Nebraska Brand Committee

Electronic Inspection Project
Legislative Report

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Prepared by Danna Schwenk

NBC Technology Coordinator/Project Manager

Contents

The Nebraska Brand Committee is committed to implementing the changes passed in LB 572 earlier this spring. Included in that is the voluntary Electronic Inspection, or E-Inspection, option for producers looking for a different and expedited method of brand inspections versus the gold standard of the hot iron or freeze brands.

The Need for E-Inspection

Of the more than 3 million cattle that are inspected through Nebraska local and sale barn inspections each year about 45% of the cattle have no hot iron or freeze brand applied, making them a slick hided or "no-brand" animal. We have several segments of our industry that prefer not to hot iron brand at all but choose to use electronic identification as their means to identify an animal. We do know over 2 million EID tags are already in use in Nebraska (2019 data) and more are being used each year as value added programs and USDA Brucellosis e-tagging increase in popularity. It was from a combination of these facts that the E-Inspection option came to light in 2018 after analyzing the first year's data collected from the new computerized inspection system on percentage of No Brand animals inspected. Prior to 2018 this data had never been available to review.

Over the following two years, staff was charged with originating an outline of how inspections could be performed using electronic identifiers and evaluating other similar programs. During this time the Committee members identified several reasons why this program could be beneficial for both producers and the NBC:
- Simplify the inspection process for producers that utilize EID's
- Eliminate travel expenses or surcharges for an inspector's physical appearance
- Provide a value-added service for those that use EID's already
- EID's provide more identification on non-branded cattle than those without
- Should be able to create a reduced charge compared to physical inspection
- Could be used to accommodate dairy shipping certificates
- Could promote participation in Animal Disease Traceability system for state of Nebraska and USDA

After the original program conception was determined and initial research was conducted, it was decided internally that a producer advisory group would be extremely beneficial in vetting ideas, requirements and processes put forth by the staff. This is a common practice prior to specification or development occurring. The focus of the E-Inspection Subcommittee is to provide insight to the NBC staff as to how an electronic inspection program could work for each of the different producer types while maintaining the integrity of the Brand Laws.

This information will serve as the foundation for a system that we believe will create greater efficiencies by minimizing field staff travel and time; decrease producer expenses; reduce scheduling conflicts for producers; improve ease of timely document generation; be able to add value on existing EID usage at operations; and streamline the inspection process for non-change of ownership and eventually change of owner movements.

While this is the first major change to Brand Inspection law since its inception in 1941, NBC believes this can be done by taking an approach that utilizes our new computerized inspection program allowing producers access through a web-based producer portal to generate their own "inspections" using EID's as legal evidence of ownership. There will be requirements on what cattle are included and when the E-Inspections can be performed, with enrollment of eligible cattle a corner stone of the program. Data integrity will be verified automatically through the system with incomplete or questionable animals and transactions flagged for human auditing and validation.

NBC understands that this is a very progressive and complicated program that has many in the industry concerned that it undermines the integrity of the Brand Law. NBC strives to assure producers that any program implemented would have as high if not higher requirements that current hot iron branding inspections has. This program does not intend on any level to replace or eliminate hot iron or freeze branding as the main form of identification in Nebraska and is intended to be completely voluntary for producers that find the benefit in using it.

The Plan

The development of this program will involve many steps and milestones as we build and implement it from ideas, to design, to development, to testing then into use. Timelines can not be determined until development specifications are completed and reviewed. Some phases can run concurrently. These are medium level details and are subject to change as rules and processes are finalized.

Phase I – Conceptualization

This will include the previous two years of outlines, brainstorming, evaluating other state systems, USDA programs, current industry accepted programs, investigating data systems, learning more of blockchain pro's and con's, and finally settling on a solid foundation of how the system will work and which components are selected. This includes the formation of the E-Inspection Subcommittee and their input.
1) Program Outline created
2) Data storage determined
   a. Legal determination on need for 3rd party animal database being obtained
3) Sections identified
4) Providers selected
   a. Contracts being drafted for Committee approval
5) Subcommittee confirmed and conducting meetings
   a. Need to finalize rules and details of program for both enrollment and inspection
   b. Audit requirements need to be finalized

Phase II – Specifications

Once we have more specific details the remainder of the specifications will be written and passed to the development team for creating development stories and estimations of development, testing and quality assurance (QA) capacity and time. This will need to occur across all platforms and systems being used.

1) Producer Portal Access
    a. Preliminary specifications completed in 2020
2) Individual Animal Database
    a. Has been developed and is in testing for basic requirements
3) Interface created between the two with an API (Application Programming Interface)
    a. Development companies have met and outlined preliminary requirements while waiting on final rules.

Phase III – Preliminary Alpha use

There will be parts of Phase II that are completed enough to start using the Producer Portal and potentially for enrollment of cattle into the program.

