Rearing Heifers Efficiently

Feeding and Growth

Calving at 3 years vs 2 years requires an extra 4380kg *of dry matter intake (DMI)*
Example 1.7kg CO2e/kg DM
4380kg of dry matter = Extra 7446kgs CO2e
24 months vs average of 26.4months (NMR 500) is an extra 925kg DMI = *1572.5kg CO2e*

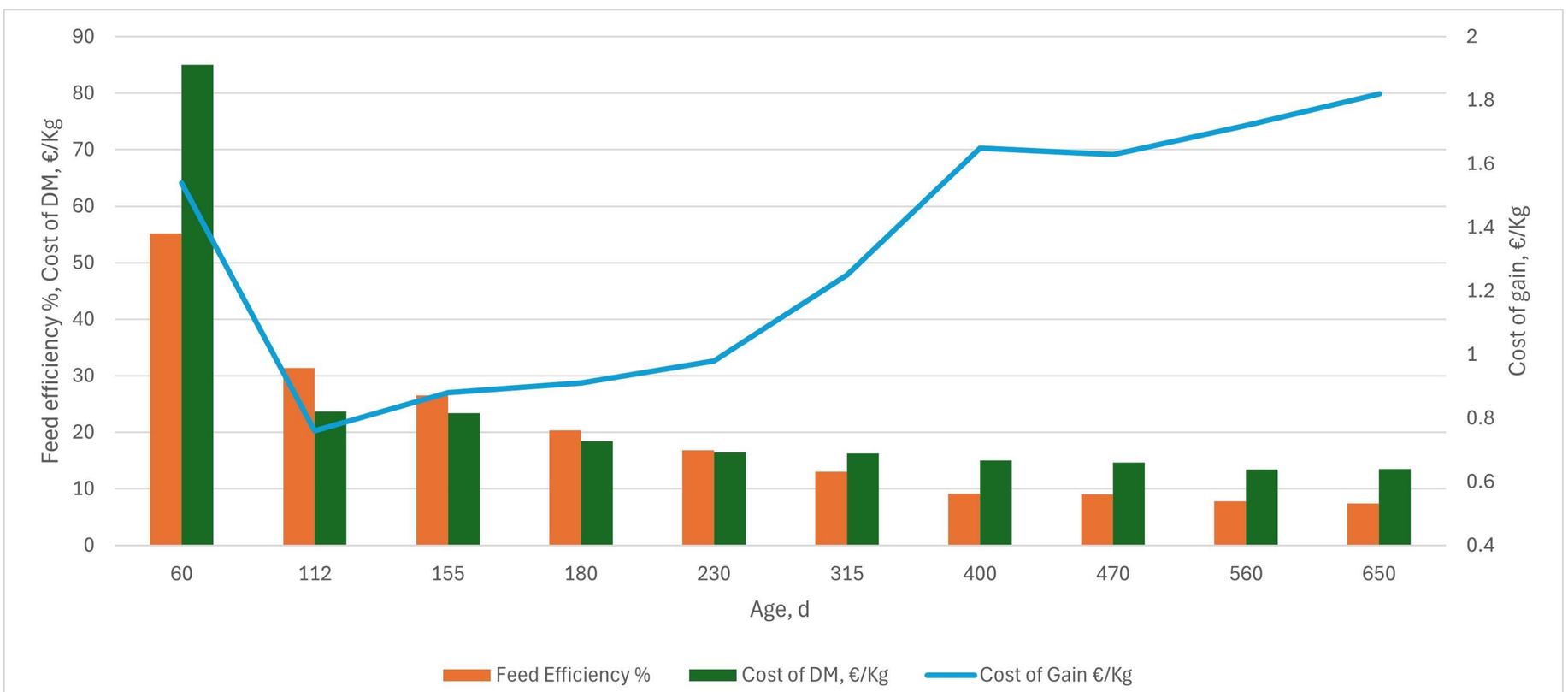
Target Weights

Age	Stage	% Weight	Target Bodyweight (Kg)		
0	Birth	6	**45**	**39**	**33**
2 months	Weaning	12	**90**	**78**	**66**
3 months	Post weaning	17	**128**	**111**	**94**
6 months		30	**225**	**195**	**165**
9 months	Puberty	40	**300**	**260**	**220**
12 months		50	**375**	**325**	**275**
13-15 months	Breeding	55	**413**	**358**	**303**
24 months	Pre-Calving	90	**675**	**585**	**495**
Maturity	Adulthood	100	**750**	**650**	**550**

Feed Efficiency and cost/kg gain

Feed efficiency for growth = Gain % /KG DM
e.g. 1kg DM = 560g growth 0-10weeks
Can also be displayed as Kg DM/Kg Gain
e.g. 2:1 for 0-10weeks

