

# Breeding and Feeding decisions for Winter 2016

Friday, 28<sup>th</sup> October, 11am

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***Topics for discussion include:***

Economics of fertility for winter milk herds

Robust cows – breeding for longevity

Nutrition to improve herd metabolic health

Diet guidelines for efficient milk production



## Does fertility pay for winter milk herds?

- Less focus than seasonal herds?
  - Carryover cows more accepted
  - 6 week calving rates not a priority
- Reduced cost of culling empty cows?
  - Short term effect only
- Late spring calvers fill winter litres?
  - Milk losses not quantified
  - Feed cost

### Milk Revenue Loss due to calving interval

Herd Calving Interval	Herd Base Production (Litres)		
	6000	7000	8000
401	€9,660 <sup>3</sup>	€7,320	€4,380
422	€16,770	€13,620	€9,060
443	€23,760	€20,700	€14,970
464	€30,570	€28,020	€20,490

- 100 cow herd
- 30cpl annual milk price
- Compared to 370 day calving interval

### When calving interval increases...

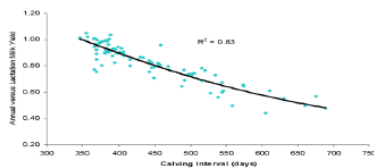
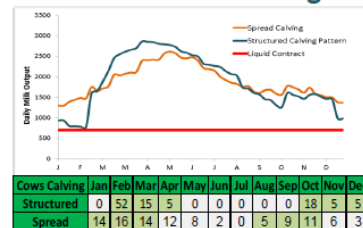


Figure 1. Association between calving interval and ratio of annual to lactation milk yield per cow in liquid milk herds

Herd Calving Interval	Calves born per Cow per Yr
375	0.98
401	0.91
422	0.86
443	0.82
464	0.79

- Gap between 305 and actual milk yield widens
- Fewer replacement heifer calves per year
- Calving pattern loses structure
- Increased herd health risks

### Effects of Poor Calving Pattern



100 cow herd  
Extra feed cost €7100

- More surplus-to-contract winter milk
- Higher annual feed costs
- Extra cow and youngstock management
- More cows at risk of recycling

## 24 Month Calving- A Must for Winter Milk

### Comparing Rearing Costs

Age 1 <sup>st</sup> Calving	24mths	30mths
Milking cows		130
Replacement Rate		26%
Farm ha total	80	80
Farm SR	2.01	2.20
Forage Balance	160 bales	-100 bales
Heifer Feed Cost	€17,858	€25,897
Extra Overheads	-	(€2122)

Difference ( €10,161) equivalent to net margin on 17 cows

### Comparing Milk and Fertility

**Older** heifers at first calving had:

- More calving difficulty
- Higher first lactation yield but...
- Lower subsequent and lifetime yield
- Increased days to conception
- 3 times less likely to reach 4<sup>th</sup> lactation

Source: Wathes, Cooke RVC study 2014

### Targets Relative to Mature Weight



**Weaning**  
90-95kg

**6 months**  
30%

**Breeding**  
60%

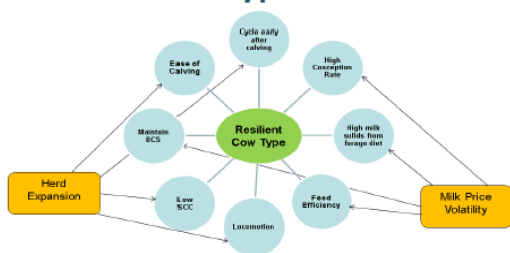
**Calving**  
90%

### Key Management Points

- Double the weight from birth to weaning
- **0.7kg to 0.8kg weight gain per day**
  - Not less than 0.55kg for any period
- Regular weighing essential
- 1<sup>st</sup> Winter Diet: 4.5 UFL and 450g PDI
- Easy calving AI sires- synchronise heat

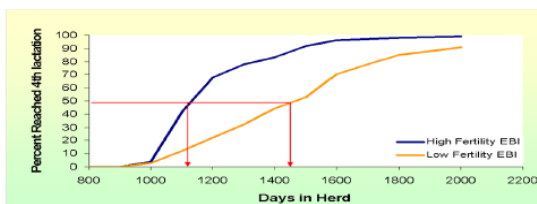
# Breeding for Better Cow Longevity

## Robust Type Cows



EBI improves for these traits

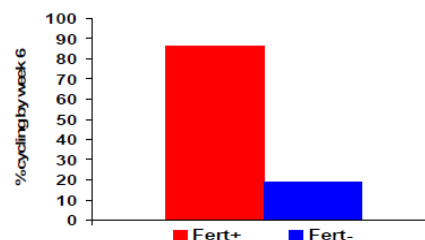
High overall dairy type does not improve these traits



- >20,000 winter milk cows
- Proportion surviving to 4<sup>th</sup> lactation
  - 64% of high fertility index cows
  - 29% of low fertility index cows
- 1 year longer to reach 4<sup>th</sup> lactation

