



Certified American Highland Beef

Highland Beef Improvement Initiative (HBI²)

Genetic selection for better Highland beef.

Measured genetics. Proven beef. Market value.

Purpose

Improve Highland beef by connecting measured genetic selection to proven carcass performance, consistent eating quality, and market value.

- Preserve Highland character while improving economically important beef traits.
- Qualify breeding animals through a published, repeatable process.
- Validate predicted merit with finished-cattle, carcass, and eating-quality results.
- Create market pull for genetics that consistently deliver better beef.

Three Programs Point to One Strategy

Certified American Highland Beef can combine their strongest ideas without copying their scale or structure.

Certified Angus Beef (CAB)

Customer Demand

- Specification-based branded beef
- Independent carcass verification
- Consumer pull translated into producer premiums

American Wagyu Association (AWA)

Genetic and Performance Data

- Identity and DNA discipline
- Standardized performance and carcass records
- EPDs connect pedigree, performance and carcass data to selection

Certified Hereford Beef (CHB)

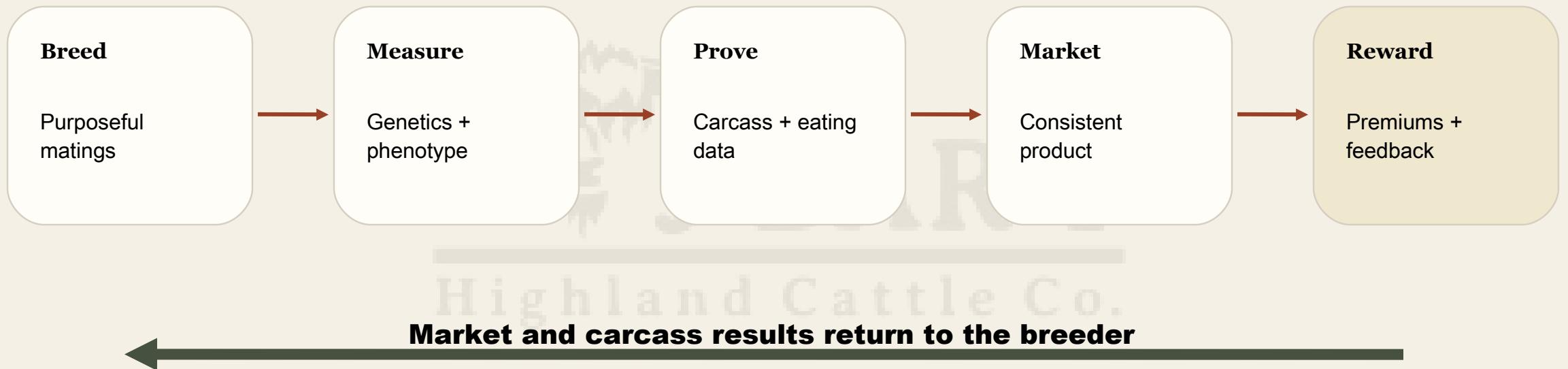
Product Standards and Market Access

- Breed-linked live-animal eligibility
- Carcass and product specifications
- Packer, distributor, retail, and foodservice partners

Certified American Highland Beef should combine data discipline, product standards, and market feedback at a realistic Highland scale.

Improvement and Demand Must Become a Closed Loop

Measurement creates value only when results influence both the market and the next mating.



The objective is not more data. It is better decisions supported by economic and eating-quality evidence.

Preserve, Improve, Prove

Better beef should not come at the expense of the traits that make Highlands useful.

Preserve

- Hardiness
- Maternal ability
- Temperament
- Longevity
- Highland type

Improve

- Tenderness
- Ribeye area
- Marbling / IMF
- Fat balance
- Growth and efficiency

Prove

- Harvest and carcass results
- Tenderness and aging
- Yield and quality outcomes
- Customer response
- Repeatability

Traditional selection protects the animal. Objective measurement guides improvement. Market proof shows whether it matters.

Five Data Streams Build Confidence

Each stream answers a different question; none is sufficient by itself.

1

Identity and pedigree

Registration, animal identity, parentage, and DNA where appropriate.

2

Genomic indicators

Igenity Beef results provide indicators of genetic potential.

3

Ultrasound phenotype

Ribeye area, intramuscular fat, and backfat measure live-animal expression.

4

Production records

Weights, growth, fertility, soundness, disposition, and practical herd performance.

