



Leveraging Beef Genetics as a Climate-Smart Sustainability Practice

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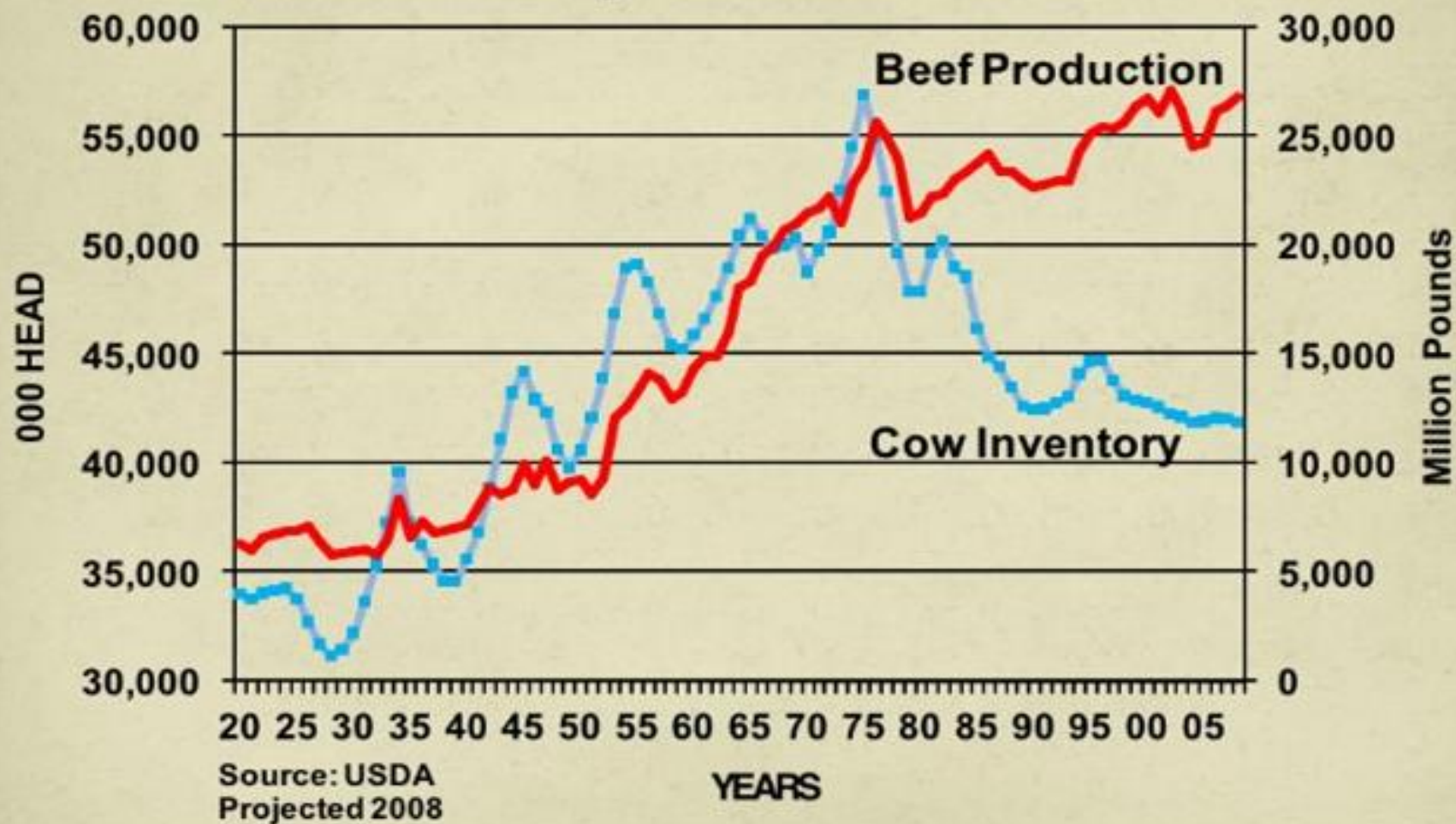




