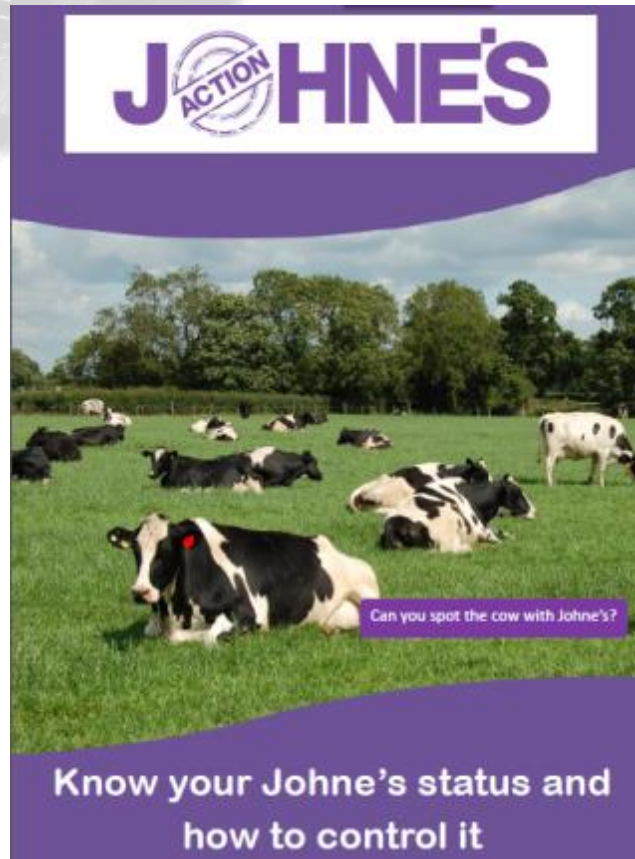


# Johnes Disease Control in the Dairy Cow



# How Common is Johne's Disease in the UK?

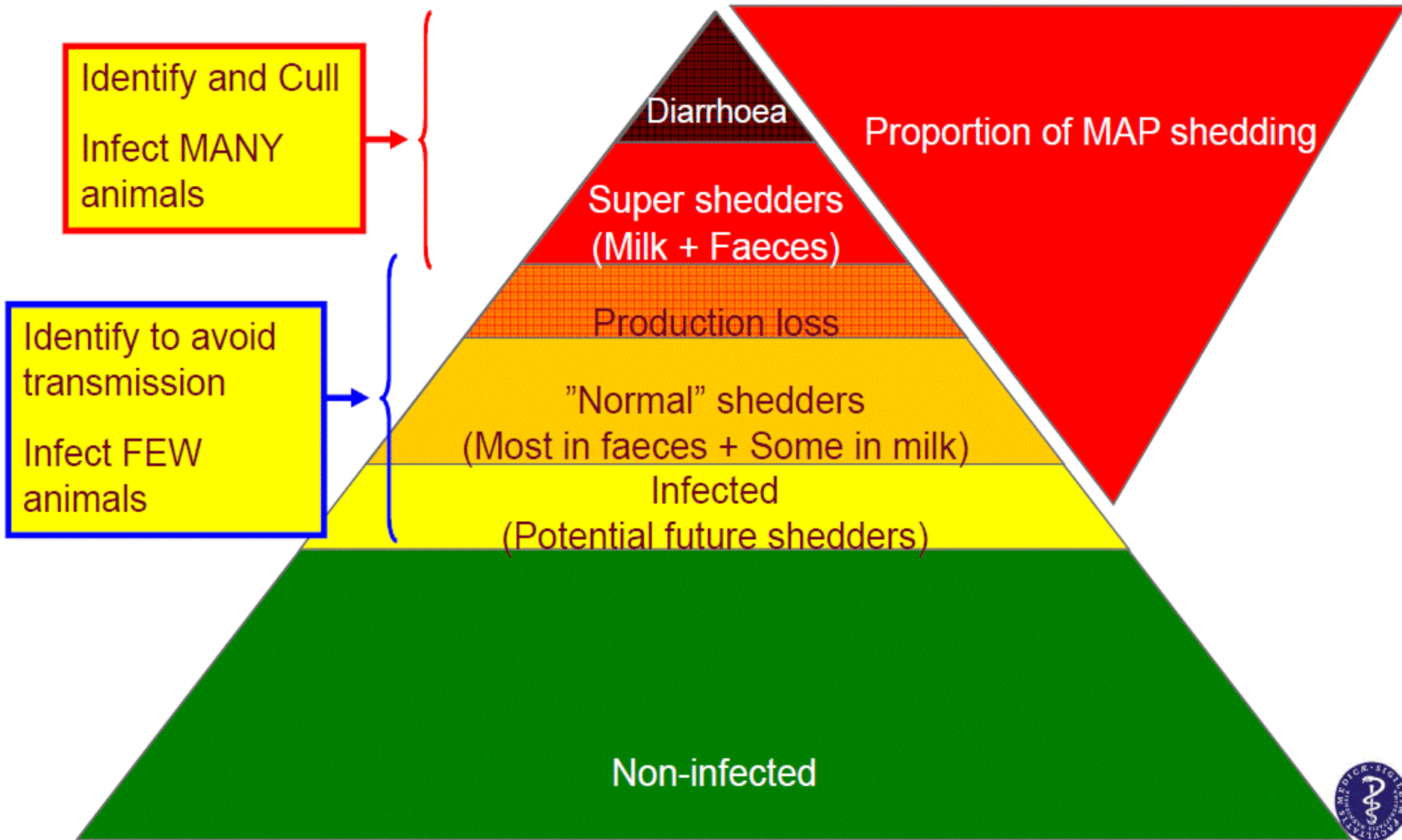
- VLA, SAC, AFBNI survey on 120 farms in 2006
  - 65% of herds had 1+ positives
  - 37% of all herds surveyed knew they had the disease already
- NML internal analysis of over 900 30-cow screens in 2011 found one or more positive result in 68.9%
  - Other data also suggests the disease situation has got worse



