

## WEATHER DATA FOR THE PREVAILING WEEK

Date of foundation pruning: 15/04/2020

### I) Wednesday(13/5/2020)– Wednesday (20/5/2020)

Location	Temperature (°C)		Possibility of Rain	Cloud Cover	Wind Speed (Km/hr) Min-Max	R H%	
	Min	Max				Min	Max
<b>Nashik</b>	23-25	37-38	<b>Nashik, Pimpalgaon Baswant, Ojhar, Palkhed, Dindori, Vani</b> Mon to Next Wed- Drizzling. <b>Shirdi, Loni</b> Next Wed- Drizzling.	Clear to Partly Cloudy	5-21	23-31	70-84
<b>Pune</b>	23-25	36-39	<b>Pune, Phursungi, Narayangaon, Junnar</b> Thu, Sat & Mon to Next Wed- Drizzling. <b>Loni Kalbhor, Uruli Kanchan, Yavat, Patas, Supa, Baramati</b> Thu, Sat- Drizzling. Next Wed- Light Rain.	Clear to Partly Cloudy	4-21	23-32	70-86
<b>Solapur</b>	27-30	39-41	<b>Solapur, Nanaj, Vairag, Kati, Pandharpur, Pangri, Barsi</b> Next Wed- Drizzling. <b>Kasegaon, Atpadi</b> Sat, Tue & Next Wed- Drizzling.	Clear to Partly Cloudy	5-24	18-30	49-61
<b>Sangli</b>	23-26	37-39	<b>Sangli, Miraj, Shirguppi, Kagvad, Arag, Shetphal</b> Next Wed- Drizzling. <b>Kavtha Mahankal, Palus, Valva, Tasgaon, Palsi, Vite</b> Sat, Tue & Next Wed- Drizzling.	Clear to Partly Cloudy	4-23	26-35	71-86
<b>Bijapur</b>	25-28	38-40	<b>Bijapur, Tikota, Telsang, Chadchan</b> Next Wed- Drizzling.	Clear to Partly Cloudy	6-25	19-32	57-72
<b>Hyderabad</b>	26-27	37-39	<b>Zahirabad</b> Fri- Drizzling.	Partly to Mostly Cloudy	2-20	26-45	51-84

Note: Above weather information is summary of weather forecasting given in following websites

<http://www.imd.gov.in/>, <http://wxmaps.org/pix/prec6.html>, <http://www.fallingrain.com/world/IN/>, <http://www.wunderground.com/>, <http://www.bbcweather.com-weather/1269750>, etc.

### II. a) Days after pruning: - 28 days

## b) Expected growth stage of the crop: 5-7 leaf stage

### III) Nutrient and Irrigation Management (Dr A K Upadhyay)

#### Water management

Expected pan evaporation: 9 to 11 mm

#### Amount of irrigation advised:

1. 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.
2. **Shoot growth stage:**
  - a) Irrigation water < 1dS/m : apply irrigation through surface drip @ 12,240 to 13,600 L/acre per day for Nasik, Pune and Sangli region and from 13,600 to 14,960 L/acre per day for Solapur, Bijapur and Hyderabad regions..
  - b) Saline irrigation water (1.1 – 2.5 dS/m): apply irrigation through surface drip @ 15,300 to 17,000 L/acre per day for Nasik, Pune and Sangli region and from 17,000 to 18,700 L/acre per day for Solapur, Bijapur and Hyderabad regions.
  - c) Mulching the vineyards during this period will reduce the salinity build up in the root zone as there will be no evaporation from the soil surface. This will also reduce the irrigation water requirement by another 10%.
  - d) In case the shoot growth is vigorous, reduce irrigation water application till growth is controlled.
  - e) If the soil is at field capacity (wapsa condition), then withhold irrigation water application till such time, the soil moisture content comes below field capacity (wapsa).
3. **Fruit Bud Differentiation stage:** Apply irrigation through surface drip @ 6000 to 7000 L/acre per day.
4. For fruit bud differentiation stage, stress needs to be given. In clayey soil as the water holding capacity is higher, please note that stress needs to be imposed early else fruitfulness will be affected.
5. Flooding the vineyard is not advised as it leads to wastage of water. Concentrate irrigation water application in the root zone only.

