

Ridgeback[®]

by Entegra

FEEDLOT EFFICIENCY
& ANIMAL WELFARE

PERFORMANCE BACKED BY SCIENCE

The Ridgeback® is a patented roof design for livestock housing, proven to deliver industry-leading results in ventilation, animal welfare and sustained financial performance.

Available exclusively to Entegra clients, the patented Ridgeback® design applies aerodynamic principles to promote natural air movement within the structure, without the use of fans or other mechanical systems. The roof profile directs warm, humid air upward and outward, drawing in cooler air from the sides. This maintains a consistent environment for cattle and reduces issues such as heat stress and poor air quality often found in traditional pens.

Entegra has refined this system through years of experience in the sector. Collaboration with feedlot operators, veterinarians, and environmental specialists has produced a solution suited to Australia's diverse climates, from high-heat northern regions to cooler southern areas. Results from field trials and practical use show measurable improvements in feedlot efficiency and production, with recorded gains in cattle weight and health outcomes when compared with alternative systems.

STANBROKE



RANGERS VALLEY

ELBOW VALLEY
BEEF

**NORTHERN
TERRITORY
LIVESTOCK
EXPORTERS
ASSOCIATION INC.**



A STRUCTURAL APPROACH TO AIRFLOW

The Ridgeback[®] is a full or partial pen shelter for feedlots, with a roof profile designed to drive air circulation across the pen.

Depending on climate, the Ridgeback[®] supports a density of 7–8 square metres per standard cattle unit (SCU), offering a more efficient footprint than conventional pens. This reduces land requirements while improving the containment of effluent and moisture.

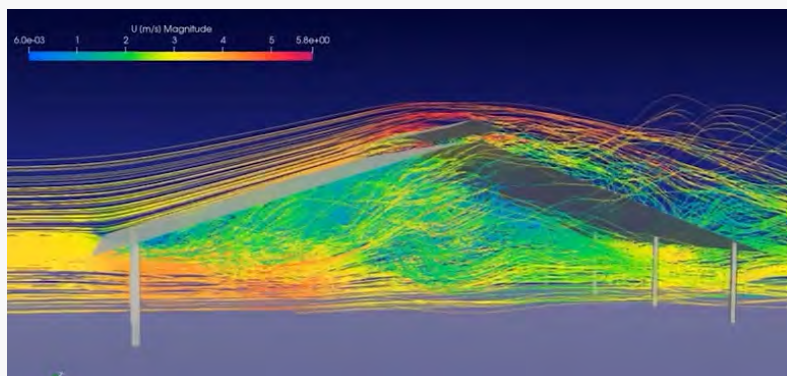
Unlike open pens or partial shade cloth systems, the Ridgeback[®] is designed to perform reliably in extreme environments. In still conditions, the roof achieves 13.4 air changes per hour at wind speeds as low as 0.2 meters per second, validated through independent trials. This high-performance ventilation helps remove heat, moisture, dust and airborne contaminants, maintaining a consistent environment for livestock.

The structure also accommodates additions such as lighting to extend daylight hours, drawing on proven practices from the dairy sector where this approach has delivered measurable gains in productivity.

View full simulation and analysis by aerospace engineer [HERE](#).

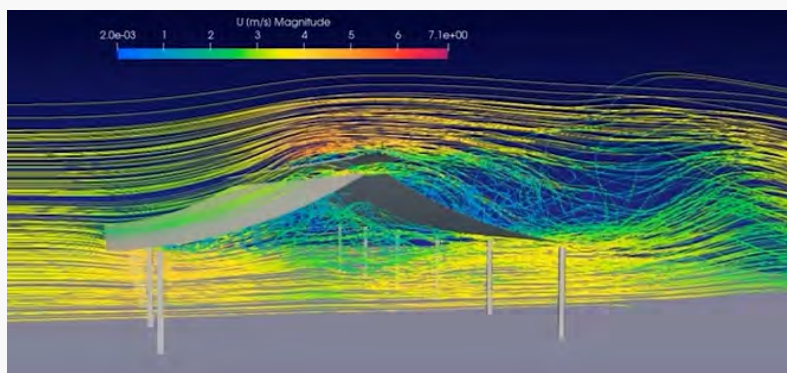
Comparison of traditional geometric barn roof to the Ridgeback[®]

Simulation of a 3.5m/s crosswind typical to conditions seen in Southern Downs, QLD in February.



