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Summer Field School [Hybrid] on
MOUNTAIN ECOSYSTEMS AND RESOURCE MANAGEMENT
11-20 September, 2023

SPEAKER PARTICIPANT'S PROFILE

	Dr. Ambily K.K. *Senior Scientist (Soils &Agricultural Chemistry)* Agronomy/Soils Division Rubber Research Institute of India Rubber Board, Kottayam Kerala, INDIA Tel: +91-9447515465 Email: ambili@rubberboard.org.in
Highest Education	Ph.D. (Chemistry in Rhizosphere Chemistry of Natural Rubber to Acidic Soil Conditions), MSc (Analytical Chemistry)
Personal Statement	Warm Greetings!! to all and the lively activity full days ahead. Before the onset I wish to express my Happiness and Best Wishes for the recent future Summer School Trainings entitled topic on 'Mountain Ecosystems and Resource Management', Spain. Also my gratitude to give me an opportunity to become a part of the immense scientific programme. Let me introduce myself as a Doctor in Chemistry in Rhizosphere Chemistry and Scientist (Soils & Agricultural Chemistry), Agronomy/Soils Division of Rubber Research Institute of India, Kerala, India. Graduated my Master of Science in Analytical Chemistry as Post graduation in 1992. Graduated for Bachelor of Science in Chemistry in 1990. In 2021, defended my thesis on "Rhizosphere Chemistry and adaptations of Natural Rubber (*Hevea brasiliensis*) to acidic soil conditions and received my PhD Degree in Chemistry in Rhizosphere Chemistry. In 1993 started my carrier as Scientist in Agronomy/ Soils Division of Rubber Research Institute of India, Kerala and engaged in the research on soil aspects as soil fertility and fertilizer recommendation for rubber and plant nutrition related to yield, potassium and drought tolerance of Rubber plants and plantation aspects and environmental studies like carbon sequestration potential of clones. Involved in the development of online fertilizer recommendation programme "RUBSIS- Rubber Soil Information System" for offering online fertilizer recommendation for rubber

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	and a mobile app on RUBSIS, Mobile app on CRISP-Comprehensive Rubber Information Platform. 25 related publications including Research articles in Peer reviewed journals, National and International seminars/conferences, and book chapter and received training programme of the concerned fields, overseas training programme on 'Plant Ionomics for Rubber ' at Agri-Life Research & Extension Center, Beaumont under Texas A & M University, USA. Member of ISPC (Indian Society for Plantation Crops) and ISSS (Indian Society of Soil Science). Offered training programme to plantation managers, farmers, students and other stakeholders on soil/plant nutrition, rubber soils, and fertilizer recommendation for rubber.
Paper/Presentation Title (Unpublished Research or Review or Field Work)	*Soil Organic Carbon Changes and Role of Vegetation to Mitigate SOC Decline under Natural Rubber Tree (*Hevea brasiliensis*) Plantations*
Keywords	Soil organic carbon changes; Decline in SOC; Vegetation; Mitigation
Abstract (100-300 words)	Soil organic carbon (SOC) is an important soil quality parameter and changes of SOC are an indication of soil health. Rubber (*Hevea brasiliensis*), the important source of natural rubber is a perennial tree crop ecosystem extends in the traditional rubber growing regions in Kerala, part of Kanyakumari and Karnataka and other non-traditional areas in India. Most of the rubber plantations are in the hilly areas in the midlands and highlands within the slope ranges of 10-33 per cent and at mean sea level height of 300-450 meters and sometimes up to 700 meters. Rubber sector includes the large plantations and lying in steep slope terrains mostly planted in forest cleared areas now attains 3rd & 4th cycle of 30-35 years in each cycle as well as in small holdings with 0.5-1 acre areas. There was continuous replanting after 30-35 years and now rubber cultivation attains around 120 years old in the traditional regions. Mono-cropping with long residence crop have influences on soil properties. A study was conducted to understand the changes in soil organic carbon under rubber plantations in the traditional rubber growing regions. For the study 30 years estate advisory data from the period of 1975-80 (Initial status) to 2006-08 (Final status) was used. Large plantations in traditional rubber growing regions

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	were selected to collect the data on soil organic carbon (SOC). SOC status at two intervals was compared to know the changes in SOC status. The estates were classified in three category *viz*., more declines, less decline or no changes in SOC. In order to understand the factors responsible for SOC change, the estates were visited to relate SOC changes with physiography, climate conditions, soil cover management and symptoms of soil erosion. Results of the study indicated that the SOC significantly declined over 30 year period in some estates, where as it maintained or showed slight decline in other estates. Irrespective of the slope, soil organic carbon status was maintained or showed a nominal decline in 30 years when ground cover, *ie*, either *Mucuna bracteata* or natural vegetation was maintained in the plantation. In estate, where there was no ground cover, a decline in soil organic carbon status was observed with clear symptoms of soil erosion. In the soil with initial status was high there the decline was more. More decline was recorded in the top soil (0-30 cm) than sub soil (30-60 cm). SOC status of the 63 % soil was in the medium range (1-2 %).
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