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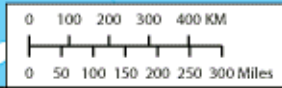
UNITED STATES

- | | |
|------------------|----------------|
| 1. MAINE | 6. CONNECTICUT |
| 2. NEW HAMPSHIRE | 7. NEW JERSEY |
| 3. VERMONT | 8. DELAWARE |
| 4. MASSACHUSETTS | 9. MARYLAND |
| 5. RHODE ISLAND | |

LEGEND

- Country Boundary
- State Boundary
- Major Road
- River
- Major City
- Sea Port
- Country Capital
- Airport
- Point of Interest

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 (Updated on 21st January, 2013)

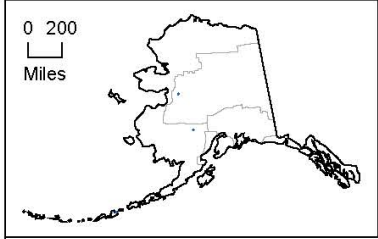


Carrying Capacity

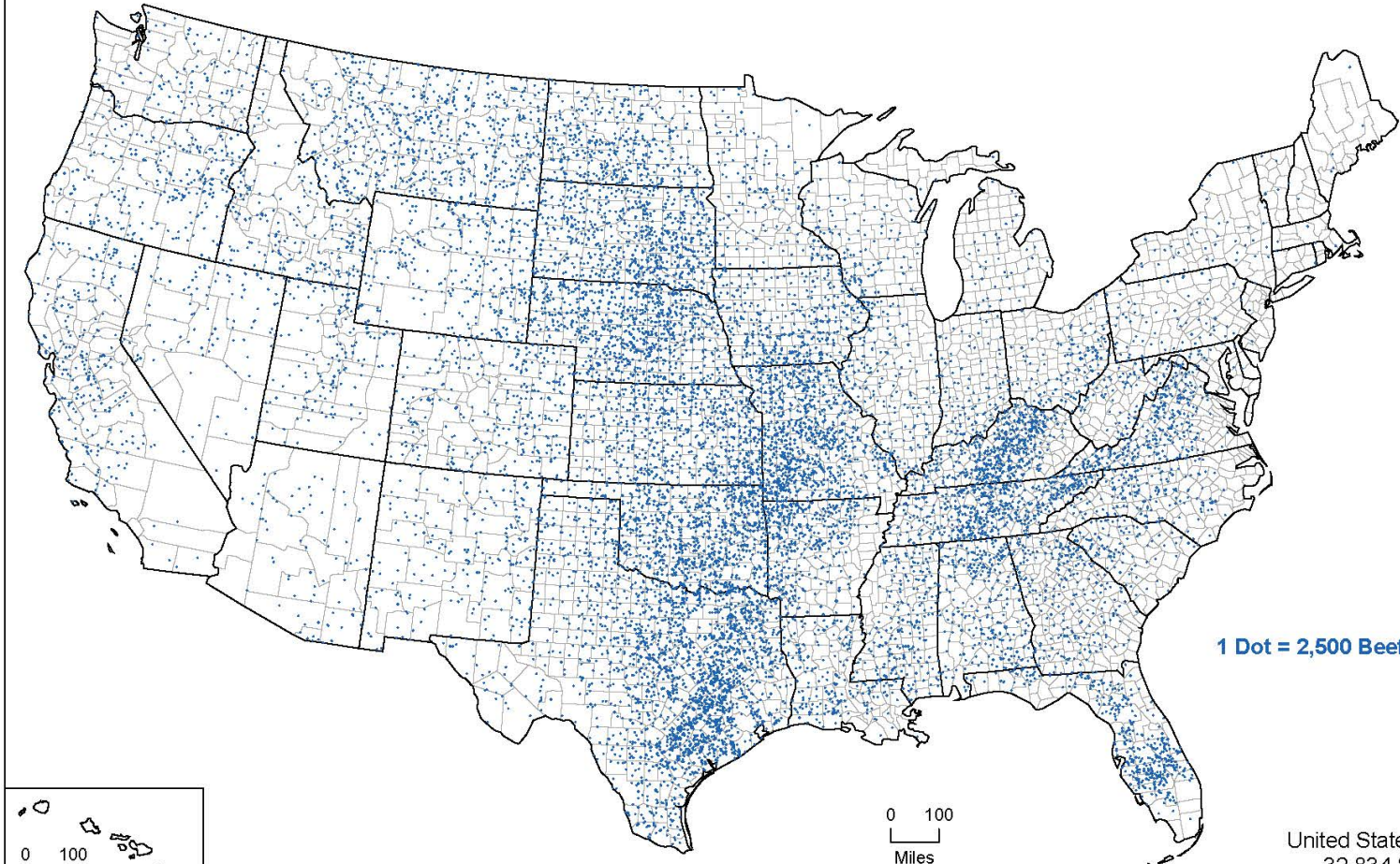
- Northern Great Plains:
 - 16.2 ha for 6-7 months for cow-calf pair
- Lower Michigan
 - 0.8 ha for 6-7 months for cow-calf pair