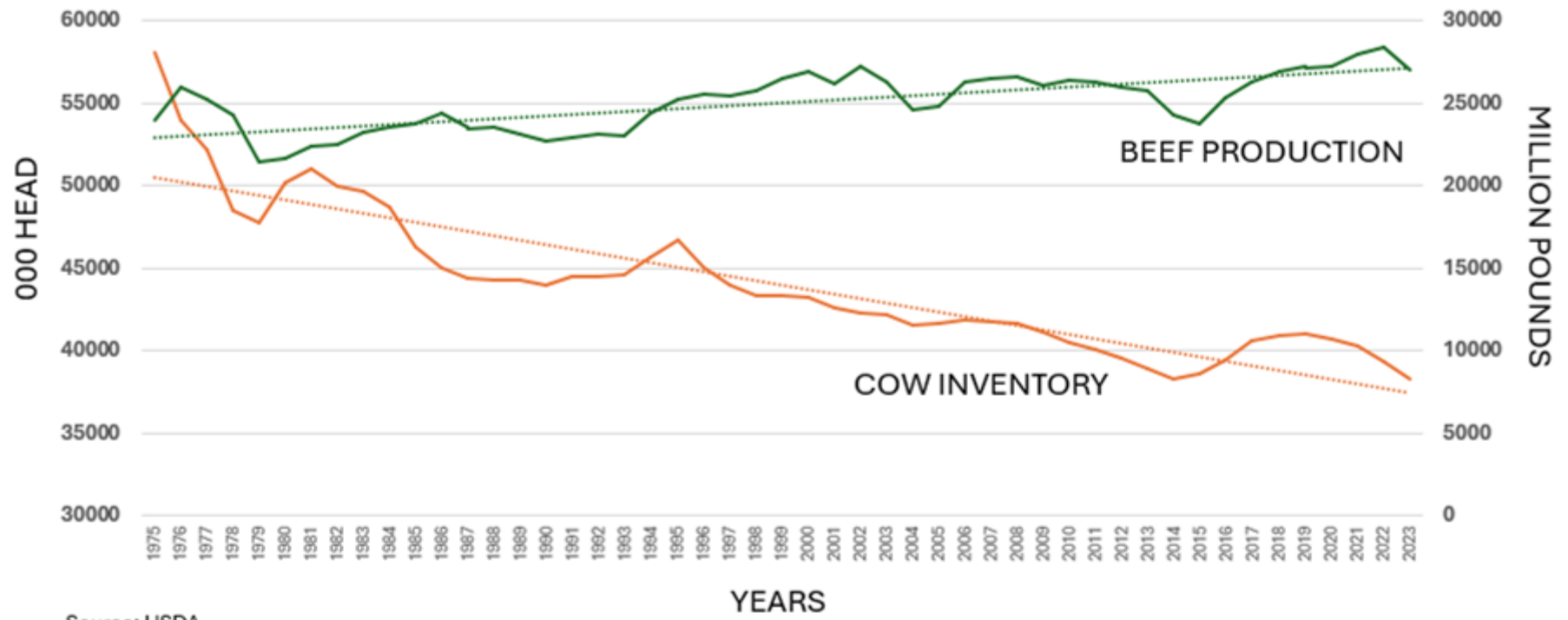
Regardless of system or region, there is a considerable body of evidence to suggest that improving beef cattle key performance indicators (including, but not limited to growth rate, slaughter weight, carcass weight, feed efficiency, reproduction and cattle health) will reduce both resource inputs (feed, land, water, fuel, etc.) and GHG emissions per kg of meat.

Looking forward to a sustainable future - how do livestock productivity, health, efficiency and consumer perceptions interact? (Capper, 2017)

