



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

The Irish Agriculture and Food Development Authority

Robotic Milking and OAD comparison

Patrick Gowing

Teagasc Dairy Expansion Service

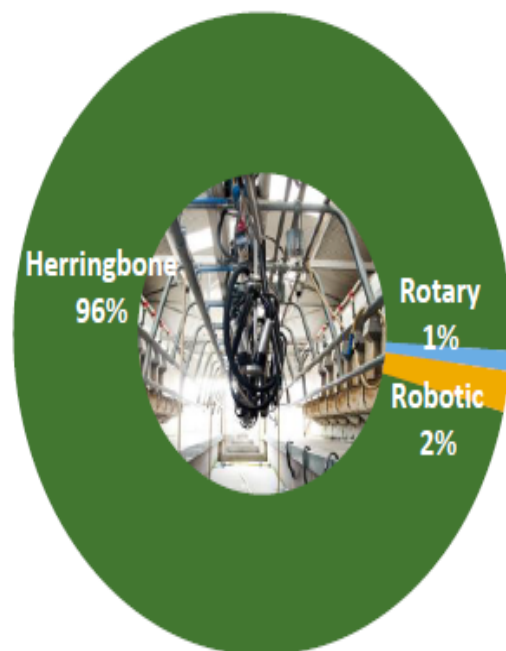
Presentation outline

- Robotic Milking background
- Why chose a robot
- Robotic Grazing
- Labour study – Auto grass milk
- Financial Analysis

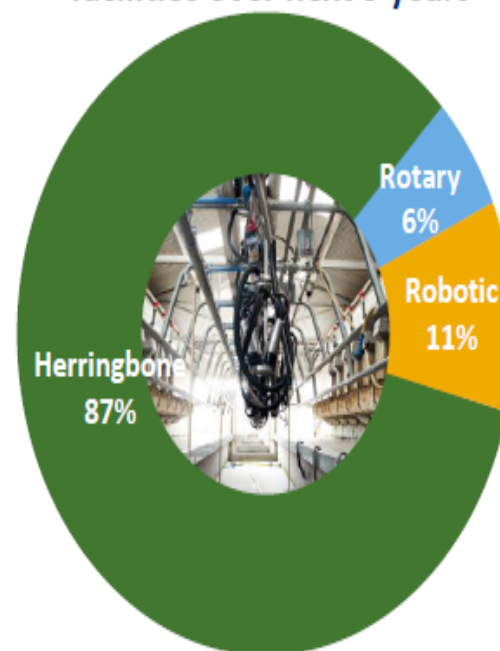
11% OF THOSE THAT ARE PLANNING TO INVEST ARE CONSIDERING ROBOTICS.

Milking parlours & Planned investment

What type of Milking Parlour do you have



If planned investment or expansion of milking facilities over next 5 years



16% of Farmers Aged Under 35 will Invest in Robotic Systems compared to 9% of Farmers Aged over 45

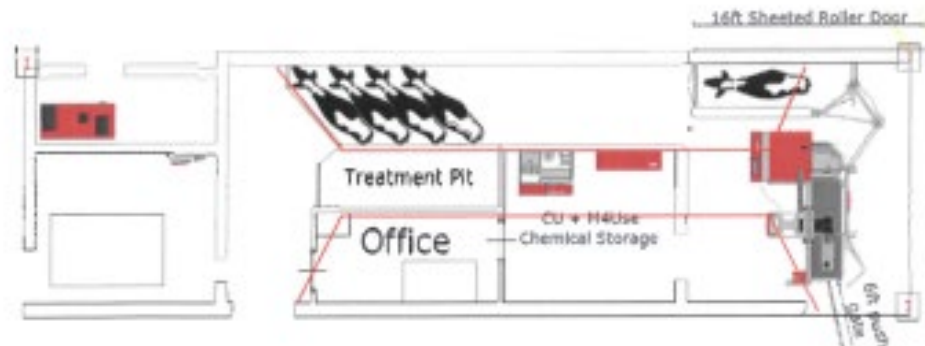
Robotic Milking Costs

Item	Range
List Price robot 1	€115,000 - €155,000
List Price Robot 2	€90,000 - €115,000
Service Cost / Robot	€2,200 - €4,200
Water Usage (litres/robot/day)	410l – 822l
Energy Usage per Milking	0.19 – 0.37

