IBR: impacts and control

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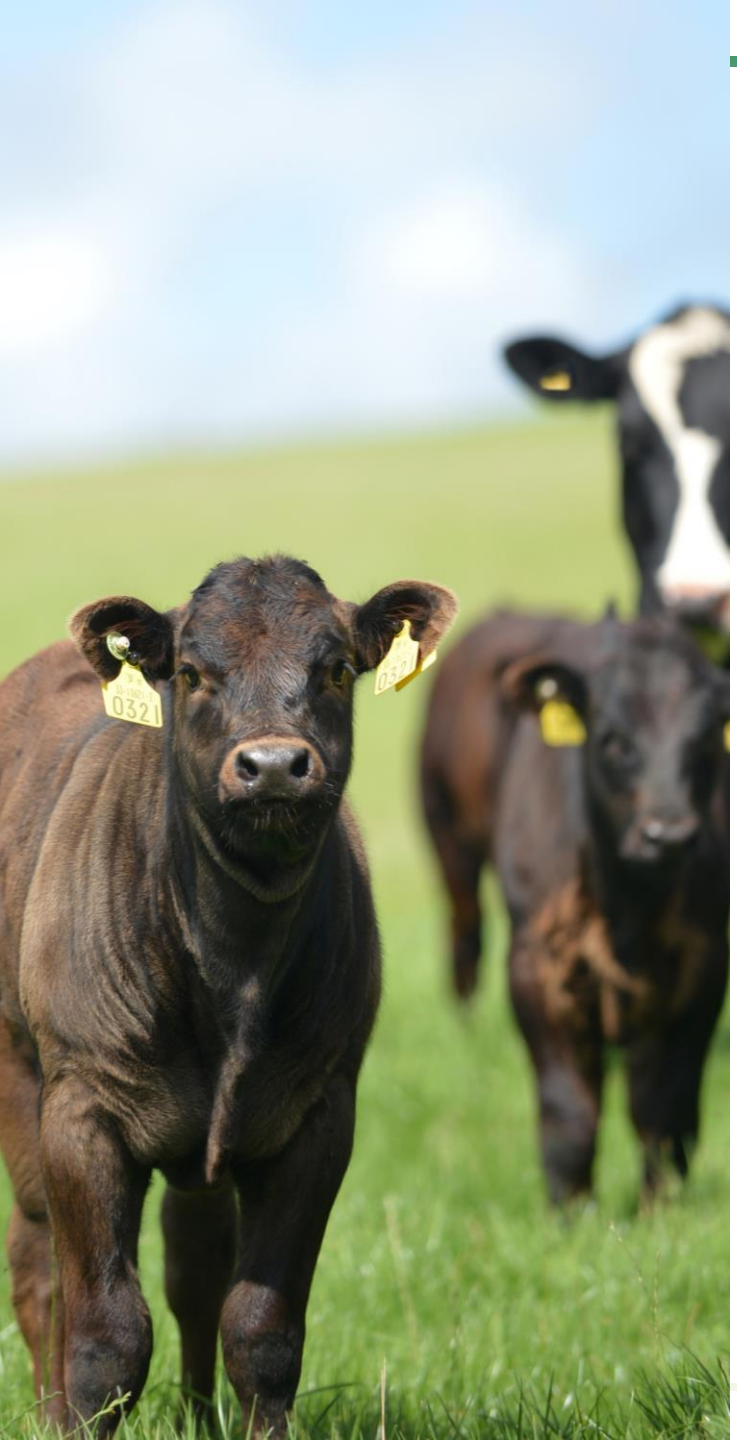
National Beef Conference 2023

Tuesday, 21st November | 5pm

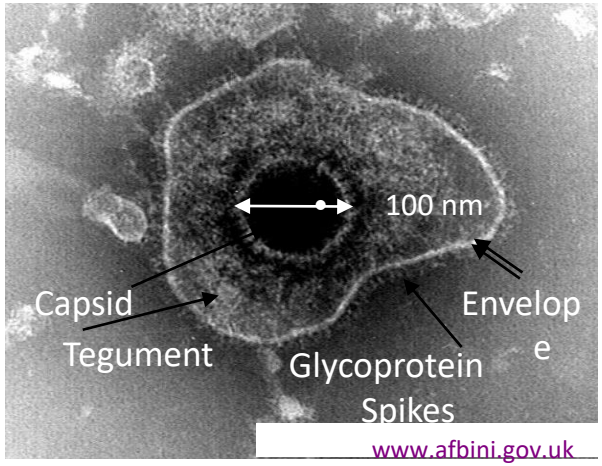
Shearwater Hotel, Ballinasloe, Co. Galway