## What difference does EBI make?

- Similar peak milk solids yield but
  - Higher lifetime yield
- Better BCS on equal diets
- Less metritis/ uterine infection
- Fewer silent heats
- Fewer false heats
- Higher progesterone post-ovulation
- Better quality embryos



# Breeding for Better Cow Longevity



## Performance Targets

- 1<sup>st</sup> Calve at 22-24 months old
- Calving interval less than 370 days
- Milk solids >85% of liveweight
  - 510kg from 600kg cow
- Milk protein 3.60% plus
- 4500 litres milk from forage (7100 litres from 1.2 tonne concentrate)
- Lifetime yield 2500kg solids
- BCS 2.75 at breeding
- Somatic cell count less than 100,000
- Sound feet and legs

## Comparing EBI Profiles

Milk Kg	Fat %	Prot %	Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
34	6.4	0.09	1.6	€ 30	€ 50	€ 30	€ -5	€ 2	€ 2	€ 2	
6.4	0.09	1.6	24.8%	41.1%	24.8%	-4.6%	1.7%	1.3%	1.7%		€ 109
3.9	0.05	-2.5									

Milk Kg	Fat %	Prot %	Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
164	4.4	-0.03	-0.2	€ 18	€ -28	€ 16	€ -6	€ 1	€ 0	€ 4	
4.4	-0.03	-0.2	24%	-38.5%	22.2%	-8.8%	1.1%	0.1%	5.3%		€ 4
4.2	-0.02	2.1									

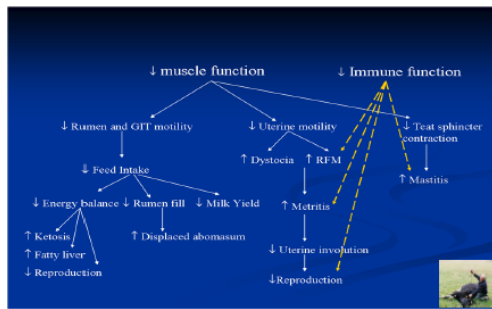
	Herd A	Herd B
Milk solids	535	504
Concentrate cpl	5.21	8.68
Milk Protein %	3.63	3.23
Calving Interval	376	423

## Bull selection Guidelines

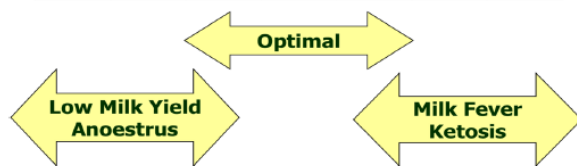
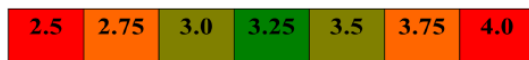
- Select a team of 5-6 bulls
- EBI €260+
- Fertility Sub-Index €140+
- +20kg solids
- 40-60kg milk adequate

# Nutrition to Improve Metabolic Health

## Hypocalcemia (Low Blood Calcium)



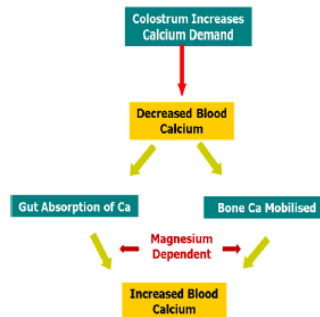
## Body Condition at Calving



## Risk Factors for Excess BCS:

- Recycling cows- extended dry period
- Overfeeding late lactation cows

## Magnesium Pre-calving



- Diet Mg 0.4%
- At least 1 month pre-calving
- Bolus not adequate

## Silage Potassium and CAB value

- High forage K reduces Mg availability
  - Fresh grass, leafy silages
- Not an issue until weeks pre-calving
- Test silage minerals if problems occur
- 1-2 bales 'low K' silage per cow

Major Minerals	Result	Low	Normal	High	Target
Calcium	% 0.6	0.5	0.6	0.7	0.6
Phosphorus	% 0.28	0.25	0.28	0.31	0.28
Magnesium	% 0.14	0.12	0.14	0.16	0.14
Sodium	% 0.13	0.11	0.13	0.15	0.13
Potassium	% 2.83	2.5	2.8	3.1	2.8
Chloride	% 0.96	0.85	0.96	1.07	0.96
Sulphur	% 0.16	0.14	0.16	0.18	0.16
CAB	meg/kg 410.0	350	410	470	410



## Retained Foetal Membranes

- Failure to expel FM within 12-24 hours
- Metritis, risk of ketosis, DA
- Sub-clinical milk fever a major cause
- Poor BCS, lack of diet energy at calving
- Vitamin E and selenium- Immunity

## Displaced Abomasum



- Low rumen fill post calving - risk factor
  - Milk fever, retained placenta, twins
- Poor forage quality, rapid ↑ concentrates
- DMI and milk fall over 2-3 days
- Surgical intervention

