THE WEED FLOOR CULTIVATED FIELD IN DIFFERENT PARTS OF KARNATAKA-A STUDY

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Abstract

They share about 80 per cent of the total raw jute production of which West Bengal alone accounts for over 50 per cent. Fibre is obtained from the stem of cultivated varieties of two species commonly known as white and tossa. Tossa fibre is generally finer, softer, stronger, more lustrous and with less root content than white fibre. Besides these two species, mesta is regarded as a substitute fibre for jute. Oilseeds which constitute an important group among the commercial crops also play an important role in preparation of useful products like medicines, perfumes, varnishes, lubricants, candles, soaps, etc. Oil cake, the residue after oil extraction, is an important cattlefeed, substantial quantities of which are exported. India is one of the leading oilseed producing countries of the world. The principal oilseeds have been dealt with in this section. Castor, indigenous to eastern Africa, is generally grown in India for its oil yielding seeds. The oil content of the seeds varies from 35- 58 per cent in different varieties. The oil is used as a lubricant in the manufacture of soaps, transparent paper, printing inks, varnishes, linoleum and plasticizers. It is also used for medicinal and lighting purposes. Generally it grows in the plains and at elevations upto 1,200 m. It cannot stand frost, continued heavy rain or prolonged drought. Sesamum requires about 21 °C temperature and a moderate rainfall. The crop requires well drained light loamy soils. In the northern states it is mostly grown as a kharif crop and in the southern states it is generally grown during the rabi season.

Keywords- *Oilseeds, jute, Sesamum,* *Groundnut, Linseed, Tobacco*

INTRODUCTION

1. Jute and Mesta Jute:

(Corchorus capsularis), a bast fibre, is obtained from one of the most important cash crops of eastern India. The crop is grown in seven states namely West Bengal, Bihar, Assam, Orissa, Uttar Pradesh, Tripura and Meghalaya. However the principal jute growing districts are in West Bengal, Bihar, Assam and Orissa.

They share about 80 per cent of the total raw jute production of which West Bengal alone accounts for over 50 per cent. Fibre is obtained from the stem of cultivated varieties of two species commonly known as white and tossa. Tossa fibre is generally finer, softer, stronger, more lustrous and with less root content than white fibre. Besides these two species, mesta is regarded as a substitute fibre for jute.

Jute thrives well in climates of moist heat. The optimum requirements are loamy alluvial soil, average relative humidity between 70 and 90 per cent, well distributed annual rainfall between 115 and 240 cm and temperatures between 27 °C and 30 °C.

Mesta, on the other hand, can be grown on almost any type of soil. However rich loam built up with silt suits it most. It grows well in areas with rainfall between 78 and 100 cm. The advantage with Mesta is that it grows on soils where jute cannot grow. Mesta is also preferred as investment required to grow it is much lower than that for jute.

Jute requires a clean, clod-free field with fine tilth. The land is, therefore, ploughed, cross- ploughed and planked several times. All weeds are thoroughly removed. The sowing of capsularis varieties starts in late February in low lying areas that retain moisture of the previous flood or monsoon. Sowing in midlands and highlands starts with showers in March or April and continues till early June in the western part of the jute belt.

Dinajpur, Murshidabad, Nadia, Hooghly and 24 Parganas are the leading producing districts in West Bengal. Goalpara, Kamrup and Nowgong districts in the lower Brahmaputra valley produce jute in Assam. Cachar is also an

important district for producing jute. Purnia in Bihar and Kheri and Bahraich districts in Uttar Pradesh contribute to jute production.

2. Oilseeds:

Oilseeds which constitute an important group among the commercial crops also play an important role in preparation of useful products like medicines, perfumes, varnishes, lubricants, candles, soaps, etc. Oil cake, the residue after oil extraction, is an important cattlefeed, substantial quantities of which are exported. India is one of the leading oilseed producing countries of the world. The principal oilseeds have been dealt with in this section.

Gujarat leads in production of kharif oilseeds while Uttar Pradesh dominates in rabi oilseed crops:

i. Groundnut:

Groundnut (Arachis hypogaea), also termed peanut or monkeynut, was introduced in India during the first half of the 16th century from one of the Pacific islands of China where it had been introduced earlier from either Central or South America. The oil content of the seed varies from 44 to 50 per cent depending on the varieties and agronomic conditions. The edible oils are rich in protein and Vitamins A, B and some members of the B_2 group.

