

Once-a-day Milking: Research Update

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Introduction

- Why consider once-a day (OAD) milking
 - Difficulty sourcing labour
 - Better work life balance
 - Overcome issues with workload e.g. calving
- Benefits of OAD
 - improved energy balance due to lower bodyweight (BW) and body condition score (BCS) loss
 - improved fertility performance
- Potential drawbacks of OAD
 - reduction in milk production (~22%)
 - increased somatic cell count (SCC)
 - may result in decreased farm revenue



Full-time OAD vs full-time TAD

- 2 years full-time OAD completed
- Same cows used both years



	2019	2020
Herd EBI	€164 (Fertility €70)	€169 (Fertility €66)
Proportion heifers in herd	23%	24%
Concentrate fed (kg/cow)	450	330

Grassland and herd management

- Milking routine

- teats stripped, pre dipped, dry wiped, clusters on and post dipped (Deosan).

Normal routine

- OAD cows milked first, received all concentrate in one feed

- Grass – target post grazing height 4-4.2cm,

- Allowance 12 hrs during 1st rotation, 24 -36 hours 2nd rotation onwards
- Always high quality grass available (pre-grazing yield 1400 – 1600 kg DM/ha)

- Farm cover guidelines used as per PBI (O'Donovan et al., 2019)

- 11 week breeding season



OAD vs TAD (2019 & 2020)

Milk yield
↓29% (2019)

Milk Yield (kg)

	<u>2019</u>	<u>2020</u>
TAD	6268	5846
OAD	4456	4243

Milk yield
↓27% (2020)

Milk Solids Yield (kg)

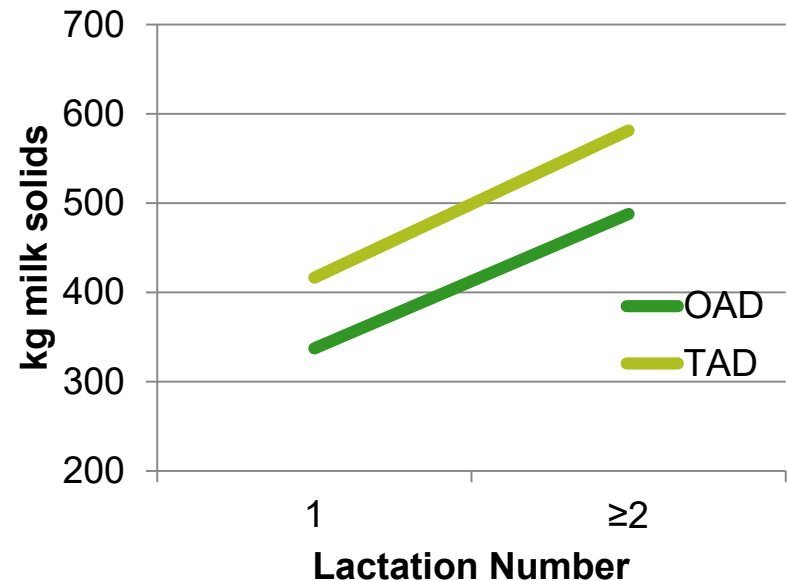
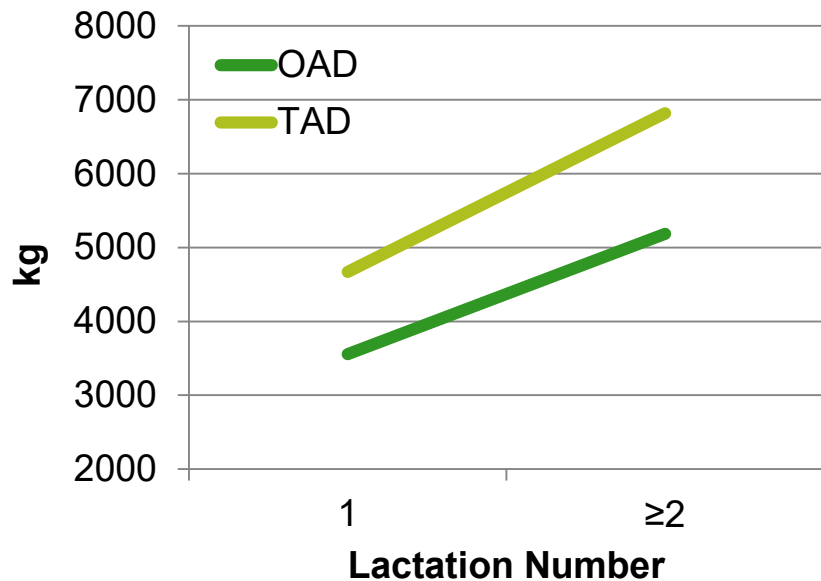
	<u>2019</u>	<u>2020</u>
TAD	511	505
OAD	396	409