Overview

- IBR: the disease
- IBR impacts & control
- Pilot IBR programme
- IBR control in Ireland

Infectious bovine rhinotracheitis



- Caused by a virus called **Bovine Herpesvirus 1** (BoHV-1)
- Highly infectious
- Affects domestic and wild cattle worldwide
- Part of the bovine respiratory disease complex
- Trade implications: semen/embryos and animals to certain countries with EU approved eradication programmes or recognition of freedom

Bovine respiratory disease

Animal

- Immunity
- Age
- Sex
- Genetics etc

Environment

- Ventilation
- Nutrition
- Hygiene
- Stress etc

Agents

- Virus: **IBR**, PI3V, BVD, BRSV, coronavirus..
- Parasites: lungworm
- Bacteria: *Mannheimia haemolytica*, *M. bovis*, *P. multocida* etc

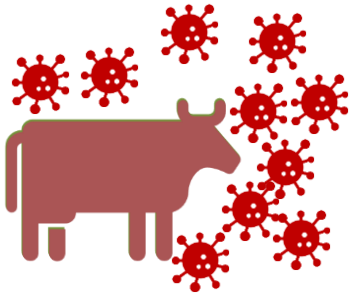
IBR Clinical signs

Variable presentation

- High temperature (4-5 days) 41ºC
- Apathy, anorexia
- Milk drop
- Mucosal inflammation (red nose)
- Serous to mucopurulent nasal discharge
- Yellow/white diphteric plaques in nostrils
- Tracheal stridor, cough
- Conjunctivitis, lacrimation
- Abortion

<u>Will resolve typically after 8-10 days</u>

IBR Latently infected animals



Naïve animal,
Antibody negative

[Clinical signs]

Antibody positive for life

[Virus latent carrier]

