

DYNAMICS OF DAIRY FARM BULK-TANK MILK PROTEIN CONCENTRATION

SCHOLL, D.T.¹, AND DEN OUDEN, M.¹

Dairy farm bulk-tank milk protein concentration (BTMPC) has become increasingly important in recent years, and has stimulated interest in BTMPC related research. An observational study of the dynamics of BTMPC in the southern Netherlands was conducted to describe 1) population level behavior of actual BTMPC, and 2) patterns of farm level BTMPC performance. Farm level performance was defined by a 3-level classification of relative BTMPC performance.

Data were obtained from 3142 farms with annual milk quotas \geq 250,000 kg. The data covered 1986 through 1989, and consisted of 1) annual average BTMPC, and 2) average farm BTMPC from the periods February/March (F/M), June/July (J/J), and October/-November (O/N). These periods corresponded to the times during the year when mean BTMPC was variable, minimal, and maximal, respectively.

Descriptive statistics, frequency distribution construction, and analysis of variance for repeated measures were performed on the actual BTMPC values. Probabilities of changing BTMPC farm levels over certain periods were estimated and evaluated.

Both O/N and F/M BTMPC values were more broadly distributed than J/J BTMPC values. Period, year, and period-by-year effects on BTMPC values were all significant ($p \leq 0.05$), pointing to seasonality in actual BTMPC. Period-by-year effects were due to irregularity in J/J BTMPC.

Relative BTMPC farm levels were not static across periods but were more stable than if farm levels had been a random process. Relative farm levels were most repeatable between corresponding periods of adjacent years. Prior BTMPC farm levels influenced probabilities of maintaining the same farm levels over given pairs of periods.

Relative BTMPC farm levels showed regular and irregular variability. This supports the belief that BTMPC is potentially influenced by short term farm level factors in addition to the more well known genetic influences. These results motivate additional observational study of potential farm level determinants of BTMPC performance.

¹Department of Herd Health and Reproduction, Faculty of Veterinary Medicine, University of Utrecht, Yalelaan 7, 3584 CL Utrecht, the Netherlands.