Traditional Barn

Unsteady airflow forms beneath the ridge, disrupting ventilation through the central area of the pen.



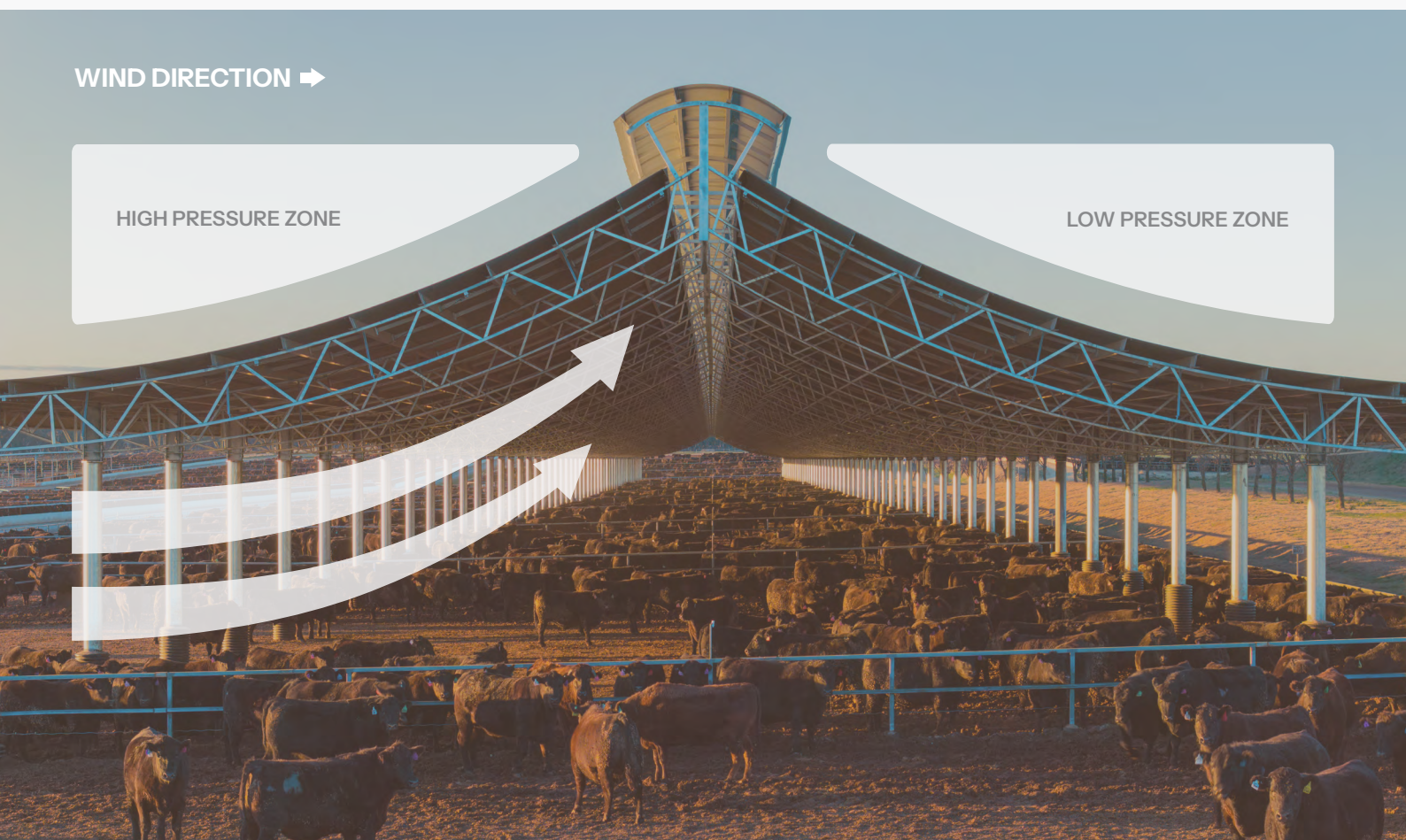
The Ridgeback[®]

Air flows cleanly beneath the structure, with minimal disruption across the pen.

