rachis. This operation should be completed before the 2nd dip of GA, for proper utilization of the food material for berry development.

**Fig 9: 3-4mm Stage & Fig 10: 6-7mm Stage**

h. The second dip of GA, @ 30ppm along with 1ppm Brassinosteroids or 10ppm 6-BA after fruit set should be given at 4-6 mm.

i. Irrigation should be given @ 1400 litre/ha per mm of evaporation however, phosphorius should be applied @ 107.5 Kg during the same period.

V. **Verasion to maturity (91 to 140 days after pruning)**

a. At Verasion, berry softening starts indicating the ripening initiation.

b. For proper berry development and berry ripening, 4200-litre/ha water per mm evaporation should be applied.

c. During the period of 71-105 days after pruning, 80 Kg each of nitrogen and Potash/ha should be applied to the vines for berry development and maintaining the vine health. Further, 80 Kg potash/ha should also be applied during 106 to 135 days after pruning.

d. The vineyards should be sprayed with Hexaconazole @ 0.5 ml/litre water to control powdery mildew at this stage.

**VI. Harvesting**

a. For export, grapes should be harvested when the TSS is more than 18° Brix and berry diameter 18 mm and above.

b. Harvesting should be done early in the morning and not later than 11.00 am. Temperature of the berries should be brought down to minimum for maintaining the berry quality.

c. Bunches are to be cut above the knot of the main rachis to increase the shelf life.

d. At the time of harvesting berries should not be damaged or bruised so as to check the physiological loss in weight and rotting.

e. Bunches should be stored in shed and cool place and not to be over stacked in the crates.

f. Proper grading and packing helps in getting higher price in the market.

**Folder No. 08**

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**Some Tips on Forward Pruning**

October pruning is popularly known as forward or fruit pruning. It is carried out in the month of August-September (Early season), October (Normal season) or November-December (Late season) as a part of staggered pruning practices from the point of better marketing. Forward pruning represents the fruit production phase of annual growth cycle of grapevine. It is represented broadly with the following stages:

- Pre-pruning practices
- Pruning and Shoot Growth
- Flowering to Shattering stage
- Berry setting and Berry development
- Verasion to maturity
- Harvesting

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I. Pre-pruning Practices
a. Application of Farm yard manure 10 tons + 880kg SSP per acre should be carried out by opening shallow trenches in between vines (e.g. 4"X2"X4" for vines spaced at 6' distance) within the rows.
b. Water stress should be given at least 7 days before pruning in light soil and 15 days in heavy soil.
c. Collection and testing of at least 20-25 randomly selected cane in an acre area for fruitfulness should be done 15 days before pruning.
d. Leaf removal should be carried out at least 4-5 days before pruning in own rooted vines and 7-8 days in grafted vines.

![Fig 1: Forward Pruning & Fig 2: Sprouting](image)

II. Pruning and shoot growth (0 to 40 days)

- Vineyard should be pruned based on the bud testing report received. In the situation where the facility is not available, certain thumb rules should be followed are as given below.
- i. In case of sub-cane, prune the cane just ahead of the knot so that the 'Tiger bud' could be exploited.
- ii. In case of straight cane, prune between 6-10 buds where inter node length is reduced.
- f. For uniform bud sprout, Hydrogen cyanamide @ 20 to 50 ml/lt should be applied depending on the cane thickness, plant type and the temperature available in that area. The correct doses are as below.

<table>
<thead>
<tr>
<th>Vine Type</th>
<th>Case thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own rooted</td>
<td>20ml/lt</td>
</tr>
<tr>
<td>Grafted</td>
<td>30ml/lt</td>
</tr>
</tbody>
</table>

- g. The vineyard should be sprayed with 1.0% Bordeaux mixture (i.e. Copper Sulphate 1.0kg and 0.6-1.0kg Lime used for preparation of 100lt spray solution) within 48 hours of pruning.
- h. The vineyard should be irrigated at 4200 litre/ha per mm evaporation during first 40 days after pruning.
- i. Nitrogen should be given @ 80 Kg/ha during the same period of irrigation (30% of the annual dose 266.6:355.2:266.6PNPK/ha).
- j. During bud swelling stage, spraying of Carbaryl @ 2.0g/lt or Neem oil @ 2.0ml/lt should be carried out to control Flea beetle.
- k. At leaf emergence stage, spraying of Carbendazim 1.0g/lt be done to prevent anthracnose.
- l. Spraying of Metasystox (8%) formulation @ 2.0g/lt at 3-leaf stage reduces the chances of Downey mildew.
- m. Spraying of CCC @ 250ppm along with 6-BA @ 10ppm should be done to avoid fillerage formation due to vigorous growth.

![Fig 3: Three Leaf Stage & Fig 4: Five Leaf Stage](image)

III. Flowering to shattering stage (41 to 60 days after pruning)

- a. Spraying of Carbaryl @ 1000 ppm at 50% flowering helps in reducing berry set while reduction of irrigation water helps in natural berry thinning up to 30%.
- b. Spray of Thiomethoxine @ 0.25 g/litre water during berry set helps to control thrps incidence.
- c. During the period of 41 to 70 days after pruning, 107.5 Kg phosphorous should be applied to the vines.
- d. For uniform green colour of a bunch, 10-12 leaves above the bunch on bearing shoot are required. This is generally achieved till berry setting. But in some cases, berry drop is experienced due to excess shoot. To avoid this development, shoot should be pinched at required leaf number above bunch.

![Fig 7: Flowering & Fig 8: Shattering Stage](image)

IV. Berry Growth (61 to 90 days after pruning)

- e. First dip of GA3 should be given at 3-4mm berry stage in Thompson seedless and at 4-5mm stage in Tas-A-Ganache. 40ppm GA3 along with 2ppm CPPU or 1ppm Brassinosteroids should be given to increase the berry size.
- f. Berry thinning should be carried out after first dip of GA3.
- g. In a bearing bunch 9-10 rachis having 80-100 berries are maintained by thinning out excess