

HISTORY OF GROWTH AND DEVELOPMENT OF AGRICULTURAL RESEARCH: AN OVERVIEW

4.0 INTRODUCTION

Agriculture is the chief livelihood based occupation for the people and also as a raw material used for production and manufacturing in industrial sectors. Agriculture has developed or grown up gradually and support the human being to enjoy the settled and stable life from nomadic life. Earlier, human being has developed the way of hunting the animals in search of food and more for collecting grass, seeds, fruits, roots and nuts from places where they cultivated in great quantity. Thus, human being for his needs started to cultivate useful plants. Later on due to population explosion and the increased need for food and goods created the need to increase the food production or cultivation from land. Thus, agriculture became the backbone or main support of the Indian economy which plays the most crucial role in the socioeconomic development and growth of the country. There is no country in the world can neglect the growth and development of agriculture. In case of, the country like India, with dominance of agriculture, having chief source of income from agriculture mainly, and with nearly about 75% to 80% of its population devising sustenance from agriculture, can under no circumstances afford to disregard the agricultural growth and progress. Generally, all types of activities of the society, state and nation are intended for welfare of the human beings and in present world, welfare is only possible through prepared or planned efforts of research and development. Thus, research in general and agriculture in particular has central place in India where, agriculture

delivers livelihood, labour force, total value of the country's exports including, supplying majority of wage goods, needed by the non-agricultural sectors and raw material for a huge industrial sector, which is the result of agricultural research and education that made it probable to improve the per capita net availability of food grains in spite of enormous increase or growth in overall population.

The present chapter provides an in-depth and detailed outlook of the origin, growth and development and historical perspectives of agricultural research and development. In very briefly, the global status of the agricultural research is presented. A summary of history of agricultural research in Indian scenario is also described, with a background of role of ICAR in agri-research development and also the role of ICAR with special reference to north-eastern part of India.

4.1 DEVELOPMENT OF AGRICULTURAL SCIENCES

In the agriculture literature a number of scientific studies have been stated or reported and which can be deliberated as major studies in the agriculture field. In most of the countries, nineteenth century was the era of most important and major scientific development in the area of agriculture. For instance, some are model farms established like Saidapet (Chennai), Agricultural Research Institute at Pusa, Bihar, College of Agriculture at Pune, Allahabad Agricultural Institute at Allahabad, Agricultural College and Research Institute at Coimbatore and College of Agriculture at Nagpur etc. The evidence found from the existing literature on the history of agriculture created by different renowned eminent agricultural scientists like Gras, Randhawa, Naik, Swaminathan and others stated that agriculture developed and emerged as the oldest and the prime occupation in the world. Thus, for economic and social development of the people, agriculture has constantly

playing a dynamic role and different new and fresh institutes are involved in informing and imparting education, training, research and extension activities in the field of agricultural sciences. In the direction of growth and development of agricultural sciences, various noteworthy contributions made by the scientists have been compared and are shown in the **Table 4.1** below:

Table 4.1: Development of Agricultural Sciences since 1644

Sl. No.	Year	Name of the Scientist	Brief Achievements in Agriculture
1	1644	Van Helmont	Water was the principal ingredient for plant growth in his famous experiment with tree in pot.
2	1656	Glabuber	Found that salt-peter extracted from the cattle manure enhanced plant growth.
3	1731	Jethro Tull	Conducted that plant food consists of fine soil particles.
4	1761	Wallerius	Developed the theory that humus was the source of plant food and many people accepted it.
5	1804	Theodore de Saussure	Established the phenomenon of respiration and photosynthesis.
6	1834	J. B. Boussingault	Introduced the system of field study of grain and loss of nutrients.
7	1840	Liebig	Established the mineral nutrition theory, first introduced super phosphate as manure.
8	1843	Lawes and Bilbert	Established that legumes require a little nitrogen fertilizer
9	1858	Lachmann	Found living micro-organisms in legume roots.
10	1893	Beijerinck	Established the relationship between micro-organisms and nitrogen fixation
11	1925	Sewall Wright	Founded Plant Genetics and Breeding
12	1928	Robert Backwell	Introduced Selective Breeding of livestock.
13	1968	Norman Borlaug	Father of Green Revolution High yield varieties of wheat
14	1971	G. Rangaswami	Pioneer work on Environmental Biology
15.	1972	M.S. Swaminathan	Father of Green Revolution of India. (Developed first hybrid high yielding wheat and other crops)
16	1980	Datta S.K.	Founded Semi-dwarf IR 36 Cross breeding
17	2010	Prabhu K.V.	Developed high yielding basmati rice variety