#### Nutrient Management

1. 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.
2. As the soils are alkaline in reaction with pH exceeding 7.4, during foundation pruning season plan for fertilizers with high acidifying potential for better utilization of the nutrients.
3. Always check for leaf curling symptoms, which could be because of salinity, high temperature, less water application or potassium deficiency. In young leaves possibility of sucking pest injury could also be there. Accordingly make necessary interventions.
4. **At shoot growth stage**, apply 25 kg urea/ acre in 2 -3 splits after sprouting. In calcareous soils, donot apply urea, instead use Ammonium sulphate @ 40 kg/acre in atleast 3 splits from sprouting onwards till next 10 days. Apply as per need only and in any case donot exceed 65kg urea/acre and equivalent ammonium sulphate.
5. In case of vigorous growth of shoots, stop nitrogen application and wait for the growth to stabilize before resuming nitrogen application.
6. 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 test.

7. In calcareous soils, spray magnesium sulphate and potassium sulphate @2 gm each/ L once only during active growing stage.
8. **During fruit bud differentiation stage**, based upon soil test values, apply 20 – 25 kg phosphoric acid or 150 kg SSP in case the soils are deficient in phosphorus. Phosphoric acid application is desirable in calcareous soils. Do not apply beyond this until and unless the soil and petiole tests show low phosphorus availability.
9. **During fruit bud differentiation stage**, do not apply any water soluble fertilizer having nitrogen.
10. At 45 DAP, perform petiole test to know the nutrient content of the vines. The petioles should be collected from 5th leaf from the base of the shoot even counting the leaves that have been removed.
11. Apply Magnesium sulphate @ 15kg/ acre in atleast 2 splits from 45 to 55 DAP.
12. In calcareous soils, spray magnesium sulphate and potassium sulphate @ 3 gm each/ L once only during 45 to 55 DAP.

#### **IV. Requirement of growth regulators (Dr. S.D. Ramteke)**

The application of 6BA and Uracil may be started in this week. If 3 leaves after subcane have come up in such vineyards first application must be given of 6BA @ 10 ppm. After the gap of 5 days Uracil must be applied as a spray @ 50 ppm.

The above sprays must be taken to ensure bud fruitfulness.

#### **V. Canopy management (Dr. R.G. Somkuwar)**

##### **Management of grape vineyard after rains with hailstorm**

Grape is mainly grown in Maharashtra and Karnataka state with a major share of about 85% in Maharashtra. In the grape vineyard, during this period, different activities like sub cane development (after foundation pruning in old vine), framework and fruitful cane development (vines after re-cut) are being carried out on large scale. However, some of the grape growing areas in both state experienced heavy rains with hailstorm. This has affected the growth and development of grapevine. The problems faced in the vineyard under different growth stages and possible corrective measures are being discussed below.

**Vineyard after foundation pruning:** In this vineyard, the extent of damage and corrective measures are discussed as below.

- 1) **There may be torned leaf:** Due to heavy rains and hailstorm, the leaf were torned. This will lead to insufficient leaf area for photosynthesis thereby leading to development of weak cane. The present storage of food material in this cane may not be sufficient for development of a bunch meant for export in the next season. Considering the present leaf status in the vineyards, allow some more leaf on the shoot so as to complete the leaf requirement for photosynthesis. In general, 16-17 leaf per shoot with 8-10 mm diameter with leaf area of 160-170 cm<sup>2</sup> is considered sufficient.



- 2) **The shoot tip is damaged:** In this vineyard, after pinching the shoots for sub-cane, the side shoots were developed. The growing shoots helped in developing the canopy. Under this condition, the damage due to rains and hails was less on the main shoot. This was either due to protection by developing canopy or low intensity of rains and hailstorm. On this vine, the damaged shoots are to be pinched off. In general, top 2-3 leaves are to be pinched off. This will help to grow new shoots at faster rate.



- 3) **The growing shoot is completely damaged and broken:** This situation is experienced in the vineyard where the vegetative growth is continuing and the shoot removal is completed. At this stage if the vineyard experience rainfall with hails, the chances of heavy damage on growing shoots are more. In this case, removal of shoot one bud below the damaged end is recommended. In severe cases, the shoot pinching leaving 2-3 buds from the base can be done. It will be as good as back pruning on green shoots. Under the condition of severe damage, this will support for development of new fruitful canes.



