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Course Teacher

Prof. Prasad. M Patil

Assistant Professor

Department of Agronomy

Contact: 7507445546, 9860208251

Email Id:prasadagronomist02712114@gmail.com

Prof. Prasad M. Patil
(MSc. Agri, Agronomy)
Department of Agronomy
7507445546, 9860208251
Patilprasad118@gmail.com

Chapter-5, 6&7

Status of farmers in the society during Indus, Vedic, Buddhist, Mauryan, Gupta and Sangam Periods, Commodity trade etc. and present status of modern agriculture and farmer in Society.

❖ **Harappan period:**

1. The Indus Civilization had the first farming cultures in South Asia, which emerged in the hills of what is now called Baluchistan, to the west of the Indus Valley.
2. The farmers took part in the so-called Neolithic Revolution, which took place in the Fertile Crescent around 9000 to 6000 BC.
3. These early farmers domesticated wheat and a variety of animals, including cattle.
4. In the
5. "Era" terminology, the Neolithic is known as the "Early Food Producing Era".

❖ **Early Harappan period:**

1. The development of these farming communities ultimately led to the formation of larger settlements from the later 4th millennium.
2. Indus valley civilization was composite product of different races who lived and worked together in a particular environment.
3. Mohenjo daro had easy land and water communication; it was the meeting ground of people for different parts of Asia.

4. Farmers had, by this time, domesticated numerous crops, including peas, sesame seeds, dates and cotton, as well as a wide range of domestic animals, including the water buffalo.

❖ **Late Harappan period:**

1. By 2500 BCE, the Early Harappan communities had been turned into urban centers.
2. Thus far, six such urban centers have been discovered, including: Harappa, Mohenjo Daro and Dicketi in Pakistan, along with Gonorrreala, Dokalingam and Mangalore in India.
3. In total, over 1052 cities and settlements have been found, mainly in the general region of the Ghaggar-Florence River and its tributaries.
4. By 2500 BCE, irrigation had transformed the region.

❖ **Vedic period:**

1. Early Vedic Aryans were primarily pastoral and settled in Indus valley.
2. They cut jungles, built their villages, and grazed their cattle in jungle sand planted barley in the land close to their habitation.
3. Vedic Aryans were accustomed to cows, horses; buffalo was a new animal which they called gouri or govala which appears to be an extension of the word gau (cow).
4. Indus valley is the land of seven rivers was called 'Saptasindhavah'.
5. The seven rivers included the five Rivers of the Punjab (meaning land of five rivers) viz., the Sutudri (Sutlej), the Vipasa, (Beas), the Parushini (Ravi) and the Askini (Chenab) and the remaining two includes the Indus and Saraswathi.

6. The Aryans have been identified as nomads they always moved in search of pasture lands for their animals.
7. Their culture has been based on met, camped and departed. This culture is superior to that of the people who were already living for millennia in India and had developed agriculture.
8. Domesticated animals made strong settlements and created a class of artisans and craftsman.
9. The most important people of the Vedic period are Vaishnava. There are four Vedic periods' viz., Rig, Sama, Yajur, and Atharvana Vedas.

❖ **Rig-Veda:**

1. Rig-Veda the oldest book which was compiled around 3700 BC.
2. In Rig Vedas period, the farmers occupied more number in the society.
3. At the beginning of the cropping season, the ploughing was done with great fan fare associated with several rituals.
4. Barley (yava), sesame and sugarcane were the main crops.
5. As a husbandman repeatedly ploughs the early for barley; causing the barley to be sown in fields properly by the plough; and the cattle feed upon the barley.
6. Harvesting proceeded with prayers. It was mostly done with a sickle by cutting the crops at the ground level or by cutting the ear heads only.

❖ **Farming resources and practices(Rig-Veda):**

1. A farmer ploughs his fields repeatedly.
2. Tie bullocks to the plow, join yokes, sow the seed, let the food produced be sufficient and let the sickle fall on the ripe crop. Sumps were constructed to provide drinking water for animals, leather rope sand irrigation from never-drying pits.
3. Field operations to raise crops were well-established. Using a plow to cultivate land and raise barley was already an “ancient practice” for the

Vedic Aryans. Soils of different kinds and productive and non-productive fields were recognized.

