CHAPTER - III

AGRICULTURAL EDUCATION AND RESEARCH IN INDIA
3.0. INTRODUCTION

Agricultural education is the foundation for developing manpower for research, education, training and transfer of technology to field and extension activities in the country. After the Independence India has recorded substantial progress in the field of agriculture education and research due to able leadership and priority for agriculture. There are enough historical evidences, which show that agricultural education existed in India even during medieval period. Agriculture as a discipline was included in the curricula of Nalanda and Takshila the ancient universities of country, as one of the 18 arts.

India, being an agriculture country the agriculture education and research has a great significance in the growth and development of human resources for agriculture sector. Subsequently, well-organized courses in agricultural education were started in the beginning of the 20th century when 6 agricultural colleges were established, i.e. College of Agriculture, at Kanpur (Uttar Pradesh), Lyallpur (Now in Pakistan), Coimbatore (Tamil Nadu), and Nagpur (Maharashtra) in 1905, at Pune (Maharashtra) in 1907 and at Sabour (Bihar) in 1908.

Thereafter several other colleges were established throughout the country for agriculture education and research in India. These colleges were under the control of the State Department of Agriculture and Animal Husbandry and were involved only in teaching activities. The establishment of Imperial Agricultural Research Institute (IARA) in 1905 at Pusa (Bihar) now known as Indian Agricultural Research Institute (IARA) at Delhi since 1936 was a landmark in the agriculture education and research in India. Indian Agricultural Research Institute (IARA) is the country's premier national institute for agricultural research, education and extension. It has the status of a Deemed-to-be-University under the UGC Act of 1956.
Government of India appointed an Education Commission under the Chairmanship of Dr S. Radhakrishan in 1948. Similarly, the Agricultural University Committee was also established in 1960. Based on these two Commission recommendations, the first state agricultural university (SAU) was established in Pantnagar (Uttar Pradesh) now in Uttarakhand in 1960, on the pattern of the Land Grants College of the United States of America (USA). This was followed by the establishment of at least one SAU in each major state of the country.

3.1. Agriculture education and research before independence

The base of the Indian economy despite some remarkable progress in the field of industry during British period till today remains predominantly on the agricultural sector. It was estimated that nine out of ten bread earners in India were engaged in agriculture for their livelihood. Even with the lapse of time, when industries started developing in India and people in large number starting getting employment therein, the number of people dependent on agriculture did not decrease.

Further, in regard of the dependence of working force on agriculture before Independence the words of the Auxiliary Committee Review are worth mentioning, i.e. The problem of mass education in British India was predominantly a rural problem. Only 29.9% of the population of 247 millions lived in towns as compared with 79% in England, 51% in USA, 42.2% in France and 46.5% in Germany. In British India, 74.4% of the population was dependent on agriculture.

Agricultural education before Independence in India suffered from a great setback due to political reasons and it was also a fact that Britishers' wherever they ruled somehow could not develop the agricultural education system in India. Although the British Government from time to time set up many Commissions and Committees for improving the agriculture and agricultural
education in India, yet they could not reach the grass roots level due to lack of interest in enhancing the agricultural education at every level be it school, college and university.

3.2. Famine Commission Report (1880)

The Famine Commission (1880) was the first commission report, which draws the attention of the Government to the need of agricultural education and research. The famine condition and its impact on the country particularly in the rural part the commission recommended that improved agricultural practices should be the main step for obtaining food security against such disasters. The Commission also recommended that agricultural labs should be established in each Province for agricultural enquiry, improvement and famine relief.

3.3. Dr JA Voelcker’s Report on Improvement of Indian Agriculture (1891)

In 1889 the Secretary of State (England) expressed his willingness to send a competent Agricultural Chemist who could make enquiries in Indian agriculture and advise upon the best course to be adapted for: (i) applying the agricultural chemistry in Indian Agriculture, (ii) to effect improvement in Indian Agriculture. The need of an agricultural chemist was felt due to the large uncultivable land in the North-West Provinces (presently Uttar Pradesh), which were infected with noxious chemicals, and it was thought that chemical sciences might aid in reclaiming these lands.