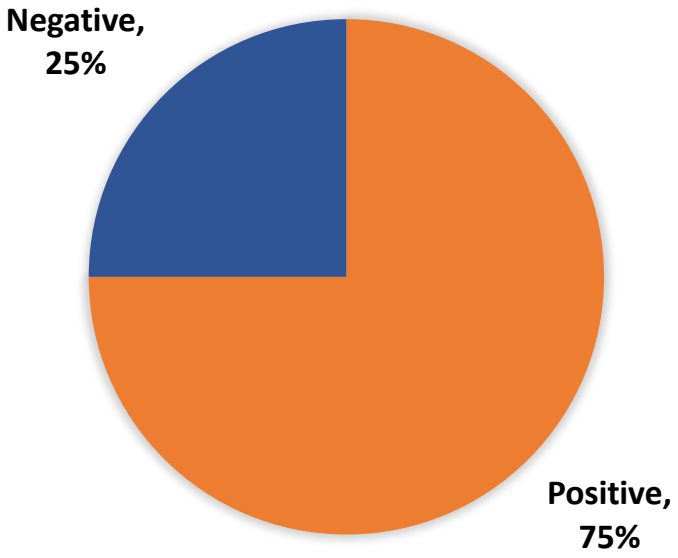
+

Stress

Animal sheds virus
Typically appears healthy
Other animals get infected

Reactivation

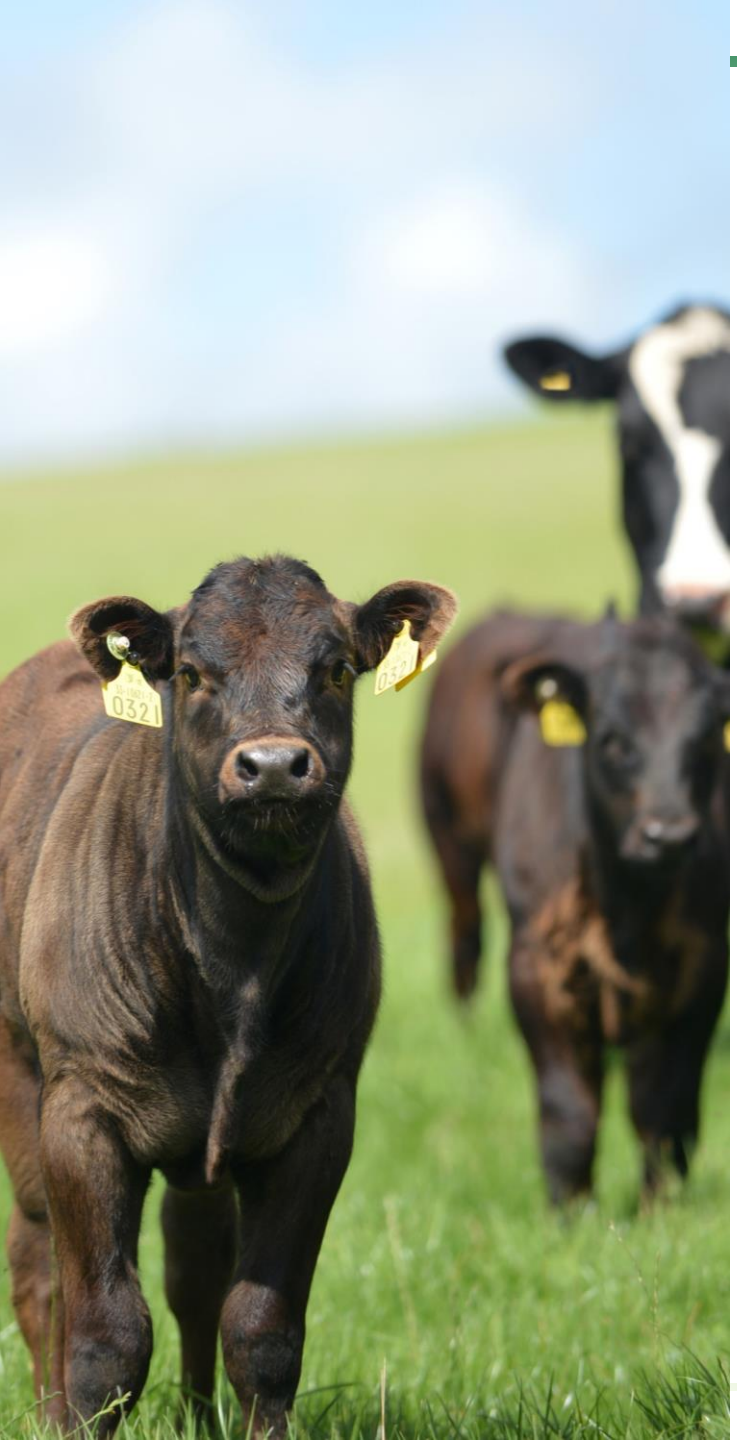
IBR in Ireland



Estimated overall herd level prevalence in Ireland

- 2009 study[1]: 74.9% – no difference between dairy and beef herds
- 2015 study[2]: 80% of dairy farms seropositive based in bulk tank milk tests
- **2014-15 study suckler farms[3]**:
  - 90% farms seropositive
  - 11.5% of herds in RoI vaccinating

(Cowley et al., 2011[1]; Sayers et al., 2015[2]; Barrett et al., 2018[3])



