Calves and Respiratory Disease

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IRTA
INVESTIGACIÓN Y TECNOLOGÍA AGROALIMENTARIAS

ICREA

Introduction

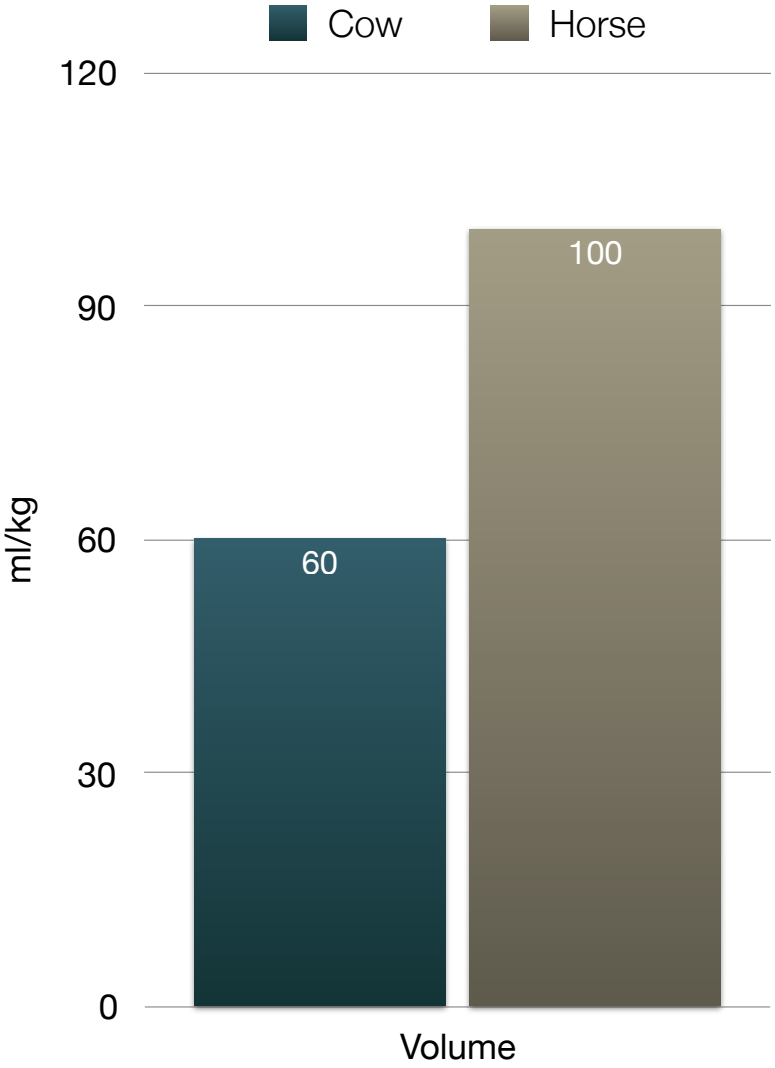
- UK (Cooke and Wathes, 2014; Sherwing et al., 2016):
  - 36% of heifers calve > 30 months
  - 16% of heifers did not complete 1st lactation (65% relative to adult cows -25% CR)
- Canada (Wittrock et al., 2011):
  - 15% of heifers did not complete 1st lactation (50% relative to adult cows - 30% CR)
- Hungary Horváth et al. (2017):
  - 19% of heifers did not complete 1st lactation (66% relative to adult cows - CR 27%)


Samsung Note 7

Introduction

- Reasons for this high failure rate are many, but probably the most important ones are:
  - Insufficient of proper attention to calf and heifer rearing
  - Lack of effective objectives
  - Lack of quality control programs

The weak point of calf



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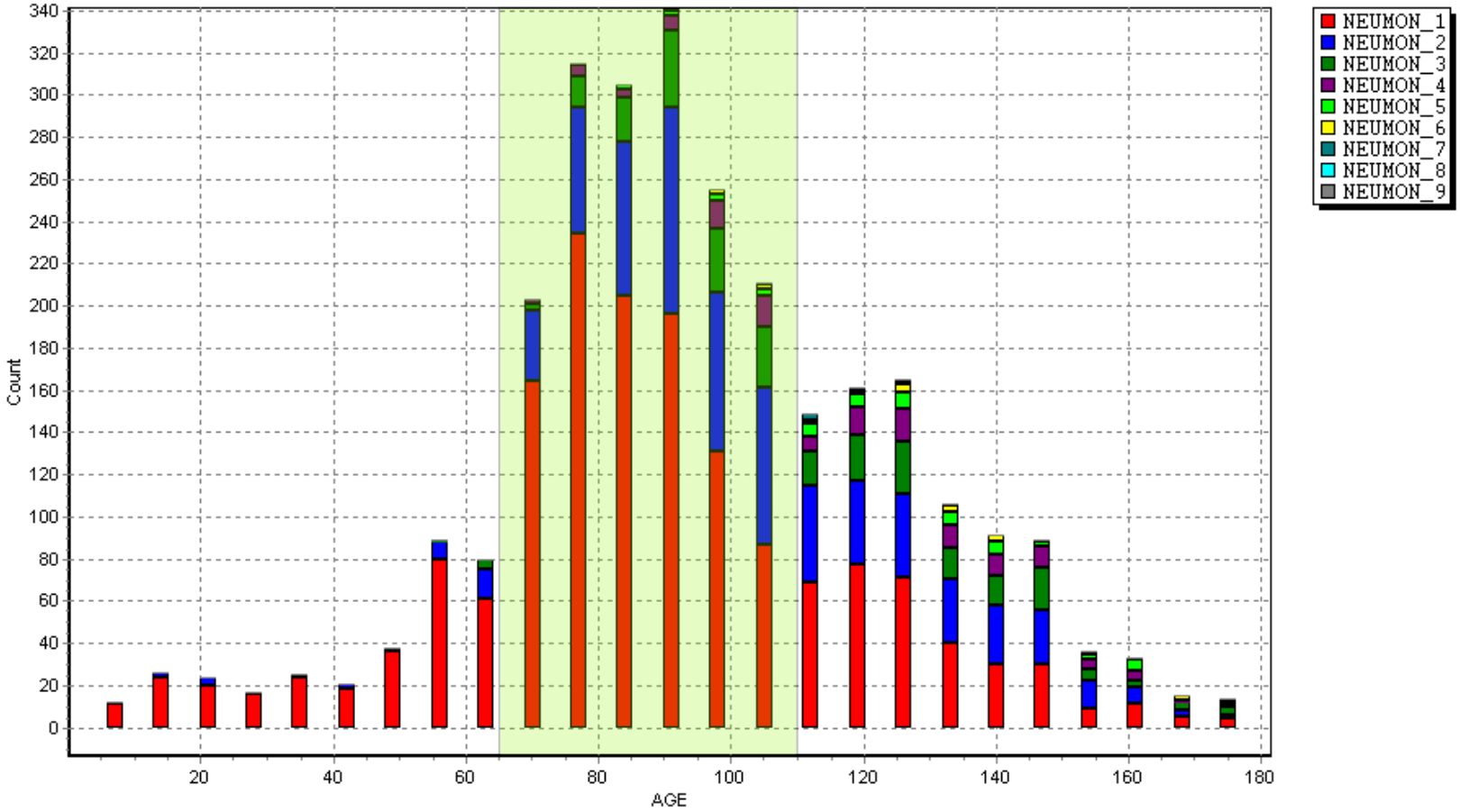

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What is the real incidence of BRD?

