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# Governing and managing animals by standards and information infrastructures. The case of the genomic (R)evolution in dairy cattle breeding

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# Governing and Managing Animals by Standards and Information Infrastructures

{ The Case of the Genomic (R)evolution in  
{ Dairy Cattle Breeding

Antoine Doré  
AgreenSkills Annual Meeting  
13-16/02/2017



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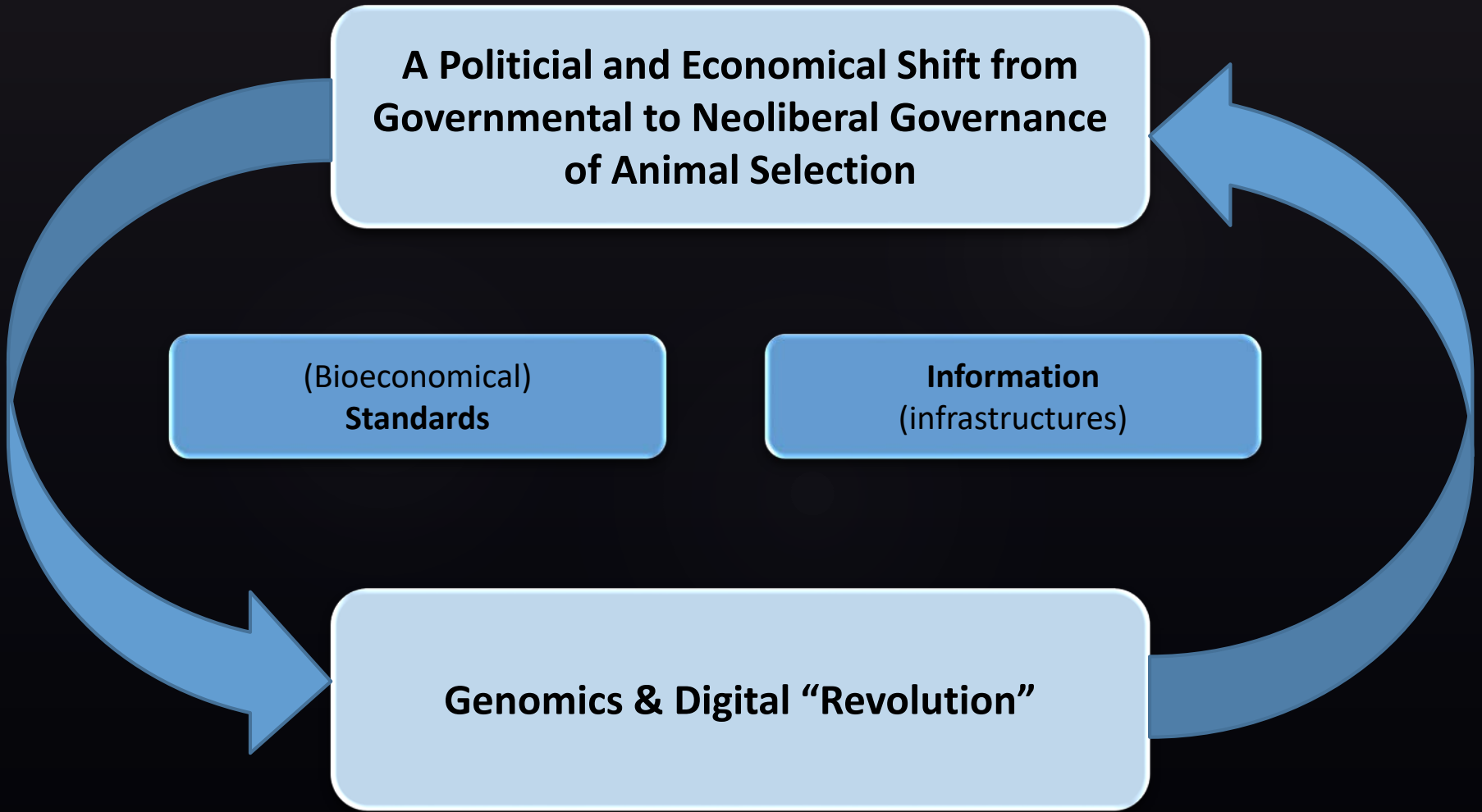
INRA  
SCIENCE & IMPACT

