuri	6	49	3	58
38.	Nagaland University, SASARD Medziphema	0	9	0	9
39.	Nanaji Deshmukh University of Veterinary Sciences, Jabalpur (Madhya Pradesh)	0	22	0	22
40.	Navsari Agricultural University, Navsari (Gujarat)	19	48	2	69
41.	Odisha University of Agriculture and Technology, Bhubaneswar (Odisha)	9	61	2	72
42.	Professor Jayashankar Telangana State Agricultural University, Hyderabad (Telangana)	19	9	0	28
43.	Punjab Agricultural University, Ludhiana (Punjab)	33	45	0	78
44.	Rajasthan University of Veterinary and Animal Sciences, Bikaner (Rajasthan)	1	7	0	8
45.	Rani Lakshmi Bai Central Agricultural University, Jhansi (U.P.)	3	24	2	29
46.	Sardar Vallabh Bhai Patel University of Agriculture & Technology, Modipuram (Uttar Pradesh)	0	13	3	16
47.	Sardarkrushinagar Dantiwada Agricultural University, Dantiwada, Gujarat	0	33	0	33
48.	Sher-e-Kashmir University of Agricultural Sciences & Technology, Srinagar (erstwhile Jammu & Kashmir)	0	31	3	34
49.	Sher-e-Kashmir University of Agricultural Sciences & Technology, Jammu (erstwhile Jammu & Kashmir)	0	14	5	19
50.	Sri Karan Narendra Agriculture University, Jobner (Rajasthan)	0	12	2	14
51.	Sri Konda Laxman Telangana State Horticultural University, Hyderabad (Telangana)	6	2	0	8

Sr. No.	University	Admitted candidates			Total
		With PG Scholarship	With NTS-PG	Without NTS-PG	
52.	Sri Venkateswara Veterinary University, Tirupati	0	17	1	18
53.	PV Narsimha Rao Telangana Veterinary University, Rajendranagar, Hyderabad	0	8	0	8
54.	Swami Keshwanand Rajasthan Agricultural University, Bikaner (Rajasthan)	2	16	1	19
55.	Tamil Nadu Veterinary and Animal Sciences University, Chennai (Tamil Nadu)	0	22	0	22
56.	TN Dr. JJLFU, Nagapattinam, (Tamil Nadu)	0	7	0	7
57.	U.P. Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansathan, Mathura (Uttar Pradesh)	0	7	1	8
58.	University of Agricultural and Horticultural Sciences, Shivamogga (Karnataka)	6	6	7	19
59.	University of Agricultural Sciences, Bengaluru (Karnataka)	30	22	15	67
60.	University of Agricultural Sciences, Dharwad, Karnataka	19	18	5	42
61.	University of Horticultural Sciences, Bagalkot (Karnataka)	6	22	4	32
62.	Uttar Banga Krishi Vishwavidyalaya, Cooch Behar, West Bengal	1	18	2	21
63.	Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani	4	49	1	54
64.	West Bengal University of Animal & Fishery Sciences, Kolkata (West Bengal)	0	23	1	24
	Total	**600**	**1862**	**124**	**2586**

3.3. All India Competitive Examination for Ph.D. Admissions [AICE-JRF/ SRF(PGS)]

In order to develop quality human resource to meet the requirements of 21st century, the ICAR-NAARM, Hyderabad had been conducting AICE-SRF (PGS), the All India Competitive Examination for the award of 202 SRF(PGS), in different disciplines of Agriculture and Allied Sciences from 2008 to 2011. From 2012 onwards, the Council decided to conduct this examination and after transfer from NAARM, Hyderabad, the examination was conducted by the Agricultural Education Division in the Academic Session 2013-14.

A Committee was constituted by ICAR in 2013 to review the existing pattern along with modification/updation of syllabus of SRF (PGS) examination. Briefly, eligibility qualifications

for SRF (PGS) were harmonized with NET/ARS for different subjects at all the universities under ICAR-AU system. To align with the recommendations of Dr. R. S. Paroda Committee Report ('Review of disciplines and eligibility qualifications for recruitment of ARS Scientists at the entry level'), the 56 disciplines were re-grouped to fall under 16 Major Subject Groups for the purpose of conducting ICAR-SRF(PGS) examination. Considering the recent advancements in different disciplines of agriculture and allied sciences vis-à-vis NET/ARS syllabus, the syllabus for ICAR SRF (PGS) examination was also modified and updated. These recommendations came into force with effect from AICE-SRF(PGS) examination conducted for the Academic Session 2014-15.

Bringing new reforms in the examination process, the centralized admission to 25% seats of Doctoral degree programmes of AUs under the ICAR-AU system, through AICE-JRF/SRF (PGS), was introduced by the Council from the Academic Session 2015-16. The centralized admission to 4 ICAR-DUs were conducted through AICE-JRF/SRF (PGS) examination for the Academic Session 2015-16 only. Since 2016-17, the ICAR-DUs had been conducting their own separate entrance examination for admission to Ph.D. degree programmes. However, the admission to 100% seats of the Ph.D. degree programmes of ICAR-IVRI for the Academic Session 2019-20 were made through the AICE-JRF/SRF(PGS) examination. Since 2019, this examination is being conducted in LAN-based CBT mode by NTA.

A Committee was again constituted by ICAR during 2019 to revisit the pattern, syllabus and eligibility qualifications at Master's level for this examination. The syllabus of the examination has been updated in view of the emerging national and global agricultural trends. The committee has recommended to conduct the AICE-JRF/SRF (PGS)-2020 examination for 73 separate specialized subjects and from 2020-21, a single unified entrance examination will be conducted by the Council for admission to Doctoral degree programmes of all the universities, including all the 4 ICAR-DUs, under the ICAR- AU System.

At present, the examination is conducted for admission to Ph.D. degree programmes and the award of 300 JRF/SRF(PGS), formerly SRF(PGS), in the ICAR accredited universities under the ICAR-AU system.The value and tenure of the fellowship is given in Table-15.

Table 15. Amount and tenure of the Junior/Senior Research Fellowship [JRF/SRF(PGS)], formerly SRF (PGS)

Qualification	Amount	Duration
Junior Research Fellows (JRFs)*/Senior Research Fellows (SRFs) pursuing Ph.D. program in ICAR-AU System	₹ 31,000/- p.m. (fixed)	I and II year
	₹ 35,000/- p.m. (fixed)	III year
	Uniform Contingent grant @ ₹ 10,000/- p.a. for procurement of essential chemicals, books and travel connected with research work	

**JRF for I and II year and SRF for III year.*

Apart from one composite paper on General Knowledge, which is common to all the subjects, the AICE-JRF/SRF (PGS)-2019 was conducted in 16 Major Subject Groups, comprising 60 Sub-subjects, at 87 examination city centres (128 venues) across the country for admission to Doctoral degree programmes in 55 accredited AUs and award of ICAR-JRF/SRF (PGS).

Out of a total of 8,374 candidates that applied, 7102 (84.81%) appeared in the examination (Fig. 8) registering a phenomenal increase (105.26 %) over 3,460 candidates appeared in offline mode during 2018 [Fig. 9. a)]. The ratio of the number of seats to the applicants was 1:9. Against 905 seats, 6080 candidates - 3124 males (51.38%) and 2956 females (48.62%) were eligible for registration and choice filling during online counselling in 2019. There was a remarkable increase of 205% in the number of applicants for doctorate examination in comparison to 2014 when the examination was conducted only for the award of fellowship. Still there is scope to attract more number of postgraduates to meet the increasing demand of manpower for teaching, research, and extension by increasing the number and amount of fellowships.

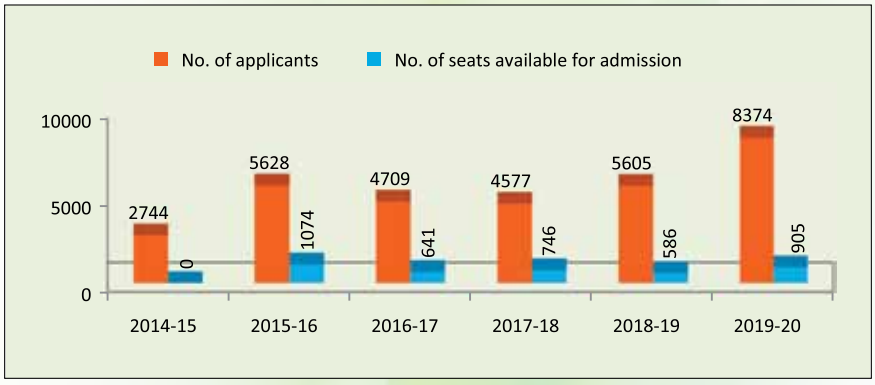

Fig. 8. Temporal pattern of applications received for AICE-JRF/SRF (PGS)

The top ranking three states with the highest number of applicants, appeared candidates, and the number of candidates eligible for registration and choice-filling for participation in counseling were (i) Karnataka (ii) Uttar Pradesh and (iii) Andhra Pradesh (Table-16).

Table 16. Domicile State-wise distribution of candidates eligible for registration and choice filling for AICE-JRF/SRF (PGS)-2019 Counselling

Sr. No.	Domicile State	Applicants	Appeared	Eligible for registration and choice filling for counselling	Eligible for registration and choice filling for counselling (%)
1.	Andaman & Nicobar Islands (U.T.)	9	8	6	75.00
2.	Andhra Pradesh	774	673	576	85.59
3.	Arunachal Pradesh	62	49	43	87.76
4.	Assam	129	100	88	88.00
5.	Bihar	342	274	249	90.88
6.	Chandigarh (U.T.)	3	3	3	100.00
7.	Chhattisgarh	185	160	132	82.50
8.	Delhi (U.T.)	28	18	17	94.44
9.	Goa	5	2	2	100.00
10.	Gujarat	192	166	140	84.34
11.	Haryana	233	203	163	80.30
12.	Himachal Pradesh	237	193	139	72.02
13.	Erstwhile Jammu & Kashmir	114	91	79	86.81
14.	Jharkhand	82	66	59	89.39
15.	Karnataka	991	879	782	88.96
16.	Kerala	377	323	295	91.33
17.	Lakshadweep (U.T.)	4	2	2	100.00
18.	Madhya Pradesh	257	222	187	84.23
19.	Maharashtra	607	490	419	85.51
20.	Manipur	132	116	106	91.38
21.	Meghalaya	53	45	40	88.89
22.	Mizoram	21	17	15	88.24
23.	Nagaland	55	40	31	77.50
24.	Odisha	363	321	275	85.67
25.	Puducherry (U.T.)	28	24	22	91.67
26.	Punjab	139	107	79	73.83
27.	Rajasthan	713	614	528	85.99
28.	Sikkim	13	10	9	90.00
29.	Tamil Nadu	428	349	300	85.96
30.	Tripura	75	64	60	93.75

Sr. No.	Domicile State	Applicants	Appeared	Eligible for registration and choice filling for counselling	Eligible for registration and choice filling for counselling (%)
31.	Uttarakhand	213	192	165	85.94
32.	Uttar Pradesh	945	790	664	84.05
33.	West Bengal	218	182	140	76.92
34.	Telangana	347	309	265	85.76
	Total	**8374**	**7102**	**6080**	**85.60**

The integrated trend for the past six years with respect to the number of candidates applied/appeared for the examination and eligible for registration and choice filling for counseling vis-a-vis the number of seats available along with the category-wise distribution of applicants for AICE-JRF/SRF (PGS) is depicted in Fig. 9a & b. It is interesting to note that in comparison to UG where the percentage of SC and ST applicants was only 13% and 6%, in PG and Ph.D., it was 19% each for SC and 11% and 10% for ST, respectively.