The crop can be grown successfully in places receiving a minimum rainfall of 50 cm to 75 cm. The rainfall should be distributed well during the flowering and pegging of the crop. Sandy loams, loams and well drained black soils which allow adequate root turning are suitable for cultivation of groundnut.

Groundnut is raised mostly as a rainfed kharif crop, being sown from May to June, depending on the monsoon rains. In some areas or where the monsoon is delayed, it is sown as late as August or early September. As an irrigated crop it is grown to a limited extent between January and March and between May and July.

Initially the field is given two ploughings and the soil is pulverised well to obtain a good tilth. The third ploughing may be given just before sowing. The kharif crop is sown with a seed drill or with a suitable planter at a depth of 8-10 cm. Spacings adopted differ from place to place.

Groundnut is extensively grown in peninsular India. Nearly 80 per cent of the groundnut area is concentrated in Gujarat, Tamil Nadu, Maharashtra, Andhra Pradesh, and Karnataka. Other productive areas are Rajasthan, Madhya Pradesh, Uttar Pradesh, Punjab and Orissa.

ii. Rapeseed and Mustard:

They are important producers of edible oil and under their names several oilseeds belonging to the cruciferae family are grown in India. They are generally divided into four: brown mustard commonly called rai, sarson (yellow and brown), toria and taramira or tara. In trade, sarson, toria and taramira are known as rapeseed and rai as mustard.

Rapeseed and mustard crops are of tropical as well as temperate zones and require relatively cool temperatures for satisfactory growth. The crops grow well in areas having 25 to 40 cm of rainfall. Sarson and taramira are preferred in low rainfall areas, whereas rai and toria are grown in medium and high rainfall areas. Rai may be grown on all types of soils but toria does best in loam to heavy loams. Sarson is suited to light loam soils and taramira is mostly grown on very light soils.

Nearly 90 per cent of the area and production of rapeseed and mustard is contributed by Uttar Pradesh, Rajasthan, Punjab, Chhattisgarh, Madhya Pradesh and Haryana. The rest comes from Assam, Bihar, West Bengal, Orissa, Gujarat, and Jammu and Kashmir.

iii. Sesame:

Known as sesame (Sesamum Indicum), til and ginpelly, it is a rich source of edible oil with its oil content varying from 46 to 52 per cent. Sesamum oil is used as a cooking medium in south India. It is also used for anointing the body, for manufacturing perfumed oils and for medicinal purposes.

Generally it grows in the plains and at elevations upto 1,200 m. It cannot stand frost, continued heavy rain or prolonged drought. Sesamum requires about 21 °C temperature and a moderate rainfall. The crop requires well drained light loamy soils. In the northern states it is mostly grown as a kharif crop and in the southern states it is generally grown during the rabi season.

The kharif and semi-rabi crops are entirely rainfed, whereas summer crop is grown under irrigation. The yield of the kharif crop is poor, whereas those of the semi-rabi and summer crops are high, as they are grown in rich soils and under better management.

Sesamum is mostly grown in the Satluj-Ganga plain and on the Deccan plateau.

iv. Linseed:

Linseed oil is an excellent drying agent used in manufacturing paints and varnishes, oilcloth, waterproof fabrics and linoleum. It is also used as an edible oil in some areas.

Linseed is mainly confined to low elevations, in areas with the annual rainfall ranging from 45 to 75 cm. The seed crop does well under moderate cold, but the fibre crop grows best in cool, moist climates. Linseed can be grown on different kinds of soils except the sandy and badly drained heavy clays but does best on clay loams. The crop is grown in the rabi season from September-October to February-March.

Important production centres are Uttar Pradesh Madhya Pradesh, Maharashtra, Rajasthan, Bihar, Karnataka, West Bengal, and Andhra Pradesh.

v. Castor:

Castor, indigenous to eastern Africa, is generally grown in India for its oil yielding seeds. The oil content of the seeds varies from 35- 58 per cent in different varieties. The oil is used as a lubricant in the manufacture of soaps, transparent paper, printing inks, varnishes, linoleum and plasticizers. It is also used for medicinal and lighting purposes.