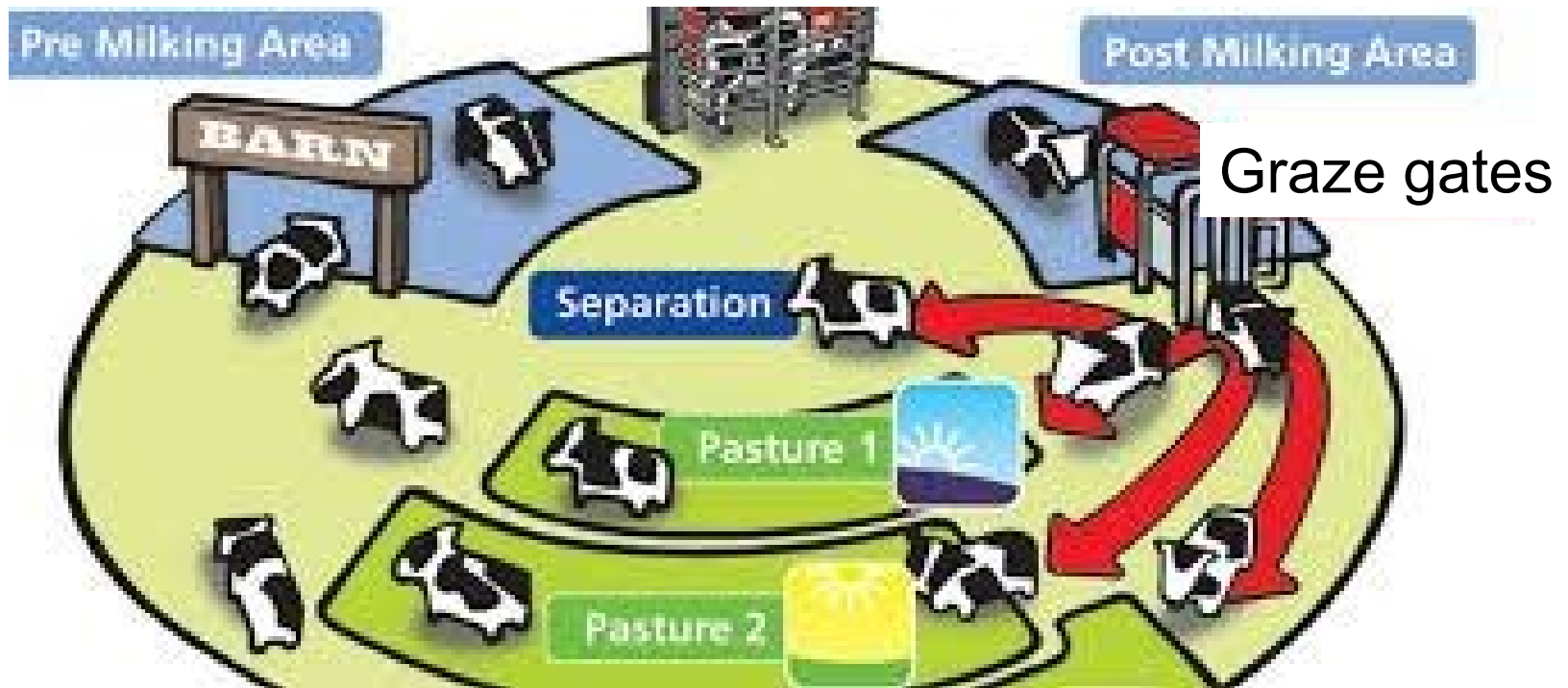
Prices Exclude Building & services
Running Costs Exclude Consumables

Why Robotic Milking

- Labour Saving
- Flexibility
- Increased information
- Likes Technology
- Indoor & partial indoor systems
- Can retrofit into existing parlour with minimum building