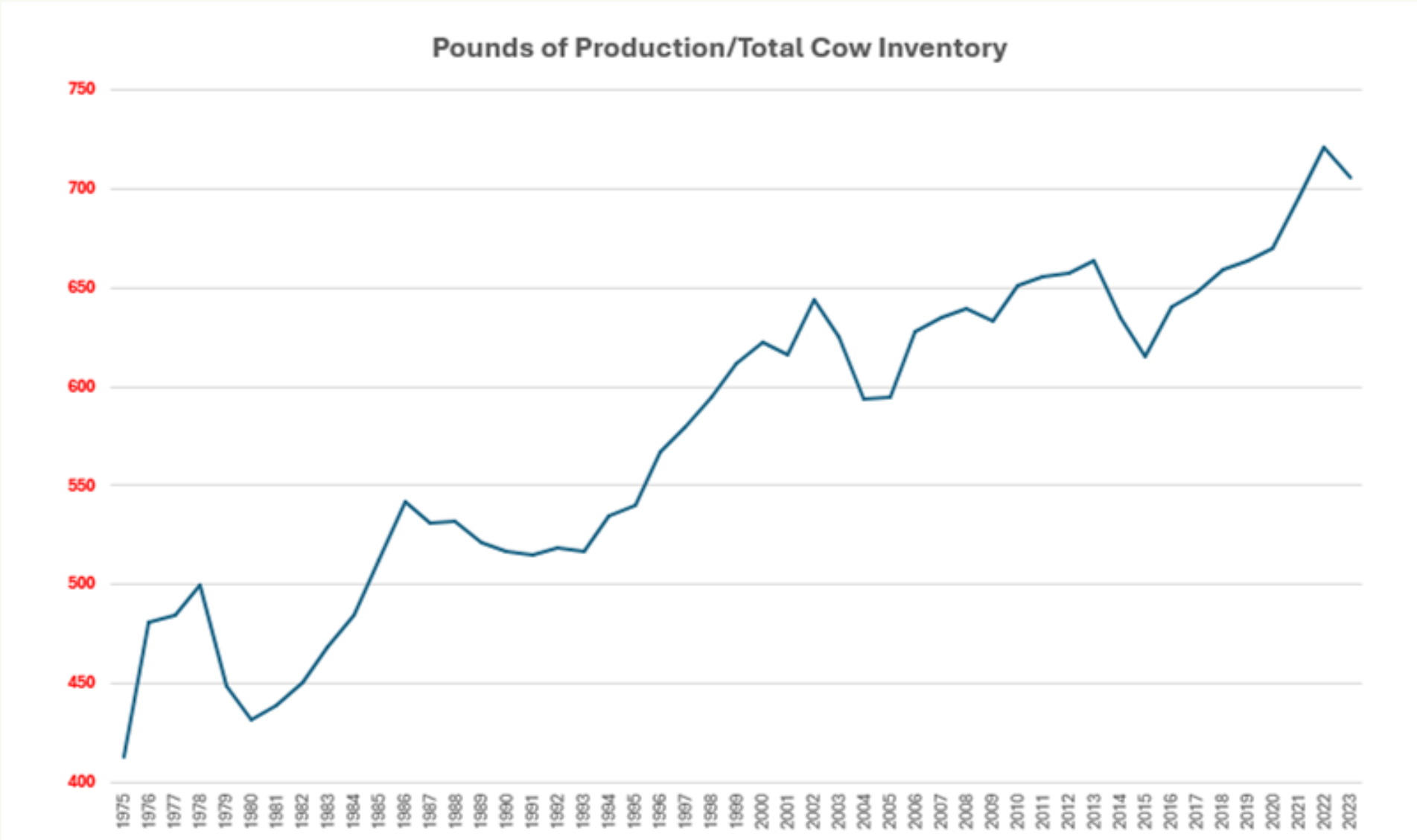
Total Cow Inventory & Commercial Beef Production