# The Iceberg Concept

- For every animal that develops clinical signs
  - there will be 7 to 10 animals shedding the infectious agent
  - there will be more animals in the silent period of infection
- In heavily infected herds around 25% of animals are faecal culture positive
- No more than half or a third of infected animals will be detected by lab tests on a single occasion.

# The Iceberg Concept



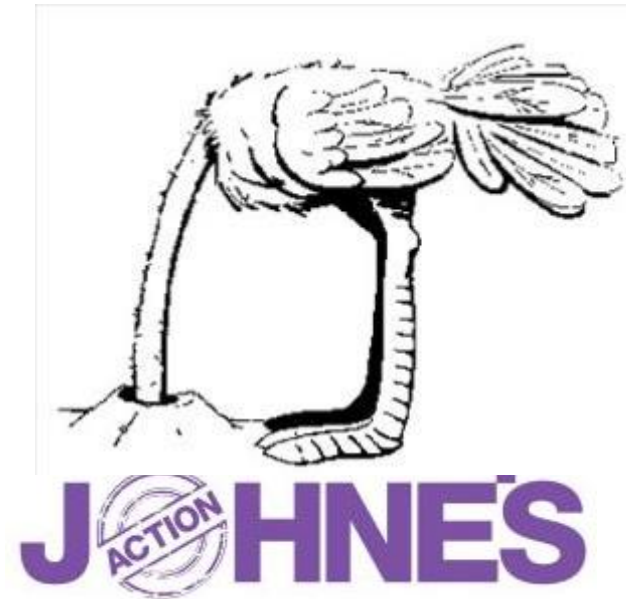


Clinical signs may be rare in well managed herds as cows are often culled prior to symptoms being seen

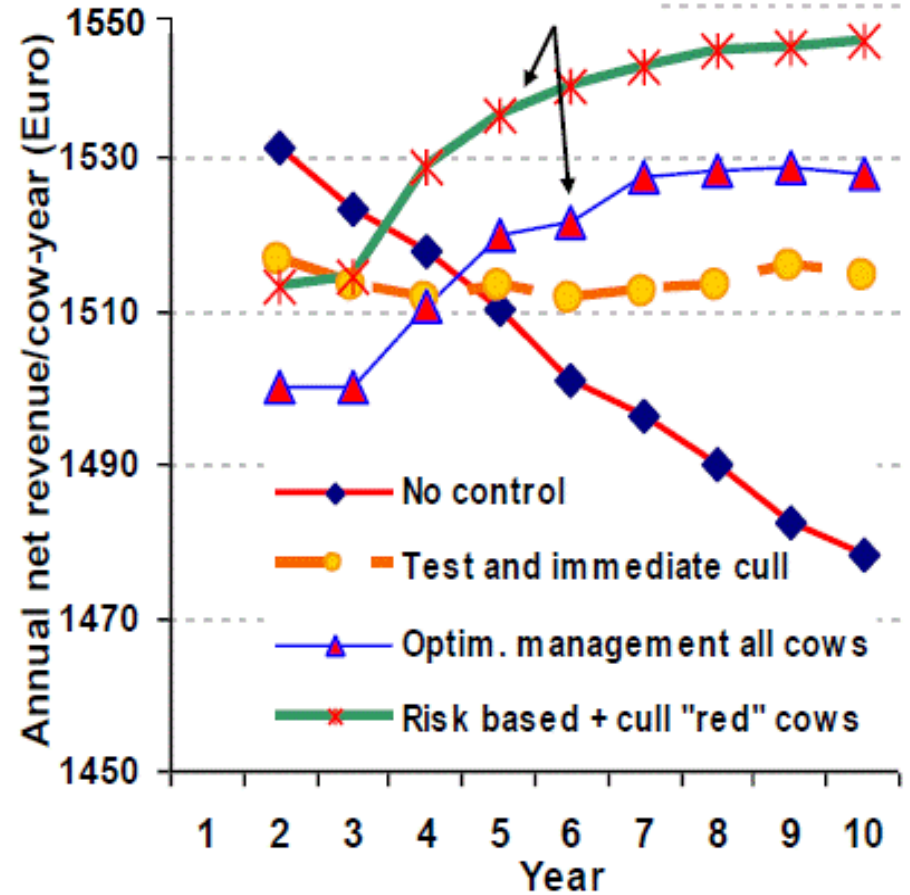
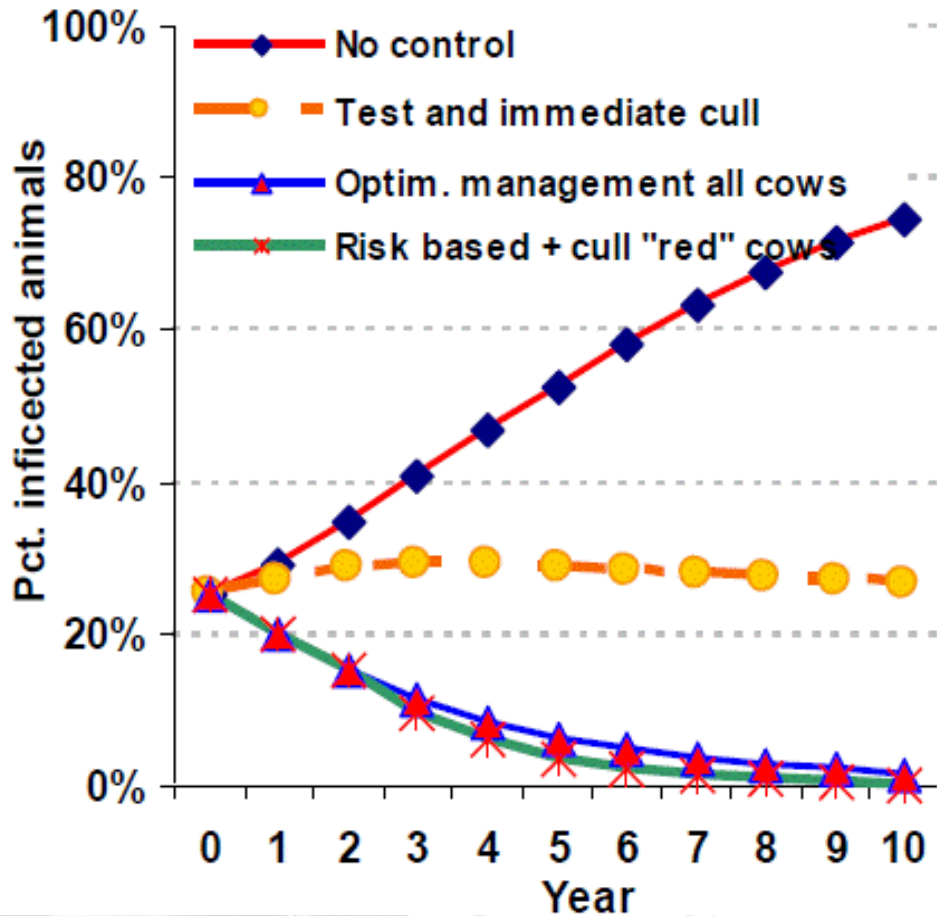
# Why Control?

