

PROGRAMME AND ABSTRACTS



PLACROSYM XIV



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NPKMg with pueraria cover and the control plots with natural ground cover but fertilized with NPKMg mixture. Pueraria cover produced 4000-10000 kg of organic matter/ha/year rich in nitrogen as against 3000-4500kg that of the natural cover. Continuous cultivation of pueraria under coconuts over a 10 year period Cation Exchange Capacity, soil organic matter content, soil nitrogen & phosphorous levels were increased by two folds and soil pH was increased from 4.8 to 6.5. Water holding capacity, bulk density and infiltration of soils under the pueraria cover too were improved significantly indicating the positive effects of pueraria. Coconut yields under the cover was 20% higher than that of the natural cover. No reduction in nut yield was observed as a result of withholding fertilizer nitrogen. This suggested that pueraria cover has the capacity to supply N requirement, the fact that was confirmed by leaf nutrient levels.

✓ THEMATIC SESSION-III: PHYSIOLOGICAL EFFICIENCY WITH SPECIAL REFERENCE TO BIOTIC AND ABIOTIC STRESSES

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Photosynthetic Characteristics and Water Relations in Coconut Palms under Drip Irrigation Levels on Sandy and Laterite Soils

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Plant's response to irrigation depends on various internal and external factors. The leaf moisture status and its photosynthetic efficiencies are interrelated and largely influence the final economic yield. To assess the extent of this influence on yield, coconut (*Cocoas nucifera* L.) palms, grown on sandy and laterite soils were given different levels of irrigation through drip (sandy-66, 100 and 133% of E_o ; laterite-33, 66 and 100% of E_o) and surface (100% of E_o). Control palms without irrigation were maintained. The data on female flower production, nut yield, photosynthetic and chlorophyll fluorescence (PSII) characteristics, besides water relations were recorded during 1995-96 and 1996-97. Photosynthetic rate, leaf and PS II efficiency varied with the irrigation level and soil type. Instantaneous WUE increased markedly with irrigation and time. Palms receiving irrigation also showed marked improvement in female flower production and their retention to produce higher nut yields. Photosynthetic rates and γ leaf positively correlated with nut yield. The influence of irrigation on photosynthetic efficiency, water relations and nut yield in relation to soil types are discussed in the paper.