Castor grows well in relatively dry, warm regions having a well distributed rainfall of 50 to 75 cm. In heavy rainfall areas, the crop puts on excessive vegetative growth and assumes a perennial habit. It also requires a moderately high temperature (20 °C – 26 °C) with low humidity throughout the growing season to produce maximum yields.

The crop is sown mostly in June-July and to a limited extent in August-September. It is raised chiefly as a rainfed annual crop but sometimes it is planted on the bunds of irrigation channels and borders of garden crops.

Andhra Pradesh is the largest producer followed by Gujarat, Orissa, Karnataka and Tamil Nadu.

vi. Sunflower:

Principal states producing sunflower are Karnataka, Maharashtra and Andhra Pradesh. In these states a shift from kharif to rabi culture has taken place owing to the vagaries of monsoon in kharif season and better seed filling in rabi. Sunflower is now making inroads into the non-traditional northern states of Punjab, Haryana, Uttaranchal, Uttar Pradesh and Rajasthan as a spring crop.

vii. Soyabean:

Among the oilseed crops in India, soyabean occupies third place. Madhya Pradesh leads in area as well as production accounting for about 80 per cent share. Rajasthan, Maharashtra and Tamil Nadu are other major producers. About 85 per cent of soyabean produced is used for oil, ten per cent for seed and five per cent for food.

viii. Safflower:

Safflower is grown in Karnataka, Maharashtra, Andhra Pradesh and Gujarat.

Tobacco:

Tobacco (Nicotiana) plays a vital role in the national economy, though it is grown on only 0.25 per cent of the total cropped area. The species Nicotiana tobacum is grown in almost all the states whereas the cultivation of Nicotiana rustica is confined to the northern and north-eastern states, where the temperatures are considerably lower during growing season.

The crop thrives best under moderate temperature and moderate to heavy rainfall conditions. It is highly susceptible to frost. Excessively heavy rainfall however reduces yield and increases the acid content in the leaf. The soils that are best suited are light sandy and sandy loam soils with a low water retentivity capacity.

Such soils produce fine textured leaves which are large, thin and light in colour and body. Heavy soils would produce dark-coloured small leaves of heavy body and strong aroma. The soil must be well drained.

Tobacco being a transplanted crop requires heavy manuring and constant seeding. Experiments have shown that deep ploughing of the fields once in two years during summer followed by 2 to 3 ploughings and 1 to 2 harrowings are beneficial for most of the tobaccos, particularly for the flue cured Virginia tobacco grown in Andhra Pradesh.

Virginia and natu tobacco in Andhra Pradesh are sown in August-September and in Karnataka in April-May; for bidi tobacco in Gujarat and Karnataka, the nurseries are sown in June-July; for the cigar, cheroot and chewing tobaccos in Tamil Nadu, in August-September; for the hookah and chewing tobaccos in Bihar, Uttar Pradesh and West Bengal, in August-October.

3. Plantation Crops:

Tea, coffee, rubber, cardamom, pepper, chilli, turmeric and coconut are the principal plantation crops of India, though they are not equally well organised. Tea is, of course, the gigantic leader. Though pepper and cardamom are native to India, they are not generally grown, processed or marketed under the accepted plantation system. Therefore, only tea, coffee and rubber are truly regarded as the principal plantation crops of India.

4. Tea:

The name ‘tea’ (Camellia thea) is given to the dried leaves of a broad-leaved evergreen plant known as Thea-Sinensis. There are two main varieties of tea—Chinese and Assamese. Three main types of tea are black, green and brick. Black tea is mainly found in India, Pakistan, Sri Lanka and Indonesia.

The green tea is prepared in China, Japan and Thailand. The main difference between black and green tea is that the former is fermented while the latter is not. Brick tea, on the other hand, constitutes inferior leaves and dust tea, all mixed up and rolled into lumps after mixing with rice paste.