- Annual incidence of mastitis around 65/cases/100 cows/year
- Lameness prevalence ?? 20%
- Conception rate 37% and falling,
- Cull rates .....

“We’ve got enough problems  
.....Why Bother?”



# Is there a Cost Benefit?



Inaction in the long term will cost more than action!

# Develop a farm plan with your vet

Select the most appropriate strategy for farm by assessing factors such as:

- Current **Prevalence** of Johne's on the farm
- **Biosecurity** risk associated with the farm (e.g. buying in of stock)
- **Bio-containment** risk associated with the farm (e.g. risk of spread within the holding)
- **Resources** (capital and human)
- **Aspiration** (eg desire to eliminate Johne's completely or simply contain the disease at manageable levels)

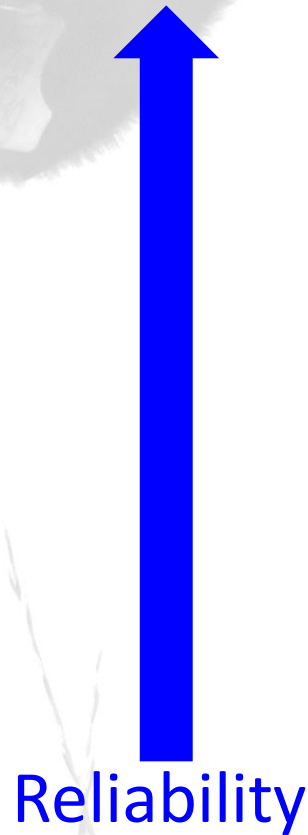
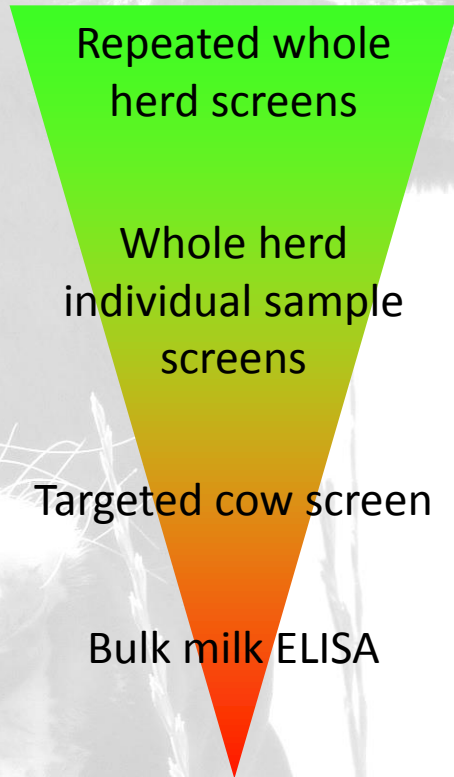