1) Producer Portal use:
    a. Initial items as updating producer information and brands, renewing brands, and reviewing all inspections on record since 2018.
    b. Initial Producer access development completed and in testing in 2021
    c. Expected release for first Producer Portal tasks in early 2022 of brand renewal, data updating and inspection lookup to be included.
2) Animal ID data system:
    a. Enrollment of animals and review who is enrolled
3) Electronic Inspection Milestone 1 – Non change of owner
    a. Will be spec'd out and developed during this phase using both pieces listed above in beta testing
    b. Non change of owner inspections
4) Data API will be developed and tested
5) Data import features will be built

Phase IV – Beta User testing and ongoing enhancement development

With the initial system up and running additional components will be finished with development that will allow the test group of Beta users to work through preliminary usage and help revise and refine the best physical process of the system. This will also be when the auditing and automatic Animal Disease Traceability reporting to the state Veterinarian system occurs and the next Inspection Milestone development is completed.

1) Preliminary test use of e-inspection for non-change of ownership transactions
2) Audit rules specifications will be developed and tested
3) ADT reporting interface created
4) Electronic Inspection Milestone 2 - COO
    a. Change of Owner Inspections will be spec'd out and developed during this phase

5) Partner discussion on how to make interstate inspections a reality and specifications written

Phase V – Implementation of title transfer Inspections

Beta users will be able to test the change of ownership inspections, will complete the dairy calf shipping certificates (same principles used for change of ownership e-inspection) and will develop sale barn E-Inspections

1) Milestone 2 – Change of Owner inspections development completed and in testing
   a. Dairy shipping certificates completed
2) Milestone 3 – Sale Barn inspections will be determined, and specifications created
3) Development of enhancements for interstate inspections process by partner states

Phase VI – Implementation of Sale Barn transfers

1) Milestone 3 – Sale Barn inspections completed and in testing
2) Implementation of interstate inspections process by partner states

The Technology

While the Plan gives a more specific overview of the order that we would expect the project to take, there are details that are important to the project and producers that we learned in the first two years of investigating this project.

Data integrity, security and privacy were by far the most concerning elements. In order to alleviate these, it was decided to utilize a 3rd party system that would ensure that all individual animal information was kept as private as possible. It is believed with a 3rd party system that is not "owned" by the State of Nebraska the data cannot therefore be accessed with a Freedom of Information Act (FOIA) request. This is being confirmed by the NBC legal team. With an independent provider it will also enable all users to agree to an End User License Agreements (EULA) that specifically details what information can be used, shared or provided to different partners and when.

Regarding data integrity, NBC opted to utilize the newer technology of Blockchain that offers several benefits over a standard database system.

1. Trust between different entities without relationships that do data sharing
2. Decentralized structure which means all along the chain no one is exclusively in charge.
3. Which means blockchain enables unprecedented control over users own data, with limits and permissions enforced by blockchain enabled smart contracts.
4. The enhanced security offered by blockchain stems from how Blockchain creates an unalterable record of transactions with end-to-end encryption, which shuts out fraud and unauthorized activity.

5. Data on the blockchain is stored across a network of computers, making it nearly impossible to hack (unlike conventional computer systems that store data together with servers).
6. Blockchain addresses privacy concerns better than traditional computer systems by anonymizing data and requiring permissions to limit access.
7. Immutability. Once recorded on blockchain data cannot be changed or deleted. It creates a permanent date/time stamped record creating a secure reliable audit. It can't be corrupted or retired.

Because we are dealing with animal records that should not ever be changed, immutability is the biggest factor when opting for a blockchain ledger system. Finding companies that work with blockchain in the agriculture sector wasn't difficult, however finding ones that would work in our space and budget was another issue. After interviewing and demoing over 10 different suppliers over 2 years, the option to work with CattleProof as our 3rd party animal database was settled upon.

CattleProof offers several different services, but the core NBC requirement is use of the animal record and its interface capability with Nebraska Interactive and our NBC Admin Producer Portal program. The CattleProof system creates a verified digital identity for individual animals that can be used for any program that producers choose to participate in. It becomes the trusted repository for all verified data and documentation. CattleProof utilizes Ethereum blockchain provenance but has the ability to be interoperable with other chains based on cost and data needs.

CattleProof contracts are being drawn up and will be available for the Committee to review very soon.

NIC (formerly Nebraska Interactive) is the company that provides our NBC Admin program that handles all of our producer data, inspections, brands and financial transactions relating to all brand and inspection transactions. NIC also builds and managers our internet website content. Our initial contract for producer and inspection services did not include financial compensation for building projects outside the original and even renegotiated scope. As this is a major development endeavor, a new contract is also being negotiated to allow for us to build and support the Portal and E-Inspection projects.

The new NIC contract is currently in ongoing negotiations and should be finalized soon.

The Process

NBC staff drafted the first preliminary outline of the proposed project. After that NBC investigative and management staff was then included to understand and assist in modeling the program to fit within the constraints of the Brand Act itself. With the preliminary structural

requirements in place, it was now time to engage producer users to help refine the requirements and processes that could be used in agreement between law and practicality.

