

Production, Management, and Environment III

any number of fundamental research questions ranging from prediction and early detection of health issues, to treatment effectiveness, to expression of genetically inherited traits. In this second part, we describe some of the analyses we are performing which leverage this datasource. Specifically, we will focus on describing how we create individualized lifespan models for each cow that provide an accounting of costs and revenues generating over the lifetime of an individual. The result of this model can be thought of as a cow-specific net present value (NPV) analysis. NPV analyses have previously been developed that accept data on milk production, and reproductive likelihoods, but the data inputs have traditionally been developed from average cows rather than taking a cow-specific approach. This work utilizes near real-time dynamic updates to the data set to continuously update cow-specific milk production functions using observed milk weights, observed cow life-stage information, and cow-specific reproductive data from available genomic analyses. When performed across all individuals within a herd, these NPVs become a powerful analytical tool to aid in optimizing herd composition, evaluating herd expansions/culling, or even understanding the return on investment for large capital improvements.

Key Words: net present value, Markov chain model, dynamic value forecasting

321 Development of an integrated dairy farm decision support system to facilitate dairy management—II. Analysis from integrated data. A. Chrsitensen*¹, D. Liang², H. D. Rodriguez², S. R. Wangen¹, M. Ferris¹, and V. E. Cabrera², ¹*The Wisconsin Institution for Discovery, University of Wisconsin-Madison, Madison, WI*, ²*Department of Dairy Science, University of Wisconsin-Madison, Madison, WI*.

The Virtual Dairy Farm Brain project proposes innovative ways of transforming the way farmers collect, use, and apply data on their farms. In this session, we will build on Part 1 and describe Part 2 of the project—performing analyses from integrated data. The single data source that aggregates multiple data streams from multiple farms described in Part 1 provides a uniquely broad and comprehensive datasource of dairy operations to use in analysis, providing the opportunity to study