

Moisture-control and Buttermaking.—The system in common use for calculation of the amount of water to be added to a churning of butter for adjustment of the moisture content during the process of manufacture has been found to be in error. The correct basis of calculation has been shown to be:—

$$\frac{\text{Weight of water to be added}}{\text{desired moisture content}} = \frac{\text{actual moisture content}}{100 - \text{actual moisture content}} \times \frac{\text{expected yield of butter from churn}}{\text{butter from churn}}$$

A chart based on this formula has been made available to a number of factories for trial purposes, and has been found to give correct results under ordinary factory-operating conditions. A report showing the derivation of the formula, and a full-sized chart have been forwarded for publication.

Parchment for the Wrapping of Butter.—The examination of some shipments of parchment, which were received from a new source of supply during the war and which proved unsuitable for the wrapping of butter, has indicated that additional information is needed on the properties required in a good parchment. The subject is of some importance to the formulation of a standard specification for parchment for the wrapping of butter, and is at present being studied in some detail.

Utilization of Buttermilk.—Information supplied by butter-factory companies on methods of utilization of buttermilk during the four dairying seasons 1940 to 1944 has been analysed. The average returns for disposal of the buttermilk from all the factories was 2s. 10-4d. per ton of butter manufactured. About 10 per cent. of the factories reporting utilized the buttermilk on factory-owned pig-farms, and the average return for buttermilk so utilized was 5s. per ton of butter. The four years under review were years of high prices for pig-meat, and of an assured market for all pig-meat produced. The returns are not commensurate with the food value of the buttermilk produced, which, when obtained from sweet cream, is suitable for use as human food. A study has been made of the information available on the methods of utilization of buttermilk. A small amount could possibly be used directly in cities for human consumption, or by bakeries. The most likely outlet is the drying of the buttermilk by the roller process. Buttermilk-powder contains about 10 per cent. of butterfat, and it is of more value for some purposes than skim-milk powder. The possible extent of the local market is explored in the report on the subject which has been forwarded for publication.

Vitamin A Potency of Butter.—A survey of the vitamin A potency of New Zealand butter is now being made on samples obtained at fortnightly intervals from twenty factories located in representative districts. It is too early yet to report on the results in detail, but it is of interest to note that the potency remained at a high level even in those districts where the drought conditions were prolonged and severe.

Temperature of Freezing-room Storage of Butter.—It has been shown that a slight improvement in keeping-quality of butter is obtained by storage at -5°F. instead of the usual 14°F. , but the difference was so small that any consideration of change to a lower temperature of storage would not seem to be warranted. The results indicate the importance of close attention to the conditions of storage in the pre-freezing period of holding at the factory and transport to the grading store. A report on the subject has been published.

Use of Parchfoil and Pliofilm for the Wrapping of Butter packed in *Pinus radiata* Boxes.—In view of the shortage of white-pine timber and the large prospective supplies of *Pinus radiata* timber in New Zealand, an investigation was made of the protective effect of parchfoil and Pliofilm for butter wrapped in *Pinus radiata* boxes. When butter was wrapped in the usual double thickness of parchment and packed in *Pinus radiata* boxes, a strong timber taint was evident in the butter within ten days. Parchfoil prevented development of both primrose colour on the surface and of timber taint in the butter, except at joints in the parchfoil wrapping. Sealing of butter in an envelope made from the rubber-base wrapper Pliofilm prevented development of primrose colour over a storage period of two years, but timber taint appeared on the surface after six