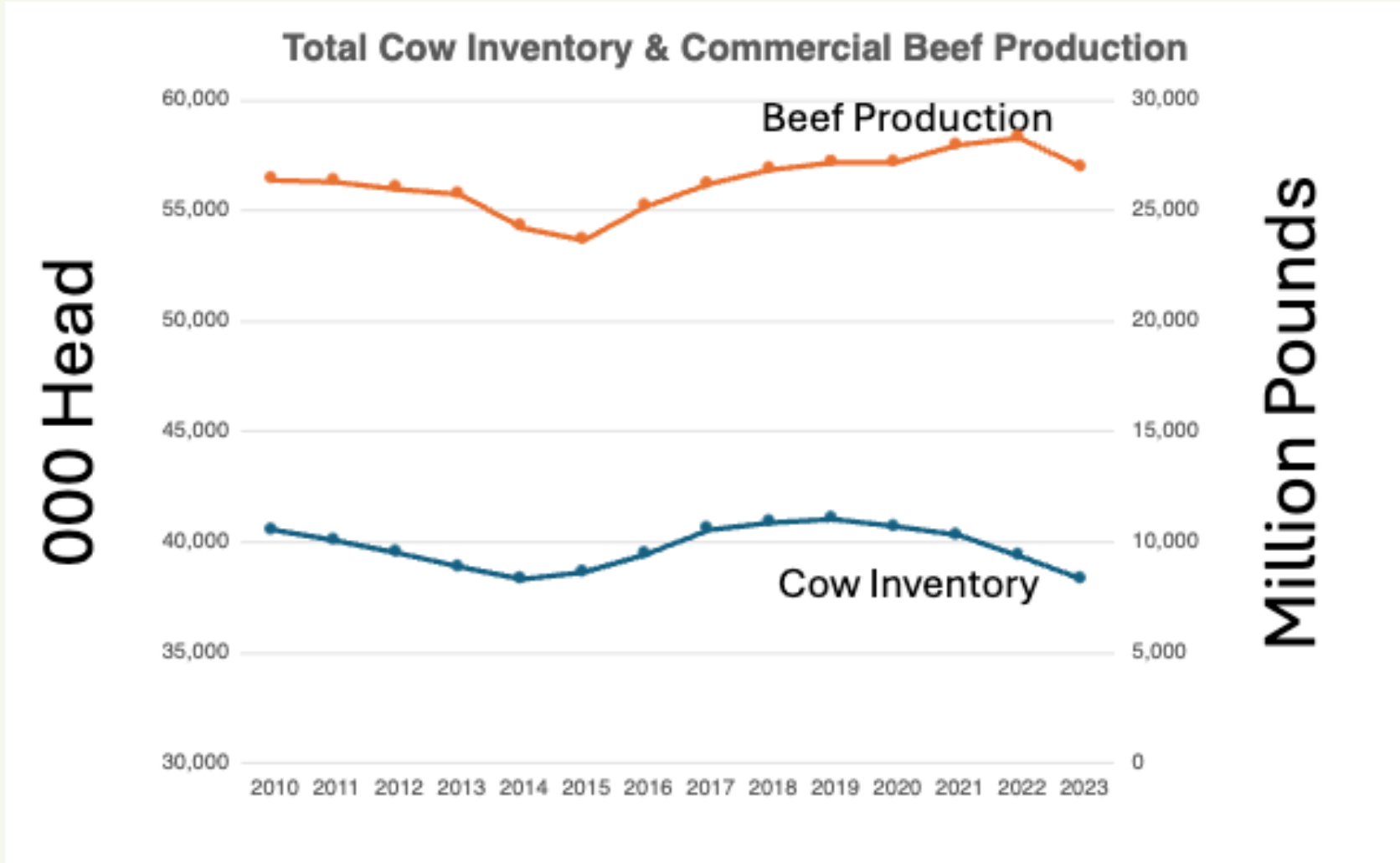
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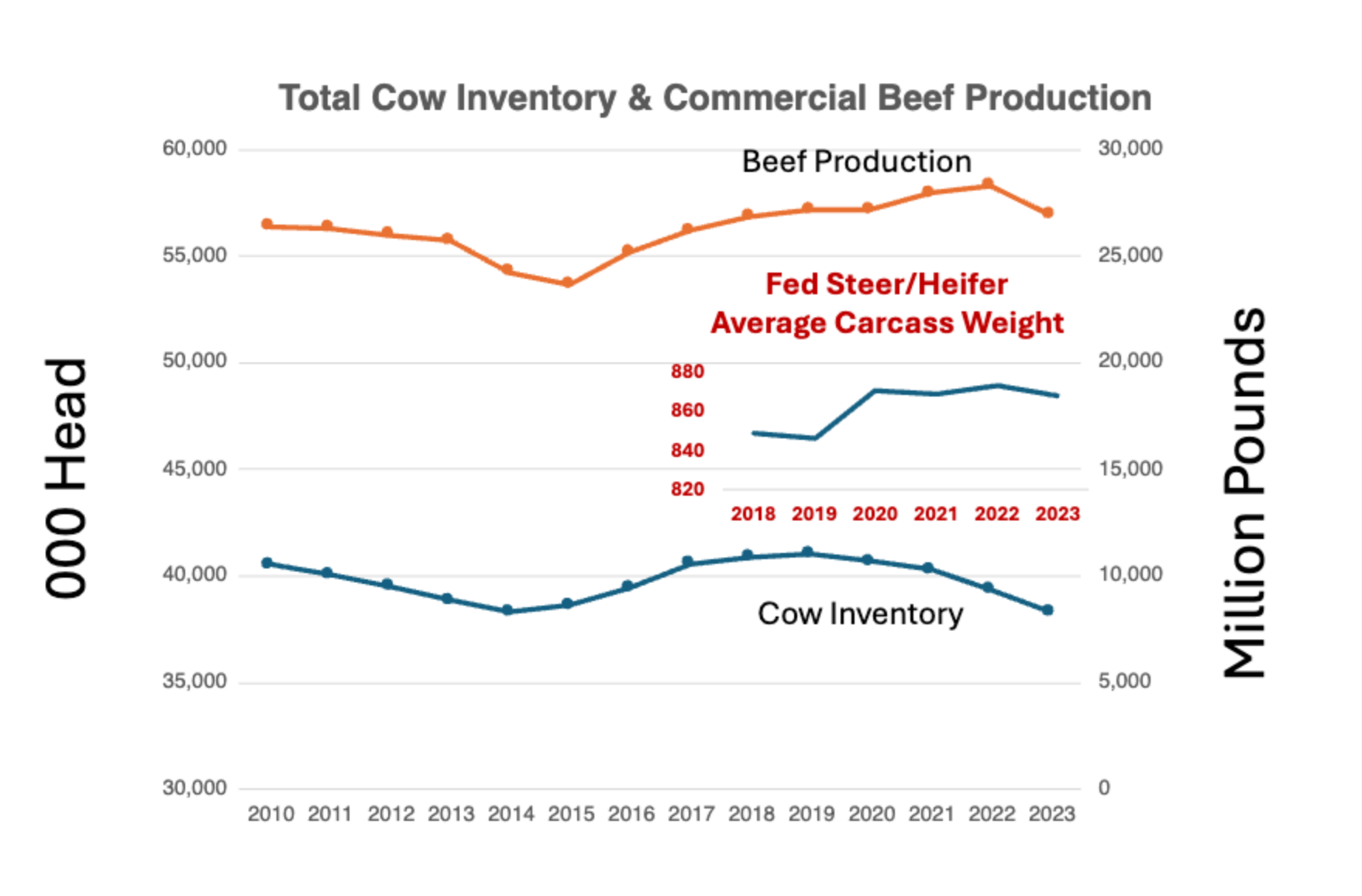
Source: USDA