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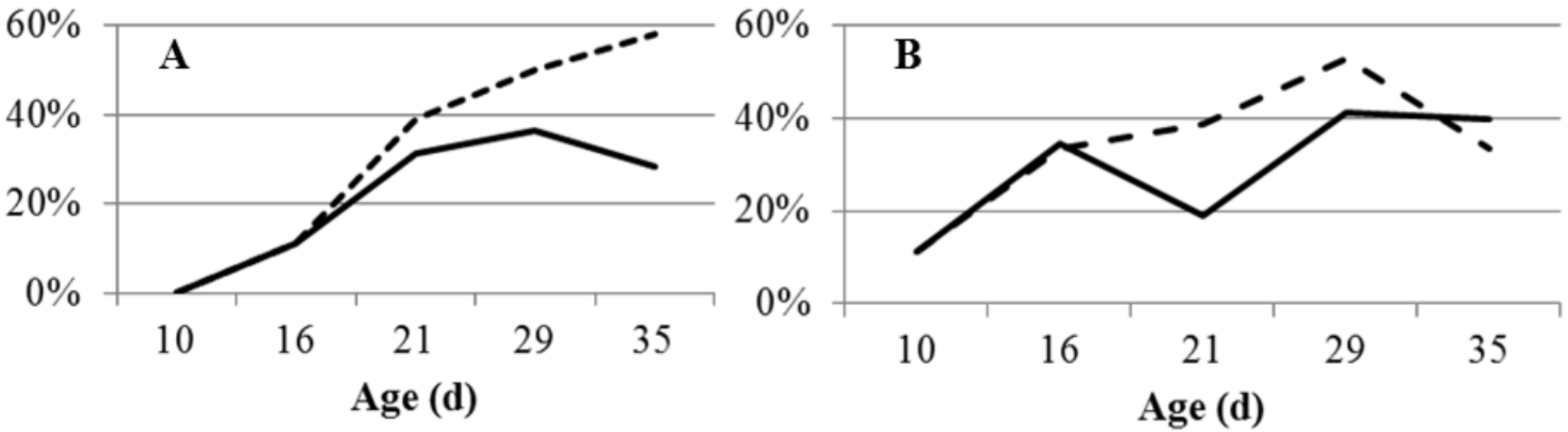
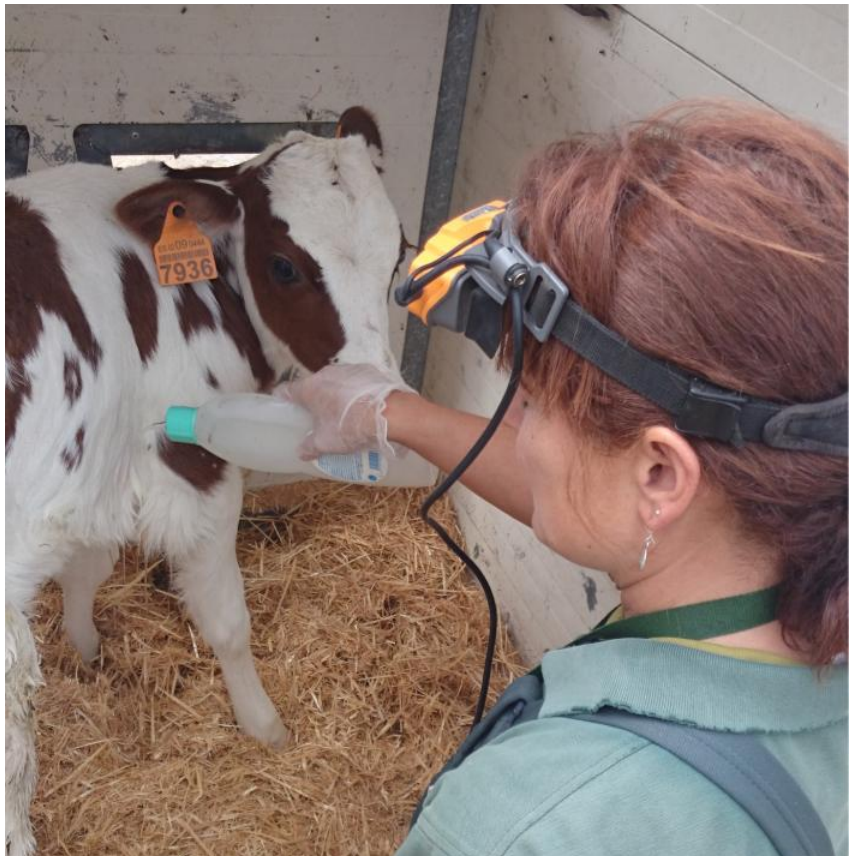


Ultrasound **Fever**

Ollivette, 2015

The weak point of calf



Fotos cedidas por C. Tejero

The Causes

5 calves per hutch: 3 m^2 and 7 m^3 per calf

6 calves per hutch: 2.5 m^2 and 6 m^3 per calf - 15%

7 calves per hutch: 2 m^2 and 5 m^3 per calf - 29%

The Causes

Item	5	6	7
n	50	60	70
BW entrance, kg	80	79	79
BW exit, kg	114	117	113
ADG interval, g/d	830	899	867