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IBR – Impacts

Health & Welfare

Economic impact

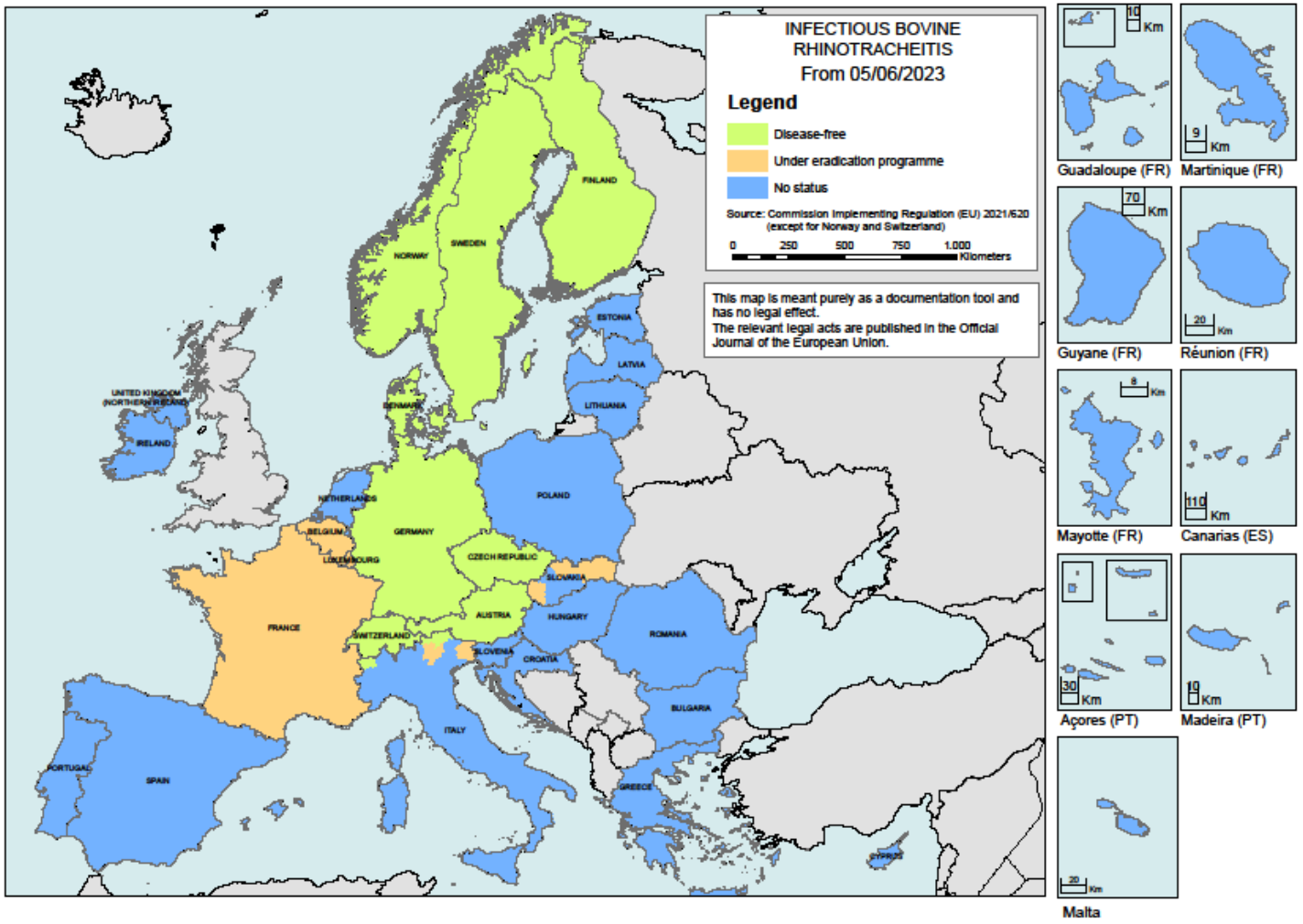
Bulls- AI stations

Live exports

Antibiotic usage

GHG Emissions

EU Approved IBR programmes



IBR control at farm level

Plan
- Aims

Investigate
- Herd test

Control
- Biosecurity, vaccination etc

Monitor
- Herd tests

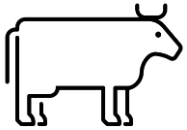
Is IBR circulating?
What is the on-farm seroprevalence?
Why do we want to control IBR?