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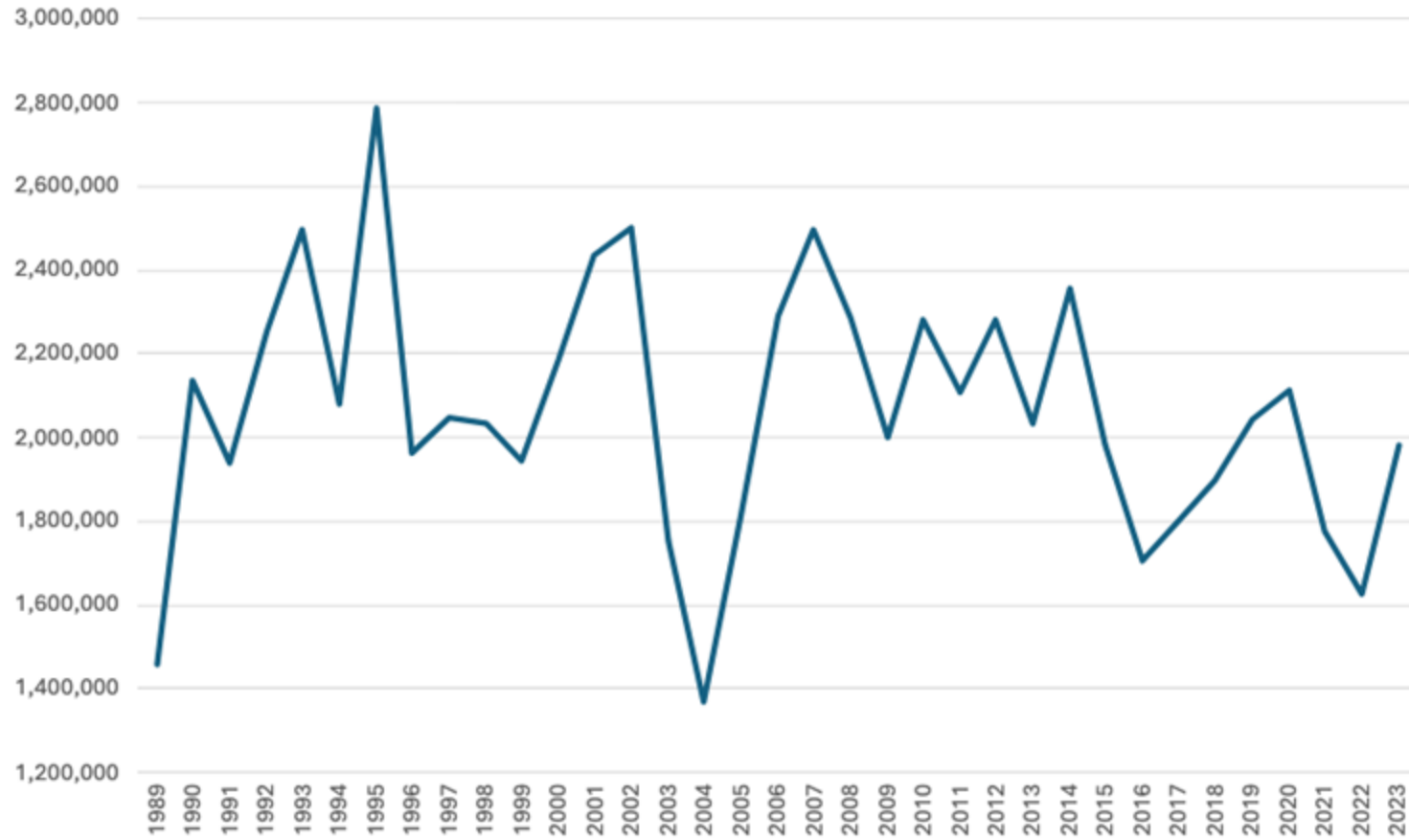


