DISTRIBUTION AND PRODUCTION OF CROPS IN INDIA-A STUDY

MAHESH.K.N.
RESEARCH SCHOLAR
DEPARTMENT OF BOTANY
SRI CHHATHRAPATHI SHAHU JI MAHARAJ UNIVESRSITY KANPUR-UTTAR PRADESH
DR.PRABHAKARA SHINDE.K.
RESEARCH GUIDE

ABSTRACT

The North-Eastern Plains zone consisting of eastern Uttar Pradesh, Bihar, West Bengal, Assam, Orissa, Manipur, Tripura, Nagaland, Meghalaya, Mizoram, Arunachal Pradesh and Sikkim. Here also Triticum aestivum is grown. Due to late harvesting of paddy, most of the sowing of wheat is generally done towards the latter half of November and in the first fortnight of December. Harvesting is done in March-April. Rice (Oryza sativa) is the leading crop of India and its growth area stretches from 8° N latitude to 34° N latitude. Rice is also grown in areas below sea level as in the Kuttanad region of Kerala. In Andhra Pradesh the deltas of Krishna and Godavari and the adjoining coastal plains form one of the most important rice tracts in the country. Rice is grown both in kharif and rabi seasons. The districts of the East and West Godavari, Kurnool, Anantpur, Krishna, Srikakulam, Visakhapatnam, Nellore and Cuddapah are the main places where rice is largely raised. Uttar Pradesh and Uttarakhand contribute about 35 per cent of total production and are the leading wheat-growing states. Wheat lands are concentrated mainly in the Doabs between the Ganga and the Ghagra Rivers and between the Ganga and the Yamuna. The largest wheat- producing district is Gorakhpur followed by Meerut, Bulandshahr, Etawah, Moradabad, Shahjahanpur, Nainital, Jhansi, Hamirpur and Banda. Thus the crop is concentrated in the northwestern and mid-western districts where rainfall and irrigation facilities are better.

KEY WORDS- North-Eastern, Harvesting, Rice, Srikakulam, Shahjahanpur, Ganga, Wheat

INTRODUCTION

1. Food Crops:

Food crops cover most of the total cropped area in the country and contribute to about 50 per cent of the total value of agricultural production.

They are grown throughout the country either as a sole crop or in combination with other crops.

2. Rice:

Rice (Oryza sativa) is the leading crop of India and its growth area stretches from 8° N latitude to 34° N latitude. Rice is also grown in areas below sea level as in the Kuttanad region of Kerala.

In Andhra Pradesh the deltas of Krishna and Godavari and the adjoining coastal plains form one of the most important rice tracts in the country. Rice is grown both in kharif and rabi seasons. The districts of the East and West Godavari, Kurnool, Anantpur, Krishna, Srikakulam, Visakhapatnam, Nellore and Cuddapah are the main places where rice is largely raised.

In Assam rice is the main food crop. It is raised in the Brahmaputra valley including Goalpara, Kamrup, Darrang, Lakhimpur, Sibsagar and Nowgong districts and the Barak valley in Cachar district. A substantial amount of the crop is produced under shifting cultivation system, locally called jhum. In Assam the winter crop is the most important followed by the autumn and the summer crop.

In Bihar the main regions of rice cultivation are Shahabad, Champaran, Gaya, Darbhanga and Purnia, while Santhal Parganas, Ranchi and Singhbhum are the main rice producing centres of Jharkhand. In Bihar and Jharkhand, autumn rice is sown in May-June and harvested in September. But winter rice is sown during May-June, transplanted in June-July and harvested in October-November.

Over 90 per cent of Orissa's rice comes from Sambalpur, Dhenkanal, Cuttack, Puri, Balasore, Ganjam, Kendrapara, Koraput, Mayurbhanj, Bolangir. Rice occupies about 58 per cent of the state's total cropped area.

In Uttar Pradesh, the rice cultivation is confined to Saharanpur, Deoria, Gonda, Bahraich, Basti, Rai Barelli, Lucknow, Varanasi and Gorakhpur. The crop is extensively grown in the eastern and north-eastern parts.

