

A Study of Sandalwood Cultivation and Agricultural Policy in Karnataka State

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Abstract –

The Department of Agriculture implements various schemes and programs of the Central and State Governments for the overall welfare of the farming community and ensures timely supply of essential inputs such as seeds, fertilizers, plant protection chemicals, farm implements, micro irrigation units along with effective transfer of technology. Through demonstration to get maximum production from available natural resources like soil, water etc. This improves the economic condition of the farming community and fulfills the food needs of the people. Although the contribution of the agricultural sector to the Gross State Domestic Product is small, agriculture is the largest employment generating activity.

Introduction –

In 2021-22 total cultivated area under food crops was 83.33 lakh hectares and food production was 143.68 lakh tonnes. In 2022-23 it is estimated (according to the second forecast) that 81.56 lakh hectares, area under food crops will produce 134.89 lakh tonnes. Oilseeds production is estimated at 12.18 lakh tonnes in 2022-23 as against 11.21 lakh tonnes in 2021-22. Similarly, cotton production is estimated to be 21.48 lakh in 2022-23 as against 19.53 lakh cotton in 2021-22.

Types of Soils in Karnataka –

Eleven soil groups are found in Karnataka. Entisols, Inceptisols, Molisols, Spodosols, Alfisols, Ultisols, Oxisols, Aridisols, Vertisols, Andisols and Histosols. According to the agricultural potential of the soil, soil types are divided into six types. Red, lateritic (lateritic soils are found in Bidar and Kolar districts), black, silt-coalville, forest and coastal soils. The following are the common types of soil groups found in Karnataka.

1. Red soil - Red clay soil, Red gravelly clay.
2. Black soil - Gravelly soil, Loose, Black soil, Basalt deposits.
3. Lateritic soil - lateritic gravelly soil, lateritic soil.
4. Alluvio - Colluvial Soils: Saline, Saline and Sodic.
5. Forest soil - Brown forest soil.
6. Coastal Soil - Coastal alluvial soil.

Weather and Rainfall – The post-monsoon (withdrawal period) and winter seasons are generally pleasant throughout the state. April and May are hot, very dry and generally uncomfortable. Weather in June is oppressive due to high humidity and temperature. The next three months (July, August and September) are somewhat comfortable as the daytime temperatures drop, although the humidity is very high. The highest temperature recorded at Raichuru was 45.6 °C (114 °F) on 23 May 1928. The lowest temperature recorded at Bidar was 2.8 °C (37 °F) on 16 December 1918.

About 80% of the rainfall in the state comes from southwest monsoon. Annual rainfall across the state ranges from a low of 50 cm (20 in) to an abundant 350 cm (140 in). The southern half districts of Vijapura, Raichuru, Ballari, Yadgiri and Kalburgi receive the lowest rainfall of 50 to 60 cm (24 in) while the West Coast region and Malenadu receive the highest rainfall.

Karnataka is divided into three climatic divisions:

1. **Coastal Karnataka** – This zone includes Uttara Kannada, Udupi and Dakshina Kannada districts. It is a high rainfall region and receives an average of 3,638.5 mm (143.25 in) of rainfall annually, more than the rest of the state.
2. **North Internal Karnataka** – This zone includes the districts of Belagavi, Bidar, Vijayapura, Bagalkot, Haveri, Gadaga, Dharwad, Kalburgi, Kopala, Ballari, Raichuru, Yadagiri and Vijayanagara. It is an arid region and receives only 711.5 mm (28.01 in) of average rainfall annually.

3. **South Karnataka** - Bengaluru Urban, Bengaluru Rural, Ramanagara, Kolar, Chikkaballapura, Mandya, Mysuru, Chamarajanagara, Kodagu, Tumakuru, Hasana, Chitradurga, Davanagere, Chikkamagaluru and Shivamagaluru zones receive an average annual rainfall of 1,064.8 mm (41.92 in).