3.3.1. Trends in Ph.D. Admissions

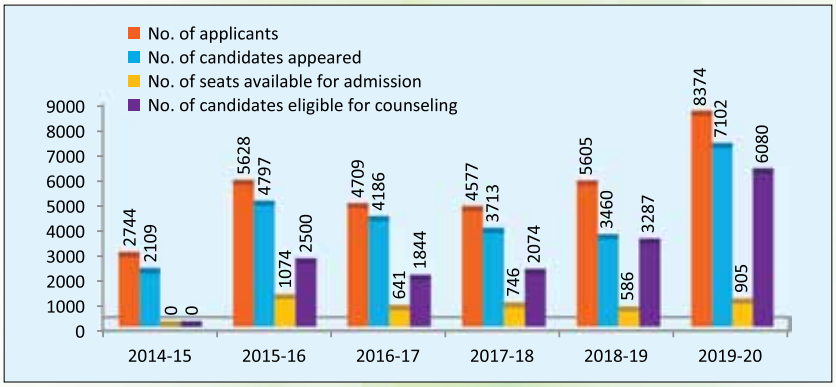

Fig. 9a. No. of candidates applied/appeared for AICE-JRF/SRF(PGS)-2019 and eligible for counselling vis-a-vis the number of seats

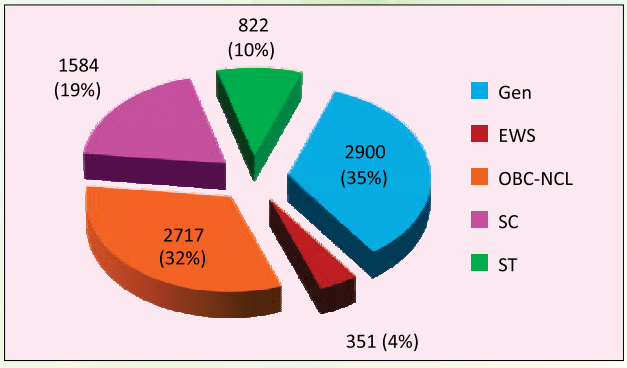

Fig. 9b. Category-wise percent distribution of applicants for AICE-JRF/SRF(PGS)-2019

Through the AICE-JRF/SRF (PGS)-2019 examination, 100% seats were filled up for the subjects like Natural Resource Management-I and Agricultural Statistics, while for Horticulture and Agricultural Engineering and Technology above 90% seats were filled up. For the subjects Veterinary and Animal Sciences-I, Veterinary and Animal Sciences-III, Dairy Science, Dairy Technology & Food Technology, there were only very few takers as almost half of the seats remained unfilled (Table-17).

The highest number of female candidates (34 out of 66, 51.51%) got admission in Veterinary and Animal Sciences-II, followed by Natural Resource Management-II (43 out of 91, 47.25%) and Crop Sciences-II (33 out of 75, 44.00%) reflecting a greater interest exhibited by girl candidates for pursuing doctorate degree in Veterinary and Animal Science subjects like Veterinary Parasitology, Veterinary Public Health/Veterinary Public Health & Epidemiology, Veterinary Biochemistry, Animal Biotechnology, Veterinary Microbiology and Veterinary Pathology.

Based upon their merit in AICE-JRF/SRF (PGS)-2019, the ICAR JRF/SRF(PGS) Fellowship was awarded to 297 candidates (99%) for pursuing doctoral studies for a period of three years who got admission in universities other than those of UG/PG or UG+PG degrees.

A massive increase to the tune of 333 % was observed in the number of female awardees receiving JRF/SRF (PGS) in 2019 vis-à-vis the examination conducted during the year 2014 for the award of SRF (PGS). Barring 2017-18, there has been a progressive increase in the number of female applicants receiving JRF/SRF (PGS) since 2014-15. **It is encouraging to observe that the gender gap, insofar as award with or without JRF/SRF (PGS) is concerned, has reduced dramatically over the years and during 2019-20 the female candidates competed almost equally with male candidates to receive JRF/SRF (PGS).** Gender-wise distribution of the candidates qualified with or without JRF/SRF (PGS) is illustrated in Fig. 10 and Fig. 11, respectively. The category-wise distribution of the candidates qualified with or without JRF/SRF (PGS) is illustrated in Fig. 12 and Fig. 13, respectively.

A total of 297 JRF/SRF (PGS) were awarded during 2019-20 to the eligible candidates, while a total of 369 candidates were recommended for admission without fellowship. Temporal distribution of awardees with/without JRF/SRF (PGS) is depicted in Fig. 14.

Based on the JRF/SRF (PGS) secured by the postgraduates of various universities, the three top ranking universities in 2019 were GBPUAT, Pantnagar; IVRI, Izatnagar, Bareilly; and PAU, Ludhiana (Table 24). Out of the total 3 JRF/SRF (PGS) which could not be awarded on account of lack of eligible candidates, one (SC) slot each in Food Technology and Forestry/ Agroforestry, and one (ST) slot in Agricultural Meteorology remained vacant.

Table 17. Major Subject Group-wise seats filled for Ph.D. admissions during the past five years

Code	Major Subject	Total seats					No. of seats filled					Seats filled (%)				
		2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1.	Crop Sciences-I	68	50	58	47	65	48	38	42	37	54	71	76	72	79	83
2.	Crop Sciences-II	105	70	97	69	88	63	54	77	54	75	60	77	79	78	85
3.	Crop Sciences-III	79	53	57	45	66	46	40	42	28	50	58	75	74	62	76
4.	Horticulture	87	57	59	51	73	47	48	43	44	68	54	84	73	86	93
5.	Veterinary and Animal Sciences-I	119	67	75	58	111	27	17	27	17	55	23	25	36	29	50
6.	Veterinary and Animal Sciences-II	95	53	58	44	109	21	22	27	17	66	22	42	47	39	61
7.	Veterinary and Animal Sciences-III	90	57	71	56	96	20	18	21	22	48	22	32	30	39	50
8.	Dairy Science, Dairy Technology & Food Technology	27	11	8	4	13	12	3	7	4	7	44	27	88	100	54
9.	Agricultural Engineering and Technology	69	29	32	20	31	15	24	27	16	30	22	83	84	80	97
10.	Community Science (Formerly Home Sciences)	33	31	27	27	30	7	20	21	22	26	21	65	78	81	87
11.	Fishery Sciences	71	10	14	15	15	29	10	8	10	12	41	100	57	67	80
12.	Natural Resource Management-I	32	13	12	10	13	19	10	9	7	13	59	77	75	70	100
13.	Natural Resource Management-II	110	75	105	83	111	80	58	85	69	91	73	77	81	83	82
14.	Agricultural Economics & Agri-Business Management	57	34	36	26	35	23	26	25	20	30	40	76	69	77	86
15.	Agricultural Extension	53	28	34	28	44	37	24	23	23	35	70	86	68	82	80
16.	Agricultural Statistics	12	3	3	3	5	7	2	2	1	5	58	67	67	33	100
	Total	**1074**	**641**	**746**	**586**	**905**	**494**	**414**	**486**	**391**	**665**	**46**	**65**	**65**	**67**	**73**

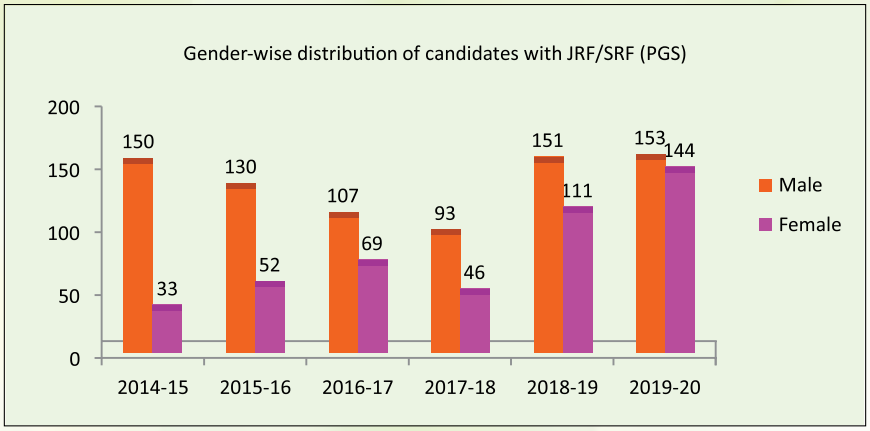

Fig. 10. Gender-wise distribution of candidates securing ICAR-JRF/SRF (PGS)

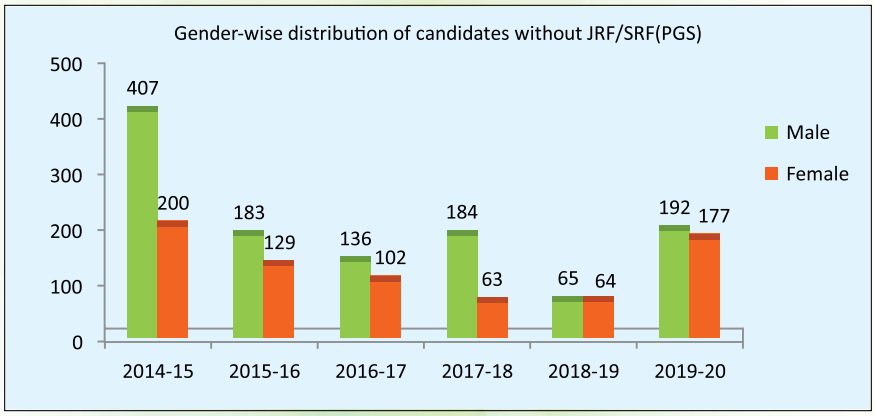

Fig. 11. Gender-wise distribution of candidates without ICAR-JRF/SRF (PGS)