E-Inspection Subcommittee

Once LB572 was signed into law, the NBC staff has been trying to identify and confirmed 10 producers in the brand inspection area that would represent almost every facet of cattle production to participate on an advisory team that would become the E-Inspection Subcommittee. These producers have been selected based on the grounds of their progressive operations and use of or planned use of electronic identifiers in their operation. Over 20 producers were recommended and engaged by Brand staff during this time. As a point of clarification, the participants were selected based not on any membership or affiliation (except for their industry segment), but strictly from suggestions and reviews from other producers and industry experts familiar with the producers and their situations.

Current participants and their segments include:
- Cory Banzhaf, JKS Farms, Pleasanton, feeder/cow-calf
- Art Brownlee, JHL Ranch, Ashby, commercial with retained ownership to harvest
- Jed Connealy, Connealy Cattle, Whitman, Seedstock & grow yard
- Chris Finney, Ainsworth Vet Clinic, Ainsworth, Veterinarian & Backgrounder
- Kim Ford, Cross Diamond Cattle Co, Bertrand, Seedstock
- Jill Krajewski, Oshkosh Heifer Development, Oshkosh, Dairy heifer development/cow-calf
- Gabriel Monasterio, Wolf Cattle Company, Ainsworth, seedstock/commercial/feeder
- Jay Nordausen, Ogallala Livestock Auction Market, Ogallala, Sale Barn
- Sherry Vinton, Vinton Ranch, Whitman, commercial cow-calf
- Steve Wolf, Wolfden Farms, Kearney, NE Holstein Association & dairy producer

With the directive of a legislative update by December of 2021, the Subcommittee was able to meet in person on November 2nd for the first in a series of sessions to meet the group, learn more of the tentative processes outlined, how it could work, where specific hurdles have been identified to work though and what the next steps are in creating a preliminary plan for E-Inspection. Once the plan has been firmed up, it can then be brought before all producers for additional comments and to answer questions that might arise.

After the second in person meeting on November 19th, the subcommittee members have a clearer understanding of the significance of maintaining the integrity of Brand Law. While each of the different members individually can see a way forward, to be able to make E-Inspection advantageous for all is more challenging. Some of the main discussion points for the preliminary set of topics have pertained to the 3rd party animal database, tag types being used, different enrollment options, rules of inspections to align with brand law, expanding eligibility outside of brand area, auditing process and much more.

The next meeting will occur virtually in the middle of December with a 4th to be planned for early January to ensure timely forward progress. It is incumbent upon NBC and the

subcommittee to spend as much time as necessary to get this program correct instead of rushing it to market. It was decided by the Committee that the E-Inspections will start with non-change of owner transactions as our initial Milestone, and then move to change of owner title transfers once the process is tested and perfected, and then look at the possibility of Sale Barn E-Inspections.

Functional Process

At this point in time a preliminary general process has been established but is currently being reviewed and adjusted by the Subcommittee.

All information in this following section is subject to change.

1. Producers will be registered and have access to the NBC Producer Portal
2. All cattle must be enrolled prior to an E-Inspection occurring.
3. Producers initiating the movement or sale will create the E-Inspection
4. Producer will read animal ID's and records those records to individual animal database through a transaction record
5. Producer uploads any accompanying required documentation
6. Payment occurs online prior to transaction completion
7. System performs a validating audit of animal records
8. Approval of transactions occurs in minutes, but NBC has 48 hours to completely audit and approve in case of flags from automated validation.
9. Producer is notified that documents are available and can be printed.
10. Title of ownership on EID record then transfers to new owner.

Enrollment

Enrollment of cattle will be mandatory for participation of E-Inspections. At this time there are 4 preliminary enrollment types that have been identified:
- Breeder Enrollment – cattle are at the initial breeder or owner and will require documentation to verify this.
- Inspection Enrollment – Cattle were physically inspected at the time of enrollment.
- Documented Enrollment – Cattle were physically inspected at the time of enrollment through a similar state inspection or sale barn as Nebraska.
- Registered Enrollment – cattle are enrolled when originally tagged at place of birth with approved documentation and proof of ownership

Next steps

The Subcommittee has contributed greatly and has been very engaged, but we are left with outstanding discussion points for the preliminary set of topics that need confirming including:

- Understanding the 3rd party individual animal system that would interface with the inspection system
- Does the animal database need to be 3rd party for FOIA issues or if subcontracted by NBC makes that irrelevant
- Should the system use only 840 tags or be open to any approved ICAR RFID (ISO 11784 and 11785)
- Will premise numbers be required if 840 is used
- Working though the proposed various enrollment options and perhaps adding a 4th option for a registered herd which could prove ownership
- Potentially using vet information/receipts to prove cow herd numbers for breeder enrolling
- Will maternal enrollment be required for breeder enrollment option: pros/cons
- Enlarging geographic area for document enrollment outside of Nebraska and Brand Area
- Potential for creating a registered E-Inspection operation and statute pitfalls
- Understanding that documents that satisfy PVP participation don't necessarily equate to cattle ownership validation
- Secondary identifiers should be a requirement for EID
- Evaluating the time frame for reading cattle tags that equal the shipment head count.
- How the auditing process could work

Once we have these items finalized, specifications should be able to be generated.