Grape Advisory for May, 2020

Nutrition and Irrigation advisory: Dr. A. K. Upadhyay, Pr. Sci (Soil Science)

Shoot growth stage

Irrigation

1. Irrigation water < 1dS/m: Apply irrigation through surface drip @ 11,560 to 14,960 L/acre per day.
2. Saline irrigation water (1.1 – 2.0 dS/m): Apply irrigation through surface drip @ 14,450 to 18,700 L/acre per day.
3. In case the shoot growth is vigorous, reduce irrigation water application till growth is controlled.
4. In case there are rains, withhold irrigation water application if the soil is at field capacity (wapsa condition).
5. Mulching the vineyards during this period will reduce the salinity build up in the root zone due to upward movement of saline water from lower soil layer. This will also reduce the irrigation water requirement by another 10%.
6. Flooding the vineyard is not advised as it will lead to wastage of water. Concentrate irrigation water application in the root zone only.
7. 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.
Nutrition

1. Apply 25 kg urea/acre in 2-3 splits after sprouting but the total should not exceed 65 kg/acre. In calcareous soils, do not apply urea, instead use Ammonium sulphate @ 50 kg/acre in at least 5-6 splits from sprouting onwards.

2. In case of vigorous growth of shoots, stop nitrogen application and wait for the growth to stabilize before resuming nitrogen application.

3. Based upon soil test value, apply Zinc sulphate @ 10 kg/acre along with Ferrous sulphate @ 10 kg/acre followed by Magnesium sulphate @ 15 kg/acre in at least 2 splits during 5-7 leaf stage. Boron application should be strictly based upon soil and petiole test.

4. In calcareous soils, spray magnesium sulphate and potassium sulphate @ 2 gm each/L during active growing stage.

Fruit bud differentiation stage

1. For fruit bud differentiation stage, stress needs to be given as vigour is not desirable. In clayey soil as the water holding capacity is higher, please note that stress needs to be imposed early else fruitfulness will be affected.

2. Apply irrigation through surface drip @ 6000 to 7000 L/acre per day.

3. Mulching the vineyards during this period will reduce the salinity build up in the root zone due to upward movement of saline water from lower soil layer. This will also reduce the irrigation water requirement by another 10%.

4. Based upon soil test values, apply 5-7 kg phosphoric acid in case the soils are deficient in phosphorus.

5. 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.

6. Keep a close watch on the development of leaf blackening symptoms if irrigation water contains sodium more than 100 ppm.

7. Apply Magnesium sulphate @ 15 kg/acre in at least 2 splits from 45 to 55 DAP.

8. In calcareous soils, spray magnesium sulphate and potassium sulphate @ 3 gm each/L.
Old Vineyard:
In majority of the old grape vineyard, the bud sprouting is becoming a major problem. The following reasons might have contributed for delayed and erratic bud sprouts.

1. Excess bunch load during last season
2. No rest to the vine
3. High temperature and reduced humidity in the vineyard
4. Shortage of irrigation water
5. Irregular cane diameter and different pruning position
6. No use of hydrogen cyanamide

The above mentioned reasons are mainly contributing to delayed or low bud sprouts.

Considering these, following are the management practices:

a) After the harvest of fruits, the rest of minimum 8 to 10 days is required.
b) Under the situation of excess load, nutrient and irrigation during the rest period should be 10% higher than normal time.
c) Water spray on cordon twice in a day. The cordon should be completely wet with water so that the temperature will reduce and relative humidity will increase.
d) Apply minimum dose of hydrogen cyanamide (15-20 ml/L) either as spray or pasting.
e) Pruning on cane with uniform level.
f) After the bud breaking, the roots might have been exposed to bright sunlight. The trench must be closed immediately after application of FYM and other recommended nutrients. This will help in formation of new feeder roots and control the dead arms on the cordon.

New Vineyard:
In these vineyards, the framework development (trunk and cordon development) is in process. The increase in maximum temperature will have adverse effect on vine development. Under this situation, the developing vine will start drying suddenly. Following changes will be observed in these vineyards.

