Syllabus

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Chapter-1

Introduction of Indian agricultural heritage, Need and importance for studying agricultural Heritage

Introduction:

1. Our heritage is unique than any other civilization. As a citizen of India, we must feel proud about our rich cultural heritage.
2. Agriculture in India is not of recent origin, but has a long history dating back to Neolithic age of 7500-4000 B.C.
3. It changed the life style of early man from nomadic hunter of wild berries and roots to cultivator of land.
4. Agriculture is benefited from the wisdom and teachings of great saints.
5. The wisdom gained and practices adopted have been passed down through generations.
6. The traditional farmers have developed the nature friendly
7. Farming systems and practices such as mixed farming mixed cropping, crop rotation etc.
8. The great epics of ancient India convey the depth of knowledge possess by the older generations of the farmers of India.

Definitions:

1. **HISTORY**: *Continuous record of past events.*

2. **HERITAGE:** *Inherited values carried from one generation to other generation*

3. **AGRICULTURAL HERITAGE:** *Values and traditional practices adopted in ancient India which are more relevant for present day system*

History denotes the continuous record of past events, where as heritage indicates the inherited values carried from one generation to other generation. Agricultural heritage denotes the values and traditional practices adopted in ancient India, which are more relevant for present day system.

Need and importance for studying Agricultural Heritage:

1. Our agriculture has lot of inherited sustainable practices passed from one generation to other generation.
2. And also agriculture in India is not an occupation; it is a way of life for many Indian populations.
3. Hence the present day generation should be aware about our ancient and traditional agricultural systems and practices.
4. His will enable us to build the future research strategy also.
5. India has made tremendous progress in agriculture and its allied fields, but the emphasis on intensive use of inputs without considering their adverse impact of long term basis has created several problems related to sustainability of agriculture.
6. Irrational use of chemical fertilizers, insecticides and exploration of natural resources is threatening the agro eco systems.
7. Soil is getting impoverished, water and air getting polluted and there is an increasing erosion of plant and animal genetic resources. Therefore, attention in now shifting to sustainable form of agriculture.
8. The indigenous technical knowledge (ITK) provides insight into the sustainable agriculture, because these innovations have been carried on from one generation to another as a family technology.
9. There are several examples of valuable traditional technologies in India but unfortunately these small local systems are dying out.

10. It is imperative that we collect, document and analyze these technologies so that the scientific principle/basis behind them could be properly understood. Once this done, it will be easier for us to further refine and upgrade them by blending them with the modern scientific technology.

Objective of the course:

1. Agriculture in India -Way of life and not an occupation.
2. To increase awareness of the rich heritage of Indian agriculture which is unique than any other civilization.
3. To implant a sense of pride amongst the people, particularly agricultural students as our agriculture has sustainable practices for generations
4. To stimulate scientific research based on traditional technology.

Chapter-2&3

Ancient agricultural practices, Paleolithic age (old stone age), Mesolithic period. Neolithic Agricultural Revolution Chalcolithic Culture (Bronze Age) and Beginning of Agriculture in India: Archeological and Historical facts.

Development of human culture:

1. It is supposed that man was evolved on earth about 15 lakh years ago.
2. This man was evolved from the monkey who started to move by standing erect on his feet. Such man has been called Homo erectus (or) Java man.
3. Later on Java man transformed into Cro-Magnon and Cro-Magnon into modern man.
4. The modern man is zoologically known as Homo sapiens (Homo -Continuous, Sapiens -learning habit).
5. In the beginning such man had been spending his life wildly, but during the period 8700-7700 BC, they started to pet sheep and goat, although the first pet animal was dog, which was used for hunting.
6. The history of agriculture and civilization go hand in hand as the food production made it possible for primitive man to settle down in selected areas leading to formation of society and initiation of civilization.
7. The development of civilization and agriculture had passed through several stages.
8. Archeologist initially classified the stages as Stone Age, Bronze and Iron Age.
9. Subsequently the scholars spilt up the Stone Age into Paleolithic period (Old Stone Age), Neolithic age (New Stone Age) and Mesolithic age (Middle stone age).
10. Each of three ages, saw distinct improvements.

