

Table S1. The number of records of milk mid-infrared (MIR) spectra, fat percentage (Fat), methane production (CH₄), and somatic cell score (SCS) within the first parity (number of total animals is 3,302)

| Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MIR | 2,681 | 2,820 | 2,781 | 2,750 | 2,660 | 2,652 | 2,627 | 2,573 | 2,446 | 2,261 | 1,604 |
| Fat | 2,681 | 2,820 | 2,781 | 2,750 | 2,660 | 2,652 | 2,627 | 2,573 | 2,446 | 2,261 | 1,604 |
| CH ₄ | 2,679 | 2,820 | 2,781 | 2,750 | 2,660 | 2,652 | 2,627 | 2,573 | 2,446 | 2,261 | 1,585 |
| SCS | 2,680 | 2,817 | 2,778 | 2,750 | 2,660 | 2,652 | 2,627 | 2,573 | 2,446 | 2,261 | 1,603 |

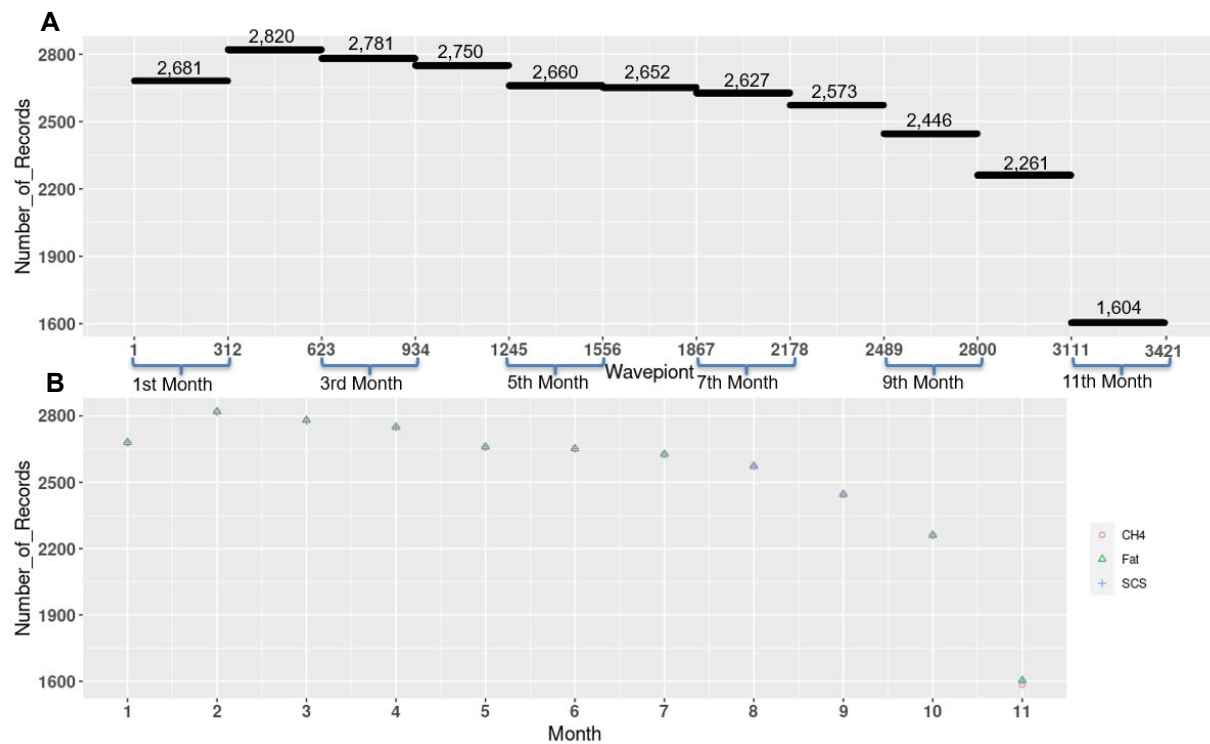


Figure S1. A: number of records of 3,421 milk mid-infrared (MIR) wavepoints across 11 months, with each month featuring 311 consistent wave points. **B:** number of records of fat percentage (Fat), methane production (CH₄), and somatic cell score (SCS) within the first parity (number of total animals is 3,302)