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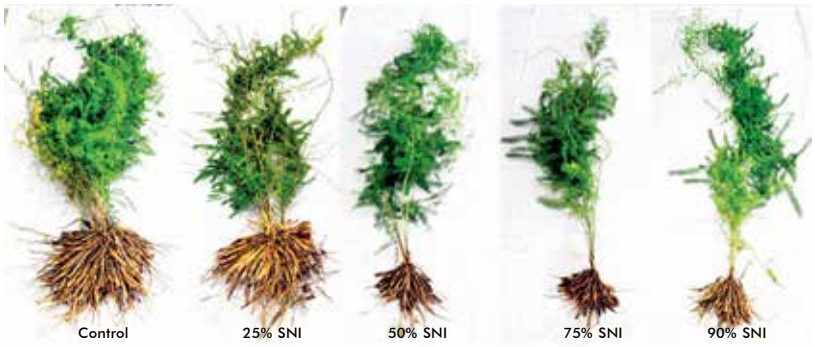
Shatavari: An excellent intercrop option in orchards

Medicinal plants growing in forests require partial shade, moist soils rich in organic matter, high relative humidity and mild temperatures. Shatavari is grown in open land as well as under shade conditions at low altitudes. Tolerances of plants under shade condition sustain growth due to increase in photosynthetic capacity per unit of light and sugar content. Shade leaves made an efficient use of the less intense irradiation reaching up to them.

Objective: To work out medicinal crops suitable for intercropping in perennial orchards.

The experiment was carried out at the ICAR-Directorate of Medicinal and Aromatic Plants Research (DMAPR), Boriavi, Anand, Gujarat (India) during harvesting season of 2017-2019. *A. racemosus* seedlings were raised in nursery during mid-April, 2017 and seedlings at 75 days of age were transplanted at a spacing of 45 × 45 cm under different shade net intensities, i.e. 0, 25, 50, 75 and 90% with three replications, where 0% intensity refers to open field condition and 25% means between *H. antidysenterica* trees. Rest were raised under green shade net intensities. Root parameters and quality were recorded as per standard methods. Shatavari accession DAR-26 was selected decisively for FLDs cultivation at farmer's field.

More shatavari roots were harvested under 0% shade net intensity and the second-best yield was obtained with a 25% shade net cover. Interestingly, the shade net at 25% intensity also resulted in the highest amount of shatavarin IV content. For harnessing of root yield and shatavrin IV content, 25% SNI (8.53 µg/g) as an intercrop is most suitable compared with shade net cropping. FLDs at farmer's field fetched ₹ 4.87 lakhs/ha/year net returns with a B:C ratio of 3.66 from the sale of dry roots (4.13 t ha). The results clearly give an idea that shatavari can be integrated into existing farming systems (as an intercrop) as one of the viable options for enhancing farmers income.



Root yield under different SNI

Shatavari under partial shade of Horti-forestry systems

Commercial potential: Cultivation of Shatavari as an intercrop (*H. antidysenterica*) in orchards/forestry trees will help in better use of limited resources and increase farmer's income through inter-crops in the horti-silvi system. Improved agro/horti-forestry systems can meet the food, fooder, medicine and timber requirements of industry with basic needs of the farmers. This study indicates that shatavari could be cultivated as an intercrop between *Holarrhene antidysenterica* trees (25% SNI) for fetching higher shatavarin IV content without causing significant root yield loss.

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