



Leek

LEEK



Botanical name:- *Allium porrum* L.

Family:- Alliaceae

Chromosome no:- $2n=4x=32$

Origin – Mediterranean region

Edible part: Pseudo stem & Leaves



INTRODUCTION

- ✓ Leek is an **non bulb forming tetraploid** plant of onion family.
- ✓ Allium genus contains **more than 600 Species** (Hanelt,1990; Jones,1991).
- ✓ Except large size it **looks like green onion**.
- ✓ Its cultivation is **not commercial in India** and grown only in kitchen gardens.
- ✓ Leek is cultivated for **blanched stems and leaves**.

It has blanched thick , fleshy cylindrical leaf stalks at the base and does not form a true bulb like onion.



ORIGIN

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- Originated in Eastern **Mediterranean region**
- where it has been in cultivation since **prehistoric times**.
- Leek is thought to have been **derived from the sand leek** (*A. ameloprasum*) which **grows wild** in southern Europe, North Africa and the Middle East.



Taxonomy

- *A. ampeloprasum* is a polyploidy complex comprising leek, kurrat, pearl onion and great headed garlic/elephant garlic.
- Under this polyploidy series ($x=8x$) with tetraploids($4x=32$), pentaploids ($5x=40$) and hexaploids ($6x=48$) are found.
- Among this tetraploids are most common wild taxa as well as cultivated group.
- Of which **great headed garlic is hexaploid:**
- **Three types of Leek** can be distinguished based on their **morphological features**.
- **i) European types** –Relatively short & thick pseudo stem.
- **ii)Turkish types-** Mostly grown in Bulgaria and northern Egypt with relatively long and thin pseudo stem.
- **iii)Kurrat :** Grown in **Near East mainly in Egypt** with no pronounced pseudo stem.
- It is mainly grown for its green leaves and harvested several times in a year.
- It is essential ingredient of **ta'amyia**, a very famous fried Egyptian dish.

Botany

- Leek is a cool season biennial but grown as an annual crop.
- It is a tetraploid ($2n=32$), perhaps an autotetraploid, roust plant larger and harder than onions with solid, linear, flat & longitudinal keeled leaf bases.
- It is cross pollinating, self compatible and insect pollinated crop but posses strong inbreeding depression on selfing.
- Leaves: alternate in opposite rows, erect.
- Plant height: 40-75cm.
- Under long days the basal parts of leaves may slightly thickened resembling bulb.
- Bulbils (top sets) can formed in umbels.
- Scape length varies between 40-100cm and diameter 6-12cm.
- Inflorescence contains about 100 flowers.
- Flower : light purple to white with exerted anthers.
- Seeds: Small black seeds , about 350 seeds/1g

The exotic varieties

- **Mussel burgh, London flag, Elephant and Italian Giant.**
- **PPL-1:** It is a selection from exotic germplasm. Ready to harvesting in 150-160days.Good replacement for Green onion.
- **Palam Paushtik-best alternative to green onion. Suitable for salad, soup and cooking.**
- **London Flag, American Flag- ready to harvest in 100-110 day and commonly grown in India.**

Climate and Soil

- It is a cool season crop. However it can tolerate heat more than onion
- Seed germination at a temperature range of 11°-23°C, and above 27°C it is sharply reduced.
- The optimum temperature for growing leek- 20-25°C(for vegetative growth).
- Temperature between 12°C and 18°C tend to enhances leaf base swelling.
- It does not have a dormant period and is not influenced by photoperiod.
- Bolting occurs after exposure to low temperature below 15°C.
- It can grown in all type of soils but prefers medium soils with rich nutrients and organic matter.
- Ideal pH range 6-8

Cultivation

- Seed rate : 5-7 kg/ha
- Spacing : 30 x 10 cm between rows and plants
- Sowing time : plains - August : October
- Hills – March : April
- Planting : About 5-7 kg seeds are sown in the nursery during mid September – October
- Seedlings are transplanted when they attain 15cm height of 40-50 days old seedlings
- Transplanting should be done in 15-30 cm deep trenches made at 30 cm apart to facilitate blanching
- Blanching :- It is a important operation in the cultivation in leek which improves the quality of crop . Blanch the plants by covering them gradually with soil to a certain heights as they grow. Avoid blanching at early stage of plant growth when they are young

Manures and fertilizers

- Apply 20t FYM
- 50 kg of nitrogen
- 65 kg of phosphorus and
- 130 kg of potassium
- The top dressing is done with another 50 kg of nitrogen after 30 days after transplanting



Irrigation and Weeding

- The crop should be irrigated regularly for the proper growth and plant development at an intervals of 7-10 days
- Weeding is very important operation and should be done as and when necessary to keep down the weeds



Insect-Pest

➤ **Cutworm(*Agrotis ipsilon*) :-**

- It is a polyphagous insect and active at the onset of weather and The caterpillars cut the seedling at ground level during night time

➤ **Control :-**

- Follow clean cultivation and break big clods of soil
- Dust the soil with 4% Endosulfan at 25 kg / ha



Diseases

➤ Fungal Disease :

1. Downy Mildew(*peronospora destructor*):

- The entire surface of the leaves bears with violet growth of mycellium and sporangia
- If the weather is hot or dry , only pale white patches are seen
- The affected leaves drop at the point of lesion and dry at tip

➤ Control:

- Spray the crop with Dithane M-45 at 0.3 % at weekly interval

2. White rot (*sclerotium cepivorum*):

- The fungus is soil borne and kills the stem , roots
- The leaves of infected plants become yellow and flaccid leading to death of whole plant

➤ Control:

- Spray the crop with 0.1 % Bavistin



Harvesting and yield

- The crop is ready for the harvesting **70-80 days after transplanting.**
- **Method of harvesting:** The plants are pulled out by hand.
- Later their roots are cut off and outer leaves removed followed by washing them before transporting to the market.
- **Average yield is about 20-25 tonnes/hectare.**

Storage:

- Under ambient temperature it can be stored about 2-3 days.
- **But at 0°C with 85-90 % relative humidity it can be stored for 30-90 days**



Uses and Nutritive value

- The grown stem and leaves are consumed as salad or cooked with other vegetables or mild flavouring soups
- It is a good substitute for green onion during summer and winter
- The long white stem, leaf base and tops are edible and nutritious,
- It is a good source of carbohydrates, proteins, minerals-phosphorus, iron and vitamin C