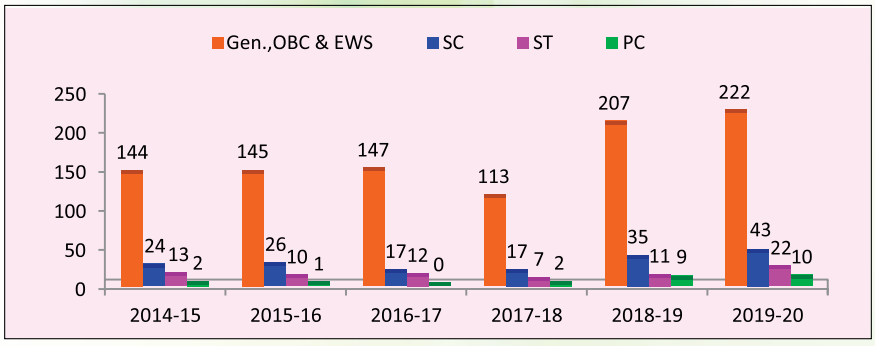

Fig. 12. Category-wise distribution of candidates securing ICAR-JRF/SRF (PGS)
(Note: Reservation under GEN-EWS category was applicable w.e.f. 2019-20)

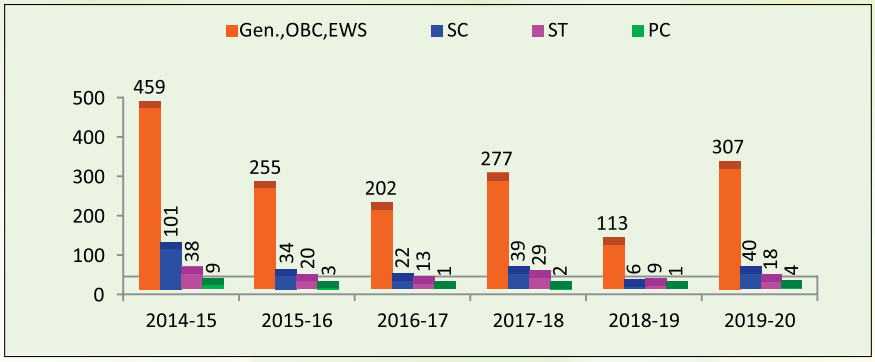

Fig. 13. Category-wise distribution of candidates without ICAR-JRF/SRF (PGS)
(Note: Reservation under GEN-EWS category was applicable w.e.f. 2019-20)

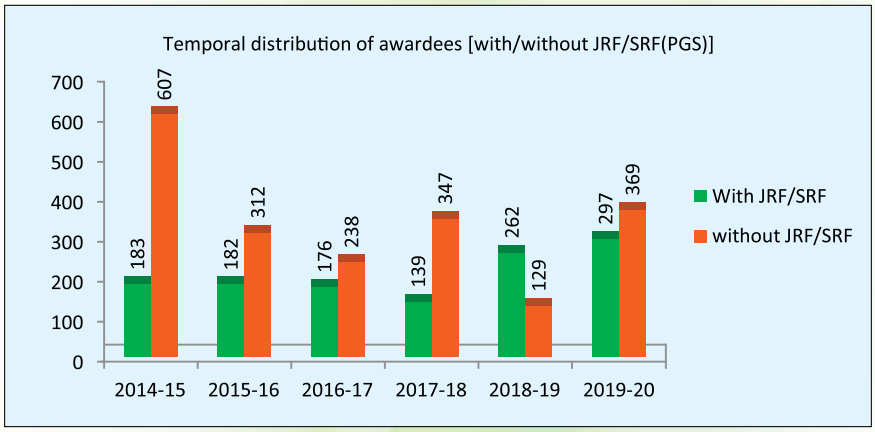

Fig. 14. Temporal distribution of awardees [with/without ICAR-JRF/SRF(PGS)]

Rural vs. Urban candidates

Out of the total candidates that applied for UG examination, 57% were from villages, 20% from towns and remaining 23% from the cities (Fig. 15). In PG, the percentage of candidates appeared from villages was lower (55%) than UG. The percentage of candidates from rural areas is more or less static at least for the last three years warranting drastic measures to popularise agricultural education amongst the rural youths/students.

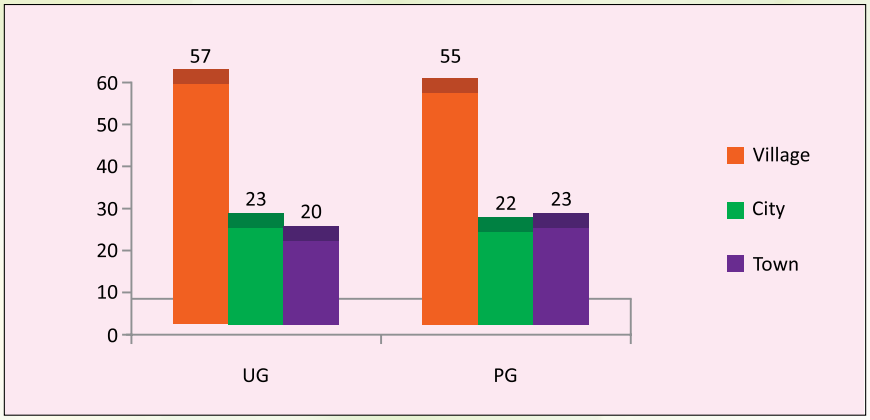

Fig. 15. Residential area-wise percent distribution of applicants

Gender-wise distribution of applicants

The number of male and female candidates appearing for AIEEA (UG), AIEEA (PG) and AICE-JRF/SRF (PGS) was almost equal. Out of the total number of UG applicants, 50% were females while for PG and Ph.D., the percentage of female candidates was 47% and 49%, respectively (Fig. 16-18).

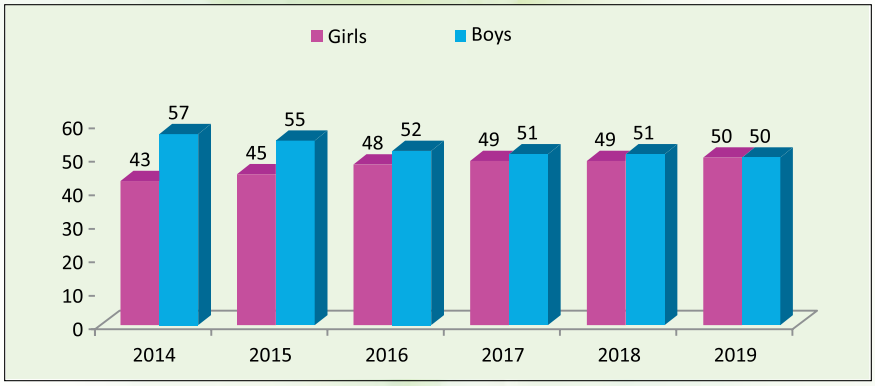

Fig. 16. Gender-wise percent distribution of applicants for AIEEA (UG)-2019

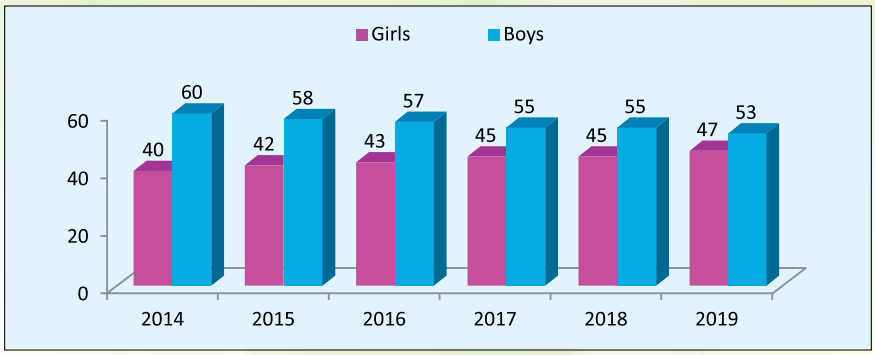

Fig. 17. Gender-wise percent distribution of applicants for AIEEA (PG)-2019

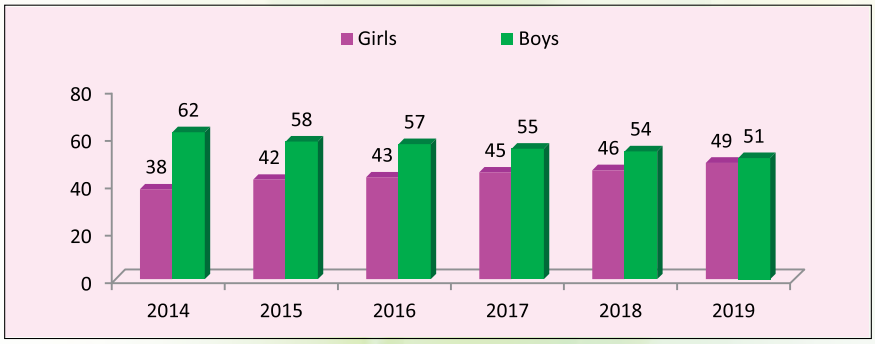

Fig. 18. Gender-wise percent distribution of applicants for AICE-JRF/SRF (PGS)-2019

In comparison to 2014, the number of female applicants has increased by 7% each for UG and PG and 11% for Ph.D. indicating increasing interest of girls towards higher agricultural education.

Examination Board-wise number of candidates qualified and admitted

In UG Examination, the candidates from more than 75 Secondary Education Boards appeared. Out of 1,08,591 candidates eligible for counseling from different boards, the highest 28,611 (26.34%) was from CBSE followed by 26,423 (24.33%) from Board of Secondary Education Rajasthan and 16,249 (14.96%) from Bihar Intermediate Education Council/Bihar School Examination Board. The highest number of 803 candidates admitted was from CBSE followed by 536 from Board of Secondary Education, Rajasthan (Table-18).

