

AGRICULTURAL EXPERIMENT STATION  
Oregon State College  
Wm. A. Schoenfeld, Director  
Corvallis

Circular of Information No. 273

June 1942

HOW TO SAVE SUGAR WHEN CANNING AND FREEZING

by

E. H. Wiegand and Gladys Hedlund  
Food Industries Department

The present emergency makes necessary the conservation of sugar for ordinary home operations. Canning and freezing usually require a considerable quantity of sugar to make the products palatable. For the purpose of helping a critical situation faced by most homemakers the following suggested preserving methods based on experimental results have been found to apply quite satisfactorily.

Sugars Suitable for Preserving

The sugars other than cane or beet which might be used for these processes of preserving are dextrose, glucose and honey.

Dextrose

Dextrose is a pure simple sugar made from corn and is obtainable in the form of Dyno or Cerelose. Due to the present emergency, however, this sugar is quite limited although if obtainable can be used as directed below.

Glucose

Glucose is a syrup which can be obtained from every grocer in the form of Karo. This syrup contains dextrose and a small amount of other simple sugars as well as dextrine. The product is a little less sweet than cane sugar, but is quite satisfactory as a sweetening agent. The density as purchased is usually about 75% which means it has 75 pounds of solids in every 100 pounds of the syrup. Due to its heavy density it is best diluted when used for the canning or freezing processes of fruit.

Honey

Honey is a syrup readily obtainable at all grocery stores. The density of honey is variable, but usually approximates 82% solids which means it has 82 pounds of solids in every 100 pounds of syrup. The flavor in honey is imparted by the flowers. It usually contains a large percentage of simple sugars, essential oils, from the flowers from which it is derived and a minute amount of formic acid which acts as a preservative. The syrup can be used in canning or freezing, but the amount is limited due to the intense flavor it imparts to the canned or frozen fruit. For this reason do not use honey without mixing it with other sugars.

Densities of Sugars and How to Adjust  
for Canning

As is customary in canning procedures, a syrup is made up as a light, medium or heavy density. These densities are made up by using the following amounts of cane or beet sugars.

Heavy Density	1 cup of sugar to 1 cup of water
Medium Density	1 cup of sugar to 2 cups of water
Light Density	1 cup of sugar to 3 cups of water

For the period of this emergency it is suggested that a medium to light density syrup be used. However, with these sugar syrups to replace the cane or beet sugar, the heavy syrup may be applied.

In order to improve the quality of the syrup by increasing the body and density, however, use glucose or honey in the following proportions with cane or beet sugar. It will be found that the fruit character and appearance is maintained much better.

Kind	Amount Ounces	Sugar Measure	Amount of Water	Remarks
Cane or Beet Sugar 25% Karo (75% Density) 75%	4 16	or $\frac{1}{2}$ cup + or $1\frac{1}{2}$ cups	1- $\frac{3}{8}$ cups	Satisfactory, not best
Cane or Beet Sugar 50% Karo (75% Density) 50%	8 10	or 1- $\frac{1}{8}$ cups or 1 cup	1- $\frac{3}{8}$ cups	Very good Acceptable flavor
Cane or Beet Sugar 75% Karo (75% Density) 25%	12 5	or $1\frac{1}{4}$ cups or $\frac{1}{2}$ cup	1- $\frac{7}{8}$ cups	Flavor considered good
Cane or Beet Sugar 75% Honey(82% Density) 25%	12 4.8	or $1\frac{1}{4}$ cups or $\frac{1}{2}$ cup scant	1- $\frac{7}{8}$ cups	Flavor considered good. Honey is detectable.

To reduce the density of the syrups above simply dilute with more water if additional savings in sugar are desired. It must be remembered when doing this that the flavor is somewhat impaired by material reduction of the sugar content of the syrup.

## Application of Syrup to Fruit

### Canning

When preparing syrups for canning, be sure that they are applied hot. The use of hot syrups in canning will assist in driving off the air from the fruit. Color and general appearance is materially improved.

### Freezing

Syrups used in freezing fruit should be made up hot first. This processing of the syrup improves the uniformity and reduces contamination. After thorough mixing and a light boil, cool the syrup down and apply cold to the prepared fruit in the package. Syrup on frozen fruit protects the fruit from discoloration.

### Use of Dry Sugar in Freezing

Dry sugar can be used according to the rationing order in the proportion of 4 quarts of fruit to 1 pound of sugar. Freezing berries without sugar is possible but the flavor is impaired upon defrosting. Smaller quantities of sugar can be used than those mentioned above. The use of a heavy syrup to dip the fruit in is quite satisfactory. This can be made by using equal weights of cane or beet sugar with Karo. It is preferable to use the white Karo in all these operations.

If Cerelose or Dyno is available the use of 1/10 of a pound for every 9/10 pound of cane or beet sugar in a 4 plus 1 mix is quite a satisfactory combination. Mix the two sugars well before adding them to the fruit, however, and see that the sugar is well distributed.