Parameters of Munpora pilot project well

108 bore wells covering a command area of 2911.48 hectares have been created in traditional saffron areas of district Pulwama, Budgam and Srinagar by the Engineering wing Department of Agriculture, Kashmir and the work on remaining bore wells is in progress. Electro-mechanical equipment and generators for the designed wells have been successfully installed by Mechanical Engineering Division Kashmir and successful trial run for each wells for water harvesting has been completed. Work on laying of underground and above ground pipes and sprinklers is in progress.

Application of water will improve the overall production to 22.4 M.T with improvement in productivity from 4.3 kg/ha to 6.0 kg/ha.

Woody Pepper: An Andamanese Counterpart for Pepper Powder

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Woody pepper or Pepper Wood (Piper ribesoides) is a species related to commercial black pepper (Piper nigrum), naturally distributed in areas of Andaman group of Islands in the Union Territory of Andaman and Nicobar Islands. The species is valued for its unique spice value. Unlike black pepper, where berries are used as spice, stem pieces of this species are valued as spice by the island dwellers – particularly the settler Bengali community.

Plants appear more or less similar to black pepper in morphology except for the thickened stem and tufted roots on nodes with marked differences in leaf morphology. Life span of the vine is considered to be more than 40 years, although nobody has ever recorded it. Small stem pieces are added in curries to impart pungency and unique flavour. Stem pieces of 25-30 cm length are commonly sold in local markets in small bundles or heaps.

Some farmers claim that the thickened underground portion of the vine comprises the best quality ingredient for non-vegetarian curries. Consumption of this spice is said to relieve body ache and respiratory troubles. Experiments conducted at ICAR suggested that stem pieces contain meagre quantity of essential oil, but the spice is rich in phenolic compounds and has good antioxidant properties.

Fig. 1. Fully grown woody pepper vine on mango tree in Little Andaman island

The price is mostly determined by quality of produce in terms of stem thickness, maturity, freshness of the stem and the local demand. At times, farmers even fetch Rs. 400 per kg, thereby indicating the potential of this spice for commercial cultivation.

To promote the marketability and storage of this new spice, attempts were made to prepare powder from dried stem, which was found to be acceptable.

The creamish brown or greyish yellow stem powder exhibited mild but persistent pungency when tasted. Woody pepper is primarily distributed in the forests of Middle and North Andaman and Little Andaman Islands. It is also found trailed on mango trees in home gardens in these areas. During earlier periods, the species was harvested from the forests and sold in local markets.

As stem is the produce of commerce, fully grown vines were destructively harvested, thereby impacting the survival of their wild populations. As a result, restrictions have been
Considering the increasing demand for this spice, some farmers have planted this species in their backyards. A few farmers have also reportedly introduced the plants of this species from West Bengal. These farmers consider that the quality of introduced vines is better than the local vines.

Woody pepper vines are generally propagated during rainy season; however, propagation during dry season is also possible with appropriate nursery conditions of media, irrigation and shade. For multiplication, sufficiently thick stem pieces are cut from the branches (mainly at the time of harvesting the vines) and placed horizontally in the medium containing soil and farmyard manure. The nursery is generally raised in shaded areas below large trees in the backyard.

Watering is crucial, but over-irrigation may lead to rotting of the cuttings. Sprouted nodes at 2-3 leaf stage are transplanted in polybags for subsequent growth and hardening. During rainy season, the vines are planted on available standard in the home gardens, preferably in basins of mango and jackfruit trees. The rough bark of these trees retains better moisture and the vines get benefited during drier parts of the year by yielding produce with softer core.

Detailed phytochemical studies could be carried out to understand such variation in the quality of the produce grown on different standards. Vines are sensitive to water logging and root rot is commonly seen in such places. No other diseases and pests have been observed in the fields. Except for life saving irrigation during dry season, other care is generally not provided to the vines.

Depending upon the soil and climatic conditions, vines attain harvestable thickness within 5-6 years. The multiple stems of the vines are cut, leaves are removed and stem pieces are prepared for sale. Some farmers harvest the vines within three years, which could fetch them some money during financial crisis. Limb pruning could be a sustainable option in which only a part of the mature branches would be harvested every year, leaving the remaining branches to mature further. Generally, in newly planted vines, the first harvesting is carried out after 5 to 6 years of planting and thereafter, every 4 to 5 years the vines are harvested. The yield of commercial fresh stem pieces range from 8 to 10 kg from 12 to 15 feet long harvested stem. From a documented case study from Middle Andaman, it was observed that a farmer could harvest about 16 kg of stem from a well grown vine of five years, which were sold at Rs. 250 per kg, thereby fetching him a handsome amount of Rs. 4,000. Although the demand for the spice is ever-increasing with assured marketing, the shelf life of the harvested fresh stem is considered as an issue among the sellers. The produce remains usable for about a week and thereafter the stem pieces start shrivelling decreasing the marketable quality. Refrigerated storage is said to improve the shelf life by another one week.

Some farmers and sellers also attempt to store such excess produce in the moist soil to prolong the freshness; however, longer period of storage results in changed quality of the produce mainly due to sprouting of the nodes and change in colour and appearance.

Though, presently the spice is grown only by a handful of farmers on homestead scale, there are immense possibilities of its commercial cultivation in the islands as a component in plantation-based cropping systems.

Arecanut is one of the major cash crops in the islands, covering about 4000 ha. These gardens could be effectively utilized for cultivation of woody pepper (using arecanut palms as standard) on large scale to meet the increasing demand. Considering the harvest cycle of five years, staggered planting could be undertaken to ensure regular yields to the growers. In properly-spaced arecanut gardens, about 550 plants could be accommodated per acre, which could be planted at the rate of 110 vines per year for five years (covering an acre over five years). Assuming a yield of 10 kg per vine and Rs. 250 per kg selling price, additional income of about Rs. 2,75,000 per year could be obtained from the cultivation of this new spice. The vines being perennial with economic life span of over 40 to 50 years, ratoning will ensure regular supply of income to the island farmers.

Andaman Islands being the popular tourist destination, this new spice could be a boon for the hoteliers to offer unique taste to the cuisines. Considering the soil and climatic similarity of these islands with some of the coastal states of India, possibilities could be explored for expansion of the crop outside the islands.

In a nutshell, newer spices such as woody pepper could be a profitable component crop in the existing homesteads as well as commercial gardens in years to come.

Promotion as a component crop in plantation based cropping systems, development of products such as dry powder, extension of shelf life of fresh stem, establishment of quality standards for fresh and processed products, identification of superior genotypes/chemotypes, scientific revelation of the health benefits, standardisation of improved protocols for mass propagation and production technologies and establishment of the uniqueness of the spice under island environment are the thrust areas to further utilize the potential of this new, novel spice crop for increased profitability in farming profession.