

Supplementary Materials

Table S1. Nutrient composition

Item	Last Trimester of Pregnancy	Lactation Period	AI Period
	(Stanchion Barn→ Private Stall)	(Private Stall for breastfeeding)	(Stanchion Herd)
Dry Matter Intake (DM %)	115	118	106
Total Digestible Nutrients (TDN %)	124~125	125	116
Crude Protein (CP %)	113~127	113	111
Formulated Feed A	3~5 kg	5 kg	2 kg
Forages A	0 or 2 kg		
Home-Grown Silages A	6 kg	6 kg	6 kg
Home-Grown Silages B	2 kg	2 kg	
Grass			2 kg
Total mixed rations (TMR)			2 kg

Artificial insemination (AI).

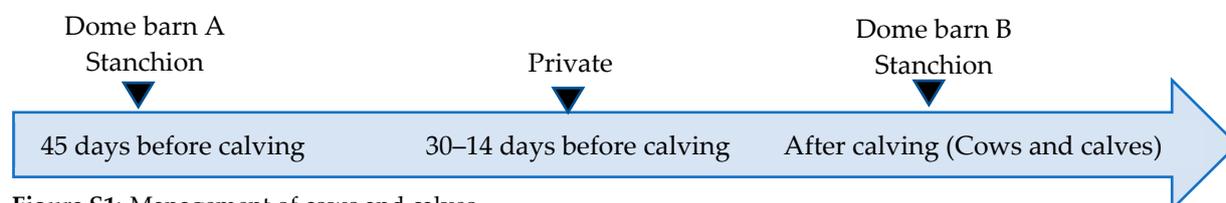


Figure S1: Management of cows and calves

Table S2. The area for each cow and calves .

	Dome Barn A left.	Dome Barn B left	Delivery Room
Space	10 m × 21 m = 210 m ²	5 m × 21 m = 105 m ²	3 m × 6 m = 18 m ²
Number of Cows	10–15 cows (accommodate up to 24 animals)	7–8 cows (accommodate up to 15 animals)	
Area / Head	14–21 m ² (10–15 heads)	13.125–15 m ² (7–8 heads)	18 m ²

The area of dome cowshed A and calving room is calculated for dome barn A left 10 m × 21 m = 210 m², holds 10 to 15 cows (Can accommodate up to 24 animals). Area per head: 14–21 m² (10–15 heads). Dome barn B left: 5 m × 21 m = 105 m², holds 7 to 8 cows (Can accommodate up to 15 animals). Area per head: 13.125–15 m² (7–8 heads). In addition, Delivery room: 3 m × 6m = 18 m² and area per head: 18 m².