SMD Conformation Series

#1 Focus on Fores

Evaluating Fore Udder Attachment in Dexter Cattle

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SILVER MAPLE DEXTERS
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As a dual-purpose breed, the Dexter must excel in both beef and dairy traits. Udder structure is a key component of a sound milk cow and a milking breed. Structural soundness begins at the front. The fore udder is not cosmetic; it is a load-bearing anchor that either holds over time or fails under weight. When it separates, bulges, or drops, the entire mammary system is compromised, and the cow's functional future is in doubt. Structurally correct fore udder attachment is indispensable to a quality breeding program.

Fore udder attachment (FUA) refers to how firmly and seamlessly the udder joins the abdominal wall. A strong FUA distributes weight evenly across the barrel, maintains a level floor, and protects rear attachments from premature stress. A weak FUA shifts that burden back, distorting symmetry, stretching ligaments, and eventually leading to udder failure.

Figure 1. Ideal Fore Udder Attachment

The udder in Figure 1 is from a 4th-lactation Dexter cow and represents the ideal fore udder attachment. A smooth, seamless transition, well forward, into the abdominal wall – welded on.[1]

[1] ***This paper, along with all papers in the SMD Conformation Series, isolates a single trait, in this instance, fore udder attachment, as a focal point for structural evaluation and breeding improvement. It does not advocate single-trait selection. As outlined in "The Standard Is Not the Summit," effective breeding requires a clear set of prioritized traits, evaluated together through a coherent and purpose-driven selection strategy.***

Fore udder attachment structural failure can present in a range of forms, some subtle, others severe, all of which impact functional longevity and selection value. Understanding the full range of poor FUA presentations is necessary for rigorous evaluation. Appendix A provides a typology of common fore udder faults.

Of the structural faults seen in fore udder attachment, none is more pervasive than the sharply detached or 'cut up' udder, a hollowed front, lacking anchoring, where the udder appears suspended rather than blended. This is the most common fore udder fault in the national Dexter herd. These udders are not "clean fronted"; they are deficient in attachment. A cut-up udder may appear tidy in youth, but it lacks the connective tissue and anchoring strength necessary to withstand successive lactations.

Fore udder attachment is a moderately heritable trait, with estimates ranging from 0.23 to 0.28 across large-scale studies in both dairy and dual-purpose breeds (Němcová et al., 2011; Gibson & Dechow, 2018; Kőrösi et al., 2025). While moderate heritability does not allow for rapid improvement, it does confirm that targeted selection produces genetic progress across generations.

Practically, this moderate heritability means fore udder attachment responds steadily but gradually to consistent selection. It won't dramatically shift within a single generation, but deliberate selection pressure accumulates, resulting in measurable and durable improvements over time. Progress depends directly on breeder choices: females with very weak attachment must be culled, even if they are productive in other ways, and bulls should only be selected from maternal lines with confirmed structural integrity. The structure won't fix itself. Cull for it, or you're breeding for it

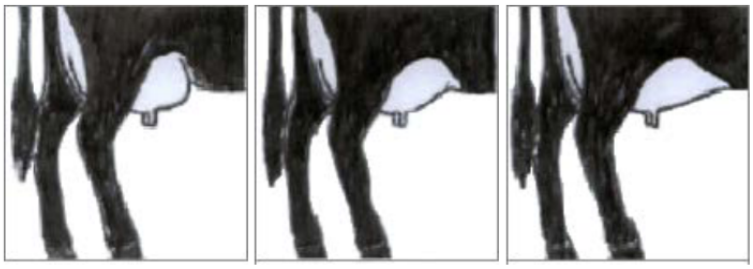
Fore udder faults do not wait for maturity. They reveal themselves early if you are looking. Mammary development in heifers is incomplete, but certain flags consistently signal trouble ahead: a pronounced slope or hollow ahead of the udder floor, absence of muscular support at the developing udder base, and a steep abdominal angle creating a visible gap between skin and future udder placement.

Heifers displaying these early structural warnings may be culled preemptively, especially when maternal lineage suggests a history of attachment weakness. Waiting for a first lactation to confirm what you already know is breeding backward. Cull early, select decisively, and build forward.

The 9-point Dexter linear scoring classification scheme includes an assessment of fore udder attachment. A properly attached fore udder earns a 7 to 9—tight, even, and cleanly blended into the abdomen.

Figure 2. Dexter Cattle Fore Udder Attachment (FUA) Scoring

1. Fore Udder Attachment: Examines the strength and snugness of attachment of the fore udder to the body wall. No adjustment is made for stage of lactation. Scale ranges from extremely loose (1) to extremely snug and strong (9).