**A Political and Economical Shift from  
Governmental to Neoliberal Governance  
of Animal Selection**

**(Bioeconomical)  
Standards**

**Information  
(infrastructures)**

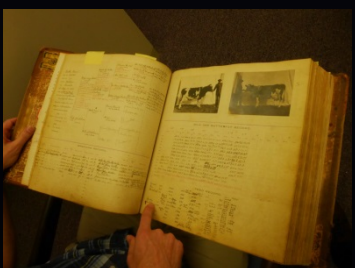
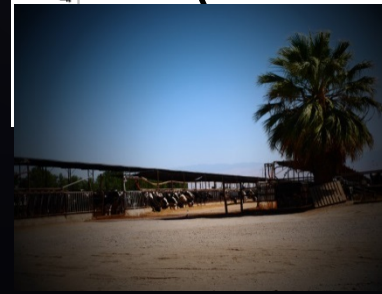
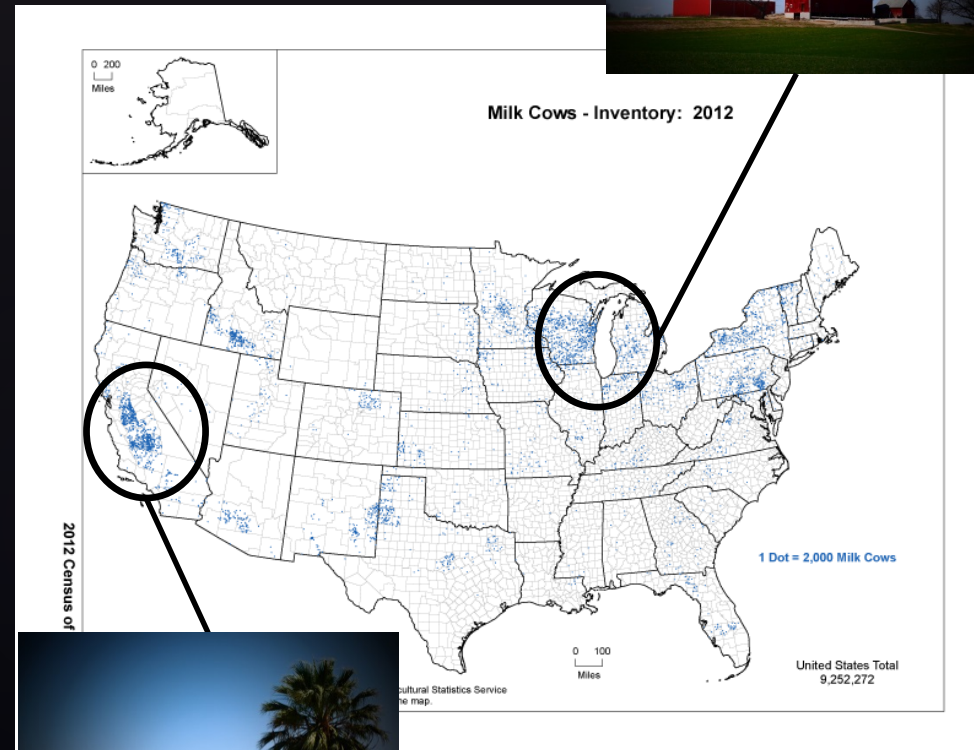
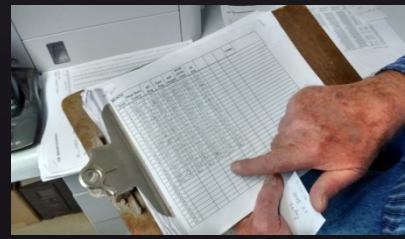
**Genomics & Digital “Revolution”**



# METHOD

## Qualitative research:

- (1) ethnographic observation (dairy farms, AI companies, scientific labs)
- (2) semi-directive interviews (dairy producers, performance evaluators, breeding companies, geneticists, etc.; N=41)
- (3) a large body of textual material (technical reports, archives, genetic industry press, ect. ; N>5000)



# HISTORICAL OVERVIEW

## 3 Genetic Evaluation Regimes\*

\* Regimes of production, regulation and appropriation of selection index for measuring the net merit of breeding animals

Regime	USA
Public evaluation	USDA
Marketing redesign of selection indexes (> 2010)	Every big companies design their own selection indexes
Marketization of genetic evaluation (>2015)	Selection indexes for new traits

