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**Subject** Abstract presented manuscript  
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**Title of the presentation**

GenoCells: individual somatic cell  
count of dairy cows by genotyping  
tank milk

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**Session:**

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## ABSTRACT

The somatic cell count (SCC) monitoring is essential to monitor health of cows in production and to optimize milk price. GenoCells® is a revolutionary technology to determine with a high accuracy the SCC of each cow directly from the DNA analysis of a tank milk sample. Used in France since 2018, this technology is based on the correspondence between animal genotypes (= genetic identity) and presence of their DNA via their somatic cells in the mixing milk sample. The SCC results from this disruptive genomic method are as accurate as traditional flux cytometry method ( $R^2=0.99$ ).

GenoCells® is more practical than a classic milk control operation because only one tank milk sample is necessary. This method can be performed several once in a year and is less expensive by 20% compared to the classic method.

Seenergi developed two outputs for the French farmers depending on the depth of information provided by them:

- In the first case, if the farmer only takes a sample from his bulk, without indicate the milk yield of each cow, the delivery is an indication on the most contributive cows (bulk monitoring).
- In the second case, if the milk yield of the cows are known, the SCC of each cow are calculated (individual monitoring).

With these methods, a quick decision regarding SCC and cells contribution can be performed to prevent mastitis aggravation and lead to a better economic impact.

The bulk monitoring is very interesting in the case of big herds (>300 dairy cows) by underlying only cows with high cellular responsibility. The individual monitoring interests farmers with few dairy cows.



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The farmer can also get access to the genomic indexes to make selection schemes.

In addition, four indicators related to the welfare of the cows are provided from the milk fatty acid profile of the tank sample: the energetic deficit, the energetic losses, the rumen efficiency, and the de novo synthesis. The longitudinal follow-up of these indicators allow detecting some disorders in the herd management.

GenoCells® represents also a disruptive method to manage the SCC of the herd worldwide. Thanks to our partners in Germany (LKV-BW) and in England (NMR), GenoCells® start to be an international method for farmers. :

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