

Semen Container Management in a Pure Dairy Operation

The “Commercial Dairy” Model—Bull Selection, Mating, and Storage Strategy for Dairy Farmers

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Abstract

A pure dairy farm that uses only daughter-proven STgen-TPI bulls, does not use genomic young bulls, and matches cows based on milk production data and judgment pursues a different goal than a genetics marketer: long-lived, trouble-free cows with high lifetime production at minimal management effort. This article introduces the “Commercial Dairy” model, a simplified, profitability-oriented structure for managing the semen bank—with clear bull categorization, an insemination strategy, and a replacement cycle. The key factor here is not bull selection, but rather the consistent selection of female offspring.

1. Starting Point: Different Goals, Different Strategy

The traditional semen bank models used in genetic marketing cannot be applied one-to-one to a pure dairy farm. A farm that does not use genomic young bulls, relies exclusively on daughter-proven STgen-TPI bulls, does not perform linear evaluations, and mates based on milk production data and visual assessment has a fundamentally different breeding goal: long-lived, trouble-free cows with high lifetime production and minimal management effort.

Against this backdrop, the greatest danger on such farms is not missing out on a trendy bull. The actual risks are of a different nature:

- using too many similar bulls at the same time and thereby losing genetic diversity
- neglecting health and fitness traits in favor of purely high index scores
- introducing unintended weaknesses in conformation, body capacity, or persistence due to excessive selection for TPI

The answer to these risks is not a complex marketing model, but a clearly structured simplification focused on profitability: the “Commercial Dairy” model.

2. The “Commercial Dairy” model: 10–12 daughter-proven bulls

The herd is stocked with 10 to 12 daughter-proven bulls available simultaneously, divided into four categories with clearly defined functions and breeding shares.

2.1 Category 1: Main Sires (5–6 bulls)

The highest-ranking daughter-proven STgen-TPI bulls available. They account for approximately 60% of all inseminations and form the foundation of the herd’s performance.

Selection Criteria for Primary Sires

- TPI > 3000
- Reliability (Rel.) > 90%
- Positive DPR
- High PL (Productive Life)
- SCS (cell count) favorable
- No extreme values for size

Examples—depending on current availability—include AltaKawaii, Dropbox, and the sons of Perfect, Captain, and Conway. What matters is not the individual name, but consistent adherence to the criteria with every reorder.

2.2 Category 2: Health and Fertility Bulls (2–3 bulls)

These bulls are specifically used for problem cows and account for 20 to 25% of inseminations.

Selection Criteria: Health & Fitness

- High DPR (Daughter Pregnancy Rate)
- High cow conception rate
- Low stillbirth rate
- Good hoof and leg conformation

2.3 Category 3: Component and Persistence Bulls (2 bulls)

Used on cows with high milk yield in kilograms but low fat and protein values, as well as a declining lactation curve. Proportion: 10 to 15%.

Selection Criteria for Nutrients & Persistence

- Positive fat percentage
- Positive protein %
- High persistence

2.4 Category 4: Body and Leg Conformation Correction (1–2 bulls)

Since no linear data is available, selection is based purely on phenotype and visual assessment. These bulls are used exclusively for specific purposes—to correct weak hocks, steep hooves, or cows that are too small or too narrow. They do not need to be top-ranked in TPI; their function is correction, not performance enhancement.

3. Insemination Strategy

3.1 Heifers

Only 2 to 3 of the best STgen sexed bulls are used on heifers—no more. Many successful U.S. operations deliberately use only a few elite bulls on heifers, as heifers represent the most genetically advanced group of animals in the herd and sexed semen has the greatest impact here.

3.2 Cows

Cows are inseminated conventionally, using 5 to 8 bulls simultaneously. This approach offers several practical advantages:

- Higher conception rates
- lower insemination costs
- Simpler storage in the container

4. Container turnover and inspection frequency

Unlike with genomic young bulls, the half-life of genetics is significantly longer for daughter-tested bulls. Replacing them every six weeks is therefore unnecessary and not economically viable. A semi-annual schedule with fixed review dates is recommended:

Inspection	Date	Action
1st Round	April	Review the rankings, replace 20–30%
Round 2	August	Review the rankings, replace 20–30% of the players
Round 3	December	Review the ranking, replace 20–30%

Only 20 to 30% of the bulls are replaced per round—a maximum of 2 to 3 bulls. This keeps the herd up to date without causing operational chaos.

5. The real key: Selection of female offspring

On a dairy farm, 80 to 90% of genetic progress comes from selecting female offspring—not from whether the next bull has a TPI of 3050 or 3120. This is by far the greatest source of potential gains. Consistently dividing the herd into three performance groups lays the foundation:

Group	Criteria	Strategy
A – Top 25%	Highest milk yield, best fertility, trouble-free	produce female offspring (sexed)
B – Middle 50%	Solid performance, average functionality	female offspring as needed
C – bottom 25%	Low performance or problematic animals	Beef Mating

This three-way division specifically directs genetic renewal from the top quarter of the herd and excludes the weakest quarter from female reproduction. The effect on lifetime production and herd stability far exceeds the marginal difference between two top bulls that are closely matched.

6. Recommendation: Semen tank stocking for 150–500 cows

For a typical dairy farm with 150 to 500 cows and a consistent focus on STgen-TPI, the following semen tank loading is recommended:

Category	Number of Bulls	Insemination Rate
Top TPI, daughter-tested	6	approx. 60%
Health / Fitness	2	20–25%
Ingredients / Persistence	2	10–15%
Foundation / Body Correction	2	Targeted
Total	12	100%

On a quarterly basis—realistically every six months—only the ranking is reviewed, and a maximum of 2 to 3 bulls are replaced. This approach corresponds to a modified Model B, but is more focused on a dairy farmer’s profitability than on the marketing of genetics.

7. Conclusion

For most commercial Holstein operations, the “Commercial Dairy” model offers the best long-term balance—between genetic progress, fertility, longevity, and ease of practical implementation. The bull pool is deliberately kept lean, bull selection is based on clear criteria rather than trends, and the greatest lever—the selection of female offspring—is consistently utilized.

Key Message

In a pure milking operation, success is not determined by a single top bull, but rather by the structure of the bull pool and the consistent selection of female progeny. A lean, criteria-driven bull pool with 10–12 daughter-proven bulls and a semi-annual replacement of no more than 2–3 bulls delivers greater long-term profitability than chasing the next top TPI.