5

Carcass and eating data

Hot carcass weight, ribeye, fat, marbling, yield, tenderness, aging, and customer response.

Genetics show potential. Live measures show expression. Carcass and customer data provide proof.

Understanding a Distribution Chart

REA per 100 lb before indexing

What the chart shows

Each point counts animals in a 0.10-wide range.

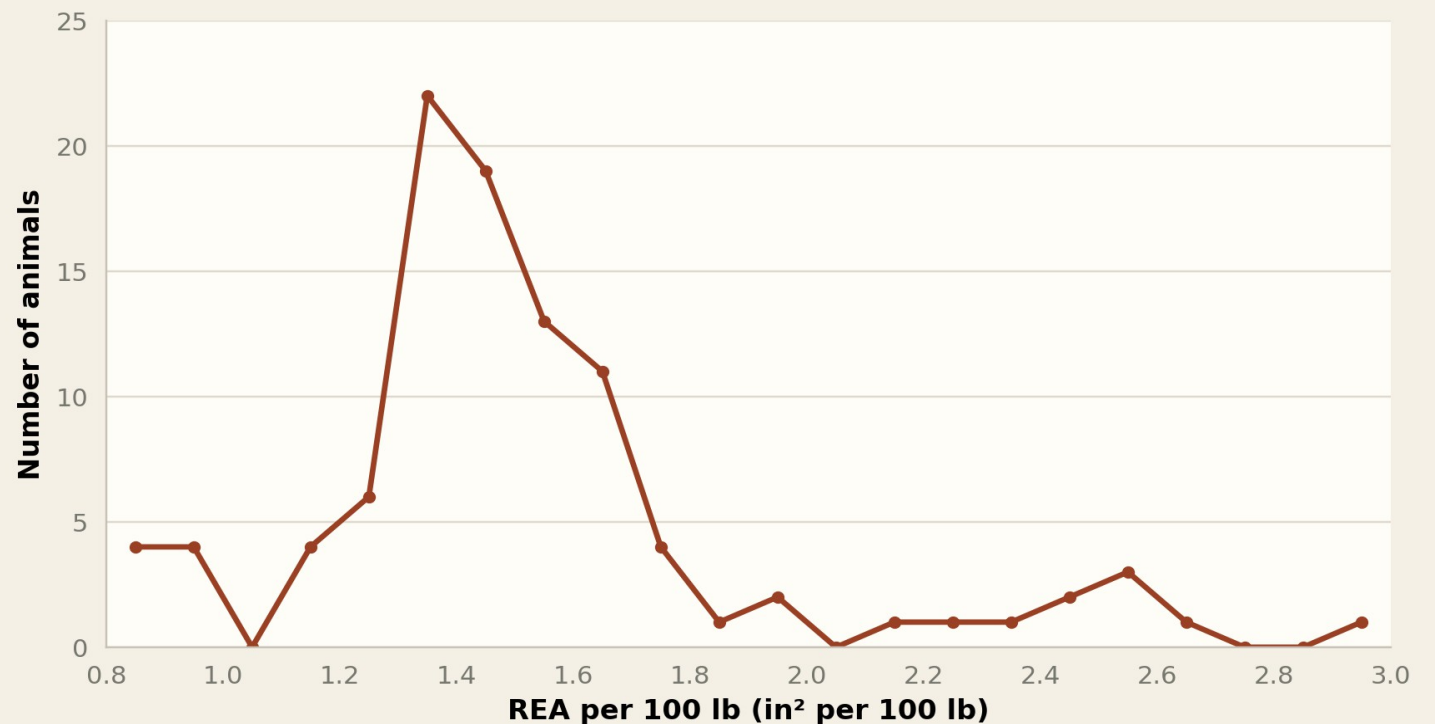
Higher points mean more animals in that range.

22 animals

fall from 1.30 to below 1.40, the most common range.

100 simulated results. Exactly 80 fall between 1.00 and 1.90.

Points sit at interval midpoints. The connecting line reveals the distribution's shape.