Dr John Augustus Voelcker, a consulting chemist of the Royal Agricultural Society of England arrived in India in 1889 and left early in 1891. Dr Voelcker toured all over India, meeting representatives of all provinces and recorded all his journeys and impressions in his famous book entitled, 'Improvement of Indian Agriculture' (Randhawa Ibid).
3.4. Establishment of Departments of Agriculture (1905)

Lord Curzons the Vice-Roy General, in 1905 had ordered to establish the agriculture departments in all four provinces to assist development of agricultural research, demonstration and education. For the first time full time Directors of Agriculture were appointed in all major provinces. The provinces were divided into a suitable number of 'circles' and each had an experimental farm on the basis of regions soil and climate under a Deputy Director of Agriculture. These farms were also responsible for depots for seeds, manures and implements needed for agriculture.

3.5. Establishment of Agricultural Colleges (1905)

With the annual grant of Rs 2 million it was decided to establish, in each important Province, an agricultural colleges and research station adequately equipped with laboratories and class rooms to which would be attached a farm. These colleges were Coimbatore (1906), Kanpur (1906), Lyallpur (1906), Poona (1907), Nagpur (1907) and Sabour (1908) primarily responsible for education and research in the core area of agriculture, i.e. Botany, Chemistry, Entomology and Agronomy. These colleges offered diploma/certificate courses in agricultural sciences. Later degree level education was introduced and these colleges were affiliated to general universities.

3.6. Agricultural Education and Research after Independence

Soon after Independence, urgency of bringing about rapid increase in food grains production necessitated to the re-examination of the existing pattern of agricultural education and research in the country. For achieving quick benefits from new agricultural technologies, closer linkages between research, extension and teaching programmes were felt necessary. It was also
realized that achieving all these objectives was not possible under the general university system. Therefore, a network of education, research and extension was sought to respond to diverse needs of different production systems, which concentrate to agro-climatic situations and socio-economics conditions of farmers. This location and situation specificity of agriculture led to setting up of one agricultural university in each state of the country. The changing conditions following independence called a drastic change in the system of education. The following Committees and Commissions have rightly emphasized this need particularly in context of agriculture.

3.7. University Education Commission (1949)

In 1948-1949 the University Education Commission under the chairmanship of Dr S. Radhakrishnan recommended that a system of rural universities be established to supply skilled persons that would be needed by the country and to meet the requirements of an educated citizenship on the pattern of Land Grants College of USA. The Commission observed, 'A new beginning is desirable, with freedom to create a distinctive tradition as to purposes, spirit and methods (ICAR. 1998).’ The Commission in general terms mentioned principal features of the proposed rural universities. A rural university should include a ring of small residential undergraduate colleges, with specialized and university facilities in the centre. While the need for a common core of liberal education in the basic sciences and social sciences was recognized, it was stressed that the curriculum should fit the needs of individual students and should provide for specialization and selection of courses from more than one college. Each rural university
should be autonomous and free to work out its own way, in terms of syllabi, curricula, examinations and discharging all academic works.

3.8. First Joint Indo-American Team (1955)

The first Joint Indo-American team was set up on the advice of Dr Frank W. Parker, an Adviser to the Ministry of Food and Agriculture, Government of India. The team had total eight members, five Indian and three Americans. The Indian members of the First Joint Team visited the United States from January to March 1955, while the American members came to India in July 1955. The team endorsed the recommendations of the University Education Commission that wherever possible each State should develop a rural university and initially Uttar Pradesh (Tarai), West Bengal (Haringhatta), Bihar (Patna), Orissa (Bubaneshwar), Travancore (Cochin), and Bombay State (Anand) were identified for establishment of agriculture universities for meeting the needs of education and research. The team also suggested that the Government of India should start postgraduate teaching at Indian Agricultural Research Institute (IARI) and Indian Veterinary Research Institute (IVRI).

