



Collecting a Raisin Sample In The Field for Moisture Determination

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One of the most important decisions a raisin grower makes is when to box, and weather forecasts can add to the thrill of the decision. For example, the weather forecast calls for a chance of rain, but you aren't positive the raisins are dry enough to box. Should you leave them out to dry a few more days and gamble that it won't rain, or should you box them and gamble that they are dry enough? The decision would be much easier if you could accurately determine the average moisture of the raisins as they lay in the field.

A mistake in estimating field moisture is costly. Raisin picked up too wet, more than 16% moisture, will have to be blended with dry raisins (when available), or moisture must be removed using a field or commercial dehydrator, and this adds to the production costs. Raisins picked up too dry, below 10% moisture, may not grade quite as well on the air stream sorter, and the grower is not credited for weight when delivered below 10% moisture. A one percent drop in moisture is a loss of 20 pounds per ton.

Even the most experienced grower can make a mistake estimating raisin moisture in the field. Every year is different, and often-times raisins feel drier or wetter than their actual moisture content. When estimating the field moisture of raisins, it is helpful to collect a raisin sample from the field, take it to the packer for moisture determination, and use the information to reinforce your field estimates.

Grapes on heavily loaded trays dry slower than grapes on light trays. Large bunches dry slower than small bunches. Grapes dry more evenly when the fruit is spread rather than heaped on the tray. A good sample will represent the average raisin moisture in the field taking into account all the variability from tray to tray, row to row.

The following sampling method results in about a two pound sample of raisins that can be taken to the packer for moisture determination. The sample is a sub-sample of the raisins from ten or more raisin trays that were thoroughly blended.

Equipment:

1. three clean trash cans (35 gallons);
2. one plastic bucket (5 gallons);
3. gallon size zip-lock plastic freezer bags;
4. gloves and a dust mask;
5. time (about twenty minutes per sample)

Sample Area:

A vineyard is usually picked in two or three days or more. When collecting a raisin sample, only sample raisins from rows picked on the same day.

A sample should cover no more than forty rows. The length of the row does not matter. If eighty rows were picked in one day, take two samples each covering forty rows. If sixty rows were picked in one day, then take two samples each covering thirty rows. If less than forty rows were picked in one day, then one sample is adequate.

Sample Size:

A minimum of ten trays are needed per sample. Additional trays will increase the accuracy slightly but also will require more time. Fifteen trays may be necessary in fields where raisin moisture is exceptionally variable.

Sampling Procedure:

- 1) Start at the avenue and count 30 trays down the row. Work from the end of the row that was picked last. When you get to tray number 30, pick it up regardless of what it looks like. It may be too dry; it may be wet with green fruit showing; it may be a light or heavy tray; there may be rot on the tray; it doesn't matter, pick up tray number thirty regardless of what it looks like.
- 2) Dump the raisins from tray number 30 into the five gallon bucket. With gloved hands, remove stems and break clusters until the raisins are thoroughly mixed. Go back to the avenue and dump the raisins from your 5 gallon bucket into one of the 35 gallon trash cans.
- 3) Go to the next row to be sampled (same end); countdown to tray number 30; pick it up; put it in the bucket; remove stems and thoroughly mix the raisins; dump the raisins into the 35 gallon trash can back at the avenue. Repeat the process until you have collected the raisins from ten trays and from ten different rows and put them in the 35 gallon trash can.

Which rows do you sample? If the area to be sampled is 40 rows, then sample every 4th row to get your ten tray sample. If it is 30 rows, then sample every 3rd row to get your ten tray sample. If the area is 20 rows, then sample every other row to get your ten tray sample. If you are sampling ten rows, then sample every row to get your ten tray sample.

Note: Tray number 30 was an arbitrary choice. It could have been tray 20 or 40, etc. The important point is to pick up the tray number you selected regardless of what it looks like. It is important that you don't pick up tray 1 through 10, they're too close to the avenue and dry more slowly. It's not practical to pick up trays half-way down the row. Therefore, we chose tray number 30. If you have a vineyard with a sand streak or other variability, you might choose a tray number that will sample across that variability.

Mixing the Raisins and Taking the Final Sample:

When you have finished collecting raisins from the ten trays, you should have about forty- five to fifty pounds of raisins in the 35 gallon can. These need to be thoroughly mixed. The best way to mix them is to split the fifty pounds of raisins into three 35 gallon cans (about 15 pounds in each can). Then, reach into the cans and thoroughly mix the raisins by hand. Put the sample back together by pouring them into a single 35 gallon can. Then, split them again into the three separate cans and mix them by hand. Repeat this three times.

It's now time to take your final sample. Split the fifty pounds of raisin into the three 35 gallon cans. Reach into each can and grab two or three handfuls of raisin from different locations and place them into the 5 gallon bucket. Mix those raisins in the five gallon bucket thoroughly. Finally, pour the raisins into a zip lock bag and seal. You should have about two pounds of raisins. Make sure the plastic bag is sealed and no moisture is lost in transit to the packing house.

The raisin sample is now ready to take to your packer for moisture determination.

The above method enables you to collect a sample of raisins in the field which is representative of the average field moisture content (of the area sampled). It takes a little time, but it results in a much better sample than simply testing the moisture of raisins from a few selected trays.

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