Indexing the Same Measurements

A z-score expresses distance from the average in standard-deviation units

**Z-score =
(value - mean) ÷ SD**

Mean = 1.52

Standard deviation = 0.39

0 = group average

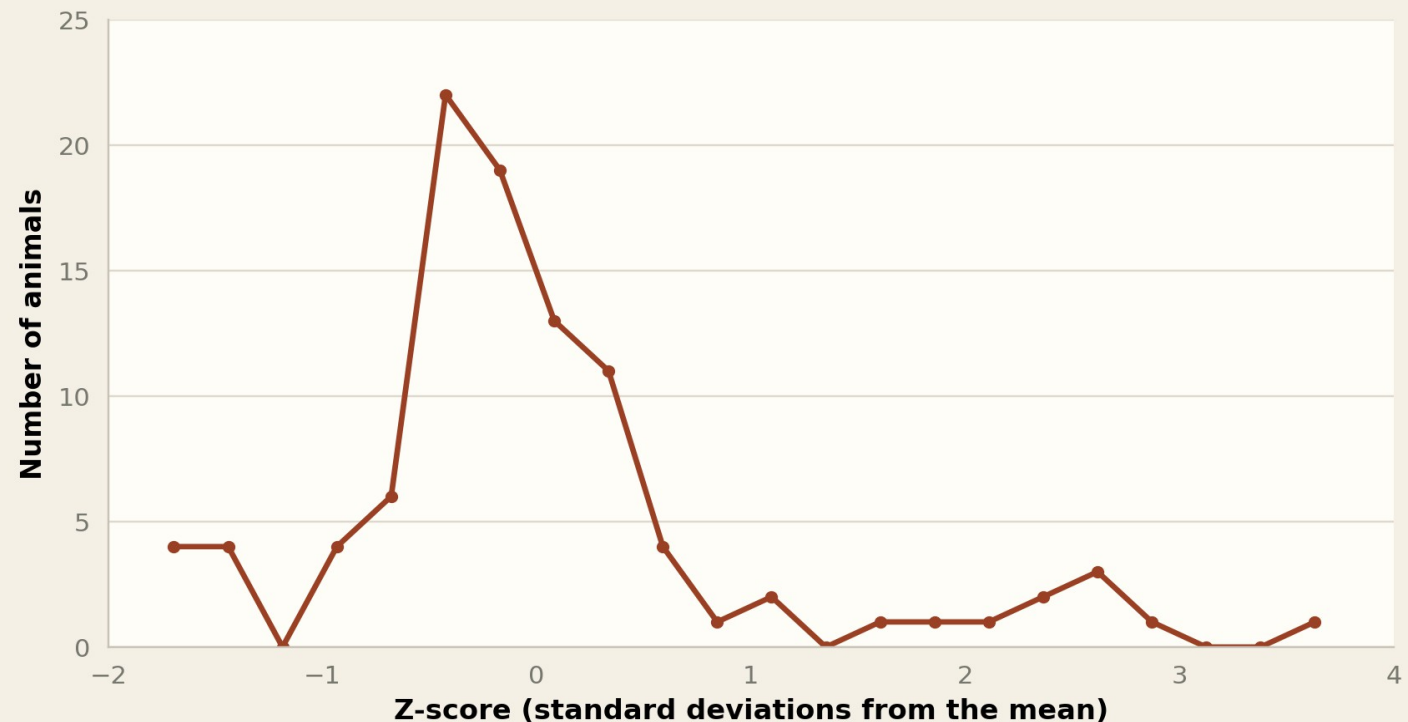
+1 = one SD above average

-1 = one SD below average

**Example: 1.91 is about
+1 SD**

Same animals and counts. Only the horizontal scale changes.

Reference group: these 100 simulated results. Z-scores are one indexing method.



Why Indexing Matters

A common scale supports comparison and purposeful composite scores

Compare traits

Standardized scores show relative standing even when traits use different units, such as REA and daily gain.

Build composite scores

Igenity groups 17 traits as Maternal, Performance and Carcass, then uses 1–10 scores in Production, Maternal and Terminal indexes.

Composite score = sum of (trait score × weight)

Compare data sources

Converting results to a common relative scale makes ultrasound and Igenity patterns easier to compare.

Reference groups, score direction and weighting must remain visible.

HBI² would provide the indexing and composite scoring framework used to rate participating animals.