4.2 HISTORY OF AGRICULTURAL RESEARCH: GLOBAL SCENARIO

Agriculture sector occupies the centerphase of social security and overall economic wealth or prosperity. In the United States of America (USA), some specific institutions had showed their concern and interest in agricultural research and education like American Philosophical Society (1743), Philadelphia Society for Promotion of Agriculture (1785), and State Agricultural College (1853). Whereas, in the United Kingdom (UK), the number of firms and constitutional bodies was synchronized with agricultural research and education and also involved in the agricultural research. For instance, the main amongst these was Rothamsted Experimental station which was established in 1843 at Harpendent in Hertfordshire and this institute is found to be the first pioneer institute which had made quite a few landmarks in the growth and development of agricultural research in the UK specially. In direction to carry out agricultural research, the first agricultural college was established and reorganized in England at Cinensceta in 1845. However, The Act of the Congress (Morrill Act) sign up by Abraham Lincoln on July 2, 1862 was a historic document in the evolution and growth in the field of agricultural research and education as it restricted or confined a provision for grants of land in the public domain to all the States and the union for the establishment of colleges to teach and to conduct agriculture research and education, mechanic arts and military training without apart from humanities or classics. For example, the Land Grant College recognized as the first college which later became the Federal State Extension System.

Agricultural education in the world was planned and formulated by Norris E.Dodd the first Director General of FAO of United Nations. At present, 15 international organizations imparting research below the umbrella of FAO and these institutions are

providing training and research in the field of agriculture and also associated subjects like tropical agriculture, cereals, food policy, improvement of maize and wheat, biodiversity, dry land, water management, forestry research, agro-forestry, fisheries and crop research (rice, potato) followed by the livestock research. Thus, the extend of agricultural research and education was prolonged or extended by the establishment of agricultural research institutes, centres, schools etc. in the first part of twentieth century which shown in **Table 4.2** below.

Table 4.2: Agriculture Research Institutes / Centres in the World

Sl. No.	Country	Est. Year	International Institutes	Website
1.	Philippines	1960	International Rice Research Institute (IRRI)	www.irri.org
2.	Mexico	1966	International Center for Tropical Agriculture. (CIAT)	www.simiyt.org
3.	Columbia	1967	International Center for Tropical Agriculture. (CIAT)	www.ciat.cgiar.org
4.	Nigeria	1967	International Institute of Tropical Agriculture (IITA)	www.iita.org
5.	Kenya	1970	World Agro Forestry Centre (International Centre for Research in Agro Forestry) ICRAF	www.worldagroforestrycentre.org
6.	Benin	1971	Africa Rice Center	www.africarice.org
7.	Peru	1971	International Potato Center	www.cipotato.org
8.	Malaysia	1971	World Fish Centre (International Center for Living Aquatic Resources Management) ICLARM	www.worldfishcentre.org
9.	Syria	1972	International Center for Agricultural Research in the Dry Areas (ICARDA)	www.icarda.org
10.	India	1972	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	www.icarda.org
11.	Italy	1974	Biodiversity International	www.biodiversityinternational.org
12.	USA	1975	International Food Policy Research Institute (IFPRI)	www.ifpri.org
13.	Sri Lanka	1984	International Water Management Institute (IWMI)	www.iwmi.cgiari.org
14.	Kenya	1985	International Livestock Research Institute (ILRI)	www.ilri.org
15.	Indonesia	1992	Center for International Forestry Research (CIFOR)	www.cifor.cgiari.org

4.3 HISTORY OF AGRICULTURAL RESEARCH: INDIAN SCENARIO

In India, the importance and significance of scientific research and education of farming and training the persons in agriculture sector was appreciated and recognized in 3000 BC. The historical source is the Rig- Veda in which several prayers for agriculture are bring into being. The land was mainly used for ploughing and the womb was ready and seeds were sown and when the corus were ready, they were cut, threshed, winnowed and gathered. Hence, agriculture was the main occupation and the numerous aspects of agriculture were described in each and every Vedas. The findings of Famine Commission at the end of nineteenth century, as a result of this the agricultural departments in different provinces were established. After establishing these departments it was though, soon understood that these departments were not the appropriate authorities to advance the reason or source of agriculture in India; however a policy of scientific research had chosen and dynamically followed. Centered on the report of J.A.Voeleker (1892), a consulting chemist to the Royal Agricultural Society and agricultural chemist was appointed to look forward into the matter. An Imperial Mycologist in the year 1901 and Imperial Entomologist in the year 1903 were appointed later on. The implementation by Lord Curzon's Government and the imperial and the provincial department of agriculture the Famine Commission had recommended the strengthening of the Department of Agriculture in all the provinces in the year 1901.