Source: USDA



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Cattle Imports

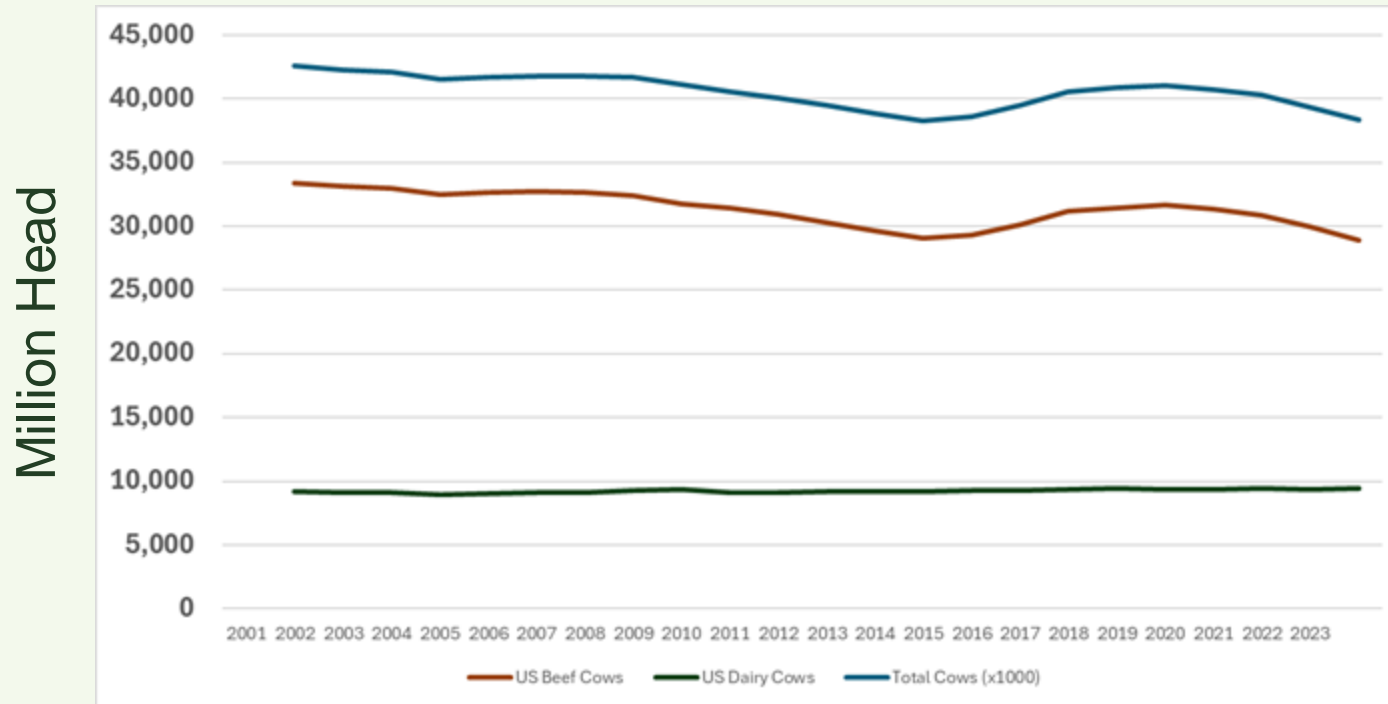


US Beef Cow Inventory

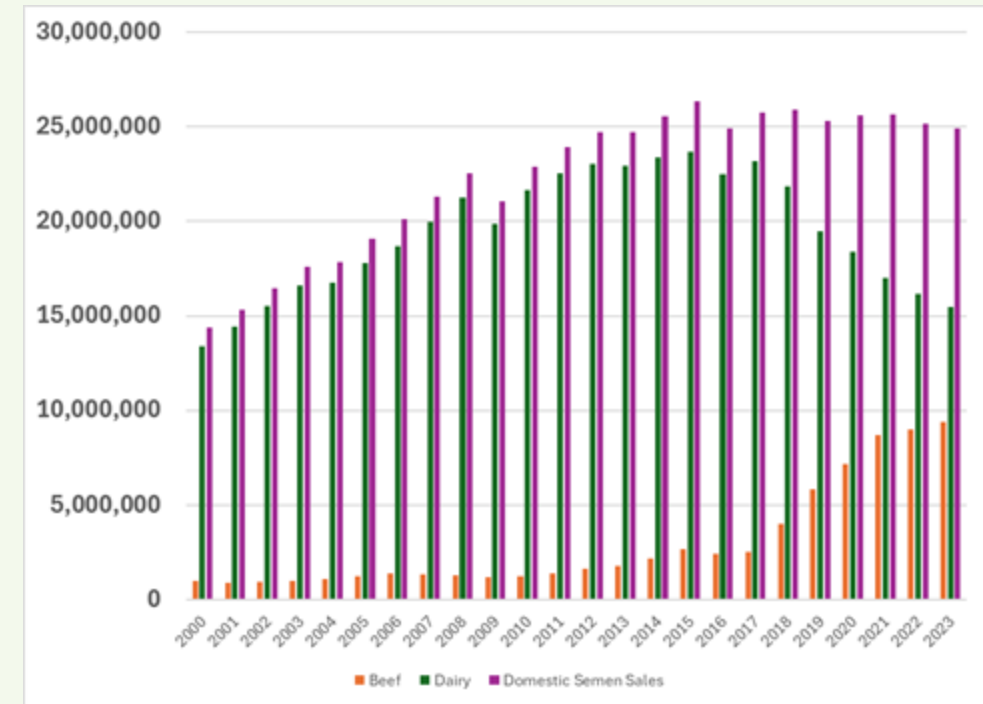
- In the last 5 years (2019-2023) US beef cow inventory has dropped by approximately 2.8M cows that have calved. If we turn out 1 bull/20 cows, that's 139,000 fewer bulls that got turned out in 2023 compared to 2019.
- We have the technology and genetics to make great advancements in beef cattle production, the trick is getting more buy-in from a larger share of producers.

