Roles and Responsibilities of Labs and Nominators

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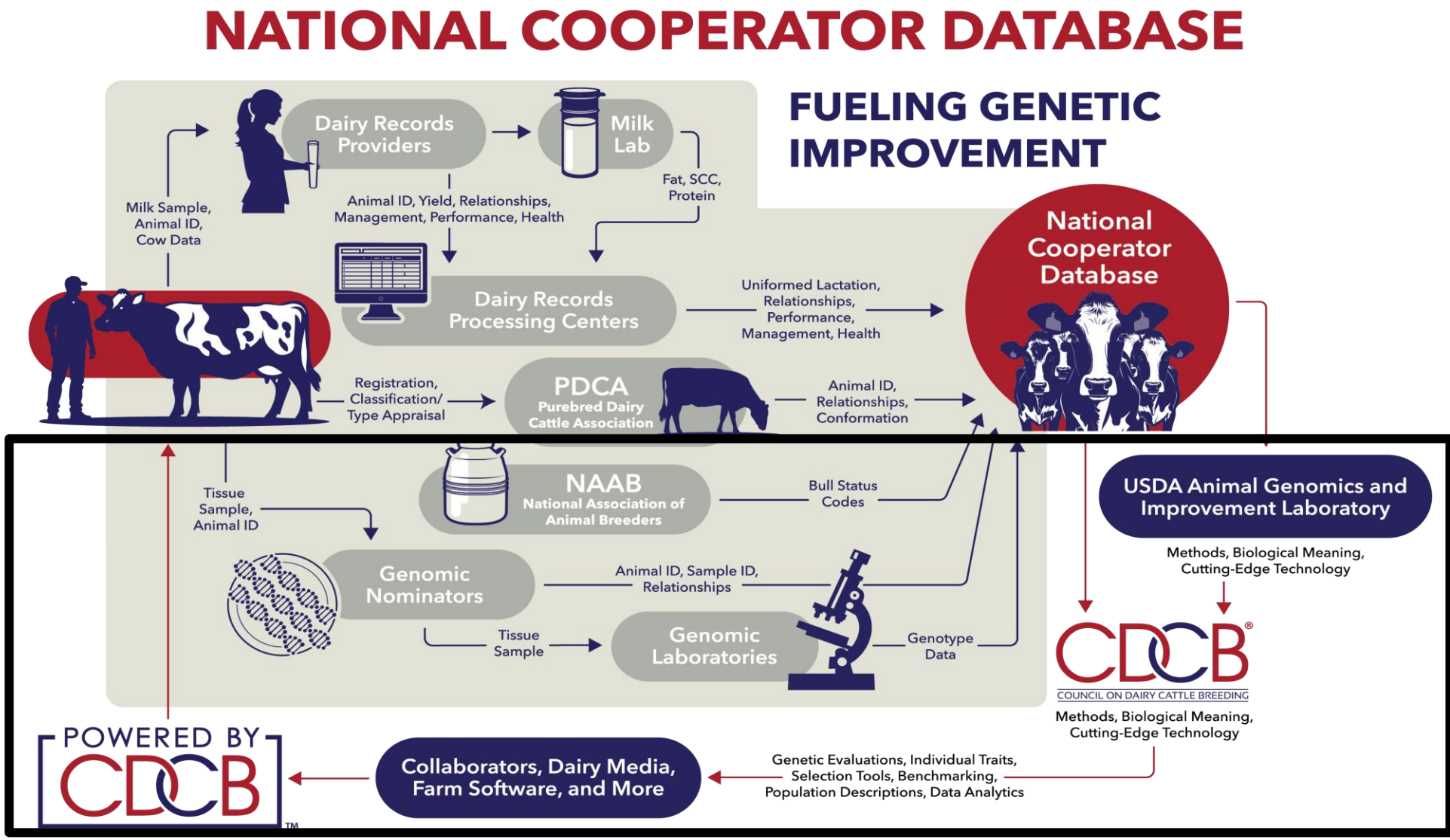
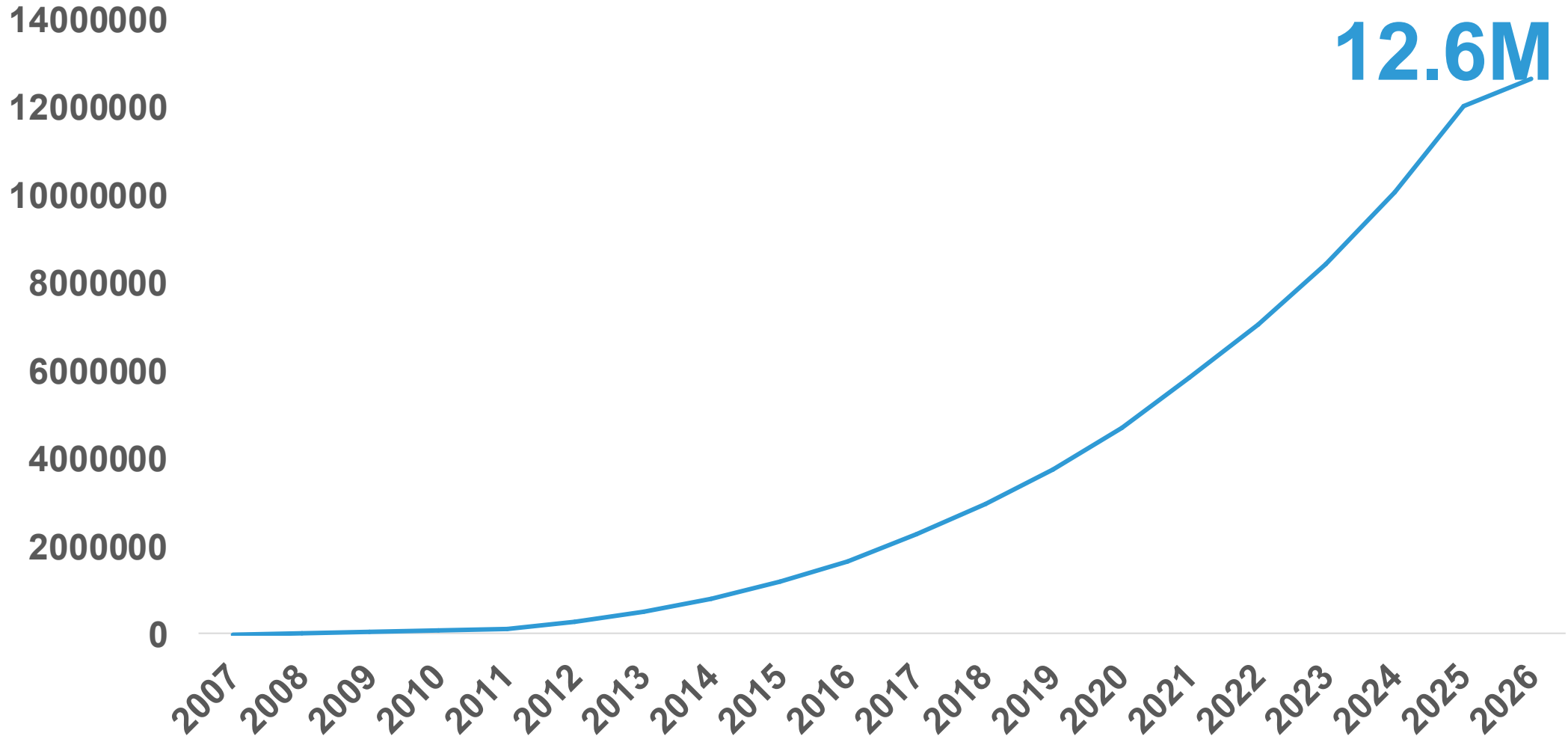
CDCB's Role in the Dairy Industry:

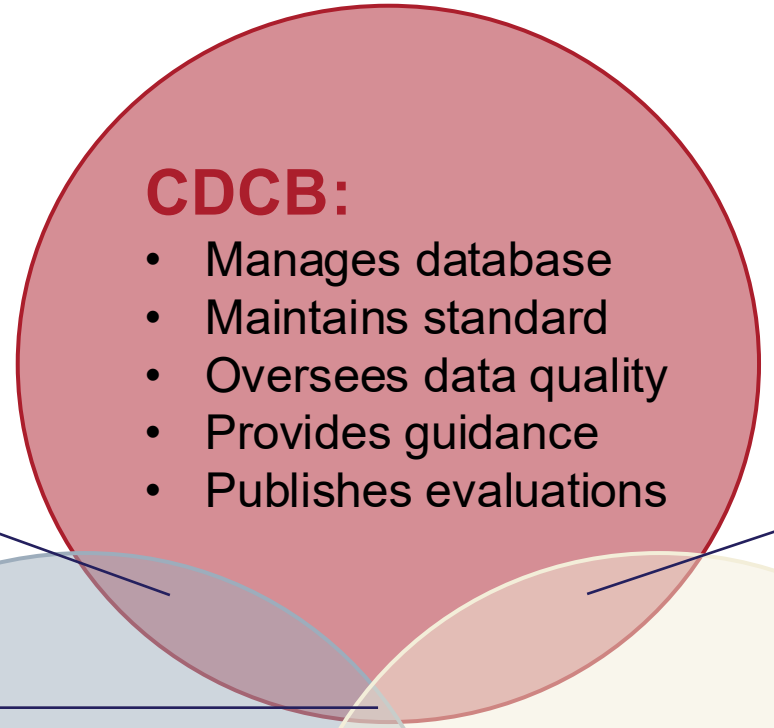
Steward the National Cooperator Database, distribute U.S. genetic evaluations, aggregate dairy cattle data, and conduct research.