Southern Canada, US, Northern Mexico



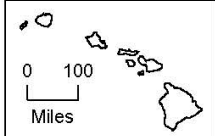


Beef Cows - Inventory: 2007



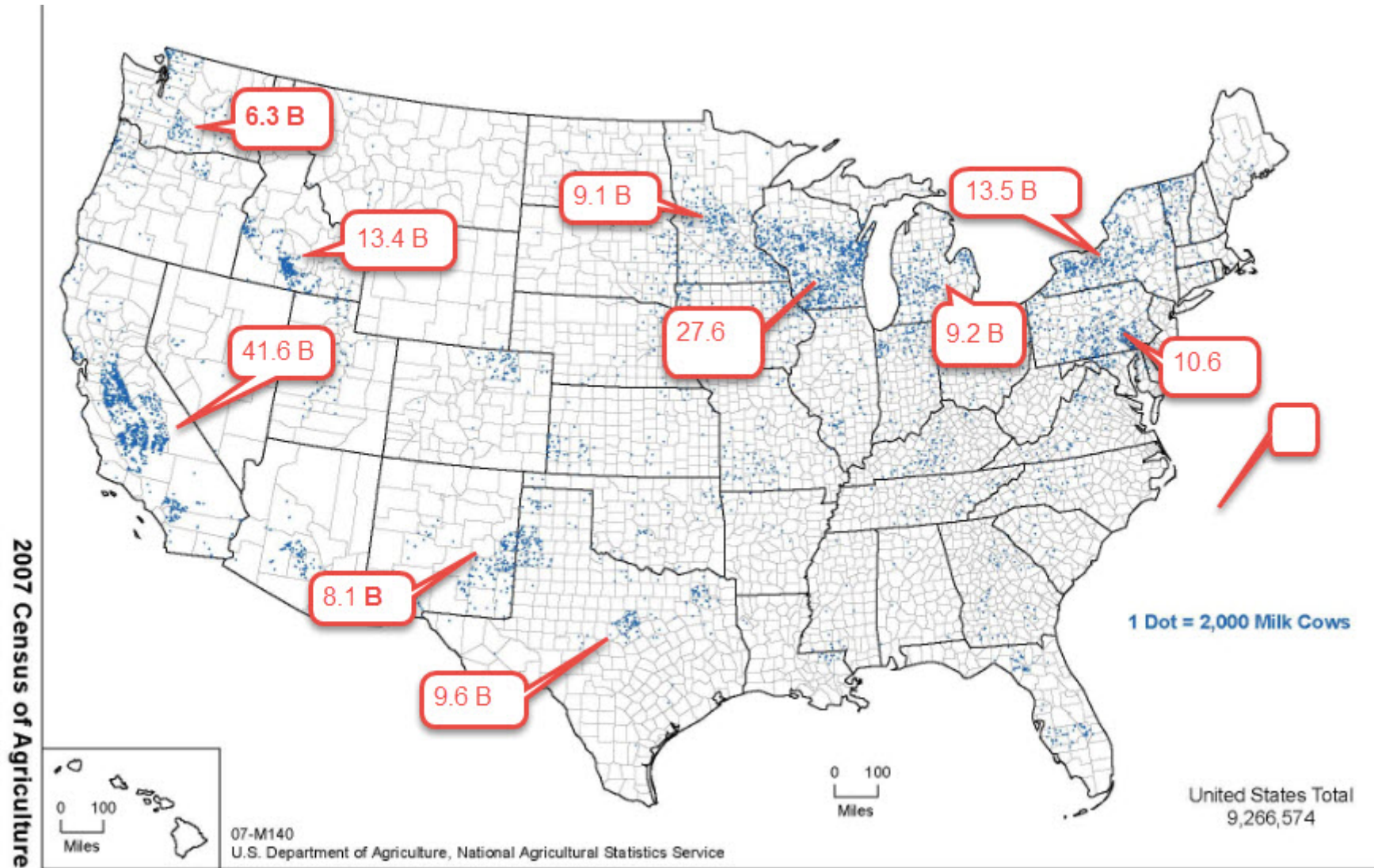
1 Dot = 2,500 Beef Cows

2007 Census of Agriculture



