



## Research Paper

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# Evaluation of selected black pepper (*Piper nigrum* L.) land races in arecanut (*Areca catechu* L.) mixed system of cultivation for higher yield and disease tolerance

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**ABSTRACT :** An experiment was conducted in farmers' fields of Sirsi taluka of Uttara Kannada district in Karnataka during 2005 to 2010. Objective was to evaluate the selected land races of black pepper (*Piper nigrum* L.) in arecanut mixed system of cultivation for high yield and disease tolerance. Pooled analysis of four years data of six promising accessions including Panniyur-1 under evaluation revealed that the variety Panniyur-1 recorded the maximum dry berry yield (2.58 kg vine<sup>-1</sup>) and significantly differed among some of the accessions. Yield of Sirsi-1 (Accn. 91), Ademane (Accn. 53) and Kudragutta (Accn. 106) (2.24 kg vine<sup>-1</sup>, 2.21 kg vine<sup>-1</sup>, and 2.05 kg vine<sup>-1</sup>, respectively) was at par with the variety Panniyur-1. However, Panniyur-1 was more susceptible to the *Phytophthora* wilt disease with 38 per cent disease incidence (PDI) and Ademane pepper the least with 4 PDI values. The economics was calculated by considering the yield of black pepper and yield of its respective supporting arecanut tree together. Net return per hectare recorded was maximum in the variety Panniyur-1 (Rs. 2,26,900/-) followed by Ademane pepper (Rs. 2,20,600/-) and Kudragutta (Rs. 1,92,940/-) with the net benefit:cost ratio 1.84 : 1; 1.79 : 1 and 1.56 : 1, respectively.

**KEY WORDS :** Ademane, Benefit:cost ratio, Kudragutta, *Phytophthora*

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In Karnataka, black pepper (*Piper nigrum* L.) is predominantly grown as a mixed crop on arecanut (*areca catechu* L.) standards includes Uttara Kannada, Shimoga and Dakshina Kannada districts. Panniyur-1 as well as several other local cultivars is mostly found in the farmers fields of this region. Continuous use of poor yielding cultivars, non availability of superior varieties, losses due to the incidence of diseases, pests, droughts, non adoption of appropriate agronomic practices are some of the prominent factors contributing to the low productivity of black pepper (*Piper nigrum* L.) in India. Indian pepper fetches a premium price in major international markets because of its preference and intrinsic quality (Thomas, 2010). There is no information on the availability of improved cultivars other than Panniyur-1 for the arecanut mixed system of cultivation of the region. However, some of the superior cultivars believed to be the high yielder and tolerant to the disease, pest and drought

situation are available in the farmers system of cultivation. Hence, the present study was undertaken to evaluate such selected cultivars and identify the suitable ones to the region.

## RESEARCH METHODS

Experiment was carried out between 2005 and 2010 in farmer's fields at Sirsi and Yallapur taluka in Karnataka. The sites were having similar agro climatic situation and located at an altitude above 619 m. MSL with latitude of 14° 36' N and longitude of 74° 50' E. The average rainfall of the region was 2600 mm and soil was lateritic sandy loam in nature with pH 6.8 and a nutrient status of 107, 34 and 236 NPK kg ha<sup>-1</sup>, respectively.

The design followed was simple Randomized Block Design. There were six treatments (accessions) replicated four times with four vines per replication. Treatments included Sirsi-