3.9. Hannah's Blueprint on Agricultural Universities (1956)

The work of this team was greatly facilitated by a blueprint on agricultural universities prepared by the H. W. Hannah in 1956. The contribution made by him was of great significance in establishment of the agriculture university in the country. On the basis of this blueprint the Uttar Pradesh Government submitted a proposal to the Government of India in September 1956 to establish an agricultural university at Rudrapur in Tarai, now known as Pantnagar. The Government of India approached the problem in a previous manner and agreed to the setting up of the agricultural university in Tarai only as an experimental measure in the Second Five Year
Plan (1957-1961). However, there were demands from many more states for such universities, and in 1961 the Government of India accepted the need for a few more such universities during the Third Plan Period (1962-67) and suggested that the existing colleges/institutions, which had strong departments for teaching and research in agriculture, should serve as nuclei for such universities.

3.10. Second Joint Indo-American Team (1960)

The second Joint Indo-American Team was set up on 12 September 1959, headed by the Vice-President of the ICAR. It had three American representatives from Land-Grants University, namely Arthur D. Weber, A.E. Darlow and Earn, Arthur. Deering, and Dr Martin G. Weiss representing the U.S. Department of Agriculture. The Indian members of the team were Dr B.N. Uppal, Dr I. Sahai, Dr S. Lal Singh, Mr P.D. Nair, Dr M.D. Paul, Dr K.C. Nair, Dr J.S. Patel and Mr Ibne Ali. The team submitted its report on 11 July 1960, and reported that there was widespread demand from many states of the India for establishment of agricultural universities.

3.11. Cummings Committee Report (1960-62)

In 1960's the Government of India appointed a Committee, headed by Dr Ralph W. Cummings to advise the State Governments on the legislation for the establishment of agricultural universities. The main purpose of the Committee was to formulate guidelines for developing agricultural universities. The Committee recommended several guidelines on par with the general universities for establishment of agricultural universities. On the basis of the recommendations made by the Committee, Indian Council of Agricultural Research (ICAR) developed a Model Act, for implementation rules and regulations in developing agricultural universities.

The Impact that the scheme of agricultural universities made on policy-makers is evident from the report of the Higher Education Commission (1964-66), headed by Professor D.S. Kothari, the then Chairman of the University Grants Commission (UGC). The Commission recommended the establishment of at least one agricultural university in each state. It further recommended that all aspects of research on agriculture should be the concern of the agricultural universities. Implementation of these recommendations further enlarged the area under the control of these universities. It led to the integration of teaching, research and extension education activities where it did not exist. Commission also observed that an agricultural university provides a better environment for research than a state department of agriculture.


The Indian Council of Agricultural Research (ICAR) set up a Review Committee in January 1977, under the chairmanship of Dr M.S. Swaminathan (the then Director General of Indian Council of Agricultural Research (ICAR) and Secretary to Department of Agricultural Research and Education (DARE), Government of India, to review the growth and development of agricultural universities in India. The Committee submitted its comprehensive report in June 1978. The Committee's overall assessment was that the agricultural universities together had made a tremendous impact on agricultural production during the short span of their existence. The Committee, however, stated that there was a high degree of variation amongst agricultural universities in achievement and output, quality of leadership and competence of faculty, degree of institutional development and maturity, magnitude of financial support from the State Governments, extent of transfer of research responsibilities to the university, quality and
relevance of teaching and research programmes, operational efficiency and commitment to public service. The quality of leadership and degree of commitment and support from the State Government had been identified as the main factors responsible for this variability in growth, performance and potential. The Committee therefore, made the following recommendations:

1. The selection committee for appointment of Vice-Chancellors for agricultural universities should include the Director General of Indian Council of Agricultural Research (ICAR) and the Chairman of University Grants Commission (UGC) as members in each case;

2. The Vice-Chancellor should be the chairman of a compact Board of Management with a membership not exceeding 15; and

3. The state government should adopt a positive policy of support to agricultural universities. And they should review the University Acts and bring them in line with the Model Act recommended by the ICAR and implement it faithfully. They should transfer statewide agricultural research responsibility to agricultural universities along with staff, farms, budget, buildings, equipments, etc. Parallel research organization should not be set up in the state departments in the name of adaptive research.