Tea is grown on a plantation scale where the climate’ is moist and warm. Rainfall should average between 200 cm and 245 cm per year. The ideal maximum monthly temperature is 24 °C to 30 °C. When the maximum temperature in shade, falls below 24 °C or the minimum temperature below 18 °C-the growth is retarded. Temperature below 10

°C and dry spells affect the crop adversely. The plant requires well drained deep friable loams or forest land rich in organic matter.

The area intended for planting is first cleared of forest growth and adequate measures should be taken to prevent soil erosion. The plants are initially raised in nurseries. Tea is generally propagated from seed but in recent years the use of high yielding clonal material has become popular.

The tea estates are highly concentrated in a few hilly districts of India.

The tea in north-east India is grown in an area forming an equilateral triangle, joining Darjeeling in West Bengal, Sadiya in Assam and going beyond Indian borders to Chittagong in Bangladesh. The areas in this region are as follows.

(a) Brahmaputra Valley accounts for about 40 per cent of the total tea area of the country and about 45 per cent of the total production. Maximum concentration of tea cultivation occurs in Lakhimpur, Sibsagar, Tejpur and Bishnath districts. During July to November the maximum crop is harvested.

(b) The Surma valley in Cachar district is another important area contributing about five per cent of the country's total.

(c) The Doars comprising Cooch Behar and Jalpaiguri districts of West Bengal account for 18 per cent of the country's total production.

(d) In Darjeeling district of West Bengal tea gardens are found on hill slopes up to 1,800 m height. Tea is grown in a variety of soils from grey sandy loams to yellow sandy loams, red soil and grey brown forest soils. Maximum area is found over yellow sandy soils which account for about 41 per cent of the tea area of the state giving high yields per hectare.

In South India tea estates are concentrated mainly in the states of Kerala, Tamil Nadu and Karnataka. These together constitute 20 per cent of the country's area and 25 per cent of the country's production. The important tea producing areas are central Thiruvananthapuram, Wynalad, Cochin, Malabar Coast, Nilgiri, Madurai, Kanyakumari and Mysore districts. Tamil Nadu has the highest yield followed by Karnataka at the state level.

5. Coffee:

Coffee (coffea), one of the important plantation crops in India, was started in India in Chickmagalur (Karnataka) in 1826, in Manantody (Wynaad) and Shevaroy in 1830 and the Nilgiris in 1839. It was introduced by a Muslim fakir, Bababudan Sahib, during the 17th century.

Now the plantations are spread over vast hilly tracts of Karnataka, Kerala and Tamil Nadu in the Nilgiris, Cardamom, Palani and Annamalai hills. It is also grown on a limited scale in some non- traditional areas in Orissa, West Bengal and Assam.

Two main species of coffee are generally found in India—arabica (Coffea arabica) and robusta (Coffea canephora). Coffea arabica grows well at elevations between 900 and 1,200 m while Coffea canephora grows at lower elevations (about 150 m).

Climatic and environmental factors such as rainfall, temperature and elevation play an important role in determining the conditions of growth of coffee. Warm and humid climate with 180 cm to 200 cm rainfall and 15-30 °C temperatureiare the main requirements for growth. Its cultivation therefore is restricted to areas where the mean annual temperature does not exceed 28 °C. Soil should be deep, friable, porous, rich in organic matter, slightly acidic. A gentle slop is ideal.

6. Rubber:

The name 'rubber' (Hevea brasiliensis) is given to the latex derived from certain trees. The most important of these trees is Hevea brasiliensis. Rubber was first introduced in India in the late 19th century on the banks of River Periyar in north Thiruvananthapuram (Kerala). The seeds of this plant (Hevea) were brought to India from Para (Brazil) by Sir Henry William in 1876. Rubber in India now is mainly grown in the southern parts of India. Kerala, Karnataka and Tamil Nadu are the principal producers. Both in respect of acreage and production Kerala dominates.

The Hevea brasiliensis is a hardy, tall, quick growing tree. The main conditions for growth are fairly distributed annual rainfall of not less than 200 cm; a warm humid equable climate of 21 °C to 35 °C; and a well drained deep loamy soil though it can be grown on soils varying from laterite to fine alluvium or clayey loams. Long droughts are injurious to the plant.

