

1746

ARS 73-39

Fluffed Maple Products

*— a new use
for maple sirup*

December 1962



Growth Through Agricultural Progress

Agricultural Research Service
U. S. DEPARTMENT OF AGRICULTURE

FLUFFED MAPLE PRODUCTS--A NEW
USE FOR MAPLE SIRUP

A. E. Wasserman, J. C. Underwood,
and C. O. Willits

Pure maple sirup has been used for many years in making confections such as spreads, maple butter, maple cream, and soft and hard candies. However, such products as toppings and icings have not been made extensively from maple sirup because their physical properties, such as texture and stability, do not enable them to compete with similar sugar products of other flavors. Further, the pronounced sweetness of these maple spreads and confections, as presently prepared, is too intense for many people.

In keeping with the continual demand for new ways of utilizing pure maple sirup, research at the Eastern Utilization Research and Development Division has developed procedures for preparing a new class of maple products called "fluffed maple products."

Production of these new maple products has been achieved by developing formulae which contain a pure mono-glyceride as a "stabilizer." The fluffed product results when the ingredients at the proper temperature are rapidly beaten with a high-speed mixer. These new products have the desired physical characteristics for a topping, icing, or spread, such as good spreading properties, impalpable crystal structure, and good shelf life. Further, the sweetness has been reduced without loss of the desirable maple flavor. Additional advantages of the fluffed product are (1) opportunity to use darker grades of sirup that are not satisfactory for such products as maple cream because of high invert content; (2) improved physical structure so that the dispersion of the

sugar crystals in the mother liquor is more stable (separation of sirup and sugar crystals occurs very slowly, if at all); and (3) the water content is higher than in the conventional maple spread thus reducing the amount of original sirup used per pound of product made.

DIRECTIONS

A. FROM MAPLE SIRUP

1. Determine the boiling point of water.
2. Transfer a measured amount of any grade of pure maple sirup to a kettle.
3. Heat the sirup until its boiling temperature has been elevated 17° F. above that of boiling water (see 1 above).
4. Allow the sirup to cool, with occasional stirring, to 175°-185° F. (check temperature with a thermometer).
5. To the warm (175°-185° F.) sirup, add an amount of a highly purified monoglyceride (Myverol 18-00*) equal to 1% of the weight of the maple sirup used, that is, 0.11 pound (1/3 cup) per gallon or 2 level tea-spoonfuls per pint. Dissolve the monoglyceride by adding it slowly with stirring. If the sirup cools below 145° F., the monoglyceride will not dissolve.

*MYVEROL 18-00. PRODUCED BY DISTILLATION PRODUCTS INDUSTRY, ROCHESTER, NEW YORK. THE MENTION OF COMMERCIAL PRODUCTS OR COMPANIES IN THIS PUBLICATION DOES NOT CONSTITUTE AN ENDORSEMENT OF THEM BY THE USDA OVER OTHER PRODUCTS OR COMPANIES OF EQUAL USEFULNESS FOR THE SAME PURPOSE.

6. Cool to 150°-160° F. and whip the mixture with a high-speed (household) beater. Fluffing should occur within 2 minutes.

B. *FROM MAPLE SIRUP AND MAPLE SUGAR*

1. Measure into a sauce pan 1 cup pure maple sirup of any grade.
2. Add 1/2 cup maple sugar.
3. Heat the mixture until the sugar is completely dissolved keeping the loss of water by boiling to a minimum.
4. Cool the mixture to 175°-185° F. with occasional stirring (check the temperature with a thermometer).
5. To the warm sirup mixture add, slowly with stirring, 1 teaspoonful of the monoglyceride for each cup of sirup used.
6. Cool to 150°-160° F. and whip the mixture with a high-speed (household) beater. Fluffing should occur within 2 minutes.

C. *FROM MAPLE SUGAR*

1. Measure into a sauce pan 1/3 cup of water.
2. Heat slowly while adding 1 cup of maple sugar with stirring. Continue heating until sugar is completely dissolved. Keep the loss of water to a minimum.
3. Cool the mixture to 175°-185° F. with occasional stirring (check the temperature with a thermometer).
4. To the warm sirup mixture add, slowly with stirring, 1 teaspoonful of monoglyceride.

5. Cool to 150°-160° F. and whip the mixture with a high-speed (household) beater. Fluffing should occur within 2 minutes.

NOTES

1. In all the procedures the sugar should be completely in solution at the time it is whipped to prevent the formation of grainy texture. If sugar crystals do form, they may be redissolved by heating the suspension (again loss of water must be avoided, and no more Myverol need be added).
2. When maple sugar is used as the basic ingredient of the product, a dry mix can be prepared containing the sugar and Myverol in the correct proportions so that only the water need be added. This dry mix could be packaged and used as desired.
3. The texture and consistency of the fluffed products can be varied in several ways.
 - a. *Whipping time* -- As time of beating lengthens, the consistency of the product increases. The initial, thin whip can be used as a topping for ice cream or other desserts. The stiffer fluffed product resulting from longer beating is an excellent icing for baked goods or as a spread. (The beating time will be affected by the temperature of the mixture at the start of the beating. The higher the temperature the longer it will take to reach a given consistency).

b. *Ratio of sugar to water* --
The higher the sugar content of the mixture relative to the water content at the time the sugar-water-stabilizer mixture is whipped, the greater the consistency of the fluffed product will be. Starting with maple sirup, the amount of water in the final mix is increased by boiling to less than the 17° F. boiling-point elevation given in the directions. This should give a thinner product. Conversely, a thicker product of higher consistency would be obtained by boiling the sirup to more than 17° F. boiling point elevation. When dry sugar is used, the amount of water put into the mix can be changed, more to give a thinner product and less for a thicker one.

4. For fluffed products of other flavors, other sugars or sugar sirups can be substituted for the maple sirup or maple sugar in the various formulae listed in this paper. Any flavor base can be added to the mix just prior to beating.



Prepared by

Eastern Utilization Research
and Development Division
Agricultural Research Service
U. S. Department of Agriculture
Philadelphia 18, Pa.