



GRAPES

GENERAL INFORMATION

It is very popular crop in the world and commercially grown in most countries. It is a perennial and deciduous woody climbing vine. It is a good source of vitamin B and minerals such as calcium, phosphorus, and iron. Grapes are used for raw eating and are used for making various products such as jelly, jam, raisins, vinegar, juice, seed oil and grape seed extracts. Grape farming is mainly done in France, USA, Turkey, South Africa, China, Portugal, Argentina, Iran, Italy, and Chile. Among these China is the largest country doing grape farming. It also has health benefits such as it is used to control diabetes, relieves from asthma, heart issues, constipation, bone health etc. It is also useful for skin and hair health related issues.

SOIL

It is grown in a variety of soil but good fertile soil having pH range of 6.5-8.5 having good water holding capacity is suited best for grape farming.

POPULAR VARIETIES WITH THEIR YIELD

Punjab MACS Purple: Released in 2008. The variety is rich in anthocyanins. The fruit is berry which is seeded. Fruits are medium in size and become purple at maturity. It contains medium and loose bunches. The variety matures in first week of June. It is suitable for processing juice and nectar.

Perlette: Released in 1967. High yielding variety, bunches are large to medium in size, grapes are medium size, lightly aromatic, round, thick peel, sweet flesh and hard. It contains 16-18% TSS content. It gives an average yield of 25kg per vine.

Beauty Seedless: Released in 1968. It performs well when grown in south-western districts. It bears medium sized bunches which are well filled. It contains seedless berry which is medium in size and are bluish black in color. Berries contain 16-18% TSS content. The fruit matures in first week of June. It gives an average yield of 25kg per vine.

Flame Seedless: Released in 2000. It has medium bunch, seedless berry which is firm and crispy and becomes light purple in color at maturity. It contains 16-18% TSS content. The variety matures on second week of June.

Superior Seedless: Medium spreading vines. The bunches are medium to large in size. The seeds are large in size and are golden in color. The fruit contains 10.0% sugar content and 0.51% sour content. The variety matures in first week of June. It gives an average yield of 21.8kg per tree.

Other state varieties:

For dry areas:

For making raisins: Thompson Seedless, Black Sahebi

For raw eating: Thompson Seedless, Beauty Seedless, Black Sahebi, Anab-e-Shahi,

For juice making: Beauty Seedless, Black Prince

For making vine: Rangspray, Cholhu White, Cholhu Red

For low hilly areas:

Perlette, Beauty Seedless, Delight, and Himred.

Thompson Seedless: Bunches are big, equal sized grape, the grape is medium long, green color fruits turn golden at maturity, fruit is seedless, hard and good taste, late maturing variety.

Black Sahebi: Fruit is purple in color, good quality, good bunches, thin peel and sweet flesh, soft seeds, can be kept for a long time, less fruit yield, large sized fruit.

Anab-e-Shahi: Bunches are medium to large sized filled, milk color fruits, thin peel, good quality fruits having sweet in taste.

Black Prince: Purple color round shaped fruit, thick peel, sweet and soft flesh, medium sized bunches, less dense, good yield giving early variety, suitable for raw eating and for juice making.

LAND PREPARATION

Well prepared land is necessary for grapes cultivation. To bring the soil to a fine tilth, 3-4 deep ploughings should be done by tractor followed by 3 harrowings.

SOWING

Time of sowing:

Transplanting of prepared root cutting is done in December to January month.

Spacing:

By Knifing method, use spacing of 3mX3m and by arbour method use spacing of 5m X 3m. For Anab-e-Shahi variety, use a spacing of 6m X 3m.

Sowing depth:

Cuttings are planted at the depth of 1m.

FERTILIZER**Fertilizer Requirement (gm/tree)**

Age (in years)	Cow dung (kg)	CAN (gm)	SSP (gm)	MOP (gm)
1 st year	20	400	1500	250
2 nd year	35	500	2500	350
3 rd year	50	600	3500	500
4 th year	65	800	4000	650
5 th year	80	1000	4500	800

In newly planted vines, application of Urea@60gm and MOP@125gm is done in April month and then repeat the same dose in June month. For older vines, application of fertilizer is done according to given in the table. Full dose of FYM and SSP and half dose of Nitrogen and Potassium are applied after pruning and half dose of Nitrogen and Potassium are applied after fruit set in April. Spraying of urea is done two times, first is done at the time of full blooming and second at fruit set.

WEED CONTROL

Application of Stomp@800ml per acre is done as the pre-emergence in the first fortnight of March after thorough ploughing and then spraying of Gramoxone 24 WCS (paraquat) or Glycel 41 SL (glyphosate)@1.6ltr/acre in 150ltr water is done as post emergence when the weeds attain the height of 15-20cm.

IRRIGATION

Time	Number
After pruning in the 1st fortnight of February	One irrigation
First week of March	One irrigation
After fruit set in April till 1st week of May	At 10 days interval
During the rest of May	Weekly interval
June	3 or 4 days interval
July to October	Irrigate when prolonged dry spell or rainfall is insufficient
November to January	One irrigation if soil gets extremely dry

PLANT PROTECTION



- **Pest and their control:**

Beetles: They eat fresh leaves and make the vines leafless.

Treatment: Spraying of Malathion@400ml per 150ltr water is done to get rid of beetles.



Thrips and Jassids: It sucks the juice of leaves and fruits. Jassid sucks the sap from the lower surface of leaves which causes white spots on the upper layer.

Treatment: Spraying of Malathion@400ml per 150ltr water is done to get rid of thrips and jassids.



Leaf roller: Caterpillar makes the leaf roll. It also eats the flowers.

Treatment: Spraying of Quinalphos@600ml per 150ltr water is done to get rid of leaf roller.



Yellow and red wasp: This pest eats the mature fruits by doing the hole.

Treatment: Spraying of Quinalphos@600ml per 150ltr water is done to get rid of yellow and red wasp.



- **Disease and their control:**

Powdery mildew: Powdery material is seen on both sides of leaves and on a bunch of flowers. Wilting is seen on leaves which will ultimately get dried.

Treatment: Spraying of Carbendazim@400gm or wettable sulphur@600gm is done before flower development and at the time of fruit development.



Downy mildew: Irregular shaped yellow color spots are seen on the upper layer of leaves and on lower layer fungus of white color is seen.

Treatment: The first spray of Mancozeb@400-500gm is done during training and pruning, the second spray is done after 3-4 weeks of the first spray, then the third spray is done before twig development and then fourth spray is done when bunch development start.



Anthracnose: On fruits, stem and branches, deep sunken wounds of canker are seen and on leaves, brown color stains are seen.

Treatment: Spraying of copper oxychloride or M-45@400gm per 150ltr water is done to get rid of anthracnose.

HARVESTING

Harvesting is done when fruits are fully matured.

POST-HARVEST

After harvesting, grading is done. After grading, fruits are pre cooled at 4.4°C temperature within six hours. Packing of grapes is done in containers for long distance markets.