Hevea is propagated through seeds and by adopting vegetative methods. The seedlings are usually transplanted in prepared pits in the field in June-July. Rubber trees should be regularly manured with balanced fertiliser mixtures from the time of planting to the stage of economic production for ensuring maximum production.

Latex is obtained from the bark of the rubber tree by tapping. It is cut in spirals to induce the flow of latex. A zinc or iron spout is kept at the base and below the spout a coconut shell is placed to collect the latex. To obtain the optimum yield tapping should be deep.

The forms in which the crop from the rubber plantations are marketed are preserved latex and latex concentrates, dry ribbed sheet rubber, dry crepe rubber, dry solid-block rubber.

The crop collected in the form of liquid latex can be processed in any of the above forms. But the crop collected in the form of tree lace, shell scarp and earth scrap is processed only into crepe or solid block rubbers. The major quantity of natural rubber produced in this country is marketed in the sheet form.

Kerala accounts for most of the rubber plantations. Next in importance are Tamil Nadu, Karnataka, and the Andaman and Nicobar Islands. Kottayam, Kollam, Thiruvananthapuram, Ernakulam, Kozhikode, Cochin and Malabar in Kerala are the chief rubber producers. In Tamil Nadu it is grown in the Nilgiris, Kanyakumari, Coimbatore, Salem and Madurai districts. The important producers in Karnataka are Chikmagalur and Coorg districts. Some natural rubber is also obtained from Assam, West Bengal, Tripura, Meghalaya, Mizoram, Manipur, Nagaland, Orissa, Goa and Maharashtra.

7. Spices:

India is the largest producer of spices with an annual output of two million tonnes. It is also the largest consumer of spices. Amongst the most important spices are pepper, cardamom, chillies, turmeric and ginger.

8. Pepper:

(Piper nigrum) is the earliest known spice crop in India considered to be indigenous to the rain forests in south-west India. The black pepper and the white pepper of commercial use are the dried and processed berries and have a very prominent place in the world market. Pepper is used as a flavouring agent for food stuff and also as a carminative.

Pepper, a tropical crop, i.e., a plant of the humid tropics, grows best in well drained clay loam soil, rich in humus and flourishes in warm, moist climate. An annual rainfall of 250 cm and temperature ranging from 10 to 40 °C is ideal for its cultivation. Red, laterite virgin soil on the slopes of the Western Ghats is also suitable for growing pepper.

The pepper cultivation of India is concentrated in Kerala, Karnataka and Tamil Nadu. Kerala by far is the most important pepper producing state in India, cultivation being concentrated in Kannur, Kottayam, Thiruvananthapuram, Kollam, Kozhikode and Ernakulam districts. North and South Kanara, Coorg, Shimoga, Chickmagalur and Hassan districts of Karnataka, and Kanyakumari and the Nilgiri districts in Tamil Nadu are major producers.

9. Chilli:

Chilli, also called 'red pepper', is an important cash crop in India, which was introduced from Brazil during the 17th century. Capsicum plants are herbaceous or semiwoody annuals or perennials.

Moderate rainfall of 60-125 cm and a temperature range of 10-30 °C are the suitable climatic conditions for chilli cultivation. Heavy rainfall and frost affect the crop adversely. The rainfed crop does well on deep, fertile, well drained black cotton soils and somewhat heavy clayey loams. With some irrigation provision, chilli can also be grown on sandy and light alluvial loams and red loamy soils.

Most of the states in India produce chillies to some extent. But the main producers among them are Tamil Nadu, Andhra Pradesh, Rajasthan and Maharashtra.

10. Cardamom:

Cardamom (Elettaria cardamo- mum) is considered as the 'Queen of Spices'. It is mainly used for flavouring or medicinal and masticatory purposes. The seeds contain two-eight per cent of a strongly aromatic volatile oil as cardamom consists of dried capsules of the fruit of the same name.

The cardamom plant thrives best in tropical forests at altitudes ranging from 600 to 1,500 m, receiving a well distributed rainfall of over 150 cm and a temperature range of 10-35 °C. It thrives best in the shade provided by the forest trees. It is highly sensitive to wind and drought and, therefore, areas likely to be affected by these conditions are unsuitable for its growth. The crop is raised chiefly on well drained rich forest loam and red, deep, good textured lateritic soils having plenty of humus or leaf mould.