In India, the scientific research has occupied a back seat. During 1884-1905 the school was under the control of Director of Public Instructions and shifted to the Department of Agriculture. The agricultural school shifted to Coimbatore by the government. After establishing and shifting of schools the Government of India permitted a scheme for the establishment of Agricultural Research Institute under Research Station,

Pusa, Bihar in the year 1903 with financial support of Henry Philip of Chicago. During 1884 to 1910 the five colleges were established i.e. at Pune, Nagpur, Kanpur, Coimbatore and Lalyapur and all this was originated or introduced by the moving force of Arthur Lowley and Lord Curzon. Later on in 1920, the colleges were affiliated to the available universities viz. Madras, Bombay and Calcutta. In 1929, as a result of Montague-Chelmsford Reform in 1921, the want of Agricultural Institute was felt which laid to the formation of Indian (Imperial) Council of Agricultural Research (ICAR) for encouraging, guiding and coordinating agriculture and animal husbandry in the country. The ICAR has a great importance relating to the agriculture and animal husbandry has emerged. In the year 1926, 'The Royal Commission on Agriculture' was appointed, which suggested and proposed that an Imperial Council of Agricultural Research should be set up to approve, direct and organize and form and also supposed to guide or directs the research activities of central and provincial departments of agricultural research all over India. The Imperial Council of Agricultural Research on 16th July, 1929 was set up as according to the proposal of the Royal commission on Agriculture, the Government of India, Department of Education, Health and Lands. Later on the name of the council was changed from Imperial Council of Agricultural Research to Indian Council of Agricultural Research in March 1947.

From the time of independence, there has been a significant development in the Indian NARS. In the country, the ICAR is the main public body at the national level for coordinating, directing, and recommending agricultural research and education. Similarly, State Agricultural Universities are responsible for undertaking the same activities but at the state level. After independence, agricultural research was assumed much importance which in turn steered to improved agricultural production and close self-reliance in food grains in the country. The superior importance given to the

agricultural research could be established by the fact that the system guided by the ICAR now has

- ✓ 47 ICAR institutes,
- ✓ 17 national research centers,
- ✓ 6 bureaux,
- ✓ 8 Agriculture Technology Application Research Institute
- ✓ 25 project directorates,
- ✓ 79 All India Coordinated Research Projects (AICRPs) and AINPs
- ✓ 633 Krishi Vigyan Kendras (KVK)
- ✓ 52 State Agricultural Universities (SAUs),
- ✓ 1 Central Agricultural University,
- ✓ 4 Central Universities having faculty of Agriculture.

The National Academy of Agricultural Research Management is yet another high-class institution under ICAR to conduct research and training specifically in agricultural research management.

➤ ***Other Organizations Involved in Agricultural Research***

- General universities, about 23 of which are involved in agricultural research,
- Scientific organizations such as the Council of Scientific and Industrial Research, the Bhabha Atomic Research Centre,
- Government departments such as the Department of Science and Technology, the
- Department of Biotechnology,
- Private and voluntary organizations,
- Scientific Societies

The rapid growth and development of agricultural research in India bring into being after the post-independence period. After 1948, the agricultural research and extension extended in response to a need for more technical knowledge and skill. In the year 1963, to examine the organization of agricultural research in India the Ministry of Food and Agriculture, allotted the Agricultural Review Team headed by Dr. Marion W. Parker of USDA (United States Department of Agriculture). In March, 1964, the team submitted its report and centred on the recommendation of the team, ICAR was reorganized in the year 1966 and ICAR was made as an entirely autonomous organization. Under the Department of Food and Agriculture and under the Central Commodity Committees the ICAR was offered to manage the several research organizations. To mark as a most important body of scientists and agriculturists the Governing Body of ICAR was reorganized. Some of the Institutes were made as National Institutes like Indian Agricultural Research Institute, National Dairy Research Institute and Indian Veterinary Institute. Finally, a policy was made advising that an agricultural scientist would be appointed as the chief executive of ICAR with the designation of Director General and in view of that, in May 1965 Dr. B.P. Pal was appointed as the first Director General of ICAR. Simultaneously, he was the Vice- President of the Council too. Four posts of Deputy Director General were generated in order to give assistance to the Director General. In June, 1972, the Government of India appointed a committee, headed by Mr. Gajendragadkar, retired Chief Justice of India and purpose to review the enrolment and the personnel policies of ICAR and its institutes, and also to recommend actions for the development of the same. In January, 1973 the committee submitted its report. In December, 1973 as per the recommendations made by the committee a Department of Agricultural Research and Education was created in the Ministry of Food and Agriculture and the secretary to the new department is also the Director General of