11. The man fashioned and improved tools out of stones, bones, woods etc. to help them in day-to-day life.
12. They started growing food crops and domesticated animals like cow, sheep, goat, Dog etc.

Paleolithic age (Old Stone Age/Ancient Stone Age (2.5 million-12,000 BC) :

1. The age in human culture characterized by the use of rough or chipped stone tools.
2. This period is characterized by the food gatherers and hunters.
3. The Stone Age man started making stone tools and crude choppers.
4. Man was essentially a food gatherer and depended on nature for food
5. He learnt to control fire, which helped him to improve his way of living.
6. At the end of this age, the modern human being (Homo sapiens) first appeared around 36,000BC.

Mesolithic period or Meso Stone Age (12,000 to 7,500 BC):

1. The transitional period between the end of the Paleolithic and beginning of the Neolithic is called Mesolithic.
2. It began about 10000BC and ended with the rise of agriculture.
3. This period is characterized by tiny stone implements called microliths.
4. People lived as food gatherers and hunters. The domestication of the dog was the major achievement of the Mesolithic hunter.

Neolithic or New Stone Age (7500 BC to 6500 BC):

1. The word 'lithium' comes from a Greek word, "lithos", which means stone while 'Neo' means 'new'. Human settlement in the Indian sub-continent is from 7500 to 4000 BC.
2. Neolithic revolution brought a major change in the techniques of food production which gave man control over his environment and saved him from

the precarious existence of mere hunting and gathering of wild berries and roots.

3. Man began to domesticate animals and cultivate plants, settling down in villages to form farming communities.
4. Beginning or discovery of Agriculture takes place in Neolithic period.
5. Agricultural Revolution has occurred in western Asia during the same period.
6. Invention of polished store implements has taken place.

The main features of Neolithic culture in India:

1. Neolithic culture denotes a stage in economic and technological development in India.
2. Use of polished stone axes for cleaning the bushes.
3. Handmade pottery for storing food grains.
4. Invented textile, weaving and basketry.
5. Cultivation of rice, banana sequence and yams in eastern parts of India.
6. Cultivation of millets and pulses in south India.
7. Discovery of silk.

Chalcolithic culture (Bronze Age) (3000-1700 BC):

1. Chalcolithic culture prevailed in Bronze Age.
2. The term Chalcolithic is applied to communities using stone implements along with copper and bronze.
3. In more advanced communities, the proportion of copper and bronze implements is higher than that of stones.
4. The most ancient civilization on the Indian sub continent, the sophisticated and extensive Indus Valley civilization.

The significant features are:

1. Invention of plough.
2. Agriculture shifted from hilly area to lower river valley.
3. Flood water was stored for irrigation and canals were dug.
4. Irrigated farming started in this period.

5. Sowing of seed by dibbling with a pointed stick.
6. Salinity problem and water logging were noticed due to canal irrigation.

Beginning of Agriculture in India:

1. Demographic pressure probably led to the adoption of crop cultivation and animal husbandry, leading to modern civilization.
2. Next, consumer demand within a constrained space forced the adoption of some form of intensive agriculture.
3. Other evidence for this trend is found in Peru where people domesticated camel ids and guinea pigs 2,000 years before crop cultivation.
4. Agriculture would have been started with the end of the last Ice Age between 15,000 and 8,000 years ago.
5. Before this, people living the hunter-gatherer lifestyle depended upon what was available.
6. Historical evidences showed that agriculture started around 8,500 years ago from the Near East, reaching Britain around 6,000 years ago and Spain and Portugal by 5,000 years ago.
7. American Indians of central Brazil, called, the Kayapo are a modern version of hunter gatherer people.
8. With chickens, crops such as corn, sweet potatoes, sweet manioc and yams and a hunting life style they represent a transition from a hunter-gathering lifestyle to an agricultural lifestyle.
9. What they caught by hunting, be it a tortoise, deer, fish or a wild pig, they had to share and they discouraged selfishness.
10. Women worked in groups to gather fruit, nuts and plants from the same forest where the men hunt. Ironically, on finding a high fruit tree, they cut it down with a metal axe to harvest the ripe fruit. Domestic crops and animals become more important as food than wild animals and plants.
11. Agriculture is relatively new, only emerging between 12,000 and 8,000 years ago and has often caused environmental damage, but has led to the social changes that have allowed the formation of our modern civilization.
12. The domestication of dogs and turkeys followed agriculture.
13. People made tools such as bone reaping knives with flint cutting teeth.