Genotypes in National Cooperator Database



Relationship Map



CDCB + Labs:
- Data submission
- QC program
- Guidelines
- Chip, technology validation

CDCB + Nominators:
- Data submission
- QC program
- Communication
- Fees, payments
- Guidelines

ALL PARTIES:
- High-quality data storage
- Reliable genomic evaluation
- Best quality service to customers
- Continuous dairy cattle genetic improvement
- Communication

Laboratories:
- Extract DNA
- Prepare and submit genotypes
- Ensure quality assurance of genotypes

Nominators:
- Collect nomination details
- Collect fees
- Resolve conflicts
- Communicate with, deliver results to customers

Labs + Nominators:
- Communication to link genotype with animal

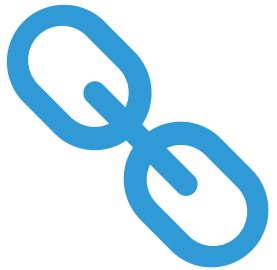
What is Data Quality?

Accuracy

Usability = N

Timeliness

No nomination when loading



Relevancy

Genotype reassignment

Completeness

Sire/dam pedigree missing

Consistency

Genotype withdrawn

Validity

CDCB blanked dams due to conflict

How Does CDCB Ensure Data Quality?

WORKING WITH RELIABLE DATA PROVIDERS

CERTIFICATION PROGRAM

EFFECTIVE QUALITY CONTROL SYSTEM

GOD COMMUNICATION WITH DATA PROVIDERS

TRAINING

Core Requirements for Genomic Nominators

1. Collect DNA samples from animal owner
2. Transfer DNA samples to a certified genotyping lab
3. Send pedigree and fee code; correct pedigree and genomic conflicts
4. Distribute results to animal owner/marketing organization
5. Collect initial fees and forward to CDCB
6. Meet CDCB certification requirements

Core Requirements for Genomic Laboratories

1. Extract DNA from samples
2. Prepare single-nucleotide polymorphism (SNP) genotypes
3. Provide summary information back to genomic nominator
4. Transfer genotypes to the National Cooperator Database
5. Meet CDCB quality certification standards

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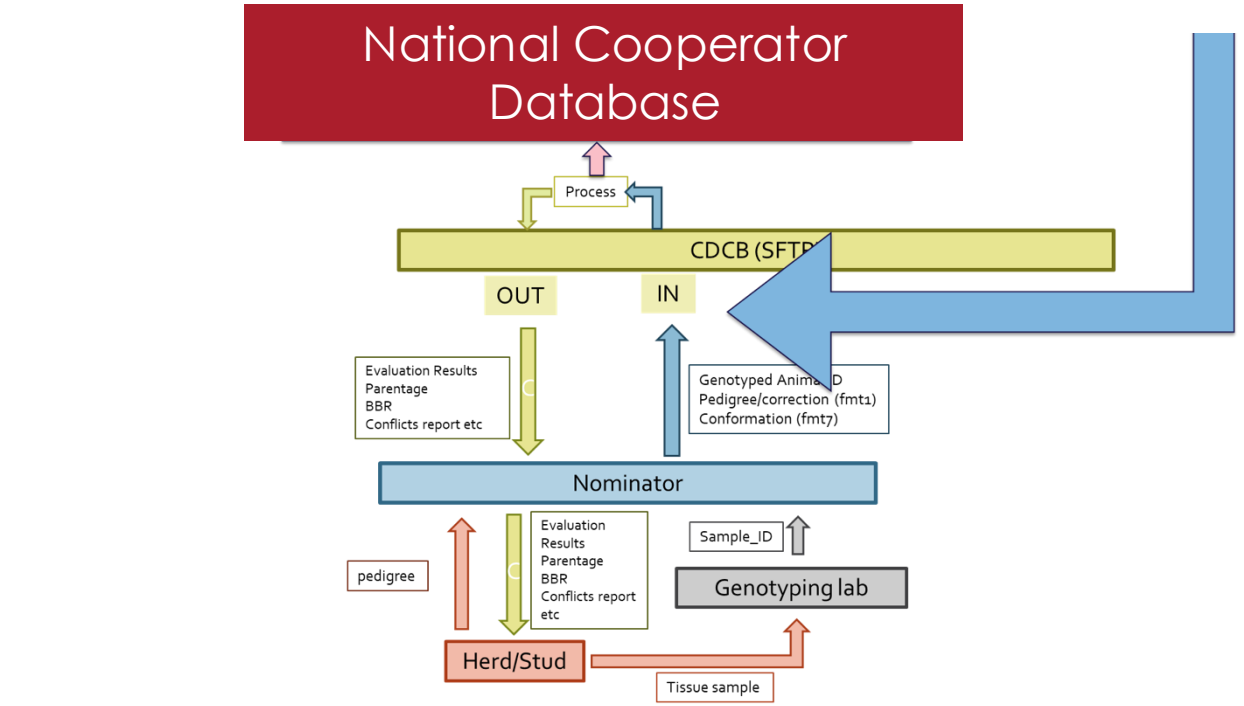
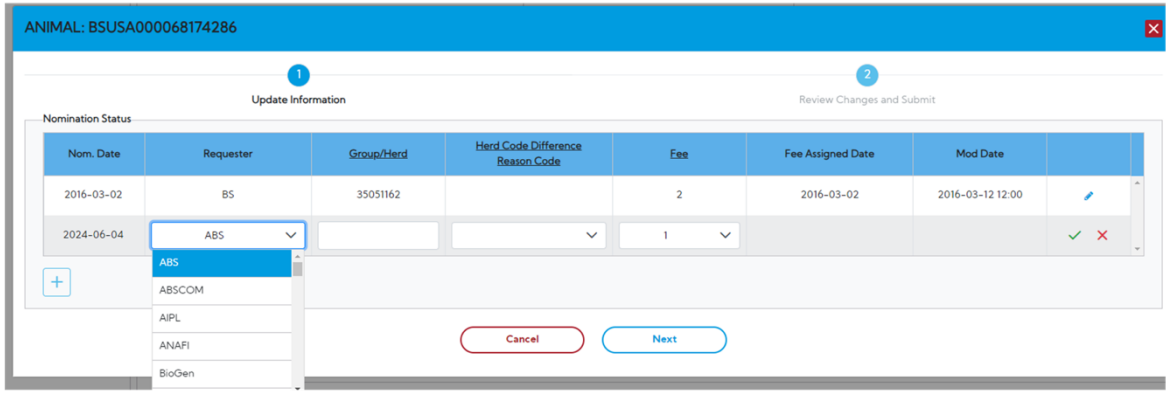
Nomination