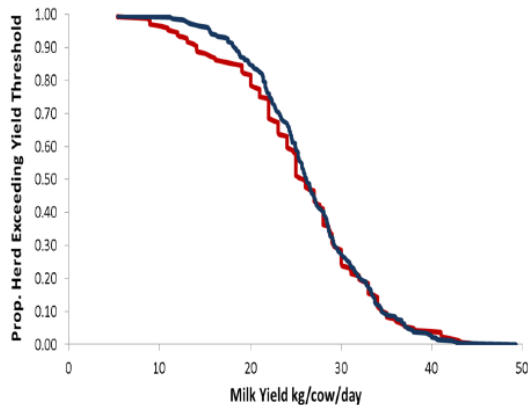
## Key steps to Control Metabolic Disease

- BCS 3.0 3.25 at calving
  - 8-10 weeks dry
  - 68-70 DMD silage
  - Calving interval <380 days
- Forage K less than 2.0%
- Magnesium 0.4% of dry cow diet
- 2-4% added P if needed
- 1000 units Vitamin E (plus Selenium)
- Vitamin D3
- Iodine, Copper, Cobalt, Zinc
- Slow and steady concentrate build-up post calving
  - Pre-calving concentrate is not needed unless BCS is low



# Winter Diet & Feed Efficiency

## Feed to a Realistic Milk Yield

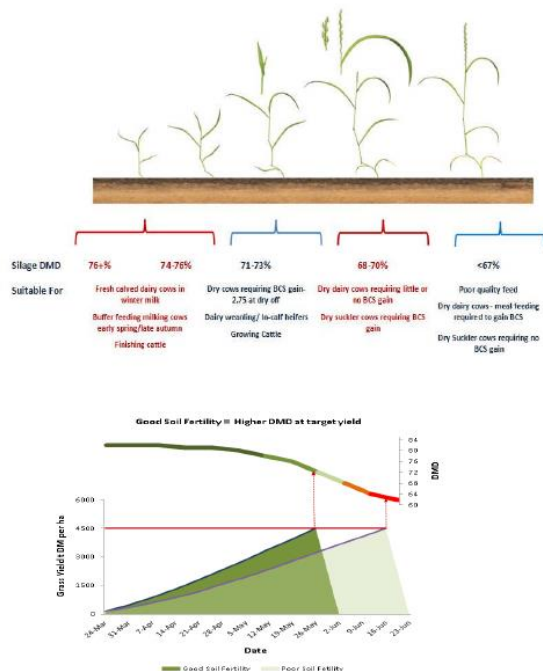


- Cows at 35+ litres : too much emphasis on these animals?
- Extended lactations = more cows at low yield. Risk of overfeeding?
- Calving pattern affects milk yield variation within day

## Comparing Winter Diets

	Diet A	Diet B
Grass Silage kg DM		
- 68 DMD	-	10.5
- 74 DMD	13.5	-
Straw	-	0.5
Brewer's Grains	-	8.0
Urea Treated Wheat	-	2.5
Soybean meal	0.5	0.5
Beet Pulp/Distillers	1.0	-
Hi-Energy 17 (0.96 UFL)	6.0	-
Hi-Pro 19 (0.90UFL)	-	6.0
Total Energy Intake UFL	18.3	17.9
Milk kg from Energy	28.5	27.9
PDIN/PDIE per kg	95/95	110/100
Milk kg from Protein	28.2	31.4
Fibre NDF per kg	39.2	41.0
Crude Protein	15.7	16.6

## Grass Silage for Winter Milk



Parameter	Target
Dry Matter %	28-32
pH	4.0 to 4.2
Ammonia-N (%N)	<5%
Lactic acid (%DM)	9-10%
Lactic acid (as % of acids)	90%
Volatile fatty acids %DM	<1%
DMD (%)	74% +
UFL (unit/kg DM)	0.85+
NDF (% DM)	<43%
Ash (% DM)	<6%
Crude protein (%DM)	13-15
Protein PDIE (g/kg DM)	80
Protein PDIN (g/kg DM)	75
FiM intake (g/kg livewt.0.75)	100 +

## Take home messages:

1. Calve down heifers at 24 months – ESSENTIAL
2. Start breeding for Fertility –Fertility sub index must be greater than €140, protein % must be greater than 0.12%
3. Body condition and Magnesium are essential for cow health
4. Silage analysis – feed value and mineral analysis – is a must
5. Feed to a REALISTIC milk yield

Co-op performance report - 2015	Arrabawn liquid milk average	Arrabawn top 10% liquid
Kg milk solids/cow	403	509
Litres/cow/day	14.87	18.7
Fat %	3.96%	4.17%
Protein %	3.37%	3.54%
Calving interval	416 days	375 days
6 week calving rate	42%	72%
% Ai bred replacements	13%	34
% heifers calved at 22-26 months	30%	80
AVERAGE MILK PRICE	31.7	33.2