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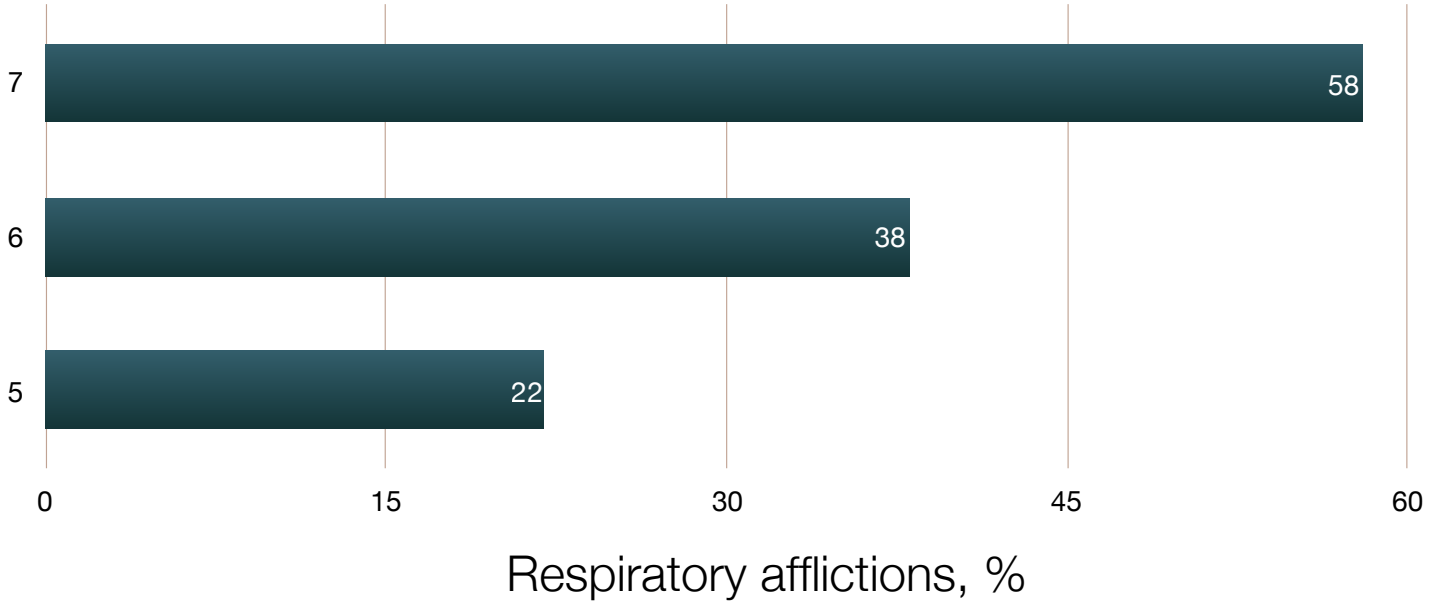
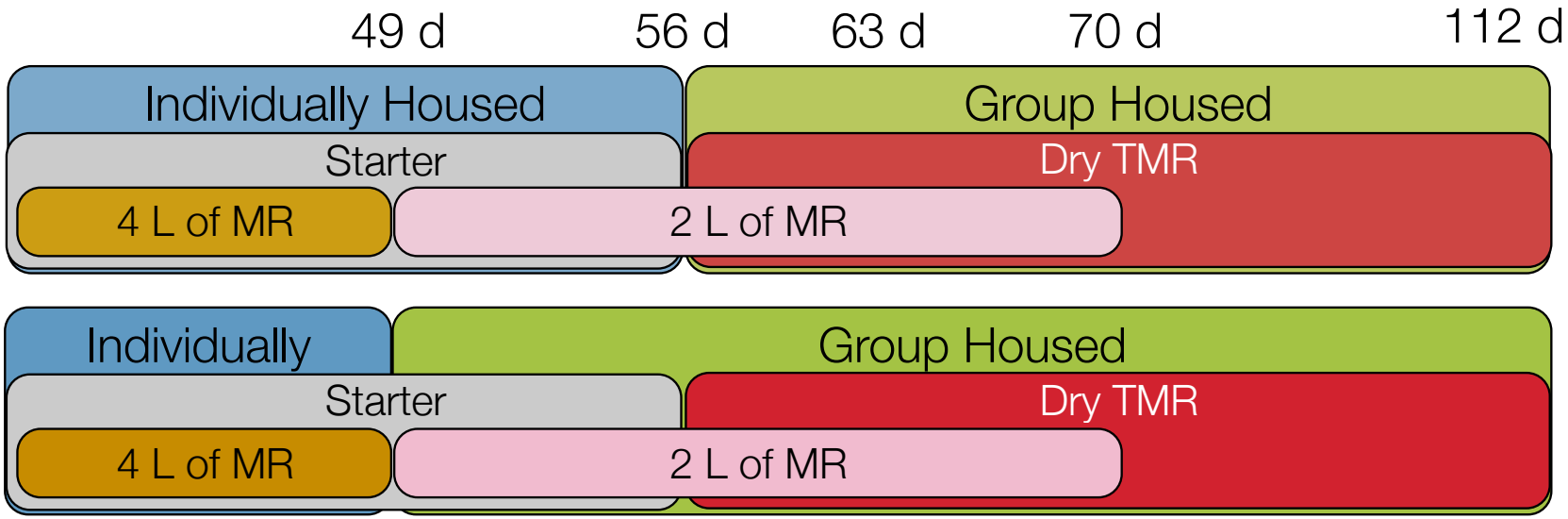


The Causes

- General recommendations for calf rearing advocate for keeping the animals individually housed and feeding milk replacer (or waste milk) twice daily.
- The main purpose of keeping calves individually is to minimize the spread of infectious diseases (mainly diarrhea and pneumonia).

The Causes


49 d
56 d
63 d
70 d
112 d
Individually Housed
Group Housed
Starter
Dry TMR
4 L of MR
2 L of MR
Individually
Group Housed
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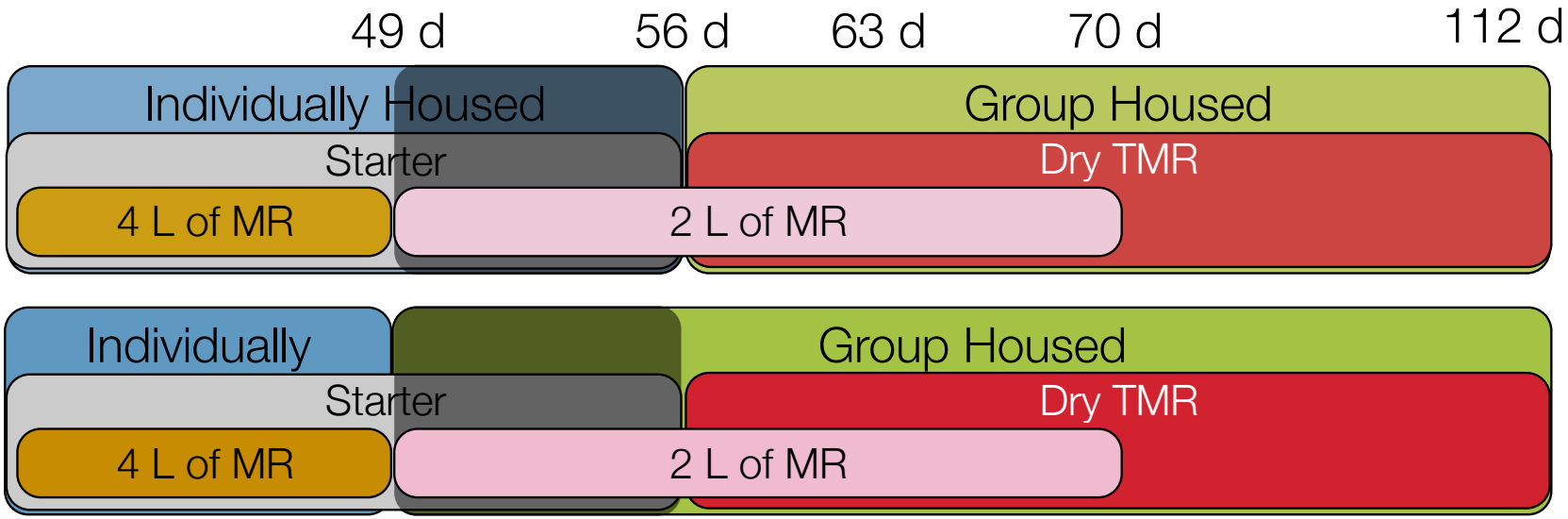
25