4. Bullock Power was used for plowing and for pulling bullock carts and chariots to cross rivers such as Sutlej and Vyas undoubtedly in the post rainy season.
5. Other farm operations included bird scaring, harvesting with sickle, threshing, winnowing with titau (suba), storing gains in storage bins and burning of trash / wastes. Barley was ratooned on residual moisture possibly for fodder after harvest of grain crop.
6. Barley was roasted obviously to make saktu (sattu or flour from roasted barley grain).

❖ **Buddhist period:**

1. A food producing economy emerged with the practice of agriculture on a wide scale by using iron implements.
2. There was pleasant proprietorship in rural areas and there were no land lords.
3. But a land owner could not sell for mortgage his land without permission of the village councils.
4. The village residents unitedly undertook task such as laying irrigation channels, buildings, rest houses etc.
5. The women extended their full co operation in their works (public utility). The whole of each village was self sufficient, life was simple.

❖ **Mauryan period:**

1. The economy was agrarian, majority of population were agriculturists.
2. People were also engaged in animal husbandry and cattle rearing which meant additional income to peasants and the state.
3. Gaha pathi were the term used for head of rich land owing family.

❖ **Gupta period:**

1. The cultivators were called by various terms called Krishihala or Kinars. They had Low social and economic life.

❖ **Sangam period:**

1. During Sangam literature, agriculture was the main occupation and hence the position of the farmers in the society was also high during this period.
2. Agriculture Sangam was developed in **Madurai**.
3. The farmers are called uzhavar (**plough man**) and also they are called as **Kalmar**.
4. The land owners called superior vellars and the farmers who plough the land are called as inferior vellars.
5. The farmers' status was mainly determined by the holding of land and animal population.

❖ **Thirukural period:**

1. Thiruvalluvar mentioned about importance of farmers in the society.
2. In his statement, "Farmers alone live an independent life. Others worship them and are second to them".
3. "If farmers stop cultivation, even Rishis (sages) cannot survive".

❖ **Terminology in Relation to Agriculture:**

1. Farmer: Etymologically a farmer is a person who cultivations a farm which is basically pertaining to agriculture.

The Ministry of Agriculture and Irrigation, Government of India, defined marginal, small, semi-medium, medium and large farmers as the households having <1 acre (1 acre =0.4047 ha),1-2 acres, 2-4 acres,4-10

acres and >10 acres of land respectively (Ministry of Agriculture and Irrigation, Government of India, 1970-71).

Peasant:

Peasants are rural cultivators. They raise crops and livestock in the countryside, not in green houses in the midst of cities.

2. Landlord:

Landlords do not physically participate in major agriculture operations but get their land cultivated by landless tenants.

3. Agriculture Labourer:

Basically they own neither land nor farm implements although some may own to a negligible extent. They make a living mainly or wholly by selling their labour in agriculture or allied activities as free or attached or share-cropper for a very low wage and without much security of tenure.

❖ KAUTILYA'S ARTHA-SASTRA, AGRICULTURE, ANIMAL HUSBANDRY, COMMODITY TRADE etc. –FEATURES OF VILLAGE

1. Kautilya (also known as Vishnugupta or Chanakya) (321-296 BC) was a great scholar of his time.
2. He wrote a treatise titled, Artha-sastra, which deals with the management of resources.
3. *During Kautilya's time agriculture, cattle breeding and trade were grouped into a science called varta.*
4. Kautilya gave great importance to agriculture and suggested a separate post of head of agriculture and named it as Sitadhakshya.

Prof. Prasad M. Patil
(MSc. Agri, Agronomy)
Department of Agronomy
7507445546, 9860208251
Patilprasad118@gmail.com

5. Agriculture today receives prime importance, by policy and administrative support from government officials. eg. i) Supply of good seeds and other inputs ii) Provision of irrigation water iii) prediction of rainfall by IMD iv) Assistance in purchase of machineries v) Marketing and safe storage

He suggested many important aspects in agriculture which are highly relevant today.