Due to heavy rainfall, the moisture in the root zone is increased. After 2-3 days, the temperature and relative humidity in the vineyard will increase. This condition will support for faster vegetative growth. Hence, after shoot pinching, the vine will impart high vigour leading to increase gibberellins in the vine. However, there will be nutrient loss.

#### 4) **The vineyard after re-cut:**

In this vineyard, the cordon development was completed and the process of development of fruitful canes was in progress. The situation after rains and hailstorm is more or less same as in case of old

vineyard. Many of the farmers think of taking the fresh re-cut to the cordon and develop new cordon. Unless the damage is severe, there is no need to take fresh re-cut to the cordon. The developing cordon was not completely matured. The root zone is completely saturated with moisture due to rainfall. In addition, the moisture in the nearby area of root zone has also been increased thereby activation of all feeder roots became easy. New roots called “white roots” will support the uptake of nutrient and water from the soil. This will help in development of sap in the trunk and cordon thereby maintaining the sap flow condition and healing the wound at faster rate. Hence, under this situation, the decision to take a fresh re-cut of the cordon should be based on the present situation in the vineyard.

**Fertilizer management:** Since we have removed the damaged shoots from the vine, the nutrients supplied have gone waste and need to apply again. To develop the fruitful canes, addition of nutrients is required. At this stage, nitrogen and phosphorous should be supplied to the vine. In old vines after foundation pruning, if the shoot growth is at 4-5 leaf stage, urea @ 1.0 to 1.25 kg/acre per day (2-3 applications) should be applied through drips. In the vineyard where sub-cane is already developed, apply urea only once through drip and one spray @ 1.5 to 2.0 g per litre water. In this vineyard, the leaf curling symptoms will be experienced after 3-4 days. This will be mainly due to the disturbance of source: sink ratio (the requirement and availability has not matched in the vine). In this situation, apply 0:0:50 @ 2-3 kg/acre through drip and single spray using 2g/L water.

## VI. Disease management (Dr. Sujoy Saha)

Days after pruning	Risk of diseases			
	Downy mildew	Powdery mildew	Anthracoese	Others (specify)
28	Low	Nil	Very low	nil

Drizzles in early pruned areas can trigger both anthracnose as well as bacterial leaf spot. Hence, application of carbendazim 12% + mancozeb 63% @ 2 gm / litre or Kasugamycin 5% + Copper oxychloride 45% @ 2.5 g/Litre may be applied for the control of both. If it is only anthracnose, application of thiophenate methyl 70WP @ 1g/L may be done. If it is only bacterial leaf spot application of mancozeb 75WP @ 2g/L may be done. In case of early sprouting, spray of copper hydroxide @ 1.5g/litre or 0.5% Bordeaux mixture may be given. Drip application of Trichoderma may be given in areas where there is slight drizzle which will enable the BCA to multiply. Non uniform sprouting may be prevented. In Walwa region powdery mildew is observed in some vines. To mitigate the same application of sulphur @ 2g/L may be done.

The vines which suffered with heavy damage after hailstorm like splitting of bark on the shoot and breaking of shoot may have the chances of fungal infection. Hence, immediately after the rains, the vineyards to be sprayed with copper oxychloride @ 2.0 g/L water. In the areas where vineyard suffered with heavy incidence of downy mildew during last season, the chances of activation of spores will be more. Hence, in these vineyard, spray of potassium salt of phosphorous acid @ 4g/L water + Mancozeb @ 2.0 g/L water with silicon based adjuvant @ 1ml/L will help to keep the inoculum under check.

## VI. Insect and Mite management. (Dr. D.S. Yadav)

- 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 are effective against both thrips and jassids.

- After foundation pruning at the time of shoot growth, thrips incidence may be high. To manage thrips, give foliar application of Fipronil 80 WDG @ 0.06 g/L water or emamectin benzoate 5 SG @ 0.22 g/L or cyantraniliprole 10 OD @ 0.7 ml/L water.
- Mealybug population may start to decline in areas where maximum temperature is nearing 40 degree Celsius. If insecticidal intervention is required to manage mealybug, then imidacloprid 17.8 SL @ 0.4 ml/L water may be sprayed as whole plant wash.
- In vineyards where stem borer is being observed removing frass, tag infested plants and manually remove and kill stem borer larva with the help of screwdriver by tearing apart live stem borer hole in the morning between 6-8 am.