3.14. Present Status of Agricultural Education and Research in India

The journey of agricultural education and research began with only 17 agricultural colleges, three veterinary colleges and one agricultural engineering college in 1950. The National Agricultural Education System (NAES) under the control of Indian Council of Agricultural Research (ICAR), New Delhi is the biggest network of agricultural education and research in the world. It comprises of i.e. state agricultural universities (SAUs) and their constituent colleges and the research institutes funded and control by Indian Council of Agricultural Research, which
imparts education, research and extension in all field of agriculture science and technology and their allied field.

Today, there are 210 constituent colleges of 44 State Agricultural Universities (SAUs) and One Central Agricultural University (CAU), 5 Deemed-to-be-Universities (DUs), 17 National Research Centres (NRC), 49 Research Institutes (RI), 6 National Bureaus (NBs), 25 Project Directorates (PDs) and 78 All India Coordinated Network Research Projects (AICRP) all functioning under the control of Indian Council of Agricultural Research (ICAR), New Delhi.

In addition the faculty of Education of Banaras Hindu University (BHU) Varanishi about 50 agricultural colleges affiliated to 16 general universities, and seven Indian Institute of Technology (IIT) of country are also imparting education and research in agriculture science and technology.

3.15. Agriculture Human Resource Development and Intake

A total of 45 agricultural universities have been established in the different parts of the country, including a central agricultural university for the north-eastern hills. In addition the Indian Agricultural Research Institute, New Delhi, the Indian Veterinary Research Institute, Izatnagar (Bareilly), the National Dairy Research Institute, Karnal and the Central Institute of Fisheries Education, Mumbai have the status of deemed universities. The agricultural education system in the country offers degree programmes in 11 specific disciplines, viz. agriculture, veterinary science, agricultural engineering, forestry, home science, dairy technology, fisheries, sericulture, marketing, banking and co-operation. Horticulture and food science with a total intake of about 11,000 students. It also offers postgraduate programmes in more than 55 fields of specialization with a total intake capacity of about 5,000 students. Under the human resource
development programme the council offers about 1200 scholarships and fellowships from the undergraduate to post-doctoral levels. Special fellowships are also offered for socially and economically weaker groups.

3.16. State Wise Distribution of the ICAR Institutions

ICAR is a national apex organization of the country for imparting graduate to doctoral education in the entire domain of agriculture sciences and technology. It consists of variety of institutions, which are located in 27 states of the country.

3.17. Organization of Agriculture Education and Research in India

Agriculture education and research in India at central level is the sole responsibility of Indian Council of Agricultural Research (ICAR) an autonomous society of Ministry of Agriculture, Government of India. Under the ICAR the Education Division which is headed by the Deputy Director General (Education) and five Assistant Directors General, namely ADG (HRD-I), ADG (HRD-II), ADG (Education Planning and Development), ADG (Accreditation), and ADG (Home Science).

The Education Division of the ICAR since 1995 onwards conduct All India Entrance Examination (AIEEA) for admission to 15% of the seats in state agricultural universities (SAUs), central universities (i.e. AMU, BHU, Biswa Bharti, Nagaland University, and CAU, Imphal) for undergraduate degree (i.e. B.Sc., B. Tech., B.F.Sc., etc.) in agricultural sciences namely, horticulture, agriculture engineering, dairy technology, forestry, food sciences, fishery sciences, home sciences, sericulture, and agriculture marketing and cooperation.

