# Abstract Submission Form

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**Preferred presentation**          Oral

**Preferred session**          Session 1: WG Animal Data Exchange – Decision Support Tools of the Future – Promoting Sustainability Farm Management

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**Title of your paper**          Proposing a new US dairy herd sustainability metrics platform

**Insert ABSTRACT text**

With increased concern from consumers and retailers regarding the impact agriculture has on the environment and society, there is a need for objective, quantitative measurements of agricultural sustainability. Following a two-year effort, the ICAR sustainability task force developed a list of robust definitions for 43 traits collected through milk recording that are directly related to dairy sustainability. The purpose of our work was to generate a "proof of concept" demonstrating that it is possible to provide useful sustainability metrics at the herd-level by leveraging milk recording data that is already being routinely collected. Data from approximately 10,000 herds in the US were collected. Five preliminary traits were selected representing one from each of the ICAR sustainability categories as follows 1) Average Days in Milk (Feeding and Production), 2) Average Calving Interval (Fertility), 3) Average Somatic Cell Count (Health), 4) Average Culling Age (Longevity), 5) Average Age of First Calving (Young Stock). Herd

performance for each trait was compared within peer groups defined by breed, herd size, and climate region. To preserve anonymity, herd size categories were highly generalized as Small (<250), Medium (250-999), and Large (1000+). One herd was randomly selected for demonstration, representing a Medium-size Holstein herd located in the second coldest climate region of the US. Percentile rankings for each trait were calculated and density plots were generated demonstrating not only the herd ranking but the actual value of each trait and distribution of herd values. Density curves were developed to incorporate visual indication of optimal ranges for each trait or, conversely, to highlight areas that could use attention. Work is ongoing to develop trend-tracking with longitudinal data so herds can assess their progress over time. We propose that these metrics (provided confidentially to each herd) would have tremendous value for dairy producers either as a management insight tool, or as an objective assessment that empowers them to advocate for their operation in sustainability conversations.

**Enter keywords**                              sustainability, milk recording, herd metrics, decision tools