

GOVERNMENT OF INDIA
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF AGRICULTURE AND FARMERS WELFARE

LOK SABHA
UNSTARRED QUESTION NO. 1551
TO BE ANSWERED ON 28TH JULY, 2026

CLIMATE-RESILIENT MIXED PLANTATION SYSTEMS

1551. SHRI CAPTAIN BRIJESH CHOWTA:

Will the Minister of AGRICULTURE AND FARMERS WELFARE कृषि एवं किसान कल्याण मंत्री be pleased to state:

- (a) whether the Government has reviewed climate-resilient mixed plantation systems and the present scientific, scheme and field status in the State of Karnataka, with district-level data including Dakshina Kannada;
- (b) the details of the area, farmers, funds, facilities, demonstrations and measurable outcomes during the last three years;
- (c) the details of unit-cost, diagnostic, extension, input-supply and implementation gaps; and
- (d) the decision and timeline for a scientifically aligned, adequately funded intervention?

ANSWER

MINISTER OF STATE FOR AGRICULTURE AND FARMERS WELFARE

कृषि एवं किसान कल्याण राज्य मंत्री (SHRI RAMNATH THAKUR)

(a) & (b): As reported by the State Government of Karnataka, there is no specific scheme for climate resilient mixed plantation system in Karnataka State. The major plantation crops grown in the State are Arecanut, Coconut, Cashew, Cocoa and Oilpalm in an area of 14 lakh hectares. Climate resilient mixed plantation systems involving crops like coconut, arecanut, pepper, cocoa, nutmug, cinnamon, banana and other crops are encouraged under various schemes to improve farmers income and enhance resilience to climate variability to promote sustainable land use. Farmers are encouraged to adopt plantation based cropping system as climate resilient measure. These include intercrops,

cover crops, border crops, shade crops, mixed crops and multilevel cropping systems. Cocoa, Pepper, Nutmeg, Cardamom, Ginger, Banana are grown as intercrops in Arecanut gardens. Pepper, Cocoa, Mangosteen, Jowar, Ragi and seasonal vegetable crops are grown as intercrops in coconut orchards. Teak, Silver oak, Mahagani, Melia dubia etc., are grown as border crops. Arecanut, Coconut, Coffee, Cocoa, and Oil Palm are integrated with compatible intercrops under mixed plantation systems. This diversity acts as a natural biological buffer, reducing the impact of droughts, floods, pests and diseases. Deep rooted trees improve water and nutrient uptake, while intercrops efficiently utilize the upper soil layers. The system enhances soil health, conserves moisture, increases bio-diversity reduces production risks and provides farmers with diversified and year-around income.

Further drip and micro-sprinkler irrigation systems are being adopted on a large scale for the precise and direct application of water to the root zone, thereby reducing microclimate temperature during the summer. This practice conserves water while enhancing the growth, development, and yield of fruit and vegetable crops. During the last three years, a total expenditure of Rs. 1,047 crore has been incurred, covering 148,577 ha under the drip irrigation system benefiting 158,232 farmers.

The application of foliar nutrition is also being promoted, wherein the spraying of potassium and calcium enhances drought tolerance in vegetable crops. The application of micronutrients and secondary nutrients through foliar spraying has been recommended to farmers to improve crop yield and quality. Foliar application of nutrients during water-stress conditions facilitates the rapid absorption of nutrients, thereby promoting better crop growth.

Farmers are being encouraged to adopt rainwater harvesting through construction of farm ponds. These farm ponds enable farmers to utilize stored water during summer and drought periods for protective irrigation, thereby mitigating the adverse effects of drought. During the last three years, 2,704 farm ponds have been constructed with financial assistance of Rs. 3,655 lakh provided.

Mulching practices, using either organic crop residues or plastic mulch, are being promoted for efficient moisture conservation, weed suppression, and the maintenance of soil structure. The application of lime to correct soil acidity is also being practiced in high-rainfall regions, where excessive leaching results in acidic soils.

These cultivation practices are followed in the major plantation crops growing districts such as Shimoga, Chikkamagaluru, Uttara Kannada, Dakshina Kannada, Udupi, Hassan, Mandya, Mysore, Chitradurga, Bengaluru South, Tumkur, Kodagu.

(c): Since State Government is implementing schemes in convergence for climate resilient plantation systems, the details of unit cost, diagnostic, extension, input supply and implementation gaps are not maintained centrally.

(d): The Government through, Indian Council of Agricultural Research (ICAR) is implementing a project- National Innovations in Climate Resilient Agriculture (NICRA) in 651 districts that studies the impact of climate change on agriculture and conducts district level risk & vulnerability assessment due to climate change including the State of Karnataka. This is a scientifically aligned intervention.

Out of the 310 districts identified as vulnerable to climate change under the project, 201 have been categorized as 'High' climate-vulnerable and 109 as 'Very High' climate-vulnerable. Of the 201 'High' climate-vulnerable districts, 12 districts, namely Bagalkot, Gulbarga, Bidar, Koppal, Dharwad, Bellary, Tumkur, Kolar, Bangalore (Rural), Hassan, Mysore, and Chamarajanagar, fall in the State of Karnataka. Of the 109 'Very High' climate-vulnerable districts, 3 districts, namely Gadag, Haveri, and Chitradurga, fall in the State of Karnataka. To combat recurring rainfall deficits in Karnataka, location specific climate resilient technologies, such as, crop and cropping systems including climate resilient mixed planation systems, livestock production system were demonstrated to farmers in Chamarajanagar, Chikkaballpur, Chitradurga, Gadag, Gulbarga, Haveri and Tumkur Districts, apart from capacity building of the farmers.