In addition to above activities the Education Division of the ICAR also looks into the various important activities for the agricultural education in the country such as Accreditation for
quality assurance, Global competitiveness in Human Resource Development, Distance education for reaching the un-reached people, Fellowship as a tool for Human Resource Development, Women technological empowerment, Faculty competence improvement and Networking for access to information.

Further, the admission for the five-year Bachelor of Veterinary Science and Animal Husbandry degree is the responsibility of the Veterinary Council of India. The Veterinary Council of India is a statutory body of the Government of India framed under an Act of Parliament, i.e., Indian Veterinary Council Act, 1984 (52 of 1984) with its Headquarters, 16/15, W.E.A, Arya Samaj Road, Karol Bagh, New Delhi. Veterinary Council of India to regulate Veterinary practice and Veterinary education. Only those who possess recognized veterinary qualification and registered with the Council can practice in the country in veterinary.

Veterinary Council of India similar to ICAR also conducts an annual exam, i.e. All India Common Entrance Examination (AICEE) for filling up of 15% of the total undergraduate (i.e. Bachelor of Veterinary Science and Animal Husbandry) of seats of each Veterinary colleges and universities, i.e. Veterinary, Animal and Fishery Sciences University, Bidar (Karnataka), Tamil Nadu Veterinary and Animal Sciences University, Chennai, (Tamil Nadu), West Bengal University of Animal and Fishery Sciences. Belgachia, Kolkata (West Bengal), Maharashtra Animal and Fishery Sciences University, Nagpur (Maharashtra). Indian Veterinary Research Institute, Izatnagar, Bareily (Uttar Pradesh). National Dairy Research Institute, Kumal (Haryana) and Central Institute for Fisheries Education, Varsova, Mumbai (Maharashtra).

3.18. Brief Profile of ICAR

The Government of India appointed a Royal Commission on Agriculture in 1926 headed by Lord Linlithgow (who later on become Viceroy of India from 1936 to 1943) to examine the
conditions of agriculture and rural economy in India. The Commission recognized the importance of education and research and stated that the basis of all agricultural progress is experiment. Therefore, the commission proposed that Imperial Council of Agricultural Research (ICAR) should be constituted, the primary function of which would be to promote, guide, and coordinate agriculture research and education throughout India. Subsequently, the Royal Commission on Agriculture decided to setup the Imperial Council of Agricultural Research by their resolution, dated 23 May 1929 at Simla, Delhi. The Government of India considered the recommendations of the Royal Commission and decided to set up the Imperial Council of Agricultural Research as a Society registered under the Societies Registration Act 1860. Therefore, the Council came into existence as a registered society on July 16, 1929. It was renamed as Indian Council of Agricultural Research after Independence.

3.18.1. Structure and Organization of ICAR

The Union Minister of Agriculture is the President of the ICAR. Its principal officer is the Director-General. He is also the Secretary to the Government of India in the Department of Agricultural Research and Education (DARE). The General Body, the supreme authority of the ICAR, is headed by the Minister of Agriculture, Government of India. Its members include the Minister of Agriculture, Animal Husbandry and Fisheries and senior officers of the various state governments, representatives of the parliament, the agro-industries, scientific organizations and farmers.

The Governing Body is the chief executive and decision-making authority of the ICAR. It is headed by the Director-General. It consists of eminent agricultural scientists, educators, legislators and representative of farmers. It is assisted by the Standing Finance Committee, Accreditation Board, Regional Committee and several Scientific Panels. The secretary,
Department of Agricultural Research and Education and Director General of the ICAR functions as the Principal Advisor to the Government of India in all matters concerning research and education in agriculture, and allied fields.

The Director-General is assisted by eight Deputy Directors General - one each in charge of Crop Sciences, Natural Resource Management, Animal Sciences, Agricultural Education, Agricultural Extension, Fisheries, Horticulture and Agricultural Engineering. In administration, the Director General (DG) is assisted by the Secretary, ICAR, who is also the Additional Secretary to the DARE, Government of India. In financial matters, the DG is assisted by the Financial Advisor (FA). Agricultural Scientists' Recruitment Board (ASRB) is an independent recruiting agency of the ICAR for its Agricultural Research Services (ARS) and equivalent technical posts and also for research management positions. The Council has a National Academy of Agricultural Research Management (NAARM), which provides required training to new entrants to the Agricultural Research Services.

