

Preservation and Care of Foods on the Farm

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INTRODUCTION.

THE tendency of foods to perish under ordinary conditions is well illustrated by rotting fruits and vegetables, souring milk, decomposing meat and putrefying eggs. The necessity, however, of prolonging the period of usefulness of foods, together with the experience of centuries past, has taught men the value of drying of fruits, storing vegetables at low temperatures, boiling of milk and drying and salting of meat and fish, but left it to modern investigators to show clearly that micro-organisms are responsible for the spoiling of foods.

NATURE OF MICRO-ORGANISMS AND THEIR REQUIREMENTS FOR GROWTH.

Bacteria, yeasts and molds are plants microscopic in size. They are widely distributed in nature, since they have been found in soil, water, air, foods and intestines. Under favorable conditions they grow vigorously, increase rapidly in numbers and some of them produce undesirable changes in food products of vegetable and animal origin.

Micro-organisms have certain requirements for growth. They must have a sufficient and suitable food supply. Bacteria may grow readily in highly nitrogenous foods, like meat and fish, while yeasts and molds are likely to be found on highly carbonaceous materials, like fruits and vegetables. It must be mentioned in this connection that bacteria prefer a neutral or an alkaline re-action and that they are injured by light, while

yeasts and molds prefer an acid reaction and are not quite so susceptible to the effect of light. Next, micro-organisms must have a suitable amount of moisture (at least 25 per cent. for bacteria), otherwise, complete removal of moisture speedily destroys life. Then, micro-organisms must have a suitable temperature, though the range may vary for different types. Finally, they must have a suitable gaseous environment, because in some cases free, uncombined oxygen is needed for respiration and in other cases it may be utilized in its combined forms.

PRINCIPLES OF PRESERVATION OF FOODS AND THEIR APPLICATION.

Principles of preservation of foods, therefore, must be based either upon the complete destruction of the micro-organisms found in foods, or else upon the inhibition of their growth by creating unfavorable conditions. That these principles, as outlined below, are sound and workable is proved by the successful development of various industries handling and preserving perishable products. This, too, is a sufficient argument for their practical application on a smaller scale in the farm home.

One of the surest, oldest and best methods of food preservation utilizes high temperatures, such as 62 degrees C. for 30 minutes, which is used in commercial pasteurization of market milk, or such as sterilization at 110-120 degrees C. for 20 minutes, which is used in canning fruits, vegetables, meats and fish. High temperatures coagulate the cell protoplasm of micro-