The Causes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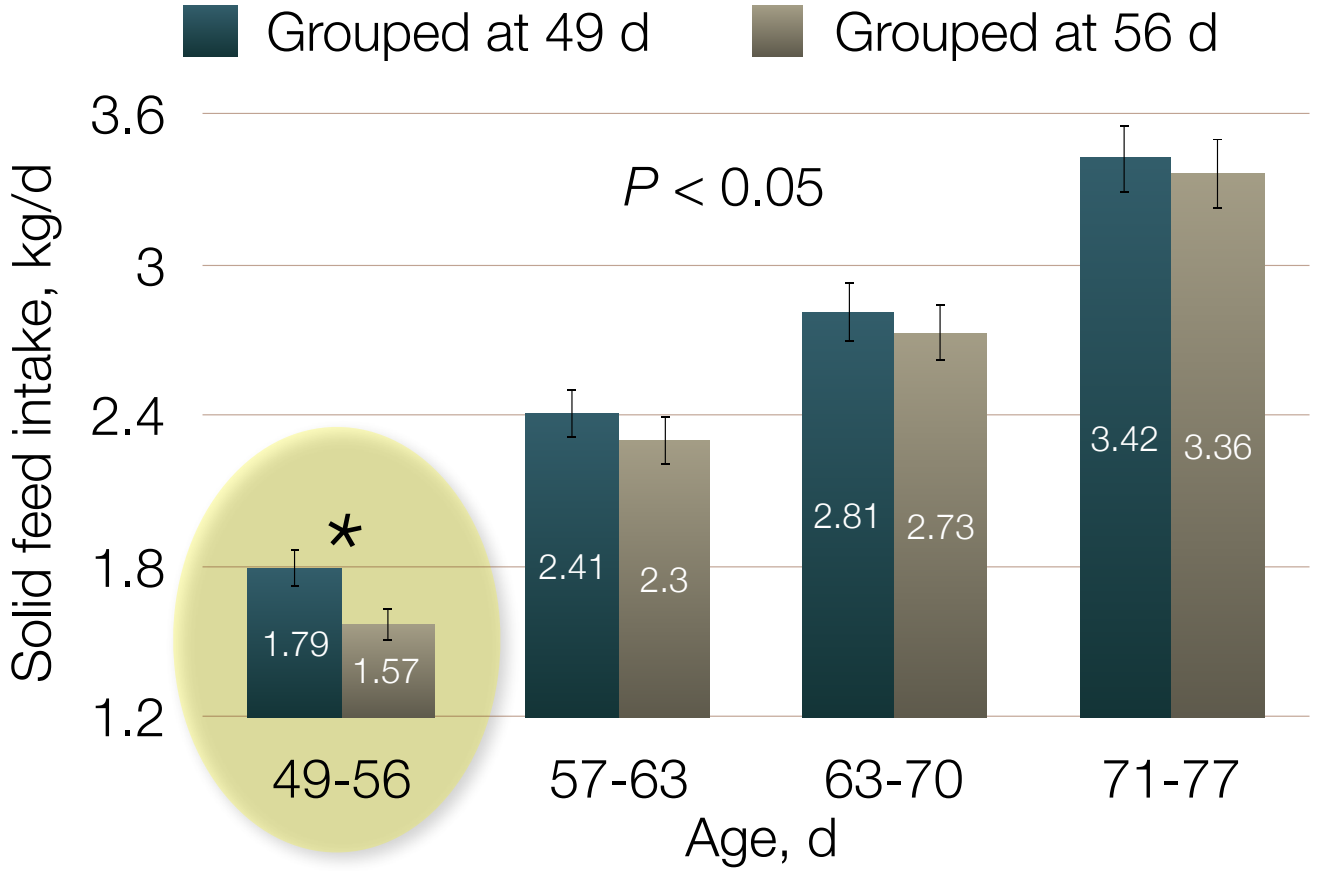
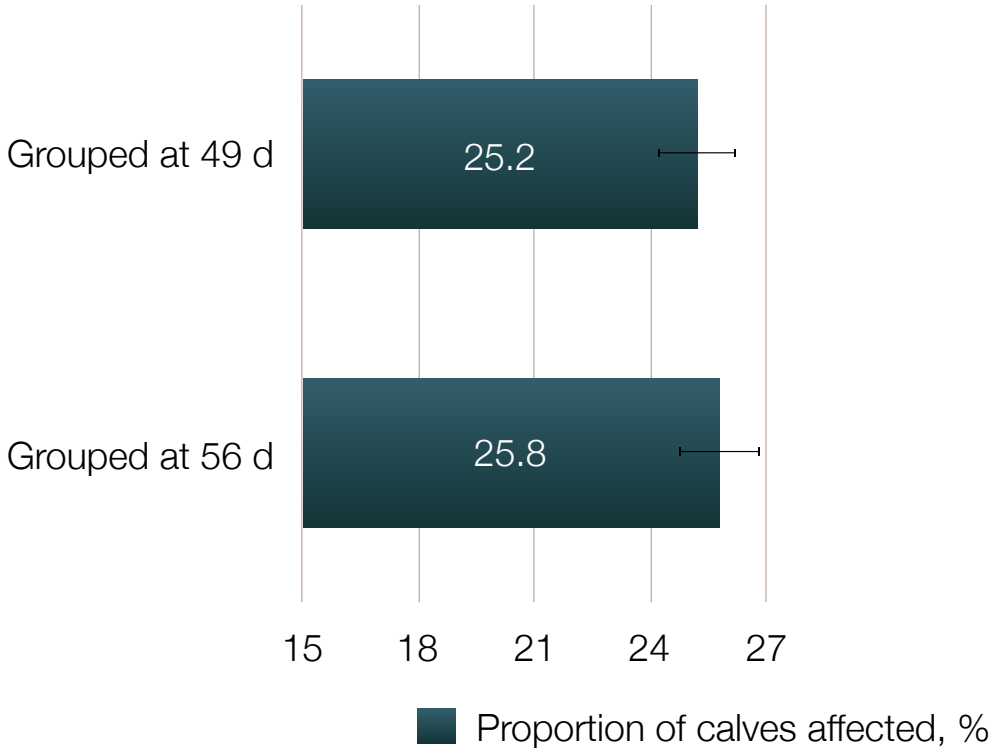


