

TESTING FOR INVERT SUGAR IN MAPLE SYRUP

By Sumner Dole
Extension Educator, Forest Resources

Sucrose and Invert Sugar. Although sucrose is the only sugar in sap as it comes from the tree, some of the sucrose is changed into invert sugar as a result of microbial fermentation during handling and processing. The invert sugar influences the way the sucrose crystallizes.

Both sucrose and invert sugar are made up of the same two simple sugars — dextrose and fructose. In sucrose these simple sugars are united. In invert sugar they occur separately in equal amounts. Because of this difference in chemical structure, sucrose crystallizes easily and invert sugar does not. When both are present in a mixture, the invert sugar slows or prevents the crystallization. The degree to which invert sugar retards crystallization depends on the amount present.

Amount Needed. A small amount of invert sugar is desirable in maple syrup that is to be made into maple sugar and maple confections. Invert sugar tends to reduce supersaturation, that is, more sugar can be held in solution before crystallization occurs. This helps keep the product moist. Also, it encourages the formation of exceedingly small sugar crystals. But too little invert sugar in the syrup will cause the product to be grainy; too much may prevent formation of crystals (creaming) as required for making maple cream.

However, few syrups have too little invert sugar. The main problem is how to avoid using those that have too

much. In general, all grades of maple syrup contain some invert sugar, the amount varying with the different grades. The following simple test indicates the percent of invert sugar present.

CONDUCTING THE TEST

Items Needed:

Clinitest Test Kit (test tubes, eye dropper)

Clinitest Tablets (for urine sugar testing)

20 fl. oz. measure for water

1 oz. measure

Large spoon

1. Mix 20 fl. oz. of water with 1 fl. oz. of maple syrup. Stir.

2. Put 5 drops of solution in test tube.

3. Add 10 drops of water to test tube.

4. Add 1 Clinitest tablet to test tube. Watch solution boil (**Do Not Touch!**)

5. 15 seconds after boil stops, add water to test tube to 1/2" from top.

6. Observe color:

Blue: indicates low invert, okay for cream or candy.

Yellow or Green: indicates high invert, not suitable for cream or candy.



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