↑ 3%

MSY ↓ 23%
(2019)

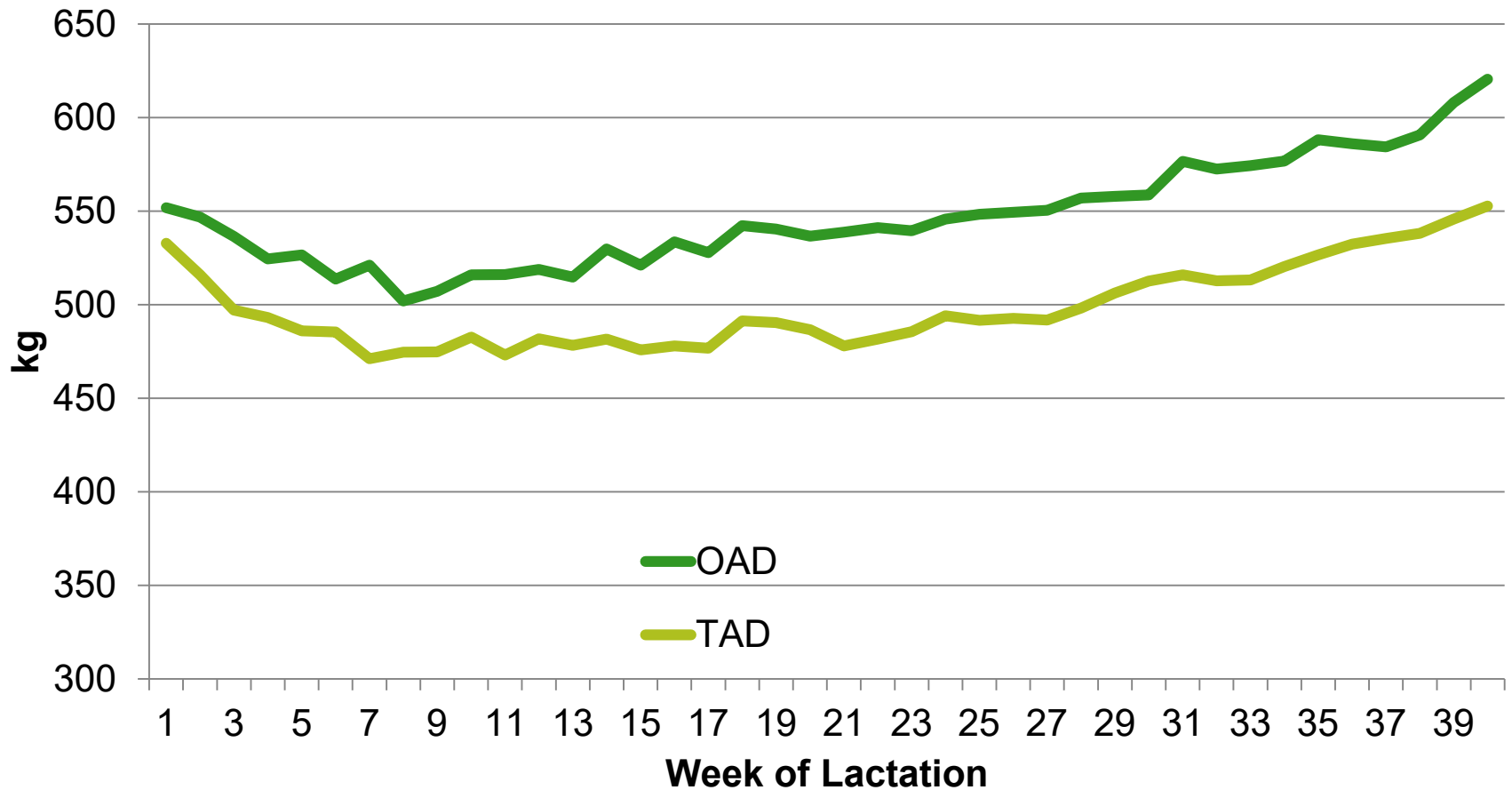
MSY ↓ 19%
(2020)

Do heifers react differently when milked OAD compared to TAD?