Students along with trainers at Hi-tech Analytical Lab IIFPT Thanjavur

Table 18. Board-wise distribution of candidates appeared in AIEEA-UG-2019 and shortlisted for the counseling

Sr. No.	Name of the Examination Board in XII class	Appeared	Eligible for registration and choice filling for counseling	Admitted
1.	Andhra Pradesh Board of Intermediate Education	4738	4728	139
2.	Assam Higher Secondary Education Council	431	427	4
3.	Bihar Intermediate Education Council/Bihar School Examination Board	16476	16249	289
4.	Central Board of Secondary Education	28631	28611	803
5.	Chhattisgarh Board of Secondary Education	1286	1282	4
6.	Council for the Indian School Certificate Examinations	1424	1424	37
7.	Goa Board of Secondary and Higher Secondary Education	16	16	3
8.	Gujarat Secondary and Higher Education Board	110	109	1
9.	Board of School Education Haryana	990	989	13
10.	HP Board of School Education	503	502	1
11.	Jammu & Kashmir State Board of School Education	189	189	2
12.	Jharkhand Academic Council, Ranchi	746	737	11
13.	Karnataka Board of Pre University Education	955	954	6
14.	Kerala Board of Public Examinations	170	170	4
15.	Madhya Pradesh Board of Secondary Education	5130	5104	78
16.	Maharashtra State Board of Secondary and Higher Secondary Education	1544	1538	5
17.	Manipur Council of Higher Secondary Education	55	54	0
18.	Meghalaya Board of School Education	150	150	3
19.	Mizoram Board of School Education	16	16	0
20.	Nagaland Board of School Education	84	84	0
21.	The Haryana Open School	1	1	0
22.	Punjab School Education Board	286	285	1
23.	Tamil Nadu Board of Higher Secondary Education	2063	2056	8
24.	Tripura Board of Secondary Education	8	8	1
25.	U P Board of High School and Intermediate Education	3645	3628	22

Sr. No.	Name of the Examination Board in XII class	Appeared	Eligible for registration and choice filling for counseling	Admitted
26.	Uttaranchal Shiksha Evam Pariksha Parishad	31	30	0
27.	West Bengal Council of Higher Secondary Education	4764	4754	66
28.	National Institute of Open Schooling	136	135	4
29.	Jamia Milia Islamia, New Delhi	19	19	1
30.	Aligarh Muslim University, Aligarh	39	39	4
31.	Dayalbagh Educational Institute (Deemed University)	4	4	0
32.	Banasthali Vidyapeeth	19	19	0
33.	Vishwa Bharti University, Shanti Niketan, Birbhum, WB	9	9	1
34.	Rajiv Gandhi University of Knowledge Technologies, Hyderabad	4	4	1
35.	Haryana Open School, Bhiwani	6	6	0
36.	Rajasthan State Open School, Jaipur	6	6	0
37.	Andhra Pradesh Open School Society	20	20	0
38.	Bihar Board of Open Schooling and Examination	340	335	4
39.	Chhattisgarh State Open School	20	20	0
40.	Central Board of Secondary Education – International	409	408	18
41.	Telangana State Board of Intermediate Education	5975	5957	124
42.	Telangana Pradesh Open School Society	32	32	0
43.	The West Bengal Council of Rabindra Open Schooling	55	55	0
44.	Haryana Board of Education	192	190	6
45.	West Bengal State Council of Vocational Education & Training	96	96	0
46.	West Bengal Board of Madrasa Education	3	3	0
47.	Vocational Higher Secondary Education Department, Govt. of Kerala	454	453	4
48.	Uttar Pradesh State Open School Board	39	38	1
49.	The Kerala State Higher Education Council	37	37	3
50.	School Education Department, Govt. of Tamil Nadu	57	57	0

Sr. No.	Name of the Examination Board in XII class	Appeared	Eligible for registration and choice filling for counseling	Admitted
51.	Madhya Pradesh State Open School Education Board	43	39	1
52.	Kerala State Open School, Thiruvananthapuram	1	1	0
53.	Kerala Board of Higher Secondary Education	5885	5865	137
54.	Karnataka Secondary Education Examination Board	124	124	0
55.	Bihar Sanskrit Shiksha Board	1	1	0
56.	Bihar State Madrasa Education Board, Patna	5	5	0
57.	Board of High School and Intermediate Education, Uttar Pradesh	407	406	2
58.	Board of Higher Secondary Examinations Tamil Nadu	2870	2865	2
59.	Board of Intermediate Education, Andhra Pradesh	302	302	6
60.	Board of School Education, Uttarakhand	67	67	0
61.	Board of Secondary Education, Orissa	143	143	8
62.	Board of Secondary Education Andhra Pradesh	24	24	1
63.	Board of Secondary Education, Rajasthan	26485	26423	536
64.	Board of Secondary Education,Assam	6	6	0
65.	Board of Secondary Education,Manipur	12	12	0
66.	Chhattisgarh Sanskrit Board, Raipur	2	2	0
67.	Chhattisgarh Madrasa Board	5	5	0
68.	Council of Higher Secondary Education, Manipur	513	505	9
69.	Council of Higher Secondary Education, Odisha	1953	1947	75
70.	Government of Karnataka, Dept. of Pre-University Education	1590	1589	6
71.	Himachal Pradesh Board of School Education	159	159	0
72.	Orissa Council of Higher Secondary Education	875	871	30
73.	Uttaranchal Board of School Education	83	83	0
74.	Telangana Board of Secondary Education	255	254	7
75.	Any other Recognized Board/University/Open School	1413	1405	15
	Total	**108979**	**108591**	**2189**

Differently abled candidates

As per the Govt. of India directives, five percent seats are reserved, horizontally across all the categories, in different subjects, for Physically Challenged (PC) candidates. The reservation of Physically Challenged candidates, for seats as well as fellowships, was increased from 3% to 5% w.e.f. Academic Session 2018-19. The data on Physically Challenged category candidates for UG, PG and PhD degree programmes is presented inTable-19.

Table 19. A portrayal of Physically Challenged candidates admitted through ICAR's AIEEA-2019

Exam	No. of seats	No. appeared	Admitted under allotted Category					Total admitted
			With NTS (UG/PG)	Without NTS (UG/PG)	With PG Scholarship	With JRF/ SRF(PGS)	Without JRF/SRF (PGS)	
UG	138	482	48	44	-	-	-	92
PG	149	236	34	3	25	-	-	62
Ph.D.	44	87	-	-	-	10	4	14

Economically Weaker Section (EWS) candidates

In accordance with the Gazette Notification No. DL-(N)/04/0007/2003-19, dated 12th January, 2019, Ministry of Law and Justice (Legislative Department), Govt. of India, the reservation of candidates belonging to Gen-EWS category for admission to Central Educational Institutions was introduced w.e.f. 2019-20. The data on Gen-EWS candidates for UG, PG and PhD degree programmes is presented in Table-20.

Table 20. A portrayal of Economically Weaker Section candidates admitted through ICAR's AIEEA-2019

Exam	No. of Seats	No. appeared	Admitted under allotted Category					Total admitted
			With NTS (UG/PG)	Without NTS (UG/PG)	With PG Scholarship	With JRF/ SRF(PGS)	Without JRF/SRF (PGS)	
UG	52	3521	24	16	-	-	-	40
PG	94	1216	57	8	18	-	-	83
Ph.D.	13	326	-	-	-	0	4	4

4 PERFORMANCE OF THE UNIVERSITIES AND THEIR BRAND VALUE

"The purpose of education is to make good human beings with skill and expertise. Enlightened human beings can be created by teachers."

–A. P. J. Abdul Kalam

Participants engaged in netting during training on Commercial Production of Quality Fish Seed at OUAT, Bhubaneswar

THE Council has been awarding the best performing universities on the basis of ICAR-PG Scholarship (erstwhile JRF) secured by their graduating candidates in order to build up a competitive environment for the universities so that they could constantly improve the all-round academic excellence. However, the criteria for selecting the best performing universities were revised w.e.f. 2016-17 and since then universities are being awarded first and second position based on the number of ICAR-PG scholarship holders produced by them in a particular Academic Session. The awards are given under 4 broad programme categories, viz. Agricultural Sciences, Horticulture and Forestry, Engineering and Technology and Veterinary & Fisheries Science. The Clubbing of Major Subject Groups of AIEEA (PG) under 4 broad programme categories for the award of Best Performing University is given in Table-21.

Table 21. Clubbing of Major Subject Groups of AIEEA (PG) under broad programme categories for the award of Best Performing University

Sr. No.	Programme category	Clubbing of Major Subject Groups for ICAR-PG Scholarship based awards
1.	Agricultural Sciences	Plant Sciences (Code 02), Physical Science (Code 03), Entomology & Nematology including Sericulture (Code 04), Agronomy (Code 05), Social Sciences (Code 06), Statistical Sciences (Code 07), Community Science (Formerly Home Science)/ Food Nutrition and Dietetics (Code12), Agribusiness Management (Code 20)
2.	Horticulture and Forestry	Horticulture (Code 08), Forestry/Agroforestry and Silviculture (Code 09)
3.	Engineering and Technology	Plant Biotechnology (Code 01), Agricultural Engineering & Technology (Code 10), Water Science Technology (Code 11), Animal Biotechnology (Code 13), Dairy Sciences (Code 17), Dairy Technology (Code 18), Food Science Technology (Code 19)
4.	Veterinary & Fisheries Science	Veterinary Science (Code 14), Animal Sciences (Code 15), Fisheries Science (Code 16)

One of the yardsticks to measure the performance of Universities could be the number of PG Scholarship. The list of best performing Agricultural Universities on the basis of maximum ICAR-PG scholarship holders produced by them under the 4 specified programme categories during the past four years (Table-22).

Table 22. PG scholarship holders produced by the AUs under the 4 specified programme categories during the past four years

Academic Year	Position	Agricultural Sciences Group	No. of PGS secured	Horticulture and Forestry Group	No. of PGS secured	Engineering and Technology Group	No. of PGS secured	Veterinary and Fisheries Science Group	No. of PGS secured
2019-20	**First**	UAS, Bengaluru	37	UHS, Bagalkot	49	UAS, Bengaluru	12	TANUVAS, Chennai	12
	Second	ANGRAU, Guntur	34	Dr. YSRHU, Venkataramannagudem	11	TNAU, Coimbatore	6	SKUAST (K), Srinagar	8
2018-19	**First**	UAS, Bengaluru	56	UHS, Bagalkot	45	UBKV, Cooch Behar	9	TANUVAS, Chennai	16
	Second	ANGRAU, Guntur	33	UAHS, Shivamogga	11	UAS, Bengaluru and MAFSU, Nagpur	7	SKUAST (K), Srinagar	8
2017-18	**First**	UAS, Bengaluru	50	UHS, Bagalkot	36	UAS, Bengaluru	10	KVAFSU, Bidar	9
	Second	OUAT, Bhubaneswar	29	UAHS, Shivamogga	9	OUAT, Bhubaneswar	8	SKUAST (K), Srinagar	8
2016-17	**First**	UAS, Bengaluru	41	UHS, Bagalkot	10	UAS, Bengaluru	7	TANUVAS, Chennai	20
	Second	UAS, Dharwad	29	CAU, Imphal and OUAT, Bhubaneswar	4	GBPUAT, Pantnagar	6	GBPUAT, Pantnagar	13


Media Studio Lab CCSHAU, Hisar

With 600 candidates admitted with ICAR-PG Scholarship, 123 preferred IARI, New Delhi, 52 IVRI, Bareilly, 39 NDRI, Karnal, 38 GBPUAT, Pantnagar and 33 PAU, Ludhiana indicating the higher "brand value" for ICAR-DU's. Amongst the SAUs, GBPUAT, Pantnagar was ranked top most in terms of "brand value". Insofar as the award of JRF/SRF(PGS) is concerned, the candidates having their Master's degree from GBPUAT, Pantnagar secured highest 23 JRF/SRF(PGS) in AICE-JRF/SRF(PGS)-2019 examination followed by 18 IVRI; 16 PAU, Ludhiana & UAS, Bengaluru each; and 15 CCSHAU, Hisar. Comparative numbers of ICAR-PG Scholarships secured by the graduates and ICAR-JRF/SRF (PGS) secured by the postgraduates of different universities, from 2014-2019, have been shown in Table-24 (p.63).


