

From new milk-testing parameters to new DHI services – The view of an instrument manufacturer

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| Background

- Production related diseases in dairy cows (e.g. mastitis, ketosis) often remain undetected or untreated given their subclinical character. It is estimated that the annual economic losses due to mastitis alone are at a tremendous €32 billion worldwide.
- Milk samples on individual cow and herd level are available regularly through dairy herd improvement (DHI) and payment testing, respectively, and it is thus convenient to utilise such readily available samples for determining more parameters.
- Objective:** Provide an overview on the implementation of new milk-testing parameters in practise (particularly through DHI testing) and how they can become new DHI services that can be offered and utilised by the dairy industry.

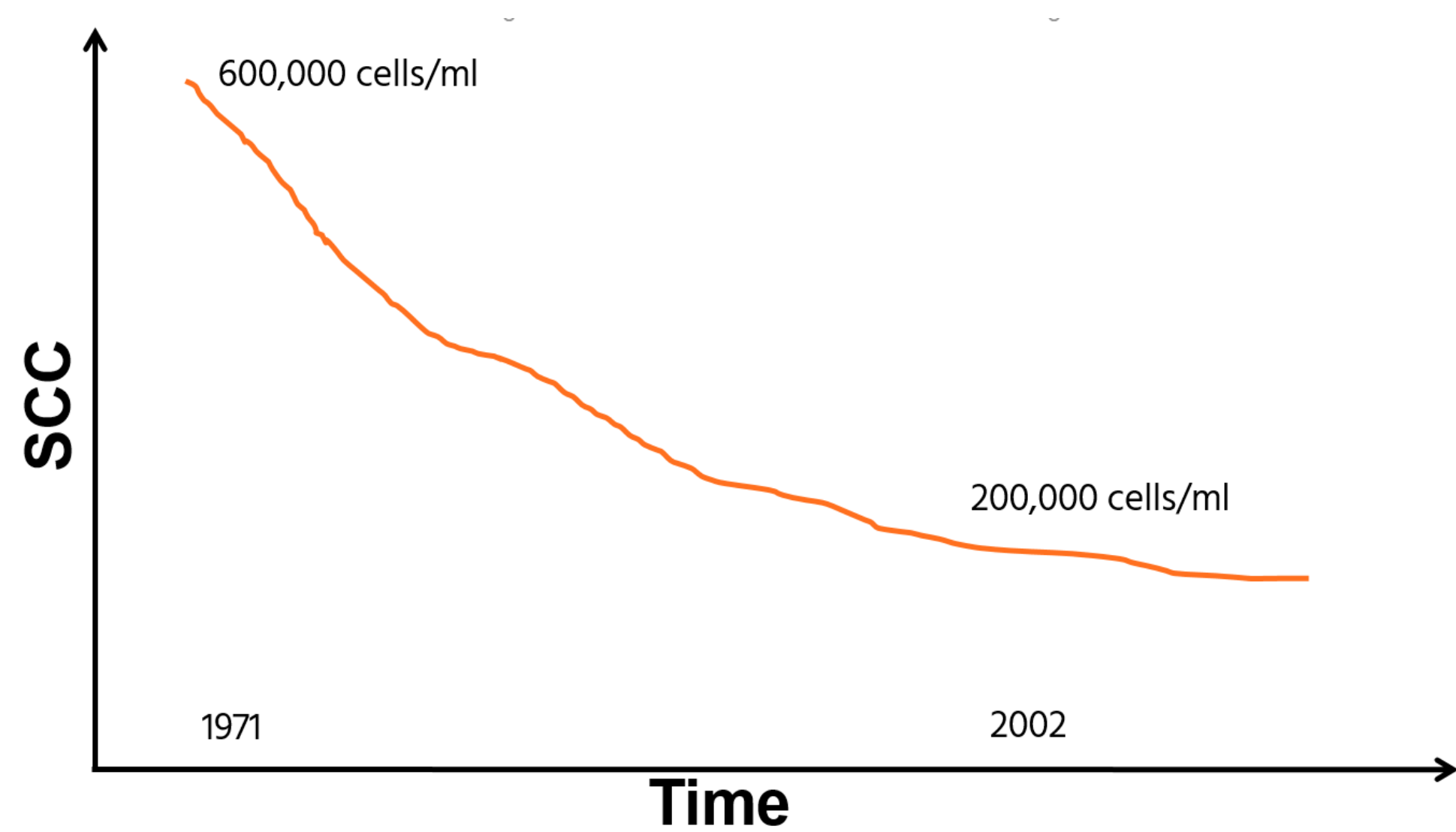


Fig 1. Development of average bulk tank SCC over time based on data from the Netherlands.

| Mastitis

- Somatic Cell Count (SCC), representing the total number of cells in milk, is a well-accepted and broadly used indicator for mastitis and milk quality.
- Differential Somatic Cell Count (DSCC) is a new parameter indicating the percentage of individual immune cells in milk (i.e. PMN combined with lymphocytes) and, similar to SCC, increases significantly as a result of intramammary infection (i.e. mastitis).
- The combination of SCC and DSCC leads to an improvement in the identification of mastitis cases through DHI testing.
- FOSS's contribution:** Establishment of SCC for improving milk quality in developing countries by sharing best practises etc. in dedicated seminars and close cooperation with the industry to implement services for mastitis management based on SCC and DSCC.