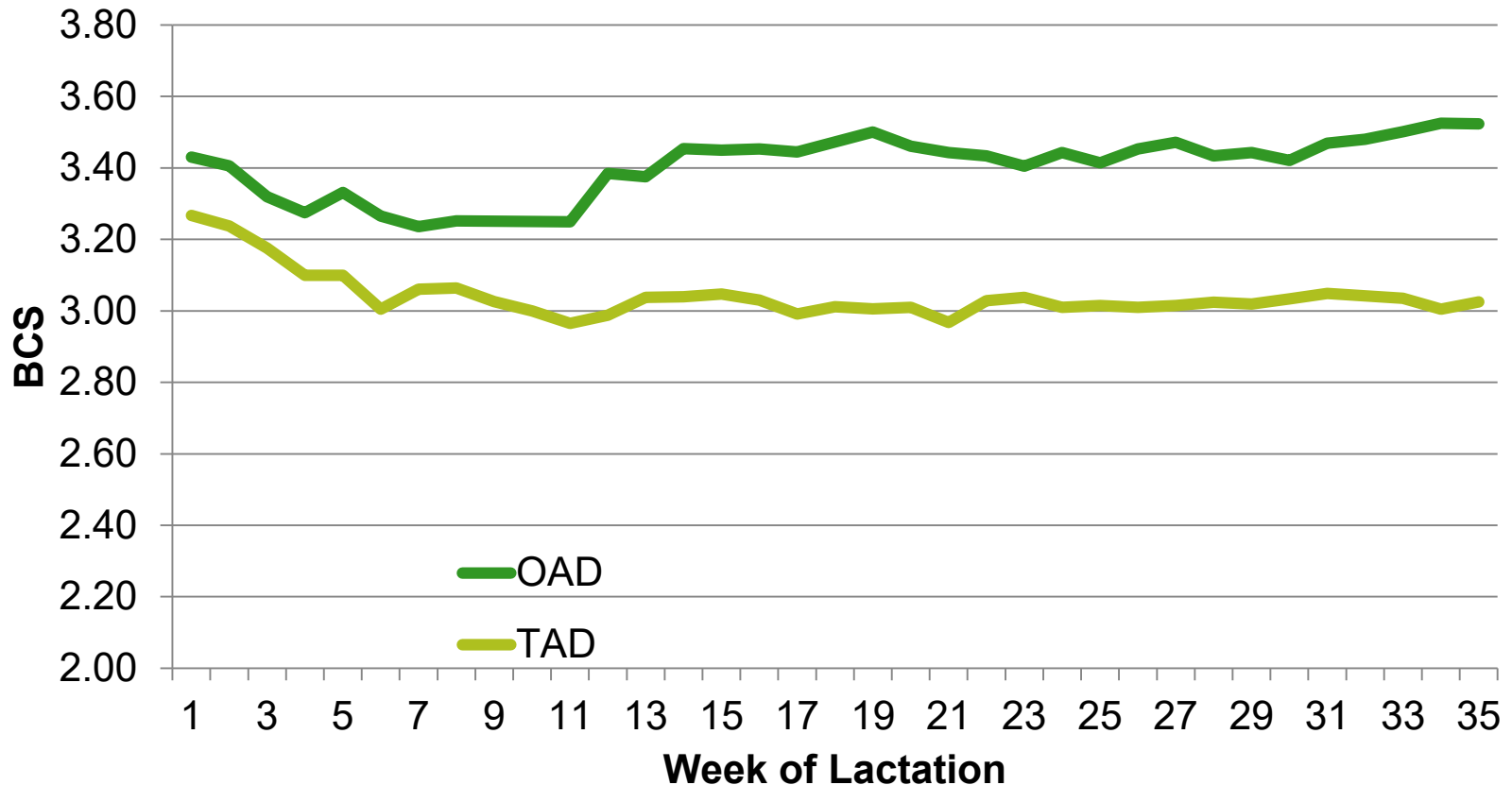
- Milk/milk solids production of heifers milked OAD reduced by the same proportion as mature cows
- Similar results observed in 2019

Bodyweight



- On average 50kg difference in BW between treatments across year
- Approx. 70 kg difference at end of lactation

