ICAR-NATIONAL RESEARCH CENTRE FOR GRAPES, Manjri, Pune.

WEATHER DATA FOR THE PREVAILING WEEK

Thursday (31/10/2024)– Wednesday (06/11/2024)

Location	Temperature (°C)		Possibility of Rain	Cloud Cover	Wind Speed (Km/hr) Min-Max	R H%	
	Min	Max				Min	Max
Nashik	20-21	33-34	**Nashik, Dindori, Ozar, Kalwan, Vani, Loni , Palkhed** –Thu – Wed – No Rain. **Pimpalgaon Baswant**–Thu– Drizzling Rain.	Clear to cloudy	7-11	27-38	46-72
Pune	19-21	32-33	**Pune**, **Phursungi, Loni Kalbhor, Uruli Kanchan, Patas, Yavat**, **Narayangaon, Indapur** –Thu – Drizzling Rain. **Baramati** –Thu, Fri – Drizzling Rain	Clear to cloudy	7-12	27-44	57-74
Solapur	20-22	32-33	**Tuljapur, Ausa, Vairag, Barshi, Nannaj, Solapur**– Thu – Drizzling Rain. **Pandharpur** –Thu–Wed–No Rain. **Latur**–Thu, Fri – Drizzling Rain.	Clear to cloudy	7-14	33-48	59-75
Sangli	21-23	32-33	**Shetphal, Walva, Palus, Kawtha, Khanapur Vita**, **Palsi** –Thu – Fri – Drizzling Rain. **Miraj –** Thu, Sun – Drizzling Rain. **Shirguppi –** Thu –Tue – Drizzling Rain.	Clear to cloudy	6-13	33-50	73-82
Vijayapura	20-21	32-33	**Chadchan, Tikota, Vijayapura, Telsang –** Thu–Mon– Drizzling Rain.	Clear to cloudy	7-15	38-50	63-78
Hyderabad	21-22	31-33	**Hyderabad, Medchal –** Thu – Sun – Drizzling to Light Rain. **Zahirabad –** Thu, Fri – Drizzling to Light Rain.	Clear to cloudy	5-9	40-51	68-87
Satara	19-21	31-33	**Satara, Phaltan, Khatav** –Thu, Fri – Drizzling Rain.	Clear to cloudy	6-12	33-51	68-84
Ahmednagar	19-21	32-34	**Akole, Sangamner, Rahata, Kopargaon, Karjat** – Thu – Wed –No Rain. **Ahmednagar, Shrigonda, Jamkhed** – Thu, Fri – Drizzling Rain.	Clear to cloudy	9-15	28-41	57-65
Jalna	19-23	32-34	**Ambad, Ghansavangi, Mantha**, **Jalna**–Thu–Wed – No Rain. **Jafrabad –** Thu, Fri – Drizzling to Light Rain.	Clear to cloudy	9-11	24-37	52-61
Buldhana	22-23	33-35	**D.raja**, **Sindkhed, Buldana –** Thu – Wed – No Rain. **Chikhli –** Thu – Wed – Drizzling Rain.	Clear to cloudy	5-9	28-39	51-61

Kolhapur	21-24	32-34	**Kagal, Karveer, Gagan-bavada–**Thu – Wed – Drizzling Rain.	Clear to cloudy	4-7	54-70	88-96
Bengaluru Rural	20-21	28-30	**Anekal, Doddaballapur**, **Bengaluru-east, Bengaluru-north, Bengaluru** – Thu– Wed – Drizzling Rain.	Clear to cloudy	5-11	42-59	84-94
Belagavi	22-24	30-31	**Belagavi, Chikodi, Gokak** – Thu – Tue – Drizzling Rain. **Athni –** Thu, Sun – Drizzling Rain.	Clear to cloudy	6-8	49-66	89-93
Bidar	22-23	32-33	**Basavakalyan**, **Humanabad –** Thu, Fri –Drizzling Rain. **Bidar** – Thu – Fri – Drizzling to Light Rain.	Clear to cloudy	6-9	48-64	73-92
Bagalkot	20-22	31-32	**Bagalkot**, **Jamkhandi**, **Hungund –** Thu–Mon –Drizzling Rain. **Mudhol –** Thu –Tue – Drizzling to Light Rain.	Clear to cloudy	7-15	36-51	70-80