# Know Your Johne's Disease Status

## Establish a base status of the herd

1. A herd-level test to provide an indication of prevalence
2. An assessment of the risk of entry of the disease (Biosecurity)
3. An assessment of the risk of spread of the disease (Biocontainment)

# Know Your Johne's Disease Status



Johne's disease is complex and not always easy to detect

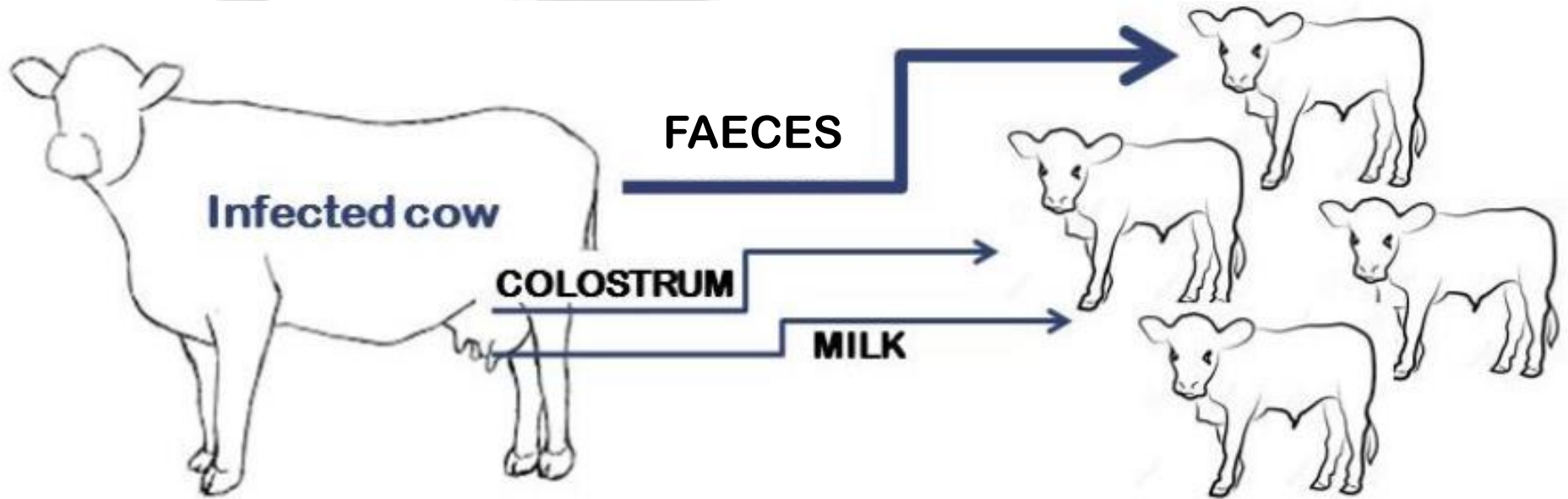
The more samples you take, the more reliable the results

# Question 1

What do you think is the most important source of transmission of infection of Johnes in the herd?

- Faecal contaminated material
- Trans-placental during pregnancy
- Bacteria excreted directly in the milk and colostrum
- Aerosol route

# Breaking the Johne's cycle is Key



Johne's infection is mainly caused by calves ingesting faeces from contaminated bedding, udders, teats or on dirty buckets of colostrum or milk. Much less commonly the disease can be acquired in the womb or later in life.

**80% of Johne's infections occur within the first month of life**

1. Biosecurity Protect and Monitor

2. Infection Prevention and Control

3. **National Johne's Management Plan:**  
strat

4. **6 strategies for Johne's Disease control**  
and

5. B

6. Firebreak vaccination

# 1. Biosecurity Protect and Monitor

- For herds who have completed appropriate screening and have no evidence of disease
  1. A plan to protect the herd from disease entry
  2. Monitor through appropriate screening tests  
e.g. repeated cow screens / whole herd screens

**Buyer Beware (Testing)**

## 2. Improved Farm Management

- Works by reducing the risk of spread to calves using husbandry measures alone
- Requires dedication and labour



## 2. Improved Farm Management

- Prevent ingestion of faeces by all animals
  - Particularly the young ones
  - Keep faeces out of feed
- Do this by:
  - Colostrum /milk management
  - Calf management
  - Cleaning and disinfection
- Calving pen
  - Clean and dry
- Separating cows from calves





