

WEATHER DATA FOR THE PREVAILING WEEK

(Assumption: Fruit Pruning date- 15/04/2019)

I. WEATHER DATA FOR THE PREVAILING WEEK

Thursday (06/06/2019) – Thursday (13/06/2019)

Location	Temperature (°C)		Possibility of Rain	Cloud Cover	Wind Speed (Km/hr)	R H%	
	Min	Max				Min	Max
Nashik	25-26	33-38	Nashik, Ojhar, Pimpalgaon Baswant, Dindori, Vani Next Thu- Light Rain Palkhed, Niphad, Kalvan, Devla, Satana Next Thu- Drizzling Shirdi, Loni Fri & Next Thu Drizzling	Partly to Mostly cloudy	10-18	36-47	74-81
Pune	25-26	32-36	Pune, Phursungi, Loni Kalbhor, Uruli Kanchan, Yavat, Patas, Supa Sat & Wed- Light Rain Baramati Fri- Sat & Mon Drizzling, Sun- Moderate Rain	Partly cloudy	08-19	44-49	78-81
Solapur	25-27	34-38	Solapur – Fri-Sun Drizzling Nanaj, Latur, Ausa, Pandharpur, Kasegaon Sat Light Rain Vairag Fri –Light Rain, Sat- Moderate Rain Barshi, Pangri, Osmanabad, Tuljapur Fri- Light Rain, Sat - Good Rain Atpadi- Sun- Good Rain, Mon & Thu- Drizzling	Partly cloudy	13-21	38-48	74-80

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:54

b) **Expected growth stage of the crop:** - Shoot growth stage

Expected pan evaporation: 5-7 mm

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

Amount of irrigation advised:

1. All the grape growing regions are forecasted to receive from light to moderate rains. The irrigation water application should be based upon the growth of the vines. In case rain exceeds 5 mm on a given day, irrigation water application can be skipped for that day. Generally, under wapsa (field capacity) condition of the soil, donot apply irrigation.
2. In general, there will not be any need to provide irrigation in areas which have witnessed continuous rains since last 3-4 days.
3. In case of April pruned vineyards, the vines are at **Cane maturity and Fruit Development** stage. Provide irrigation through drip @ 4500 - 5000 litre/ha/day in case no rains are received.
4. In case of Late pruned vineyards (May), the vines are in **Fruit bud differentiation stage**. Provide irrigation through drip @ 4500 - 5000 litre/ha/day in case no rains are received. Any deficit during this stage could reduce the vine yield by 8- 10% during Fruit pruning season.
5. In case faster growth is observed (intermodal distance > 5 cm approx.), then reduce the irrigation water application.
6. **Possibility of leaf curling** could be there. Check the reasons whether excess growth or moisture stress or sucking pest injury or potassium deficiency. In case of excess growth, then follow the advise given in item no.5. For moisture stress, check whether the irrigation water is saline or quantity of water applied is less. If saline, then increase the quantity of irrigation water application to remove the salts. The sucking pest injury like hoppers has relationship with potassium build up in the vines and could lead to leaf curling. Control sucking pest and at the same time foliar application of potassium sulphate is advised to mitigate the potassium deficiency followed by application through fertigation @ 20-25 kg/acre.

NUTRIENT MANAGEMENT

Fruit bud differentiation stage

1. During fruit bud differentiation stage, based upon soil test values, apply 45 – 50 kg phosphoric acid or 250 kg SSP in case the soils are deficient in phosphorus. Phosphoric acid application is desirable in calcareous soils.
2. 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 counting the leaves even if they have been removed.
3. Apply 10-15 kg Magnesium Sulphate/ acre between 50-60 days after pruning. In calcareous soils, provide foliar application of Magnesium sulphate (@3g/L) followed by Sulphate of Potash (@ 4g/L) once in this growth stage.
4. In case of calcareous soils where acute iron deficiency is observed, repeatedly spray 2-3g/L Ferrous sulphate two to three times at 4-5 days interval followed by 15-20 kg/ acre

Ferrous sulphate application through drip. The fertigation dose should be split into atleast 3 doses of 5kg each.

Cane maturity and Fruit bud development stage:

1. Potassium application is required from Cane maturity stage onwards. Approx. 64 kg of sulphate of potash (soluble grade) should be applied in this stage. Split the application into atleast five doses to reduce the leaching losses of the potassium. Apply 15 kg SOP in two – three splits during this week. In calcareous soils, provide foliar application of Sulphate of Potash (@ 4g/L) once in this growth stage.
2. Apply magnesium sulphate @ 15 kg/acre in two splits. The application should be done during 60-75 days after pruning. In calcareous soils, provide foliar application of Magnesium sulphate (@3g/L) in this growth stage.
3. In case of calcareous soils where acute iron deficiency is observed, repeatedly spray 2-3g/L Ferrous sulphate two to three times at 4-5 days interval followed by 15-20 kg/ acre Ferrous sulphate application through drip. The fertigation dose should be split into atleast 3 doses of 5kg each.

NOTE:

In some vineyards, problem of yellowing of the leaves in the margin along with vein reddening is observed. This is due to potassium deficiency. The deficiency of potassium can be due to insufficient potassium application or calcareous soils affecting the potassium uptake. It could also be due to sodicity problem in the vineyard. This deficiency can lead to more powdery mildew infestation and sucking pest (leaf hopper) incidence.