In Uttarakhand, rice is grown in Terai region which includes Dehradun also. Rice is also cultivated on the slopes of the lesser and middle Himalayas where it is grown under terracing.

In Madhya Pradesh most of the crops are grown in Balaghat, Raigarh and Betul districts, while Raipur, Bilaspur and Surguja districts are main rice growing regions of Chhattisgarh. Rice is largely raised in Tapti, Mahanadi and Narmada valleys.

In Tamil Nadu, north Arcot and Thanjavur districts in the Cauvery delta account for 60 per cent of the state's production. Chingleput, Tirunelveli, Tiruchirapalli and Ramanathapuram are other leading districts.

Rice in West Bengal accounts for more than 60 per cent of the sown area in every district. The winter crop (aman paddy) is the most important accounting for over two-thirds of the state's production followed by the autumn crop (aus paddy). However, there has been greater emphasis on the cultivation of high yielding varieties under the summer crop (boro paddy) particularly in the irrigated tracts. Cooch Behar, Jalpaiguri, Bankura, Midnapore, Dinajpur, Burdwan and Darjeeling are important districts for rice production.

Punjab has become a major rice producing state with the help of irrigation. Patiala, Jalandhar, Amritsar and Faridkot districts are the areas for rice cultivation.

3. Wheat:

Next to rice, wheat (Triticum) is the most important food crop. The germ wheat (Triticum) has several species, viz., Triticum durum, Triticum aestiyum L., Triticum compactum, Triticum spelta, Triticum dicoccum, etc. However, in India the common bread wheat varieties are Triticum aestiyum L., the macaroni wheat (Triticum durum) and Emmer wheat (Triticum dicoccum). Triticum dicoccum is grown on a. very restricted scale in Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu where it is known under the names of popaliya, khapli, rava, godhumalu and samba respectively.

Triticum durum is the second most important wheat specie grown in the country. This specie is grown mostly under rainfed conditions in Madhya Pradesh, parts of Gujarat and Rajasthan, Maharashtra and Karnataka. Only recently, with the development of dwarf high yielding varieties, some area has come under dwarf durum in Punjab, central and peninsular India. Good quality pasta wheats suitable for macaroni, spaghetti, vermicelli and noodles are now available.

Based on the agro-climatic conditions, the country is broadly divided into five wheat zones:

1. The North-Western Plains consisting of the plains of Punjab, Haryana, Jammu, Rajasthan and western Uttar Pradesh. Here the irrigated wheat is planted in November and the rainfed wheat towards the end of October. Harvesting generally starts by the middle of April and goes up to the beginning of May. This zone is most important among the five zones and Triticum aestivum is mostly grown here.

2. The North-Eastern Plains zone consisting of eastern Uttar Pradesh, Bihar, West Bengal, Assam, Orissa, Manipur, Tripura, Nagaland, Meghalaya, Mizoram, Arunachal Pradesh and Sikkim. Here also Triticum aestivum is grown. Due to late harvesting of paddy, most of the sowing of wheat is generally done towards the latter half of November and in the first fortnight of December. Harvesting is done in March-April.

3. The Central zone consisting of Madhya Pradesh, Rajasthan and Bundelkhand area of Uttar Pradesh. Both T. aestivum and T. durum are grown in this zone.

4. The Peninsular zone consists of the southern states of Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. All the three species, namely, aestivum, durum and dicoccum are gown in this zone.

5. The Northern Hill zone consists of the hilly areas of Kashmir, Himachal Pradesh, Uttar Pradesh, West Bengal, Assam and Sikkim. In this zone, the sowing is done in October and the harvesting is done in May/June.

About 80 per cent of the country's total wheat output comes from Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan and Bihar while the remaining comes from West Bengal, Gujarat, Himachal Pradesh, Maharashtra, Jammu and Kashmir, and Karnataka.

Uttar Pradesh and Uttarakhand contribute about 35 per cent of total production and are the leading wheat-growing states. Wheat lands are concentrated mainly in the Doabs between the

Ganga and the Ghagra Rivers and between the Ganga and the Yamuna. The largest wheat- producing district is Gorakhpur followed by Meerut, Bulandshahr, Etawah, Moradabad, Shahjahanpur, Nainital, Jhansi, Hamirpur and Banda. Thus the crop is concentrated in the northwestern and mid-western districts where rainfall and irrigation facilities are better.