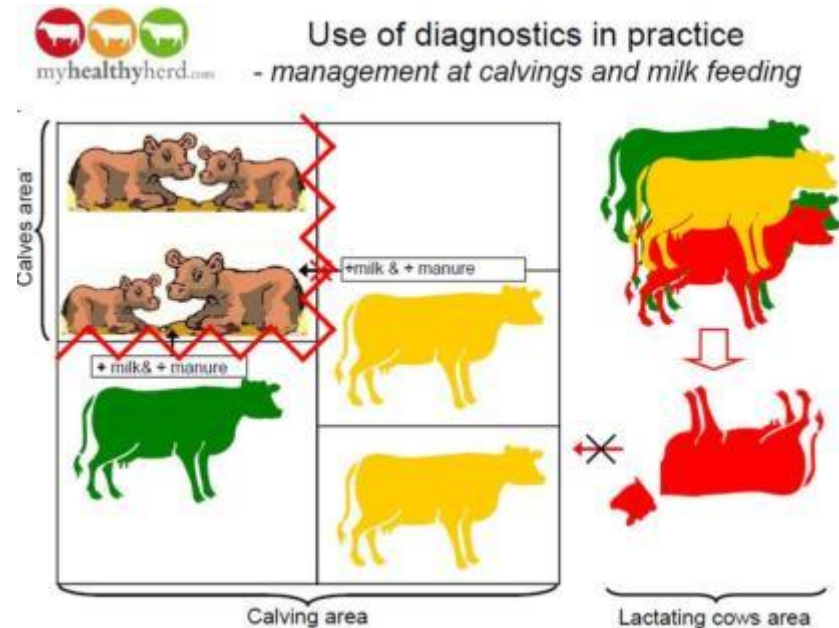
## Question 2

What form of testing have you performed within the herd in the last year?

- None
- Bulk Milk
- 30 cow screen
- Cull cow testing
- Whole herd testing via milk /blood

# 3. Improved Farm Management, risk assessment and strategic testing

- Using a testing program in conjunction with IFM will help identify heavy shedding or infectious cows
- Removing high risk cows allows IFM to work better
- Use Risk Based Planning
- For Example, test positive cattle are not allowed to enter the maternity areas



## 4. Improved Farm Management, Test and cull

- Suitable for low prevalence herds wanting to quickly remove infected animals from the herd **BEFORE** they get chance to spread Johne's
- Work with your vet to adopt a biocontainment & IFM policy in addition to solely culling test positives
- May be high cost of control with slow progress without IFM...

# Risk Based Control With Regular Testing

## Advantages

- Hassle free testing through milk recorded sample / blood testing
- Regular monitoring allowing more accurate timely culling
- Ability to manage 90% of the herd normally

## Disadvantages

- Requires milk recording or regular bleeding
- There is no “gold standard” test available, so false positives / negatives may be culled
- Need to mark and identify test positive cattle and calve in isolation from main herd

## 5. Breed to a terminal sire

- In herds where the level of infection means there is a high risk of transmission to youngstock but barriers to adopting other strategies
- If infection levels high in home bred replacements, do purchased animals represent a lower risk?
- Purchase replacements from lower risk herds
- Breed all cows to terminal sire until infection controlled

## 6. Firebreak vaccination

- A short term option for high risk or high prevalence herds to buy some time
- Delays the onset of clinical signs but does not eliminate excretion of MAP
- Vaccinated animals will test positive
  - May make selling animals more difficult
  - Makes interpretation of tests difficult
- Cross reacts with bTB test and increases possibility of false positive bTB reactors
- Vaccinated stock should be viewed as infected rather than free of disease; what is next step?

# Control

- Has to be a team approach.
- All staff need to know polices and understand importance
- Educate
- Revisit – don't assume it's all working fine



**J ACTION HNE'S**

# Case Study 1

## Crosby Grange Farm



**J ACTION HNE'S**



# Herd Performance

Name: H B SMITH & SON

KPIs at a glance for last milk recording 24/03/2015 date:

KPI details

Explain

Print Graph

Benchmark 9 Bishopton: All Recorded Herds

View KPI Graphs Select Graph--



# High Milk Production

Milk herd number: 010002501

Name: H B SMITH & SON

**Milk per cow per year**

Benchmark group: Bishopton: All Recorded Herds

View KPI Graph: Milk/Cow/Year

No Years: 5 Min Y-axis: 5000 Max Y-axis: 11000 Change

Buttons: Explain, View Data, Print Graph

Period from: 23/04/2010 to 23/04/2015



"A constant 33 litre/cow daily average is now an achievable and realisable aspiration."

John Smith, Crosby Grange



# Herd Performance

## Culling at 34%



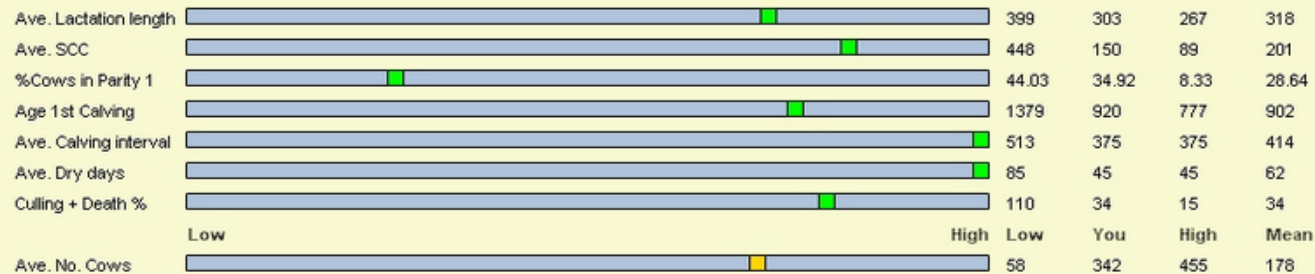
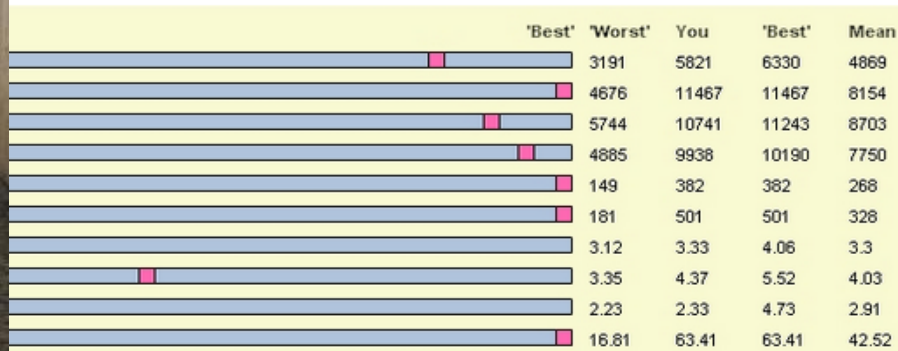
Name: H B SMITH & SON

