मौसम पूर्वानुमान आधारित साप्ताहिक सलाह
Weather Forecast Based Weekly Advisory

(Assumption: Fruit Pruning date - 15/10/2016)

I. Weather Data for the Prevailing Week

Thursday (15/12/2016) - Thursday (22/12/2016)

Location	Temperature		Possibility of Rain	Cloud Cover	Wind Speed (Km/hr)	R H%	
	Min	Max				Min	Max
Nasik	15-19	31-32	**No Rain** Nasik, Ojhar, Pimpalgaon Baswant, Vani, Palkhed, Dindori, Shirdi, Loni, Rahata, Niphad, Kalwan, Devla, Lasalgaon, Satana.	Clear	05-18	22-41	51-67
Pune	17-22	30-32	**No Rain** Pune, Phursungi, Loni Kalbhor, Uruli Kanchan, Yavat, Rahu, Patas, Pargaon, Supa, Baramati, Narayangaon, Junnar.	Clear-Partly cloudy	03-23	21-45	50-77
Solapur *	17-22	32-34	**No Rain** Solapur, Nanaj, Kati, Atpadi, Vairag, Pandharpur, Kasegaon, Barshi, Pangri, Kari, Latur, Ausa, Osmanabad, Tuljapur.	Clear-Partly cloudy	05-21	12-39	43-75
Sangli *	17-22	31-33	**Drizzling Fri** Sangli, Miraj, Shirol, Arag, Shirguppi, Kagvad. **No Rain** Kavate Mahankal, Palus, Valva, Palsi, Shetfal, Vite, Khanapur	Clear-Partly cloudy	06-24	12-50	51-90
Bijapur *	17-21	30-32	**No Rain** Bijapur, Tikota, Telsang, Chadchan	Clear-Partly cloudy	06-23	15-51	56-93
Hyderabad *	14-19	29-31	**No Rain** Hyderabad, Medchal, Rainlaguda. Zahirabad	Clear-Mostly cloudy	03-14	24-48	57-97

*** Tropical storm conditions possible**

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: 25 to 50 days

b) Expected growth stage of the crop: - Bunch elongation to berry set

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

Expected pan evaporation: 3 to 5 mm

Amount of irrigation advised

For October pruned vineyards, during Berry growth stage, apply irrigation through drip @ 5,100 to 8,500 L/ acre/ day.

In late pruned vineyards (Nov., 2016), during shoot growth stage, apply irrigation through drip @ 5,100 to 8500 L/ acre/ day. Further, in case vigour is more than desired, then reduce irrigation water application to 2500 L/ acre/ day. Still if you are not able to control the vigour, stop irrigation till such time vigour is controlled. During Flowering to setting stage, apply irrigation through drip @ 1,700 to 2,850 L/ acre/ day.

IV. Soil and Nutrient requirement (Dr. A.K. Upadhyay)

October pruned vineyard

1. After Berry setting, continue initially with Phosphoric acid application @ 7.5 kg in two splits this week.
2. Spray Calcium @ 2g Calcium Chloride or 0.5 g Ca chelate per litre at berry size of 2-4 mm and 6-8 mm.
3. After 15 days after setting (around 60-65 days), start application of ammonium sulphate @ 20 kg/acre in 3splits followed by application of 0-0-50 through drip @ 20 kg in 3 splits
4. If the soil has high calcium carbonate content, apply 5 kg Zinc sulphate along with 5 kg Ferrous sulphate in two splits.
5. In the calcareous soil, spray magnesium sulphate @ 3g/L on the vines followed by fertigation of magnesium sulphate @ 10kg/acre.
6. 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.

November pruned vineyard

1. 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 pruning, the petiole test stated that boron was deficient then apply boric acid @ 1.5 kg to 5 kg depending upon the soil test value. Apply one kg boric acid at a time.
2. Apply 10 kg Magnesium sulphate per acre if the crop is between 5 leaf to prebloom stage.
3. If sodicity problem is there, apply 10 kg Sulphate of potash per acre in 2 splits this week.
4. Do not apply any nitrogen based fertilizer from 4-5 days before Flowering to Setting stage to avoid problems of kooj (inflorescence necrosis). Apply 5 kg Phosphoric acid in two splits this week.
5. During flowering petiole testing should be carried out.

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

Increasing berry diameter

In this week, there will be no rain in all grape growing regions except Sangli. Hence, except Sangli region in other places, GA3 and CPPU application can be done with due care. For the export, berry diameter is more important than the berry length or the overall size of the berries. GA_3 along with CPPU (forechlorofenuron) @1-2 ppm can be used for increasing the berry diameter in seedless grapes. These bio-regulators must be used along with GA_3 @ 30- 40 ppm depending on the cluster and berry size. Therefore, CPPU has to be used with the utmost care and only in vines having vigorous shoots.

