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Intercropping banana and pineapple in coconut root (wilt)-affected gardens

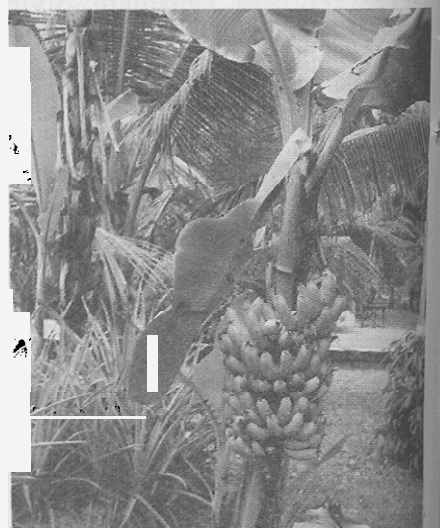
Coconut is a high-value commercial crop grown in 1.908 million ha in 17 states and 3 union territories, producing 14,925 million nuts. Constraints for productivity in major coconut-growing state of Kerala continue to remain the same and shall be major concern, and issue to be addressed in the years to come. One of the main reasons for lower productivity of coconut in Kerala is due to root (wilt) disease. Root (wilt) disease of coconut caused by *Phytoplasma* has no definite control measures. Therefore, intercropping has been advised.

PRODUCTIVITY of coconut in Kerala is as low as 6,188 nuts/ha. Eight southern districts are prevalent with root (wilt) disease with varied degree of intensity and improper management practices. Recent survey indicated the disease has spread to northern parts of Kerala, adjacent Tamil Nadu and Goa also. However, bearing palms which are in the initial to middle stage of disease intensity respond

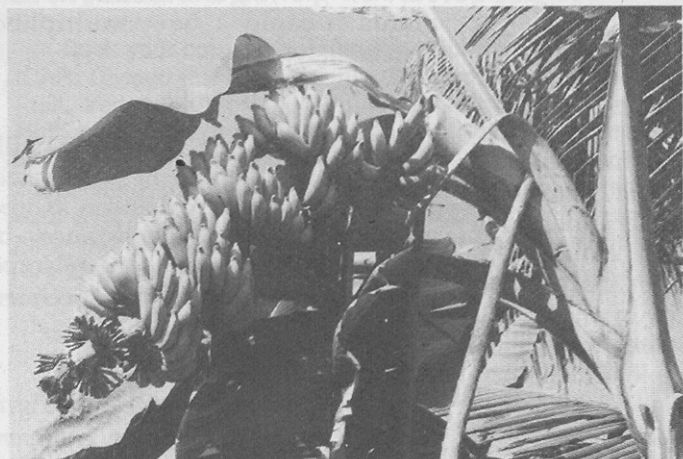
well to management practices. Suitable management practices have been evolved to sustain the productivity of root (wilt)-affected coconut palms.

THE EXPERIMENT

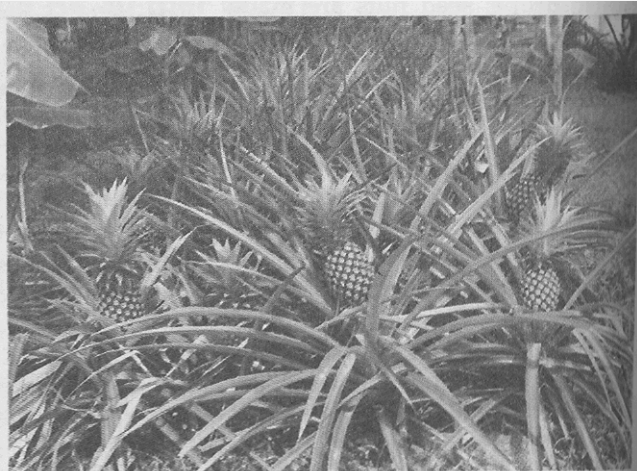
The experiment was conducted at CPCRI Regional Station, Kayangulam, on varieties of banana and pineapple in root (wilt)-affected gardens to assess their performance



Banana Robusta in bearing stage



A bumper fruiting in banana Njilipooven



Heavy fruiting in pineapple

during 1994–2000. Banana Poovan, Njalipoovan, Palayankodan, Robusta, Nendran and Karpooravalli were used, whereas Kew variety of pineapple was grown. The experiment was started with banana, nutmeg, pepper, annual tuber crops in 1.5 ha area. The soil of the experimental field was sandy loam. The area receives an annual rainfall of 2,500 mm. In this paper performance of banana and pineapple has been explained.