1) The vineyards at the stage of framework development only will show the symptoms of sudden vine drying problem.
2) Initially, few leaves are drying and within a short period of 1-2 days, complete vine dries off. These problems are common in the first year vineyard when the temperature starts suddenly rising.

3) In the vineyard with excess irrigation water application will be severely affected. Around 5-6 vines in one acre will suffer with this problem.

4) The problem will be more in black soil as compared to the light soil.

5) The bark just near the soil surface will be blackish and wet with watery ooze suspecting fungal infection.

6) The uprooted roots will be black in colour indicating the disruption of water and food supply to the growing shoots.

During the last year this problem was identified in the vineyard of Mr. Dattatray Nilkantrao Patil of Aagalgaon village in Kawathe Mahakal taluka. Based on the problem identified.

**The following suggestions were given:**

1) Drenching of Carbendazim @ 1.5g + Imidachloprid 17.8SL @ 1.5ml/litre water in the collar region.

2) Repeat the same drenching on third day under severe condition only, otherwise, drenching of hexaconazol @ 1.0 ml/litre water in the collar region after 3 days of first drenching.

3) Or tabuconazol @ 1.0 ml/litre water after 3 days of above drenching.

4) The drenching of solution on collar region by hand was found more effective than drenching through drip.

5) In the beginning, drenching of solution on selected vine by hand can be done while on dose through drip in entire vineyard will help to control further spread.

6) After the control of present problem, drenching the vines with 2-3 litre Trichoderma per acre.

7) No pinching of shoots for a week and allow to grow.

8) Apply urea @ 1.5 to 2.0 kg/acre through drip only once to initiate the vigor.
Insect Management: Dr. D. S. Yadav, Sr. Sci, (Entomology)

1) 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 is effective against both thrips and jassids.

2) 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.

3) Mealybug population may start to decline in areas where maximum temperature is nearing 40 degree Celcius. 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.

4) Towards end of the May month, if cloudy conditions prevail and some rain is received, then loose bark may be removed from old vineyards to reduce egg laying by stem borer, Stromatium barbatum. To know about it’s management in detail, kindly refer our YouTube Channel ‘ICAR- National Research Centre for Grapes, Pune’ at https://www.youtube.com/channel/UCdoiHxfEEHYZE_L1jjoKHQ

Disease Management: Dr. Sujoy Saha, Pr. Sci., (Plant Pathology)

1) The vines are now expected to be in 3-5 leaf stage which is a sensitive stage and extreme care must be taken for disease management.

2) Uniform sprouting is preferred. If 1-2 erratic, early sprouting of shoots is observed, it should be manually removed. The early sprouted shoots form the places where the pathogen can lodge and wait for the other leaves to open so as to cause the infection.

3) If there is a light to medium drizzle in some areas, 1-2 soil drenching with Trichoderma sp. @ 4-5 g/Litre may be given. Trichoderma may be applied through drip as well. This will prevent build-up of pathogen in soil.

4) Two applications of copper hydroxide @ 1.5g/litre may be given. Freshly prepared 0.5% Bordeaux mixture may also be applied. Copper formulations will give a prophylactic protection against powdery mildew.

5) In regions where heavy downy mildew was observed in the last season, application of a tank mix of potassium salt of activated phosphorus@4g/litre + Mancozeb @ 2g/litre may
be applied twice at 7 days interval. Use of systemic fungicides at this stage may be avoided.

6) Drizzles in early pruned areas can trigger both anthracnose as well as bacterial leaf spot. Hence, application of Kasugamycin 5% + Copper oxychloride 45% @ 2.5 g/Litre may be applied for the control of both.

7) Application of Hexaconazole 5EC @ 1ml/Litre will not only take care of powdery mildew infection but will also restrict the vegetative growth of the canes.

8) The vineyard should be kept clean to avoid build-up of pathogens.

**Note:** The basic objective of the above steps is clean cultivation and reduction of primary inoculum so as to prevent the build up of disease.