CHAPTER 1

EVOLUTION OF AGRICULTURAL EDUCATION

1.1. Introduction

The history of agriculture runs parallel to that of mankind. Therefore, its origin cannot be traced with any certainty. Perhaps, it has grown up gradually and helped the man to enjoy settled life from nomadic life.

As man developed better methods of hunting and learned the art of taming animals to help him in hunting, the animals that used to be his prey started retreating to far off places, out of his reach and this made him compulsorily to subsist on vegetation such as fruits, nuts, seeds and roots. Further, hunting being a tedious and hard job, naturally he preferred collecting grass, seeds, fruits, roots and nuts from best patches where they grew in abundance. Thus, man started to select and cultivate useful plants, which were edible.

The discovery of cultivation might have been accidental. The refuses of seeds and nuts thrown around the dwellings might have
resulted in sprouting up of new plants. This would have given the idea to women to sow the seeds of such plants. Further, they might have cleaned the weeds growing among the useful plants, and fenced the ground with poles and thorn of bushes to keep off wandering animals. This perhaps was the beginning of farming.

From the Vedas and ancient literature in Greek and French, one can notice well developed and sound practices of agriculture prevailing during the period before Christ and at the beginning of Christian era. These included tillage, green manuring, crop rotation, use of limes and growth of legume for soil improvement, observations of soil and plant interactions.

The period from 500 A.D. to 1500 A.D. was a period of lull. No valuable improvement in agriculture took place during this period, except the introduction and distribution of crop plants, to different parts of the world. Later with the explosion of population and constant pressure on land, an increased need for food production and demand for raw materials consequent to Industrial Revolution created an urge to increase production from land. At the same time development of various sciences and their application in agriculture lead to the development of scientific agriculture in many countries.
1.2. Landmarks in Scientific Agriculture

Scientific studies in agriculture started in Europe around 1500 A.D. Van Helmont, after his famous experiments with a willow tree in pot (1577-1644), concluded that water was principal ingredient for the plant growth. Glauber (1656) found that salt-peter extracted from cattle manure enhanced plant growth. Jethro Tull (1731) concluded that plant food consists of fine soil particles and tillage is necessary for plant growth and he developed a seed drill. In 1761 Wallerius developed the theory that humus was the source of plant food and many people accepted it. By 1770-1800 the idea that plants utilise atmospheric gases was developed by Priestle. In 1804 Theodore de Saussure established the phenomenon of respiration and photosynthesis. By 1834 J.B. Boussingault introduced the system of field study and quantitative determination of grain and loss of nutrients such as carbon, hydrogen, oxygen and nitrogen and mineral matter. In 1840, the Royal Charter encouraged practical farmers to use science and scientists to

2. Ibid., p.9
3. Ibid., p.10.
5. Ibid., p.10
6. Ibid., p.11
7. Ibid., p.11
proceed on practical farming lines. In the same year Liebig's paper on chemistry and its application to agriculture and physiology revolutionized the concept. Carbon-di-oxide from air was the source of carbon for plants and that nitrogen was taken from air or soil as ammonia. Thus, he established the mineral nutrition theory. He was the first to introduce superphosphate as manure. In 1843 Lawes and Bilbert established that legumes require a little nitrogen fertilizer and non-legumes require more of it. Later Lachmann (1858) found living micro-organisms in legume roots and the relationship between micro-organisms and nitrogen fixation in plants was established by Beijerinck in 1893. At the same time improved ploughs, mechanical harvesters and threshers were developed in England and rapid mechanisation followed in many of the civilized countries. Thus, 19th century was the period of scientific development in most of the countries. The application of chemistry to soils in 1840 and the establishment of the Rothamsted Experimental Station in 1843 in the UK. These were some of the landmarks in the development of Agricultural Science and Education.