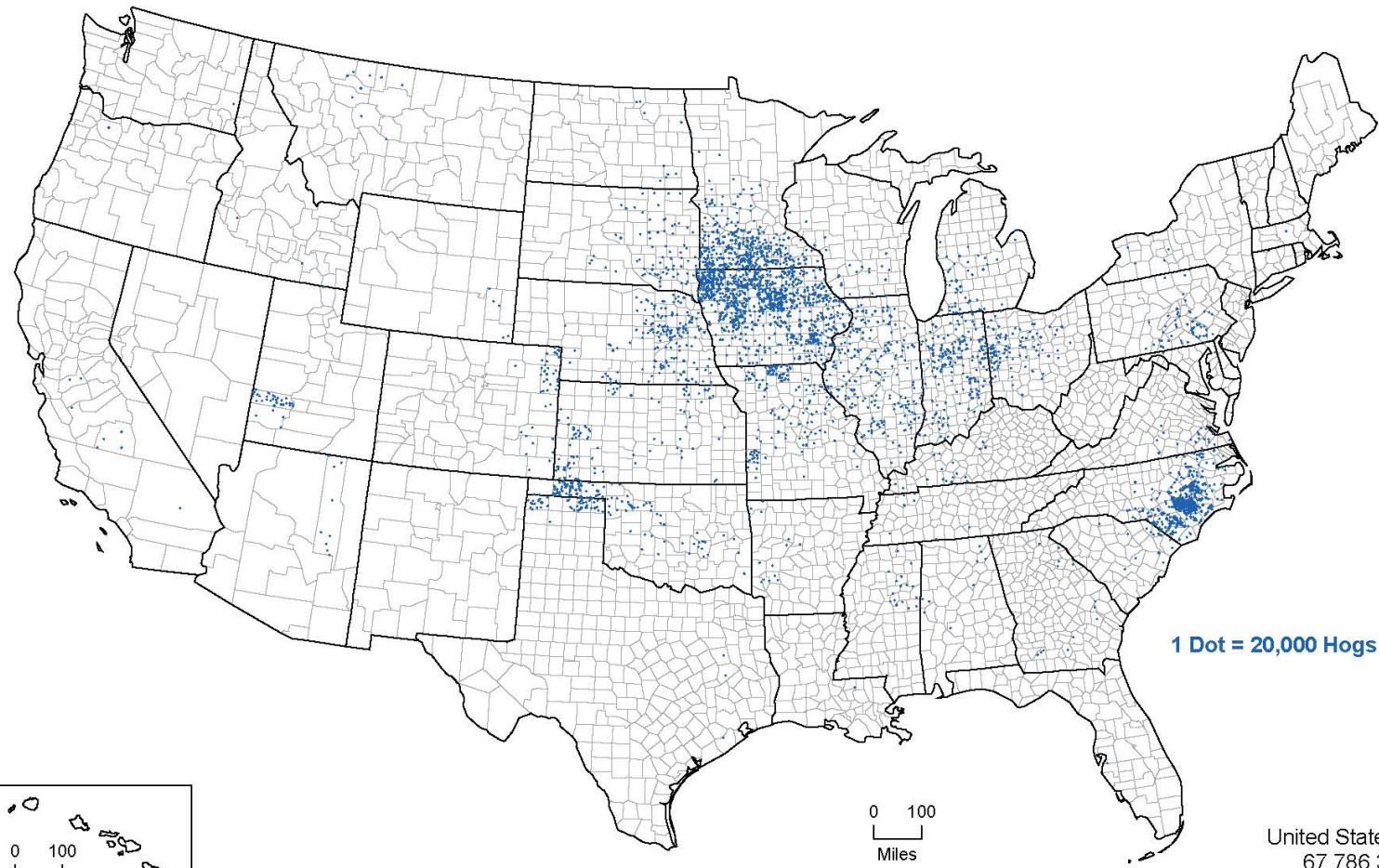
United States Total
32,834,801

Dairy Cow Numbers and Production

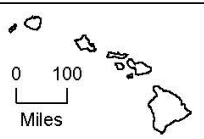




Hogs and Pigs - Inventory: 2007



1 Dot = 20,000 Hogs and Pigs