KPIs at a glance for last milk recording 24/03/2015 date:

KPI details

Benchmark 9 Bishopton: All Recorded Herds

View KPI Graphs Select Graph--



# 1. Eliminate the source of Infection

## Herd Monitoring

Line No.	Ear Tag	ELISA 24/03/2015	ELISA 22/06/2015	Days in Milk*	Milk Yield (kg)*	Parity	Milk Yield Drop	Predicted Calving Date	Infection Group on 22/06/2015	
921	123524701921	87.03	97.25	125	42.10	5	Very Likely		J5	!
992	123524101992	40.99	55.96	269	12.30	4	Very Likely	08/08/2015	J5	!
2054	123524702054	51.75	--	455	13.00	4	Very Likely	29/06/2015	J5	!
2210	123524202210	--	128.95	80	32.40	4	Very Likely		J5	!
2275	123524402275	48.77	61.67	188	41.50	4	Very Likely	11/02/2016	J5	!
2352	123524402352	29.05	35.26	302	26.60	3	Very Likely	21/09/2015	J5	!
2702	123524402702	29.73	30.81	134	40.00	3	Very Likely		J5	!
2704	123524602704	75.88	23.18	50	43.50	3	Very Likely	20/03/2016	J5	!
2929	123524702929	76.84	109.84	306	25.20	1	Very Likely	02/11/2015	J5	!
2951	123524102951	--	81.92	77	14.50	2	Very Likely		J5	!
3029	123524203029	91.17	109.79	252	30.30	1	Very Likely	07/12/2015	J5	!

'RED' cows (High-risk cows) potentially culled prior to next calving (start with cows with high values).  
NO COLOSTRUM/MILK USED FOR CALVES

'YELLOW' cows (High-risk cows) require good hygiene around calving. Cull only if few high-risk cows.  
NO COLOSTRUM/MILK USED FOR CALVES

# Management Decisions

## Calving time

Line No.	Ear Tag	ELISA 24/03/2015	ELISA 22/06/2015	Days in Milk*	Milk Yield (kg)*	Parity	Milk Yield Drop	Predicted Calving Date	Infection Group on 22/06/2015	
3058	123524303058	44.59	43.30	274	22.60	1	Very Likely	04/09/2015	J5	!
3102	123524503102	111.35	125.32	258	23.00	1	Very Likely	21/09/2015	J5	!
3119	123524103119	74.19	80.53	204	28.00	1	Very Likely	04/01/2016	J5	!
3159	123524603159	83.23	95.64	249	33.90	1	Very Likely	16/10/2015	J5	!
2000	123524202000	36.19	--	291	25.10	4	Likely	18/07/2015	J4	?
2038	123524502038	--	51.86	81	52.30	5	Likely	05/03/2016	J4	?
2111	123524102111	7.91	30.19	539	27.40	3	Likely		J4	?
2278	123524702278	17.77	41.08	262	26.70	4	Likely	16/08/2015	J4	?
2429	123524402429	42.76	--	447	10.90	3	Likely	05/08/2015	J4	?
2642	123524702642	21.38	34.11	314	17.50	2	Likely	07/08/2015	J4	?
2833	123524202833	3.32	52.96	298	31.10	2	Likely	27/09/2015	J4	?

'RED' cows (High-risk cows) potentially culled prior to next calving (start with cows with high values).  
NO COLOSTRUM/MILK USED FOR CALVES

'YELLOW' cows (High-risk cows) require good hygiene around calving. Cull only if few high-risk cows.  
NO COLOSTRUM/MILK USED FOR CALVES

# Good Fertility Homebred Replacements



# 2.Prevent New Infections

## Protecting Calves

Separate calving/maternity area for low vs high risk cows



Hygienic colostrum management



# Case Study 2

## Chalk Lodge





# Johne's disease history -before 2014

- Restocked 2001 post FMD
- 3 main herds bought
- Started seeing clinical cases 2004
- Incidence increased to 1 per month
- Commercial herd increasing size to 680+ (2015)
- 2008 - Opportunity to bleed whole herd as part of an SAC BVD study
- Joined PCHS 2010
- Paraban Champion Farm

