

GENOMIC TESTING WORKFLOW

AS MORE PRODUCERS take advantage of genotyping services, it is essential for new and existing service users to gain a better understanding of the genomic testing timelines. The Holstein Canada team is dedicated to continuous improvement both in keeping producers up-to-date and knowledgeable about genotyping processes and deadlines, as well as ensuring timely results once samples arrive at Holstein Canada.

On farm sample collection and submission is the beginning in the multi-step process of receiving genomic results. There are many sequential checks and deadlines each sample must meet before a genomic evaluation is published. One of the key dates in the process is Canadian Dairy Network's (CDN) genomic evaluation release date which currently takes place once per month, changing to weekly in 2015. Therefore it is important to

be aware of CDN's release days, as this is when the completed genomic evaluation will be made available. The other key date to keep in mind is Holstein Canada's sample cut-off date as described below.

A list of dates can be found on Holstein Canada's website under Service > Genotyping > Submission Due Dates or by calling the Customer Service department at 1-855-756-8300 ext. 600

SAMPLE ON HOLD

AFTER VISUAL INSPECTION AND A SYSTEM VALIDATION CHECK, SAMPLES MAY BE PLACED ON HOLD IF:

- an animal is not yet registered;
- application for registry is in progress;
- ownership is in question;
- a transfer needs to be completed;
- there is no test type selected;
- sample is of insufficient quantity

HELPFUL HINTS

1. ENSURE THE ANIMAL IS REGISTERED

2. TAKE AN ADEQUATE SAMPLE TO ENSURE THERE IS ENOUGH SAMPLE TISSUE PRESENT FOR ANALYSIS
3. SUBMIT SAMPLE(S) WELL BEFORE THE CUT-OFF DATE
4. SHOULD ANY ISSUES ARISE, CONTACT HOLSTEIN CANADA TO FACILITATE A QUICK RESOLUTION.



To publish a genomic evaluation, the sample needs to produce a readable and accurate percentage — usually about 90%. If the first test at the lab does not produce a reliable result above 90%, the test result will be deemed low call, will not produce a genomic evaluation and will require the producer to submit a new sample.

SAMPLE ON HOLD

LOW CALL >>

In the cases of failed extraction or low call, producers will be notified by Holstein Canada. It is important to note, once those samples are re-submitted, the whole process begins again.

When parentage has been validated, the genomic results are incorporated into the genetic evaluation process at CDN and results are sent to Holstein Canada in time for the target release date. **RELEASE DATES ARE CURRENTLY ONCE PER MONTH, HOWEVER WILL BE CHANGING TO WEEKLY IN 2015.** Genomic results are first published online at CDN.ca before being uploaded to Client Accounts.

The first step in receiving genomic results is the on-farm collection of hair, nasal swab or tissue sample. Producers should be mindful of all sample testing options available and pick the one whereby they can obtain the best quality sample for testing.

When samples arrive at Holstein Canada, each sample is visually inspected, entered into the database, and undergoes a system validation check.

In cases where a sample is placed on hold, the producer will be notified by phone or email to obtain correct or missing information, or advised that their sample didn't contain enough tissue. A new sample may be required for submission to the lab. To ensure samples meet the cut-off dates and to avoid delays, Holstein Canada advises producers to send their samples as early as possible.

If parentage is unknown, producers can submit their samples under the GenoID program to determine parentage and obtain a genomic evaluation at the same time.

Once samples arrive at the lab, they are visually inspected again and entered into the lab's database. Samples that pass the visual inspection are tested.

SAMPLE ON HOLD

INSUFFICIENT SAMPLE QUANTITY >>

If, at this point, the lab staff determines a sample does not contain enough sample tissue, it is called a failed extraction and the producer will be notified to submit a new sample.

Once a sample obtains a quality result at the lab, the raw data from the lab is forwarded to the Council of Dairy Cattle Breeding (CDCB) and CDN for parent validation. If a parentage conflict arises, Holstein Canada will contact the producer to resolve the conflict. Common reasons for parentage conflicts include animal interchanges at time of birth and missing breeding information. In these cases, the Parentage Research Support team will work with the producer to resolve the conflict.

There are many variables at play in the process described above. As a result, the minimum amount of time needed to receive a genomic evaluation in ideal circumstances is at least one month.

For more information or questions about timelines or genotyping, call Holstein Canada's Customer Service department at 1-855-756-8300 ext. 600.