IMPROVEMENT OF MILK PRODUCTION AND QUALITY - FAO PROJECT

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Under the assistance of UNDP and in Cooperation with FAO a small scale project is being carried out in Poland by the Institute mentioned above. Among other objectives (i.e. establishment of training and research facilities) also a research project aiming at the improvement of milk production and its quality is under way. Some results obtained so far are given below.

The specific feature of Polish agriculture is the tremendous dispersion of land among almost 3 million farms. This reflects directly onto the milk production. Over 80 percent of milk delivered originates from private farms, while the remaining 20 percent from large state farms. The cooperative dairy industry purchases milk from approximately 1,5 million farmers, who own a national herd of over 5000000 dairy cows. This makes an average of 3.5 cows per farm. Since the concentration of milk production in private farms is very slow, in the investigation presented an optimal figure of 4 cows/farm has been taken for consideration.

The aim of the research project is to prove to the farmers that application of improved method of milk production and handling may be profitable both, to the dairy industry and to the milk producers.

Material and methods

Within an area near the capital town of Warsaw one thousand private farms with 4 to 5 cows each have been embraced by the experiment. All the farms have been devided into groups within which a different approach to milk handling has been implemented. Here we will show results obtained in one experimental group in comparison to the reference group.

All the farmers of the experimental group have been provided with cooling equipment for chilling the milk on the farm and also with permanent extension service dealing with the improvement of milk production systems.
The initial chemical, physical, higienic and economic surveys did not reveal substantial differences between the groups. During 1983 and 1984 extension work together with the supply of equipment were quite intensive and in 1985 the effectiveness of the applied measures was tested.

Results

The figures given in the table present the results obtained. During the 7 months of winter period (October - April) the contents of lactose, total solids (TS) and density was found to be significantly higher in the area where milk was routinely cooled after milking. No difference was found in respect of higienic properties of the milk. Traces of coagulation of protein in alizarol test (70% v/v ethanol), particularly intensive in reference area during the winter period. This reaction was attributed mainly to nonspecific coagulation of milk proteins. During summer period however the difference in coagulation ratio between groups was not that large. Profound differences between the areas compared have been revealed during the 5 summer months (May - September). Not only the effect of extension work but also influence of cooling equipment installed on the farms could be seen. The total effect of 12 percent more milk of top quality delivered (to which a special bonus is added to the farm-gate price) is highly significant.

The higienic quality of the milk collected from the experimental area, as determined by the reductase test with methylene blue, has improved considerably. Thus, the extension work must have contributed to the milk technologic quality (increase in TS and density) and hygienic value as well.

Economic studies have proved, that the investment made into cooling equipment and the cost of energy to run them will be returned very quickly (the time depends on the amount of milk produced on the farm) because of the very high difference in prices for top quality raw milk in comparison to the lower grades.

Conclusions

The introduction of permanent and effective extension work at grassroot level together with the provision of farms with the necessary cooling equipment resulted in substantial improvement of technologic and higienic properties of milk from private farms.

Direct benefits went to farmers, who achieved higher prices for their produce due to higher content of milk components and a better hygienic quality grade.