# Cows Bled Annually since 2008 and Identified



# New Calf Shed and Pasteuriser – 2009

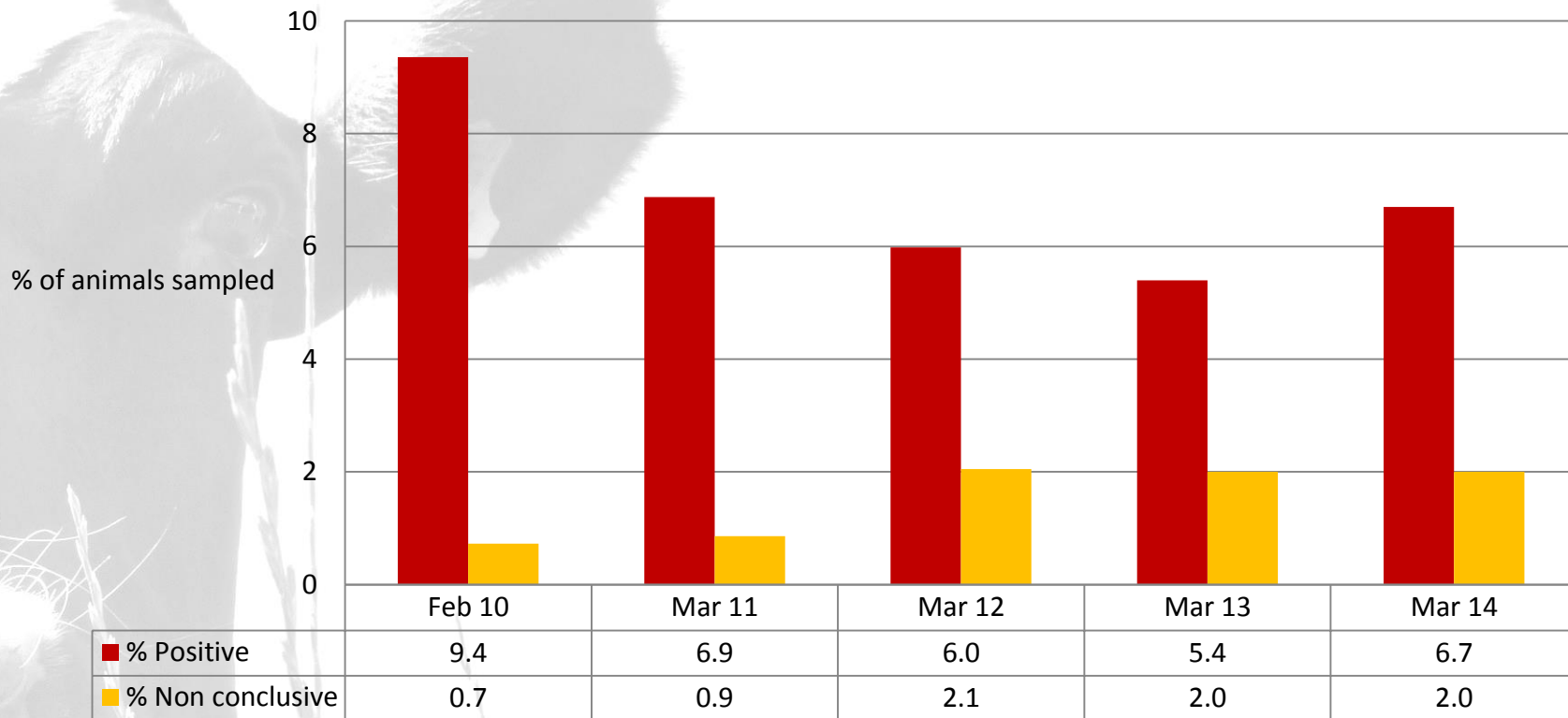


# New calving pens built - 2011



# Whole herd blood test results

## Chalk Lodge

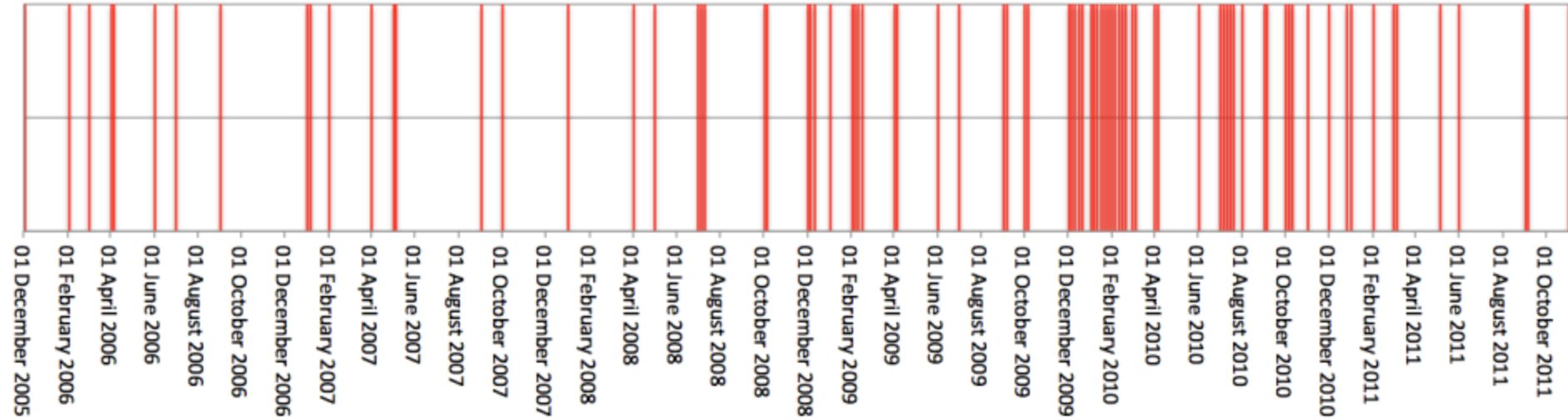


No Homebred +ve	23	24	20	28	35
Average Age +ve	4yrs 7mo	4yrs 11mo	5yrs 7mo	4yrs 7mo	4yrs 6mo