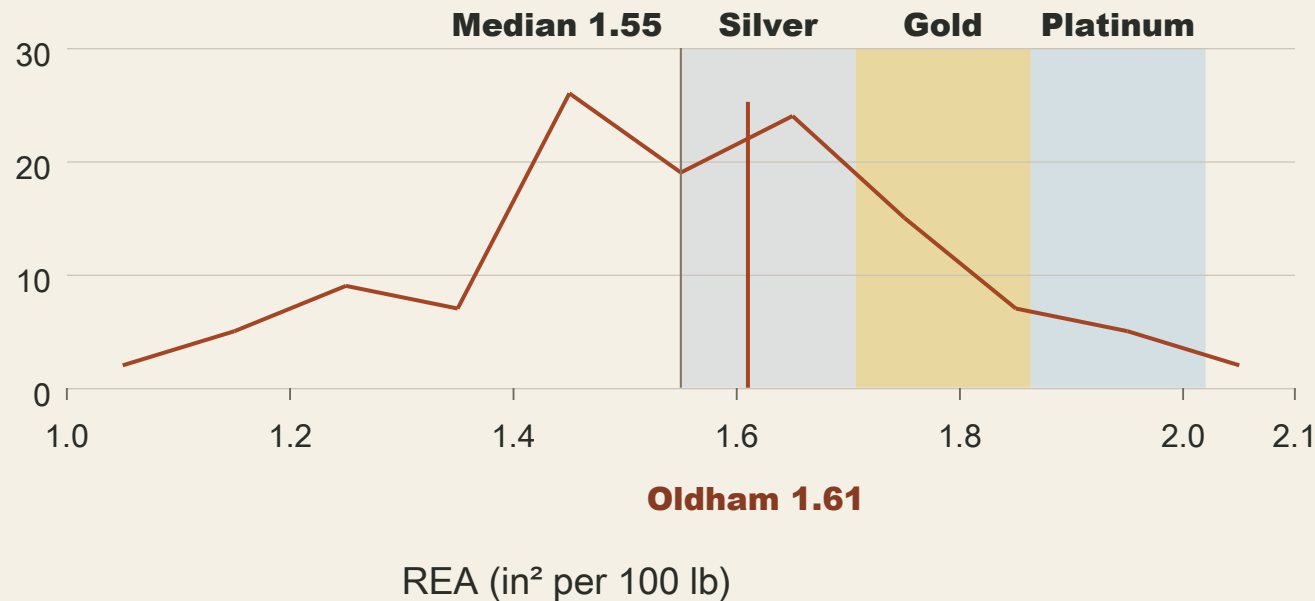
Ultrasound measures phenotype. Igenity predicts genetic merit.

From Measurement to Trait Rating

Junior Bull Calves: 121 animals across all 11 available years, 2014–2026

REA per 100 lb Distribution

Each point counts animals in a 0.10 in² per 100 lb interval



Howling Springs Oldham

Measurement

1.61 in² per 100 lb

Index Within This Division

$(1.61 - 1.5480) \div 0.2111 = +0.29$

Proposed Trait Rating

Silver

Lowest third of the range above the division median

Compare ultrasound results within each age division, even when pooling years.

Illustrative bands divide the range above the median into thirds. Thresholds require pilot validation.

Certified Animal Eligibility and Performance Ratings

Proposed certification confirms eligibility. Indexing describes performance within a defined reference population.

Certified Measured Animal

- Documented Highland pedigree
- Verified identity
- Igenity or ultrasound
- Required production records

Trait Rating

- No medal: certified baseline
- Silver: lowest third above median
- Gold: middle third above median
- Platinum: highest third above median

Composite Rating

- Production
- Maternal
- Carcass
- Published trait weights

Certified Animal status does not certify harvested beef. Final rating thresholds should follow the pilot baseline.

Premium Beef and Cull Outlets Solve Different Problems

Both are useful. Only one should define the eating experience attached to the certified program.

Certified Beef Pathway

- Younger, appropriately finished cattle
- Traceable identity and production history
- Defined carcass and eating-quality expectations
- Potential premium product and breeding feedback