Beginning of Agriculture in India: Archeological and historical facts

12000 to 9500 years ago:

1. Hunters and food-gathers stage existed.
2. Stone implements (microliths) were seen throughout the Indian subcontinent
3. Domestication of dog occurred in Iraq.
4. Earliest agriculture was by vegetative propagation (e.g., bananas, sugarcane, yam, sago, palms, and ginger).

9500 to 7500years ago:

1. Wild ancestors of wheat and barley, goat, sheep, pig, and cattle were found.

7500 to 5000years ago:

1. Significant features were invention of plough, irrigated farming, and use of wheel, and metallurgy and in Egypt, seed dibbling.

5000to 4000years ago:

1. Harappa culture is characterized by cultivation of wheat, barley and cotton; plough Agriculture and bullocks for drought.
2. Wheeled carts were commonly used in the Indus valley.
3. Harappa's not only grew cotton but also devised methods for ginning / spinning / Weaving.

4000 to 2000years ago:

1. In North Arcot, bone / stone tools were found.
2. In Nevasa (Maharashtra), copper and polished stone axes were used. First evidence of the presence of silk was found at this location.
3. At Navdatoli on Narmada river (Nemar, Madhya Pradesh), sickles set with stone teeth were used for cutting crop stalks. Crops grown were wheat, linseed, lentil, urd (black gram), mung bean, and khesari.
4. In Eastern India, rice, bananas, and sugarcane were cultivated.

2000-1500 years ago:

1. Tank irrigation was developed and practiced widely.
2. Greek and Romans had trade with South India; pepper, cloth, and sandal wood were imported by Romans.
3. Chola King Karikala (190 AD) defeated Cheras and Pandyas, invaded Srilanka, captured 12000 men and used them as slaves to construct an embankment along the Cauvery, 160km along, to protect land from floods. He has built numerous irrigation tanks and promoted agriculture by clearing forests.

1500-1000 years ago:
The Kanauj Empireof Harshavardhana (606-647 AD):

1. Cereals such as wheat, rice and millets, and fruits were extensively grown. A 60-day variety and fragrant varieties of rice are mentioned.
2. Ginger, mustard, melons, pumpkin, onion, and garlic are also mentioned.
3. Persian wheel was used in Thanesar (Haryana).

The kingdoms of South India:

1. The kingdoms were of the Chalukyas (Badami), Rashtrakutas (Latur), Pallavas (Kanchi), Pandyas, Hoysals (Helebid), and Kakatiyas (Warangal).
2. Cholas ushered in a glorious phase in South Indian in the 10^{th}century AD.

3. New irrigation systems for agriculture were developed-chain tanks in Andhra in the9th century; and 6.4km Kaveripak bund.
4. Cholas maintained links with China, Myanmar, and Campodia.
5. The tank supervision committee (Eri-variyam) looked after the maintenance of a village and regulated the water supply.

1000-700 years ago:

1. Arab conquest of Sind was during 711-712 AD; Md bin Qaism defeated Dahir, the Hindu King of Sind. Arabs were experts in gardening.
2. 1290-1320AD (Reign of Khiljis): Alauddin Khilji destroyed the agricultural prosperity of a major part of India. He believed in keeping the farmers poor.