Robotic Grazing



Robotic Grazing



AMS - Labour Usage

John Shortall,
C. Foley, L. Shalloo, J. Upton, and B. O'Brien
Teagasc Moorepark



AUTOGRASSMILK

The Irish Agriculture and Food Development Authority

Labour Input

Measurements from commercial farms

- 7 AMS and 10 conventional
- Av. Herd size 105 (AMS) and 120 (Conv)
- Monthly for 3 consecutive days
- Data recorded on mobile phone app

Labour 2 : Select Activity	
Cow Health	>
Grass Allocation / Strip Fencing	>
Herding Cows Indoors	>
Herding Cows Outdoors	>
Milking	>
Non Farm Activity / Personal	>
Other Dairy Tasks	>
Other Enterprise Tasks	>
Training Cows to Parlour	>
Yard / Machine Cleaning	>
☰	

Robotic Vs Conventional Tasks

Robotic Farm Tasks

Checking AMS Data
Fetching Cows
Robot Cleaning Maintenance
Alarms

Grass Allocation
Other Dairy Tasks
Other Enterprise Tasks
Non Farm Activity

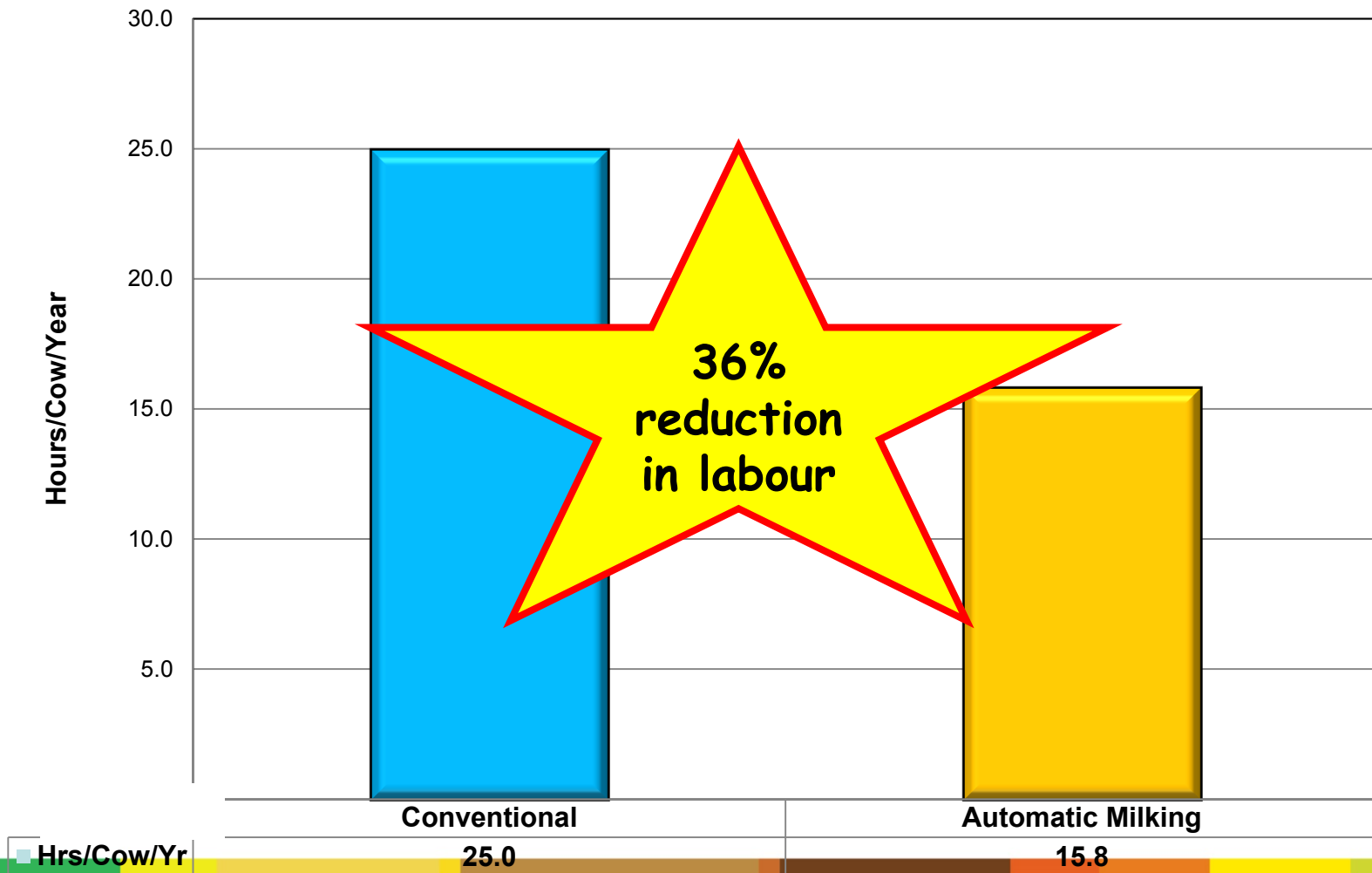
Conventional Farm Tasks