Grouped calves consumed more solid feed than those individually housed

Bach et al., 2010

The Causes

Incidence of Respiratory Problems



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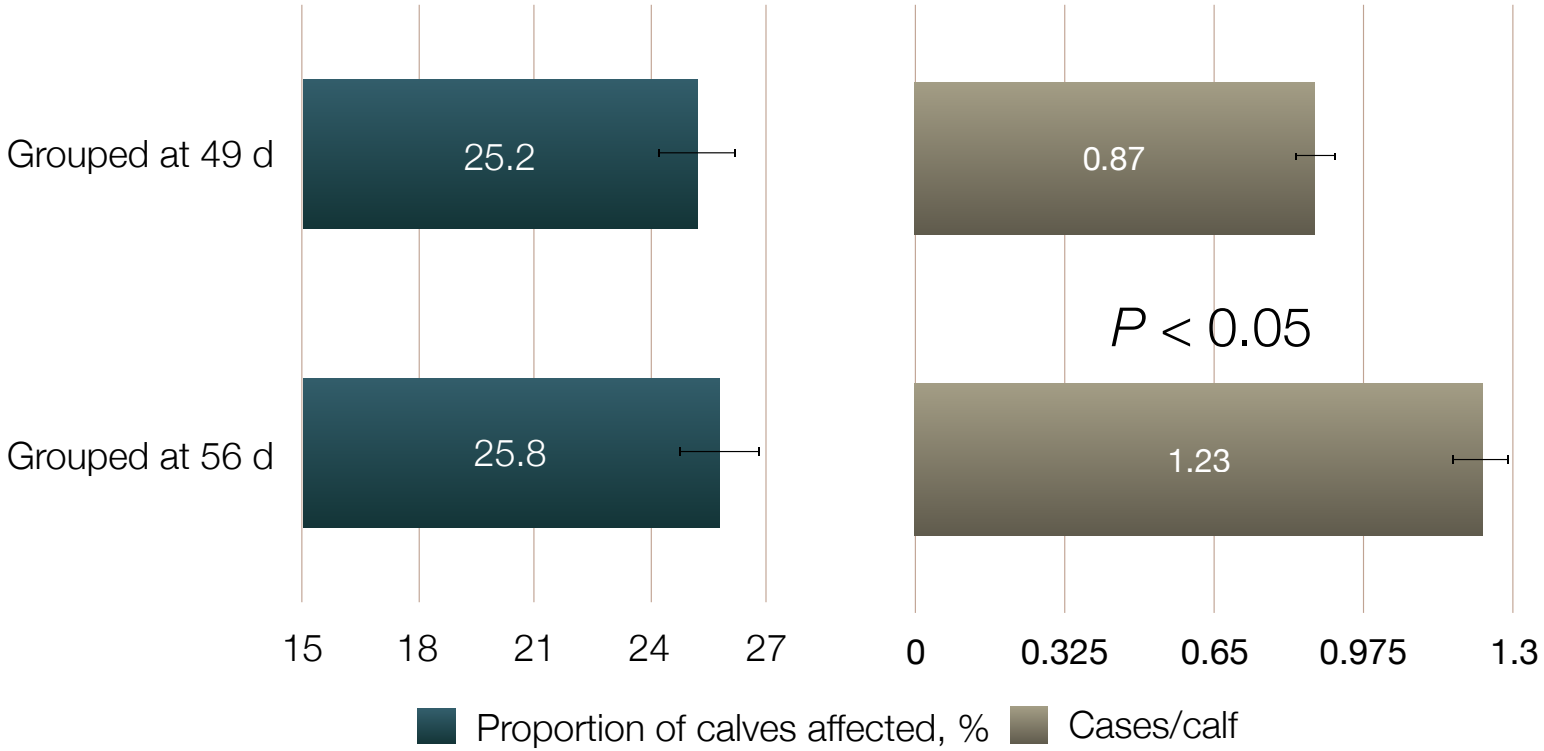

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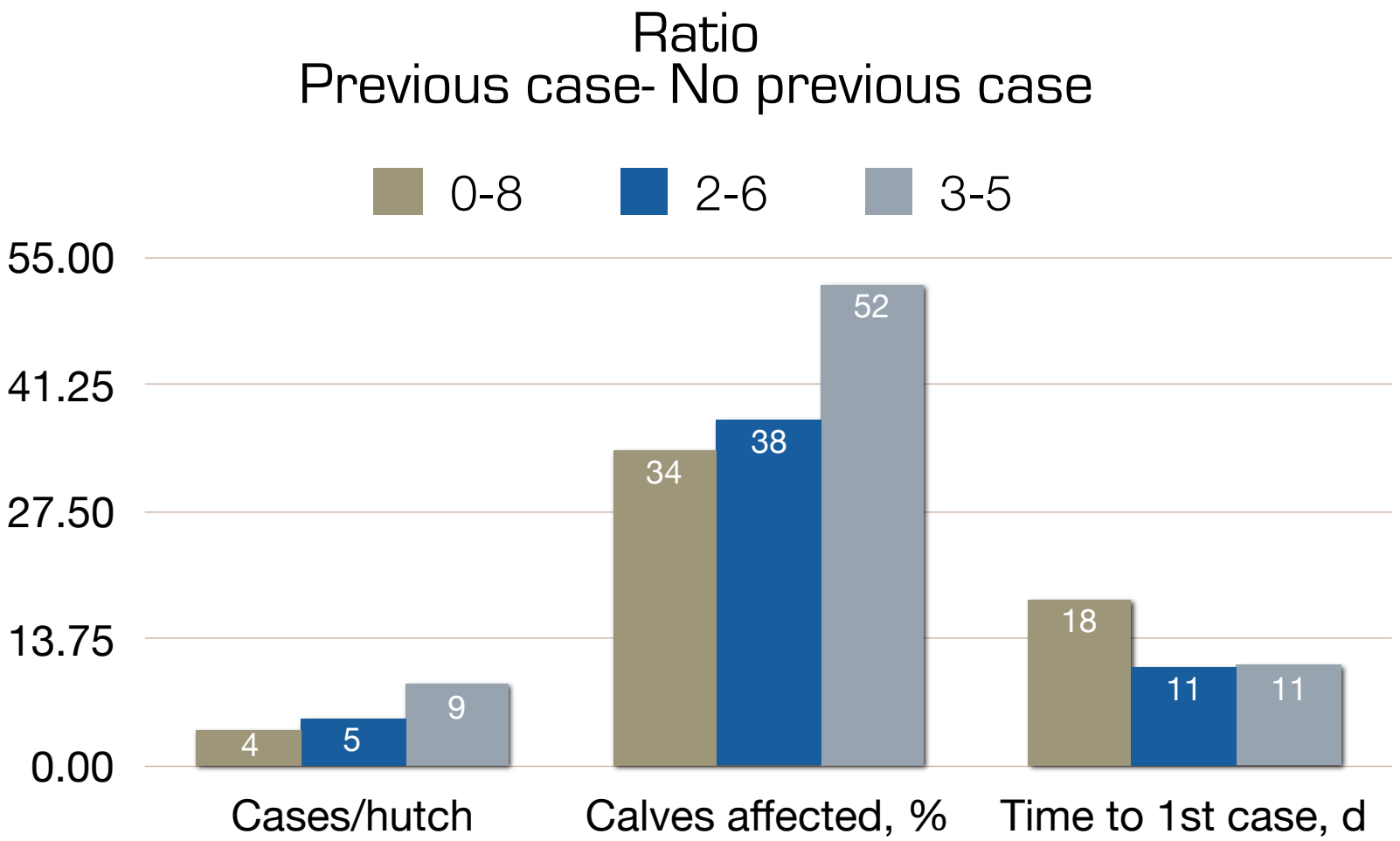
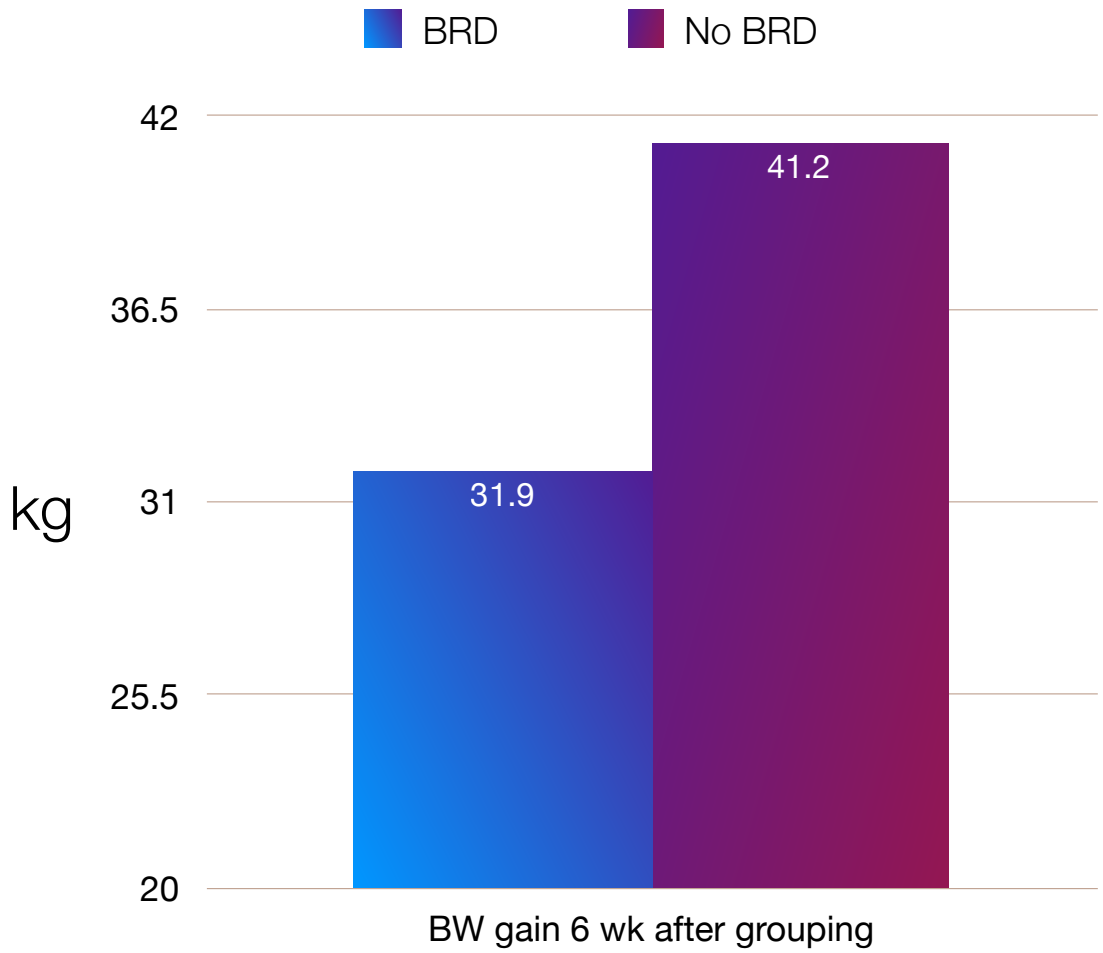


