**Breed Class Averages and 305-day Production**

One of the few parts of the old DHI program that remain in Vision 2000 is Breed Class Average (BCA) – a good starting point for understanding the new calculations and output.

BCA standards were set in 1952 for all breeds in the Canadian dairy herd by month and age at calving. For example, standards for a Holstein calving in January at 38 months of age are 4,667 kg of milk, 172 kg of fat and 149 kg of protein in a 305-day lactation. BCA indexes for milk, fat and protein for any Holstein calving in January at the same age are calculated as follows:

\[
\text{BCA} = \frac{305\text{-DAY PRODUCTION KG}}{\text{BCA 100 STANDARD}} \times 100
\]

Where do we get the 305-day production estimates used in the calculation? This is where the new Vision 2000 departs from the old DHI program.

The old program used the Test Interval Method (TIM). Here’s how it works, as illustrated in the upper graphic on the right:

- production between calving and first test is estimated by multiplying first test production by days in milk (DIM) adjusted for cow age using a *first test correction factor*;
- production between subsequent tests is estimated by multiplying the average yield for the 2 tests by the number of days between them;
- when a cow has a test after 305 DIM, her production between 305 DIM and her last test before 305 DIM must be estimated. Average yield between her tests immediately before and after 305 DIM is multiplied by days between 305 and her DIM at the immediately previous test.
- when a lactation terminates between tests before 305 DIM, production from last test to termination is calculated by multiplying last test production by days from last test to termination, adjusted for cow age using a *last test correction factor*.

For lactations still in progress or terminated before 305 DIM, 305 day production is projected by multiplying last test day yield by 2 correction factors and adding this amount to lactation yield to date.

TIM will continue to be used in the Vision 2000 program for lactations in progress which are greater than 60 DIM when Vision 2000 is implemented and whenever a lactation continues beyond 305 days. For all others, the Multiple Trait Prediction (MTP) method will be used. Here’s how it works:

- a set of over 14,000 standard lactation curves have been derived from Canadian DHI production records collected in the past 5 years. Individual curves are defined for each breed, region, age and season at calving, parity and production level;
- at first test, the appropriate standard lactation curve is applied, according to the criteria listed above;
- at each subsequent test, the shape of the standard curve is adjusted to reflect the actual test day yields of the individual cow.

Estimated 305-day production is the area under the current curve.

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