Herding Cows to/from milking
Milking
Yard/Machine Cleaning

Grass Allocation
Other Dairy Tasks
Other Enterprise Tasks
Non Farm Activity

Labour - Total Input

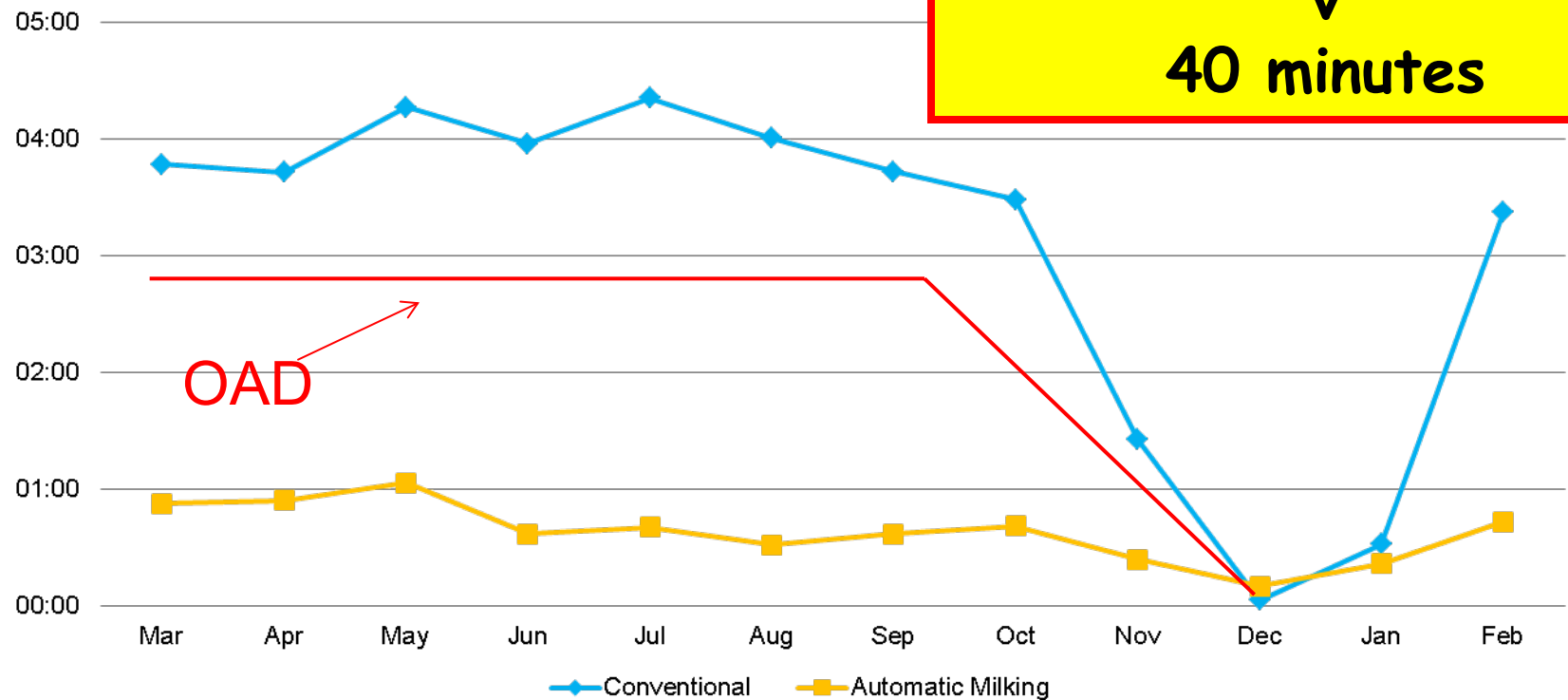
Total Dairy Labour Input



Labour - Milking Process

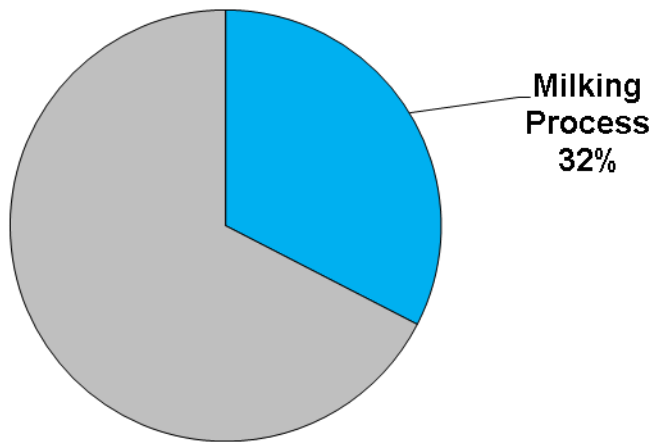
3 hours
v
2 hours
v
40 minutes

Average Daily Time at Milking



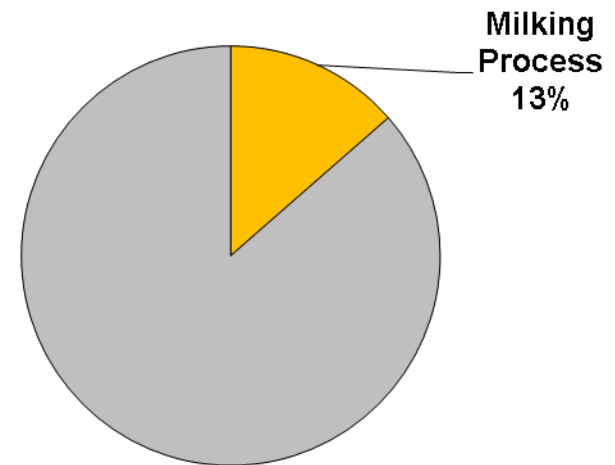
Labour – Milking Process as a % of Total Dairy Labour Input