Students of ANGRAU, Guntur at Oklahoma State University, USA

The top five universities, based on the number of their graduates that were eligible for registration and choice-filling for participation in AIEEA (PG)-2019 online counselling were TNAU, Coimbatore with 925 candidates, ANGRAU, Guntur with 761 candidates, VNMKV, Parbhani with 659 candidates, Dr. PDKV, Akola with 640 candidates and MPKV, Rahuri with 625 candidates. Though the number of candidates qualified from these universities is higher, it was interesting to note that out of 195 total qualified candidates from CAU Imphal, 116 (59.48%) got admissions, indicating better turn out percentage and the rising interest of NE students in higher agricultural education.

Similarly, the top five universities, based on the number of their postgraduates that were eligible for registration and choice-filling for participation in AICE-JRF/SRF(PGS)-2019 online counselling were TNAU, Coimbatore with 232 candidates, SHUAT, Allahabad with 222 candidates, BHU, Varanasi with 212 candidates, ANGRAU, Guntur with 203 candidates and GBPUA&T, Pantnagar with 192 candidates.

5 CRITICAL GAPS AND CONCERNS IN HIGHER AGRICULTURAL EDUCATION

"Education is the manifestation of the perfection already in man. Religion is the manifestation of the Divinity already in man."

–Swami Vivekananda

Students going hands-on-training at CFTRI, Mysore

THE GER for Agricultural Education, out of the total eligible population in the country is only 0.03% and against the total eligible rural population, it is 0.04% which is quite low. Low access of agricultural education to rural students, non-contemporary course curricula and delivery methods, inadequate state funding, unplanned proliferation of SAUs and colleges, regional imbalances in agricultural education facilities, lecture methods still dominating the teaching, lack of brand value for most of SAUs, disconnect between the requirements of industry and the education being imparted, the major challenge of ensuring the quality of education imparted through > 400 private colleges, gender inequality, mismatch of infrastructure for quality education, research & extension, extensive academic inbreeding in faculty recruitment, poor faculty strength, poor governance, lack of environment for nurturing and retaining talent, lack of faculty-competence in cutting edge technologies, low priority to agricultural education as career option & declining quality of students admitted, growing unemployment (43% graduates, 25% post graduates),shifting employment opportunities from public to private sector are some of the issues that need to be tackled to make the agricultural education more vibrant and attractive. Agricultural Education is required to evolve in tune with rapidly changing national and international scenario. Instead of being the world's largest ICAR-AU system, the country needs to have the world's finest ICAR-AU system.

Vijayakumar (2017) reported the status of admission and placement scenario of Agriculture stream graduates over 22 Agricultural Universities in India (Table-23).

Table 23. Admission and placement scenario of Agriculture graduates in India

Year	Admissions	Placement	Percentage
2011	3982	956	24.0
2012	4272	1149	26.9
2013	4399	917	20.8
2014	5097	1037	20.3
2015	5669	1092	19.3

It may be observed from the Table that the admission status of agriculture graduates gradually increased from 3982 in 2011 to 5669 in 2015. However, All India placement status of agriculture graduates during 2011 to 2015 varied between 19.3 to 24.0 %. This shows a low placement of agricultural graduates after completion of their education.

Success of an educational institute is rated not only based on the technologies developed by it but also on demand and marketability of its product, i.e. quality of students and their placement in market. The dynamic business environment necessitates the need to inculcate and instil employable skill-sets among the agriculture graduates. Rather than increasing the supply of graduates, universities need to focus more on improving the qualitative aspects like computer skills, presentation skills, personality development, practical and technical knowledge of the graduates, etc. the traits which are expected by the employers in today's competitive business scenario. Therefore, the agricultural graduates on completion of their studies must be well-equipped to face the challenges posed by the emerging globalized environment. They must possess the required professional capabilities and skill-set to deal with the concerns of sustainable development of climate-resilient agriculture in all its aspects with a focus on addressing the issues, especially those confronting the farmers (Kiresur, 2017).

TANUVAS Students at WSU, USA

Despite significant contributions made by the ICAR and AUs towards human resource development for the benefit of agricultural sector, the existing Indian higher agricultural education is fraught with challenges of low access, lack of required quality standards, lack of adequate financial support, gender inequality, academic inbreeding, lack of faculty competence in cutting-edge areas, etc. Since SAUs are established through the respective State Legislature Acts with major financial support from them, the administrative and policy control primarily rests with the State Govts. It has been observed that inadequate state funding, reduced faculty strength, inadequate faculty development programmes, lack of modern infrastructure for education and research, etc. has adversely affected the pace and quality of technology generation and

human resource development in many of the SAUs. Most of the teachers spend less than 50% of their time for teaching and research. Number of hours that teachers spend with the students is also required to be increased, in order to help them to impart knowledge to the students. Addressing the shortage of faculty in the university can also help in this regard. Majority of the students are not fully satisfied with the present fee structure in the universities. Rationalizing fee structure or providing assistantships for the eligible candidates would encourage quality candidates, particularly those from rural background, to study without any constraints (Kiresur, 2017).

Establishment of new SAUs and new faculties/colleges without providing necessary financial and faculty support has further escalated the problem. According to the recently published Dr. R.S. Paroda Committee Report (2019), the recent mushrooming of private colleges and universities is inconsistent with the goals and objectives set for present day agricultural education. These institutions entice academically mediocre students for admissions into various courses and charge them exorbitantly high fee, which is un-proportional to the infrastructural facilities and quality of education they offer. As per the report, more disturbing features of this development are: (i) the ill-conceived legalization of affiliation of private colleges by certain SAUs against the provisions under the Model Act of ICAR for State Agricultural Universities, (ii) prevailing disregard to ensure existence of a minimum physical plan before private institutions are licensed to begin imparting education and (iii) absence of an enforcing mechanism to accredit these institutions after they have been established. Additionally, with profit as the prime motive, private institutions end up hiring substandard human resource for teaching. Hence, there is an urgent need for establishing an "*Agricultural Education Council of India (AECI)*" by the Parliament which will be a regulatory authority to maintain quality of agricultural education on the lines of Veterinary Council of India (VCI). Alternatively, the mandate of VCI could be extended to all the disciplines of agriculture and placed under the Department of Agricultural Research and Education (DARE) along with current functions of Education Division of ICAR to make it a single window system for higher agricultural education at the national level, so critical for creating competent human resource for future growth of Indian agriculture. A decision was also taken in the Annual Vice-chancellors' Conference held on 30-31 January, 2019 at New Delhi regarding admission of candidates passing out from private agricultural colleges/ universities in view of the Gujarat High Court Order and Hon'ble Apex Court Order. Based upon this decision, the candidates passed out from private Agricultural Universities/Colleges not accredited by ICAR, even through affiliated to public funded / Govt. institutions, are not eligible for admission through the ICAR's All India Entrance examinations.

6 NEED FOR GREATER INVESTMENT IN AGRICULTURAL EDUCATION TO ATTRACT AND RETAIN TALENT

"When we think we know, we cease to learn."

–Sarvepalli Radhakrishnan

ONE of the major factors for low productivity in India is low investment in agricultural research and education. The technology-led agriculture growth can be expected to be achieved only with the strengthening of higher agricultural education. Enhancing the quality of human resource is an essential pre-requisite for implementing and upgrading research programmes, developing technologies, evolving institutional arrangements to face challenges and harness opportunities. Vertical integration of agricultural education is the key to improve the quality of human resources. The lack of qualified manpower in adequate numbers in the frontier areas of agricultural science and technology is one of the major constraints to deliver at grassroots levels for achieving farm prosperity and in taking forward the desired growth rate in agriculture sector. There is a direct relationship between investment in education and poverty elevation as it helps in sustenance of agricultural productivity and profitability. SAUs need to play a greater and more proactive role in attracting best talent by providing enabling environment and facilities at the colleges for the all-round development, growth and employment of students. States should provide more funds to the SAUs to modernize and strengthen the infrastructural facilities to better equip themselves to meet the newer challenges in the sector.

To achieve average annual growth above 4%, allied sectors have to be taken on board as we would require not only food but the balanced diet with adequate nutrition. For increasing production and productivity on sustainable basis, the new technologies developed through concerted R&D efforts are going to hold the key for success. Some bigger initiatives with mega investments would be required to produce the competent human resource, not only for the research and teaching purposes but also to effectively deliver the technologies at the grassroots level to give momentum to get the optimum production.

The budget of Agricultural Education, as approved in the EFC Plans, has increased from ₹224.69 crores (IX Plan) to ₹1019.85 crores (X Plan), ₹2585.00 crores (XI Plan), ₹2900.00 crores (XII Plan) and ₹2050 crores in the 3-year Annual Plans (2018-2020). However, with time, though the number of AUs and their constituent colleges and departments has increased, yet there is no commensurate increase in the budgetary provisions. Sectoral division of SAUs into different subject areas has also contributed to their rising numbers and falling financial share.

Consequently, the financial health of SAUs, in general, is precarious. It is imperative to enhance budgetary support both at the centre and the State level to attain and sustain enhanced capacity for technology development and quality of research and education (Kiresur, 2017). It was also suggested that the Govt. of India should encourage young professionals to set up their own enterprise by providing subsidized funding and exchange programmes with the universities abroad to take up self-entrepreneurship.

7.1 Attracting and Retaining Youth in Agriculture (ARYA)

Youth play a vital role in transforming agriculture in India. However, there is a continuous increase in migration of rural youth to urban areas. In order to create interest and confidence among rural youth in agriculture and check the rate of their migration, there is a need to make agriculture more profitable. Realizing the importance of rural youth in agricultural development especially from the point of view of food security of the country, ICAR had initiated a program on "Attracting and Retaining Youth in Agriculture (ARYA) during 2015-16. Under this scheme, special efforts are being taken up to attract the rural youth under the age of 35 years in agriculture so that the increase in the migration of rural youth towards cities can be controlled.

The ARYA Project was launched by the Council with the major objectives: (i) to attract and empower the youth in rural areas to take up various agriculture, allied and service sector enterprises for sustainable income and gainful employment in selected districts, (ii) to enable the farm youth to establish network groups to take up resource and capital intensive activities like processing, value addition and marketing and (iii) to demonstrate functional linkage with different institutions and stakeholders for convergence of opportunities available under various schemes/program for sustainable development of youth.

ARYA project has been planned to be implemented through *Krishi Vigyan Kendras* (KVK-Farm Science Centres) in 25 States of the country with one district from each State. In one district, 200-300 rural youths shall be identified for their skill development in entrepreneurial activities and establishment of related micro-enterprise units like poultry farming, dairying, fisheries, goat rearing, mushroom production and other similar activities that keep the rural youth attached to agriculture, either directly or indirectly. KVKs will involve the AUs and ICAR Institutes as Technology Partners. One or two enterprise units will be established at KVKs also so that they serve as entrepreneurial training units for farmers. Finally, the trained young entrepreneurs would be assisted in preparing project reports for seeking bank loans. The purpose is to establish economic models for youth in the villages so that they get attracted to agriculture and eventually serve as guide to others, thereby leading to an overall improvement in the rural situation.