A.I. as a Tool to Improve Sustainability

Total Beef & Dairy Cows - USDA



US Domestic Semen Sales - NAAB



Domestic Semen Sales as a percentage of total cows (beef and dairy) has increased from 36% to 68% from 2001 to 2015.

Use of A.I. as a Climate-Smart Sustainability Practice

- There is little argument regarding the role A.I. can play in the sustainability of beef cattle production through increased production and efficiencies.
- Through the use of A.I. there is an opportunity for genetic improvement that affects, reproduction, growth, efficiency and ultimately the sustainability of beef enterprises.
- The dairy industry though has been the one that's taken advantage of these opportunities.

Connected Ag Climate-Smart Commodities Pilot Project



Trust in Food is telling the story of how Climate-smart genetic interventions enhance the sustainability of livestock production by improving the environmental impact, animal health and welfare, and profitability of the beef herd.



The Power of Partnership



Technical Assistance

Data Coaching

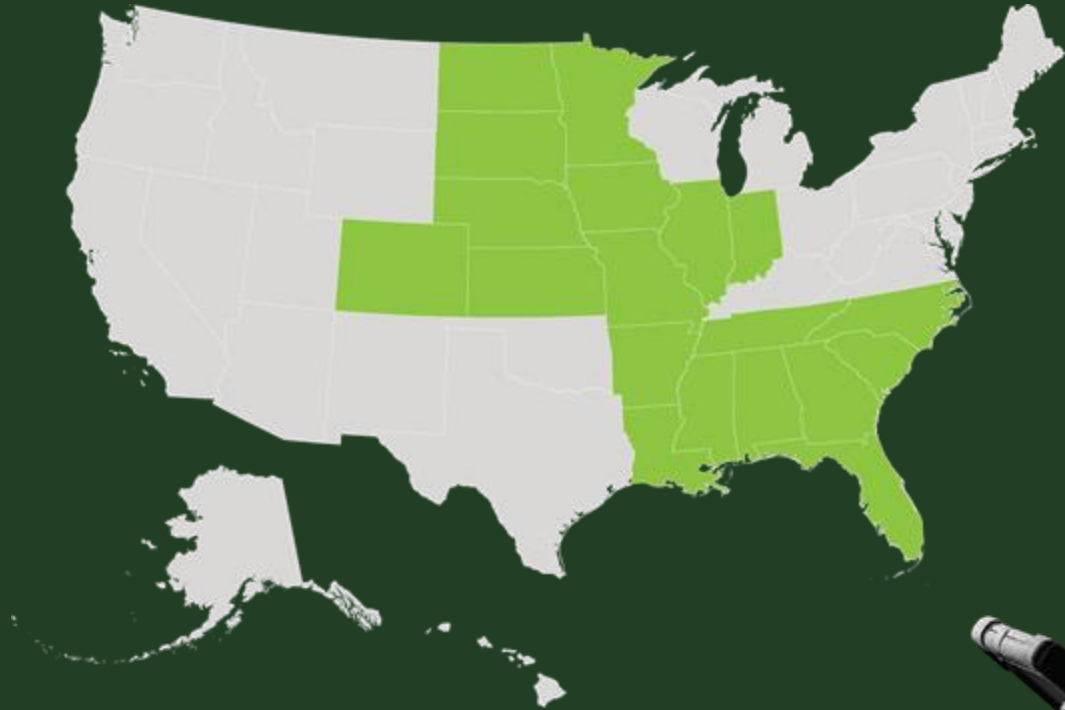
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Connected Ag Project



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Climate-Smart Genetic Interventions for Terminal Beef Production

- What is climate-smart genetics?

- Climate-smart genetic interventions use mating plans with both terminal and maternal genetics, primarily administered via artificial insemination (AI), to create replacement heifers and feeder animals in the same calf crop.

- What are the benefits of using climate-smart genetics?

- Simultaneously creating terminally and maternally focused animals maximizes the genetic potential of the herd for profitability, animal health and welfare, and environmental impact.

- What ranchers qualify to participate?

Ranchers who are curious about but are not currently using at least one of the following:

1. Mating plan using both maternal and terminal genetics
2. Terminally-differentiated genetics (e.g., NuEra genetics)
3. Artificial insemination

- What support can ranchers expect when adopting climate-smart genetics?