ICAR. The Director General, ICAR, was the Chairman of the Governing Body of the council whereas the Minister of Agriculture was designated as the President of the council. The purposes of the Standing Committee were assigned to Scientific Panels as the Advisory Board and the Standing Committee were abolished. The scientific panels for different disciplines were made accountable for bearing in mind and assessing the pertinence for financial assistance of ad hoc research schemes. Under the Agricultural Scientists Recruitment Board (ASRB), an Agricultural Research Service (ARS) was in progress for the staffing of scientific personnel. The whole country of India was divided into eight agro ecological zones and regional committees were set up for each zone and the function of these regional committees is to analysis the status of agricultural research and education in the concerned regions. The Governing Body of ICAR is supported by a Norms and Accreditation Committee, which looks after the progress and development of Agricultural Universities and also the grant of fellowships.

The objectives of the ICAR are as follows:

- To promote, guide and coordinated agricultural and veterinary research and education throughout India;
- To train research workers by offering scholarships;
- To serve as a clearing house of information in regard to research and to advise on agricultural and veterinary matters generally; and
- To undertake the publication of scientific papers monographs, etc.

Singh (2001) grouped the main events in the history of agricultural research in India into the following seven categories:

1. Establishment of agriculture departments and agriculture colleges;
2. Establishment of the imperial council of agricultural research;
3. Initiation of commodity committees;

4. Project for intensification of regional research on cotton, oilseeds and millets;
5. Initiation of all India coordinated crop improvement projects;
6. Reorganization of ICAR; and
7. The development of agricultural universities.

Borthakur and Singh (2012) and (2013) also discussed about agriculture research in India and listed the development of agriculture under colonial era and post-colonial era which are as follows-

I. Agricultural Research in Colonial India-The initial development of agricultural research in India was related with the re-emergence of agriculture and this performed as a nasty aide memoire of the minor preference rendered to agricultural research and development in the era of colonial India such as:-

- Establishment of Agriculture Departments and Agriculture Colleges
- Establishment of the Imperial Council of Agricultural Research (The Present Day ICAR)
- The Commodity Committee
- Plantation Research in Colonial India

II. Agricultural Research in Post-Colonial India

- Project for Intensification of Regional Research on Cotton, Oilseeds and Millets (PIRRCOM)
- Initiation of All India Coordinated Research projects
- Reorganization of ICAR
- Development of Agricultural Universities

These developments not only leads to the use of modern farming method that required smaller numberof farm workers but also these growth and developments increased the need to have more agricultural research and education gradually.

4.4 ROLE OF INDIAN COUNCIL OF AGRICULTURE RESEARCH IN AGRICULTURAL RESEARCH (ICAR) IN INDIA:

The Indian Council of Agriculture Research in Agricultural ResearchICARwhich was previously known as Imperial Council of Agricultural Research is an autonomous body under the Department of Agricultural Research and Education, Ministry of Agriculture, Government of India. In the execution of the Royal Commission of Agriculture it was established as a registered society on 16th July, 1929. The headquarter of ICAR is located at New Delhi. It is an apex body for synchronizing, supervising or directing and managing research and education in the field of agriculture which includes fisheries, horticulture

The Council is the apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. With over 90 ICAR Institutes and 53 Agricultural Universities spread across the country and recognized as one of the largest national agricultural systems in the world.

The mandate of the ICAR is as under:

- ✓ 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.
- ✓ To act as clearing house of research and general information relating to agriculture, animal husbandry, home science and fisheries through its

publications and information system, and instituting and promoting transfer to technology programs.