Under such situation, Potassium deficiency can be corrected by a combination of foliar spray (minimum three to four) of 0.5% sulphate of potassium (5g/litre SOP) and soil application of potassium fertilizers. In sunny days the spraying should be done in morning or evening when humidity is high and temperature is low. Spraying during day time when temperature is high and humidity is low reduces potassium uptake into the leaves. Apply 25 to 50 kg SOP /acre as single dose or via fertigation (in 3 to 4 splits) within one week, depending upon extent/severity of potassium deficiency.

However, for any measures to succeed, calcareous or sodicity conditions should be managed, then only appreciable effect of potassium application can be observed.

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

Nil

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

Old vineyard:

The temperature in majority of the grape vineyard is increasing upto 44°C. This condition is creating the problems in the vines where the framework development is in process. The growers are using different fertilizers as well as plant growth regulators including retardants to ensure fruit bud differentiation in the growing buds. Among the nutrients, potassic fertilizer while among the PGR, cytokinin based compounds including growth retardants are

being sprayed to the vines in excess doses. With the increase in temperature and increased rate of transpiration through leaf physiological balance is getting disturbed at this stage.

This lead to two major problems i.e., **swelling of stem and sprouting of main bud.**

- i) Reduction in growth, reduction in leaf size thereby reducing the storage of nutrients in developing canes.
- ii) The excess growth retardants also hamper the cell multiplication and elongation in developing tissues thereby reducing the growth.
- iii) This increases the pressure in the growing parts like stem (developing trunk) and shoot (developing cane). Since the growth of growing shoot tip is stopped, the pressure gets diverted to other parts where the maturity is about to start.
- iv) In majority of the cases we find the main bud (tiger bud) starts sprouting.

Remedies to control:

- i) Use mulching on the bunds. The application of mulch either on bund or on the place of dripper will help in controlling the water losses through soil.
- ii) Irrigate the vine during morning or evening. This will help in reducing the water loss.
- iii) Spray antistress @ 3-4ml/litre water. This will help in reducing the water loss from leaf through transpiration.
- iv) Use shade net on opposite side of wind in the vineyard. This will help in reducing the wind speed thereby reducing the water loss.
- v) Avoid spraying cytokinin based PGR during high temperature. This is mainly resulting into bulging and cracking of stem.
- vi) Do not spray excess potassic fertilizer on the canopy. This is helping in controlling the vigor thereby increasing the pressure on other green tissues eg. Tiger bud is sprouting.
- vii) To control sprouting of main bud, avoid shoot pinching, spraying of fertilizers and growth retardants.
- viii) Encourage the growth for about 4-5 leaf by applying nitrogen either through soil or through spray in minimum dose of about 2-3 g/ litre water. This will stop sprouting of main bud.



Fig. 1: Bulging of stem



Fig. 2: Sprouting of main bud



VI. Disease management (Dr. Sujoy Saha)

Days after pruning	Risk of diseases			
	Downy mildew	Powdery mildew	Anthracnose	Others (specify)
54	LOW	LOW	LOW	Bacterial leaf spot

Light to moderate rain being prevalent in major grape areas, prophylactic application of copper hydroxide @ 1.5g/L or mancozeb/potassium salt of phosphoric acid @ 2g/L should be done to protect against downy mildew. Mancozeb will also give an additional protection against bacterial leaf spot. In regions where early sprouting is present, application of fungicides like Hexaconazole @1ml/L or Tetraconazole @ 0.75 ml /L or Difenoconazole @1ml/L or Fluopyram 200+Tebuconazole 200SC @0.5ml/L may be given for the control of powdery mildew as well as to restrict excess vegetative growth and help in fruit bud differentiation. To protect from anthracnose, a prophylactic spray with thiophenate methyl may be given @1g/L of water.

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

Days after pruning	Risk of pests					
	Mealybug	Mite	Thrips	Caterpillar	Flea beetle	Stem borer (<i>Stromatium barbatum</i>)
Early shoot growth	High	Moderate	High	High	Low	Very high

- Adults of stem borer *Stromatium barbatum* start emerging during the last week of May to first fortnight of June. Installation of light traps will be helpful in monitoring the initiation of emergence of stem borer adults. Run the light traps for 3 hours daily, during evening between 7.00 pm – 10.00 pm and destroy the collected beetles in water mixed with

insecticide. If adult stem borers are noticed, application of fipronil 80 WG @ 0.06 g/litre, lambda cyhalothrin 5 CS @ 0.5 ml/litre or imidacloprid 17.8 SL @ 0.3 ml/litre water may be given directed at main stem and cordons during night. Follow the following link for detailed information on youtube video <https://www.youtube.com/watch?v=Yvx7dIbPEAU>

- Spraying of imidacloprid 17.8 SL @ 0.4 ml per litre water will help in controlling thrips and mealybug on new growth.
- In case of thrips or caterpillar infestation, application of fipronil 80 WG @ 0.0625 g per litre or emamectin benzoate 5 SG @ 0.22 g per litre water is effective.
- Mite infestation may start appearing, therefore, monitor the vineyards carefully. If mite infestation is observed, sulphur 80 WDG @ 1.5-2.0 gram per litre water is effective.