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.timeanddate.com/weather/india

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

II. Water management

a. Number of days after Fruit pruning: 45

b. Expected Pan evaporation: 3 to 5 mm

Amount of irrigation advised:

1. All the grape growing regions are forecasted to receive from drizzling to light rains. In case the soil is under wapsa (field capacity) condition, donot irrigate the vineyard.
2. If the soils especially medium and heavy, are saturated with water, then, do not irrigate for atleast 5-7 days till the soil comes to wapsa condition.
3. In case of monsoon rains, remove mulch cover on the bund and allow the rain water to seep into the soil. This will leach the accumulated salts in the rootzone. The mulch so removed can be mixed with the soil to improve the soil porosity.

4. During **shoot growth stage** (Fruit pruning season), apply irrigation through drip @ 6800 - 10200 L/ acre/ day for all grape growing regions. In case vigour is more than desired, then reduce irrigation water application by half to 3000-5000 L/acre and stop nitrogen application. Still if growth is more, stop the irrigation till such time the growth is brought under control and then start irrigation.
5. From flowering to fruit setting, apply irrigation through drip upto 2300-3500 L/ acre/ day. Vigour needs to be controlled.

Soil and Nutrient management

Pre-pruning operations – Fruit pruning season

1. In case pruning is planned during October, raise Sunnhemp or Dhaincha for green manuring purpose.
2. Test the soil and irrigation water, to plan for nutrient and water management during fruit pruning season.
3. If soils are calcareous in nature, then apply 50 kg sulphur between the vines in the soil atleast 15-20 days before pruning. The sulphur should be properly mixed in the soil for improving its efficacy in taking care of calcium carbonates. The efficacy of sulphur is improved if FYM/ Compost are applied along with sulphur and mixed in the soil. If SSP is applied as basal dose, mix with FYM/compost etc. to avoid phosphorus fixation.
4. The vineyards where sodicity problems are there, apply gypsum to the soil for removal of sodium from the soil exchange complex. In case of calcareous soils, use sulphur for similar purpose. The application should be alongwith FYM/compost etc. They should be mixed in the soil and not left on the top.
5. In case of calcareous soils, if SSP is applied as basal dose, mix with FYM/compost etc. to avoid phosphorus fixation.
6. In areas where rains have not been received and the irrigation water availability is less, it is suggested to flood the rootzone(only) with water to leach out the salts and wet the entire soil

depth before pruning and then cover with mulch. Thereafter irrigate as per availability of water.

Shoot Growth stage

1. In many of the grape growing areas, continuous spells of rains have been received and further also possibility of rains are there. The soils are already saturated. This has affected the rooting activity. Due to prolonged saturation, the roots may have started decaying. **Donot disturb the soil in the root zone. Wait for the soil to come to the wapsa condition before any soil related intervention has to be done.** Growth will be slow and cane maturity will be affected but donot worry. Only after wapsa, fertilizer application should be done.
2. In case organic fertilizers are applied, check the C:N ratio. Lower the ratio more the nitrogen release, hence possibility of enhanced growth. Control nitrogen application based upon growth of vine.
3. Based upon the soil test value, during shoot growth stage apply urea @ 15kg / acre this week in two splits. If the soil is calcareous, instead of urea apply ammonium sulphate @ 25 kg/ acre in three splits this week. Depending upon the crop vigour, regulate nitrogen application.
4. If sodicity problem is there, apply 10 kg Sulphate of potash per acre in 2 splits this week.
5. Until and unless leaves are fully developed donot go for any foliar application of nutrients. It will lead to wastage of spray.
6. The quantity of nutrients to be applied through foliar, depends upon canopy size.
7. If the crop is between 5 leaf to prebloom stage, apply Zinc sulphate and Ferrous sulphate @ 15 kg/ acre based upon soil test value. Boron application should be carried out only if soil test value indicates low levels and the irrigation water does not contain boron. If during foundation puning, the petiole test stated that boron was deficient then apply boron @ 1.5 kg to 5 kg depending upon the soil test value. Apply one kg boron at a time.
8. Apply 10 kg Magnesium sulphate per acre if the crop is between 5 leaf to prebloom stage.

