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Reproductive Indicators and Calving Patterns in Three Beef Cattle Herds in Romania

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Abstract: Reproductive performance influences productivity and economic sustainability in beef cattle production. This study described reproductive indicators and calving characteristics in three Romanian herds: Limousin (Satu Mare County), Charolais and Angus (Dolj County). Retrospective records covered 2023–2026 for Limousin (135 calvings) and 2020–2026 for Charolais (694) and Angus (384). Calving interval and seasonal distribution of calvings were assessed in all herds, and sex ratio in Limousin and Charolais. Additional indicators included service period (Limousin), birth weight (Limousin and Angus), and twinning (Charolais). Mean calving intervals were 381.56, 454.11 and 370.20 days in Limousin, Charolais and Angus, respectively. The mean service period in Limousin was 89.77 days. In 2024–2025, spring accounted for 49.43%, 38.14% and 40.91% of recorded calvings in Limousin, Charolais and Angus, respectively. Male calves represented 49.63% of Limousin and 48.43% of Charolais calves. Eight Charolais twin calvings were recorded (1.15%). Mean Limousin birth weight was 40.73 kg (42.21 kg in males; 39.26 kg in females), while recorded female Angus calves averaged 30.87 kg. Calving intervals and seasonal patterns differed among herds. Interpretation should consider herd-specific management, unequal observation periods and potentially incomplete records. These findings provide baseline information for reproductive monitoring in Romanian commercial beef herds and highlight the importance of accurate record-keeping.

Introduction:

Reproductive performance influences the productivity and profitability of beef cattle herds. **Calving interval** and **season of calving** distribution reflect reproductive management, **sex ratio**, **birth weight** and **twinning** describe calf production. Retrospective farm records allow these indicators to be assessed, although interpretation depends on record completeness and herd management.

This study aimed to evaluate **reproductive indicators** and **calving characteristics** in three Romanian beef herds representing **Limousin**, **Charolais** and **Angus**.

Materials and methods:

- **Study design**: **Retrospective analysis** of reproductive records.
- **Herds**: Limousin – Satu Mare; Charolais and Angus – Dolj.
- **Breeding**: Natural mating in all herds; AI also used in Limousin.
- **Indicators**: Calving interval, service period.
- **Calving patterns**: season of calving, sex ratio, birth weight and twinning.
- **Statistics**: Welch's ANOVA, t-tests, chi-square and exact binomial tests; Excel; $p < 0.05$.

Results and discussion:

Limousin:

- Mean CI was **381.56** days, including 135 calvings from 68 cows. The value is numerically close to the 375.60 days reported for Hungarian Limousin cows.
- In period 2025–2026 comparison, CI averaged **390.63** days after natural mating and 349.17 days after AI ($p = 0.009$), although this difference cannot be attributed to breeding method alone. Service period averaged **89.77** days.

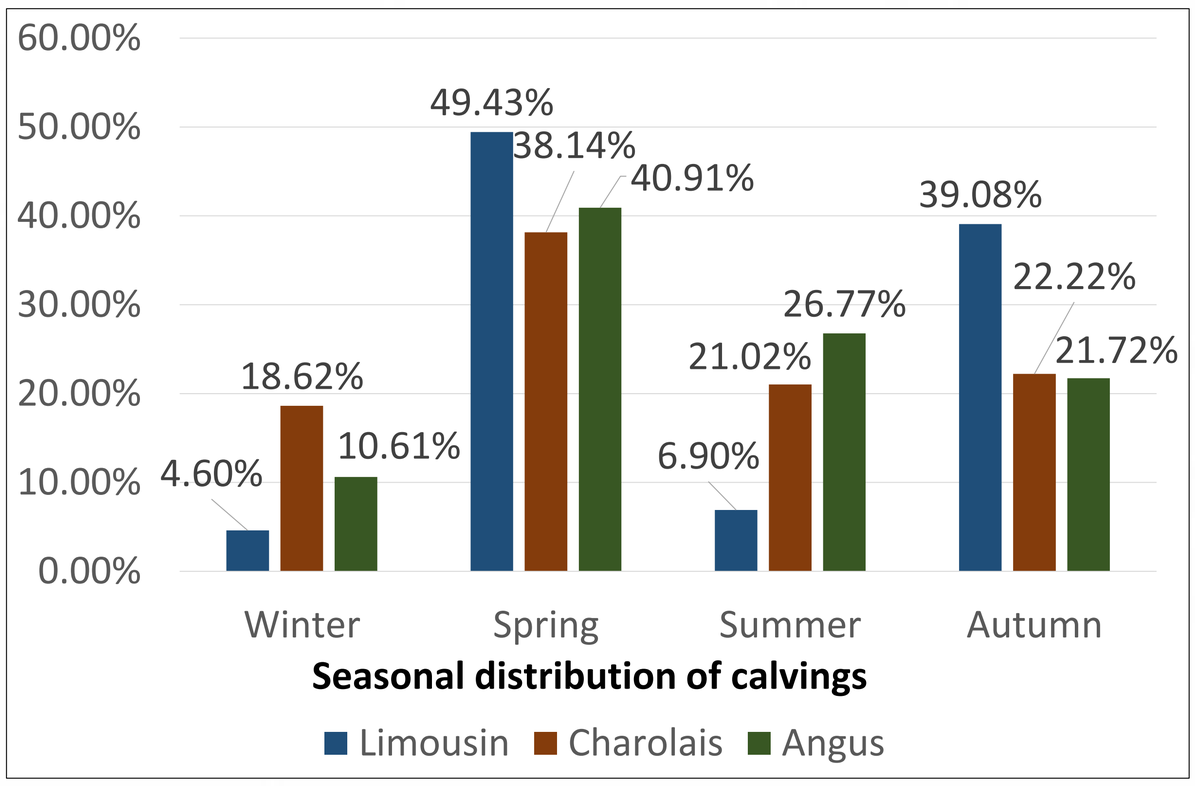


Angus and Charolais:

- In Angus, the average length of 111 selected intervals from 76 cows was 370.20 days, close to the 369.7 days reported in New Zealand.
- The mean calving interval for the Charolais, based on 694 calvings from 255 cows, was 454.11 days. Exploratory Welch's ANOVA indicated differences among herd means ($p < 0.001$), without establishing breed effects.



Seasonal distribution of calvings: The largest proportion of calvings occurred during spring season. Calvings of Limousin were concentrated in spring and autumn, whereas those of Charolais were more evenly distributed throughout the year.



Calf characteristics: Male proportions were approximately **balanced** with females in Limousin and Charolais. Mean Limousin birth weight was **40.73 kg**, Males averaged 42.21 kg and females 39.26 kg. Recorded Angus birth weights averaged **30.87 kg** in females. Eight Charolais twin calvings were identified (1.15%).

Conclusions:

Recorded calving intervals were approximately annual in selected Limousin and Angus subsets and longer in Charolais. Shorter intervals in the Limousin AI group cannot be attributed to breeding method alone. Spring calvings predominated in all herds. The sex ratio was balanced in the Limousin and Charolais breeds, with male Limousin calves having a higher body weight.