Predicta Inventory Forecast

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What is the purpose of Predicta Inventory Forecast?

The Predicta Inventory Forecast is a novel method to plan milk production by planning the dairy herd. The Predicta Inventory Forecast gives information on how a herd inventory is going to develop over time. It not only computes data that are easily used like insemination data; Predicta Inventory Forecast models the future by assessing and continuing the specific behaviour of a farm that has been seen in the past. Predicta Inventory Forecast may be used in various ways: It may serve as a decision support tool but can theoretically take over all relevant decisions concerning the herd.

What is the Predicta Inventory forecast?

The Predicta Inventory Forecast predicts how a dairy herd is going to develop over the months to come. It gives information on how many animals are going to be lactating or dry. It will tell the user how the herd structure is going to be in terms of lactation and days in milk. Finally, it will tell how many animals are going to enter the herd and how many will leave. Additionally, it will not only give a number, but it will also identify the animals that are likely to stay or go.

Predicta Inventory Forecast will however not only give a prediction how things are going to be. It also allows to model the development of a herd according to a farm's specific needs and preferences. Predicta Inventory Forecast allows for a simulation in which individual settings may be changed initially, e.g., a higher or lower culling rate or more or less animals to be bought. Finally, Predicta Inventory Forecast offers the option to optimize the herd development for a certain objective, e.g., maximum milk production, number of cows in the herd or other aims.

In short: Predicta Inventory Forecast not only investigates the future, but it also allows to construct "What if?" - scenarios for an individual herd and gives information on how to manage the herd to reach a specific goal.

How does Predicta Inventory Forecast work?

The structure of every dairy herd and its development over time is unique. The decisions made around insemination and replacement form a distinct management pattern that is reflected in the records of the herd. The algorithm of Predicta Inventory Forecast recognizes this unique pattern and continues it into the future. So, not only are insemination dates used to calculate calving dates, but it is also calculated when heifers will enter the herd and the likelihood of this heifer replacing an older cow is projected. This decision-making process is based on the calculation of the animals' productivity and lifespan which allows for an economic assessment of each cow in the herd. Therefore, the prediction is not just a model, it is a detailed analysis in which the development and production capacity of individual animals is computed. The result is a "roadmap" – The Predicta Inventory Forecast describes what the herd will look like and it describes the way to reach this goal that may be adapted individually.

Using Predicta Inventory Forecast

What information does the "Forecast" give?

The regular forecast shows how the herd is likely to develop over the coming months. It is best understood as a continuation of past trends and events into the future. Inseminations and established pregnancies are easily translated into calvings, animals that are not in calf and approaching late lactation are likely to leave the herd. The prediction however does not just calculate these easily recognized events. Based on the individual performance it calculates whether animals are likely to leave the herd by comparing them to replacement heifers. If a farm is very restrictive in replacement and rather sells heifers than using them for replacing older cows, the algorithm will recognize this and predict accordingly. Equally, a herd with high replacement rates will see this in the prediction as well. It is important to understand that all events concerning herd structure will be recognized and predicted. E.g., a farm that regularly loses cows in the dry period will see this pattern in the prediction likewise.

What are the elements of the forecast?

The forecast has various elements that can be used to explore the prediction better. The elements are:

- **The farm history**
- **The prediction overview**
- **The details per months**
- **The Autopilot**

The farm history is added to understand the prediction better. It allows to follow certain farm-individual patterns the algorithm of Predicta Inventory Forecast has recognized and is continuing.

The prediction overview comes as a graph that may be modified in various ways: Certain animal groups may be excluded from the graph; the animals may be shown in percentage or in absolute figures. These functionalities do not alter the prediction itself but merely help to explore the prediction more easily. The overview is also presented as a table which can be exported. The table merely reflects the numbers underlying the graph and give both absolute and relative figures.

The details per month explain the herd dynamics behind the prediction. The user may chose the months for which detailed figures are needed by using the dropdown-menu

"Expand detail for period". A table giving detailed information on number of animals in a specific group such as "youngstock" or 2nd lactation" appears. Moreover, the changes between groups are listed. A "promotion" describes a "regular" change between groups, e.g., a lactating cow is being "promoted" into the dry cow compartement and vice versa, while "exit" describes culling or loss of animals. The table may be downloaded and used for the planning of herd inventory.

The Autopilot is the "directory" of Predicta Inventory Forecast – While the functions have been dealing with animal groups and compartments, the Autopilot deals with the individual animals within those groups. Predicta Inventory Forecast uses a "bottom-up-approach" to make its predictions. So not groups are projected and then populated, it is the individual animal that is analysed for its likely production record and all animals are then sorted to their respective compartment accordingly. The Autopilot lists the animals that are likely to be replaced or leave the herd in the period predicted along with a certain likelihood of this happening. It is once more important to remember that Predicta Inventory Forecast computes this list based on patterns and decision that have been made by the farm in the past and just states the likelihood of the respective animal leaving the herd. It may moreover be seen as "recommendation" to critically assess the potential of those animals, or, conversely, as an alarm list of animals that may need help.