BER

GENERAL INFORMATION

Indian jujube or Ber also known as poor man fruit is hardy fruit crop suitable for arid region. Ber is rich source of Protein, Vitamin C and minerals. It is cultivated throughout the country. Madhya Pradesh, Bihar, Uttar Pradesh, Punjab, Haryana, Rajasthan, Gujarat, Maharashtra, Tamil nadu and Andhra Pradesh are major Ber growing states. It is a common and fourth important fruit crop (after kinnow, mango, gauva) of Punjab state.

CLIMATE

Temperature
15-40°C
Rainfall
300-*400mm*
Sowing Temperature
15-20°C
30-37°C
Harvesting Temperature
30-40°C

15-20°C

SOIL

It can cultivated on wide range of soil like from shallow to deep, from gravely and sandy to clay soil. It can also grow on marginal and soil that are unfit for cultivation. It can withstand in saline, alkaline soil also in waterlogging soil to some extent. Deep sandy loamy soils with good drainage capacity are ideal soil for ber cultivation.

POPULAR VARIETIES WITH THEIR YIELD

Umran: Fruits are of oval shape with smooth and glossy skin. Fruits are of golden yellow color and on maturity it changes to chocolate brown. It gets mature in March end to Mid-April. Gives average yield of 150-200 kg per tree.

Kaithli: Fruits are of medium size, oblong, with smooth skin and of greenish yellow color. Ready to harvest in March end. Fruits are of sweet in test. It gives average yield of 75 kg per Tree. Get affected with powdery mildew disease.

ZG 2: Trees are of spreading type. Fruits are of medium size, oblong and of bright green color on ripening. Sweet in taste. It is resistive to powdery mildew disease. Ready to harvest in March End. It gives average yield of 150 kg per tree.

Wallaiti: Medium to large size fruits with oval shape. On maturity, color of fruit changes to golden yellow color. Pulp is soft with TSS from 13.8 to 15%. It gives average yield of 114 kg fruits per tree.

Sanaur 2: Fruits are of large size, skin is smooth with golden yellow color. Sweet in taste having TSS 19%. Resistant to powdery mildew. Ready to harvest in second fortnight of March. It gives average yield of 150 kg per tree.

Balvant: It is an early variety and matures in mid-November. It gives an average yield of 121kg per tree.

Neelam: It is a moderate maturing variety and matures in end-November. It gives an average yield of 121kg per tree.

Other state varieties:

Gola: High yielding, early maturing variety suitable for dry areas. Fruits are round, greenish yellow in color.

Banarasi Kadaka

Mehrun

Parbhani

Elaichi

Sanam 5

LAND PREPARATION

For Ber farming, well prepared land is required. To bring the soil to fine tilth, 2-3 ploughings followed by levelling should be done.

PROPAGATION

It is generally propagated by budding. Katha ber is generally used for raising rootstock. Dip ber seeds in 17-18% salt solution for 24hour. Then sow seeds in nursery during April month at distance of 15cm in row and 30cm between two plants. In 3-4 week germination started and then plant is ready for budding in August month. T budding is done in June-September Month.

SOWING

Time of sowing

Transplanting is carried out in February-March or August-September. Defoliate the plant while lifting from nursery for transplantation purpose.

Spacing

Spacing of 7.5 x 7.5 m is used for planting.

Sowing Depth

Before planting dig pit of 60 x 60 x 60 cm and kept open in sun for 15 days. They fill this pit with mixture of soil and cowdung. Then transplant budded plant in it.

PRUNING AND TRAINING

Proper and regular annual training and pruning is necessary. Start it from Nursery stage. In nursery, ensure that plant having single stem. After transplanting, in field keep head clean upto 30-45cm with 4-5stronge branches. Prune lower branches and prevent them from spreading on ground. Remove disease, thin, dry and broken branches of previous season. Pruning is carried out when plants are in dormant state i.e. from second fortnight of May.

INTERCROPS

Inter crops can be taken during first three - four years. Crops like Gram, Moong and Mash can be taken as intercrop during initial years. These crops give extra income also enriched soil by fixing atmospheric nitrogen.

FERTILIZER

Fertilizer Requirement (Kg/tree)

Age of crop (Year)	**Well decomposed cow dung (kg)**	**Urea (in gm)**
First year	20	200
Second year	40	400
Third year	60	600
Fourth year	80	800
Fifth and above	100	1000

Apply 20kg/tree Well Decomposed Cowdung for 1 year old crop along with Urea@200gm/tree. Increase dose of Cowdung by 20 kg and Urea by 200 gm for two year old crop, i.e Cowdung@40kg

and Urea@400gm. Keep increasing cowdung quantity by 20 kg and Urea dose by 200 gm as age of crop increases.

Apply whole amount of Cow dung in May month. Apply Urea in two equal parts, First dose should be given in July-August and second dose is applied at after fruit set stage.

WEED CONTROL

Spray with Diuron @ 1.2kg/acre as pre-emergence herbicide in first fortnight of August. The weeds can be controlled as post emergence by Glyphosate @ 1.2Ltr/acre or Paraquat @ 1.2Ltr/acre in 200Ltr of water when weeds are 15-20cm in height.

IRRIGATION

Established trees generally not required frequent irrigation. When plant is in dormant stage, no irrigation is required. At fruit development stage irrigation is essential. At this stage apply irrigation with interval of 3-4weeks depending upon weather condition. Stop irrigation in second fortnight of March.

PLANT PROTECTION

- **Pest and their control:**

  Fruit Fly: Serious pest of ber. Females lay eggs below epidermis of young fruits. Later on maggots feed on pulp afterward fruits starts rotting and get drop.

Grow fruit fly tolerant varieties. Remove and destroyed infected fruits away from field. Keep field clean. Take spray of Dimethoate@500ml/300ltr of water in February-March month. 15days before picking, stop spraying of Dimethoate

Leaf Eating Caterpiilar: They feed on leaves and tender fruits and thus affect fruit quality.
At initial stage of infestation, collect caterpillar with hand and destroyed them. Take spray of Carbaryl@750gm/200Ltr of water.

- **Disease and their control:**

  Powdery Mildew: White powdery growth is observed on young leaves and also on fruits. In severe condition premature defoliation and fruit drop is observed. Fruit quality get deteriorated and they remain small in size.

  Take spray of wettable Sulphur @ 250gm/100ltr of water during flowering stage. If necessary repeat the spray.

Leaf Mould: Blackish growth and sooty mould is seen underside of leaves. They give yellow appearance and severe infection they get fall off.

If infestation is observed, take spray of Copper Oxychloride @ 300gm in 100Ltr of water.

Black Fruit spot: Small, irregular, black spots observed on ber fruits. Symptoms of disease are seen in February month. In severe infection fruits get drop off.

Start spraying of Mancozeb 75WP @ 250gm per 100 Ltr of water from January month upto mid-February with interval of 10-15days.

HARVESTING

First harvest is done within 2 - 3years after planting. Harvesting should be done at right stage of maturity. Avoid over ripening stage, as it decreases quality and taste of fruits. Picking is done when they are of normal size and give ripening color depending upon variety.

POST-HARVEST

Remove damaged and under ripe fruits and do grading depending upon size. After grading do proper packing in Corrugated Fibre Board cartoons or wooden baskets, gunny bags of convenient size.

REFERENCES

1.Punjab Agricultural University Ludhiana

2.Department of Agriculture

3.Indian Agricultural Research Instittute, New Delhi

4.Indian Institute of Wheat and Barley Research

5.Ministry of Agriculture & Farmers Welfare