- Genetic Selection
- AgriWebb subscription, training for data collection and herd/land management.
- Costs are offset through the grant.

Climate-Smart Genetic Interventions for Terminal Beef Production

Data points will feed into a LCA to estimate the GHG emissions reductions achieved through climate-smart genetics per unit of carcass weight.

Identification

Calving Data

Parentage

Grasses and Supplemental feeds

Weaning Data

Yearling and Feedlot Data

Carcass Data

Rotational grazing is a practice used in cattle grazing management

Definition

Rotational grazing involves dividing pastures into smaller grazing units to allow the grass in each section to rest and recover when the animals are not actively grazing that section.

Benefits

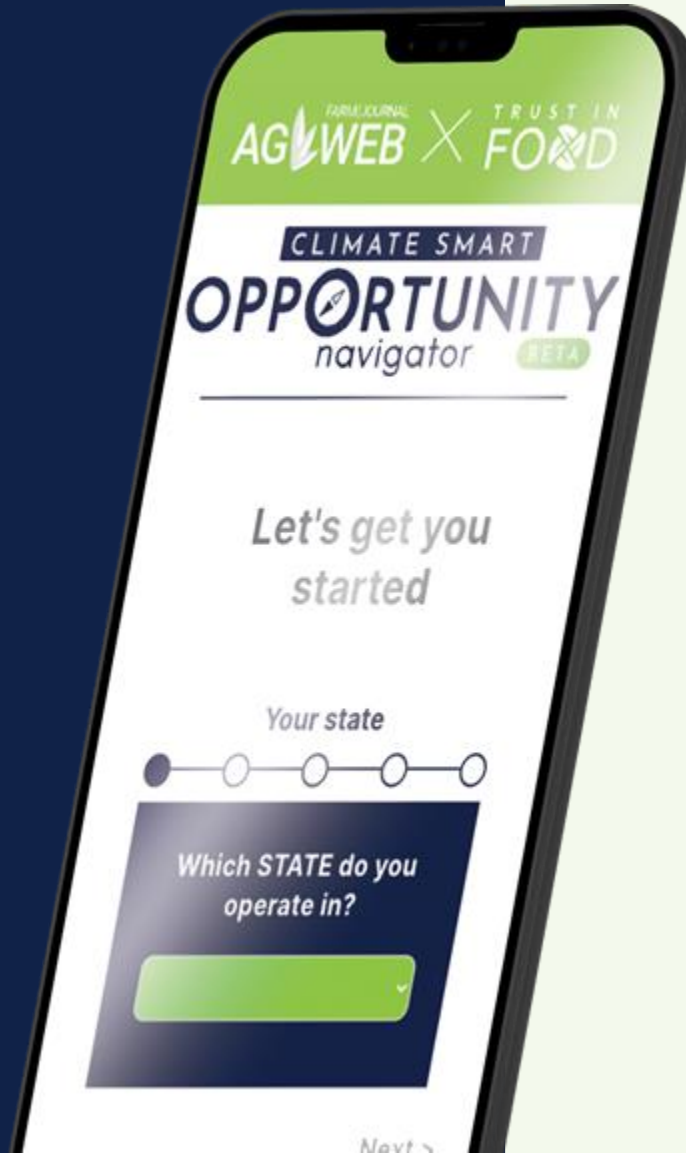
- Improved Forage Utilization and Productivity
- Increased Carrying Capacity
- Improved management of the beef herd

Challenges

- Can be Labor Intensive
- Cost Barriers



Climate-Smart Opportunity Navigator



“We have gathered a coalition of industry and conservation leaders, put the power of their technical expertise alongside \$40 million in federal grant dollars and brought all of that to bear for the American farmer. Through this project, 500 growers and producers will have a true partner in connecting their conservation goals to success both for themselves and for agriculture’s sustainable future.”



TRUST IN BEEF™

SUSTAINABLE RANCHERS

TOUR

- **June 19th & 20th**
Burtrum Cattle LLC, Stillwater, OK
- **July 17th & 18th**
Shovel Dot Ranch, Basset, NE
- **August 14th & 15th**
Jorgensen Land & Cattle, Ideal, SD
- **September 11th & 12th**
Black Leg Ranch, McKenzie, ND





In regard of beef genetic evaluations for decades we've largely ignored how our genetics interact with our environment. Sure, we've talked about it, and we've done GxE studies. But we've failed to adequately address the issue. We have historically focused on the low hanging fruit of the easy to collect and report data. We continue to struggle collecting carcass data and meaningful reproductive data. We are seeing however increased efforts in this direction now. Trust In Food is addressing this issue through our partnership with a multitude of partners and through the Climate Smart Commodities USDA grant.