- ✓ To provide, undertake and promote consultancy services in the fields of education, research, training and dissemination of information in agriculture, agro-forestry, animal husbandry, fisheries, home science and allied sciences.
- ✓ To look into problems relating to border areas of rural development concerning agriculture, including post-harvest technology, by developing co-operative programs with other organizations such as the Indian Council of Social Sciences Research, Council of Scientific and Industrial Research, Bhabha Atomic Research Centre, and universities.
- ✓ To do other things considered necessary to attain objectives of the Society.

The ICAR has a pivotal role while coordinating and managing

- 47 ICAR Institutes
- 25 Project Directorates
- 4 Deemed to be Universities,
- 6 National Bureaux,
- 18 National Research Centers,
- 17 Network Projects,
- 8 Agriculture Technology Application Research Institute
- 138 substations of ICAR Institutes
- 61 AICRPs (All India Coordinated Research Projects)
- 10 Other Projects

- 633 Krishi Vigyan Kendras (KVKs) from (Zone I – 62, Zone II – 77, Zone III – 70, Zone IV – 79, Zone V – 55, Zone VI – 57, Zone VII – 93 and Zone VIII – 76);
- 53 State Agricultural Universities (SAUs) and
- One Central Agricultural University.

In this respect, the **Table 4.3** given below highlights the major milestones in the growth of ICAR chronologically. This chronology was developed on the basis of websites uploaded on the internet resources.

Table 4.3: Major Milestones in the Growth and Development of ICAR

Sl. No.	Year	Achievements
1	1957	Initiation of the first All-India Coordinated Research Project on Maize.
2	1958	Indian Agricultural Research Institute (IARI) has awarded status of deemed university.
3	1960	First SAU has emerged at Pantnagar.
4	1966	Placement of different research institutes under the purview of ICAR.
5	1973	Creation of Department of Agricultural Research and Education (DARE) in Ministry of Agriculture.
6	1974	First Krishi Vigyan Kendra (KVK) at Pondichery.
7	1975	Established Agricultural Scientist Recruitment Board and Agricultural Research Service.
8	1979	Launched National Agricultural Research Project.
9	1995	Initiated of Institution -Village Linkage Program (IVLP).
10	1996	Established National Gene Bank.
11	1998	Launched National Agricultural Technology Project (NATP).
12	2005	Launched National Agricultural Innovation Project (NAIP).
13	2006	Developed a Vaccine against Bird Flu
14	2009	Policy to provide for Open Access to its research.
15	2013	Announced Open Access Policy

The ICAR has been crucial in the reorganization of agricultural research, extension and education in the country by providing the basic supervision, systems for improving the quality or superiority. In other words, it could be concluded that the ICAR is indistinguishable to agricultural research and education in the country. The role played by the council in the development of agricultural research and education has been moderately astonishing.

4.5 ROLE OF ICAR IN INDIAN COUNCIL OF AGRICULTURAL RESEARCH IN NORTH EAST INDIA

ICAR Research Complex for NEH Region, a leading research institute under the Natural Resource Management division of Indian Council of Agricultural Research has been endorsing and conducting research, extension and human resource development activities in agriculture and allied sectors for hilly and mountain ecosystem of North Eastern Hill Region. The ICAR Research Complex for North Eastern Hill Region (ICAR RC NEH) was established on 9th January, 1975 under the aegis or sponsorship of the Indian Council of Agricultural Research (ICAR) when Dr. D.N. Borthakur joined as its first Project Director. This is the first of its kind set up by ICAR, which encompasses all the disciplines of agriculture, horticulture, animal sciences, agricultural engineering, agro forestry, fishery and social sciences to cater to the research needs of the tribal areas of NEH Region including Sikkim. The headquarter (HQ) of the institute is located in Meghalaya (Barapani), while its regional centres are located at Basar (Arunachal Pradesh), Imphal (Manipur), Kolasib (Mizoram), Jharnapani (Nagaland), Lembucherra (Tripura) and Gangtok (Sikkim). Considering the entire NEH Region as one unit, the research centres have been so located as to represent the varying altitudes (60-1800 m above msl) and agro-climates of the region. The research findings of the institute at

different centres can thus be utilized for specific altitudinal range and agro-climatic conditions in component states. The projects, regional centres, KVKs under ICAR RC NEH are as follows-