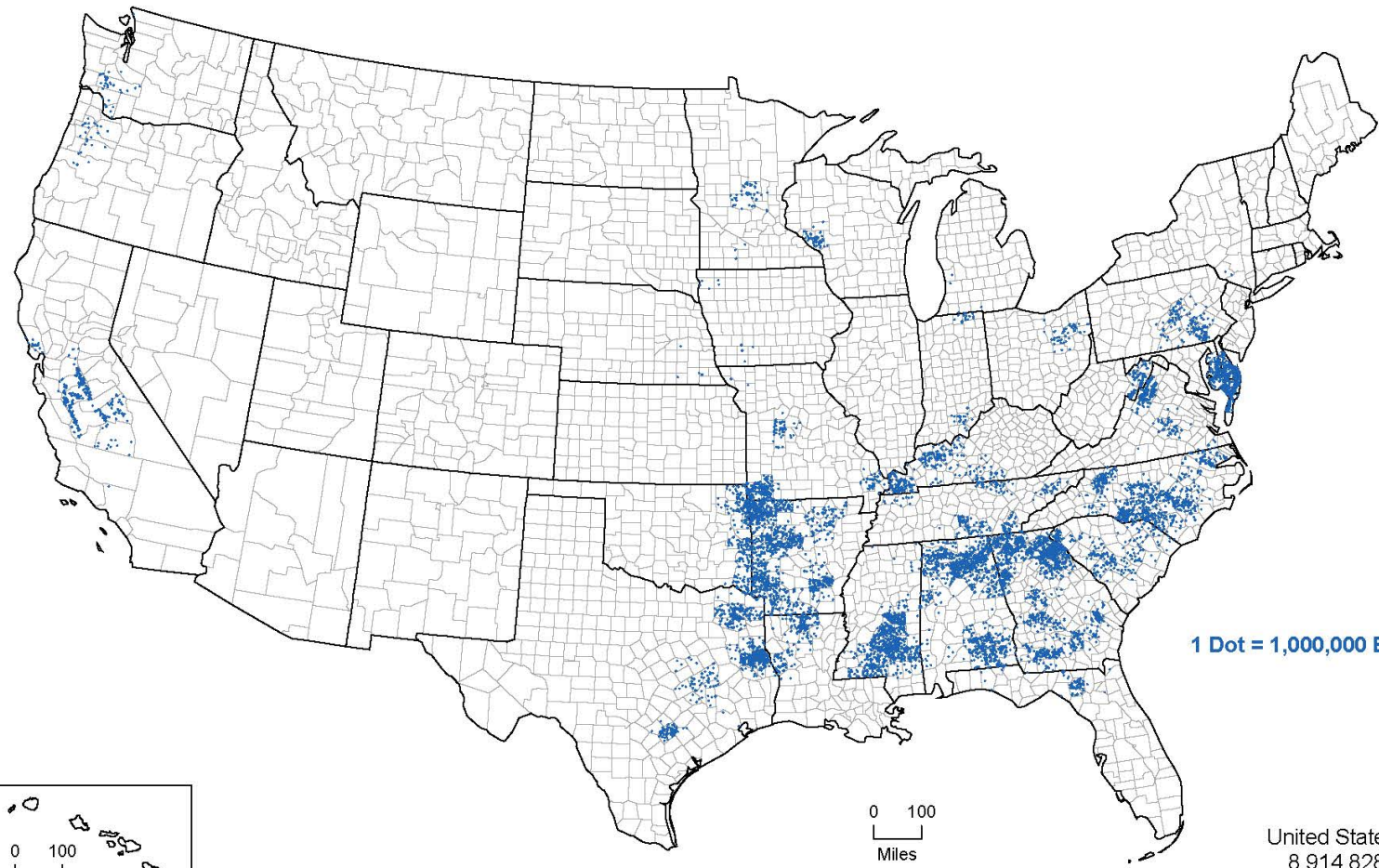


United States Total
67,786,318

2007 Census of Agriculture

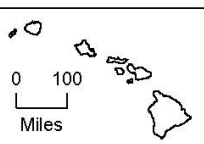
07-M149
U.S. Department of Agriculture, National Agricultural Statistics Service

