WEATHER DATA FOR THE PREVAILING WEEK

Date of Fruit Pruning: 28/09/2020

Wednesday (10/01/2021)–Wednesday (17/02/2021)

Location	Temperature (°C)		Possibility of Rain	Cloud Cover	Wind Speed (Km/hr) Min-Max	R H%	
	Min	Max				Min	Max
Nashik	13-20	28-33	Nashik, Ozar, Palkhed, Dindori, Devla, Vani, Loni, Kalwan, Pimpalgaon Baswant, Niphad, Shirdi – No Rain.	Clear to Partly Cloudy	0-13	12-16	24-26
Pune	15-20	29-32	Pune, Phursungi, Loni Kalbhor, Uruli Kanchan, Narayangaon, Supa, Junnar, Yavat, Patas, Baramati – No Rain.	Clear to Partly Cloudy	0-10	09-16	24-37
Solapur	14-20	32-35	Solapur, Vairag, Nannaj, Kati, Pangri, Osmanabad, Pandharpur, Barshi, Kasegaon, Atpadi, Latur, Ausa Tuljapur – No Rain.	Clear to Partly Cloudy	2-12	10-18	28-52
Sangli	14-18	32-34	Sangli, Miraj, Kagvad, Palus, Tasgaon, Shetfal, Khanapur, Shirguppi, Vita, Arag, Walva, Palsi Kawthe Mahakal -No Rain.	Clear to Partly Cloudy	0-12	11-17	29-55
Vijayapura	12-17	29-32	Vijayapura, Tikota, Telsang, Chadchan – No Rain.	Clear to Partly Cloudy	2-14	11-16	27-41
Hyderabad	15-18	27-32	Hyderabad, Medchal, Zahirabad – No Rain.	Clear to Partly Cloudy	1-10	14-22	47-60

Satara	14-17	31-33	Satara, Khatay, Man, Phaltan – No Rain.	Clear to Partly Cloudy	0-10	11-18	24-46
Ahmednagar	14-17	29-33	Ahmednagar, Akole, Jamkhed, Karjat, Kopargaon, Nagar, Rahata, Sangamner, Shrigonda – No Rain.	Clear to Partly Cloudy	1-11	09-15	22-27
Jalna	13-17	31-34	Jalna, Ambad, Gansawangi, Jafrabad, Mantha – No Rain.	Clear to Partly Cloudy	1-12	10-17	19-30
Buldhana	14-17	33-35	Buldana, Chikhli, D.raja, Sindkhedraja – No Rain.	Clear to Partly Cloudy	0-12	10-16	19-27
Kolhapur	12-18	34-35	Gagan-bavada, Kagal, Karveer – No Rain.	Clear to Partly Cloudy	0-11	14-21	45-71
Bengaluru Rural	14-16	29-31	Bangaluru-east, Bangaluru-north, Bangaluru-south, Doddaballapur, Anekal – No Rain.	Clear to Partly Cloudy	1-12	07-15	52-71
Belagavi	14-18	31-36	Belagavi, Athni, Chikodi, Gokak, Khanapur– No Rain.	Clear to Partly Cloudy	0-15	14-19	31-60
Bidar	15-20	31-34	Bidar, Basavakalyan, Humnabad – No Rain.	Clear to Partly Cloudy	4-15	13-18	36-52
Bagalkot	15-20	31-33	Bagalkot, Badami, Bilagi, Hungund, Jamkhandi, Mudhol – No Rain.	Clear	2-13	12-16	29-44

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

https://www.wunderground.com/?cm_ven=cgi

https://imdagrimet.gov.in/weatherdata/BlockWindow.php

https://www.accuweather.com/

ICAR-National Research Centre for Grapes does not claim accuracy of it.