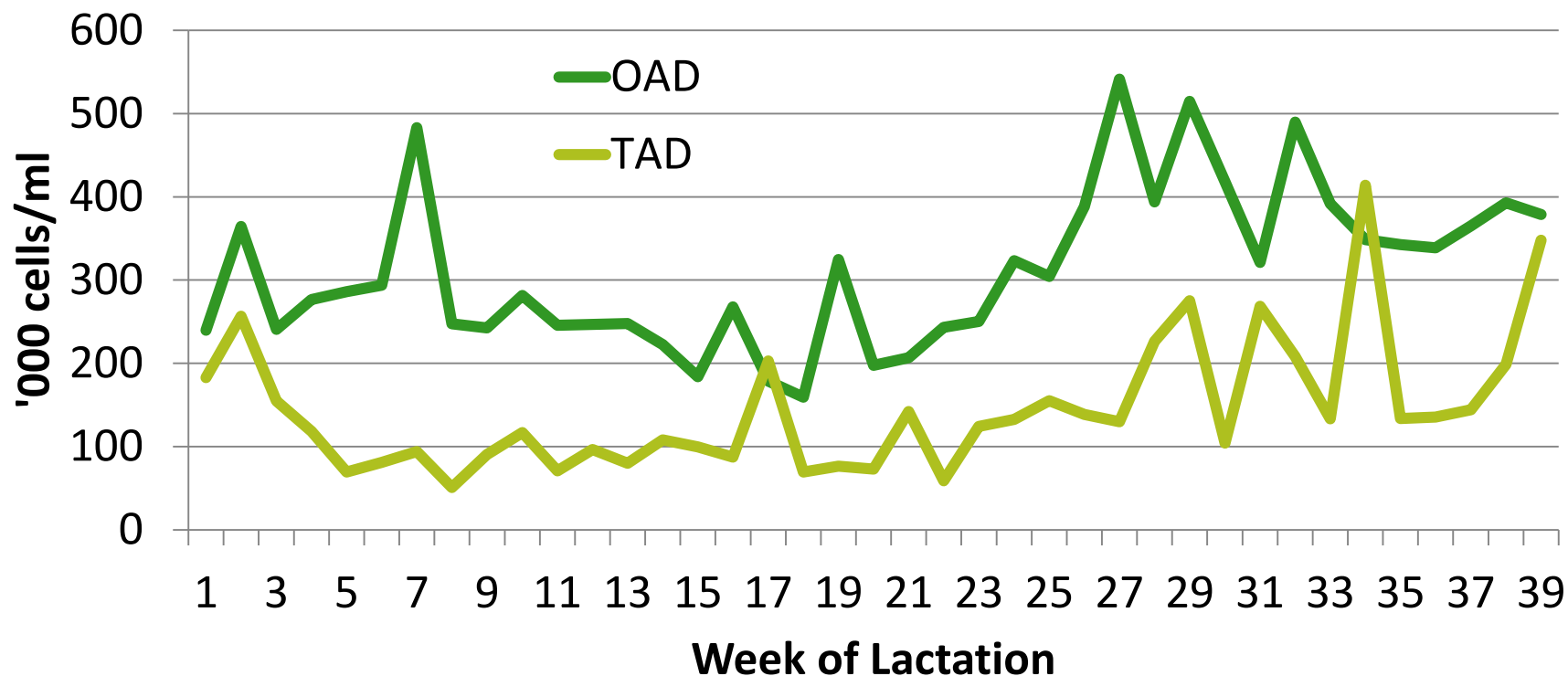
Body Condition Score



- OAD cows average BCS across year = 3.41
- TAD average across year = 3.04
- Approx. 0.5 BCS difference at end of lactation

Somatic Cell Count

- No difference in SCS in 2019



- Lactation average:

- OAD 344 TAD 147

Fertility Performance 2020

	Conception to First Service (%)	Calving to conception (days)	Not in calf (%)
TAD	69 %	87	9 % (5 cows)
OAD	88 %	81	4 % (1 cow)



Milk processability: Oct 5th – Nov 30th

- Overall, no negative impacts of OAD milking on milk processability, possible improved cheese-making functionality and potentially improved milk heat stability.
- No apparent relationship between low lactose content and bulk milk processability.
- Variable, but overall increased heat stability in OAD milk.