These initiatives in co-ordination with other programmes of both Central and State Governments would empower the youth with knowledge, skills and enthusiasm to pursue agriculture with new vigour.

Agriculture as a subject is generally opted by the students who do not get admission in medicine/engineering/management/veterinary courses to pursue their career. Therefore, talent within the available pool has to be nurtured by providing excellent teaching environment and facilities. The faculty should be adequately knowledgeable, updated, trained and highly motivated to teach the newer concepts and methodologies. The college campuses ought to be world class to offer 'first sight love' to the institution by students and ultimately to the profession. The frail infrastructure and facilities available in the educational institutions can in no way enthuse to a new entrant about the profession.

Earn while you learn programme

On the line of IIMs, IITs, AIIMS, this is the high time to establish world class institutions of higher agricultural education in the country mainly focussing PG teaching and related research to attract and nurture the best talent and also draw more number of foreign students. For globalizing agricultural education, campuses can be set up abroad; more collaborative projects may be initiated along with more student exchange programmes. Public funding in several states to AUs especially to newly created one has to improve. Instead of creating new universities, the existing universities should be strengthened. There should be serious efforts for reduced academic inbreeding, improving quality and number of faculty. For better employability of students focus may be given for attaining excellence in areas of strategic importance such as IPRs, WTO-related areas, techno-legal specialties, Agri-business, etc. New centres/Meta-universities under emerging cutting-edge technologies, *viz.* biosensors, genomics, biotechnology, nanotechnology, biotic & abiotic stress management, etc. may be thought of. There is need for institutional capacity building, and establishing linkages/partnerships with other institutions/stakeholders and faculty and students exchange programmes. The number and scope of fellowships needs to be substantially enlarged to attract and retain the young talents.As more jobs are being created in private sector in the developing countries including India, there is a growing interest among the students from the developed countries to come and study in India to understand Indian Agriculture. Therefore, it is recommended that good hostel and transit accommodation facilities are created at the AUs to attract good students and faculty from the developed countries. After completing Ph. D. degree, the candidates may be given ad-hoc appointment as Research Pool Officer to maintain their research tempo.

Salient recommendations of the Dr. R.S. Paroda Committee Report (2019) pertaining to youth in agriculture are as under:

National Mission on Youth in Agriculture

The Committee has emphasised for *National Mission on Youth in Agriculture* to build new skills in youth for innovative agriculture through both formal and informal education with the major objective to impart better knowledge and skill to youth on (i) sustainable, secondary and specialty agriculture, (ii) efficient knowledge dissemination, including information communication technology (ICT), (iii) technical backstopping for innovative farming, (iv) new agri-business models, and (v) entrepreneurship as well as linking farmers to markets through value chain. The committee has stressed upon the importance of imparting agricultural education right from the school level and initiation of entrepreneurship training through vocational and formal diploma programs by the CAUs, SAUs and ICAR institutes. The university curriculum also needs to be revisited to address the emerging needs and aspirations of present-day youth and markets.

Youth-Agriculture Nexus

The committee has recommended the development of a new research agenda for *Youth-Agriculture Nexus* with the primary aim to (i) delineate different contexts for youth-oriented agricultural research, (ii) identify opportunities for young people's engagement in agricultural research and innovation for development (ARI4D), and (iii) determine future pathway of youth for attaining sustainable agricultural growth and income.

Plough-to-Plate initiative

The committee felt that the involvement of youth in *'Plough-to-Plate'* initiative can help in doubling farmers' income. Greater thrust is required to be given to networking for knowledge sharing/dissemination, participation of youth in out-scaling of innovations through their validation using technology parks/innovation platforms, use of ICT, creation of agri-clinics, supporting mentoring/hand-holding, and awareness regarding intellectual property rights (IPRs).

'Youth as a farmer' to 'Youth as value chain developer'

The committee has recommended the need for paradigm shift from 'youth as a farmer' to 'youth as value chain developer'. To provide better economic opportunities for rural youth in the changing agricultural scenario, the mindset of youth needs to move beyond the plot/field level agriculture i.e. from production to post-production level and to link with market for better income opportunities. The combination of agricultural value chains, technology and entrepreneurship will open up tremendous economic opportunities for youth in both the farm and non-farm sectors. Therefore, they need to be encouraged to set-up agri-service centres to offer custom-hire services for small and marginal farmers for mechanizing their farm operations to enhance production at reduced cost.

Institutionalization of incentives and Award/reward system

To inspire and attract youth to adopt agriculture as a profession for happy living, incentives

and awards/rewards need to be institutionalized. This should be a strategic priority at the local, state, and country level to ensure youth-led inclusive growth in agriculture.

Successful entrepreneurs as role models for youth

The successful entrepreneurs need to be identified and must be encouraged to act as role models for capacity development/technical back-stopping of other youth. A compendium of youth-led success stories/case studies of young agricultural entrepreneurs and innovators in various sectors of agriculture from different eco-regions of the country may be prepared on priority and made accessible to others.

Agri-Youth Innovation Corpus Fund

As part of Corporate Social Responsibility (CSR) and enhance rural employment through special projects, the private sector is required to play a proactive role in creating much needed 'Agri-Youth Innovation Corpus Fund.' This initiative would enhance rural employment opportunities through small agri-business start-ups, public-private as well as private-private entrepreneurship. Private players may also help through soft loans and mentoring programs for involving rural youths as input dealers/suppliers as well as paid extension agents.

Creation of Department of Youth in Agriculture

The committee strongly recommended the creation of a separate *Department of Youth in Agriculture* under the MoA & FW. This will ensure collaboration and coordination with concerned line departments in other Ministries such as Science and Technology, Skill Development and Entrepreneurship, Food Processing Industry, Rural Development, Commerce and Industry, Chemicals and Fertilizers, etc. so as to meet the aspirations of youth in agriculture. Such an institutional mechanism, with funding support through the proposed 'National Mission on Youth in Agriculture' will help in motivating and attracting youth in agriculture and allied fields.

ICT knowledge enabled youth

The committee was of the view that the role of well-trained and competent youth, with expertise in ICT application for e-NAM, Start-up, Stand-up and skill development schemes, agribusiness enterprises, etc. is extremely important. They would thus need enabling policies for long-term investments, availability of easy and soft credit, provision of subsidy upfront to the entrepreneurs, farmer exchange visits, easy market accessibility, land law reforms for entrepreneurs, no taxation system for rural-based primary value addition involving youth, review of Agri-Clinic support system by the NABARD, reforms in marketing laws such as scrapping of APMC Act, provision of ready insurance for covering risk of 'start-up' entrepreneurs, etc. would immensely encourage youth to embrace agriculture.

The Agricultural Education Division, ICAR is making all out efforts to attract the talent from all over country and getting them exposed to different socio-cultural environment and nurture them to provide quality manpower who is willing to work beyond regional and linguistic barriers as per emerging need in the coming years.

Table 24. Number of PG Scholarships and JRF/SRF (PGS) secured by the graduates/post-graduates of the Agricultural Universities

Sr. No.	Name of the University	2014		2015		2016		2017		2018		2019	
		No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured
1.	AAU, Anand (Gujarat)	3	1	6	1	-	1	2	6	1	3	2	7
2.	AAU, Jorhat -785 013 (Assam)	3	1	1	-	4	-	5	1	3	4	4	4
3.	AMU, Aligarh (UP)	-	-	-	-	-	1	-	-	-	2	-	-
4.	ANGRAU, Guntur (AP)	9	7	13	2	8	5	14	2	37	10	38	-
5.	AU, Jodhpur, Rajasthan	-	-	-	-	-	-	1	-	3		2	1
6.	AU, Kota, Rajasthan	-	-	-	-	-	-	3	-	4	3	1	2
7.	BASU, Patna, Bihar	-	-	-	-	-	-	-	-	-	-	2	-
8.	BAU, Ranchi -834 006 (Jharkhand)	-	-	2	1	1	-	-	-	1	-	3	-
9.	BAU, Sabour, Distt. Bhagalpur (Bihar)	-	1	-	1	3	-	-	-	2	1	2	3
10.	BCKVV, Mohanpur, Nadia -741 252 (W B)	13	1	12	1	9	3	13	3	15	2	19	13
11.	BHU, Varanasi-221005 (UP)	15	14	7	10	6	6	8	8	5	21	18	13
12.	BUAT, Banda -210001(U.P)	-	-	-	-	3	-	1	-	2	-	4	-
13.	CAU, Imphal-795 004 (Manipur)	33	3	14	2	20	2	11	2	19	9	15	6
14.	CCSHAU, Hisar-125 004 (Haryana)	2	6	9	17	4	12	7	6	11	12	4	15
15.	CKV, Anjora, Durg Raipur-491 001 (CG)	7	-	6	1	1	-	-	-	3	-	1	-
16.	CSAUA&T, Kanpur-208 002 (UP)	13	-	5	3	2	2	3	2	9	1	5	3
17.	CSKHPKV, Palampur -176 062 (HP)	9	-	12	6	12	2	6	2	7	5	4	3
18.	Dr. PDKV, Akola-444 104 (Maharashtra)	15	2	9	2	10	3	5	1	7	3	13	4
19.	Dr. BSKKV, Dapoli, Distt. Ratnagiri (Maharashtra)	5	-	5	1	11	-	3	1	5	-	5	4
20.	Dr. RPCAU, Pusa-848 125 (Bihar)	5	1	3	-	2	-	4	-	5	7	2	8
21.	Dr. YSPUHF, Solan, Nauni-173 230 (HP)	2	1	5	2	2	1	3	4	5	1	1	3
22.	Dr. YSRHU, Venkataramanagudem, WG (AP)	1	1	2	-	2	-	1	-	4	5	13	8
23.	DUVASU, Mathura-281 001 (UP)	3	1	7	-	3	-	-	-	1	-	-	4
24.	GADVASU, Ludhiana (Punjab)	2	2	2	6	1	1	5	-	-	2	1	1

