



# Sustainable Dairy Youngstock Rearing Protocols at CAFRE

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# Presentation Overview

- 24-month calving with – Why?
- Rearing performance
- Accelerated growth
- New-born calf
- New CAFRE calf house
- Disease prevention
- Automatic milk and concentrate feeders
- Grazing management
- Breeding with sexed semen and genomic testing



**Demonstration of:**

# **Sustainable Dairy Youngstock Rearing Protocols**

**a CAFRE deliverable within Dairy-4-Future**

**Interreg Atlantic Area funded project  
[www.dairy4future.eu](http://www.dairy4future.eu)**



# 24-month calving – Why?

## Age at first calving (months)

Age category	24	30	30
0-12 months	35	35	35
12-24 months	35	35	35
24-36 months	-	17	35
Total replacements	75	87	105

## Increasing age at first calving:

- More replacement heifers
- Increased GHG emissions
- Increased land
- Increased buildings
- Increased cost - £11K / 100 cows
- More work!

# Age at calving in practice

Calving season	Mean D.O.B.	Mean calving date	Mean age at first calving (months)
2016-17	24 Oct 2014	26 Oct 2016	24.1
2017-18	13 Oct 2015	5 Oct 2017	23.8
2018-19	25 Oct 2016	8 Nov 2018	24.5
2019-20	1 Oct 2017	*3 Nov 2019	*25.1

## Age at first calving in N. Ireland:

- 2006 – 32 months
- 2016 – 27.5 months
- 2019 – ? months

\*Start of calving season deliberately moved back by 2 weeks for management reasons

# Accelerated growth

## \*Benefits of accelerated growth:

- Improved lifetime production
- Earlier maturity and breeding
- Indications of improved fertility
- Indications of improved disease resistance

\*Review of 13 studies, Soberon and Van Amburgh, 2013



# Management of the new-born calf

- Calving in individual pens, cleaned and disinfected between births
- Removed from cow at birth to minimise Johne's disease risk
- Fed colostrum (10% of body weight) within 1 hour of birth
- Fitted with a **clean** calf jacket
- Moved to straw bedded individual pen in calf house
- Surplus colostrum and transition milk pasteurised or acidified and refrigerated
- Fed re-heated dams colostrum/transition milk for first 4-5 days
- Transitioned onto milk replacer - day 5 to 7 (26% protein; 16% fat)
- Moved to group pen and automatic feeder at 7 days of age

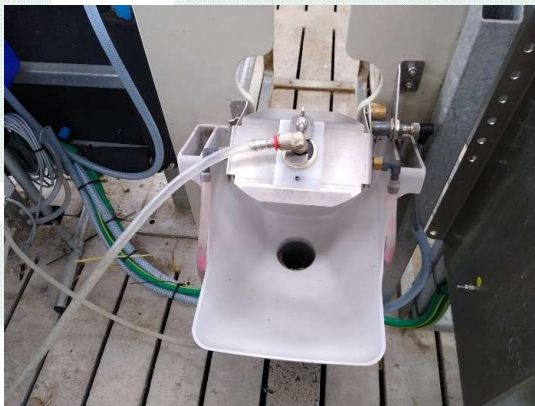
# New CAFRE calf house



- Lots of fresh air!
- 40 No. individual pens
- 6 No. group igloo pens
- Igloos & pens removed for cleaning
- 2 No. automatic feeding control units
- 6 No. milk feeding boxes
- 6 No. automatic calf weigh scales
- 6 No. concentrate feed boxes
- Milk preparation room

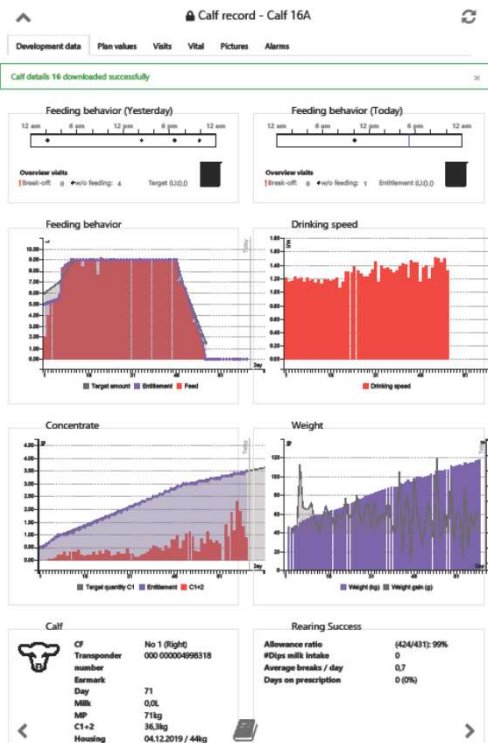


# Disease prevention



- Lots of fresh air!
- Building location – south west corner of yard
- Strict pneumonia vaccination protocols
- Written health condition SOPs
- Isolation area for sick calves
- Strong cleanliness and hygiene focus
- Industrial dishwasher and washing machines
- Automatic teat cleaning equipment
- Student and staff hand and boot washing facilities

# Automatic calf and concentrate feeders



- Free access to Foerster Technik Calf Cloud software
- Wifi connection required
- Detailed individual calf performance reports
- Allows poor performing calves to be identified
- Facilitates timing of weaning decisions

# Grazing & housing management

- Turnout in April, according to weather and ground conditions
- Leader follower grazing system
- Worming with a pour-on 3, 8, 13 weeks post turnout
- Sep to Nov born calves, no meal – mineral bolus
- Calves born Dec onwards – 2.0 kg concentrates per day
- 2<sup>nd</sup> winter 2.0 kg concentrates per day until PD+ve
- Concentrate crude protein adjusted for silage quality
- Winter housing - ammonia emission reduction flooring
- 2<sup>nd</sup> summer grazing as followers in leader follower system



# Genomic testing

Birth year	£PLI	Milk	Fat	Protein	FI	LS	SCC
2018-19	221	-126	0.16	0.09	5.3	50	-3.9
2017-18	210	-117	0.10	0.10	5.7	50	-2.7
2016-17	90	-193	0.10	0.07	3.4	39	0.5
2015-16	99	-194	0.10	0.08	1.0	35	3.1
2014-15	79	-130	0.08	0.06	1.4	27	-.07
2013-14	89	-162	0.06	0.06	2.0	28	-4.6
2012-13	20	-297	0.11	0.06	1.0	40	-2.3

Using genomic testing:

- Which females to breed from?
- Which surplus stock to sell?
- Which bull calves to keep?

# Breeding with sexed semen

- Maiden heifers bred with sexed semen
- Superior fertility with maiden heifers
- Best genetics in the herd
- Sire selection on:
  - PLI
  - Fertility
  - Lifespan
  - Maintenance etc
- Increased rate of genetic progress
- More rapid progress to more sustainable genetics



# Summary

## Impact of CAFRE Heifer Rearing Protocols on Sustainability

Sustainability measure	Economic		Environment		Social	
		GHG	Ammonia	Water	Consumer	AMR
24 month calving	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
Disease management	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Grazing	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Housing			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Breeding for £PLI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Feeding	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			



**Thank You!**

**Any questions?**