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FACULTY OF AGRICULTURAL SCIENCES AND ALLIED INDUSTRIES

- Aswagandha (Withania somnifera) is commonly known as 'winter cherry' and Indian Ginseng in English. Several types of alkaloids are found in this plant, out of which, withanine and somniferine are important. In addition the leaves are important to contain five unidentified alkaloids. The total alkaloid content in Ashwagandathe roots of Indian types has been reported to vary between 0.13 - 0.31. The drug is mainly used in Ayurvedic and Unanic preparations.

- Withaferin A- contains antibiotic and antitumor properties. It is used for curing carbuncles in the indigenous system of medicine. The paste prepared out of its leaves is used for curing inflammation of tubercular glands and that of its roots Fruit for curing the skin diseases, bronchitis and ulcers. It is used as aphrodisiac, remunerative tonic, Diuretic, Hypnotic, Sedative and restorative, useful in rheumatism, cough debility from old age, dropsy and general weakness. In addition to alkaloids, roots are reported to contain starch, reducing sugar, hentriacontane, glycosides, dulcital, withaniol acid and a neutral compound. The free amino acids identified in the roots include aspartic acid, glycine, tryosine, alanine, proline, tryptophan, glutamic acid and cystine.
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Aswagandha is found wild in grazing grounds in Mandsaur and the forest lands in the Bastar district of Madhya Pradesh, all over the foothills of the Punjab and Himachal Pradesh and Western Uttar Pradesh, in the Himalayas. It is also found in the wild in the Mediterranean regions in North Africa. The crop is cultivated in an area of about 4000 ha in India, mainly in the drier parts of Manasa, Neemach and Jawad tehsils of the Mandsaur district of Madhya Pradesh, in Punjab, Sindh, Rajasthan and South India. In Karnataka, its cultivation has been reported in the Mysore districts.

Soil and climate

Ashwagandha grows well in sandy loam soil, in slightly alkaline soil with good drainage condition. It grows better in 600-1200m altitude. The semi-tropical areas receiving low rainfall are suitable for cultivation of this crop. The crop requires dry season during its growing period. Temperature between 20oC to 35oC is most suitable for cultivation. Late winter rains are conducive for the proper development of the plant roots.

Land preparation

Ashwagandha is usually grown in fields which are not well covered by the irrigation systems. The field on which food crops cannot be grown profitably because of low rainfall can be used for ashwangandha cultivation. The soil of the field selected for

ashwagandha cultivation is well pulverized by ploughing. The field should be leveled and pressed by using heavy wooden plank.

Nursery raising and planting

The crop can be sown either by broad casting or in lines. Line to line method should be preferred increased root production and also helps in performing intercultural practices in required by farmers. The seeds are usually sown about 1-3 cm deep during June-July in nursery. A light shower after sowing ensures good germination. About 5-12 kg seeds are sufficient for one hectare field. The seedling of 25-35 days old can be transplanted in the fields marinating 30 x 30 cm. spacing between the plants & the rows. As Ashwagnadha is a rainy season Kharif crop, the time of its sowing should be decided by date of arrival of monsoon in area of cultivation.

Thinning and weeding

The seeds sown by broadcasting or in the line should be thinned out by hand at 25-30 days after sowing to maintain a plant density of about 30-60 plants per square meter (about 20,000 to 25,000 plants/hectare). The plant density to be used may depend on the nature and fertility of the soil. On the marginal land the plant population should be kept high. One weeding at an early stage is sufficient to enable the Ashwagandha plants to take over the growth.

Manures and fertilizers

The ashwagandha crop does not require heavy doses of manure and fertilizers. In Madhya Pradesh, where it is grown on a commercial scale, no fertilizers are applied and the crop is cultivated on only residual fertility. Studies at the Indore Research Station have showed no effect of nitrogen and phosphorus on its root yield.

Irrigation

Light shower after transplantation ensures establishment of seedlings. There is no need of irrigation if rainfall is at regular intervals. Excessive rainfall/water is harmful to the crop. Only life saving irrigations may be applied, if required to ashwagandha. This is to be noticed that ashwagandha is a dry land crop and do not need much water.

Varieties

A variety named Jawahar Asgandh (WS-20) has been released from a single plant selection from the Jawaharlal Nehru Krishi vishwa Vidhyalaya, Regional Agricultural Research Station, Mandsaur. This variety has recorded the highest

dry root yield, consistently over the others. A high root and alkaloid yielding variety ‘Poshita’ is released from CIMAP, Lucknow.

Harvesting, processing and grading

The plants start flowering and bearing fruits from December onwards. The crop is ready for harvest in January- March at 150 to 180 days after sowing. The maturity of crop is judged by drying out of leaves and yellow red berries in the plant standing in the field.