

**Advisory for Grape Growers for a period of 15 days (April 1 to 15, 2020)**

The grape growers are advised for the following practices under different conditions in the present situation:

**A. For the fruits available on vine:**

The grape harvesting season was approaching to end. However, due to the present situation of Covid-19, it is becoming difficult to go out of house. Hence, under lockdown condition, it is not possible to complete the harvesting. The grape growers are therefore advised to convert the available fresh grapes on vine to dried grapes (raisin) through drying on vine method. Spray ethyl oleate @ 15ml + potassium carbonate @ 25g/L water on the grape bunches. Care should be taken that the pH of spray solution to be maintained between 10.0 to 11.0 for better results. Depending upon PGR (GA<sub>3</sub> and CPPU) used during berry development stages, the number of sprays will vary from 2 to 3. The grapes after drying to about 70% can be taken out from vine and dried under the shade.

**1. Raisin making:** If grapes have attained desired TSS then raisin making can be started. Practice for raisin making is showed in Fig. 1. The mentioned process can be adopted for raisin making.

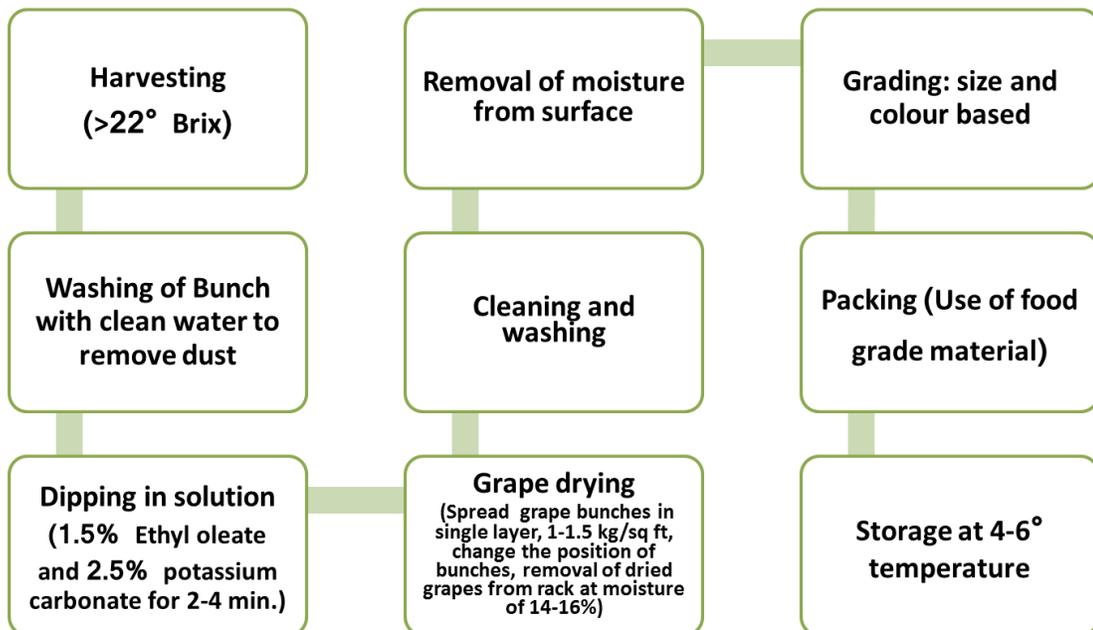


Fig.1 Diagram of grape drying process

**2. Drying of black grapes:** If the black seeded or seedless grapes are available in the vineyard, harvesting and dipping in ethyl oleate @15ml + potassium carbonate @ 25g/L water can be done. Bunches can be spread on floor covered by paper. Sun dried raisins can be collected when berries are dried up to 16% moisture. Sun drying of grapes will not require grape drying sheds (which are limited) and in black raisins browning is no issue. Same time black raisins are also demanded by consumers and have more health benefits.

### **B. Rains during drying process:**

It is being experienced that the region of raisin making is experiencing the rains. This is creating problem for drying of grapes to be converted into raisin due to increased humidity and entry of moisture in the grape berries. In the severe condition, the raisin is becoming brown to black with fungal growth in some cases.

Under such condition, the growers are advised to do the following.