Linear Scale:	1	2	3	4	5	6	7	8	9
Point Score:	**0**	**1**	**1**	**2**	**3**	**4**	**5**	**5**	**5**

Ideal for Breed Type

Figure 3. Top-Tier Fore Udder Attachments (classification of 7 - 9)

The fore udder attachments in Figure 3 fall within the ideal range from 7 to 9. These udders demonstrate correct forward extension, firm anchoring into the abdominal wall, and complete structural integration with no visible separation or bulging. This is the phenotype most predictive of sustained productivity and structural resilience.

Cows exhibiting this level of attachment should serve as the cornerstones of a breeding program. They are the benchmark against which other lines are evaluated, and their daughters form the most reliable pool for long-term herd improvement.

All bulls retained or collected for registered seedstock use should be out of dams with confirmed top-tier FUA. Visual evaluation must be confirmed across at least one full lactation, and ideally supported by structural scores or classification data across multiple lactations. The heritability of FUA (~0.23–0.28) means that only repeated, verified expression indicates reliable transmission. These cows and their sons anchor progress.

Figure 4. Mid-Tier Fore Udder Attachment (classifications of 4 - 6)

The FUAs in Figure 4 are mid-tier and are to be improved upon. Improvement is possible across generations if bred consistently to bulls with confirmed strong maternal line fore udder attachment, scoring seven or above. Daughters from these FUAs must be evaluated rigorously. If attachment improves, the line may be retained and strengthened. If not, the cow's contribution to a registered seedstock program should end there.

From a genetic standpoint, cows with moderate fore udder faults should be used within a corrective mating strategy. This requires bulls whose dams and maternal relatives exhibit strong, symmetrical fore udder attachment with deep abdominal anchoring. Given the moderate heritability (~0.23–0.28), progress depends on selection intensity and generational turnover. These cows should be bred once, evaluated through their daughters, and only retained if structural improvement is clearly observed.

Practical implementation means tracking fore udder scores or structural notes across generations, targeting daughters with clear improvement, and limiting these lines to tightly managed trials. These cows can be placed in a "transition tier" within the herd - cows bred forward with purpose, but whose daughters are predesignated for rigorous scrutiny. Breeders may find value in recording individual udder assessments at calving, using a standardized scoring template such as the Dexter linear classification tool, to support retention and culling decisions with structured, comparable data over time.

Bull calves from these matings should not be retained for breeding, except in a small percentage of cases where their dams have already shown multiple times improvement in offspring attachment. If raised, they should be collected only after multiple years of FUA assessment of live cover daughters that clearly demonstrate improved FUA. Using such bulls is not ideal, and using them extensively without data-supported improvement will embed the fault deeper into the line.

Heifers from these matings should be closely inspected prior to and at the time of freshening, as well as in early calving years. Structured classification programs, with emphasis on criteria such as the forward extension of the fore udder, depth of abdominal connection, and absence of pocketing or slope, should guide retention decisions. Where

physical improvement is verified, a daughter may form the next step in the line. Where it is not, the branch should end.

These cows may serve a transitional role, but only under tight control and clear evaluation. They are a bridge, not a destination.

Figure 5. Bottom Tier Fore Udder Attachment (classification 1 - 3)

For udder attachments that score at the bottom tier, 1 through 3, this indicates a degree of structural failure that generally disqualifies an animal from a registered seedstock program. These udders are visibly detached from the abdominal wall, often sharply cut-up or pocketed, and lack the supportive ligaments and musculature needed for functional longevity.

From a genetic perspective, these faults do not arise by accident. They are the compounded result of unselected lines, insufficient culling, or the use of bulls from cows with significant fore udder weakness. Fore udder attachment (FUA) is a moderately heritable trait, with heritability estimates consistently ranging from 0.23 to 0.28 in both dairy and dual-purpose breeds. This level of heritability means that additive genetics accounts for approximately one-quarter of the observed variation in the trait, enough to enable genetic progress over time, but insufficient for rapid or guaranteed correction in a single generation.

In practical terms, when a cow with severely compromised FUA (1 - 3) is bred to a bull whose maternal line exhibits excellent structure FUA (7-9), the average structural improvement in daughters is expected to be modest. With heritability near 0.25, the predicted average for the offspring *might* rise only 1–2 points on a 1–9 scale. That modest

shift is an average, not a promise. A few daughters may show clear improvement. Most will land somewhere between the parental extremes, and many will still express marginal or functionally inadequate structure, particularly if the dam's lineage lacks proven strength in attachment. Continued use of such cows without rigorous evaluation embeds the genetic weakness more deeply into the herd. Without exclusion, bottom-tier traits do not fade; they persist, compound, and eventually define the herd.