➤ **Regional Centres**

1. ICAR Research Complex for NEH Region, Mizoram Centre, Kolasib, Mizoram
2. ICAR Research Complex for NEH Region, Nagaland Centre, Jharnapani, Nagaland
3. ICAR Research Complex for NEH Region, Arunachal Pradesh Centre, Basar, Arunachal Pradesh
4. ICAR Research Complex for NEH Region, *Sikkim* Centre, Tadong, Gangtok
5. ICAR Research Complex for NEH Region, Lembucherra, Tripura Centre, Tripura
6. ICAR Research Complex for NEH Region, *Manipur Centre, Lamphelpat, Imphal*

➤ **Krishi Vigyan Kendras-** The institute has 14 Krishi Vigyan Kendras (KVKs) attached to different centres and headquarters for providing on/off campus training to the practicing farmers, school dropouts and farm women in the field of agriculture and allied sectors.

1. Krishi Vigyan Kendra Ribhoi, Meghalaya
2. Krishi Vigyan Kendra, Dimapur, Nagaland
3. Krishi Vigyan Kendra, Wokha, Nagaland
4. Krishi Vigyan Kendra, Longleng, Nagaland
5. Krishi Vigyan Kendra, Basar, Arunachal Pradesh
6. Krishi Vigyan Kendra, Anjaw, Arunachal Pradesh

7. Krishi Vigyan Kendra, Imphal, Manipur
8. Krishi Vigyan Kendra, Cherachandpur, Manipur
9. Krishi Vigyan Kendra, Chandel, Manipur
10. Krishi Vigyan Kendra, Tamenlong, Manipur
11. Krishi Vigyan Kendra, Ukhrul, Manipur
12. Krishi Vigyan Kendra, Ranipool, Sikkim
13. Krishi Vigyan Kendra, Birchandramamu
14. Krishi Vigyan Kendra, Hailakandi, Assam

➤ **Projects**

Some of the under ICAR RC NEH, Barapani are NICRA (National Initiative on Climate Resilient Agriculture), NAIP (National Agriculture Innovation Project), NHB (National Horticulture Board) DBT/ (Direct Benefit transfer) and DST funded programme TSP (Tribal Sub- Plan), KIRAN is the project on Agricultural Knowledge and Innovation in north east region, NFBSFARA (National fund for basic strategic and frontier application research in agriculture), 14 AICRP (All India Coordinated Research project) projects 5 network and 15 collaborative projects.

The mandate of the ICAR is as under:

- ✓ To improve and develop sustainable farming systems for different agro-climatic and socio- economic conditions of the region.
- ✓ To improve crops, livestock, fishery and to impart training for development of local competence for management of resources to enhance agricultural productivity.
- ✓ To maintain, analyse and project data base resources for perspective planning.

- ✓ To collaborate with the state departments of the region for testing and promotion of improved farming technologies.
- ✓ To act as a repository of information on different farming systems of the region.
- ✓ To collaborate with national and international agencies in achieving the above objectives.
- ✓ To provide consultancy.
- ✓ To research on organic agriculture.
- ✓ To develop local human resources through post graduate teaching and research.

ICAR also had a links with the other Institutes and Universities within the region and outside the region as well with International organizations like IRRI, ICRISAT, ILRI, and IWMI. The Institute also collaborates with government sponsored agencies like NERCOMP, MRDS, NABARD and IFAD Loan Project; several NGOs and farmers bodies and co-operative societies for technology extension. Thus, ICAR Research Complex for NEH Region is one of the premier research institute under Indian Council of Agricultural Research, New Delhi blessed with natural resources, and being the leading research institute in the region its aims for the ultimate development of the region in all the sectors has been upholding and directing research, extension and human resource development activities for the growth and development in agriculture and allied sectors for hilly and mountain ecosystem of North Eastern Hill Region.

4.6 CONCLUSION

Agricultural research in India has a motivating history concerning to its growth and development. This chapter provides a very brief history of agricultural research in both global and Indian scenario and also gives special emphasis on different types of ICAR activities and reformations for the growth and development of both in India and northeast part of India. Although agriculture has been playing the supreme pivotal role in Indian economy, in the course of the study, it has been perceived that not much importance has been given to the evolution of agricultural research in India, which has an inconceivable history of development. Thus, in predicting or forecasting the future of Indian agriculture country it is essential to track the historical development of agri-cultural research in India. The next chapter provides an in-depth view of the profile of ICAR Institutes and Centres of Northeast India (**Chapter 5**).

