Table S1. The number of records of milk mid-infrared (MIR) spectra, fat percentage (Fat), methane (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
CH4	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

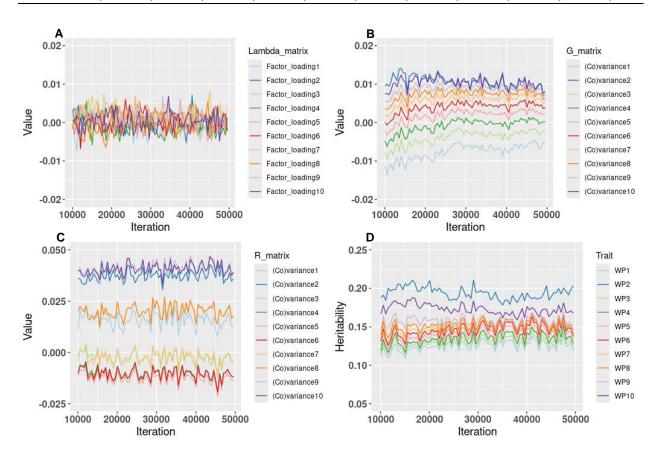


Figure S1. Example trace plot of the 800 saved MCMC samples for 4 estimated parameters. **A**: Trace plot of 10 lambda factors loading. **B**: Trace plot of 10 variances or covariances in additive genetic matrix (G matrix). **C**: Trace plot of 10 variances or covariances in residual matrix (R matrix). **D**: Trace plot of heritability of 10 milk mid-infrared wavepoints (WP).