

Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Third Year)

Subject: Botany

Course Code: BOC 110

Course Title: Plant Ecology and Phytogeography

Unit: 09

Module Name: Local vegetation - Agriculture

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Notes:

Agriculture in Goa is one of the important economic activities in the state.

Located between the Arabian Sea and the Western Ghats, Goa faces problems for enough cultivable land to feed its own population. The coastal areas are exposed to salinity and do not qualify as good agricultural areas, while the inland areas are not productive enough.

So for its day-to-day needs of milk, poultry and agricultural produce like vegetables, Goa is dependent on Karnataka and Maharashtra. Approximately one-third of the total land in Goa falls under forest areas and yields substantial profits. Even though one fourth of the population is sustained by agriculture in Goa, it contributes to only 15 to 16 percent to the income of the state.

Due to rapid urbanization the availability of agricultural land is reducing.

78% of the agricultural area is still rain fed, irrigation is insufficient and commercial farming is ruled out as 80 percent of land holdings are below 2 hectares and the sizes of the fields are small.

For high - quality planting material, nurseries and tissue - culture laboratories are being promoted by the government. To recharge the groundwater table and to harvest rainwater, simple watershed techniques are being used.

The coastline of Goa is also rich in fishery resources where the local fishermen usually catch a variety of fish such as sharks, mackerels, sardines, silver belly, pomfrets, butter fish, prawns, crabs and squids.

Sometimes one can also see a lot of bamboo poles that are put out in the water.

These actually have fishing nets below the water line and when the water recedes through the net during the low tide, the fish are trapped.

The government, however, has done much to improve and develop agriculture in Goa to make it more productive, thus enabling the farmers to get a better return for their labour.

TYPES:

(i) INTENSIVE SUBSISTENCE FARMING:

In intensive subsistence agriculture, the farmer cultivates a small plot of land using simple tools and more labour. Farmers use their small land holdings to produce enough for their local consumption, while remaining produce is used for exchange against other goods.

(ii) PRIMITIVE SUBSISTENCE FARMING:

This type of farming is practiced on small patches of land. Primitive tools and family/community labour are used in this type of farming. The farming mainly depends on monsoon and natural fertility of soil. This is also called 'slash and burn' agriculture.

(iii) SHIFTING CULTIVATION (KUMERI):

Is a system of cultivation in which a plot of land is cleared and cultivated for a short period of time, then abandoned and allowed to revert to producing its normal vegetation while the cultivator moves on to another plot.

(iv) COMMERCIAL FARMING:

In commercial farming crops are grown and animals are reared for sale in the market.

(a) COMMERCIAL GRAIN FARMING:

Is an extensive and mechanised form of agriculture. It was the invention of farm machinery which enabled farmers to cultivate grains on a large scale, and there is a marked specialisation in *Oryza sativa* (Rice) monoculture in many areas.

(b) COMMERCIAL MIXED FARMING:

In mixed farming, the land is used for growing food and fodder crops and rearing livestock.

(c) COMMERCIAL PLANTATION FARMING:

In this type of farming, crops are grown only for commercial purposes. In this type of farming, a single crop is grown on a large area. Labour is employed to work in large tracts of land, using capital intensive devices. E.g. *Saccharum officinarum* (Sugarcane).

Rice and fish being the staple diet of the people, paddy becomes the principal crop in the scenario of agriculture in Goa. It is grown in two seasons, namely Kharif or sorod and the Rabi or vaingan. The monsoon crops are called the kharif crops and the winter crops are called Rabi crops. The main sources of irrigation for winter crops are the nallahs, rivers and streams, tanks, wells and canals.

Crops grown in the Kharif season consist of paddy, *Eleusine coracana* (Ragi) locally called nachani and some pulses. Crops grown in the Rabi season are comprised of paddy, pulses like *Macrotyloma uniflorum* (Horse-gram), *Vigna mungo* (Black-gram), a variety of beans and some vegetables.

Rice is cultivated in three different topographical situations i.e. rainfed uplands (Morod), rainfed lowlands / midlands (Kherlands) and coastal saline lands/ low-lying wetlands (Khazans). Salt tolerant rice varieties namely, Assgo, Bello, Damgo, Kalo Damgo, Kalo Korgut, Kalo Novan, Khocho, Korgut, Muno and Shiedi. Cultivation of some of the varieties such as Kalo Novan, Kalo Damgo, and Bello are becoming rare, due to the introduction of high yielding rice varieties, hence local germplasm and their genetic diversity are being eroded. The rice varieties like Korgut, Muno and Assgo are still popularly cultivated in khazan lands of Goa due to its high salinity tolerance. Korgut literally means small coloured grains.

Rice that is cultivated in the rains from June to September is the major crop followed by cereals like pulses and small millets.

The important crops, apart from paddy, are *Eleusine coracana* (Ragi), *Zea mays* (Maize), *Sorghum bicolor* (Jowar), *Pennisetum glaucum* (Bajra) and pulses.

Cash crops like *Cocos nucifera* (Coconut), *Anacardium occidentale* (Cashew), *Areca catechu* (Areca nut), *Mangifera indica* (Mango), *Artocarpus heterophyllus* (Jackfruit), *Carica papaya* (Papaya), *Musa paradisiaca* (Banana), *Ananas comosus* (Pineapple) are also grown in abundance. *Anacardium occidentale* (Cashew) is an important crop in Goa. A kind of intoxicating drink called Feni is produced from cashew.

Different varieties of *Mangifera indica* (Mango) are grown in Goa. Some of the famous Mango varieties are Mancurad, Mussarat, Fernandin, Xavier, Alfanso, and Colaco.

There are two varieties of *Artocarpus heterophyllus* (Jackfruit) grown here namely kapo (hard) and rasal (soft).

Other agricultural produce includes *Solanum melongena* (Brinjal), *Abelmoschus esculentus* (Lady finger), *Trichosanthes cucumerina* (Snake gourd), *Cucurbita moschata* (Pumpkin), *Capsicum annuum* (Chilli), *Cucumis sativus* (Cucumber), *Allium cepa* (Onion), *Momordica charantia* (Bitter gourd), *Luffa acutangula* (Ridge gourd), *Raphanus sativus* (Raddish), *Brassica oleracea* (Knol-Khol), *Moringa oleifera* (Drumstick), *Cucumis melo* (Musk Melon), *Vigna unguiculata* var. *sesquipedalis* (Long beans), *Lagenaria siceraria* (Bottle gourd), *Arachis hypogaea* (Groundnut), *Brassica oleracea* var. *capitata* (Cabbage), *Amaranthus cruentus* (Red amaranth), *Artocarpus altilis* (Breadfruit), *Psidium guajava* (Guava), *Citrullus lanatus* (Watermelon), *Ipomoea batatas* (Sweet potato), *Vigna unguiculata* (Cowpea), *Cyamopsis tetragonoloba* (Cluster beans) etc.

The forest produce too makes up a significant part of the agriculture in Goa. The Government forest area is approximately around 1224.38 sq. km, besides this, the forest land owned by private people and institutions is around 200 sq. km. The important forests products are bamboo canes, Maratha barks, chillar barks and bhirand.