



Knol Khol: Nutrient Powerhouse and Versatile Crop

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INTRODUCTION

Knol Khol, commonly called German turnip, is widely grown in temperate and subtropical regions, adapting well to diverse climates and soil types. It is valued for its edible swollen stem, which can be added to a wide variety of dishes as a low-calorie, high-fiber ingredient. As a member of the cruciferous family, it shares its ancestry with cabbage, broccoli, and cauliflower, inheriting many of their health-promoting compounds. The fact that this vegetable thrives in minimal resources and matures quickly makes it a very valuable crop for small-scale farmers and urban gardeners. Apart from the agricultural benefits, Knol Khol's gastronomical and medicinal values also make it an attractive staple food item.



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Botanical Characteristics

Knol Khol is a biennial vegetable that is cultivated as an annual crop for its enlarged stem. The plant grows 25-40 cm tall, with a globular, bulbous stem, which may be pale green to purple in color. Its leaves are lobed, much like those of collard greens, and are also edible. It prefers well-drained, loamy soils with a pH range of 5.5-6.8.

Nutritional Profile

Knol Khol is a nutrient-dense vegetable rich in many essential vitamins, minerals, and antioxidants. Content per 100 g amount:

- Calories: 27
- Dietary Fiber: 3.6 g
- Vitamin C: 62 mg (103% of the Daily Value)
- Potassium: 350 mg
- Vitamin B6, Folate, Calcium, Magnesium, and Phosphorus in small portions

This high nutrient value combined with such a low-calorie amount makes Knol Khol a great choice for weight management and overall health.

Cultivation Practices

Knol Khol is a cool-season crop, ideally suited for planting during early spring or late fall. Its adaptability to various climates and soil conditions makes it an attractive choice for farmers and gardeners. Key steps in its cultivation include:

Soil Preparation

Incorporate organic matter, such as compost or well-rotted manure, to improve fertility, aeration, and water retention. Ensure soil pH is maintained between 5.5 and 6.8 for optimal nutrient availability.

Sowing

Direct seeding into well-prepared beds or indoor sowing for later transplanting. Plants should be spaced 15-20 cm apart, with 30-40 cm between rows, so that air circulates freely and the plants can grow properly.

Climate and Soil

Knol khol is a cool-season crop that responds well to relatively cool and moist climate conditions. It is mainly grown as a winter crop

in subtropical plains. It has the unique ability to tolerate extreme cold and frost than most winter crops. Its optimal seed germination occurs between 15°C and 32°C. Knol khol can tolerate a wide range of soils with a pH of 5.5 to 7. Sandy or sandy loam soils are ideal for early crops, whereas clay loam and silty loam soils are preferred for late crops.

Two types of varieties are available: early and late-growing. In the Jammu region of the Union Territory of Jammu and Kashmir, notable varieties include G-40, Purple Vienna, White Vienna, and King of Market.

Seed Rate

To raise a nursery for transplanting knol khol in one hectare, a seed rate of 1 kg/ha is required.

Sowing Time

As a short duration and high value cash crop knol khol enables farmers to raise 3–4 crops in a year, thus the income is significantly improved. Planting time will depend on cultivar. Cultivation can be done throughout the year under sub-tropical weather conditions of Jammu.

Irrigation

Uniform, consistent watering and the soil must always be moist but not waterlogged. Drip irrigation systems can save water and also ensure uniform moisture levels. Uniform knob growth and development require the consistent supply of moisture. Interval irrigation is carried out followed by subsequent watering on 7-8 days duration.

Fertilization

A balanced fertilizer that is rich in nitrogen, phosphorus, and potassium should be applied. Side-dressing of organic fertilizers like bone meal or vermicompost during the growing season can further enhance yield.

Pest and Disease Management

Inspect crops periodically for pests, including cabbage worms and aphids. Use an integrated pest management approach, for example, use natural predators, neem oil sprays, or organic insecticides. Crop rotation is also advisable to avoid clubroot and other soil-borne diseases

and for general soil health.- Soiling: Mix in organic matter to enhance the fertility and the structure of the soil.

- Direct sowing or transplanting at 15-20 cm distance ensures optimal growth.
- To protect knol khol from pests and insects, apply Imidacloprid 17.8% SL at the rate of 170 ml/ha, preferably 15 days after transplanting.
- **Irrigation:** Regular watering keeps the soil moist without waterlogging.

Fertilization: Balanced application of nitrogen, phosphorus, and potassium increases yield.

Intercultural Operations

Higher yields can be achieved only if effective weed management is done. The first weeding and hoeing should be done 20 days after transplanting, and subsequent weeding should be done at 10-day intervals as needed.

Harvesting

The knobs are harvested when they become soft and non-fibrous. Harvesting is done manually using a sickle or sharp knife. Tender leaves, along with the knob, are cut close to the ground. Dead or damaged leaves are removed to enhance the crop's market value.

Health Benefits

Knol Khol is famous for its various health benefits, including:

Immune Support: High vitamin C content boosts immunity and helps to maintain healthy skin.

Digestive Health: Dietary fiber helps in digestion and prevents constipation.

Antioxidant Activity: Glucosinolates and isothiocyanates have anti-inflammatory properties and oxidative stress.

Cardiovascular Diseases: Potassium helps in managing blood pressure, whereas dietary fiber can reduce cholesterol content.

Cancer Prevention: It has been said that the vegetables are associated with a decreased

chance of developing several cancers because of their bioactive compounds.

Preparation

Knol Khol is versatile and a star ingredient in cuisines around the world. It can be eaten raw in salads, grated into slaws, or roasted, steamed, or stir-fried. Its mild flavor goes well with spices, herbs, and other vegetables. In India, it is an important ingredient in curries and stews, and in Europe, it is added to soups and gratins.

CONCLUSION

Knol Khol stands out as an exceptionally nutritious, adaptable, and sustainable vegetable. The ease with which it is grown and its manifold health benefits qualify it for wider recognition in diet. Advocacy for growing and consuming Knol Khol would contribute toward global food security and public health.

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