Flowering to setting stage:

1. Donot apply any nitrogen based fertilizer just before Flowering to Setting stage to avoid problems of kooj (inflorescence necrosis).
2. Apply 3-4 kg Phosphoric acid in two to three splits this week. Remember that the pH of the irrigation water should be near 6.0. OR apply SSP @ 125kg/acre as basal application. SSP should be mixed with FYM/Compost before application to minimize phosphorus fixation.
3. Petiole nutrient testing: At 70% capfall stage, petiole samples should be taken for nutrient analysis. The leaf opposite the bunch should be removed for sampling**.**

III. Canopy Management

Based on the weather data and growth stages, following suggestions are offered for vineyard management in old vineyard.

1. Pre-pruning preparation need to be followed. Approximately 15 days before the fruit pruning, a mixed spray of ethephon @ 2.5 to 3.0 ml/L water + 0.52.34 @ 5.0 g/L water should be taken up for leaf fall.
2. At the time of spray, the vine should be under stress. Hence, water withholding before 5-6 days of actual spray is required.
3. The quantity of water for spray will depend upon the leaf retention on a vine as in many of the grape vineyard due to disease infection, the leaf fall ranging from 10 to 60% is experienced.
4. Apply well decomposed farm yard manure @ 5-6 trollies per acre. In addition, based on the soil test report, SSP @ 300kg, DAP @ 50 kg, zinc, boron, ferrous sulphate, and magnesium sulphate should be added in the trench.
5. Bud testing can be done before fruit pruning. This will avoid error in pruning.
6. Approximately 5-6 canes of each category (6-8mm, 8-10mm, above 10mm) from sub-cane as well as straight canes should be collected randomly from one acre area. The collected material should be wrapped in wet gunny cloth and sent to laboratory for bud testing.
7. In the absence of bud testing report, fruit pruning can be done leaving 1-2 buds after the knot on sub-cane while retaining shorter internodes o straight cane.

8. Swabbing of canes with hydrogen cyanamide will depend on the cane diameter, weather condition in the grape vineyard and the bud condition (percentage of bud swelling). However, under normal condition, the concentration of hydrogen cyanamide can be 35-40 ml/L water.
9. Avoid swabbing of buds immediately after pruning. However, this can be performed on the next day for better results.
10. On 8^{th} to 9^{th} days after fruit pruning, the bud sprouting will initiate. During this stage change in weather (rainfall/cloudy weather) will increase the gibberellins in grapevine thereby leading to fillage.
11. To control the fillage, spray of cytokinin based PGR (6BA @ 10 ppm or CCC (as per Annexure-5) and 0.0.50 @ 0.75 to 1.0 g/L or 0.9.46 or 0.40.37 @ 0.75 to 1.0 g/L water can be sprayed on the vine.
12. Removal of excess shoots during the period of 14 to 17 days should be done. This will help for aeration in the canopy thereby reducing the microclimate that will help to control the downy mildew incidence and inflorescence rot.
13. First spray of GA_3 @ 10 ppm should be done at parrot green stage of a bunch while the second spray after 5 days of first spray to be done. This will help to obtain loose and bunch after berry setting by the process of cell multiplication and cell elongation.
14. To increase the efficiency of GA_3, pH of the spray solution should be 5.5 to 6.0. The water used for spraying should be of good quality.
15. If possible, spraying should be done when the relative humidity in the atmosphere is above 60%. During this time, the leaf is in active phase so that the absorption can be increased.
16. Under the cloudy condition, avoid GA_3 spray.
17. Retention of grape bunches should be done based on the objectives (local vs. export vs. raisin).
18. Depending upon the objectives, bunch retention (based on spacing, cane diameter, etc) to be done.