10. Ibid., p.11
1.3. Land Grant Colleges

In the USA, before the beginning of formal education in agriculture, some institutions had shown their interest in the subject. The American Philosophical Society with Benjamin Franklin as its leading member, focused attention on agriculture in 1743. Interest of the members in agriculture led to the founding of an organisation called Philadelphia Society for Promotion of Agriculture (1785). George Washington was an honorary member of the Society. There used to be regular agricultural fairs and nearly 40 journals were published on agriculture by 1850.

A state agricultural college was established in New York in 1853. An Act of Congress (Morrill Act) signed by Abraham Lincoln on July 2, 1862 was a historic document in the evolution of agricultural education. It contained a provision for grants of land in the public domain to all the States of the Union for the establishment of colleges to teach agriculture, mechanic arts and military training without excluding humanities or classics. These land grants became the permanent endowments of what is known as Land Grant Colleges. These constituted a programme of complete democratization of higher education for

the masses and the introduction of science into the curriculum with its application, particularly in agriculture. In the years that followed agricultural experiment stations were established within the Land Grant Colleges, and later the Federal State Extension System was added. The adult education system reaching the farmers and their families from the laboratories, classrooms and experiment stations has made Norris E. Dodd, the former Director General of the FAO, designate the USA as having the largest rural education agency in the world.

The following are some of the characteristics that stand out in the U.S. Land Grant System.

i. The combination of residential teaching, research and extension education,

ii. The method of teaching enabling the students to solve problems rather than merely acquire a degree as a passport for a position,

iii. The internal, verifiable and continuous evaluation which reduces the need for memorization and reproduction by students.

While on one side research in agriculture was promoted by the colleges, the spread of agricultural education was furthered by establishment of agricultural schools in the early twentieth century. By the beginning of the First World War there were 421 State aided vocational training facilities in agriculture.

1.4. British Pioneering Institutions

In the United Kingdom, agricultural research and education is co-ordinated by the Agricultural Research Council. There are a number of firms and statutory bodies engaged in agricultural research. The chief among these is Rothamsted Experimental Station. It was founded in 1843 at Harpenden in Hertfordshire. It is a pioneering institute in the agriculture and it has several important landmark contribution to the agricultural science and research. The first agricultural college in England at Cinenceta was established in the year 1845.

1.5. Indian Scenario

The earliest reference of Indian agriculture dates back to 3,000 B.C. India and China practised rice cultivations as early as 2,500 B.C. Since it was their staple food. According to Rigveda, agriculture has even been the chief industry and as such helped for the country's material evolution. Various aspects of agriculture covering selection of land, tillage,
seeds and sowing, irrigation, manuring, agricultural seasons, prediction of weather, implements, management of labour, wages, harvesting, marketing of produce etc. were prescribed in the various Vedas. By the time Kautilya's Arthasastra was written, agriculture became an important department of the Government under the charge of a special officer well versed with the subject. The ancient agriculturists in India were a well-developed class with managerial ability, receiving good protection, ample encouragement and status from the rulers. At this time agriculture was the general and noble occupation and each holder was eager to possess cattle and fertile lands.

Scientific agriculture, as it is understood today, began when India started to grow certain crops for which there was excess demand beyond home consumptions. Trade with East India Company encouraged cultivation of crops such as cotton and sugarcane in India. However, formation of a definite agricultural policy began only after the transfer of administration of the country to the British Crown.

"The first proposal for a special department of agriculture in India originated from the commission appointed after the Great Famine in Bengal and Orissa in 1866." The early evidence of

action on this was visible only in 1871 when the Department of Revenue, Agriculture and Commerce of the Government of India began to function. Based on the report of J.A. Voeleker, consulting chemist to Royal Agricultural Society in 1892, an agricultural chemist was appointed to look into the matter. After five years this post was replaced by the Inspector General of Agriculture. The Imperial Mycologist and the Imperial Entomologist, were appointed in 1901 and 1903 respectively. The Famine Commission in 1901 recommended strengthening the staff of all agricultural departments in all provinces, and these were quickly implemented by Lord Curzon’s Government and the Imperial and provincial department of agriculture.

