

# THE SUCCESSFUL MAKING OF PASTRY

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## The Art of Making Pies Studied by University of Arizona Girl in Home Economics Department; Some Results and Experimental Data On the Various Factors Affecting the Quality of Pastry

**U**PON what factors does the making of successful pastry depend? Why will the same recipe give good results for one person and poor results for another; and why do the results vary from time to time for one person? To determine the answers to the above questions a problem was worked out in experimental cookery by Margaret Booher last year.

A standard recipe was used in this experiment. A formula that was practically the same in a number of cook books was modified by the experimenter and used as her standard. By controlling the temperature of ingredients for mixing, using the same method of manipulation, and length of baking at the same temperature in each experiment these factors were kept constant. Any variance in the character of the pastry would then be dependent on the kind and amount of fat, and the amount of water and salt.

Four kinds of flour were used. A good bread flour, which is a hard wheat flour containing a large per cent of protein; a combination of hard and soft wheat such as Kansas hard wheat and Arizona soft wheat; and a commercially prepared pastry flour, which is made from soft wheat especially treated to remove part of the protein. The three typical fats used were butter, which is 84 per cent animal fat, the rest being largely water with some salt; lard because it is pure animal fat; and a hydrogenated vegetable fat.

The method of manipulation was the same for each combination of flour and fat. The fat was cut into the flour with knives rather than rubbed in with the fingers because the heat of the finger partially melts the fat, which tends to make the pastry tough. The water was added to the fat, flour, and salt with the fingers. This took such a very short time that the heat from the fingers did not melt the fat enough to toughen the dough. The dough was rolled on a slightly floured board to one eighth inch thickness. The crust was baked in an oven at 500 degrees F. for ten minutes.

Taking one kind of flour and one kind of fat a pastry was made, using the proportions in the standard recipe. If the results were unsatisfactory variations were made in the amounts of fat, water, and salt until a good, rich pastry was obtained. The experiment was repeated until each of the four flours had been tried out

with the three kinds of fat and the products were practically standard. Variations in texture and flavor were due to the differences in the flour and the distinctive flavor of the fat, and could not be avoided.

Results of the experiment are shown by the following chart.

Flour		Fat		Water	Salt
Kind	Amount	Kind	Amount	Amount	Amount
Hard wheat (Bread flour)	1 cup	Butter	7½ tbsp.	2½ tbsp.	Pinch
		Lard	6½ tbsp.	2½ tbsp.	½ tsp.
		Vegetable fat	5½ tbsp.	3 tbsp.	½ tsp.
Combination of Hard & Soft Wheat	1 cup	Butter	6¾ tbsp.	2 tbsp.	Pinch
		Lard	5¾ tbsp.	2 tbsp.	½ tsp.
		Vegetable fat	4¾ tbsp.	3 tbsp.	½ tsp.
Soft wheat (Pastry flour)	1 cup	Butter	6 tbsp.	1½ tbsp.	Pinch
		Lard	5 tbsp.	1¾ tbsp.	½ tsp.
		Vegetable fat	4 tbsp.	2½ tbsp.	½ tsp.
Commercial Pastry flour	1 cup	Butter	5½ tbsp.	1¼ tbsp.	Pinch
		Lard	4½ tbsp.	1 tbsp.	½ tsp.
		Vegetable fat	3½ tbsp.	2 tbsp.	½ tsp.

These proportions make a rich pastry. If a less rich pastry is desired, reduce the amount of the fat and increase the amount of water. If a richer pastry is required, reduce the amount of water and increase the amount of fat.

From the above chart these rules can be made. For the same flour, but varying the type of fat, use one tablespoon less of lard than of butter, one tablespoon less of a hydrogenated vegetable fat than of lard. Keeping the kind of fat constant and varying the type of flour, decrease the fat two third tablespoons for each flour from hard wheat flour to the commercial pastry flour. The amount of water varied with both the kind of flour and fat used. It took more water with the hard wheat flour, the amount gradually decreasing as more fat was used. A smaller amount was required with butter, because it contains some water.

The amount of salt is the same for each kind of flour, but varied with the fat. Lard and vegetable fat required the same amount, but butter only a pinch as it contained some salt.

As to texture, bread flour made a good pastry, the hard and soft wheat flour gave a more tender pastry, the

pastry flour or soft wheat flour was still a little more tender, and the commercial pastry flour was the most tender. However, the difference in tenderness was not enough to compensate for the increased cost.

The flavor of the pastry made with butter was the best and that made with the hydrogenated vegetable oil the poorest. That made with lard had a distinctive lard flavor which some people like and others dislike. The high cost of butter as a cooking fat would probably outweigh any advantage in flavor, also the fact that more butter is required than of the other fats, tends to prohibit its use.

The cost of the pastry is governed by the cost of the kind of flour and fat used and the amount of fat necessary for that particular flour. For example, bread flour is the least expensive, but because it requires the most fat a pastry made from it costs more than a pastry made from a slightly more expensive flour that calls for less fat.

If the housewife uses proportions given here for a kind of fat and flour she is using rather than using a general pastry recipe she can avoid uncertain results.