1. The superintendent of agriculture should be a person who is knowledgeable in agriculture and horticulture.
2. There was a provision to appoint a person who was not an expert but he was assisted by other knowledgeable person.
3. This is applicable even today, appointment of the directors of agriculture, horticulture are sometimes civil servants assisted by technical persons.
4. Anticipation of labours by land owners before sowing.
5. Slaves and prisoners were organized to sow the seeds in time. He also emphasized that thorough ploughing provides good soil texture required for a particular crop.
6. Even today farmers in Punjab hire labours from Bihar at times of heavy demand period.
7. Timely sowing is very important for high yield particularly for rainfed sowing for which, all the implements and accessories have to be kept ready. Any delay in these arrangements received punitive action.
8. Kautilya suggested that for getting good yield of rainfed crop, a rainfall of 16 dronas (one drona=40 mm to 50 mm) was essential and 4 dronas rainfall is sufficient for rice.
9. It is very significant to note that rain gauge was used during Kautilya's period.

10. It was apparently a circular vessel (20 fingers width, 8 fingers width depth) and the unit to measure rain was adhaka (1 adhaka=12 mm approx.)
11. He also stressed the optimum distribution of rainfall during crop growing season one third of the required quantity of rainfall falls both in the commencement and closing months of rainy season (July/Aug; October/Dec) and 2/3 of rainfall in the middle (August/ Sept.; October) is considered as very even. This concept is applicable even today i.e. even distribution is essential for rainfed crop.
12. The crops should be sown according to the change in the season. E.g. Sali (transplant rice), Virulu (direct sown rice), till (Sesame), millets should be sown at the Commencement of rain. Pulses to be sown in the middle of season. Safflower, linseed mustard, barley, wheat to be sown later. It is clear that even today our scientific results prove that cereals, millets were sown early and oilseeds, wheat, barley require less water which could be sown at last or as post rainy season.
13. He also stressed that rice crop require less labour expense vegetables are intermediate, and sugarcane is worst as it requires more attention and expenditure. It is true even today after 2000 years the situation has never changed that sugarcane requires heavy labour and expenditure.
14. The crops like cucurbits are well suited to banks of rivers, Long-peper, sugarcane and grapes do well where the soil profile is well charged with water.
15. Vegetable require frequent irrigation, borders of field suited for cultivation of medicinal plants.
16. Even today the practice of growing cucurbit (Watermelon, pumpkin) on river banks continue from river Ganges north to Pamba river in south.
17. This is an outstanding example of sustained practice, which ensures utilization of moisture available in river bank.
18. Some of the biocontrol practices suggested by Kautilya have got relevance even today.
 - a) Practice of exposing seeds to mist and heat for seven nights. These practices are followed even now in wheat to prevent smut diseases. Soaking of seed in

water to activate fungal mycelia and drying the seed under hot sun to kill the fungal.

b) Cut ends of sugarcane are plastered with the mixture of honey, ghee and cow dung. Recently evidences proved that honey has widely an antimicrobial property. Ghee could seal off the cut ends prevent loss of moisture and cow dung facilitated biocontrol of potential pathogens.

19. He also suggested that harvesting should be done at proper time and nothing should be left in the field not even chaff. The harvested produce should be properly processed and safely stored. The above ground crop residues were also removed from fields and fed to cattle.

❖ **Trade and Marketing (Economic policies):**

1. All the industries were categorized into two groups according to their ownership.
2. One group of key industry was covered by state and another group by private. It is interesting to note that this policy resembles today's model mixed economy.
3. The production, distribution and consumption of agricultural produces were well controlled by the king.
4. Agriculture was placed in the category of privately owned industries.
5. The state Government should control and regulate all
6. The economic aspects and evade the influence of market forces and private interests.
7. These practices suggested by Kautilya were followed by Indian farmers for over centuries which are more sustainable and relevance to scientific agriculture.