5.1. Pioneering Institutions

The foundation for agricultural education and research was laid with the establishment of a model farm at Saidapet, a suburb of Madras in 1868 which was later converted into an agricultural school in 1884 on the recommendations of Sri Williams Dension, Governor of Madras Presidency, for the purpose of training young people in different branches of agriculture.

15. Ibid.
The school was under the control of the Director of Public Instruction from 1884 to 1905. At the close of 1905-1906 the control of the school was transferred to the recognised Agricultural Department and the Government shifted the Saidapet Agricultural School to Coimbatore where all types of soil were found.

In 1903 Government of India approved a scheme for the establishment of an Agricultural Research Institute. At that time Henry Philip of Chicago donated Rupees four lakhs for scientific research in India. With this financial assistance a research station with fully equipped laboratory was started at Pusa in Bihar.

The Agricultural College and Research Institute at Coimbatore was opened by Sir Arthur Lawley on July 14, 1909. The education programme was leading to Licentiate in Agriculture (L.Ag). In 1920, the college was affiliated to the Madras University which was established as one among the three Universities in 1857, and a new course of study leading to a degree in Agriculture, that is B.Sc.(Ag.) of three years duration was introduced, the qualification for admission being a pass in the Intermediate Examination with 11 years of study in school and two years in College.

18. Ibid., p.2.
The College of Agriculture, Poona was started in 1879 as a branch of the College of Science, developed in 1890 to offer a diploma course, and in 1907 it was upgraded to offer a degree course.

The Allahabad Agricultural Institute was founded in 1910. By 1947, India had 17 Colleges of Agriculture with an annual enrolment of about 1500 students.

1.5.2. Establishment of Indian Council of Agricultural Research (ICAR)

The expansion of agricultural education at different levels posed many problems, which fell outside the sphere of the University Grants Commission, which was mainly concerned with academic standards at the university level.

The absence of any department or agency at the Centre, responsible either for co-ordinating agricultural education in the country or assisting agricultural and veterinary colleges to equip themselves adequately for a high standard of teaching, was keenly felt. When agriculture was transferred to the administration of the provincial Governments as a result of the Montagu Chelmsford Reforms in 1921, the need for coordination of agricultural activities in the country was intensely felt. This

20. Ibid.
led to the Royal Commission on Agriculture in India in 1928 to conclude that "However efficient an organization might be built up for demonstration and propaganda, unless it was based on the solid foundation provided by research, it was merely a house built on sand" and recommended the establishment of the Indian Council of Agricultural Research (ICAR) in 1929 for promoting, guiding and co-ordinating agricultural and animal husbandry research in the country. The ICAR has also served as an advisory body to the Government of India in matters relating to agriculture and animal husbandry. The education and development work in agriculture were also brought later within the scope of the activities of the Council. As a result of this, many Agricultural and Veterinary research institutes and colleges were established. A number of Central Committees dealing with research in respect of different individual crops were set up as semi-autonomous bodies and were located in the main regions where the concerned crops were growing.

1.6. Post Independence Period

After independence, the importance attached to education is reflected in the Government of India resolution of 4 November 1948, setting up the Indian University Education Commission.

The Commission was asked to report on University Education and suggest improvements to suit present and future needs of the nation. "Dr. S. Radhakrishnan, the Spalding Professor of Eastern Religions and Ethics at the University of Oxford, who later became the President of India (1956-1967), was the Chairman of the Commission. The members included Dr. (later Sir) James F. Duff, Dr. Arthur E. Morgan, Dr. John J. Tigert and six eminent Indian educationists, Dr. Zakir Hussain, Dr. Tara Chand, Dr. A. Lakshmanaswami Mudaliar, Dr. Meghnad Saha, Dr. Kata Narayan Bhal and Mr. Nirmal Kumar Siddhanta. The Commission's report in three volumes was published in August 1949. Monumental as this report was, its recommendations helped greatly to shape the destinies of higher education in India."