11. Ginger:

Ginger (Zingiber officinale) is mainly grown for its aromatic rhizomes, and used as spice as well as medicine. Ginger is believed to be the native of South-East Asia.

Ginger is a tropical crop requiring high temperatures and enough rainfall (125-250 cm) or irrigation. A certain amount of shade is considered to be favourable for plant growth. It may be grown alone or mixed with shade-giving plants such as banana, pigeon pea, tree castor and cluster bean (guor). Rich and well drained soil is suitable for it. Sandy or clayey loams and red loams and laterites of the Malabar Coast are ideal soils.

Kerala and Meghalaya are major producers. Himachal Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Uttar Pradesh, Orissa, Rajasthan and West Bengal also produce ginger.

12. Turmeric:

Turmeric (Curcuma longa) is the dried rhizome of a herbaceous perennial and a native of India or China. An important condiment and a useful dye it is used in drug and cosmetic industries.

Warm and humid climate is essential for turmeric crop. In regions of heavy rainfall tracts of the west coast, it is grown as a rainfed crop and in other areas it is cultivated under irrigation. Turmeric thrives in well drained, fertile sandy and clayey, black, red or alluvial loams rich in humus and uniform in texture. Rich loamy soils, having natural drainage and irrigation facilities are the best. It cannot stand water stagnation or alkalinity.

Andhra Pradesh and Tamil Nadu are the main contributors of turmeric. Other major producers are Bihar, Orissa, Maharashtra, Meghalaya and Uttar Pradesh.

13. Coconut:

Coconut (Cocos nucifera), a perennial palm, is grown extensively in numerous islands and also in the humid coastal tracts of tropical countries. The coconut palm, known as the Kalpa Vriksha or the tree of heaven, is an important tree providing nuts, timber, fibre, oil and leaves used for various purposes. It is mainly cultivated for the nuts from which two important commercial producers are derived, namely oil and oil cake. Coconut husk is used to make coir or coconut fibre. Its timber and the shells of its nut are used as fuel.

14. Arecanut:

Areca catechu, commonly known as arecanut or betelnut, is the product of areca or betelnut palm. It is well known for its consumption for masticatory purpose in India and the Middle East. It originated probably in the Sunda Islands. It is now reported to be grown in only four countries namely India, Bangladesh, Sri Lanka and Malaysia.

Areca is a tall stemmed erect palm, which flourishes in regions of heavy well-distributed annual rainfall of 180 cm or more and high temperatures of 15 °C to 35 °C, in a variety of soils—the laterite soils of the west coast, the red loamy soils of the Mettupalayam region—Tamil Nadu and Kerala—the alluvial soils of Assam and West Bengal and the loam of Orissa. The area, however, should be deep and well-drained without a high water table.

The chief pockets of production are distributed in Kerala, Karnataka and Assam where it is grown extensively and to a smaller extent in Maharashtra, and West Bengal.

CONCLUSION

Humid tropical climate is mainly suitable for coconut crop. Among the climatic factors affecting the palm rainfall appears to be the most important. It must range between 100 and 225 cm per annum. The palm can withstand even higher rainfall provided the soil is well drained. Regions with long and dry spells are not suited to its growth.

The optimum mean annual temperature for its best growth and maximum yield is about 27 °C with diurnal variation of 6 °C to 7 °C. Frost and low humidity adversely affect the growth and yield of the palm. Coconut does best on sandy loams along sea coasts and in adjoining river valleys. It also grows on red loams, light grey soils, light black soils and peaty soils.

Coconut palm is a cross pollinated perennial crop. Its saplings are raised in nurseries before they are transplanted to permanent sites about one year later. The planting in the nurseries is done before the outset of the monsoon. The tree begins to yield fruit when it is six-seven years old and from tenth year onwards it gives full yield.

India is a leading coconut producing country in the world. Main producers are Kerala, Tamil Nadu, Karnataka and Andhra Pradesh in that order. Other states producing coconut are Maharashtra, Orissa, and West Bengal.

India became the second largest producer of coconuts after having been in the third place for a long while. Programmes have been undertaken for product diversification to broaden demand and to find new export avenues.

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