HOW THE RIDGEBACK[®] DESIGN WORKS

The curved roof increases wind speed over the structure by extending the airflow path — consistent with Bernoulli's principle. This creates a stronger low-pressure zone above the roof, improving suction. The smooth curve also deflects wind upward more cleanly, reducing internal turbulence.

1. High pressure builds on the windward side (where wind hits the roof), pushing air in through the open sides.
2. Low pressure develops on the leeward side (downwind) and at the ridge vent, as wind speeds up over the roof. Similar to how an aircraft wing generates lift (Bernoulli principle: faster airflow = lower pressure).
3. Air moves from high to low pressure: entering low at the sides, flowing through the barn, and exiting higher up through the ridge.
4. The Ridgeback's curved profile accelerates wind more effectively over the roof, creating stronger low-pressure zones for improved suction. A straight gable roof redirects wind less smoothly, producing weaker pressure differences and reduced airflow.



DEFINED BY DESIGN & BACKED BY DATA

The Ridgeback[®] delivers measurable improvements across key areas of feedlot performance, backed by trial data and operator experience.

In ventilation and heat management, the Ridgeback[®] achieves 20% more air changes per hour than standard gable shelters. This additional airflow helps mitigate the impact of extreme heat events.

Animal health benefits from higher air exchange rates that help remove ammonia and airborne pathogens, significantly reducing cases of bovine respiratory disease (BRD) and mortality. Cattle growth trials show an average daily gain (ADG) increase of 0.2 kg per head compared with outdoor pens, outperforming gables (0.16 kg) and shade cloth (0.04 kg).

Feed and water efficiency also improve. Cattle housed under the Ridgeback[®] consumed up to 0.45 kg more dry matter per day while using 5.2 litres less water per head daily than those in open environments.

Cleanliness improves due to consistently dry bedding, which limits dag formation and reduces penalties, while cutting down on pen maintenance. Additional value can be captured through composted manure protected from rainfall, some operators have successfully sold this as a nutrient-rich by-product.

Together, these outcomes support higher stocking densities with reduced nutrient runoff, as demonstrated in site-specific studies, available to view on our YouTube channel.