Referring to agriculture, the Commission remarked that the country's position in regard to food production was pathetic. India with 70 per cent of the population engaged in agriculture, imported food grains at a high cost of foreign exchange.

As science is indispensable to civilized existence and is a main factor in determining the direction of progress, the Commission urged the need of a constant flow, not only of trained scientific workers, but also of scientific leaders, filled with

the spirit of research. "The number of M.Sc's and doctorates turned out from the 17 Colleges in India was 74, while 156 candidates received post-graduate diploma in agriculture, veterinary, forestry, dairying and allied sciences in 1948.... Facilities for training in post-graduate research work in agricultural sciences was available for only 166 students in 1948. The Commission compared this situation in India with that in the U.S. where there was no agricultural education prior to 1862. After July 1862, when the Morrill Act was passed as many as 70 Land Grant Universities and Colleges were established until 1949, enrolling approximately about a million students, besides reaching a large section of the adult population through extension education services." Considering how fast the economic structure in the U.S. was being developed, the Commission suggested establishment of rural universities.

"The rural institutions have had a chequered career, neither becoming popular with the public nor developing a capacity to render effective services." Thus, these were never counted as centres of higher education in agricultural sciences.

1.6.1. First Joint Indo-American Team

On the advice of Dr. Frank U. Parker, as TCM Advisor, to the Ministry of Food and Agriculture appointed the Joint Indo-American Team. "In a resolution of 24 November 1954, the Ministry of Food and Agriculture, Government of India made special reference to the experience of the institutions in the U.S.A., particularly the Land Grant Colleges, and hoped that these colleges would provide some useful guidelines for strengthening agricultural colleges in India and for promoting Centre-State co-operation and coordination in the field of agricultural research. Accordingly, the resolution contained the decision of the Government of India to constitute a joint team of Indian and American specialists to make a comparative study of the institutions in the U.S.A. and India and make recommendations. This team had Mr. K. R. Damle, the then Vice-President of Indian Council of Agricultural Research, as the Chairman, with three Indian specialists and three specialists from the U.S.A..."

"The Indian representatives of the team visited the U.S.A. for about three months in 1955 to study the research and educational institutions and their activities, while the American members of

the team reviewed the research and educational progress in India. The team submitted its report in September 1955. "It contained 118 recommendations, which together laid the firm foundation for all the subsequent developments in India leading to the establishment of Agricultural Universities and enhancing the value of research work in Agricultural Sciences in India."

"While the team was engaged in its work, consultations were going on between TCM (now AID) and Government of India representatives about an inter-institutional programme. On the basis of these discussions, the original operational Agreement Number 28, and entitled Project for Assistance to Agricultural Research, Education and Extension Organisations was signed on 30 April 1954. The purpose of this agreement was to strengthen institutions in the field of agriculture engaged in instruction, research and extension through provision of (a) laboratory and class room equipments for programmes of a practical and applied nature; (b) books and journals; (c) interchange of staff and possibly advanced level students between agricultural institutions in the U.S. and India in research, institution, extension and administration; and (d) additional specialists outside India as needed for training and observation."

27. Ibid.
28. Ibid. p. 21.
1.6.2 Second Joint Indo-American Team

The first authorization provided for the five U.S. University contracts with TCM to strengthen agricultural institutions in India and to increase cooperation and coordination in the field of research and education. While steps were taken to implement the recommendations of the first team to the extent that funds were made available during the Second Five Year Plan (1956-61), the Government of India constituted the Second Joint Indo-American team to have specific proposals for Third Five Year Plan (1961-66) on Agricultural Education, Research and Extension. This team was headed by Dr. M.S. Randhawa, the then Vice-President of ICAR with three representatives of Land Grant Universities and seven members from Indian side. This team reviewed the progress of the work done from 1956 to 1961 and made 67 supplementary recommendations to strengthen agricultural education, research and extension. A proposal to establish agricultural universities was one of the recommendations. Regarding this, the team stated that there was marked demand from many States for the establishment of agricultural universities. The team, therefore, recommended that assistance to establish an agricultural university should be granted only, to those who accept to adhere to the basic principles such as:
"i. autonomous status;

ii. location of Agricultural, Veterinary (Animal Husbandry), Home Science, Technological and Science colleges on the same campus;

iii. integration of teaching by offering courses in any of these institutions to provide a composite course; and

iv. integration of education, research and extension."

