

AJWAIN:

AN EMERGING CROP UNDER EASTERN DRY ZONE OF KARNATAKA

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Karnataka is located on the western edge of the Deccan Peninsular region of India. It is situated approximately between 11.5° North and 18.5° North latitudes and 74° East and 78.5° East longitudes. Karnataka was initially divided into three meteorological regions due to the climatic difference: Coastal Karnataka, North Interior Karnataka and South Interior Karnataka. The Eastern dry zone belongs to South Interior Karnataka experiencing semi arid type of climate. The Eastern dry zone of Karnataka accounts for an area of 1.808 Mha and is located at an elevation of 800-900 m above MSL. The average annual rainfall is 679.10-888.90 mm of which 50% is received during kharif season. The soils in major areas are red loamy whereas lateritic in remaining areas. Bangalore Rural, Bangalore Urban, Kolar, Ramnagara and Chikkaballapur districts comes under this zone.

Ajwain has been used since thousands of years as a spice, food preservative, as well as a protective and curative remedy for several disorders. Its great value as medicine is mentioned in various religious and old literature which dates back to more than 2000 years. It is a wonder herb and an emerging

seed spice, condiment and a medicinal plant of great demand. Ajwain is the spice for strength and vigour having rising demand and premium price both in domestic and international market. Increasing demand led to its cultivation in different agro-ecological conditions. In India, ajwain covers an area of 34,500 ha with the production of 27,940 tonnes. It is cultivated in Rajasthan (15,430 ha area and 10,540 tonnes production), Gujarat (5,320 ha and 5,050 tonnes), Telangana, Madhya Pradesh, Andhra Pradesh, Uttar Pradesh, Uttaranchal, Haryana, Punjab, Maharashtra and in Karnataka. In past few years, enormous scale cultivation of ajwain has been taken up in Gulbarga, Raichur, Vijayapur and Bagalkot districts of Karnataka and is an emerging seed spice in Eastern dry zone of Karnataka due to the prevailing congenial conditions.

The crop is scientifically called as *Trachyspermum ammi* L. of the family apiaceae. In Kannada, it is called as Oma and other popular names are bishop weed, carom seed or carom ajwan. It is an annual herb and a crop of semi-arid tropics, mainly grown during rabi season and as kharif crop in some other regions of the country. It also grows well

under subtropical climate. Better crop growth and flowering is noticed under moderate cool and dry climate. The performance of the crop is better at an optimum temperature of 15-27 °C with a relative humidity of 60-70 % and preferably warm weather is beneficial during seed development. Low humidity especially after flowering is beneficial, the incidence of insect – pests and diseases occurs if continuous moist and cloudy weather prevails. The crop is drought tolerant and has varied adaptability. Loam, alluvial and black cotton soils are best suited for its cultivation. Some varieties and collections released for cultivation are Gujarat ajowan-1, Pant Ruchika, Lam Sel-1, Lam Sel-2, Rajendra mani, NRCSS AA-1, NRCSS AA-2, NRCSS AA-93, NP (P)-79, NP(J)8, NP(J)66, NP(P) 15, NP(K)15, S25, S95, S47, S84, IC3743, DAC-1, DAC-2, DAC-3, DAC-4, DAC-5, DAC-6, DAC-7 and so on.,

Ajwain seeds are commercially utilized globally

as stimulant, carminative, tonic, stomachic, encourages appetite, improves digestion, reduces back pains, promotes lactation, cleans the uterus, cures abdominal pain, flatulence, indigestion, diarrhea, dysentery, malaria. Massage of ajwain oil relieves stiffness and pain in the joints. The arak of ajwain reduces the seriousness of the bronchial asthma. Thymol is the major constituent (35-60 %), it also contains carvacrol, phenols and oil (2-4 %). Thymol prevents the formation of worms in human beings and aqueous solution of thymol is an excellent mouthwash. The ajwain oil is frozen and converted into thymol which is popularly referred as ajma ke phul or ajowan ka phool or sat ajowan. Due to multitude uses, it is becoming a commercial crop in many parts of Karnataka particularly in Eastern dry zone.

It is propagated by seeds either broadcast or drill sown. The seed rate required is as follows:



Full bloom stage

1 kg seed/ha (mixed crop), 2 kg seed/ha (monocrop), 1.5 kg/ha (drilling or line sowing), 4 kg seed/ha (monocrop by broadcasting method), 2.5 - 3.0 kg/ha (Rabi season crop) and 4-5 kg/ha (Kharif season crop). Sowing time differs from area to area, generally it is sown from September to November, early crop of ajwain is taken in first week of October, late crop in November - December whereas in Madhya Pradesh it is sown in the month of August. Particularly in Andhra Pradesh, Karnataka and Tamil Nadu, it is usually sown in the middle of August (Early crop rainfed) and main season crop in September-October. Seeds should be healthy free from diseases and fungicides used for seed treatment of ajowan are Carbendazim @2-3gm or Captan @1gm or Mancozeb @2.5gm or *Trichoderma viridi* @2gm per kg seed.

Seeds very small so for uniform distribution and regulation of seed rate, they are mixed with sand or wood ash and sown at a spacing of 45 cm between rows and are thinned to 35 cm or 20 cm. Seeds germinate in 5-15 days and have low germination percentage (60-70 %). Thinning is carried at 30 DAS at 20-25 cm height of the plant. The nutrition requirement is as follows: FYM: 15-20 t/ha applied at the time of land preparation, phosphorus (30-50 kg/ha) and potassium (30-50 kg/ha) are applied as basal dose and nitrogen (80-100 kg/ha) half dose should be applied through top dressing and two split doses at dose 25-30 days and 45-60 days after sowing. Optimum irrigation gives higher yield, pre-sowing light irrigation is very beneficial and depending on soil and climate, 2-3 light irrigation are necessary.

The crop is less affected by insect-pests and diseases. The infestation of root rot (*Rhizoctonia solani* Kuhn), powdery mildew: (*Erysiphe polygoni*), fusarium wilt (*Fusarium oxysporum*) and aphids (*Aphis gossypii* and *Myzus persicae*) are reported. The crop matures

in 130-180 days depending upon the variety and season. The crop is harvested manually from February to March and extends till May when the umbels turn brown. Harvested material is tied into small bundles and stacked for drying under shade for about a week and dried material is threshed and winnowed. The seeds are cleaned and allowed to dry for 9-10 percent. Seeds are packed in gunny bags lined with polythene or air-tight containers and are kept under cool, dry and well ventilated place or marketed. The seed yield under rainfed conditions is 400 - 600 kg/ha and irrigated conditions is 1200-2000 kg/ha.

CONCLUSION:

Considering the importance, demand and favourable agro-climatic conditions during rabi season, the crop is showing good performance as a border crop or as a mixed crop in other spice crops. Now a day, farmers are showing interest on cultivation of this crop in the zone. Thus ajwain is an emerging seed spice under Eastern Dry Zone of Karnataka.



Seed Set Stage Seed Set Stage