

**Method of sampling for grapes from the farm/plot to be followed by authorized laboratories/NRL**

Procedure for sampling table grapes for analysis

1. Who will draw the sample?

Individuals authorized by the nominated laboratory of the APEDA (as per Annexure 6) will only draw the samples.

- Individuals authorized for the sampling table grapes should have letter of authorization from the recognized nominated laboratories.
- Individuals authorized for the sampling should also have Identity card issued by the laboratory.

2. From which vineyard sample is to be collected?

The samples will be drawn only from those vineyards which are registered for export with the District Superintending Agriculture / Horticulture Officer of the district / respective State Govt. Before sampling, following documents pertaining to the registered vineyard will be verified/copies obtained by the authorized representative sampler of the laboratory:

- Registration Certificate issued by the State Government.
- Registration Record of Grape Farm / Plot (Annexure – 2) and drawing/map lay out.
- In case the plot drawing/map lay out provided by the Agriculture/Horticulture Officer is not fully clear, the laboratory representative may continue to draw the sample as per guidelines given in Section 5 of the main document. However, while doing so, he shall provide clarity to the drawing and obtain the farmer's endorsement on it and provide a copy to him or his representative at the site.
- Pesticide Application Record of the plot maintained by the farmer/exporter (Annexure – 2).
- Second and final Inspection Report of the Agriculture/Horticulture Officer [Annexure – 4 (B)] recommending the drawl of sample. It is recommended that Annexure – 4 (A) should also be seen.
- Sample slip signed by the farmer and exporter (Annexure – 8).

3. Locate the block from where the sample is to be drawn

- Information given in, Registration Certificate, map lay out and Annexure 2 are to be used to locate the block. It is also expected that the drawing / sketch of the block/plot is available with the First Inspection Report [Annexure – 4(A)] of the Agriculture / Horticulture Officer. Thus, the plot may be identified on the basis of name of the block / plot, direction, nearness to the landmarks such as road, well, pump house, shed etc.
- Area of the block / plot from where the sample is to drawn should not exceed 1.2 ha. In case, the area is above 1 ha, additional samples for every one ha are to be drawn.
- Area / block / section / plot selected for sampling should have the same date of pruning or such that the differences between two pruning dates are not more than 15 days, expected date of harvest and schedule of pesticide applications. In case, the above aspects are not

same, separate sample should be drawn from each different block. Area should be considered as one section, which should not be larger than 1 ha for collecting one sample.

- Separate Annexure – 2, Annexure – 4(A), 4(B) and Annexure – 8 should be obtained for each section / area / block /plot selected for sampling.
- Area can be determined on the basis of example given below :

Suppose the row-to-row distance is 6 feet and plant-to-plant distance is 4 feet.

Total area occupied by one vine = 24 sq. ft.

Area of one hectare  $\cong$  10000 sqm, which is equal to 110889 sq. ft

Total No. of vines in one hectare =  $110889/24$

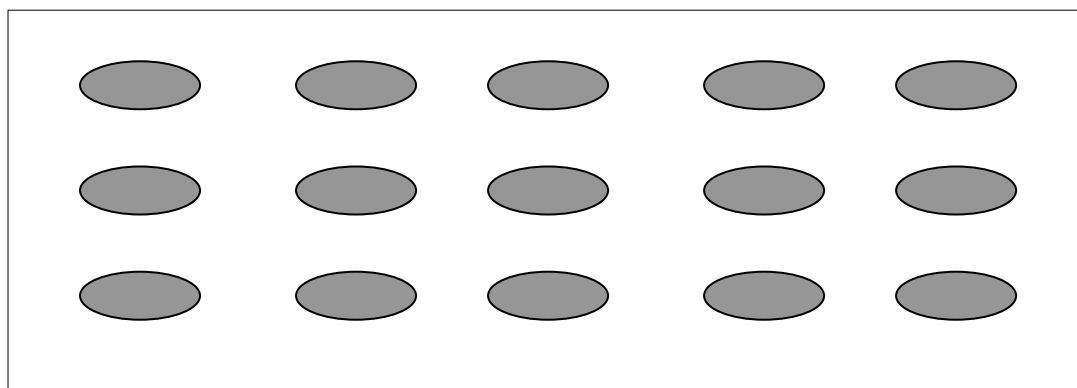
= 4620 vines

So, one hectare contains 4620 vines spaced at 6ft. by 4 ft. distance.