AGRICULTURE IN THE SANGAM LITERATURE OF TAMIL NADU

Introduction:-

1. 'Sangam' is a Sanskrit word which means as 'association'
'Sangam poets' is an association of poets.
2. Sangam was known as 'Avaiyam', Kudal or its variant 'Kuttu' before 700 A.D.
3. Kudal was also used to indicate the Madurai city.
4. A system of literary censorship was exercised in Tamil language during early days of their literary history, which is known as 'Avaiyam' and not 'Sangam'.
5. There were three Tamil Sangam constituted one after another and were called
 - First Sangam or Thalai Sangam;
 - Middle Sangam or Idai Sangam and
 - Last Sangam or Kadai Sangam.
6. These periods was comprised of about 1000 years from 500 B.C to 500 A.D. as the extreme limits.
7. During the Sangam period (200 BC to 100 AC), the main profession of the population of the Tamil region (now Tamil Nadu) was agriculture.
8. The region extended from Cape Comorin in the South to Tirupati (in Andhra Pradesh) in the North, parts of present Kerala and Karnataka in the West.
9. The methods of cultivation practiced during this ancient period were revealed by several proverbs, village songs and literature of the period which are available even today.
10. It is rather surprising that the people had good knowledge about agriculture (seed varieties, seed selection, seed storage, ploughing, manuring, irrigation, weeding, crop protection, pests, and botanical pesticides).

11. The Sangam period literature covers wide aspects of the people's life, such as epics, ethics, social life, and religion.
12. Several poems composed during this period have been passed on from generation to generation through memorizing and chanting and later through manuscripts written on palmyra leaves.
13. With the advent of paper and printing machinery, Shri Swaminatha Iyer who is popularly called "Tamil grandfather" painstakingly collected them and brought them out as printed books.
14. Two poems of the Sangam period, viz., Tholkappiyam and Thirukural, gives us a vivid picture of agricultural practices in that period.

❖ **Tholkappiyam:-**

The poem Tholkappiyam was written by the poet Tholkappier during 200 BC. It gives descriptions of various agricultural aspects and these are enumerated below.

❖ **Land classification:**

Land was classified into four groups, viz., mullai (forest), Kurinji (hills), marudham (Cultivable lands), and neithal (coastal areas).

❖ **Seasons:-**

Six seasons are mentioned: early spring, late spring, cloudy, rainy, early winter, and late winter.

❖ **Cultivated crops:-**

1. There are references to rice, millets, sugarcane, banana, cardamom, pepper, cotton, sesame, coconut, and nut.
2. Farmers were aware that rice could be grown as rainfed crops.
3. Banana and sugarcane were ratooned.

Prof.Prasad M.Patil
(MSc.Agri, Agronomy)
Department of Agronomy
7507445546, 9860208251
Patilprasad118@gmail.com

4. Plants were considered as living beings and endowed with sensitivity.
5. Tholkappier mentions about monocots and dicots 2700 years ago.

❖ **Importance of agriculture:-**

1. Kings considered agricultural development as their primary duty.
2. They felt that soil fertility and irrigation facilities should be the country's assets.
3. Increased agricultural production was considered a yardstick of prosperity of the country.
4. The stability of a kingdom was ensured not by army but by agriculture and sufficient crop production.
5. Failure of monsoon rains and reduction in grain yield were attributed to the king's sins.

❖ **Irrigation:-**

1. Kings dug tanks at locations where water flow from rains was plentiful.
2. Semicircular bunds were raised adjacent to small hillocks and water reservoirs akin to present day dams were raised and constructed Thus indicates awareness of water harvesting.
3. The king Karikal Cholan brought 1000 slaves from a conquered country and raised the bunds of river Cauvery.
4. The stone dam constructed across the river Cauvery centuries ago is considered a master piece of engineering even today.
5. River water was diverted to tanks through channels.
6. It is mentioned that irrigation should be given either in early morning or late evening or not during hot mid-day.

❖ **Agricultural implements:-**

1. Buffaloes were used for ploughing with a wooden plough.
2. Deep ploughing was considered superior to shallow ploughing.
3. A labour saving tool called parambu was used for levelling paddy fields.
4. Tools such as amiry, keilar, and yettam were used to lift water from wells, tanks, and rivers.
5. Tools called thattai and kavan were used for scaring birds in millet fields. Traps were used to catch wild boars in millet fields.

❖ **Seeds:-**

1. Seed was selected from those ear heads that first matured.
2. The selected seed was stored for sowing only and never used as food grain.
3. It was believed that such a diversion would destroy the family.