Increasing trend in the wheat production in India is mainly attributed to Punjab. Wheat is an important crop in almost every district—Jalandhar, Ludhiana, Faridkot, Bhatinda, Patiala, Gurdaspur, Amritsar, Sangrur, etc. The main factors for its production are abundance of fertile alluvium, large irrigational facilities and higher yield per hectare.

Haryana is another important producer of wheat.

The hectare yield in Madhya Pradesh is low mainly due to lack of irrigational facilities. The area west of the line joining Katni, Jabalpur and Nagpur raises most of the crop.

Paucity of rainfall and irrigational facilities restrict wheat cultivation in Rajasthan where Shriganganagar, Kota, AJ.war, Tonk, Sawai Madhopur, Bharatpur, Jaipur, Chittorgarh, Udaipur and Pali districts are the leading districts for production of wheat.

West Bengal has registered an increase both in area and production of wheat. Most of the production comes from Birbhum, Burdwan, Murshidabad districts. Gujarat and Bihar have also registered an increase in production. The important districts for production in Gujarat are Mehsana, Rajkot, Kheda, Sabarkanta, Junagadh and in Bihar, we have Champarcm, Gaya, Monghyr, Patna, Saharsa, Muzaffarpur and Shahabad districts.

4. Maize:

Maize is a foodstuff as well as a raw material for starch, glucose, dextrose, sorbitol, germ oil, fibre and gluten products with application in industries such as alcohol, textiles, paper, cosmetics, and pharmaceuticals. In India maize occupies third place among cereals after wheat and rice. It was introduced by the Portuguese in the 17th century. Maize is grown extensively in regions of humid subtropical climate. It may grow even in desert climate provided there is irrigation.

There are three distinct seasons for cultivation of maize in India: main season is kharif, but its cultivation is done during rabi in peninsular India, Jharkhand and Bihar, and in spring in northern India. Higher yields have been recorded in the rabi and spring crops.

Sowing in rows is generally done with drill or by dropping the seed behind the plough. The practice of broadcasting, particularly under rainfed conditions and for fodder maize, is still prevalent in several parts of the country.

Maize is largely grown in the upper Ganga valley, north-east Punjab and south-western Kashmir and southern Rajasthan. Sixty per cent of the total production of maize in the country comes from the states of Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Rajasthan and Bihar. Punjab, Jammu and Kashmir, Gujarat, Himachal Pradesh and Andhra Pradesh also grow maize.

5. Jowar:

Jowar or great millet (also called sorghum) is the most important food and fodder crop of dryland agriculture.

The leading jowar producing states are Madhya Pradesh, Chhattisgarh, Maharashtra, Karnataka and Andhra Pradesh, accounting for 75 per cent of the total area and 80 per cent of the total production in the country. Remaining production comes from Tamil Nadu, Uttar Pradesh, Gujarat and Rajasthan.

6. Bajra:

This crop is cultivated for grain as well as for fodder in India. It is mainly used as a staple food in north-western Rajasthan and Gujarat.

Bajra is grown under warm and dry climatic conditions. It is grown mostly during June to October, as a winter crop from November to February or as a summer crop from March to June. It is suited to areas of low rainfall. It is seldom grown in areas where rainfall exceeds 100 cm. The ideal temperature for its growth is between 25 °C and 35 °C.

It is generally grown on a wide range of soils such as sandy loams of Punjab and Uttar Pradesh and the light soils of Rajasthan and northern Gujarat, heavy clays of Andhra Pradesh, Tamil Nadu and very light soils as in Marathwada and the shallow black, red and light soils of the Deccan and southern India. However, it is suited to light soils.

The crop is grown either as a pure or a mixed crop. As a mixed crop it is grown with cotton, jowar or ragi. It fits into an intensive cropping pattern of three or four crops per year. The preparation of land is done on a very limited scale, since the traditional areas of cultivation are of light texture.