II. Water management (Dr. A.K. Upadhyay)

a) **Days after fruit pruning:** 135

b) **Pan evaporation**: 5.0 to 7.5 mm mm

Amount of irrigation advised:

1. In case the soil is under wapsa (field capacity) condition, donot irrigate the vineyard.
2. From Berry development stage onwards till maturity, apply irrigation through drip @ 8,500 to 10,200 L/ acre/ day for Nasik, Pune and Hyderabad region and 10,200 – 12,750 L/acre/day for Solapur, Kolhapur, Buldana and Belagavi region.
3. In case vigour is more than desired, then reduce irrigation water application by half to 4,250 – 6,400 L/ acre. Still if you are not able to control the vigour, stop irrigation till such time growth is controlled.
4. Practice mulching to keep the bunds moistened. This will reduce the salinity build up in the root zone due to evaporation of the moisture from the surface of the bund.
5. Flooding should be avoided.
6. Whereever temperature is crossing 35°C, donot withhold water during ripening to harvest stage as this will lead to loose bunch, thereby affecting the quality of produce. This is especially true in case of light soils and Saline soils.

Soil and Nutrient management

Berry Development stage:

1. Foliar spray of sulphate of potash and magnesium sulpahte each @ 3g/acre at 8-10mm berry size.
2. After 8-10 mm berry size, start application of nitrogen in the form of ammonium sulphate @ 25kg /acre in 4 splits in calcareous soil and as urea @ 15 kg/acre in other soils in 3 splits. Follow this up with Sulphate of potash or 0-0-50 @ 25 kg/ acre in 3-4 splits for next two weeks.

3. If soil is calcareous, then apply zinc sulphate and ferrous sulphate @ 5 kg/acre at 65-70 days after pruning.
4. Manage canopy for adequate sunlight and air movement within the canopy for avoiding/ minimizing problems of berry cracking.

Ripening to Harvest stage:

1. Apply Sulphate of potash or 0-0-50 @ 25 kg/ acre in 3-4 splits for next two weeks. Total potassium application (SOP) should be approx. 60 kg/acre during this stage. Follow this up with Magnesium sulphate @ 10 kg/acre in two splits.
2. Spray Magnesium sulphate and potassium sulphate @ 3g/L in calcareous soil.
3. Manage canopy for adequate sunlight and air movement within the canopy for avoiding/ minimizing problems of berry cracking.

III. Requirement of growth regulators (Dr. S.D. Ramteke)

Nil

IV. Canopy management (Dr. R.G. Somkuwar)

It is being experienced that the day temperature is increasing while the night temperature is still at lower level. The relative humidity is reducing. Under such situation, following problems and their probable solution is given below.

Sub burn of a bunch: In majority of the grape vineyards, the symptoms of sun burn on a bunch is seen. This is observed under two different conditions.

a) **Under reduced or no canopy**: When the canopy is not sufficient either to nourish or protect the bunch from sunlight the symptoms of sun burn is seen on the bunch. To protect the bunch, the requirement of canopy in the form of leaf to be at least 10-12.
b) **Disease infection**: The disease inoculum (mainly downy mildew) carried from berry setting stage is becoming active during veraision stage. Earlier, the disease spread was kept under control however; the inoculum could not be killed completely due to rainfall and increased relative humidity in the vineyard. During berry veraision, the bunches are kept under canopy shade and the irrigation is also increased. This congenial condition is becoming favourable to activate the inoculum. In many of the cases, other diseases are also found active. Since after the veraision stage, fungicides are not recommended, the only alternative can be use of biologicals like Trichoderma.

Bunch necrosis:

In many of the grape vineyard, the bunch necrosis is being experienced. The requirement of irrigation water during berry development stage increases. With the increase in temperature, water losses through evaporation from soil as well as through transpiration from canopy is more. This condition increases water requirement of grapevine. The water holding in root zone depends upon soil type (heavy soil and light soil). Water holding in light soil will be less as it contains less soil particles than that of heavy soil having a greater number of soil particles. Many of the time, irrigation requirement of a vine considering the berry development stage is not known. This condition disturbs the balance between actual requirement of irrigation and supply during a critical development stage.

Bunch load on a vine, canopy available and nutrition also play an important role in berry development. Excess bunch load will lead to competition among the bunches for utilization of available food material. This will also create the nutrient imbalance.

During the pre-bloom stage, we experience the incidence of downy mildew in the vineyard. During this stage, though the disease was kept under control but the complete inoculum was not killed. The same is getting activated when the irrigation during veraision stage is increases. Cluster drying due to infection of downy mildew is also seen at this stage.