Note: cows were in good BCS (> 3) and they were offered high quality grass (~ 1600 - 1800 kg DM/ha; last rotation)

Take Home Messages: OAD vs TAD

- Not suitable for everyone, depends on circumstances (herd size, person etc.)
- Medium production performance can be achieved with OAD milking and low concentrate input

BUT

- Need to be technically efficient
- Excellent grassland management required
- Good herd management essential

Previous research: 2018/2019

- Year 1 – 2018
 - Compare twice-a-day (TAD) milking to OAD for 4, 6 or 8 weeks at the start of lactation on immediate and total lactation performance
- Year 2 – 2019
 - Compare TAD milking to fulltime OAD and OAD for 2, 4 or 6 weeks at the start of lactation on immediate and total lactation performance
- Year 3 – 2020
 - Compare TAD milking to fulltime OAD and OAD for 7 or 11 weeks at the end of lactation



Summary early lactation OAD

- Short term OAD is an option in early lactation on all farms
 - Initial 22 – 24% reduction in milk yield
 - 20 – 23% reduction in milk solids yield
 - Immediate increase in production when cows return to TAD
 - No difference in total lactation MSY
 - 6 and 8 week OAD in early lactation reduce milk yield compared to TAD
 - No difference in SCC
 - Milking time reduced by 30%

Is late
lactation OAD
an option?



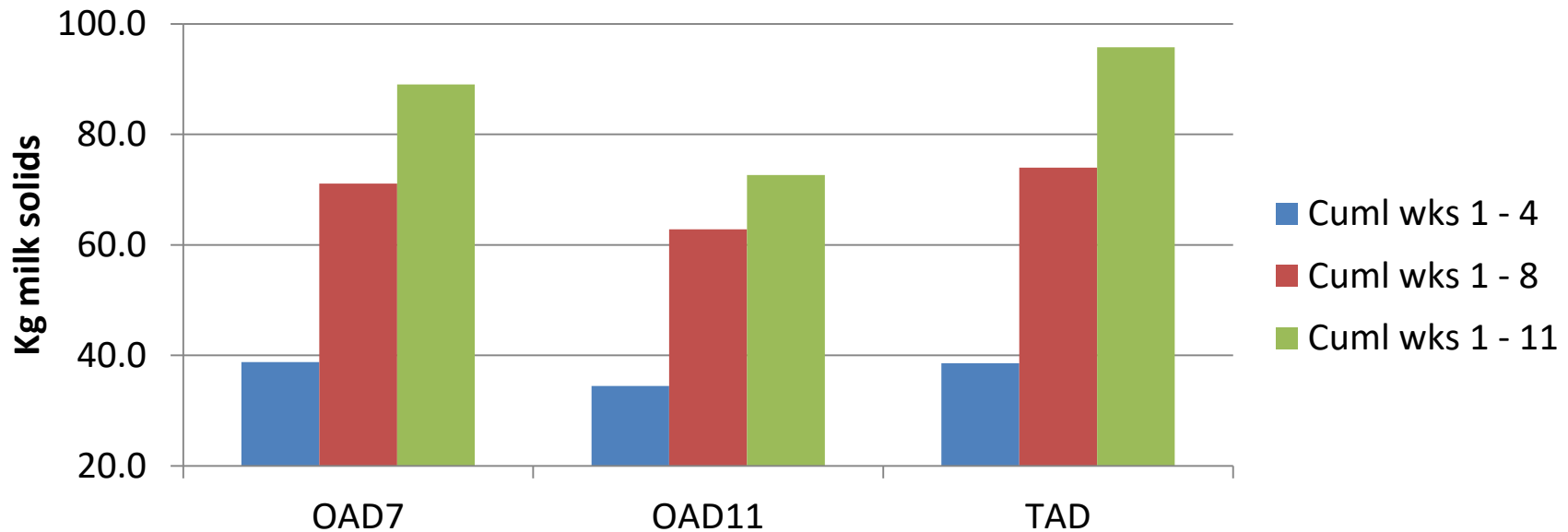
- Comparison of TAD milking with OAD milking from
 - 11 weeks before dry off
 - 7 weeks before dry off

Decision rules for drying off

- Cows milking less than 5 kg/day
- Within 8 weeks of calving
- BCS <2.75 within 10-weeks of calving
- SCC does not reduce following treatment for a clinical infection
- SCC >500,000 for two consecutive weeks