# A cluster of animals infected previously can emerge on testing

20 Animals

■ Positive 2013 + 2014



# Key Messages from a Farmer

- It is a challenging disease so be realistic regarding rate of progress:
  - The immune response and tests are not perfect
  - Events 3+ years ago affect outcomes
  - It is an iceberg disease – only see the tip
  - It is hard to keep motivating staff
- Attention to detail needed but some quick wins
- Eradication in expanding commercial herd unlikely
- Farmers must monitor & manage their status & risks
- Everyone in the industry has to be responsible

# Key Messages to Control Johne's Disease

- 1. Know Your Status-Eliminate the source of infection
- 2. Break The Link-Prevent new calf infections
- 3. Agree a Herd Specific Risk Management Strategy with your Vet

*See Ontario Johne's Whiteboard:*





# [www.actionjohnesuk.org](http://www.actionjohnesuk.org)



Can you spot the

Know your Johne's status  
how to control it

Johne's Disease is a chronic, debilitating and irreversible infection of cattle which is common in many herds. While as few as 1 to 5% of cows in any year will show clinical signs of scour or wasting, more of the herd will nevertheless be affected and suffer reduced output. Animals with Johne's Disease are likely to be culled earlier, and are also likely to be affected by other conditions, including chronic mastitis, lameness, and high somatic cell counts.

### Work with your vet to assess infection risk and know your herd Johne's Disease status

Johne's Disease is complex and expert veterinary advice is vital to make sure you take the most cost effective steps towards managing the infection in your herd.

Work with your vet to carry out a risk assessment as part of your herd health plan. It is important to note that while 1/3 of dairy herds do not have Johne's Disease present on their farms they still need a robust plan in place to keep it out.

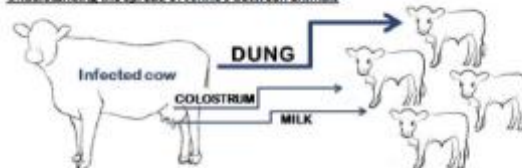
Testing will help determine your herd's Johne's Disease status: the more samples you take, the more accurate will be the indication of your herd's Johne's Disease status.

A popular method of initial Johne's Disease screening is the targeted 30 cow screen using blood or milk from cows over 3 years of age with histories of poor yield, weight loss, or high somatic cell counts. Unlike other diseases, bulk milk testing is not sensitive enough to detect infection at the early stage of infection. If your risks of Johne's Disease are high it is important that you reduce them by adopting an effective control programme and monitor carefully for infection within your herd.



The more frequent the testing, the better the understanding of Johne's Disease

### Understanding the spread of Johne's between animals



Johne's infection is mainly caused by calves ingesting dung through contaminated bedding, udders, teats or on dirty buckets of colostrum or milk. Much less commonly the disease can be acquired in the womb or later in life.

80% of Johne's infections occur within the first month of life

[www.actionjohnesuk.org](http://www.actionjohnesuk.org)

### Johne's Disease

#### Remember:

Be realistic about the timescale and what you can achieve: even when positive steps are fully implemented it can take 4-5 years to see significant progress to Johne's Disease control on a farm – but the improvements in your herd's general health will be worth the steps you take and will be evident much more quickly.

- Events over 3 years ago affect Johne's outcomes today
- It is important that all staff understand how this disease works and how they can manage it on a farm
- A series of targets will help keep a sense of achievement as you progress with managing Johne's disease on your farm

#### Case study:

**Mr. Dave, Chalk Lodge Farm**  
Chalk Lodge Farm is a 800 Holstein Friesian herd in Cumbria on zero . Having re-tooled his herd in 2001 from 3 sources post PMD, he tried to see clinical cases emerge in 2006, with incidences rising to one per month.



Mr. Dave got the opportunity to bleed his whole herd as part of an Action study, which also enabled the identification of positives for Johne's Disease. Working with his vet as part of the 'Paraban' project, he identified and implemented a risk based control strategy.

- Measures:
- ew calf shed built in Autumn 2000
- ew pasteuriser purchased in Spring 2009
- calves snatched at birth especially heifer calves
- ewes fed dam's colostrum if Johne's low risk, or fed from another Johne's Disease low risk cow, then fed pasteurized colostrum for the next 36 hours
- ew calving pens built in August 2011
- animals put into risk groups and managed according to risk (from immediate culling of high risk animals to observation of animals with a negative blood test)



Following a thorough Johne's control programme with his vet, the herd health at Chalk Farm has greatly improved. There have been no clinical cases for the past 2 years and positive animals are while they still have value. All farm staff have a clear understanding of what to do and how to do it, the team are very aware of bought in and vaccinated animals.

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Action Johne's is supported by the following organisations (please also see our website)



[www.actionjohnesuk.org](http://www.actionjohnesuk.org)