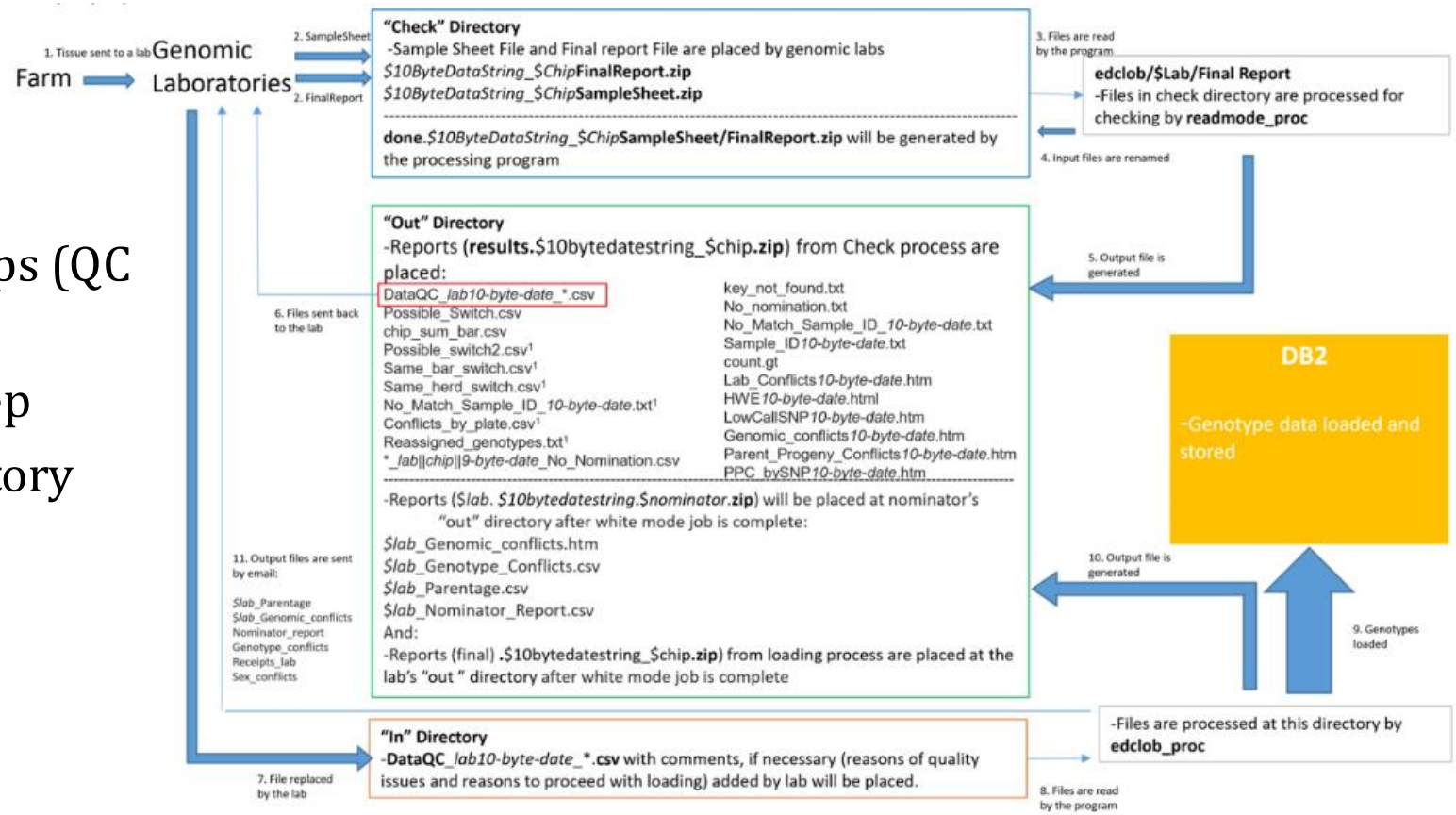
- Nomination is a process of providing pedigree, assigning a fee code, and indicating what service you would like to receive
- Nomination can be done either through SFTP (format1) or WebConnect
- Must be done before genotype submission
- Notify_VAL file will report nomination confirmation and errors