Conv. Milking



**OAD ~ 23% on
Milking process**

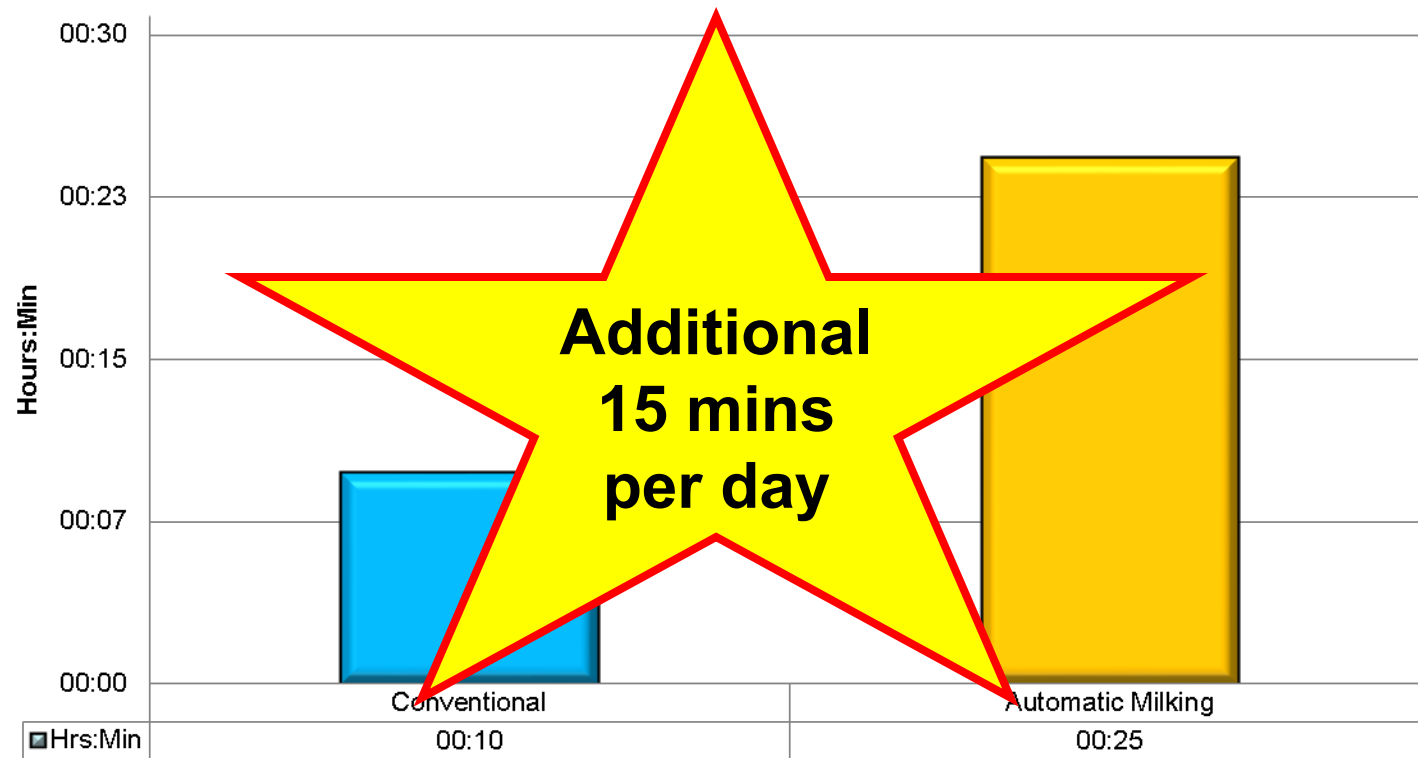
Automatic Milking



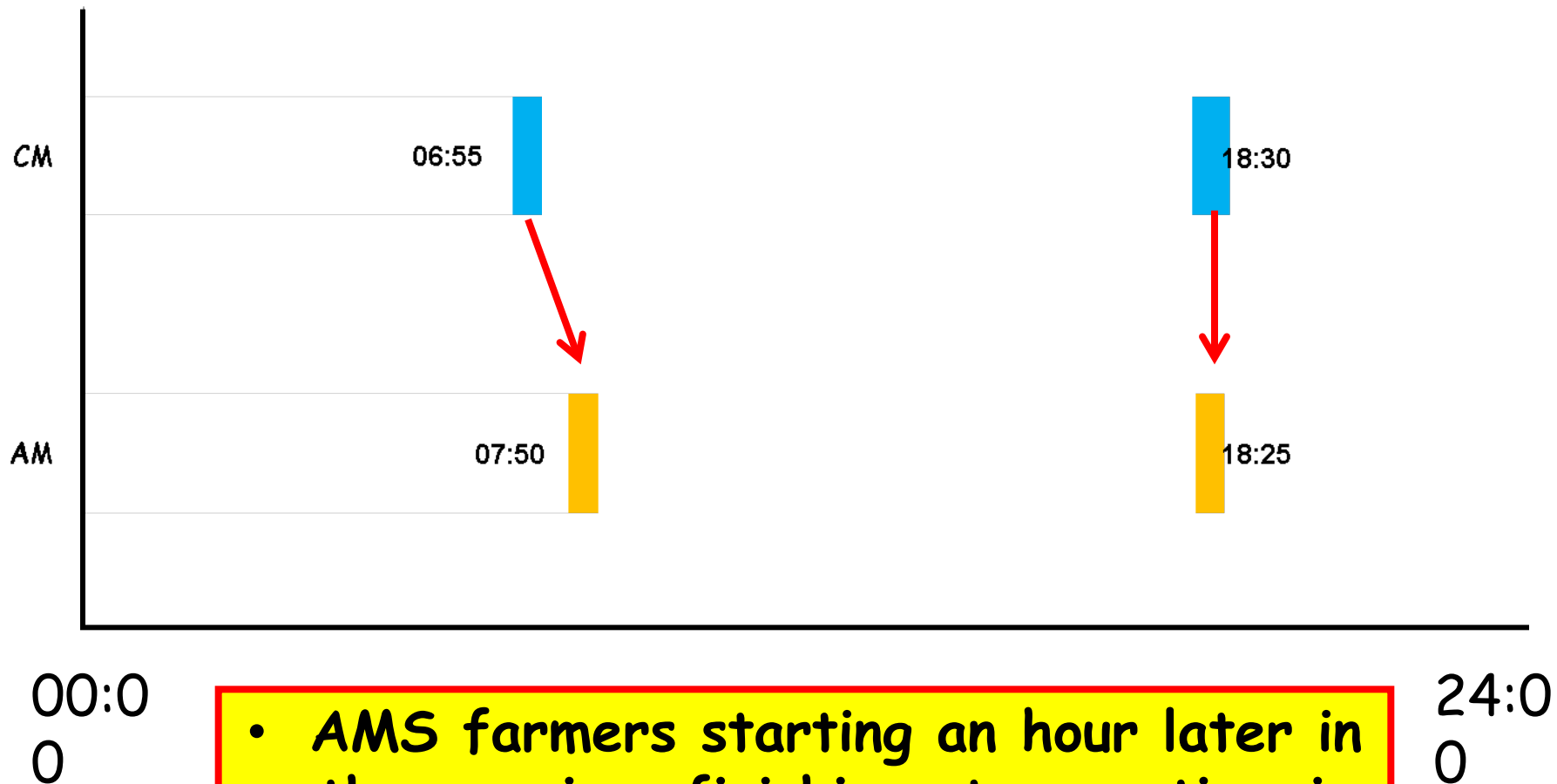
Labour – Grass Allocation

(Only refers to allocating grass strips to cows daily, not grass walks etc.)

Average Daily Time at Grass Allocation



Average Daily Start and End Times



- AMS farmers starting an hour later in the morning, finishing at same time in the evening, but have more free time during the day.

Labour Summary

- Labour input ↓ with AMS
- Reduction in milking process time
- Increased time at grass allocation
- AMS starting day an hour later
- Reduction in time spent at other dairy tasks
 - Farmers state they now have a greater focus on all other farm tasks allowing them to complete those tasks more efficiently
 - Important to consider the economy of effort required by both types of farmers

Economics

- 2019 EPM data used
 - OAD Brian Hilliard Group
 - Top 25%
- Herd size standardised to 140 cows
- 2 Scenarios
 - Farmer looking to reduce workload
 - New entrant to milk

Existing

€/cow	TAD		
Cows	140		
Kg MS/cow	511		
Gross Output	2,248	1,684	2,248
Total Costs	1,277	1,065	1,548
Net Profit	971	619	€700
Difference		352	271
Total (€)	135,800	86,660	98,000

Dep & interest	€257
Service	€43
ESB	€20
Labour	-€50
Total	€271

New entrant

- TAD
 - New 20 unit milking parlour
 - Valued @ €10,000/unit
- OAD
 - New 16 unit parlour
 - Valued @ €10,000/unit
- Interest rate @ 4%
- Depreciation 5%

New Entrant

€/cow	TAD	OAD	Robots
Cows	140	140	140
Kg MS/cow	511	389	511
Gross Output	2,248	1,684	2,248
Total Costs	1405	1,167	1,548
Net Profit	842	517	€700
Difference		325	142
Total (€)	117,940	72,380	98,000

Summary

- Robotic milking will save 36% compared to TAD
- Robotic and OAD similar profitability
- OAD lower investment
- OAD less risk in low milk price years
- Robotic will have higher capital write-down
- TAMS grants
- Both OAD and Robotic need careful planning

Thank You