3.18.2. Manpower Resources of ICAR

This vast network of ICAR that includes Central Research Institutes, National Bureaux, National Research Centres, Project Directorates and All Indian Coordinate Research Projects has manpower of about 30,000 personnel out of which nearly 7000 are engaged in active research and its management. Thirty eight state agricultural universities (SAUs) employ about 26,000 agriculture scientists for teaching, research and extension education of these over 6000 agriculture scientists are employed in the ICAR supported coordinated projects.
### 3.18.3. Mandate of ICAR

Agriculture is a state subject and the primary responsibility for agricultural research, education, extension education and development lies with the States. However, as the apex organization in the country coordinating the research education and extension education, ICAR has the following mandate as governed by ICAR Society:

1. To plan, undertake, aid, promote and co-ordinate education, research and its application in agriculture, agro-forestry, animal husbandry, fisheries, home science and allied sciences.

2. To act as a clearing-house of research and general information relating to agriculture, animal husbandry, home science and allied sciences, and fisheries matters through its publications and information system, and instituting and promoting transfer of technology programme.

3. To provide, undertake and promote consultancy services in the field of education, research, training and dissemination of information in agriculture, agro-forestry, animal husbandry, fisheries, home science and allied sciences.

4. To look into the problems relating to broader areas of rural development concerning agriculture including post-harvest technology, by developing co-operative programmes with other organizations, such as the Indian Council of Social Science Research (ICSSR), Council of Scientific and Industrial Research (CSIR), Bhabha Atomic Research Centre (BARC), Universities, etc.

### 3.18.4. ICAR Commissions and Committees for Agriculture Education

The Indian Council of Agricultural Research (ICAR) is the national apex body on agricultural education and research. It has the prime responsibility to plan, undertake, guide,
support, promote and coordinate agriculture education (besides research). ICAR, thus, plays the same role as the University Grants Commission (UGC) does for general universities in promoting higher education in agriculture and allied fields. However, unlike UGC, it does not enjoy any statutory authority to determine and enforce requisite standards of agricultural education imparted by the State Agricultural Universities and other Institutions (constituent faculties and colleges of central universities and private colleges affiliated to general universities).

Today, the ICAR is the vast network of 44 state and central agriculture universities, 5 deemed-to-be-universities, 17 national research centers, 49 central research institutes, 6 national bureaus, 45 project directorates and 78 all India coordinate research projects the following indicates the role of ICAR in agriculture education and research in India by appointing various committees and panels for improving agricultural education in the country.

3.18.5. ICAR’s Responsibility for Education

The Indian Council of Agricultural Research (ICAR) has concurrent responsibility for agricultural education and research in the country. Towards this end, ICAR endeavours to plan, undertake, guide, support, promote and coordinate agricultural education. It provides partial funding for strengthening and development of agricultural education, to the extent of around 12% of the ICAR budget. ICAR also helps in admissions to fill 15% of the undergraduate and 25% of the postgraduate seats every year through a common entrance test. ICAR has developed an accreditation system in its endeavour to ensure quality of education in the agricultural universities.
3.18.6. ICAR's Responsibility for Research

The Indian Council of Agricultural Research (ICAR) institutes and centres have, over the years, assumed responsibility for agricultural research and other related fields both at the national and regional levels. The scenario has, however, changed after establishment of State Agricultural Universities (SAUs). Indian Council of Agricultural Research (ICAR) has made tremendous efforts to strengthen the research capabilities of the agricultural universities through All India Coordinated Research Programmes (AICRP), the National Agricultural Research Project (NARP) National Agricultural Technology Project (NATP) and National Agricultural Innovation Project. As a result, many of the State Agricultural Universities (SAU) have developed good research infrastructure and scientific manpower.