❖ **Crop rotation:-**

1. Crop rotation was practiced by raising black gram (urd) after rice.
2. This indicates that farmers were aware of the benefits to the following rice crop which we now know is due to the nitrogen fixation in the root nodules of urd.
3. They also practised mixed cropping; e.g., foxtail millet with lablab or cotton.
4. Today we know that a balanced diet should have starch (supplied by rice and millets) and protein (supplied by lablab).
5. In coconut and jack fruit plantations, ginger and turmeric were grown as intercrops.

❖ **Threshing:-**

1. A tool called senyam was used for harvesting rice.
2. Threshing of rice was done by hand with the help of a buffalo (and in large holdings by elephants).
3. Hand winnowing was done to remove chaff.
4. One sixth of the produce was paid as tax to the king. Farm labourers were paid in kind.
5. The land was immediately ploughed after harvest or water was allowed to the field to facilitate rooting of stubbles.
6. These agronomic practices are recommended even today based on scientific principles. Operations requiring hard work such as ploughing were done by men while women attended to light work such as transplanting, weeding, bird scaring, harvesting, and winnowing.
7. In Kandapuram, it is mentioned that Valli, daughter of a king, was sent for bird scaring in millet fields where Lord Muruga (son of Lord Shiva) courted her and married.

❖ **Threshing:-**

1. Products were exchanged by weight.
2. In Madurai (the headquarters of Sangam poets), there was a food grain bazaar where 18 kinds of cereals, millets, and pulses were sold.
3. Each shop had a banner hoisted high so that it could be seen from a distance indicating that the grains are sold here.
4. What a novel method instead of neon signals and name boards! Customs duty was collected on imports and exports.

❖ **Thirukural:-**

1. The poem was composed by a gifted poet named Thiruvalluvar during 70 BC.
2. It consists of 1330 couplets (133 topics each having 10 couplets).
3. It is the pride of Sangam Tamil literature and its greatness can be realized from the fact that it has been translated into English and several other languages.
4. It devotes one topic (10 couplets) for agriculture under the chapter politics.
5. This clearly reveals the recognition that the prime duty of a king is to ensure agricultural production.
6. When the available copper was diverted to meet the army's requirements, production of copper sulphate, lime and water) preparation was affected and late blight could not be controlled.
7. The available potato was sent to soldiers fighting in the front. Hence, potato was not available to families of soldiers.
8. This severely affected the morale of German soldiers. Horsfall and Cooling jocularly mention the story in the following lines:
 1. For want of a nail, the shoe was lost.
 2. For want of shoe, the horse was lost.
 3. For want of horse, the soldier was lost.
 4. For want of soldier, the war was lost.
9. In India also, several state governments have fallen when they failed to ensure adequate supply of food grains through public distribution system.
10. The importance of agriculture and related aspects are indicated in the following couplets and descriptions.

❖ **Importance of Agriculture:-**

1. “World spins around many industries. All such industries spin around agriculture.”
2. Farmers alone live an independent life; others worship them and are second to them.”
3. “If farmers stop cultivation, even rishis (sages) cannot survive.”

❖ **Ploughing:-**

“If land is ploughed deep and soil allowed drying to one fourth weight, even manuring is not necessary.”

❖ **Manuring:-**

1. *“Manuring is more important than ploughing: crop protection is more important than irrigation.”*
2. Green leaf manuring, farmyard manure, and sheep penning were in vogue though farmers were not aware that they supplied nitrogen to the crop.
3. One is amazed at the depth of agricultural knowledge our ancestors possessed.

❖ **Irrigation:-**

Bed method was followed as an efficient method of water management.

❖ **Weeding:-**

“Just like the farmer pulls out weeds with the root system, so the king should eliminate rowdies from society”

❖ **Care of crops:-**

1. *“If the farmer does not regularly visit his field, the crop will not grow.”*

2. The foregoing account of agriculture from ancient Tamil literature clearly indicates the Agricultural knowledge of our forefathers.
3. By following their footsteps, the present generations of agricultural scientists have used the advanced technologies and have tried to stabilize agricultural production in our country to meet our food requirements.

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