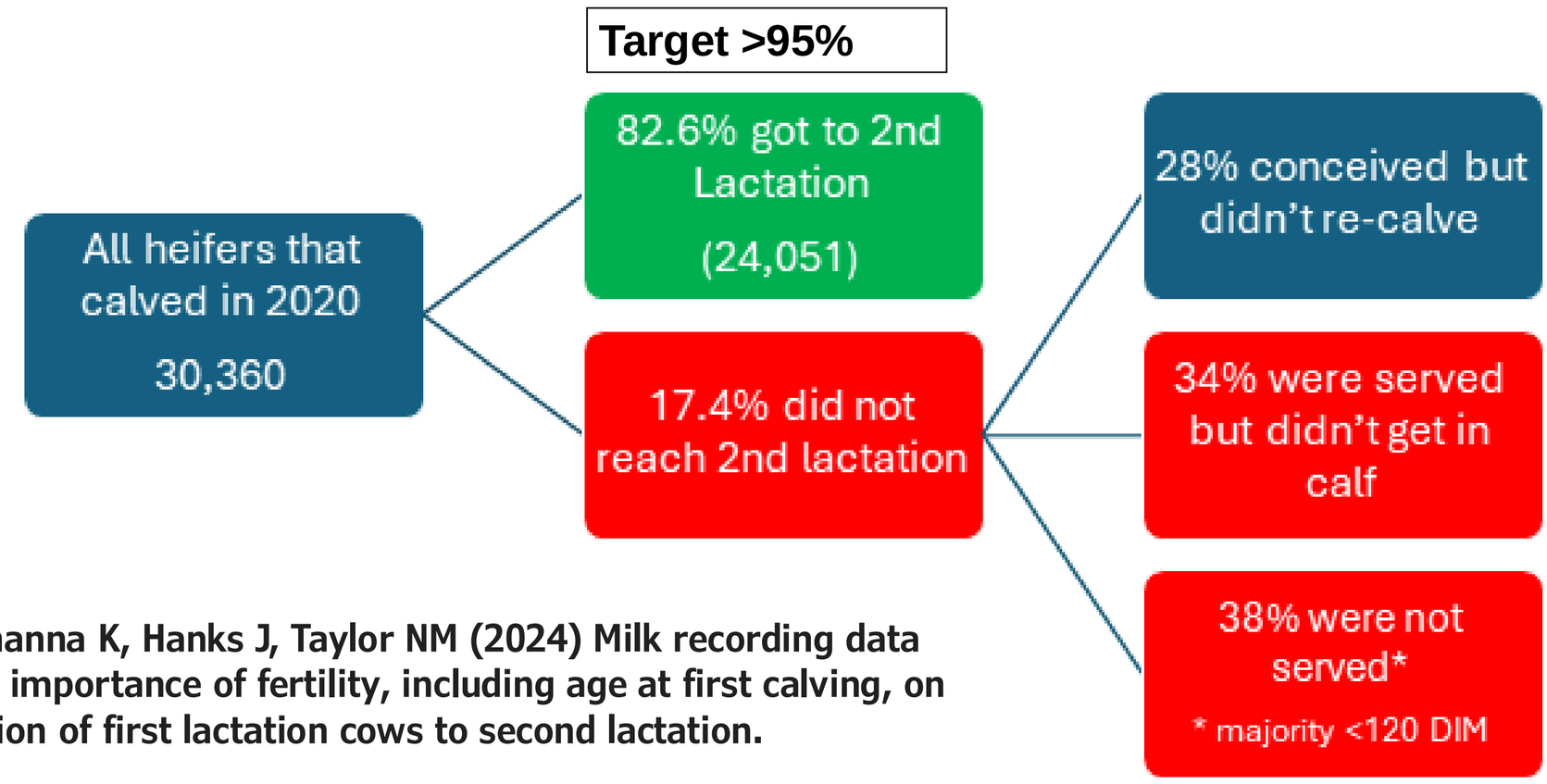
Age	0-10 week	3 months	4 months	6 months	8 months	12 months	14 months	16 months	18 months	21 months
FE%	56%	28%	26%	24%	12%	9.4%	9.2%	8.9%	8.3%	7.3%



Most cost-effective time to grow heifers is in the first year of life. Aim for 55-60% of mature weight.

A.Bach, J.Ahedo, A.Kertz, 2021

Heifer Wastage & Maximising Submission Rates



Taylor EN, Channa K, Hanks J, Taylor NM (2024) Milk recording data indicates the importance of fertility, including age at first calving, on the progression of first lactation cows to second lactation.

AFC impact on lifetime production and methane output

AFC (months)	Lifetime production (kg)	Methane production (birth to first calving, kg)
22	31230	76.8
23	**38345**	**82.1**
24	36154	87.9
25	32085	93.9
26	21465	100
27	19960	106

Adapted from CowSignals®

Heifer Fertility KPIs

KPI	Target
Submission rate (AYR calving herd)	>80%
Conception rate	>70%
Specific Block Calving KPIs	
21-day submission rate	>90%
Conception rate	>70%
6-week in-calf rate	90%
Empty rate	<10%

ROI for heat detection to lower AFC

70x Collars @ £90	= £6,255
1x Base Unit & Fitting	= £2,000
Total	**= £8,255**
3 years @ 8% Interest	= £2,971
Savings reducing AFC per heifer (£2.50/day, 72 days from 26.4 months to 24 months)	= £180
Total Savings (70 heifers per year)	**= £12,600**
Annual NET Benefit	**= £9,628**
ROI	117%