With respect to use of bio-regulators, the stage of application and concentration plays very important role to achieve desired quantity and quality. To increase berry size (diameter)

bio-regulators should be used at 3-4 mm berry size stage once and again at 6-7 mm berry size stage.

The above schedule has to be followed according to leaf / fruit ratio.

For achieving better Berry size following things has to be given importance

Regulation of bunch size

i. Thin out the shoots to retain only one per two square feet of ground area occupied by the vine, to build strong canes

ii. Restrict the growth of shoots to 15-18 leaves after back pruning by shoot topping after 75 days of back pruning.

Don’ts

i. Do not induce more bud break than required per cane. Three buds on canes thicker than 10 mm, two on canes with thickness of 8-10 mm and one on the canes with thickness ranging between 6-8 mm.

ii. Do not retain the canes that are thinner than 6 mm on the vines.

iii. Do not allow more than 15 leaves on a bearing shoot.

iv. Do not allow the clusters to develop on a shoot having less than 8 leaves.

Do’s

i. Thin the berries and tip the cluster by 1/4 or 1/3 rd to retain 8 berries per leaf, when the leaf opposite to cluster is 16 cm wide, reduce the number of berries to 6 per leaf if its width is about 12 cm.

ii. 1-2 ppm CPPU to 30-40 ppm GA_3 and dip the clusters in the mixed solution once at 3-4 mm stage and again at 6-7 mm berry size stage. Selection of growth regulators for dipping should depend on the number of leaves available per bunch.

Don’ts

i. Do not allow the bearing shoots to have more than 15 leaves.

ii. Do not treat the clusters with CPPU when the bearing shoot has inadequate leaf area, and the shoots are less vigorous.

iii. Do not girdle the vines before the berries attain 3-4 mm berry size stage.

iv. Do not reduce the quantity of irrigation water during 60-105 days after forward pruning with a notion to increase the quality.

v. Do not delay berry thinning beyond 8-10 mm stage of berries.

Uniform size of berries in a bunch

Do’s

i. Clip off the tip of the cluster by $1/3^{rd}$ or $1/4^{th}$ of its length, since the under developed berries are mostly formed in the lower half of the bunch.

ii. Ensure that all berries in a cluster receive all GA_3 treatments uniformly.

iii. Ensure adequate leaf/fruit ratio for a developing bunch (6-8 berries / leaf).

Don’ts

i. Do not treat the berries with GA_3 nor girdle the vines from berry set to shatter stage. Since this may lead to more shot berries in a bunch

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

The minimum temperature in the atmosphere is experienced below 8^0C in majority of the vineyards. The maximum temperature is also rising above 32^0C. This may result into formation pink pigmentation form the present white in white seedless grapes. Hence, bunch covering with paper may be given priority in the vineyard where the bunches are at near veraison stage.

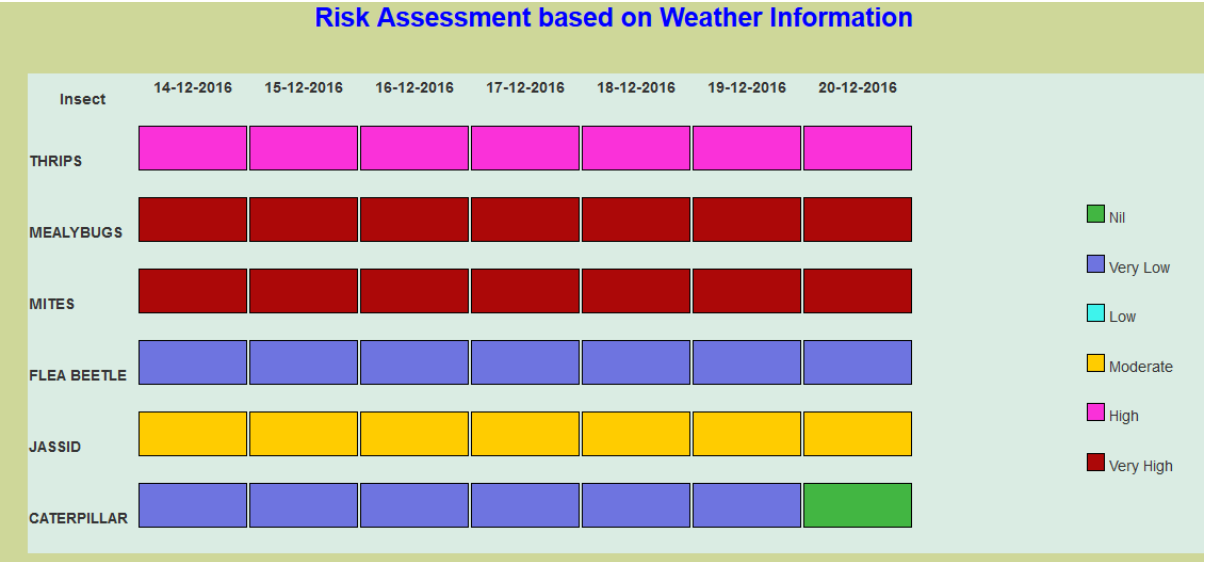
The bunches should also be placed under the canopy to avoid cold injury. Open canopy will help to reduce the humidity and thereby reducing the pressure of powdery mildew.