Number of Broilers and Other Meat-Type Chickens Sold: 2007



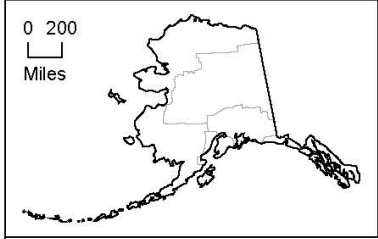
1 Dot = 1,000,000 Broilers

United States Total
8,914,828,122

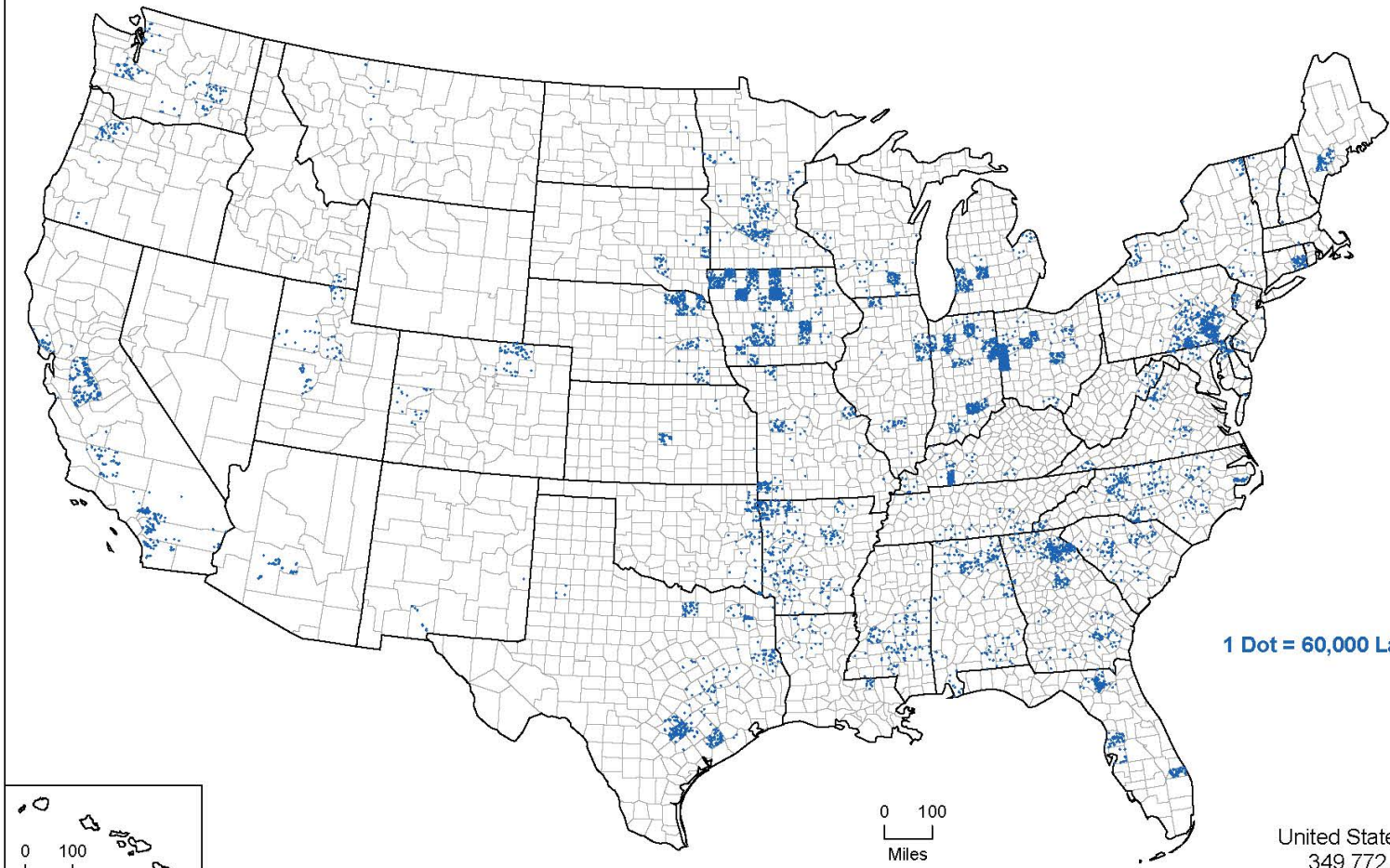


2007 Census of Agriculture

07-M161
U.S. Department of Agriculture, National Agricultural Statistics Service

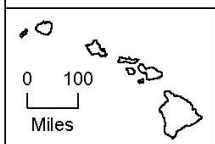


Layers - Inventory: 2007



1 Dot = 60,000 Layers