Sr. No.	Name of the University	2014		2015		2016		2017		2018		2019	
		No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured
25.	GBPUAT, Pantnagar -263145 (Uttarakhand)	24	11	25	13	35	16	17	11	19	23	16	23
26.	ICAR-CIFE, Mumbai (ICAR-DU)	-	6	-	2	-	2	-	-	-	1	-	4
27.	ICAR-IARI, Pusa, New Delhi (ICAR-DU)	-	44	-	6	-	3	-	4	-	1	-	8
28.	ICAR-IVRI, Izatnagar, (UP) (ICAR-DU)	-	26	-	12	-	15	-	9	-	4	-	19
29.	ICAR-NDRI, Karnal-132 001 (Haryana) (ICAR-DU)	1	7	2	7	5	4	-	4	1	4	-	5
30.	IGKVV, Raipur- 492 012 (Chhattisgarh)	6	-	2	2	1	-	4	2	5	4	3	8
31.	JAU, Junagadh-362 001 (Gujarat)	2	2	6	2	1	2	2	2	2	7	1	4
32.	JNKVV, Jabalpur (MP)	5		2	-	1	1	5	2	7	-	4	4
33.	KAU, Thrissur (Kerala)	6	1	3	2	8	1	3	4	2	6	5	9
34.	KU, Gandhinagar, Gujarat 382010 (Gujarat)	-	-	-	-	-	-	-	-	2	-	-	-
35.	KUFOS, Panangad, Kochi (Kerala)	6	-	2	-	3	-	-	-	-	1	2	-
36.	KVASU, Pookode, Wayanad -673576 (Kerala)	7	-	9	-	5	-	1	-	1	-	9	1
37.	KVA&FSU, Bidar-585 401 (Karnataka)	11	1	11	-	11	-	13	-	8	1	4	1
38.	LUVAS, Hisar (Haryana)	0	1	2	2	2	4	5	-	1	1	1	-
39.	MAFSU, Nagpur-440 006 (Maharashtra)	7	1	3	3	8	1	6	2	9	2	6	1
40.	MPKV, Rahuri (Maharashtra)	8	-	9	1	8	2	10	-	9	1	6	5
41.	MPUAT, Udaipur -313 001(Rajasthan)	8	-	9	5	4	3	7	4	4	6	6	7
42.	NAU, Navsari (Gujarat)	1	-	1	-	1	2	2	1	1	1	6	4
43.	NDPCVV, Jabalpur-482 004 (MP)	7	-	8	-	6	1	-	-	3	2	3	1
44.	ANDUA&T, Ayodhya (UP) -224 229	2	-	2	-	4	2	1	2	2	-	8	-
45.	SASARD, Nagaland University, Medziphema (Nagaland)	-	-	1	-	-	-	-	-	-	-	-	-
46.	OUAT, Bhubaneswar, Khurda (Odisha)	37	1	35	2	28	8	47	2	33	14	31	2
47.	PAU, Ludhiana -141 004 (Punjab)	3	2	3	2	2	6	3	3	2	11	-	16
48.	PJTSAU, Hyderabad (Telangana)	-	-	4	1	5	5	12	3	22	9	28	9
49.	PVNRTVU, Rajendranagar, Hyderabad (Telangana)	-	-	-	-	1	1	-	-	-	-	1	8

Sr. No.	Name of the University	2014		2015		2016		2017		2018		2019	
		No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured	No of PGS Secured	No of JRF/SRF Secured
50.	RUVAS, Bikaner, (Rajasthan)	4	1	4	-	2	-	-	1	3	2	-	
51.	RLBCAU, Jhansi, (UP)	-	-	-	-	-	-	-	-	3	-	-	-
52.	RVSKVV, Gwalior (M P)	-	-	1	1	1	-	2	1	4	-	-	1
53.	SDAU, Banaskantha -385 506 (Gujarat)	3	-	4	2	7	-	2	1	6	-	8	-
54.	SHUATS, Naini, Allahabad-211 007(UP)-*admissions stopped w.e.f. 2019-20 due to private status.*	4	-	2	2	1	3	-	-	3	1	1	-
55.	SKLTSHU, Rajendranagar- Hyderabad (Telangana)	-	-	-	-	1	-	-	-	4	1	5	1
56.	SKNAU, Jobner-303329 (Rajasthan)	-	-	2	-	3	1	3	1	8	7	7	3
57.	SKRAU, Bikaner (Rajasthan)	12	-	2	2	2	-	1	-	8	-	3	5
58.	SKUAST-J, Jammu (J&K)	7	2	5	1	9	2	8	-	-	2	1	1
59.	SKUAST-K, Shalimar, Srinagar-191121 (J&K)	14	-	17	1	12	3	6	-	8	1	10	-
60.	SVPUAT, Modipuram, Meerut-250110 (U P)	1	1	2	2	1	-	-	1	2	1	6	2
61.	SVVU, Tirupati, Chittoor -517 502(AP)	2	1	3	-	4	-	2	-	1	1	4	1
62.	TANUVAS, Chennai- 600 051 (Tamil Nadu)	11	-	8	5	20	-	5	-	16	-	12	-
63.	TNAU, Coimbatore-641 003 (Tamil Nadu)	5	3	15	9	13	14	13	11	27	4	25	4
64.	TN Dr. JJFU, Nagapattinam, Chennai – 611001TN	5	-	4	-	6	-	-	-	2	-	5	-
65.	UAHS Shivamogga-577204(Karnataka)	13	-	6	2	10	1	16	-	17	4	9	4
66.	UAS, Dharwad-580 005 (Karnataka)	22	9	42	6	30	11	26	5	27	11	34	5
67.	UAS, Raichur-584102 (Karnataka)	7	1	9	4	6	1	10	4	5	2	18	5
68.	UAS, GKVK, Bengaluru (Karnataka)	25	11	38	11	48	13	60	11	64	8	49	16
69.	UBKVV, Cooch Behar-736 165 (WB)	9	-	10	-	16	-	14	1	14	2	16	2
70.	UHS, Bagalkot -587 102 (Karnataka)	10	2	9	1	10	4	39	3	48	6	56	-
71.	VCSGUUHF, Bharsar, Pauri Garhwal, Uttarakhand	-	-	-	-	-	-	1	-	1	-	-	-
72.	Visva Bharati (PSB), Sriniketan (W.B.)	8	-	7	-	6	-	7	-	5	4	4	-
73.	VNMKV, Parbhani (Maharashtra)	10	-	5	-	6	2	5	3	5	3	5	1
74.	WBUA&FS, Kolkata (WB)	8	-	2	2	9	-	4	-	4	-	5	-
75.	Other Universities	13	7	18	13	8	3	12	3	27	12	18	5
Grand Total		**474**	**183**	**474**	**182**	**474**	**176**	**469**	**139**	**594**	**262**	**600**	**297**

Table 25. List of SAUs/DUs/CAU/CUs under the ICAR-AU system

Sr. No.	Name and address of the Agricultural University	Telephone No. of Registrar	University website
	State Agricultural Universities		
1	Acharya N G Ranga Agricultural University, Administrative Office, Lam, Guntur-522034, Andhra Pradesh	0863-2347101	www.angrau.ac.in
2	Acharya Narendra Deva University of Agriculture & Technology Kumarganj, Ayodhya- 224 229, Uttar Pradesh	05270-262035	www.nduat.org
3	Agricultural University, Kota Borkhera, P.B. No. 20, GPO Nayapura, Kota-324001, Rajasthan	0744 -2321205	www.aukota.org
4	Agriculture University, Jodhpur, Mandor, Jodhpur-342304, Rajasthan	0291-2570711	www.aujodhpur.ac.in
5	Anand Agricultural University, Anand- 388110, Gujarat	02692-261310	www.aau.in
6	Assam Agricultural University, Jorhat-785013, Assam	0376-2340008	www.aau.ac.in
7	Banda University of Agriculture & Technology, Chilla Road, Banda-210001 Uttar Pradesh	05192-232312	www.buat.edu.in
8	Bidhan Chandra Krishi Viswavidyalaya, P.O. Krishi Viswavidyalaya, Mohanpur, Dist- Nadia-741252, West Bengal	033-25878163	www.bckv.edu.in
9	Bihar Agricultural University, Sabour, Bhagalpur- 813210, Bihar	0641-2452614	www.bausabour.ac.in
10	Bihar Animal Sciences University, Bihar Veterinary College Campus, Patna - 800014, Bihar	0612-2227251	www.basu.org.in
11	Birsa Agricultural University, Kanke, Ranchi - 834006, Jharkhand	0651-2450832	www.bauranchi.org
12	Ch. Sarwan Kumar HP Krishi Viswa Vidyalaya, Palampur-176062, Himachal Pradesh	01894-230383	www.hillagric.ac.in
13	Chandra Shekhar Azad University of Agriculture & Technology, Kanpur-208002 Uttar Pradesh	0512-2533704	www.csauk.ac.in
14	Chaudhary Charan Singh Haryana Agricultural University, Hisar-125004, Haryana	01662-234613	www.hau.ernet.in
15	Chhattisgarh Kamdhenu Vishwavidyalaya, Anjora Durg, Raipur-492011, Chhattisgarh	0771-4223615	www.cgkv.ac.in
16	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Tal. Dapoli, Dist. Ratnagiri- 415 712, Maharashtra	02358-282065	www.dbskkv.org
17	Dr. Panjabrao Deshmukh Krishi Vidyapeeth, PO Krishi Nagar, Akola-444104, Maharashtra	01792-252219	www.pdkv.ac.in
18	Dr. Yashwant Singh Parmar University of Horticulture & Forestry, Nauni, Solan- 173230, Himachal Pradesh	01792-252219	www.yspuniversity.ac.in

Sr. No.	Name and address of the Agricultural University	Telephone No. of Registrar	University website
19	Dr.Y.S.R. Horticultural University, Administrative Office, Post Box # 7, Venkataramannagudem – 534 101, West Godavari District, Andhra Pradesh	08818-284311	www.drysrhu.edu.in
20	Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Udham Singh Nagar-263145, Uttarakhand	05944-233640	www.gbpuat.ac.in
21	Guru Angad Dev Veterinary and Animal Sciences University, Firozepur Road Ludhiana-141004, Punjab	0161-2553342, 2553343	www.gadvasu.in
22	Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur-492012, Chhattisgarh	0771-2442537	www.igkvmis.cg.nic.in
23	Jawaharlal Nehru Krishi Vishwavidyalaya, Krishinagar, Adhartal, Jabalpur-482004, Madhya Pradesh	0761- 2681778	www.jnkvv.org
24	Junagadh Agricultural University, Near Motibaugh, Vanthali Road, Junagadh 362001, Gujarat	0285-2672346	www.jau.in
25	Kamdhenu University, Wing-B1, 4th Floor, Block-1, Room No. 414, Karmayogi Bhavan, Sector-10-A, Gandhinagar-382010, Gujarat	079-2322013	www.ku-guj.org
26	Karnataka Veterinary, Animal and Fisheries Sciences University, PB No.6 Nandinagar, Bidar-585401, Karnataka	0848-2245241	www.kvafsu.edu.in
27	Kerala Agricultural University, KAU Main Campus, KAU P.O., Vellanikkara, Thrissur -680656, Kerala	0487-2438011	www.kau.in
28	Kerala University of Fisheries and Ocean Studies, Panangad P.O., Kochi-682506, Karnataka	0484-2703782	www.kufos.ac.in
29	Kerala Veterinary and Animal Sciences University Pookode, Lakkidi P.O. Wayanad-673576, Kerala	04936-209220	www.kvasu.ac.in
30	Lala Lajpat Rai University of Veterinary & Animal Sciences, Hisar-125001, Haryana	01662-270164	www.luvas.edu.in
31	Maharana Pratap Horticultural University, Anjanthali, Karnal, Campus Office-CCS Haryana Agricultural University Campus, Hisar-125001 (Haryana)	01662-256083	www.mhu.ac.in
32	Maharana Pratap University of Agriculture & Technology, Udaipur-313001, Rajasthan	0294-2471302	www.mpuat.ac.in
33	Maharashtra Animal & Fishery Sciences University, Futala Lake Road, Nagpur - 440 001, Maharashtra	0712-2511273/ 2511785	www.mafsu.in
34	Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist. Ahmednagar-413722, Maharashtra	02426-243216	www.mpkv.ac.in
35	Nanaji Deshmukh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur-482004, Madhya Pradesh	0761-2681760	www.ndvsu.org