Bach et al., 2011

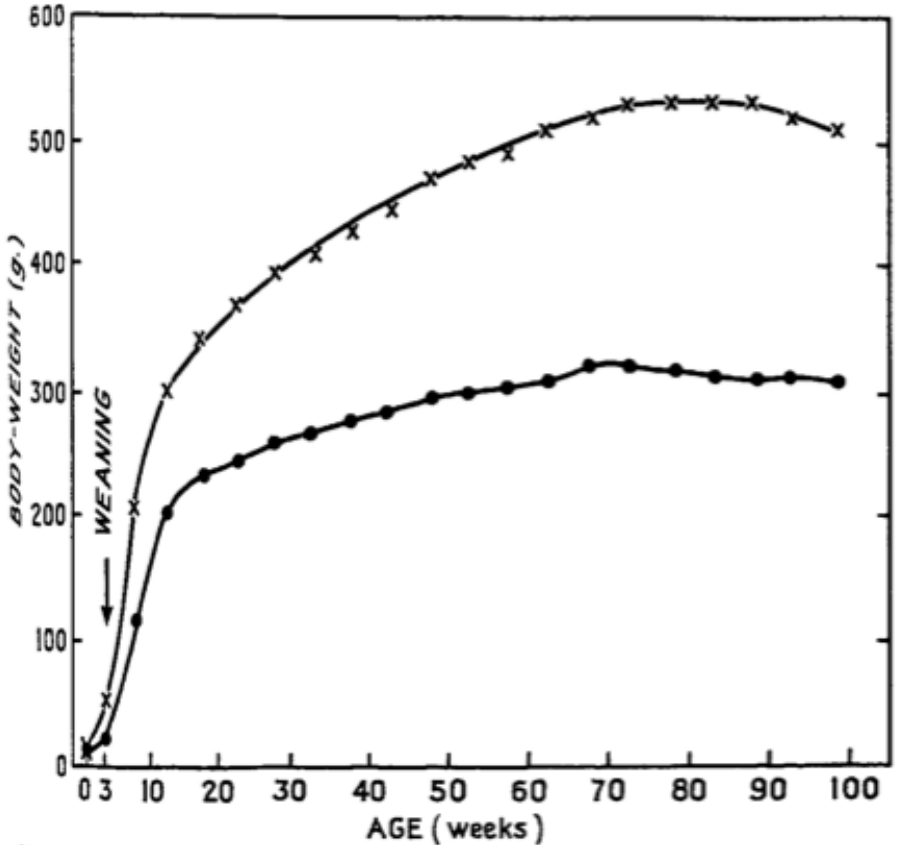
The Consequences

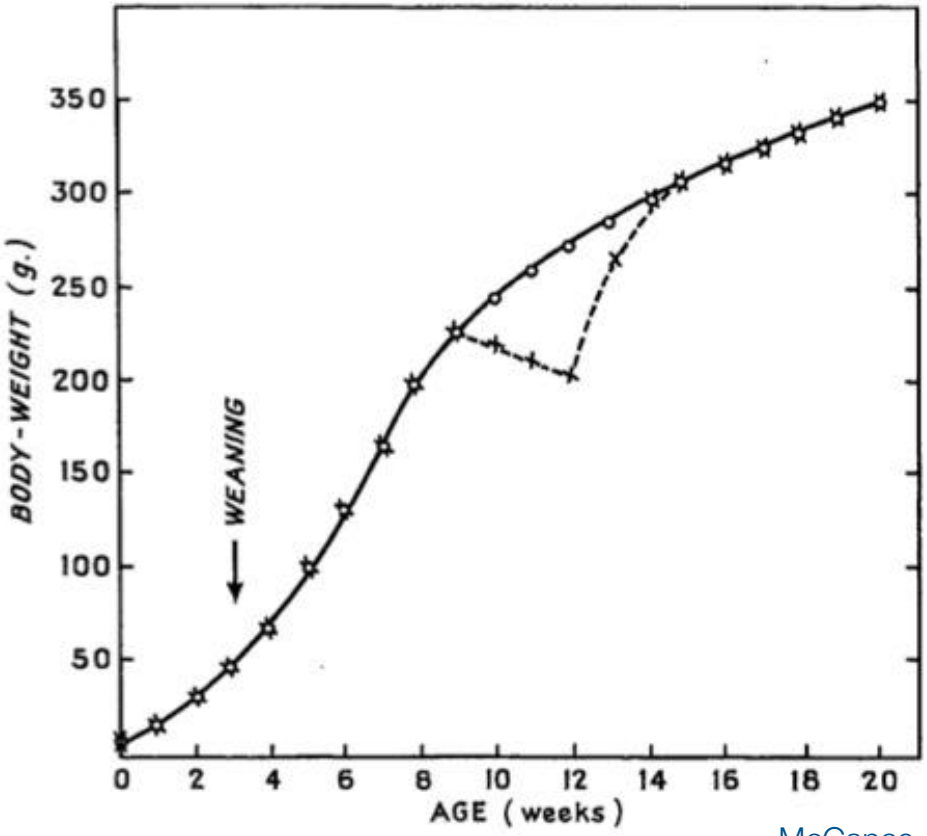


Stanton et al., 2010

The Consequences

- The metabolic status of mammals during the first weeks of life seems to have long-lasting consequences

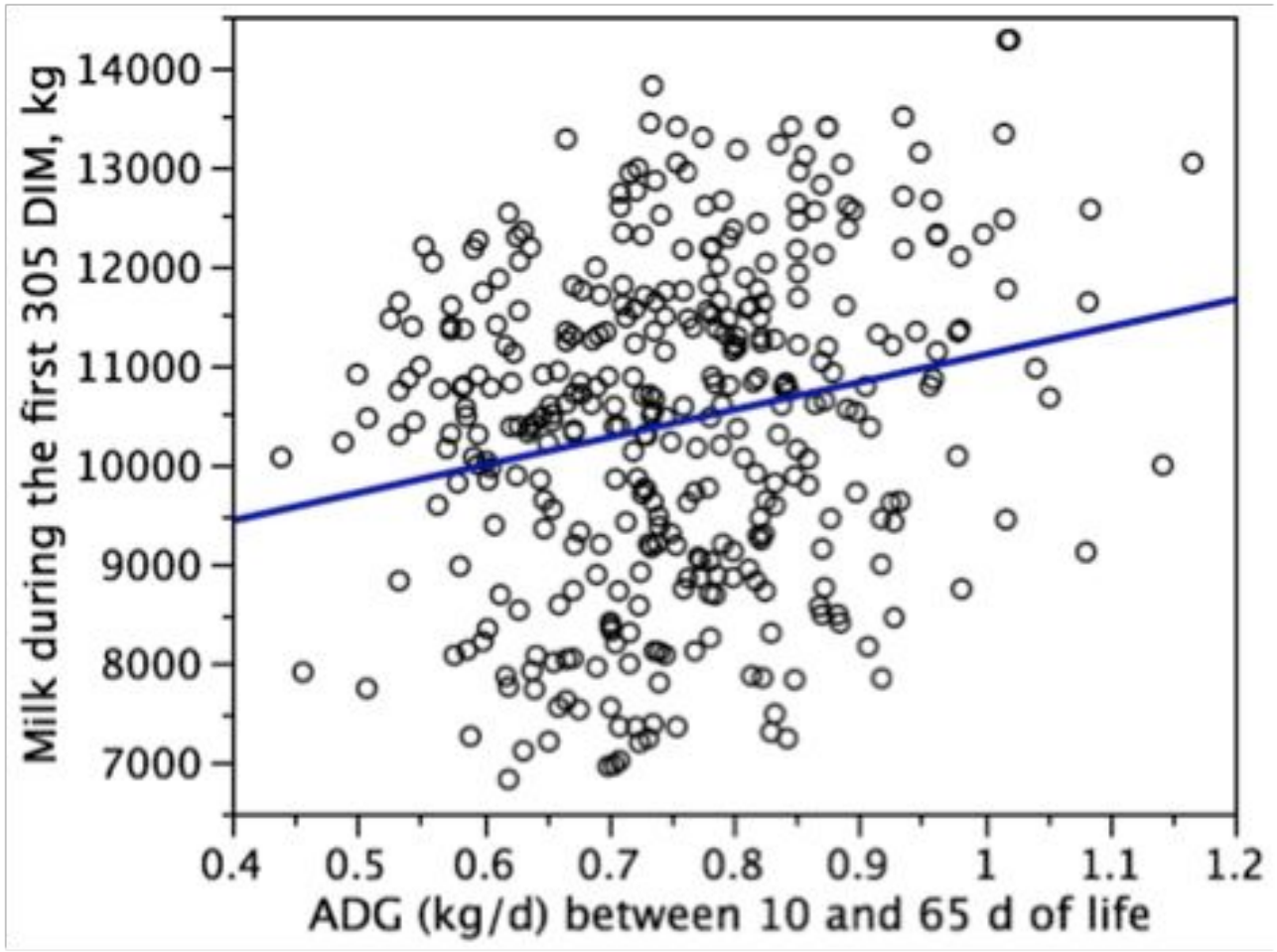




McCance, 1962

The Consequences

- Rate of growth of young calves is correlated with future milk production



Bach and Ahedo, 2008

The Consequences

Authors	X	ADG	Milk	Significance
Holloway and Totusek, 1973	Mom	N/A	+10%	$P < 0.10$
Bar-Peled et al., 1997	Mom 3X vs MR 2X	+100 g	+4%	$P < 0.10$
Shamay et al., 2005	WM 2X vs MR 1X	+300 g	+4%	$P < 0.05$
Moallem et al., 2010	WM 2X vs MR 2X	+100 g	+10%	$P < 0.05$
Davis Rincker et al., 2009	MR 2X	+200 g	+4%*	$P < 0.10$
Terré et al., 2009	MR 2X	+100 g	+6%	NS
Raeth-Knight et al., 2009	MR 2X	+150 g	+5%	NS
Morrison et al., 2009	MR 2X	+150 g	-1 %	NS

Several abstracts omitted

Bach, 2012 (JAS)

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226 kg Milk/100 g
$P < 0.05$