VII. Disease management (Dr. S.D. Sawant and Dr. Sujoy Saha)

Days after pruning	Risk of diseases			
	Downy mildew	Powdery mildew	Anthracnose	Others (specify)
60-66	Nil	Low – medium	Nil	Nil

In vines which are at a pre-flowering stage, Dimethomorph@1g/L+mancozeb 75WP@2g/L or Iprovalicarb+propineb @ 2.25g/L or Mandipropamid@ 0.8g/L+ mancozeb 75WP@2g/L or Dimethomorph +ametoctradin@0.8g/L or Cymoxanil +Mancozeb WP@2g/L or Potassium salt of phosphoric acid@4g/L + mancozeb 75WP@2g/L should be applied as a preventive against downy mildew. In most of the vines which are at a fruit-set stage, for powdery mildew management, myclobutanil@ 0.4g/L or Difenoconazole@ 0.5ml/L or tetraconazole @ 0.75 ml /L should be applied(detections of residues possible) To avoid residue detections, application of sulphur 80WP@2g/L is advised. If canopy growth is dense, the probability of powdery mildew incidence is more, and dusting of sulphur 80WP@ 2.5-3kg/acre should be done. Wherever, there is rain and humidity is high with increased night temperature application of Trichoderma formulations or *Ampelomyces quisqualis* @4-5g/L, at this stage will also be beneficial.

VIII. Insect and Mite management. (Dr. D.S. Yadav and Dr. B.B Fand)



A. Pest risks:

- Very high risks of infestation of mealybugs and mites
- High risk of infestation of thrips
- Moderate risk of jassids

- Drizzling in some areas like Sangli, Hyderabad: low risk for caterpillars and flea beetles

B. Safer options for management:

- Application of entomopathogeic fungi, *Beauveria bassiana* + *Lecanicillium lecanii* ($2x10^8$ spores/ml) @ 5.0 + 5.0 mL/L twice at fortnightly interval will be useful to control the population of mealybugs, thrips and jassids. The efficacy is dependent on temperature and relative humidity conditions. The efficacy will be low under drier conditions. However, expected drizzling rains in some areas may enhance the control by these entomopathogenic fungi.
- Use of relatively safer options such as Azadirachtin will be helpful for controlling sucking pests: mealybugs, mites, jassids and thrips
- Conservation of lady bird beetle *Stethoras rani* by avoiding indiscriminate use of chemicals like imidacloprid will help to control mites, naturally.

C. Insecticides for controlling pests

- Apply buprofezin @ 1.25 ml/lit for controlling mealybugs. Spraying will be useful for controlling mealybugs on foliage and developing bunches whereas plant wash (water volume 1.5 lit/vine) will help to manage mealybugs on stems and cordons.
- Sulphur 80 WDG @ 2 g/lit for controlling mites. If heavy infestation of mites is seen, give jet spray of water @ 2500 litres/ha before spraying of miticides, which will help to remove the mite webbings and improve the efficacy of miticide sprayed.
- Emamectin benzoate 5 SG @ 0.22 g/lit against thrips and caterpillars
- Lambda cyhalothrin 5 EC @ 0.5 ml/lit will be helpful against jassids, flea beetle and caterpillars

*Avoid use of imidacloprid at flowering period and after 50 days of fruit pruning.
**Fipronil should be used only once in a fruiting season and should be avoided after flowering period

Crop advisory relevant to different places is prepared by experts, considering forecasted weather, crop growth stages in majority of vineyards and ground information on incidence of different conditions in different grape growing areas received from regular interaction with progressive grape growers. No claims are made on its correctness.

Usefulness of this information may be communicated to us at director.nrcg@icar.gov.in.