Considering the problems, following measures are suggested.

a) Irrigation supply to the vine should be based on the actual requirement stagewise. To know the requirement, PAN evaporimeter can be installed in the vineyard.
b) Application of fertilizer to the vines should be focussed till veraision stage only. The fertilizer like calcium and magnesium can be applied from berry setting till veraision stage beyond this stage the absorption may not good.
c) Bunch load to be maintained based on the purpose (raisin, export, local, etc.).
d) During the period of increase in irrigation to the vineyard, the increase in relative humidity increases the chances of downy mildew incidence. However, the use of fungicide has limitation. Hence, during this stage use of biologicals like Trichoderma, Bacillus, etc should be given priority.
e) The dried portion of cluster should be removed immediately to avoid further drying.

Knot on the bunch peduncle:

In many of the grape vineyard, the knot on bunch is becoming a major problem. Even in some cases the knot on the rachis is also seen. This condition is experienced at the time of berry softening stage. During this stage, the concentration of acid in grape berries gets reduced while the sugar starts increasing. During this stage, irrigation application is also increased. Under severe cases, the knot on the peduncle breaks and the transportation of food material to the developing bunch hampers. After some time, due to lack of food material the bunch starts drying.

It is observed that in many of the grape vineyards, use of PGR for berry development is increasing. In addition, other bio-stimulants available in the markets are also used. The roots of grapevine also synthesize the PGR and supply to the vine. The excess dose of PGR than the actual requirement disturbs the balance of vine and thus show the symptoms of swelling on the bunch peduncle and also on rachis in extreme cases.

Under such conditions, increasing the irrigation and application of nitrogenous fertilizer can help in pushing the growth thereby reducing the chances of swelling and breaking the knot on the bunch peduncle.

V. Disease management (Dr. Sujoy Saha)

Days after fruit pruning	Risk of diseases			
	Downy mildew	Powdery mildew	Anthracnose	Others (specify)
135	Nil	Low	Nil	Nil

As harvesting is going on, it is advised to keep the fields clean so that inoculum is not carried over to the next season. Application of Ampelomyces quisqualis @ 6-8g/L should be done to control powdery mildew, if there is any. One spray of Bacillus subtilis @2g/L may be given to remove the pesticide residues from the berries.

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

Growth Stage: Berry setting to development stage after October pruning

- Buprofezin 25 SC @ 1.25 ml/L (PHI 65 days) water or spirotetramat 15.31 OD @ 700 ml/hectare (PHI 60 days) may be used for the management of mealybugs. In case PHI cannot be maintained for application of insecticides, tag mealybug infested vines and wash with any trisiloxane polyether-based surfactant @ 0.3 ml per litre water with water volume 10-12 litres per vine with single gun at high pressure to wash off the mealybugs. It should be followed by washing with plain water.
- Mite infestation may increase in most of the grape areas. Sulphur 80 WDG @ 1.5-2.0 g/L or Abamectin 1.9 EC @ 0.75 ml/L (PHI 30 days) or Bifenazate 22.6 SC @ 0.5 ml/L (PHI 30 days) water may be applied if mite infestation is observed.
- All the cracked/damaged berries should be removed from the grape bunches. These berries should be destroyed by burying them minimum two feet deep in the ground away from the vineyards. It will reduce the scavenging fly population in the vineyard. Ripe banana can act as a good attractant for these scavenging flies. Therefore, banana traps can be made and installed at the rate 5 per acre. To make a banana trap, take a container with small holes at sides and put a fully ripe banana inside it cut into pieces. Pour 2-3 drops of spinosad 45 SC on the banana. Cover the mouth of the container with inverted paper-cone keeping a small hole at the bottom for fruit flies to enter. The berry cracking of grapes should be managed by following suitable viticultural practices.

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- 3 drops of spinosad 45 SC on the banana. Cover the mouth of the container with inverted paper-cone keeping a small hole at the bottom for fruit flies to enter. The berry cracking of grapes should be managed by following suitable viticultural practices.