#### 4. Collection of Sample

Sample collected should be most representative of the section / block / area /plot selected. To ensure the same

- Smallest unit for sampling should be a bunchlet from a bunch (6-8 berries).
- Bunchlets shall be taken from those bunches that have attained export grade / size / maturity. Sampling of the undersized and oversized bunches to be avoided.
- Bunchlets shall not be taken from those bunches hidden in the canopy, or showing infestation of insect pest (thrips, mealy bugs) or diseases (powdery mildew) or any disorder (pink berries, cracking, abnormal stains or scorching on berries).
- Bunchlets shall not be taken from those bunches, which are compact, and having undersized (less than 14 mm) berries.
- Sample bunchlets should be collected from all over the section selected for this purpose.
- The selected Section / area / block / plot (1 ha) may be divided into 15 primary sampling spots as shown in the diagram below and about 10-12 vines may be selected from each spot for sampling.



- In case if the plot size is larger (up to 1.2 ha), the number of primary sampling spots could be more than 15 and not less in any case.

- Each primary sampling spot may have about 20 to 30 vines. From these vines, 10-12 vines should be selected randomly for sampling. At least 10 bunchlets to be collected from each primary sample location. Each bunchlet may contain at least 6-8 berries weighing 25-30 g. The bunchlets are collected from all possible locations with difference in height, exposure to sunlight, etc. The bunchlets should be collected from the lower portion of the bunch. However, selected vines should not be abnormal in terms of less canopy, less number of bunches, infected with insect pests, physically damaged etc. Samples should be collected from the lower 1/3<sup>rd</sup> part of the bunches.

Reference: Oulkar D.P., Banerjee Kaushik\*, Patil S.H., Upadhyay A.K., Taware P.B., Deshmukh M.B., Adsule P.G. (2008). *Pest Management Science* 65 (2): 183-188.

- The sample collected at each spot should be about 350 g and will be called as Primary Sample.
- All primary samples from one section will be mixed and will be called as laboratory sample. The size of the laboratory sample should be at least 5 kg from about 1 hectare area.
- Out of 5 kg sample for laboratory, draw 3 kg sample randomly and homogenize for residue analysis. Draw another 1 kg as the counter sample for storage in intact form.
  - The counter sample (1 kg) should be immediately stored in the cold storage at  $0 \pm 1$  °C with 90-95% relative humidity for a period of 60 days from the date of issue of test report of the sample.
  - A portion of the grape homogenate (~200 g out of the 3 kg sample homogenate) should be drawn and preserved at -20 °C for 120 days.
  - Data logger should be installed in a cold room for recording temperature and humidity from time to time.
  - It is the responsibility of the nominated laboratory to see that the seal of the storage sample (both 1 kg and 200 g) is kept intact till such time the sample is required for analysis in case of any dispute.

## 5. Packing and transport of sample

Two samples should be packed separately in clean and virgin corrugated cardboard box designed for transport of grapes. The boxes should be sealed with brown packing tape. Sample slip (Annexure – 8) should be kept in polyethylene cover and the polyethylene cover should be inserted in the box. The boxes should be labeled from outside with the following information:

- Grape Sample for Residue Analysis
- Sample slip number
- Date of sampling
- Name of authorized representative (sampler) of the nominated laboratory

Sealed sample should be delivered to the laboratory within 24 hrs of sampling from the plot.