IV. Disease management

Days after fruit pruning	Risk of diseases			
	Downy mildew	**Powdery mildew**	**Anthracnose**	**Others (specify)**
45	High	Low	High	Bacterial spot-High Rust-Nil

In Sangli areas where bacterial spot and anthracnose were prevalent on berries, Mancozeb 75 WP @2-3g/L, and two sprays of Kasugamycin 5% +Copper Oxychloride 45% WP @750g/ha, may be given. Application of Copper Sulphate 47.15% + Mancozeb 30% WDG@5g/L or Thiophenate methyl/carbendazim @1g/L will provide a good control against anthracnose. At "ponga" stage an application of copper hydroxide @1.5g/L may be given. There is no need to apply any systemic fungicides at the "ponga" stage. Systemic fungicides for downy mildew control should be started at 3-5 leaf stage. Uneven sprouting should be avoided. In some areas where heavy infection of downy mildew is seen, it is advised to remove the infected leaves mechanically followed by a spray of Amisulbrom 17.7 SC@375ml/ha or Cyazofamid 34.5SC @200ml/ha or any of CAA fungicide formulations- (Iprovalicarb 5.5 + Propineb +61.25)-66.75WP @ 2.25 g/L or Mandipropamid 23.4% SC @ 0.8ml/L or (Ametoctradin 27 + Dimethomorph 20.27)-47.27 SC @ 0.8-1ml/L or (Cymoxanil 8+Mancozeb 64)-72 WP@2g/L. Drip application of Trichoderma should continue at fortnightly intervals. If there is moisture on the leaf, after a shower, dusting with mancozeb@ 3-5kg/acre should be done.


Bacterial spot


Anthracnose

Downy mildew

V. Insect and Mite Pest Management

Fruit pruning growth stage: Dormant bud to sprouting

- Caterpillar (*Spodoptera litura*) infestation may increase in some of the grape areas where humidity is high. Caterpillars may chew on buds and new sprouts. For the management of caterpillars, walk inside vineyards after 9 pm and manually collect the larvae feeding on sprouting buds as most of the insecticides will not be much effective when canopy is not present.
- Remove loose bark and give preventive plant wash with buprofezin 25 SC @ 1.25 ml/litre water. At 15 days interval, plant wash with entomopathogenic fungi viz. *Metarhizium*, *Beauveria* and *Lecanicillium* may be useful for controlling mealybugs and ants.
- Give soil drenching with *Metarhizium* just after fruit pruning to manage flea beetle larva, thrips pupa and ants in soil.

- For flea beetle management, remove weeds from inside and around the vineyards. Harrowing may be done in inter row space. Foliar application of lambda cyhalothrin 4.9 CS @ 200 ml per acre or imidacloprid 17.8 SL @ 160 ml per acre or fipronil 80 WG @ 25 g per acre or spinosad 45 SC @ 100 ml per acre may be given. The foliar spray may preferably to give at night.

Fruit pruning growth stage: Initial active shoot growth stage

- Some jassid/leafhopper infestation may be seen. Foliar application of insecticides such as lambda cyhalothrin 4.9 CS @ 200 ml per acre or imidacloprid 17.8 SL @ 160 ml per acre or fipronil 80 WG @ 25 g per acre is effective. Care should be taken that the sprays should be done during night and install a white light bulb behind tractor and turn on during spraying for better results from the insecticidal sprays.
- Flea beetle infestation may be high during this period. For flea beetle management, remove weeds from inside and around the vineyards. Harrowing may be done in inter row space. Foliar application of lambda cyhalothrin 4.9 CS @ 200 ml per acre or imidacloprid 17.8 SL @ 160 ml per acre or fipronil 80 WG @ 25 g per acre or spinosad 45 SC @ 100 ml per acre may be given. The foliar spray may preferably to give at night.
- Incidences of new species of stem borer (red colour larva) may be noticed under bark in Sangali, Solapur, Nashik, Pune, Bijapur grape areas. Remove the loose bark and give good plant wash mainly targeting cordons and main trunk with entomogenous fungi, *Metarhizium* spp. @ 3-5 ml/L water (water volume 1.5 litres per plant).