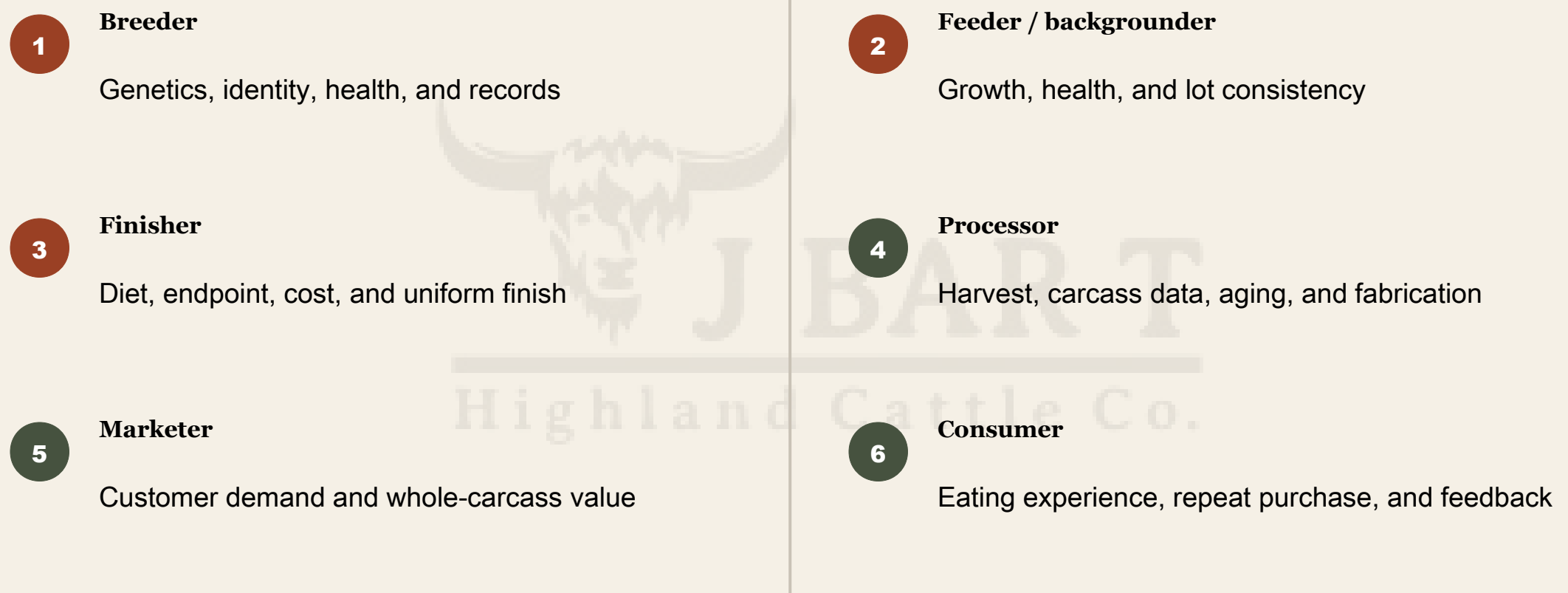
Commercial outlet pathway

- Mature cull cows and bulls
- Cattle outside the premium specification
- Ground beef, processed products, or commodity channels
- Value recovery without a premium eating-quality claim

A dependable outlet matters, but it should not dilute the standard used to build a premium Highland beef reputation.

The Market Chain Cannot Be Skipped

A cattle sale can transfer ownership; it cannot perform the other functions required for consistent beef.



The program should connect these participants through common specifications and shared outcome data.

Proposed Two-Gate Framework

Certified American Highland Beef would begin with the living animal and continue through the terminal product.

Gate 1 — Certified Animal

- Documented Highland pedigree
- Verified identity
- Igenity or ultrasound results
- Required production records



Gate 2 — Certified Beef

- Eligible animal and harvest record
- Carcass and product specifications
- Processing and traceability
- Aging and handling requirements
- Terminal quality results

Ultrasound can qualify the animal for the pathway.
Final beef certification depends on harvest and product results.

Program Roles and Market Transactions

A future program could maintain standards without owning cattle, processing plants, or sale events.

HBI² would maintain

- Data definitions and records
- Certification and rating rules
- Standards review
- Research and aggregate reporting

Market partners manage

- Cattle purchase terms
- Feeding and finishing
- Processing and fabrication
- Product sales and customers

Transfer options include

- Direct contracts
- Existing Highland sales
- Regional collection points
- A dedicated sale — only if justified

The sale is a tactic. The standard, market relationships, and feedback loop are the strategy.

A Regional Pilot Should Test the Entire Loop

The first pilot should answer commercial and genetic questions before national expansion.

1

Recruit the chain

One marketer, processor, finisher, and a small breeder cohort

2

Define the products

One premium pathway and one separate cull/value outlet

3

Choose procurement

Direct buying, an existing sale, collection point, or new event

4

Identify the cattle

Traceable animals with agreed live and production records

5

Collect outcomes

Feed, carcass, aging and tenderness, product, and sales information

6

Return the results

Individual breeder feedback plus a published aggregate baseline

A successful pilot produces a repeatable process — not merely a completed event.

