

if administered in high dosages. Available vaccines or bacterins have not been proven of value to date. Good nursing and care appear to be the only means of treatment of value.

Research on Mucosal Disease

At present an extensive research program is under way to determine the cause of mucosal disease and to develop a means of preventing or treating this condition. In the past 15 months, mucosal disease has definitely been diagnosed on 18 North Dakota farms involving 1,562 head of cattle. One hundred ten of these cattle have definitely been diagnosed as having mucosal disease and have died. These represent a conservative estimated loss of \$8,000. It is felt that many cases of mucosal disease in North Dakota have not been brought to our attention or have been diagnosed as other forms of disease. There is little doubt that mucosal disease is costing the cattlemen of North Dakota each year two to three times the authenticated loss cited above.

High Protein Bread Remains Fresh Longer

By Rae H. Harris¹

Recent experiments reported in Baker's Digest by W. G. Bechtel and D. F. Meisner of the American Institute of Baking laboratories show that bread made from high protein flour remains fresh longer than bread from lower protein flour. Synthetic loaves were baked from blends of three proportions of wheat gluten and starch to secure a wide range of protein content without varying the baking quality of the gluten and starch components. The range in protein content was from 11.0 to 17.2 per cent. The loaves were assessed for freshness once each day over a six-day period by a sensory test panel of judges.

During the first three days of storage the loaves lost freshness, or staled, at the same rate. After one day they were judged to be between "very fresh" and "fresh." By the second day they were judged to be between "fresh" and "slightly fresh," while on the third day they were judged as "slightly fresh." After the third day of storage great differences in staling rate developed. The bread from the 17.2 per cent protein mix was judged not to stale between the third and sixth day. Bread from an intermediate protein mix of 12.9 per cent staled to some extent, while the loaf from a mix of 10.8 per cent protein content staled rapidly. It was also found that bread of higher moisture content did not stale as rapidly as bread of lower moisture content.

These results corroborate the belief of many commercial bakers that bread made from high-protein flour, such as is milled from hard red spring wheat, has the best keeping qualities. This is further proof of the value of our spring wheats for the production of high quality flour.

¹Cereal Technologist.