Characteristics of Agriculture in Karnataka State –

1. **Land Holdings** – According to the Census of Agriculture 2015-16, there are 86.81 lakh farms covering an area of 118.05 lakh hectares. The average holding size is 1.36 hectares. Minor and small holdings constitute 80% of the total holdings and 44% of the total operated area while Cerni medium, medium and large holdings account for 20% of the total and their operational land is 56% of the total operational area.
2. **Uses of Land** - The net area under cultivation in 2020-21 is 114.53 lakh hectares which is 60.12% of the total geographical area of 190.50 lakh hectares. Up to 3.93 lakh hectare geographical area is cultivable waste 7.43 lakh hectare area is barren and cultivable land, 8.72 lakh hectare. There is a permanent pasture. The government is implementing a multi-pronged strategy focusing on seven growth factors to double farmers' income. Improved crop productivity, livestock productivity, cost-effective production processes, increased cropping intensity, crop diversification favouring high value crops, access to better prices and shift to non-farm business.
3. **Crop composition** - The state is divided into 10 agro-climatic zones based on percentage of rainfall, soil quality, altitude above sea level and major crops. Due to these diverse agro-climatic features, almost all cereals, pulses, oilseeds and commercial crops are grown in different parts of the state. Farmers in Karnataka are very innovative and take initiative in diversifying according to market trends. Average area of agricultural crops grown in three seasons (2017-18 to 2021-22). Kharif (77.17 lakh hectare), Rabi (24.72 lakh hectare) and summer (6.14 lakh hectare) is 108.03 lakh hectare. Cereals, pulses, oilseeds, cotton, sugarcane and tobacco account for 46%, 31%, 12%, 7%, 5% and 16% respectively. Crops such as maize, wheat, tur, green gram and groundnut have shown an upward trend in recent years, while sorghum, bajri, bengal grain, sorghum and tobacco have shown a decline.
4. **Distribution of Fertilizers** - 14.9 lakh tonnes of fertilizers were distributed to farmers as per the estimated requirement of different grades of fertilizers during Kharif 2022 and Rabi/Summer 2022-23 (up to November 2022) out of which 8.98 lakh tonnes are Nitrogen (N), 450 lakh tonnes are Phosphorus (P) and 141 lakh tonnes of potash (K). To overcome the shortage of fertilizers, buffer stock of fertilizers, DAP-10,788 tonnes, MOP 2,431 tonnes, Complex-15,489 tonnes, Urea-10.273 tonnes, a total of 38 tonnes of fertilizers have been stocked up to 2511:2022. This system has helped in smooth supply of fertilizers in the state in the demand situation.
5. **Distribution of Seeds To Farmers At Consensive Price** - About 405 lakh quintals of seeds of paddy, ragi, sorghum, maize, millet, cowpea, gram, black gram, red gram, groundnut in Kharif 2022. Wheat, Sunflower and Soybean have been distributed and a subsidy amount of Rs.96.32 crore has been utilized and 11.01 lakh farmers have benefited. During Rabi/Summer 2022-23, 370 lakh quintal seeds have been distributed and a subsidy amount of Rs.101.65 crore has been utilized for this and 5.15 lakh farmers have benefited.
6. **Mechanization of Farming** - Mechanization helps to reduce the drudgery of farm operations. Saves time, and improves efficiency and farm productivity. Rs.4064.41 lakh has been spent till December 2022-23. An amount of Rs.6000 lakhs has been provided out of which Rs.93.58 lakhs have been released in 2022-23. So far 39.89 lakh farmers have benefited.
7. **Agricultural Processing** - Agricultural Processing Scheme is being implemented under which various agro-processing equipments are made available to farmers, self-help groups and farm women. Subsidized rates encourage value addition of agricultural produce and increase the income of the beneficiary. Under SCP and TSP, agro-processing units are provided to SC/ST farmer groups, women SHGs and individual farmers with assistance of 90% or a maximum of Rs.1.00 lakh. 406 persons have been benefited under Agri-Processing Scheme 2022-23 (up to December 2022).
8. **Soil Health Mission** - In Karnataka, currently, 30 soil testing laboratories (29 stationary and 1 mobile soil testing laboratory) of the Department of Agriculture are meeting the needs of farmers in the state in terms of soil testing. In addition, 291 village level soil testing laboratories have been set up under NMSA Soil Health Management with grants to selected beneficiaries. NIC – Soil Health Card (SHC) portal is used to

generate Soil Health Card. Till 30.11.2022 1,30,244 soil samples have been collected, 59,149 soil samples have been analyzed.