PROVEN PERFORMANCE ACROSS AUSTRALIAN FEEDLOTS

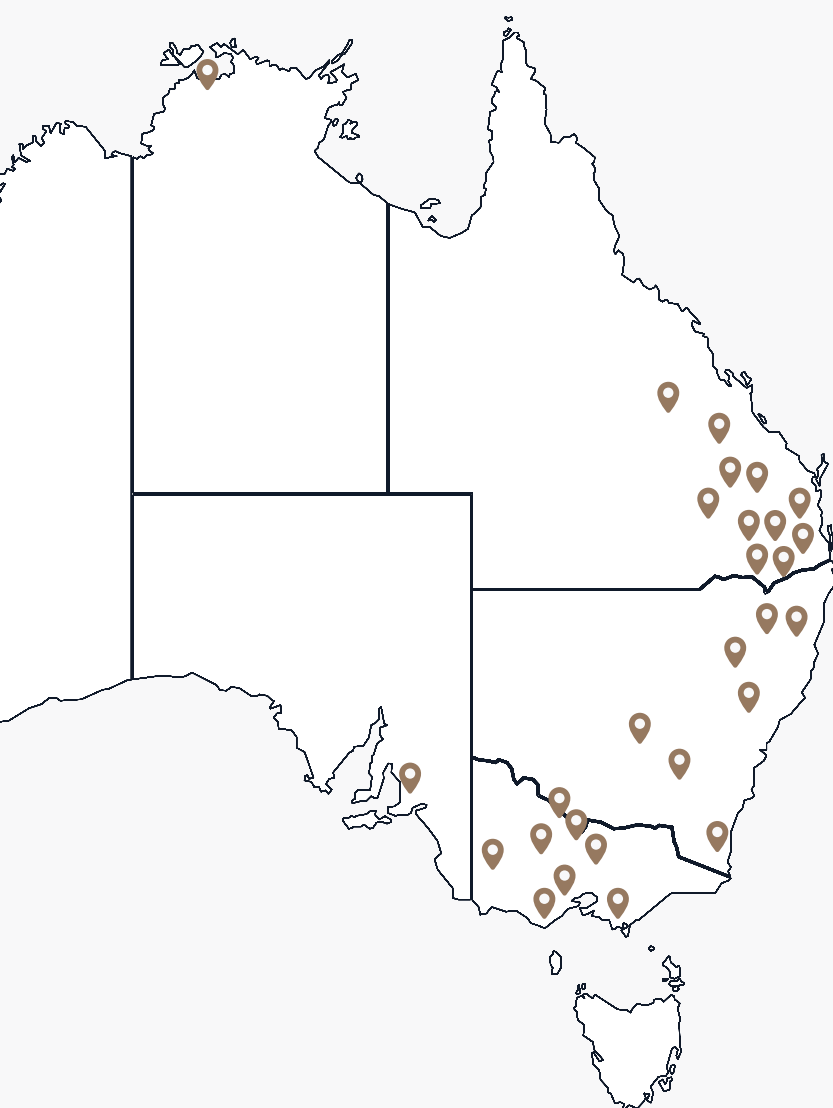
From real client feedback, The Ridgeback[®] has proven its value across Australian feedlots, adapting to various breeds and climates.

In southern Queensland, during an extreme heat event, a Ridgeback[®] barn protected all cattle while the adjacent open pens lost 44 head, highlighting the roof's airflow in still conditions.

At a Wagyu operation, marbling scores rose from mid-7s to high-8s on the same ration, due to stable conditions that supported consistent gains.

Southeast Queensland sites report manure compost sales at \$140 per tonne, netting \$100 per SCU after bedding costs, offsetting fertiliser expenses.

Partnerships with clients, the University of New England, and MLA continue to show how the Ridgeback[®] supports operations focused on welfare and productivity.



Total Area Built

48 hectares of Ridgeback[®] completed and counting.

Average Barn Size

8,000m²



ELBOW VALLEY BEEF

📍 91,056m² | Elbow Valley, QLD

“We’ve incorporated the use of Ridgebacks[®] for animal welfare and environmental reasons. The cattle are comfortable, clean. Noticeable difference between cattle sitting in an outside pen and cattle in the shed in terms of their body temperature and comfort level when it’s hot.”

Sarah Shaw, Elbow Valley Beef



RANGERS VALLEY

📍 13,200m² | Glen Innes, NSW

“The airflow design of the Ridgeback[®] definitely works, in my opinion. We see in our older sheds a lot less passive airflow, so we can get some ammonia smell, especially when the bedding is getting old. It’s definitely not something we have noticed in the Ridgeback[®] design.”

Alex Smith, Rangers Valley Feedlot



TEYS AUSTRALIA

📍 88,200m² | Springdale NSW 📍 7,200m² | Charlton VIC

“The reason we chose the Ridgeback[®] was for the curved roof design and that airflow. Getting that air exchange rate is crucial for cattle comfort and animal health.”

Ash Sheahan, Tey's Australia



YOUR OPERATION. YOUR NUMBERS. YOUR OUTCOME.

Book a consultation to see tailored projections using the Ridgeback[®] ROI calculator, which models headcount, feeding programme and key performance metrics to show the return on investment the Ridgeback[®] could deliver for your operation.

A complimentary Covered Feedlot Design and Construction Guide is also available upon request.

BOOK NOW

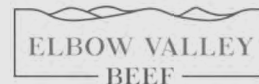


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