Bottom-tier fore udders (FUA 1 to 3) exhibit clear and severe structural failure. These are not subtle faults. They present at first freshening and remain evident regardless of age, parity, or management. While udder fill and condition may vary slightly with nutrition or season, the anatomical defect remains fixed. Breeding from such animals, even under the guise of "corrective" matings, is inconsistent with structural progress. They should be culled from registered breeding programs, not routed into experimental lines. The risk of transmitting this level of failure is too high, and its repair is too uncertain.

If they are kept for home dairy or terminal beef use, they should be clearly designated as outside the breeding program. Their calves, and most certainly all bull calves, should not be registered or used as seedstock, regardless of other apparent merits.

Daughters should generally not be retained for registered breeding stock. Allowing these animals to persist in a breeding program, whether due to sentiment, misjudged utility, lack of trait evaluation, or absence of defined breeding goals, permits structural failure to remain embedded in the herd. Such retention undermines both genetic improvement and herd progress.

In short: document, designate, and depart. They may serve a limited utility role, but structurally and genetically, they should represent a terminus. Allow them to be one.

"Culling is not failure. It is the concrete consequence of breeding with intent."

Summary

Fore udder attachment is not a secondary trait. Dexter cattle are a dual-purpose breed, and that designation entails specific structural requirements. Whether your focus is milk, beef, or both, the udder must be correct, balanced, functional, and durable. To tolerate and breed structural failure because a cow "raised a good calf" is to do a profound disservice to the breed. A Dexter cow's udder must serve the calf without difficulty, and the household milk pail for many lactations. To excuse poor fore udder attachment on "I'm raising mine for beef" grounds is to willfully misunderstand the breed's purpose and damage the breed's standing. Whatever justification is offered, the fact remains: if you are breeding Dexter seedstock, you cannot ignore the udder. There are pure beef breeds. The Dexter is not one of them. A dual-purpose breed demands a dual-purpose structure. Structural traits aren't elective in a breed built for both milk and meat.

Breed forward. Set a line and enforce it. Structural traits, such as fore udder attachment, improve only when culling is clear, selection is intentional, and bulls are chosen explicitly for structural advancement.

Appendix A: Common Fore Udder Attachment Faults

Fore Udder Fault	Description
Cut Up	Hollowed, high, or sharply detached fore udder at the abdominal junction.
Bulbous / Ballooned	Pendulous, rounded udder projecting forward like a balloon; poor ligament definition.
Pocketing / Steep Slope	Sharp angle or 'pocket' where udder meets belly, indicates poor anchoring.
Asymmetrical Attachment	Fore udder lacks symmetry between sides; reflects structural imbalance.
Weak Abdominal Anchoring	Fore udder detaches or swings away from the body wall; unstable under movement.
Forward-Set Udder	Udder tissue extends to the navel or forward of the ideal attachment point.

Appendix B: Tier Framework for Breeding Decisions on Fore Udder Attachment*

Tier	FUA Score Range	Use in Breeding	Breeding Strategy	Notes
Top Tier	7–9	Core seedstock	Select for line continuation and bull selection	Dams of bulls should come exclusively from this tier
Mid Tier	4–6	Developmental use	One-generation trials. Mating to top-tier FUA maternal line bulls	Daughters must be evaluated rigorously; bulls not retained
Bottom Tier	1–3	Exclude from breeding stock	Very limited use in registered seedstock programs	Use risks to embed poor FUA in the herd for generations

*** Every animal must also be evaluated on their own merits**

Appendix C: Strategic Notes on National Herd Udder Conformation

Breeders committed to improving the Dexter breed should consider the following principles:

1. **The prevalence of poor udders does not excuse their use.**
   It's misguided logic to suggest that widespread poor conformation mandates the use of animals with severe faults. Instead, it demands a segmented and strategic breeding approach
2. **Breeding from bottom-tier cows perpetuates the fault.**
   Continuing to breed from animals scoring FUA in the 1–3 range because "so

many exist" ensures the trait remains endemic. Genetic improvement depends on exclusion as much as it does on selection.

3. **A weak national herd demands stronger standards, not weaker ones.** When structural quality declines system-wide, the response must be firmer standards and more precise separation. Breeding programs must draw functional distinctions between seedstock and terminal production stock, and enforce them.

Footnote:

This paper, along with all papers in the SMD Conformation Series, isolates a single trait, in this instance, fore udder attachment, as a focal point for structural evaluation and breeding improvement.

This paper does not advocate for single-trait selection. As outlined in "The Standard Is Not the Summit," effective breeding requires a clear set of prioritized traits, evaluated together through a coherent and purpose-driven selection strategy. If udder conformation is a component of your core trait selection, and it should be with a dual-purpose breed, fore udder attachment is and should be a culling decision point.

References

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