"The team further recommended that USAID technical assistance under the Inter-University contract programme should largely be concentrated in fewer colleges with special emphasis in those institutes which are likely to develop into agricultural universities."

"Meanwhile, encouraged by United State Agency for International Development Advisors and the Rockefeller Foundation, some of the state representatives were deputed to the U.S.A. for a study of the land grant institutions. Two of these study reports - one entitled, A New University and the second, Agricultural Institutions in the United States of America were instrumental in planning the Agricultural

30. Ibid. p.22.
Universities in India."

As a sequel to the recommendations of the First and Second Joint Indo-American Teams, in early 1960s interest in establishing Agricultural Universities grew to become a movement, particularly in those states where well-informed opinion and potentialities of the land grant system was available at the institutional administration levels. The Government of India, therefore, constituted a committee headed by Dr. Ralph W. Cummings, Field Director, the Rockefeller Foundation, to examine the proposals received from the State Governments to establish Agricultural Universities from the point of view of prerequisites for the integration of teaching, research and extension and the evolution of a workable relationship between the existing institutions and departments. (Some of the recommendations of the Cummings Commission are given on p. 26.)

At the instance of the Government of India and at times on the specific requests of the State Governments, the Cummings Committee visited several States and helped them draw up their proposals based on blue print prepared by Dean, H.W. Hannah and also scrutinize the draft bills prepared by them in this connection. It was largely on the basis of this blue print that some of the State Governments were tempted to develop their

proposals. With such modification they considered it necessary to suit their respective priorities and peculiarities. It was specifically on the basis of this blueprint that the U.P. Government submitted a proposal to the Government of India in September 1956, to establish an Agricultural University near Rudrapur in Terai district, Uttar Pradesh.

1.7. Need for Agricultural Universities

Under the affiliated system, the standard of teaching varied greatly from college to college and State to State. Lack of cooperation and coordination in education resulted in large annual wastages of public funds year after year, besides a terrible waste of time and energy. It also caused much frustration among the students and their parents. The quality of education was far from expectation. Overcrowding in colleges, mass lecture method of instruction which soon deteriorated to a mere session for dictation of notes, lack of library work to support the lecture and excessive dependence on text books which are not always prepared with care, absence of seminars were some of the evils associated with the type of education imparted in colleges of agriculture affiliated to the conventional Universities.
1.7.1. Establishment of Agricultural Universities

After discussing with the Planning Commission the Government of India decided to open one Agricultural University in U.P. as an experiment on 9th July 1960. This was Uttar Pradesh Agricultural University established near Rudrapur in Teral District. It was later renamed as Govind Vallabh Pant University of Agricultural Technology. The township and the campus were named Pant Nagar. Taking assistance from different sources including such as University of Illinois (U.S.A), this first University should be considered the most fortunate one. This University has pioneered in many fields of activity to set a shining example to those who followed later. Reforming curricula and teaching methods, introducing work-experience to study in a big way, giving a practical application to agricultural education and focussing attention on commercial farm products in an unprecedented manner were some of special features. This University has virtually set the pace for other Indian Agricultural Universities in several directions. Now there are 26 agricultural universities established in almost all the states in India with two more special Universities, viz for Horticulture and Forestry established in Himachal Pradesh.

and for Veterinary and Animal Sciences in Tamil Nadu. (Please see Table No. 1 for a list of Indian Agricultural Universities on the following three pages.)