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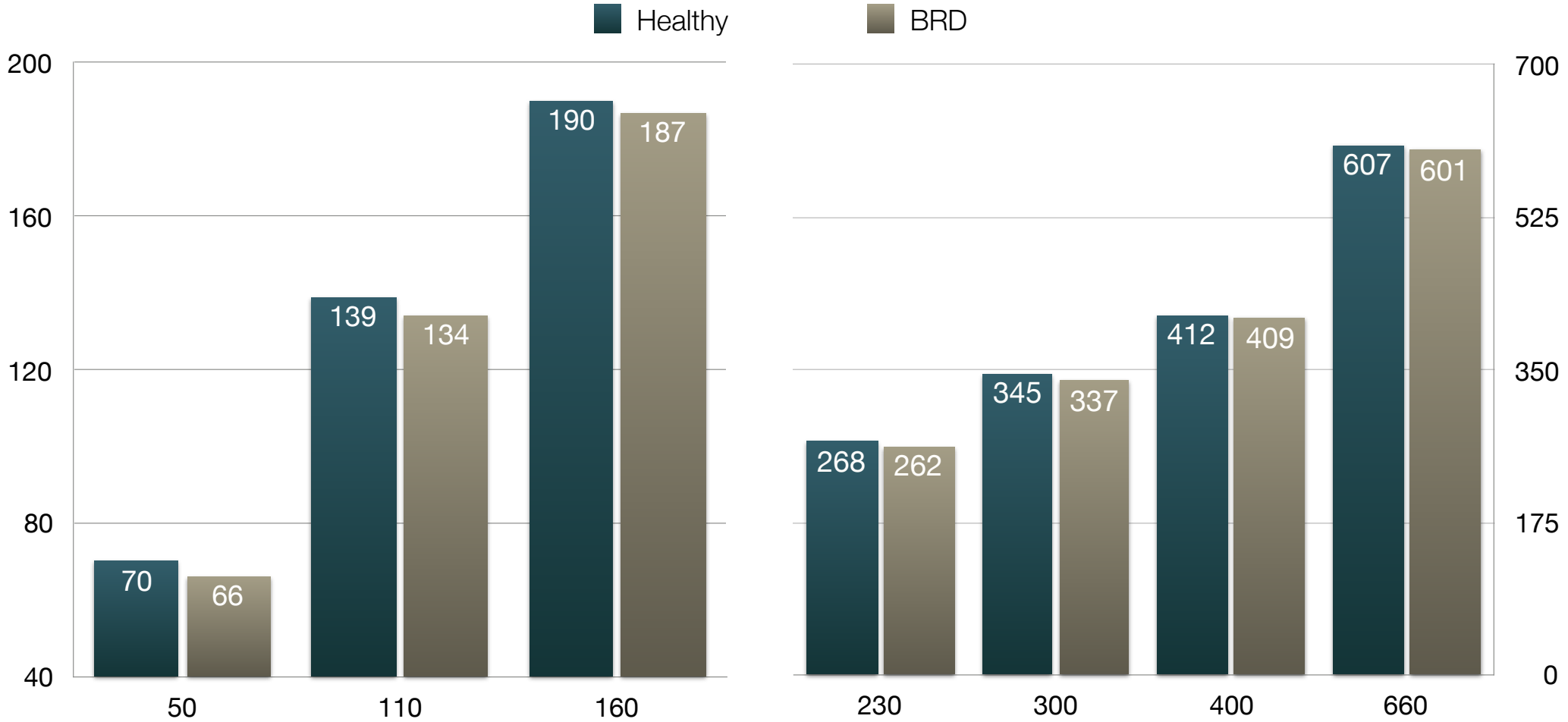
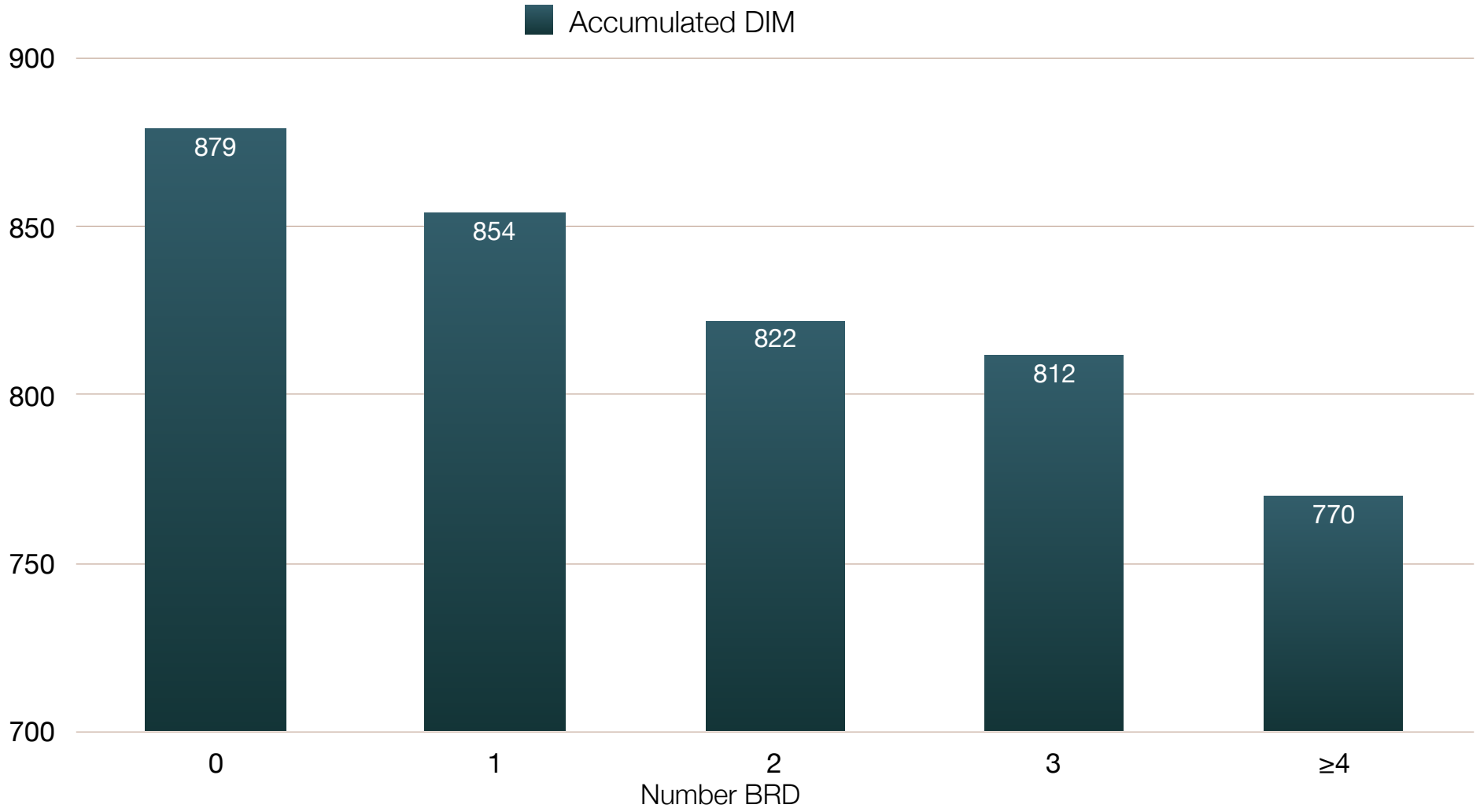


Healthy: 711 g/d, BRD: 630 g/d ~ 182 kg of milk

Quality Control



Bach, 2011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Thank you