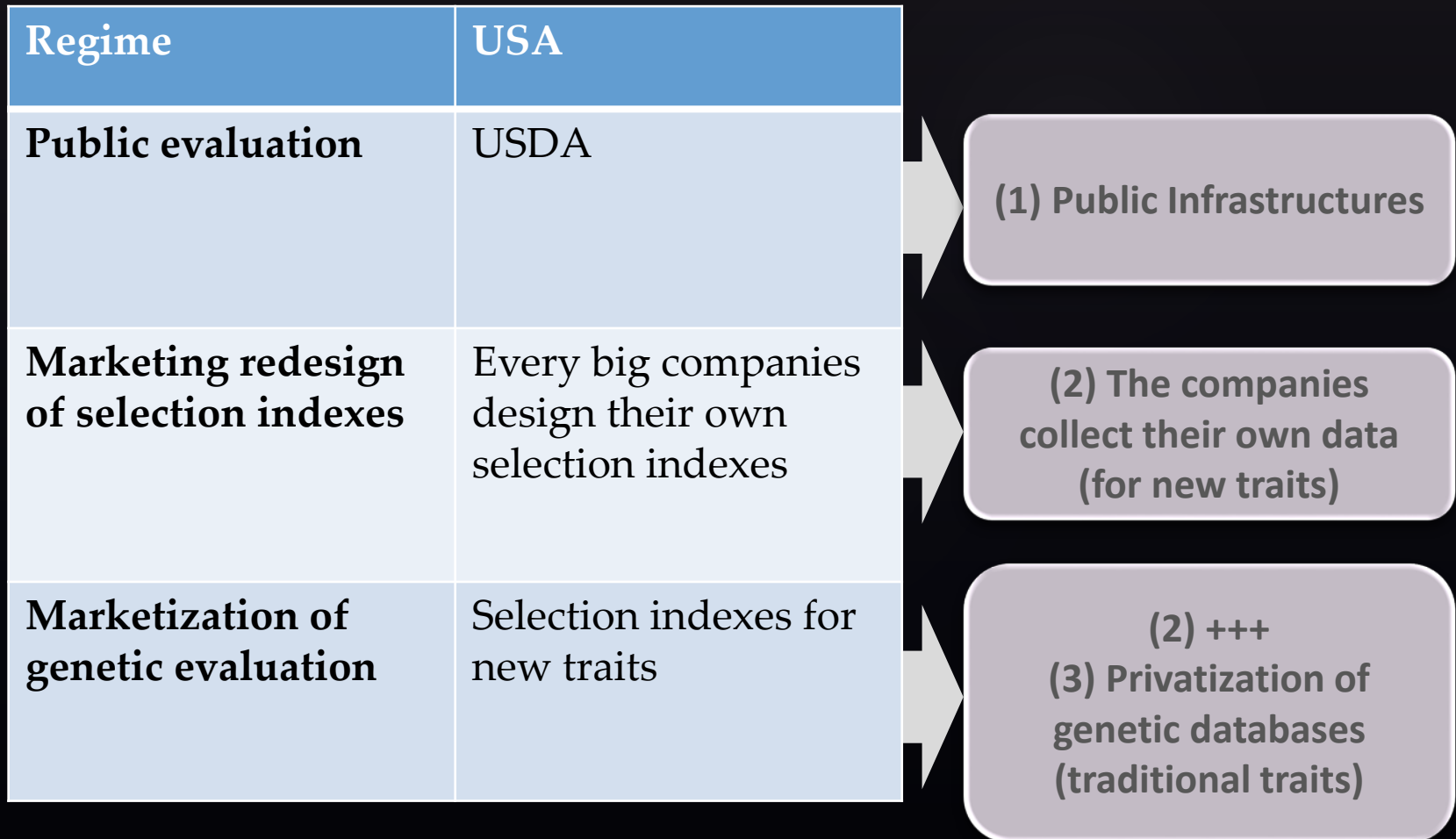
NM\$ - TPI



# IMPACT OF GENOMICS

- ⌘ Acceleration of Genetic Progress (from star-system to fast and multiple bulls turn-over)
- ⌘ Selection for new traits (new products and services on the market)
- ⌘ New relation to phenotypic data (emergence of new forms of entrepreneurship and competencies for phenotypic data collection and management)

# INFORMATION



# STANDARDS

## Standards 1: Selection Indexes

& Diversification 😊

& Incomparability ☹️



Who actually decides?

## Standards 2: Breeds

The standard of “breed”=sociotechnical constructs

& When a breed became a brand: toward a specific Holstein for each company?



Who owns genetic resources?




# CONCLUSION

Genomic and digital innovations are accompanying a “marketization” of genetic evaluation activities that deeply impact the relationships between dairy producers, sciences and industries in animal selection sector

Who are the true master breeders?  
(dairy breeders vs Genetic Corporation)



Who are the true master geneticists?  
(public research vs private R&D)



What is the true valuable resource?  
(genetic resources vs Information resources)