2007 Census of Agriculture



United States Total
349,772,508

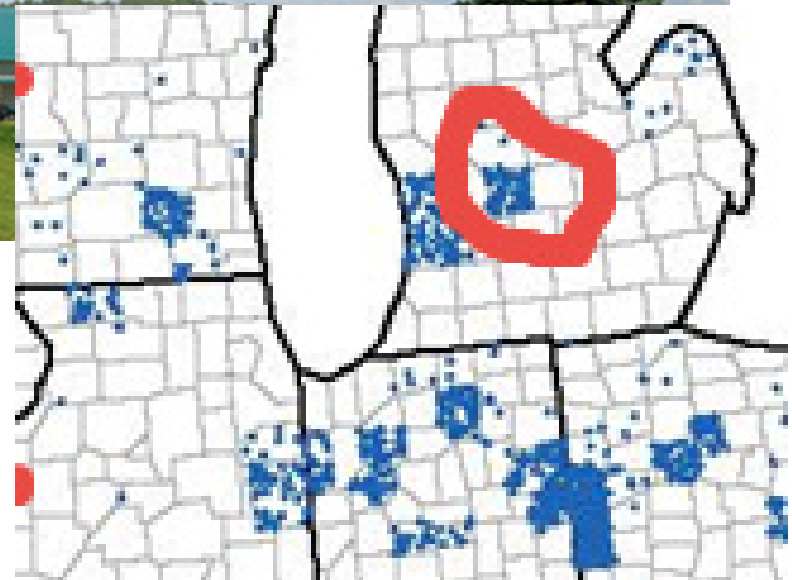
Coordination and Pricing in the Value Chain

- Price: spot (cash) and futures markets
- Price: cash forward contracts and pricing rules
- Pricing and coordination: bilateral contracts across firms at different stages
- Vertical integration across stages

Herbruck's Poultry Ranch



Always striving for the best.