Sr. No.	Name and address of the Agricultural University	Telephone No. of Registrar	University website
36	Navsari Agricultural University, Eru Char Rasta, Dandi Road, Navsari–396 450, Gujarat	02637-282823	www.nau.in
37	Odisha University of Agriculture & Technology, Siripur Square, Bhubaneswar-751003, Odisha	0674-2397424	www.ouat.nic.in
38	P.V. Narsimha Rao Telangana Veterinary University Administrative Office, Rajendra Nagar, Hyderabad-500 030, Telangana	040-24002114	www.tsvu.nic.in
39	Prof. Jayashankar Telangana State Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030, Telangana	040-24002314	www.pjtsau.edu.in
40	Punjab Agricultural University, Firozepur Road, Ludhiana-141004, Punjab	0161- 2401960	www.pau.edu
41	Rajasthan University of Veterinary & Animal Sciences, Bijay Bhawan Palace Complex, Near Pt. Deendayal Circle, Bikaner-334006, Rajasthan	0151-2540028	www.rajuvas.org
42	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Raja Pancham Singh Marg, Near Akashwani, Gwalior-474002, Madhya Pradesh	0751-2970519	www.rvskvv.net
43	Sardar Vallabh Bhai Patel University of Agriculture & Technology, NH-58, Roorkee Road, Modipuram, Meerut-250110, Uttar Pradesh	0121-2888502	www.svbpmeerut.ac.in
44	Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar – 385506, Dist : Banaskantha, Gujarat	02748- 278226	www.sdau.edu.in
45	Sher-e-Kashmir University of Agricultural Sciences & Technology, Administrative Bldg, Main Campus, Chatha, Jammu-180009, Jammu & Kashmir	0191-2262012	www.skuast.org
46	Sher-e-Kashmir University of Agricultural Sciences & Technology, Shalimar Campus, Srinagar- 190025, Jammu & Kashmir	0194-2461271	www.skuastkashmir.ac.in
47	Shri Karan Narendra Agriculture University, Jobner-303329, Rajasthan	01425-254980	www.sknau.ac.in
48	Sri Konda Laxman Telangana State Horticultural University Administrative Office Rajendranagar 500 030, Hyderabad, Telangana	040-24014301	www.skltshu.ac.in
49	Sri Venkateswara Veterinary University, Dr. Y.S.R. Bhavan, Tirupati – 517502, Andhra Pradesh	0877-2248894	www.svvu.edu.in
50	Swami Keshwanand Rajasthan Agricultural University, Beechwal Bikaner-334016, Rajasthan	0151-2250025	www.raubikaner.org

Sr. No.	Name and address of the Agricultural University	Telephone No. of Registrar	University website
51	Tamil Nadu Agricultural University, Lawley Road, Coimbatore-641003, Tamil Nadu	0422-6611201	www.tnau.ac.in
52	Tamil Nadu Dr. J. Jayalalitha Fisheries University, Vettar River View Campus, Nagapattinam – 611 002, Tamil Nadu	04365-256432	www.tnjfu.ac.in
53	Tamil Nadu Veterinary Animal Sciences University, Madhavaram Milk Colony Campus, Madhavaram, Chennai - 600 051, Tamil Nadu	044-25551584	www.tanuvas.ac.in
54	University of Agricultural and Horticultural Sciences Navile, Shivamogga - 577204, Karnataka	8182 267011	www.uahs.edu.in
55	University of Agricultural Sciences, GKVK Campus, Bangalore – 560065, Karnataka	080-23330984	www.uasbangalore.edu.in
56	University of Agricultural Sciences, PB 329, UAS Campus, Lingsugur Road, Raichur-584 104, Karnataka	08532-220157	www.uasraichur.edu.in
57	University of Agricultural Sciences, Yettinagudda Campus, Krishi Nagar, Dharwad-580 005, Karnataka	0836-2214420, 2747958	www.uasd.edu
58	University of Horticultural Sciences, Udyanagiri, Bagalkot-587104, Karnataka	08354-230276	www.uhsbagalkot.edu.in
59	UP Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan DUVASU, Mathura Pin: 281001, Uttar Pradesh	0565-2471178	www.upvetuniv.edu.in
60	Uttar Banga Krishi Vishwavidyalaya, PO Pundibari, Coochbehar-736165, West Bengal	03582-270588	www.ubkv.ac.in
61	Vasantrao Naik Marathwada Krishi Vidyapeeth, Krishinagar, Parbhani-431402, Maharashtra	02452-229755	www.vnmkv.ac.in
62	Veer Chandra Singh Garhwali Uttarakhand University of Horticulture and Forestry, Bharsar-246123, Dist. Pauri Garhwal, Uttarakhand	01348-226071	www.uuhf.ac.in
63	West Bengal University of Animal & Fishery Sciences, 37 & 68, Khudiram, Khudiram Bose Sarani, Belgachia, Kolkata-700037, West Bengal	033-25563123	www.wbuafscl.ac.in
	ICAR-Deemed-to-be Universities		
64	ICAR-Indian Agricultural Research Institute, New Delhi-110012	011-25842390	www.iari.res.in
65	ICAR-Indian Veterinary Research Institute, Izatnagar-243122, Bareilly, Uttar Pradesh	0581-2301802, 23101462	www.ivri.nic.in
66	ICAR-National Dairy Research Institute, Karnal-132001, Haryana	0184-2272392/ 2240839	www.ndri.res.in

Sr. No.	Name and address of the Agricultural University	Telephone No. of Registrar	University website
67	ICAR-Central Institute of Fisheries Education, Panch Marg, Off Yari Road, Andheri (W) -400061, Mumbai, Maharashtra	022 26348223	www.cife.edu.in
Central Universities having faculty of Agriculture			
68	Aligarh Muslim University, Aligarh-202002, Uttar Pradesh	0571 2700220	www.amu.ac.in
69	Banaras Hindu University, Varanasi-221005, Uttar Pradesh	0542-2307222, 2368558	www.bhu.ac.in
70	Nagaland University, Lumani, Zunheboto Dist., Medziphema-797106, Nagaland	0369-2268270	www. nagalanduniversity.ac.in
71	Visva Bharati (Palli Siksha Bhavana), P.O. Sriniketan–731 236, Birbhum, West Bengal	03463-261853	www.visvabharati.ac.in
Central Agricultural Universities			
72	Central Agricultural University, Imphal, PB No. 23, Lamphel PO, Manipur-795004	0385-2410644	www.cau.ac.in
73	Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur-848125, Bihar	06274-240239, 240247	www.rpcau.ac.in
74	Rani Lakshmi Bai Central Agricultural University, NH-75, Near Pahuj Dam, Gwalior Road, Jhansi-284003, Uttar Pradesh	0510-2730555	www.rlbcau.ac.in

7

SCOPE OF HIGHER AGRICULTURAL EDUCATION

"Education gives you wings to fly."

-A. P. J. Abdul Kalam

A major chunk of Master degree holders from agricultural sciences goes for higher education in Indian Universities and abroad. The degrees awarded by the Universities associated with the ICAR are well-recognized and accepted for higher education globally. Some of the post-graduates also start their own business units including the Agri-clinics and Agro-service Centres.

The passed out graduates get employment in various sectors such as 33 per cent in government, 44 per cent in private, 10 per cent in financial, 4 per cent in research and academic and 9 per cent in others (NAIP report-2011). The major shift in the past three decades has been decline in the share of public sector in employment, which could be due to freezing employment in government sector as well as expansion of opportunities in the Private sector.

Following are some of the sectors providing placement to the agricultural graduates/post-graduates:

- Development, research and teaching departments/institutions/universities of Central and State Governments
- Commercial banks and Insurance sector
- Area development/watershed development agencies including NGOs
- Industry dealing with fertilizers and plant nutrients
- Plant protection chemicals, insecticides and pesticides, veterinary drugs manufacturing and marketing companies
- Organizations dealing in seeds and planting materials
- Industries dealing with Agriculture machinery, Sericulture, Horticulture, Marine and Fisheries, Dairy, Poultry, Meat and Feed, etc.

- Manufacturers and suppliers of irrigation systems
- Agricultural and animal products processing industry
- Multi-nationals dealing with production, field evaluation, and marketing of agricultural inputs including export marketing and consultancy services, etc.

Inspite of great demand and opportunities for agricultural graduates in the above sectors, the agricultural graduates are unable to decide their career options even after four years of university education. Unlike medical and engineering disciplines, for which there is great awareness amongst the parents and students, the agricultural education has not received much attention due to lack of matching publicity and visibility. A useful compilation and guiding tool for the students seeking admission to various undergraduate programmes in Agriculture and Allied Sciences in AUs under the ICAR-AU system was published by Rana *et al.* (2018). Apart from students and parents, the information is useful for the educational institutions to guide the 10+2 pass-outs to choose agriculture as one of the career options.

Currently, almost every graduate looks for a white-collar job preferably in public sector. With government resolve to phase out non-performing assets, job opportunities in government sector are shrinking faster than the number of graduates coming out of SAUs and other institutions. According to an estimate (IAMR, 2001), 43% of the graduates and 23% of postgraduates (M.Sc.) find it difficult to access gainful employment. Hence, in order to ward off rising unemployment on account of excessive dependence on public sector jobs, there is need to develop graduates/postgraduates who are not job seekers but job providers. In this pursuit, futuristic Agricultural Education will need to be enriched with real life subjects and their delivery through project work rather than through mere classroom lecture alone. Although the recently revised curricula and syllabi of UG and PG programmes have to some extent addressed these issues, still there is need for reorienting them to address stakeholders' concerns and needs (NAEP Project Document).

"A fundamental change is needed in the way we think about education's role in global development, because it has a catalytic impact on the well-being of individuals and the future of our planet. ... Now, more than ever, education has a responsibility to be in gear with 21st century challenges and aspirations, and foster the right types of values and skills that will lead to sustainable and inclusive growth, and peaceful co-existence." (Irina Bokova, Director-General of UNESCO). Education (SDG-4), essential to achieve all the sustainable development goals, has its own dedicated Goal, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."

Students working in Computer lab

To generate better jobs and more decent work opportunities, knowledge-sharing and innovation in rural areas should focus on developing capacities, supported by going beyond agriculture to provide youth with training and education on sustainable socio-economic entrepreneurship, including human skills and linking agriculture to industry and services.

The Agricultural Education Division of ICAR through various schemes and AIEEA has been playing a pivotal role in development of quality human resources for transforming Indian agriculture and achieving the sustainable development goals.

Hi-Tech Horticulture

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