Credibility Requires Independent, Published Rules

Certification must mean the same thing regardless of breeder, ownership, or marketing influence.

1

Published eligibility

Pedigree eligibility, accepted tests, required records, and reasons for exclusion

2

Standardized collection

Approved laboratories, trait definitions, score direction, and reference-group rules

3

Independent certification

Testing fees never guarantee certification or a performance rating

4

Responsible transparency

Protect individual records. Publish useful aggregate results and trends.

5

Balanced oversight

Breeder, genetics, meat science, finishing, processing, and marketing voices

6

Evidence before claims

No health, quality, certification, or premium claim beyond the supporting data

Certification and rating rules should change only through documented evidence and a defined review process.

Success Is Measured from Breeding to Eating

The first objective is a credible baseline; the long-term objective is demonstrated improvement.

Genetic progress

Trait trends, certified animals, performance ratings, and proven sires and dams

Production performance

Growth, age at finish, health, fertility, and data completeness

Carcass consistency

Certified beef rate, carcass weight, ribeye, fat, marbling, yield, and tenderness

Market performance

Acceptance rate, premiums, whole-carcass value, and repeat orders

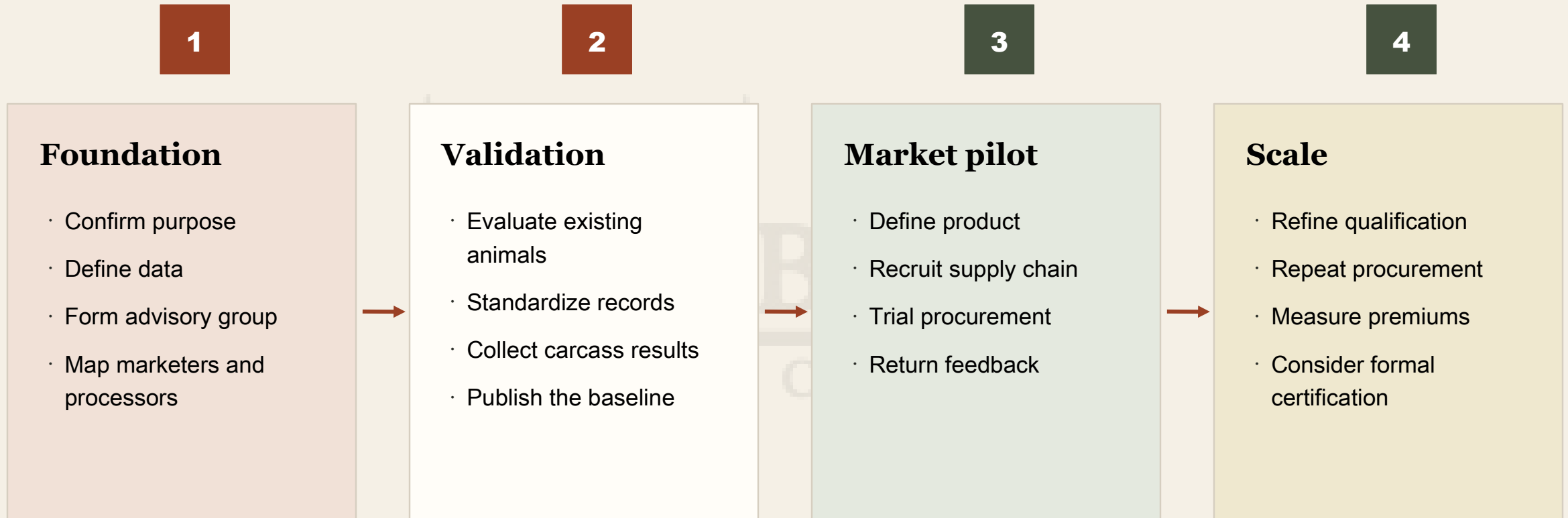
Participation

Certified animals, harvested cattle, participating breeders, market partners, and retained records

Publish what improves, what does not, and where the evidence remains incomplete.

Build Evidence Before Building Infrastructure

Expansion should follow evidence from the data and the market.



Start small. Stay credible. Grow only as the evidence and demand support it.