Products
and Services

Food
Safety

Herbruck's

Animal
Care

Environmental
Quality

Social
Responsibility



Some Metrics

- 6 M laying hens
- 400 employees
- 160,000 MT corn / year

Products and Services

Retail & food service

– Provide

- Specialty and premium eggs

– To:

- Independent local grocers
- Nationwide restaurants and retailers.

Whatever product, packaging or delivery need you have, we can meet it



Procurement choices

Eggland's Best

- Classic white
- Classic brown
- Cage free
- Organic / cage free
- Hard cooked peeled



Green Meadow

- Cage free
- Organic cage free



Private Label

- Safe Food Quality Institute (SQF) certified.
- All egg sizes and carton styles.
- Specially packaged under the customer's brand.



Herbruck Brand Premium Eggs

- SQF certified.
- All egg sizes and carton styles.
- Unique packaging options.
- Part of a complete egg solution of where and in what quantity products are placed on a shelving unit.



Private Label Specialty Eggs

- Cage-free and organic/cage-free eggs
- Packaged under the customer's brand.
- All egg sizes and carton styles.
- SQF certified.



Service and Support for Retailers

- Inventory management and out-of-stock reduction
- Direct store delivery (DSD)
- Local, regional, and national distribution
- Private labeling and specialty packaging
- Scan-based trading (Herbruck's maintains ownership of inventory within retailers' stores until items are scanned at the point of sale)
- Dating, barcoding, and traceability
- Retail support

Products and Services (Continued)

- Grain purchasing (160,000 MT corn/year)
 - Conventional
 - Organic
- Dried fertilizer

Environmental Sustainability

Theme

- Care about the people, land, air, and the waterways impacted by their scope of business.
- Meet or exceed gov't regs

- Reduce, Reuse, Recycle
- Energy efficiency
- Landscape Design
- Environmental monitoring
 - National Pollutant Discharge Elimination System permit (Federal: Clean Water Act)
 - Michigan Agricultural Environmental Assurance Program (State)
 - National Air Emissions Monitoring Study

Social Sustainability

- Deep-rooted culture of community
- Cooperation with the surrounding community on our **corporate environmental quality** program
- **Sourcing locally** first
- Contractual **partnerships with many smaller family farms** -- cage-free and organic laying hens
- Employee wellness program, training and development opportunities, competitive wages and incentives



Dan Gorsky, senior VP

North American Supply Chain Management

McDonald's Corporation

- Valued supplier to the McDonald's system, delivering high-quality eggs.
- Consistently, Herbruck's have shown respect for the environment, their employees, and their laying hens.

Coordination Challenges

- Price system is a pretty good information system for coordination across stages and with consumers for simple 'signals'
- Price system struggles as a coordination mechanism when:
 - Complex signals
 - Complex systems integration across stages
 - Transactions costs (costs of monitoring, transacting contracts, legal system) are large

Coordination Challenges

- The US value chain has seen a complete reshaping of the livestock and poultry sectors over the past 50 years:
 - Approaches to coordination
 - Transportation
 - Technologies to support monitoring and information flows
 - Economies of scale within and across stages and capacity to coordinate across stages
 - Gov't regulatory environment and voluntary schemes by commodity organizations



Cool Tools for Water, Air and Nutrients

MSU Extension In-service

September 4 & 5, 2014

MSU Kellogg Biological Station



People Per Mile² in US (per 2.6 km²)

People per Square Mile
by County



3,000.0 to 69,468.4



300.0 to 2,999.9



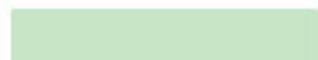
160.0 to 299.9



88.4 to 159.9



7.0 to 88.3



1.0 to 6.9



Less than 1.0