Cropping system

In any cropping system model, careful attention should be given for managing different crops in order to exploit their genetic potential. In coconut garden, when intercrops are to be planted, care should be taken to plant the intercrops (except for pepper) at least 2 m away from the radius of coconut. Nutrients and water should be applied for each crop separately as per the schedule. Need-based plant protection for each crop needs to be undertaken as and when required.

Following is the management practice schedule for banana and pineapple being grown as intercrop in coconut gardens.

MANAGEMENT SCHEDULE

Banana

Banana prefers tropical humid climate. For planting banana, select 3–4 months old disease-free sword suckers from healthy clumps. In Nendran variety, cut back pseudostem to a length of 15–25 cm from corm and remove old roots. The rhizomes are to be smeared with cowdung solution and ash, and dried in the sun for about 3–4 days and stored in shade up to 15 days before planting. Planting should be done in a pit of 50 cm × 50 cm × 50 cm at a spacing of 2.5 m × 2.5 m. Apply compost/farmyard manure @ 10 kg/plant in the pit and plant the suckers

upright in the centre of pits with 5 cm of pseudostem remaining above the ground level. The recommended dose of N:P:K for Nendran is 190:115:300 g/plant/annum and other varieties 200:200:400 g/plant/annum to be applied in equal 2 splits (50% during May–June) and 50% during September–October).

Remove side suckers till the emergence of flowers. Retain 1–2 suckers after emergence of bunch. Banana pseudostem weevil is a serious pest in the recent days. Adult female weevil punctures and inserts egg into the pseudostems. Grubs emerging on feed extensively on pseudostem and thereby the entire plant droops. For effective control of this pest, field sanitation should be carried out by removing affected plants and destroying them by burning or burying in deep pits in soil. Remove dried outer sheaths of pseudostem of all infected and uninfected plants in endemic areas and spray Chlorpyrifos @ 0.03% (1.2 ml/litre of water). Spraying should be repeated if the infestation persists. Nendran and Palayankodan are susceptible for pseudostem weevil infestation

Six-year experiment shows an average yield of banana : Poovan, 15–20 kg/bunch; Njalipoovan, 14–19 kg/bunch; Palayankodan, 20–24 kg/bunch; Robusta, 12–17 kg/bunch; Nendran, 1–18 kg/bunch and Karpooravalli, 22–25 kg/bunch.

Pineapple

Pineapple is adapted to tropical humid condition. For planting pineapple, select healthy suckers of uniform size weighing 500–1000 g each. Keep suckers in open space under shade in single layer for about 7 days for drying. Strip off a few lower old dried leaves, allow the sucker to dry and cure for another 7 days. Plant the suckers at a spacing of 70 cm between rows and 30 cm

between plants in a trench of 2.5–3.0 m length. Apply compost/farmyard manure @ 25 tonnes/ha as basal dressing. The N P K is given @ 8, 4 and 8 g/plant/year or 320, 160 and 320 kg/ha/year. Apply full dose of P at planting, wherea N and P may be applied in 4 splits. First dose should be given at planting (May–June), second during August–September, third in November and fourth in May–June.

Inducement of flowering

For inducement of uniform flowering, apply 25 ppm Ethephon (2-Chloroethyl phosphoric acid) in aqueous solution containing 2% urea and 0.04% calcium carbonate. The mixture (@ 50 ml/plant) should be applied by pouring into the heart of 16–17 months old plants during dry weather. For treating 1,000 plants, 50 litres of solution would be required. The ingredients for formulating the solution to ensure terminal concentrations in 50 litres of water are:

Ethephon: 1.25 ml, urea: 1 kg, CaCO₃: 20 g.

Six-year average yield of pineapple ranged from 1.2 to 2.0 1 kg fruits/plant.

SUMMARY

Any banana variety can be grown as intercrop depending upon farmer's preference. The pre-experimental yield of coconut is 30 nuts/palm/year, whereas during 1999–2000, it was 54 nuts, indicating positive effect of intercropping. Intercropping these crops ensures additional income and employment without affecting coconut yield.

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