Last 11 weeks of lactation – milk solids



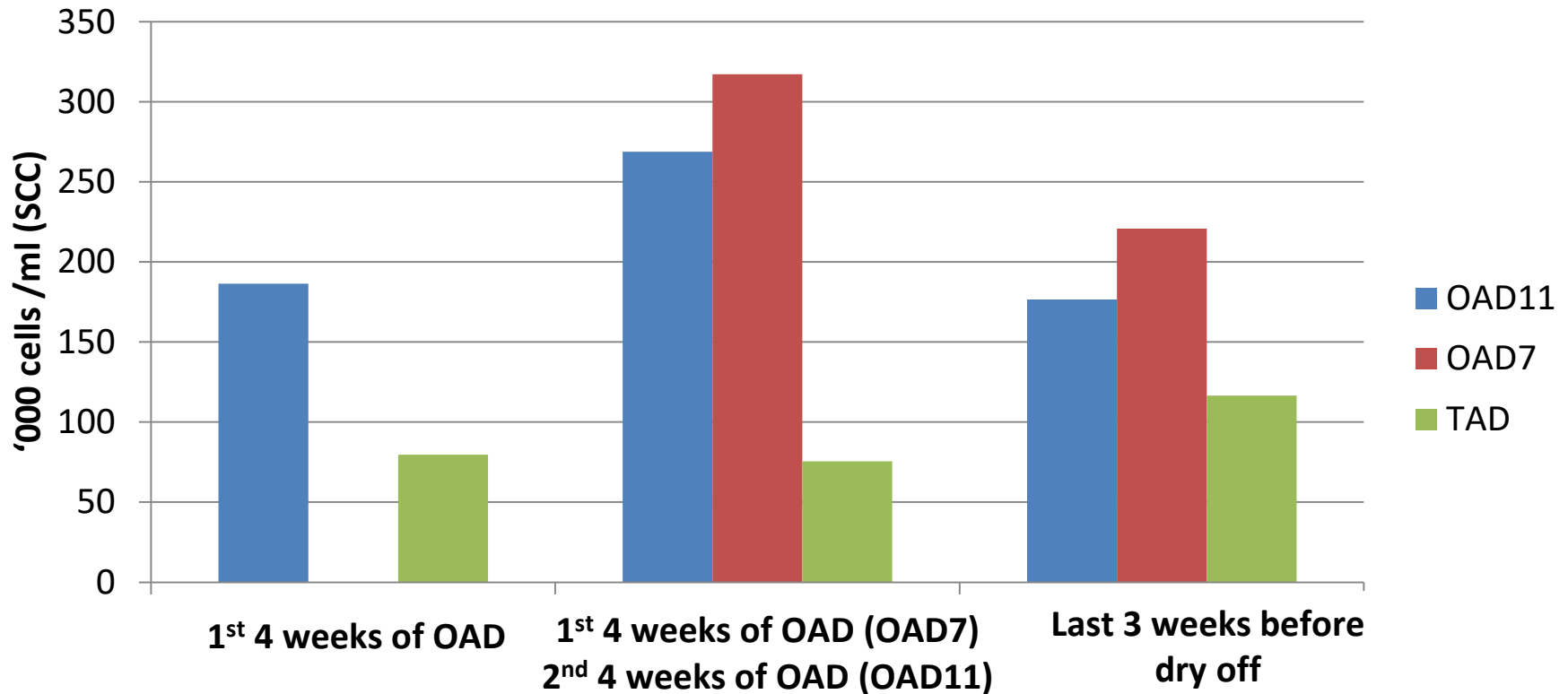
- OAD11 – 24% reduction in milk solids over last 11 weeks of lactation
- OAD7 – 7% reduction in milk solids over last 11 weeks of lactation
 - MSY was reduced by 26% during the OAD milking period

Effect of late lactation OAD on total lactation yield

- No difference in total lactation milk yield
- No difference in total lactation milk solids yield

	OAD7	OAD11	TAD
Total lact MY	5868	5634	5846
Total lact MSY	504	491	505

Effect of late lactation OAD on SCC



- Late lactation OAD increases SCC
- Initial increase then reduces
- Significantly higher than TAD
- *Average SCC before OAD was 177

Late lactation OAD – take home messages

- Need low SCC with good management practice
- No difference in total lactation production
- Good grassland management essential
 - Need to include grass in diet for as long as possible
- Labour saving
- Increase in SCC when switch to OAD but reduces again

Short-term OAD has a role on all farms