

Table 4: Method of propagation of Ashwagandha and their stages conditions.^[22]

Method of propagation	Broadcasting or by transplanting Broadcasting
	For directly sown crops, thinning of plants is carried out approximately twenty to thirty days following seeding, ensuring a group of plants ranging from 20000 to 25,000 per hectare. Effective weed control is achieved through manual weeding performed at intervals of 25-30 days. ^[22] Transplanting Approximately 2 Kg seeds are needed for generation small plants in an acre. Prior to sowing, the seeds should undergo treatment with 3 g per kilogram of Diathane M-45. The seed sowing in greenhouse takes place immediately before to the rainy season starting, covering them with thin layer of soil. Germination typically occurs within Seven to eight days after seeding. Once the plantlets reach approximately six weeks old, they are substituted into the sector, spaced sixty cm apart in sixty cm wide furrows. ^[22]
Time of propagation	July-August
Soil	Light red and sandy rich soil with adequate drainage and a pH of 7.5-8. ^[22]
Climate	Dry and subtropical parts Ashwagandha is a crop that is grown in the Kharif season
1. Temperature	30°C-35°C
2. Rainfall	660-750 mm
3. Altitude	13-150 cm
Irrigation	Hand weeding at 30 days.
Fertilizers	After 50 days, an application of 45 kg of nitrogen per hectare is advised. The cultivation primarily relies on residual fertility, and as such, there is no recommendation for the use of manure or fertilizers.
Diseases	Susceptible to fungal infection, Seed rooting. Major insects: Shoot borer and mite
Pesticides	2-3 spray of rogar or Nuvanat rate 0.6% The extract from neem seed kernels will affect mites more. Somicidin (10 mL per liter) can be used to control shoot borer. ^[22] Apply treatment to the seeds before to planting, soaking them in 3 mL/L of Calphomin at the nursery and applying 5 g/kg of seed. Spraying Diathane M-45 at a rate of 3 g/L of water should be done on the crop when it is 30 days old. If illnesses develop, the spraying should be done again at a 15-day interval. ^[22]
Harvest time and method	December or January lasts up to March by uprooting January marks the beginning of harvesting, which lasts until March (150-170 days after sowing). The drying of the leaves and crimson berries indicates the crop's maturity. To retrieve the roots, the entire plant is uprooted and the stem is chopped 1-2 cm above the crown to separate the roots from the aerial components. To aid in drying, they are then sliced into tiny pieces, around 7 to 10 cm. The dried berries that were picked to get the seeds, plants are threshed. ^[22]
Drying and storage	kept in a tightly sealed container and dried in the sun or shade.
Yield	Each hectare, 300-500 kg of roots and 50-75 kg of seeds.

Table 5: Chemical constituents and their category.

Type of Products	Parts of Plant	Most common Withanolides Content	Category and Form
Crude Ashwagandha Water or alcoholic or hydroalcoholic Ashwagandha Standardised extracts (KSM-66, Sensoril etc.,)	Root, leaf or leaf and root mix product	Between 1-10% Withanolides	Simple powder, granules, liquids or tablet, capsules