| Ketosis

- Milk beta-hydroxybutyrate (BHB) and acetone can be predicted from milk samples and used as indicators for ketosis.
- Best practise cases on quality assurance procedures in laboratories as well as the practical application of milk BHB and acetone results were described in various publications. Briefly, it is a practical and highly-valuable service that can be offered through DHI testing to help reducing the incidence of ketosis.
- FOSS's contribution:** Sharing of best practise cases around the world and close cooperation with the industry to actually implement ketosis screening as a new service.

| Other applications

- The milk fatty acid profile contains a lot of information about the processing properties of milk as well as the nutritional status of dairy cows.
- Milk fatty acids can be determined differently, e.g. according to the degree of saturation, the chain length, and their origin.
- FOSS's contribution:** Active participation in the development of quality assurance procedures as well as the development of actual practical applications of fatty acid results.

| Conclusions

- Milk samples harbour a lot of information and, besides the traditional parameters, FOSS has developed new innovative parameters serving as basis for services that can be offered to the dairy industry and help to increase the value of milk testing.
- However, dairy farmers and farm advisors etc. are rather in need of meaningful information than in need of raw data.
- It is clearly in the interest of FOSS to support the industry by sharing global experiences on the application of new parameters (e.g. through seminars) as well as actively participate and contribute to the development of new milk-testing based services.

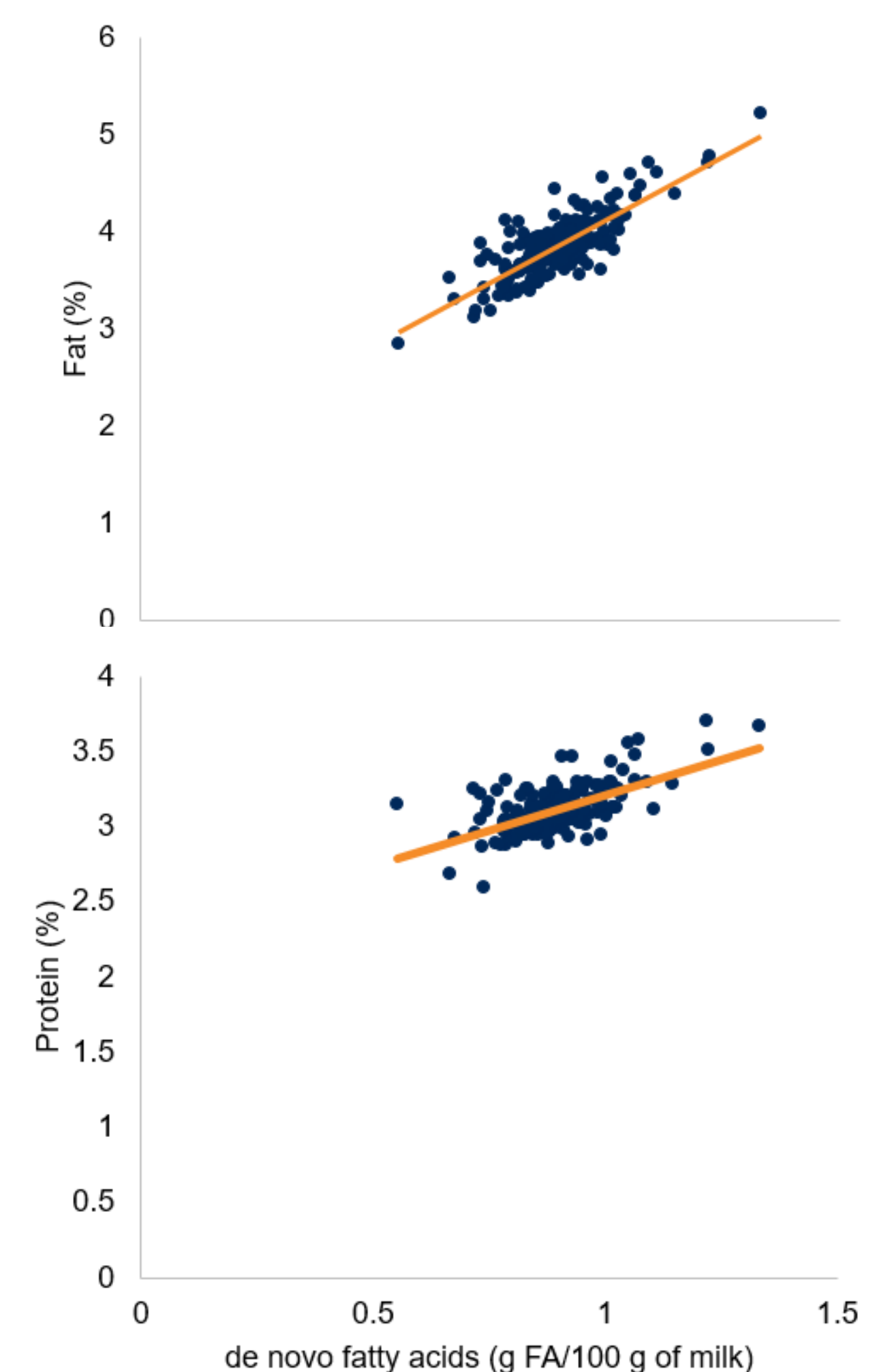


Fig 2. Interrelation between the de novo fatty acid content and milk fat (top) and milk protein (bottom), respectively.

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