9. **Micro Irrigation** - During 2022-23, Micro Irrigation Program was implemented under Pradhan Mantri Krishi Sinchai Yojana (PMKSY) and Rural Infrastructure Development Fund (RIDF). In 2022-23 Rs. 21560 lakh rupees have been spent till November 2022 and 28500 lakh rupees have been released.
10. **Crop Insurance Scheme (Pradhan Mantri Fasal Bima Yojana)** - This scheme provides insurance cover and financial assistance to farmers in case of failure of any notified crop due to adverse weather, helps stabilize farm income, especially in calamity years, to protect farmers in case of crop failure due to natural causes. Claims of Rs.833.16 crores of 8,07,281 farmers have been settled in calamity 2021-22. A claim amount of Rs 256.70 crore has been settled to 5,02,080 farmers in Kharif 2022-23. A claim amount of Rs.651.06 crore has been settled to 3,34,641 farmers during the period 2021-22 under the restructured weather based crop insurance scheme for horticultural crops.
11. **Organic Farming** - At present, activities like Organic Farming Adoption and Certification, Raitha Siri Programme, Natural Farming and Savayawa Siri are being implemented in the state to promote organic farming. 26611 under the Organic Farming Adoption and Certification Programme. Areas of 16514 farmers have been additionally certified and steps have been taken to certify more farmers to achieve the set target. 50% under Raitha Siri Scheme to promote processing, grading, value addition, packing and branding of retail millets or a maximum of Rs.10.00 lakhs is being given as subsidy.
12. **PM Kisan-Karnataka Scheme** - State Govt Rs. 4,000/- in two installments under PM Kisan-Karnataka Yojana to all eligible farmers under PM Kisan Yojana of Central Government from 14.08.2019. So far the state government has spent Rs. 4821.37 crore for 50,35,650 farmers in 2022-23, the State has transferred financial assistance of Rs.
13. **Chief Minister Raitha Vidya Nidhi Program** - To encourage the children of farmers to pursue higher education, the Hon'ble Chief Minister has announced the 'Mukhyamantri Raitha Vidya Nidhi' programme. Under this program. Girls from farming families studying in class 8, 9 and 10 and boys from farming families who have completed class 10 and are pursuing higher courses in a registered educational institution/university in any part of the state are eligible for this scholarship. Scholarships will be transferred annually to bank accounts through Direct Benefit Transfer (DBT) system.
14. **Integrated Farming System** - The main objective of replication and popularization of Integrated Farming System (IFS) under RKVY in 2022-23 is to increase farmer's income through integrated farming by promoting integrated farming system consisting of mixed farming based on crops livestock and fisheries, plantation and pasture., ensuring food and income security and reducing risk from crop failure through complementary / residual production systems.
15. **New Innovation** – In the current year, emphasis is placed on secondary agriculture to enable value addition to primary agricultural produce and create more marketing opportunities with the help of farmer producer organizations to double farmers' income, "Raitha Shakti-A. 250/- per acre Diesel Subsidy Program to encourage use of agricultural machinery for maximum 5 acres and to reduce the burden of fuel expenditure, awarding independent Krishi Prastha and Krishi Pandita Prastha awards to encourage natural farming and women farmers. New schemes are being implemented to attract more women to agriculture.High-tech agriculture increases crop yields and livestock production per unit area and food security.
16. Digital technologies such as artificial intelligence (AI) and machine learning (ML), remote sensing, big data, block chain and LOT are transforming agricultural value chains and modernizing operations. In the future, adoption of digital agriculture in India is expected to increase under public-private partnership (PPP) mode.The Digital Agriculture Mission 2021-2025 aims to support and accelerate projects based on new technologies, such as AI, block chain, remote sensing and GIS technologies.

Conclusion –

Seed treatment campaign is carried out to protect crops from seed and soil borne diseases and to increase yield.Training programs are also conducted through the funds available under the scheme to create awareness among farmers about safe and judicious use of pesticides. Early monitoring, identification and guidance of farmers to reduce indiscriminate use of chemical pesticides to improve soil condition, nutritional requirements,

pest/disease identification and management and promote good agricultural practices. To do this, mobile plant health clinics have been established in all the districts of the state.

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