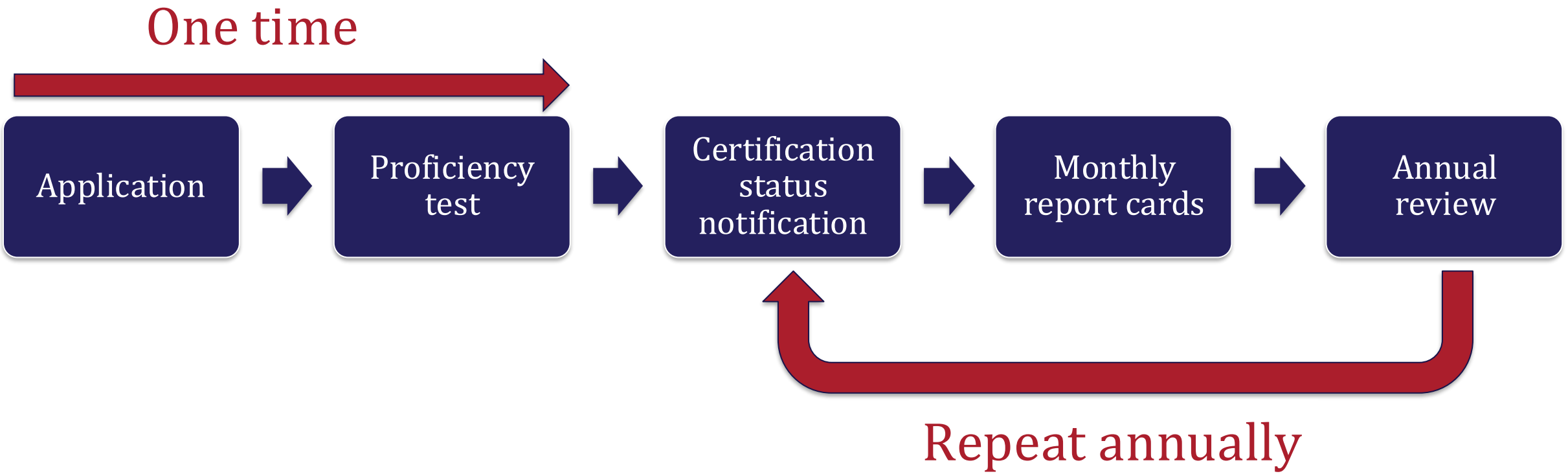


Genotype Loading

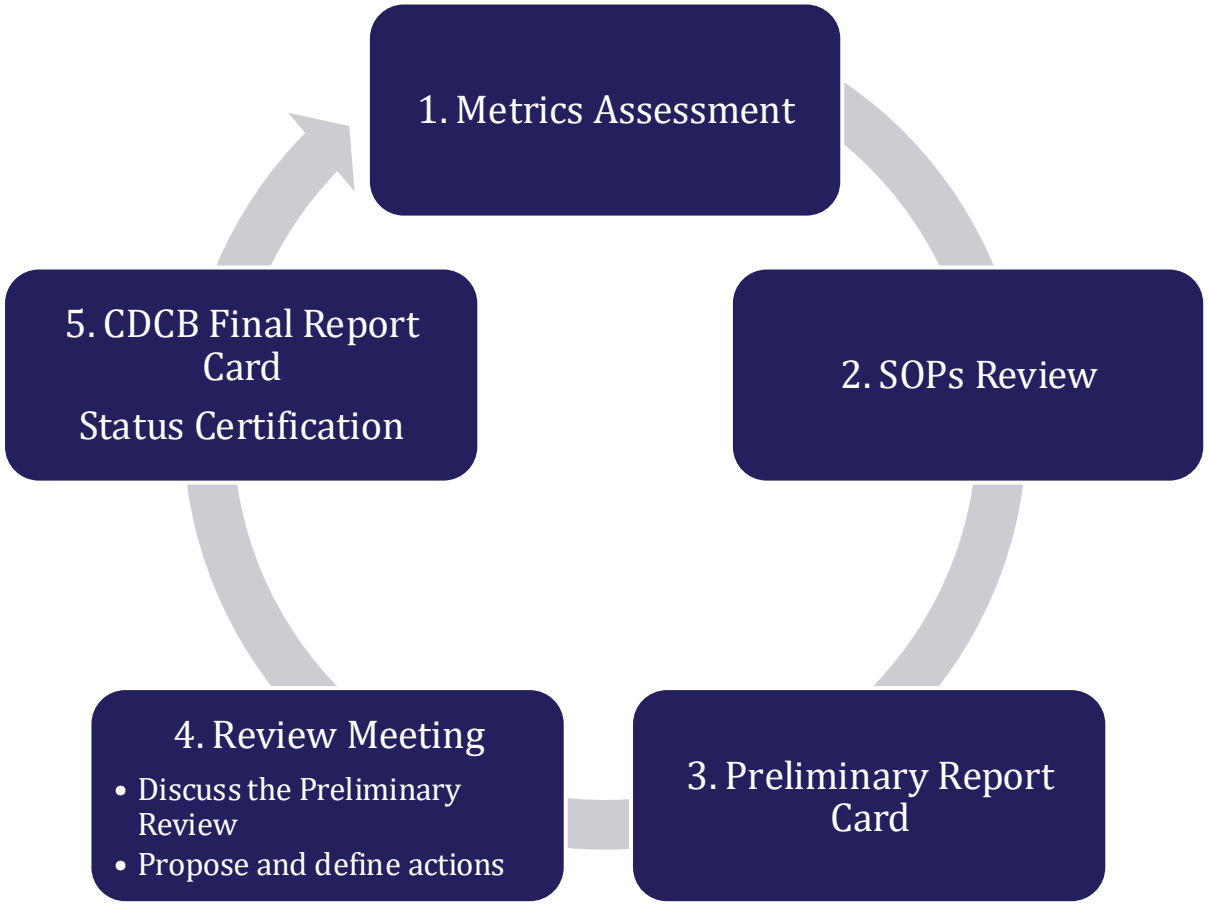
- Sample Sheet and Final Report files
- Loading process consists of two steps (QC check + Loading)
- QC files are generated from each step
- Data QC file placement in “in” directory
- Triggers loading process



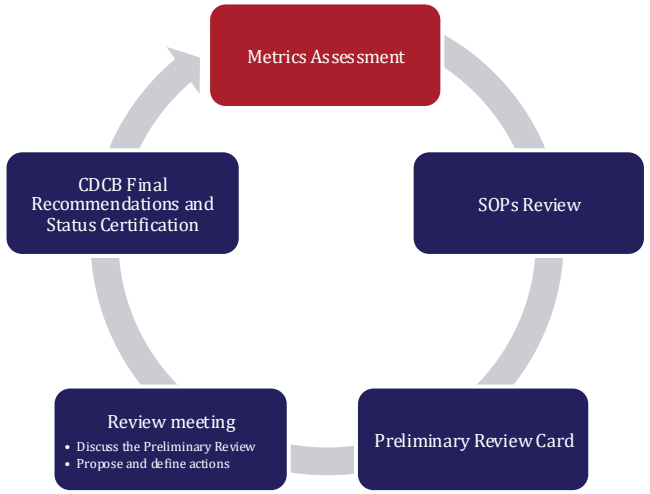
CDCB Certification Program



Annual Review Plan

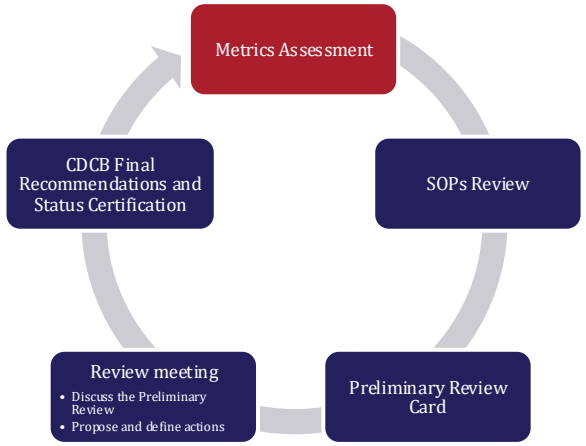


1. Current Nominator QC Metrics



Class	Metric	Threshold
Critical	No Nomination when loading	1%
Critical	Unknown Animal ID	1%
Major	CDCB blanked dam due to conflict	2%
Major	Usability=N	5%
Major	Fee Code=N	1%
Major	Genotype withdrawn	1%
Major	Genotype reassigned	1%
Minor	Conflicts in pedigree	30%
Minor	Discovered parent	40%
Minor	Sire pedigree missing	1%
Minor	Dam ID or pedigree missing	25%
Info	Herd Reason Code	NA
Info	Nomination fee code changed	NA

