

1. BACKGROUND

• Origin and distribution

Turnips are indigenous to northern Asia and widely grown in Europe, Asia and the United States (Hartmann *et al.*). Turnips are native to central and southern Europe; they grow wild in Eastern Europe and Siberia. Their cultivation has spread to most regions of the world.

It is a native of central and southern Europe. Turnips are grown primarily for their swollen roots that are cooked in various ways. The turnip greens, although seldom used as green vegetables, are often fed to animals. Turnips have been cultivated in Europe for 4 000 years or more and are still grown wild in eastern Europe and Siberia (Kochlar, S.L.).

• Soil and climatic requirements

Turnip can grow on all types of soils but does well on deep rich loamy soils. Like other Brassicas, turnip grows best in a moderately deep loam, fertile and slightly acid soil. Turnip does not do well in soils that have a high clay texture, are wet or poorly drained. For good root growth, turnip needs a loose, well-aerated soil.

The most vigorous root growth takes place during the periods of low temperature (4,4 to 15 °C) in the fall. Roots rapidly become bitter, pithy and strongly flavoured if grown to full size in warm weather. The leaves maintain their nutritional quality even after repeated exposure to frost.

Turnips are both cold-hardy and drought tolerant. They need ample water during dry weather, but otherwise are very hardy crops. Like other Brassicas, turnip grows best in a moderately deep loam, fertile and slightly acid soil.



2. CULTURAL PRACTICES

• Soil preparation

Plow and disk or harrow to produce a seedbed that is fine, firm and free of weeds and clods. Turnip, like other Brassicas, can also be seeded into a sod or into stubble of another crop with minimum tillage. When seeding into sod, it should be suppressed or killed, as the young Brassica seedlings cannot compete with established grasses. Once established, turnip will compete with most weeds.

• Planting

Use hot-water and fungicide treated seed to protect against several serious seed-borne diseases. Hot water seed treatments are very specific (50 °C exactly, for 25 to 30 minutes. Thereafter the wet seed is then quickly cooled and dried). The seed treatments are best done by the seed company, and can usually be provided upon request.

Spring crop - plant as early as possible in, often February or March.

Fall crop - seed during September on raised beds.

Space 30,48 cm to 60,96 cm between rows and 5 to 10cm between the plants. Use 11 kg/ha to 16,5 kg/ha of seed.

• Fertilisation

Fertilisers should be applied at the time of seeding or within 3 days of seeding to give the crop a competitive edge on weeds. Apply 220 kg nitrogen to soils containing 2 to 5% organic matter, 264 kg if less than 2% organic matter and 132 to 176 kg/ha if more than 5% organic matter. Fertiliser applications should be banded at least 5cm to the side and below the seed or broadcast. Boron and sulphur may also be needed. If the soil tests "low" in boron, apply 2,2 kg boron per hectare on sandy soils, and twice this quantity on other soils. Apply 22 to 33 kg/ha of S if a soil sulphur test indicates a need for this element.

• Irrigation

For rapid growth and high quality root production, turnips must have adequate soil moisture. Many growers use sprinkler irrigation to establish seedlings in the field, and then switch to furrow, sprinkler, or drip irrigation once the plants are established.

• Weed control

Sod and annual weeds should be controlled chemically and/or culturally before planting. Sod can be suppressed or killed off with Roundup, as described under Seedbed preparation. If annual weeds are present at planting time, eliminate these with a burn down herbicide such as Gramoxone. Tillage before planting can be used for weed control on a conventional seedbed.

• Pest and disease control

Common pests of turnips may include aphids, flea beetles and red turnip beetle. Control for these pests may involve

i) applying insecticides to the soil at planting,
ii) fall or early spring cultivation helps to control the red turnip beetle. Volunteer rape and weeds of the mustard family should be controlled, especially in summer-fallow or stubble fields.

Some of the diseases may include, among others, clubroot, leaf spots, Turnip Mosaic Virus (TuMV)

Resistant varieties are available for some diseases. To prevent problems with diseases, Brassicas should not be grown on the same site for more than two years in a row.

Proper rotations, field selection, sanitation, spacings, fertiliser and irrigation practices can reduce the risk of many diseases. Fields can be tested for the presence of harmful nematodes. Using seed from reputable sources reduces the risk from "seed-borne" diseases.

Acknowledgements

Kirchhoff F. & Co. (Pty) Ltd. *Kirchhoffs garden guide*, pp.117. Kirchhoff F. & Co. (Pty) Ltd, Johannesburg.

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Undersander D.J., Kaminski A.R., Oelke E.A., Smith L.H., Doll D.J., Schute E.E. & Oplinger E.S., 1991. TURNIP.

<http://www.urbanext.uiuc.edu/veggies/turnip1.html>

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