Rajasthan, Maharashtra, Gujarat, Uttar Pradesh, Haryana and Andhra Pradesh are important bajra-growing states.

7. Ragi:

An important cereal in Karnataka, ragi is used by millions as a staple food. It is extensively grown in Karnataka, Tamil Nadu, Andhra Pradesh, Orissa, Bihar, Gujarat, and Maharashtra and in the hilly regions of Uttaranchal and Himachal Pradesh.

Ragi is grown in areas with rainfall ranging from 50 to 100 cm and in irrigated areas. It is also raised as a summer crop and as a rabi crop in southern India, but mostly during kharif in northern India. The soils favourable to this crop are red loams, black and sandy loams in the south and alluvial soils in Gujarat, Uttar Pradesh, Bihar and Jharkhand.

The irrigated crop is raised throughout the year in Karnataka, Tamil Nadu and Andhra Pradesh. The crop flowers in 60-80 days and matures in about 135 days depending on the tract and the variety. The seeds are sown broadcast or with the help of drills and even transplanted on well prepared friable beds ploughed several times.

8. Barley:

Barley is an important rabi cereal in many parts of northern India. It is of minor importance in the south although it can be grown successfully wherever wheat can be grown. It is used as a bread grain and feedstuff for animals.

Barley does not thrive well in regions of high humidity and high temperatures. It is ideally suited to areas where rainfall is either low, even uncertain. A rainfall of 75 cm per year is good for the plant. Barley does best in areas where the winter is cool and the growing period lasts about five months. Areas that are always warm and moist are not suitable for this crop.

Barley is generally grown on light soils, although well-drained medium loams of moderate fertility and texture are most suitable. It is grown widely on a variety of soils, ranging in their texture from sandy to heavy loams in the Indo-Gangetic plains and on terraced slopes in the hills. It is more tolerant to alkali and saline conditions than other rabi cereals.

For raising a crop under dryland farming, soil and water conservation measures such as deep ploughing and dusking after each rainfall, levelling and bunding should be done for crop growth.

Barley is sown as broadcast or with the help of a drill. The best depth for sowing is three-five cm under irrigation and five-eight cm under rainfed conditions, depending upon the initial soil moisture.

Barley is mainly grown in northern regions, viz., Haryana, Punjab, Rajasthan, and Himachal Pradesh and also in Jharkhand. Madhya Pradesh, Chhattisgarh and Jammu and Kashmir also contribute to barley production.

9. Pulses:

Pulses are an important source of protein in vegetarian diets. Being leguminous plants, they also restore soil fertility by fixing atmospheric nitrogen. Pulses are grown on marginal rainfed lands and there are few high- yielding varieties.

10. Gram:

Gram (Cicer arietinum) is the most important pulse crop. It is generally a rabi crop in the unirrigated tracts of the Great Plains. The main contributors are Punjab, Haryana, Uttar Pradesh, Rajasthan, Madhya Pradesh, West Bengal and Maharashtra. Gram is generally grown as a dry crop in the rabi season. Sometimes it is also grown as a regularly or partially irrigated crop. It is best suited to areas having low to moderate rainfall and a mild cold weather. Excessive rain soon after sowing or at flowering does great harm.

Gram is grown alone or mixed with wheat, barley, linseed, safflower or mustard. The preparation of land is the same as for wheat, except that no fine tilth is attempted and the soil is not compacted but is left somewhat cloddy. The crop is rarely manured but the application of phosphatic fertilisers has been shown to increase the grain yield.

11. Tur:

Tur (Cajanus cajan) or arhar is the most important pulse crop next to gram. It is grown as a dry crop mixed with cereals like jowar, bajra and ragi.

Tur can be cultivated both in hot-moist and dry climates. It is chiefly sown in the kharif season soon after the rains in June-July. Healthy sunny weather during the flowering and ripening stage is needed for copious setting of fruit.

It is largely grown in Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Andhra Pradesh, Orissa, Bihar, Tamil Nadu and Gujarat.