1.7.2. Model Act for Agricultural Universities

The main objectives of Agricultural Universities, as given in the Model Act prepared by the Indian Council of Agricultural Research are as follows:

1. Making provision for imparting education in different branches of study, particularly agriculture, horticulture, veterinary and animal sciences, fisheries, forestry, agricultural engineering, home science and other allied branches of learning and scholarship.

2. Furthering the advancement of learning and prosecution of research, particularly in agriculture and other sciences.

3. Undertaking the extension of such science, specially to the rural people of the State.

4. Such other purposes as the University may from time to time determine.

33. K. C. Naik and A. Sankaram, History of Agricultural Universities (1972); p.249.
### TABLE NO. 1

**AGRICULTURAL UNIVERSITIES IN INDIA**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name</th>
<th>Year</th>
<th>Location</th>
<th>Native of the State</th>
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<tbody>
<tr>
<td>1.</td>
<td>Andhra Pradesh Agricultural University</td>
<td>1982</td>
<td>Rajendra Nagar, Hyderabad</td>
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<tr>
<td>2.</td>
<td>Assam Agricultural University</td>
<td>1969</td>
<td>Jorhat</td>
<td>Assam</td>
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<tr>
<td>3.</td>
<td>Bidhan Chandra Krishi Vidyasala</td>
<td>1974</td>
<td>Mohanpur, Nadia</td>
<td>West Assam</td>
</tr>
<tr>
<td>4.</td>
<td>Birsa Agricultural University</td>
<td>1981</td>
<td>Kanke, Ranchi</td>
<td>Bihar</td>
</tr>
<tr>
<td>5.</td>
<td>Chandra Shekhar Azad University of Agriculture and Technology</td>
<td>1975</td>
<td>Kanpur</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>6.</td>
<td>Dr. Yashwant Singh Parmar University of Horticulture and Forestry</td>
<td>1985</td>
<td>Solan</td>
<td>Himachal Pradesh</td>
</tr>
<tr>
<td>7.</td>
<td>Govind Ballabh Pant University of Agriculture and Technology (previously known as Uttar Pradesh Agricultural University)</td>
<td>1960</td>
<td>Pant Nagar</td>
<td>Uttar Pradesh</td>
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<tr>
<td>8.</td>
<td>Gujarat Agricultural University</td>
<td>1969</td>
<td>Sardar Krushi Nagar</td>
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<td>9.</td>
<td>Haryana Agricultural University</td>
<td>1970</td>
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<td>11.</td>
<td>Indira Gandhi Krishi Viswa Vidyalaya</td>
<td>1987</td>
<td>Kishak Nagar, Raipur</td>
<td>Madhya Pradesh</td>
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<td>12.</td>
<td>Jawaharlal Nehru Krishi Viswa Vidyalaya</td>
<td>1964</td>
<td>Jabalpur</td>
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<tr>
<td>13.</td>
<td>Kerala Agricultural University</td>
<td>1971</td>
<td>Vellanikkara</td>
<td>Kerala</td>
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<tr>
<td>15.</td>
<td>Mahatma Phule Agricultural University</td>
<td>1967</td>
<td>Rahuri</td>
<td>Maharashtra</td>
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<tr>
<td>16.</td>
<td>Marathwada Agricultural University</td>
<td>1972</td>
<td>Parbhanl Narendra Nagar</td>
<td>Maharashtra</td>
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<tr>
<td>17.</td>
<td>Narendra Deva University of Agriculture and Technology</td>
<td>1975</td>
<td>Faizabad</td>
<td>Uttar Pradesh</td>
</tr>
<tr>
<td>18.</td>
<td>Orissa University of Agriculture and Technology</td>
<td>1962</td>
<td>Bhubaneswar</td>
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<td>19.</td>
<td>Pubjab Agricultural University</td>
<td>1962</td>
<td>Ludhiana, Punjab</td>
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<td>20.</td>
<td>Punjabrao Krishi Vidyapeeth</td>
<td>1969</td>
<td>Akola, Krishinagar,</td>
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<tr>
<td>21.</td>
<td>Rajasthan Agricultural University</td>
<td>1987</td>
<td>Bikaner, Rajasthan</td>
<td>Rajasthan</td>
</tr>
<tr>
<td>22.</td>
<td>Rajendra Agricultural University</td>
<td>1970</td>
<td>Pusa, Samastipur, Bihar</td>
<td>Bihar</td>
</tr>
<tr>
<td>24.</td>
<td>Tamil Nadu Agricultural University</td>
<td>1971</td>
<td>Coimbatore, Tamil Nadu</td>
<td>Tamil Nadu</td>
</tr>
<tr>
<td>25.</td>
<td>University of Agricultural Sciences</td>
<td>1964</td>
<td>Hebbal, Bangalore</td>
<td>Karnataka</td>
</tr>
<tr>
<td>26.</td>
<td>University of Agricultural Sciences</td>
<td>1988</td>
<td>Krishinagar, Dharwad</td>
<td>Karnataka</td>
</tr>
</tbody>
</table>

