

# QUICK TURNAROUND GENOMIC PREDICTIONS POLICY

This policy for creating a quick turnaround genomic prediction service based on simplified procedures was approved by the CDCB Board of Directors on 12/12/2019. Latest update 05/11/2020.

## 1. POLICY STATEMENT

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The Council on Dairy Cattle Breeding (CDCB) acknowledges a growing demand for genomic services on commercial herds with limited information on animal pedigrees and with the main goal of using genomic predictions as a selection and culling tool for young female calves. Therefore, CDCB will offer quick turnaround genomic predictions using approximated methods with lower accuracy than the existing CDCB genomic services, providing a limited service and only including results on a limited number of traits.

## 2. POLICY DETAILS

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### 2.1 REQUIREMENTS

- Only female genotypes will be processed using the quick turnaround predictions.
- CDCB certified nominators will be given the opportunity to develop customized quick turnaround predictions based on specific SNP arrays of their choice.
- Simplified nomination processes will be developed by the CDCB staff in coordination with the genomic nominator requesting quick turnaround predictions.

### 2.2 DELIVERABLES

Results of the quick turnaround predictions will be distributed using simplified formats containing:

- Genomic PTAs on up to 15 different traits.
- No parentage verification and discovery.<sup>1</sup>
- No recessive haplotypes.
- No breed base representation (BBR) estimates.
- Quick turnaround estimates are delivered once and are never updated.
- Results are distributed exclusively to the respective genomic nominators.

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<sup>1</sup> If parentage verification is a necessity for quick turnaround prediction service users, their demands will be handled within the SNP-based parentage verification and certification services offered by CDCB, as a separate service.

## 2.3 TURNAROUND

Quick turnaround predictions will be automated and results delivered within 48 hours (although aiming at providing the service the earliest possible, typically within the hour) after the genotype files and, if applicable, accessory files are successfully uploaded into the quick turnaround dedicated SFTP area.

## 2.4 CUSTOMIZATION

Each genomic nominator will be able to customize the product delivered to its customers by selecting no more than fifteen (15) traits out of the list of CDCB traits below.

Group	Trait number	Trait
Production	1	Milk yield
	2	Fat Yield
	3	Protein Yield
	4	Fat Percentage
	5	Protein Percentage
Longevity	6	Productive Life
	7	Livability
Health	8	Somatic Cell Score
Fertility	9	Heifer Conception Rate
	10	Cow Conception Rate
	11	Daughter Pregnancy Rate
	12	Early First Calving
Calving	13	Daughter Calving Ease
	14	Daughter Stillbirth
Conformation	15	Final Score
	16	Dairy Form
	17	Udder Composite
	18	Feet/Legs Composite
	19	Body Size Composite
Selection Indices	20	Net Merit (NM\$)
	21	Fluid Merit (FM\$)
	22	Cheese Merit (CM\$)

Customized reports will be defined in a material license agreement (MLA) between the genomic nominator and CDCB and all nominations requesting quick turnaround predictions will receive results only on the same traits defined in the respective MLA.

## 2.5 FEE STRUCTURE

	Quick Turnaround evaluation fee
Customized genomic predictions (females only)	\$ 1

Nominators requesting this service for the first time will be charged a one-time initial fee of \$1000. This fee will cover the setting of a new user, the validation study on the desired chip and the preparation of the customized solutions and reports for the chosen traits. Further upgrades of traits/chips will be free of charge if requested in the time range defined by the quick turnaround service.

## COMPARISON BETWEEN CDCB WEEKLY AND PROPOSED QUICK TURNAROUND GENOMIC PREDICTIONS

Feature	Weekly Genomic Prediction	Quick Turnaround Genomic Predictions
Frequency of evaluation	Once a week	Automated genotype processing in minutes
GPTA estimates	All traits	15 selected traits
Breeds	AYR, BSW, GUE, HOL, JER	AYR, BSW, GUE, HOL, JER
Sample ID	Required	Required
Unique animal ID	Required	Not required
Pedigrees	Required	Not required
All validated SNP chips	Accepted	Accepted
Males	YES	NO
Crossbreds	YES	NO
Health resistance traits	YES	NO
Breed Base Representation (BBR)	YES (Distributed monthly)	NO
Recessive haplotypes	YES	NO
Parentage verification	YES	NO
Parentage discovery	YES	NO
Periodical updates	Monthly	NO
Results shared with PDCA	YES	NO
Results shared with DRPC	YES	NO