Advisory for grape growers during foundation pruning (16th to 30th April, 2020)

Nutrient and irrigation management:

Rest period

- The plots which have entered into rest period, provide only need based irrigation to protect the existing leaves from drying and also contribute towards increasing the reserves of the vines through photosynthetic activity. The quantum of irrigation water applied should be approx. 5000 – 6000 L/acre, once in a week. Care should be taken to reduce/stop the water in case new growth is observed on the shoot.

- Apply 10-15 kg urea, 25-30 kg SSP and 10-15 kg Sulphate of Potash per acre every 15-20 days till foundation pruning is not done.

- Flooding the vineyard is not advised as it will lead to wastage of water. Concentrate irrigation water application in the root zone only.

Foundation pruning season

Before pruning

1. If planning for foundation pruning in next 10-15 days, it is advised to get soil and water analysed for planning nutrient and water application schedule for foundation pruning season.

2. The vineyards with sodicity problems, apply gypsum to the soil for removal of sodium from the soil exchange complex. In case of the sodic soils are calcareous also, use sulphur for similar purpose.

3. If soils are calcareous in nature, then apply 50 kg sulphur between the vines in the soil. The sulphur should be properly mixed in the soil for improving its efficacy in taking care of calcium carbonates. Mixing of sulphur in organics further improves its efficacy.

4. Apply FYM/ compost/other organic sources including green manuring atleast 12-15 days before Foundation pruning. If possible mix 200 kg single super phosphate in the FYM and apply in the soil. Application of organics improves the nutrient and water retention in the root zone and reduces nutrient losses from the profile.

5. Never apply water soluble fertilisers like urea, ammonium sulphate etc. as basal, as they will leached and contaminate the ground water. They should be applied only from sprouting onwards.
Shoot growth stage

Irrigation

1. Irrigation water < 1dS/m: Apply irrigation through surface drip @ 10,880 to 14,960 L/acre per day.
2. Saline irrigation water (1.1 – 2.0 dS/m): Apply irrigation through surface drip @ 13,600 to 16,150 L/acre per day.
3. In case the shoot growth is vigorous, reduce irrigation water application till growth is controlled.
4. In case there are rains, withhold irrigation water application if the soil is at field capacity (wapsa condition).
5. Mulching the vineyards during this period will reduce the salinity build up in the root zone due to upward movement of saline water from lower soil layer. This will also reduce the irrigation water requirement by another 10%.
6. **Cover the cordons of the pruned vines with shade net**, if available, for uniform sprouting as well as reducing the irrigation water needs by 20-25 %. Shadenet coverage will reduce the temperature impact on the cordons. However, remove shadenet after 3-5 leaf stage. If shadenet is not available, spray the cordons with water during the peak heat period i.e. 2-3 pm to reduce the heat effect on the buds.
7. In case there is **probability of less irrigation water availability**, then flood the bund (not whole vineyard) at pruning and mulch the bunds. Flooding the bund will reduce the accumulated salt load in the root zone and mulching will reduce the evaporation of water from soil surface. Thus, this will reduce the salt load in the soil and at the same time saturate the soil leading to proper sprouting. Further, in case less irrigation water is available still the newly emerging shoots will not be damaged due to salinity.

Nutrition

1. Apply 50 kg urea/ acre in 5-6 splits after sprouting. In calcareous soils, donot apply urea, instead use ammonium sulphate @ 85 kg/acre in atleast 7-8 splits from sprouting onwards.
2. In case of vigorous growth of shoots, stop nitrogen application and wait for the growth to stabilize before resuming nitrogen application.
3. Based upon soil test value, apply Zinc sulphate @10 kg/acre along with Ferrous sulphate @10kg/acre followed by Magnesium sulphate @15kg/acre in atleast 2 splits during 5-7 leaf stage. Boron application should be strictly based upon soil and petiole test.

Canopy management:

Bud sprouting:

The vineyard back pruned during first week of April will be at the stage of bud swelling to sprouting. To achieve uniform and early bud sprouting, the temperature in the vineyard needs to be brought down and the relative humidity be increased through various means. To achieve this, following approaches can be attempted.

i) **Irrigation in the vineyard:** Under the situation of availability of sufficient water, the vineyard should be irrigated in such a way that the bund covering the root zone will be saturated completely with the moisture. This will help to cover the area with root zone. It will also reduce the temperature and increase the relative humidity in the vineyard.
ii) **Covering the vineyard with shade nets:** If the shade net is placed two feet above the cordon, this will help to reduce the temperature and increase the humidity.

iii) **Water spray on the cordon:** Spray of water twice in a day (once during 11.0 am to 12.0 pm and other during 3.0 to 4.0 pm) from 6th days after foundation pruning to 15th or 16 day depending on the weather available during the period. This will help to reduce the temperature and increase the humidity.

<table>
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<tr>
<th>Foundation Pruning</th>
<th>Vine covered with shade net</th>
<th>Uniform bud sprout</th>
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**Use of plant growth regulators:**
Application of PGR does not have any role during this stage since the bud sprouting will be initiated.

**Management of insect pest:**

- Vineyards may have higher mealybug infestation during vine resting stage after harvest. Buprofezin 25 SC @ 1.25 ml/L water is effective for the management of mealybugs.
- After foundation pruning at the time of bud sprouting, flea beetle incidence may be high and mealybug infestation may cause shoot malformation. To manage both flea beetle and mealybugs, imidacloprid 17.8 SL @ 0.4 ml per litre of water may be sprayed.
- Newly grafted vineyards may experience heavy thrips and moderate jassid infestation on new growth after re-cut or shoot tipping. Fipronil 80 WDG @ 0.06 g/L water or emamectin benzoate 5 SG @ 0.22 g/l water is effective against both thrips and jassids.
**Disease Management**

Immediately after pruning the following steps needs to be undertaken:

1. The pruned material like the twigs and leaves should be collected and dumped in a pit away from the vines. Then a spray of Mancozeb 75 WP @ 2.5g/Litre should be made in the pit and covered. The pruned material should not be burnt.
2. While pruning, there should not be any old lesions of anthracnose on the canes. It should be neatly removed with a secateur and about 2-3 cm extra healthy portion should be removed along with the disease portion to avoid systemic infection.
3. While pasting with Hydrogen cyanamide, Mancozeb 75 WP @2-3 g/Litre should be mixed with pasting mixture. Propineb / Metiram may also be used instead of Mancozeb, depending on the availability.
4. The cordons should be washed alternatively with Mancozeb 75 WP @2-3 g/Litre and Sulphur @ 2g/Litre at an interval of 7-10 days, twice. This will control the spores of the fungus causing downy and powdery mildews respectively, overwintering in the bark and reduce the primary inoculum.
5. Uniform sprouting is preferred. If 1-2 erratic, early sprouting of shoots are observed, it should be manually removed.
6. If there is a light to medium drizzle in some areas, 1-2 soil drenching with *Trichoderma sp.* @ 4-5 g/Litre may be given. *Trichoderma* may be applied through drip as well.

The basic objective of the above steps is clean cultivation and reduction of primary inoculum so as to prevent the build up of disease.