PRESQUE ISLE WINE CELLARS

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Lowering the Sugar Content of Grapes/Juice

Purchasing or having grapes or juices that have a higher than desirable sugar level can be a problem if left as-is and fermentation is allowed to start without adjusting the sugar level. Of course the winemaker must have a desired alcohol level in mind. A common alcohol level for 'Table Wines' is about 12% alcohol and most grape wines should have alcohol contents within a range of 11% to 14%. Sometimes, especially with fruit wines like apple or raspberry, a lower alcohol level like 10% may be desirable.

Dividing the sugar content of the juice in half is a pretty good rule of thumb for estimating what alcohol level can be expected. For example a sugar level of 20 brix would produce approximately 10% alcohol. A more accurate calculation is to multiply the brix times 0.55. Using this method would tell you that a juice with 28 brix would result in a wine that is 15.4% alcohol which is outside the typical range. This is undesirable for three reasons: 1) the resulting wine may be too 'hot' for one's taste, 2) as alcohol taxes are related to alcohol content this may push a commercial wine into a higher tax level, and 3) it may be difficult for a yeast to ferment all the sugar before reaching its fermentation capacity resulting in unmetabolized residual sugar remaining after fermentation and producing a sweet wine which may not be desirable or acceptable.

For these reasons, if you have grapes or juices with high brix levels that could result in a too-high alcohol level or unfermented residual sugars that aren't desired, you may want to consider reducing the sugar content of your must. This situation can sometimes happen with grapes/juices that come from the hotter Central Valley Region of California which often produces grapes that are quite high in sugar.

Reducing Sugar Level

The sugar can be reduced by diluting with acidulated water. The water must be acidulated to maintain the acid level in the juice. Keep in mind that this method becomes a trade-off. Color, flavor and etc. are also diluted as water is added and the winemaker must decide if that is an acceptable trade. It is easy to add acid to the water so the acid level of the juice is not altered and even color can be added.

Following is a way to calculate how much water to add to a batch of grapes/juice to lower the sugar level to a more desirable level:

Original brix level ÷ the new desired brix level x the number of gallons of juice you have = the new total gallons of the whole batch. Assume it takes 13 to 14 pounds of grapes to yield a gallon of juice.

EXAMPLE: Say you have 140 lbs of grapes at 28 brix and want them to be 24 brix to get approximately 12% alcohol. Divide 28 by 24 = 1.167. Then multiply the 1.167 times the number of gallons of juice you have. Assuming 14 lbs/gal results in 140 lb ÷ 14 lb/gal = 10 gallons of juice expected. 10 gal x 1.167 = 11.67 gallons new required total batch volume with the added water. Subtracting the original batch gallons from the

required new batch gallons will give you the required amount of water to add. 11.67 gallons – 10 gallons = 1.67 gallons of water required to be added.

Acidulating the Added Water

Remember you will need to add the correct amount of acid to this water so it doesn't unduly dilute the acid level of the whole batch. Tartaric acid, the predominant natural acid in grapes, is recommended for addition although an acid blend with malic and citric acids as well as tartaric may also be used. 1.7 grams of Tartaric acid powder added per gallon of liquid will raise the acid content 0.1%. To determine the number of grams of tartaric acid to be added to your water, multiply the number of gallons of water to be added x 1.7 x the number of 0.1% acid level raise units needed.

EXAMPLE: Assume the acid level in the original juice in the sample calculation above was 0.5%. The number of units of 0.1% acid level rise is the percent acid raise required divided by 0.1. The number of grams of tartaric acid powder that would need to be added would be:

1.67 gallons x 1.7g/gal x (0.5% - 0%)/0.1% = 1.67 x 1.7 x 5 = 14.2 grams