Source: Commonwealth Universities Year Book 1992.
The distinctive features of the Agricultural Universities, as given in the Cummings Committee Report are:

i. The Agricultural University recognises a responsibility and is receptive to the needs of the cultivators, in contrast to being only a seat of learning and scholarship. It assumes a responsibility for working towards the economic development as well as the improvement of the living standards of the people of the State.

ii. In an Agricultural University, the teaching staff, in addition to having responsibility for residential instruction, will also have a responsibility for applied as well as fundamental research in agriculture. Such research is not merely limited to the laboratories and experiment stations, but goes beyond into the fields and homes of the rural people living under varied conditions in different parts of the State.

iii. The curricula and the training programme in the Agricultural University are modelled in a manner as to be in keeping with the needs of the State on one hand, and with the aptitudes and needs of the students, on the other. This means that the curriculum is flexible and is capable of being offered in the form of specialised courses, covering a wide range of subject matter.
iv. The chief medium through which the farmers derive the benefits of progress in agricultural research and education, under the Agricultural University, is the extension organisation of the university which is, for that purpose, fully integrated with the teaching and research organisations. This ensures a smooth and effective flow of the results of research and the benefits of the training programmes to the farm population, and in turn, ensures easy transmission of the problems of the farmers to the research staff so that they can be tackled promptly and effectively.

v. The territory of the Agricultural University in respect of agricultural and related sciences includes the entire State in keeping with the principles and responsibilities stated above.

Most of the above objectives and recommendations have been incorporated in the Agricultural University Acts and Statutes enacted by the respective States. There are inevitable modifications and alterations to suit the prevalent conditions in different States. In short, this drives home the three main

functions of an Agricultural University, namely:

1. Education
2. Research
3. Extension services

1.8. Role of Library in Agricultural Education and Research

Information is an essential input for all the three major functions of an Agricultural University. Students and staff of the Agricultural Universities need information not only from botany, zoology, chemistry, physics but also from mathematics, statistics, geology, meteorology, economics, sociology and engineering. The progress of agriculture requires information of wide diversity and high specialization linking the essential products of human needs derived from plants and animals. Thus, the need for information is very much at the heart of all the Agricultural Universities.

At present, the 26 Agricultural University Libraries established since 1960 with life ranging from 2-30 years have libraries attached to each of them. Further each Central and State Institutions engaged in Agricultural Research and Extension have some libraries attached to them.

The Library is an integral part of any Agricultural University and is considered as a separate Department of the University for
providing necessary information. The modern libraries have a variety of services such as reference service, loan service, documentation service, abstracting and indexing information available in recent literature ranging from annuals to current periodicals, and compilation of bibliographies. These Libraries necessarily need trained library professionals to help the students, teachers and researchers of Agricultural Universities. The present thesis assesses the role of agricultural libraries in fulfilling the essential functions of agricultural universities.