3.18.7. ICAR's Responsibility for Extension

With a view to ensure applicability of research output, the Indian Council of Agricultural Research (ICAR) scientists are involved in extension activities so as to get opportunities to assess the applicability of their research findings under field conditions and get first hand feedback from the farmers, who are the ultimate beneficiaries of agricultural inventions and innovations. This enables them to modify their technologies to suit the farmer's needs.

3.18.8. ICAR's Current Linkages

For implementing its research policies and programmes, the Indian Council of Agricultural Research (ICAR) today has developed a network in discharging its role as a National Coordinating Agency (NCA) in the field of Agriculture education and research. The ICAR has also established linkages with the Planning Commission, Department of Science and
Technology (DST), Council of Scientific Industrial Research (CSIR), Indian Council of Medical Research (ICMR), Indian Council of Social Sciences Research (ICSSR), Department of Atomic Energy (DAE), and other relevant agencies on the one hand and International Research Organizations and Institutes such as Food and Agricultural Organization (FAO), United Nations Development Programme (UNDP), World Bank (WB), International Development Agency (IDA), Asian Development Bank (ADB), etc. on the other. The Indian Council of Agricultural Research (ICAR) has also a regular link with the State Agricultural Universities (SAU) and their research network in the country through the All Indian Coordinated Research Projects (AICRP), through senior scientists as ICAR nominees on the management Boards of the state agricultural universities (SAU), and through the representatives of the state agricultural universities (SAU) on various Indian Council of Agricultural Research (ICAR) bodies. The Indian Council of Agricultural Research (ICAR) also maintains a close working relationship with the University Grants Commission (UGC) in as much as the ICAR discharges the functions of the UGC with regard to agricultural universities. The ICAR is also represented on the Boards of many related Departments such as the Department of Ocean Development (DOD), Indian Meteorological Department (IMD), Department of Biotechnology (DBT), Department of No-Conventional Energy Sources (DNES), etc. It is through these linkages that the ICAR has the possibility of providing support not only to organizations involved directly in agricultural research but also to those working in allied fields, providing the means of integrated functioning of agricultural research, education and extension education.

The human resource developed by the Agricultural Research and Education System (ARES) has undoubtedly been instrumental in agriculture transformation of the country. In future, need for new knowledge and skill becoming more challenging than ever, it would
however; be hard pressed to keep pace with the rapid technological, economic and social developments taking place nationally and internationally. Henceforth, agricultural education is seen to be required to:

1. Respond to the need of employment, economic growth and sustenance of the natural resource quality; and

2. Measure up to handling of internal (poverty) and external pressures (WTA, GATS, GMOs).

Reorientation of agricultural education and its linkage with trends of employment and needs of various sectors of economy (public, private, service, import and export) on the one hand and its responsiveness to maintain in environmental integration on the other will have to be the front ranking strategy of the National Agricultural Education System. While futuristic quality of agricultural education will depend upon employability, economic growth and environmental health, it will be necessary to make sector-wise projections on manpower demand and plan supply accordingly at the regional and national levels. Apparently, forging and forcing a match between the kind and number of graduates and post-graduates churned out by the education system and their employability vis-a-vis changing market demand will be a must. Placing maximum emphasis on employability is justified because unemployment is a major cause of wasted human resource, persistent frustration giving birth to destructive activities, deceleration of economic growth and hurt to national pride and international standing. Currently, unemployment among agricultural graduates has reached unimaginable proportions nearly one out of two.

Agricultural universities and ICAR institutes has been established and developed to fulfill the aims and object i.e. agricultural education, research and extension education for better
development of students, agricultural scientists, extension workers and also for the development of farm and farming of the country. The agricultural universities are giving attention for upgrading the quality and standards of higher agricultural education with the modification of curricula and teaching methods, physical facilities, equipments and teaching aids with proper training to the academic staff and researchers.

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