12. Black Gram:

Black Gram (Phaseolus mungo), green gram (.Phaseolus aureus) and lentil (Lens culinaris) are also important pulse crops. The first two are kharif crops grown as subsidiary to cotton, jowar, maize and millets. In some parts of peninsular India they are grown to replenish soil fertility after sugarcane or rice crops. Lentil is a rabi crop often grown mixed with barley or mustard. The pulses can be grown in light laoms, alluvials, black or red soils, and are usually cultivated under rainfed conditions.

13. Commercial (Cash) Crops:

These crops comprise the crops other than food grains, which bring cash to the cultivator. They are produced mostly for sale either in the raw form or in a semi- processed form. Cash crops grown in India include sugarcane, tobacco, fibre crops and oilseeds. Indian agro-climatic conditions are highly favourable for the production of sugarcane which provides raw material for industries like sugar, paper and alcohol, substitute for petroleum products, and a host of other chemicals.

14. Sugarcane:

Sugarcane (Saccharum officina- rum) holds an enviable position amongst all the commercial crops. India among all countries has the largest area under sugarcane.

Sugarcane being a tropical crop grows best in areas with temperatures between 20 °C and 28 °C. A long rainy season of eight months' duration in summer with about 150 cm rainfall and short, cool, dry winter season during ripening and harvesting are ideal. For ripening it needs a cool, dry season; but where rainfall is too heavy and prolonged, the quality of the juice tends to be low, and where the weather remains comparatively warm and moist throughout the year, it does not ripen well.

Sugarcane is planted either in furrows or trenches. In northern India planting is usually done with the onset of the warm weather and is completed well before the onset of summer. Thus the first fortnight of March is the best time

for planting sugarcane in Punjab and Haryana, February in Uttar Pradesh and January-February in Bihar. In Maharashtra and parts of Karnataka, it is done in December-February for the 12-month crop, in October-November for the 15 to 16-month crop, and in July-August for the 18-month crop.

In Uttar Pradesh, Saharanpur, Bulandshahar, Shahjahanpur, Meerut, Aligarh, Azamgarh, Faizabad, Ballia, Moradabad, Jaunpur and Varanasi are important producing districts where the soil is fertile and irrigation facilities ample.

In Punjab it is raised in Amritsar, Jalandhar, Ferozepur, Gurdaspur, Sangrur, Patiala and Ludhiana districts.

In Haryana, the important producers are Karnal, Ambala, Rohtak, Hissar and Gurgaon districts.

Bihar raises sugarcane in Champaran, Saran, Darbhanga, Muzzaffarpur, Gaya, Bhagalpur, Patna, and Purnia districts.

Andhra Pradesh raises sugarcane in the coastal districts of Srikakulam, Visakhapatnam, East and West Godavari and Krishna and in southern districts of Nizamabad.

In Tamil Nadu, cane is cultivated under irrigation in the Cauvery basin and Mettur dam areas. North and South Arcot, Ramanathapuram, Madurai, Coimbatore, Tiruchirapalli are important producing districts.

In Maharashtra it is largely grown in black soil under irrigation. Kolhapur, Nasik, Pune, Ahmednagar, Satara, Sangli, and Sholapur districts are important producers.

In Karnataka it is mainly raised in the areas of Krishnarajasagar dam, upper Cauvery and Tunghabadra dam. Shimoga, Raichur, Mandhya, Kolar, Bellary and western Belgaum districts are important producers.

15. Cotton:

Cotton (Gossypium) India grows on a commercial scale varieties falling under all the four cultivated specie of Gossypium—G. hirsutum, G. barbadense, G. arboreum and G. herbaceum. The predominant species cultivated is G. hirsutum. On the basis of length of fibre cotton is classified into short, medium and long. If the length of the fibre is less than 1 inch it is called short staple cotton. If the length of fibre is more than 11\8 inches it is termed as long staple.

Being a tropical and subtropical crop, the minimum temperature required for successful germination of seeds is 15 °C. The optimum temperature falls below 21 °C. Cotton plant needs sufficient rainfall in the early stages of growth, but a sunny and dry weather after flowering. Cotton is essentially grown as a kharif crop in major parts of the country

CONCLUSION.