- a) With the help of fan and blower attached with tractor, the air circulation to be restored. This will help in reducing the humidity and moisture from the grape berries.
- b) Fumigate the raisin using Sulphur @ 1.0 to 1.5g/kg raisin. This will help in conversion of brown raisin to uniform yellow coloured raisin.
- c) Browning affects only sensory appeal and have no effect on other quality parameters. Sulfur fumigation process can be adopted only under browning condition.

### **C. Cultural practices to be followed:**

**1. The framework development stage:** In majority of the vineyard, rains were experienced. This condition has improved relative humidity in the atmosphere which will support for good vine vigor in the coming days. This vigor will be for short duration of about a week and then the growth will again slow down. Hence, to encash the present situation the growers are advised for the following.

- a) Apply only nitrogenous and phosphatic grade fertilizers (urea, 18:46:0, 12:61:0, etc.)
- b) Use the vigor for developing the cordon and fruitful canes on it.
- c) Develop sub-canecan at the earliest so that the framework will be complete with cane maturity.

**Pest management:** Thrips may cause serious damage in new vineyards on new growth after the recut. Emamectin benzoate 5 SG @ 0.22 gram per litre or Fipronil 80 WG @ 0.06 g per litre or cyantraniliprole 10 OD @ 0.7 ml per litre water are effective for thrips management.

### **2. Old vineyard:**

#### **i) Nutrition and Irrigation management during rest period**

- a) The plots which have entered into rest period provide, only need based irrigation to protect the existing leaves from drying and also contribute towards increasing the reserves of the vines through photosynthetic activity. The quantum of irrigation

- water applied should be approx. 5000 – 6000 L/ acre, once in a week. Care should be taken to reduce/stop the water in case new growth is observed on the shoot.
- b) Apply 10-15 kg urea, 25-30 kg SSP and 10-15 kg Sulphate of Potash per acre every 15-20 days till foundation pruning is not done.
  - c) Flooding the vineyard is not advised as it will lead to wastage of water. Concentrate irrigation water application in the root zone only.
  - d) If planning for foundation pruning in next 10- 15 days, it is advised to get soil and water analysed for planning nutrient and water application schedule for foundation pruning season.
  - e) The vineyards where sodicity problems experienced, apply gypsum to the soil for removal of sodium from the soil exchange complex. In case of the sodic soils are calcareous also, use sulphur for similar purpose.
  - f) If soils are calcareous in nature, then apply 50 kg sulphur between the vines in the soil. The sulphur should be properly mixed in the soil for improving its efficacy in taking care of calcium carbonates. Mixing of sulphur in organics further improves its efficacy.
  - g) Apply FYM/ compost/other organic sources including green manuring atleast 12-15 days before Foundation pruning. If possible mix 200 kg Single super phosphate in the FYM and apply in the soil. Application of organics improves the nutrient and water retention in the root zone and reduces nutrient losses from the profile.
  - h) Never apply water soluble fertilisers like urea, ammonium sulphate etc. as basal, as they will be leached and contaminate the ground water. They should be applied only from sprouting onwards.

## **ii) Back pruning:**

- a) Prune the cane leaving single bud. This will help in sprouting healthy and strong bud available at the base.
- b) Swab the bud with hydrogen cyanamide @ 20 to 25ml/L water. The same concentration can be sprayed on the cordons if swabbing is not possible.
- c) Spray water twice in a day (morning between 11.0 am to 12.0pm and afternoon 2.0 to 3.0pm) from 5<sup>th</sup> day after pruning to 15<sup>th</sup> days. This will help to build up relative humidity on the cordon and thus there will be early and uniform bud sprouts.
- d) Spray for the control of flea beetle. Red spider mite population may increase in vineyards after the harvest and may cause severe leaf fall. Sulphur 80 WDG @ 1.5-2.0 g/L or abamectin 1.9 EC @ 0.75 ml per litre or bifenthrin 22.5 SC @ 0.5 ml per litre water may be applied if mite infestation is observed.

## **iii) Irrigation during shoot growth stage:**

1. Irrigation water < 1dS/m: Apply irrigation through surface drip @ 10,880 to 15,300 L/acre per day.
2. Saline irrigation water (1.1 – 2.0 dS/m): Apply irrigation through surface drip @ 13,600 to 15,300 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. 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.

**iv) Nutrition during shoot growth stage:**

1. Apply 50 kg urea/ acre in 5-6 splits after sprouting. In calcareous soils, do not apply urea; instead use Ammonium sulphate @ 85 kg/acre in at least 7-8 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.