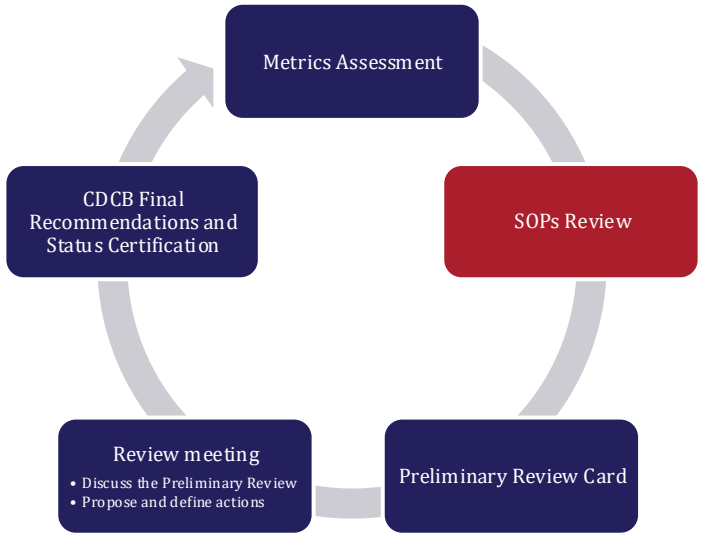
1. Current Lab QC Metrics



Class	Metric	Threshold
Critical	Submission with <10 animal genotypes	10%
Critical	Submission failing on SNP call rate (across animal)	50% on submission with 51 or more genotypes
Critical	Submissions failing on SNP PPC	25% on submission with 51 or more genotypes
Critical	Submissions failing on HWE	50% on submissions with 50 or more genotypes
Info	Percentage of animal genotypes with no nomination	NA
Info	Submissions flagged on excessive conflicts per chip	NA

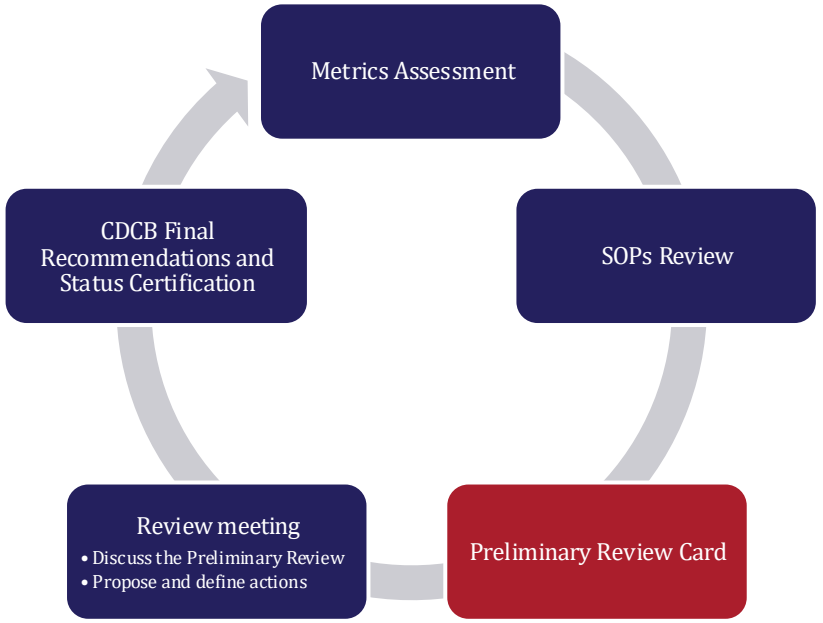
2. SOP Review

- Should be updated every year as new changes or improvements are made in the procedure
- Our team compares the updated SOPs with the previous year's to check for sufficient descriptions in your SOP or if our previous suggestions or newly implemented procedures are incorporated into the latest SOP
- Protocols within the SOP should be replicable: describe the process in enough detail that a new employee can follow with no trouble
- Iteration of 2-3 years to be mature



