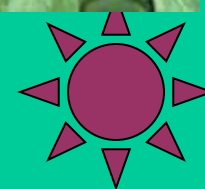


Beet leaf Spinach



includes spinach beet, spinach, fenugreek etc

Uses

- **Highly nutritious and rich sources of vitamin A and C and minerals like iron, calcium and phosphorus.**
- **Appreciable quantity of proteins is also found in these vegetables.**
- **Keep people healthy and help children to grow strong.**
- **Provide roughage and have an important place in balanced diet.**
- **Grown for their tender and succulent leaves.**
- **Easily cooked with other vegetables like potato, onion, brinjal and fried alone.**
- **It is used in the preparation of soups and stew etc.**
- **Available at cheaper rate in the market as compared to other vegetables.**

Types of spinach

- ✦ Desi or common palak (spinach beet or beet leaf).
- ✦ Vilayati palak (spinach)

Difference between beet leaf and spinach

- *Beta vulgaris* var. *bengalensis*.
- Chr. No. $2n=18$.
- Leaves with entire margins.
- Produces bisexual flowers.
- Tolerates high temperature and grows well in hot weather.

- *Spinacea oleracea*.
- Chr. No. $2n=18$.
- Leaves with lobed margin.
- Produces staminate/ pistillate and/or hermaphrodite flowers.
- Purely a cool season crop and cannot tolerate high temperature. In warm season and long days, it quickly tends to flower.

Beet leaf

- **Botanical Name** : *Beta vulgaris var. bengalensis* L.
- **Origin** : Indo - Chinese region
- **Family** : Chenopodiaceae
- **Chromosome number:** $2n=18$

❖ It is closely related to beet root and Swiss chard.

❖ Leaves of this might have first used in Bengal and hence known as *var. begalensis*

Composition

| | | |
|-------------------|----------------|-------------------------|
| Vit. A- 9770 IU | Fe- 16.2mg | Protein- 3.4g |
| Riboflavin- 0.56g | P- 30mg | H ₂ O- 86.4g |
| Thiamine- 0.26mg | Ca- 380g | CHO- 6.5 g |
| Vit.C- 70mg | Minerals- 2.2g | |

Importance and Uses

- **Rich source of vitamin A as compared to spinach and carrot**
- **Also contains high quantity of ascorbic acid and iron**
- **100g of leaves supply as much essential amino acids as 100g of any non vegetarian food like meat and fish**
- **Its succulent leaves and stems forms a nutritious dish after cooking**
- **The herbaceous parts are mildly laxative besides other medicinal values.**

Cultivars

Two groups on the basis of pigmentation of midrib and leaf veins

reddish midrib and leaf veins.



green midrib and leaf veins.



Jobner Green

Pant Composite 1

Pb Green

Pusa Bharati

Palak No. 51-
16

Pusa Jyoti

Banerjee's Giant

Arka Anupama

All Green

Pusa Palak

Pusa Harit

Pb Selection

HS-23

Cultivars suitable for growing in Himachal Pradesh

1. Pusa Harit:

- ❖ Suitable for cultivation in the hills throughout the year,
- ❖ Plants are upright, vigorous growing with uniformly thick green, slightly crinkled and giant sized leaves,
- ❖ Heavy yielder with remarkable ability for rejuvenation.
- ❖ It has late bolting habit and wide range of adaptability to varying climates,
- ❖ Average yield 150-200q/ha.

2. Banerjee's Giant:

- ❖ Large thick leaves with very succulent stem and fleshy root,
- ❖ Suitable for all zones,
- ❖ Average yield 150-190q/ha.

Soils

- It can be grown in any type of soil having sufficient fertility and proper drainage system.
- Sandy loam soils are not suitable.
- High yields of better quality greens are produced in neutral soils having a pH 7.0.
- It is highly salt tolerant vegetable and can be successfully grown in saline sodic soils.
- 3-4 ploughings followed by planking are required to make the soil well pulverized and leveled for raising the crop.

Climate

- **It is predominantly a cool season crop but can be grown throughout the year under mild temperature conditions.**
- **The crop can withstand frost and tolerate warm weather but high temperature leads to early bolting without giving sufficient cuttings.**

Sowing Time

Sowing time varies from region to region.

In plains of India, grown 3 times in a year:

- Early spring.
- In the beginning of rainy season.
- As main crop during Sept.- Nov.
- Throughout the year in places with mild climate.

In Himachal Pradesh

| Zone | Time of sowing |
|------------|-------------------------------|
| Low Hills | July-November, February-March |
| Mid Hills | July-October, February-April |
| High hills | March-June |

Seed Rate

Summer crop: 25-30 kg/ha

Winter crop : 10-15kg/ha

Seeds are soaked in water overnight before sowing to improve germination

Sowing method

Broadcast method or by line sowing

Spacing

30cm X 5-10cm

(Thinning is done to maintain the spacing with in the rows)

Manures and Fertilizers

| Farmyard manure (q/ha) | N | P ₂ O ₅ | K ₂ O |
|------------------------|---------|-------------------------------|------------------|
| | (Kg/ha) | | |
| 100 | 70 | 50 | 50 |

- Full dose of farmyard manure, P, K and half N should be applied at the time of sowing.
- Remaining part of N should be top dressed in two equal installments at an interval of one month each.

Interculture and weed control

- **To keep away the weeds from the field and to loosen the soil for proper aeration, 2-3 hoeings cum weeding are required.**
- **Herbicides like pyrazone at 2.4-2.8 kg/ha can also be used to control the weeds as pre-emergence application.**

Irrigation

- **A pre-sowing irrigation is to be given to help the seeds absorb moisture and germinate properly.**
- **The spring summer crop needs frequent irrigation at 6-7 days interval**
- **Autumn winter crop requires irrigation at about 10-15 days interval.**
- **However, rainy season crop requirement depends upon the intensity and duration of rain.**

Harvesting

- The crop will be ready for harvesting in about 3-4 weeks after sowing.
- Subsequent cuttings are done at 15-20 days interval.
- Only well grown green succulent and tender leaves should be trimmed.
- Winter crop gives more cuttings than spring-summer crop.
- On an average palak gives 4-6 cuttings

Yield

150-200q/ha

INSECTS

**1. Aphids: Spray oxy demeton methyl@
0.025% or malathion@0.05%**

**2. Catterpillar: Spray malathion@0.05% or
deltamethrin@0.0028% or
cypermethrin@0.0075%**