In most areas the irrigated crop is sown from March-May and the rainfed crop in June-July with the commencement of the monsoon. Cotton is grown on a variety of soils. It requires a soil amenable to good drainage, as it does not tolerate waterlogging. Black and medium black soils are considered ideal for cotton.

It is grown as an irrigated crop in the alluvial soils.

The pattern of production has changed over the years with about 40 per cent of production coming from extra long staple cotton, with short staple variety declining.

Gujarat produces most of the cotton. Ahmedabad, Mehsana, Bharuch, Kheda, Vadodara, Sabarkanta, Surat, Panchmahals and Amreli are the main producing districts.

In Maharashtra the principal cotton growing districts are Buldhana, Akola, Yavatmal, Amravati, Wardha, Aurangabad, Nanded, Dhul, Jalgaon, Nagpur, Prabhani and Beed.

In Madhya Pradesh and Chhattisgarh, Indore, Ujjain, Ratlam, Bhopal, Raipur, Dewas, Rajgarh are the main producers.

The cotton growing areas in Tamil Nadu are Coimbatore, Salem, Madurai, Tiruchirapalli, Ramanathapuram, Tirunelveli, South Arcot and Chingelput districts.

The principal producing areas in Karnataka are the districts of Bellary, Hassan, Bijapur, Gulbarga, Mysore, Shimoga, Dharwar, Raichur, Chitradurg, and Chikmagalur.

In Andhra Pradesh, Kurnool, Cuddapah, Adilabad, Anantpur, Guntur and Hyderabad are important districts for cotton.

The main cotton growing districts in Punjab are Patiala, Ludhiana, Gurdaspur, Sangrur, Ferozepur, Hoshiarpur, and Bhatinda. In Haryana, Gurgaon, Karnal, Rohtak, Ambala and Hissar grow cotton.

Saharanpur, Muzaffarnagar, Meerut, Bijnor, Moradabad, Aligarh, Bulandshahar, Mathura, Agra, Etawah, Mainpuri and Rampur districts of Uttar Pradesh grow cotton.

REFERENCES

- De Datta, S.K. and A.M. Baltazar. 1996. Weed control technology as a component of rice production system. **In:** Weed management in rice. FAO Plant Production and Protection Paper No. 139, Oxford and IBH publishing Co Pvt Ltd., New Delhi.

- De Datta, S.K. and P. Bernasor. 1973. Chemical weed control in broadcast seeded flooded tropical rice. **Weed Res., 13:** pp. 351- 352.
- De Datta.S.K. 1986. Technology development and spread of direct seeded flooded rice in South East Asia. **Fertil. Res., 9(3):** 171-186.
- Deepa Thomas, E.K., Lalitha Bai, R. Ilangovan and I. Johnkutty. 2012. Weed management in dry direct seeded rice. **In:** Proc. of Biennial Conference of Indian Society of Weed Science on "Weed threat to agriculture, biodiversity and environment", April 19-20, Kerala Agricultural University, Thrissur, Kerala, India**.** p. 87.
- Deepa, S. and R. Jayakumar. 2008. Studies on uptake of N, P and K as influenced by different rates (doses) of pretilachlor in transplanted rice. **Madras Agric. J., 95 (7-12):** 333-338
- Deepthi Kiran, Y., D. Subramanyam and V. Sumathi. 2010. Growth and yield of transplanted rice (*Oryza sativa*) as influenced by sequential application of herbicides. **Indian J. Weed Sci., 42(3&4):** 226-228.
- Devendra Singh, Nawalesh K. Sinha, D.K.Roy, D.N. Pandey and H. Singh. 2008. Effect of different planting geomentry and weed management in transplanted rice. **In:** Proc. of Biennial Conference on Weed Management in Modern Agriculture: Emerging Challenges and Opportunities, February 27-28, 2008. Bihar. Patna. p. 72.
- Devi, M.P., C.N. Reddy, N.V. Reddy, K.N. Reddy and S.N. Rao. 1997. Degradation of butachlor in transplanted rice residues in soil, straw and grain of rice. **J. Res., 25(4):** 13- 15.
- Social Media ICT