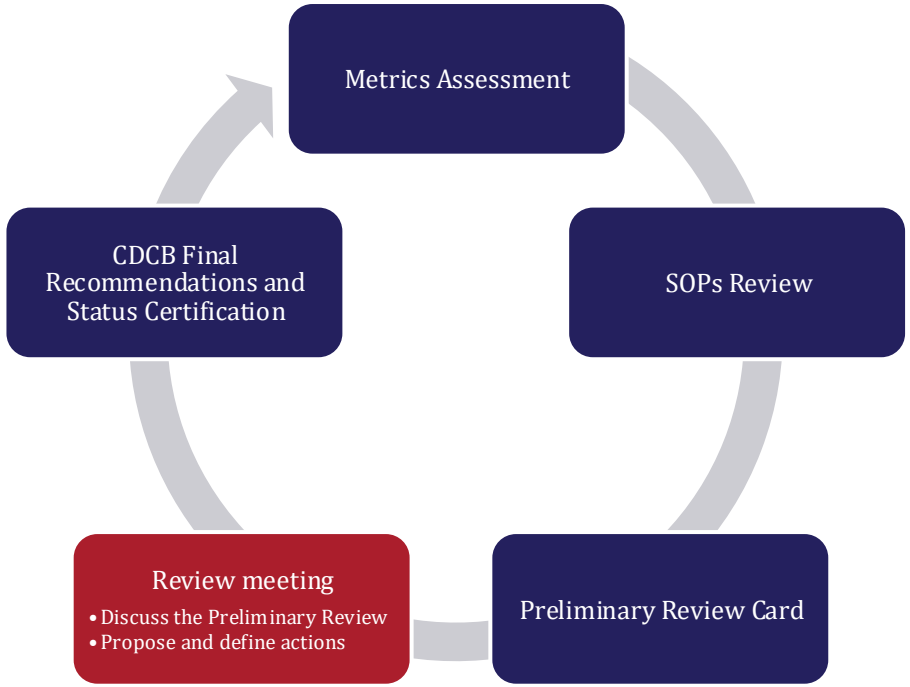
3. Preliminary Review Card

- This is a summary of the performance metrics, SOP, and any other observations that we had for the previous year as a preparation for the conference call
- We send the preliminary report card in advance so you have enough time to review it and prepare for the meeting



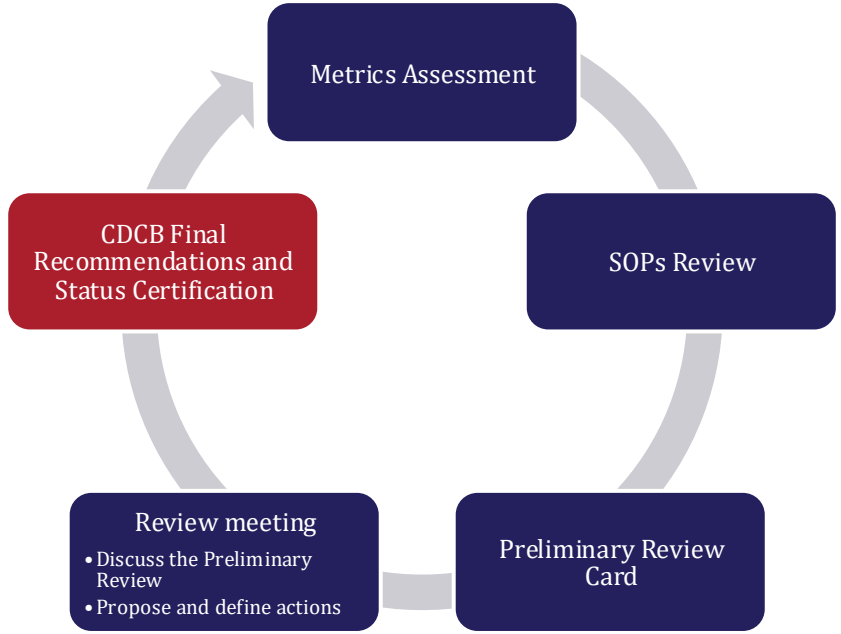
4. Review Meeting

- A 45-minute conference call with each nominator and lab
- We present performance, SOPs, observations, and comments
- We discuss issues, provide suggestions to resolve them, and set a plan for the coming year
- Is a time for both sides to exchange feedback



5. Final Recommendations and Status Certification

- **Final report card** is a summary of all information included in the preliminary report card and topics discussed during the review meeting
- It also includes your certification status for the coming year ***(certified, conditional, provisional, decertified)*** and the justification



Summary

- The roles and responsibilities of labs and nominators are highly important due to the **increasing volume** and **complexities of data** entering the CDCB system.
- Reliability and accuracy of CDCB evaluations are based on **systematic checks** and **collaborators' efforts** on ensuring the quality of data
- To ensure certain level of proficiency, CDCB requires collaborators to comply with CDCB requirements
- Collaborative effort among nominators, labs, and CDCB is key to generate accurate evaluations and dairy genetic improvements.

Thank you!