First step in control: know your status

Dairy herds

Test a bulk tank milk sample

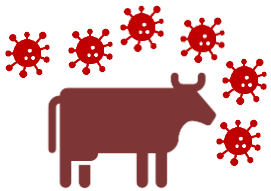
Beef herds



Test a number of animals

Second step in IBR control: Be aware of higher risk activities

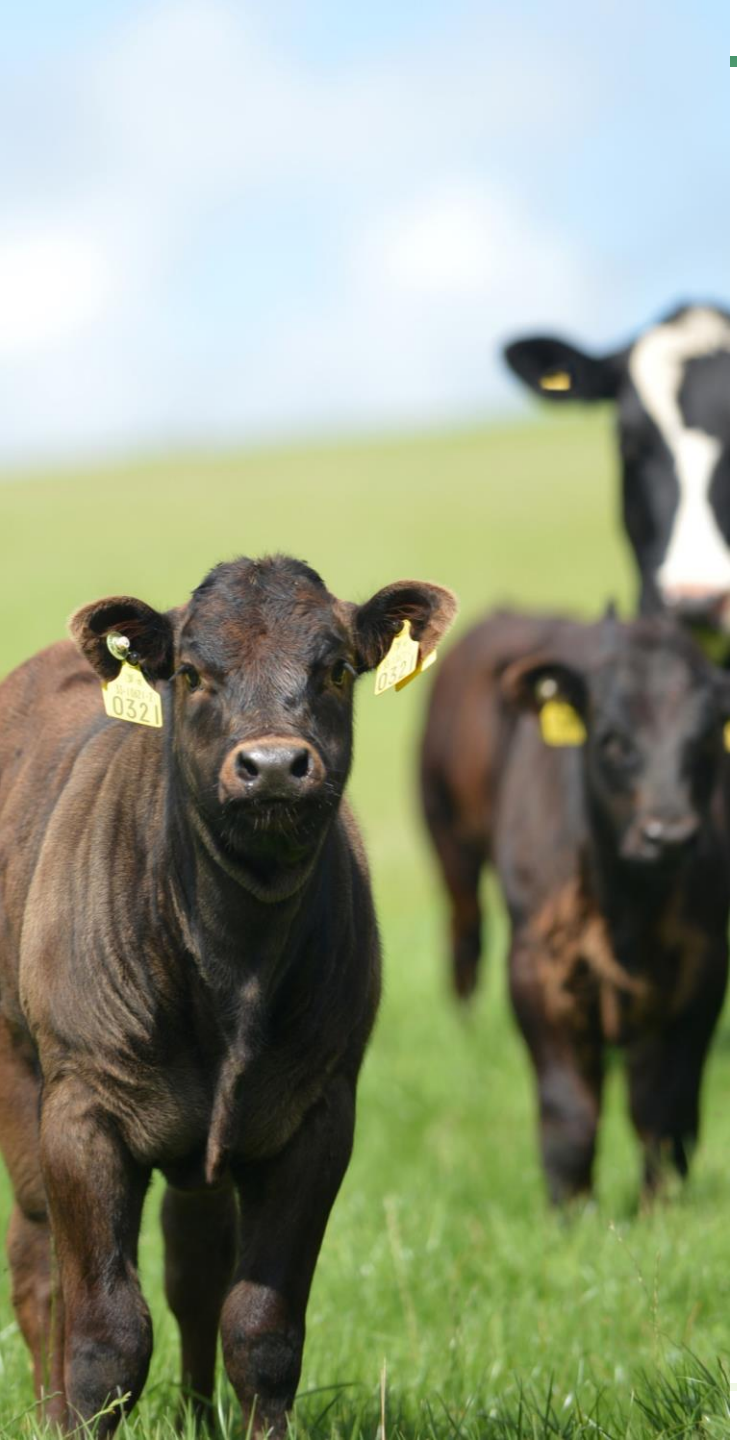
1. Purchasing and introduction of stock
2. Mixing home stock with other cattle at pasture, housing, shows, marts, contract rearing or during transport



3. Grazing stock in boundary fields – IBR can travel up to 5m

4. Farmers/staff contacting external stock
5. Professional visitors
6. Equipment/facilities

IBR survival



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Pilot IBR Programme

- AHI IBR Technical Working Group in collaboration with Teagasc
- On herds in the BETTER Farm beef programme
- 30 (29) herds
- Over 30 trained vets

Pilot IBR Programme

1. **'Snapshot' testing**:
- Blood samples
- 30 randomly selected animals
- >9 months old
- Used or intended for breeding

2. **The vets carries out a VIBRAMP** with the herd owner
- Questionnaire on management practices

3. **Three biosecurity recommendations agreed**

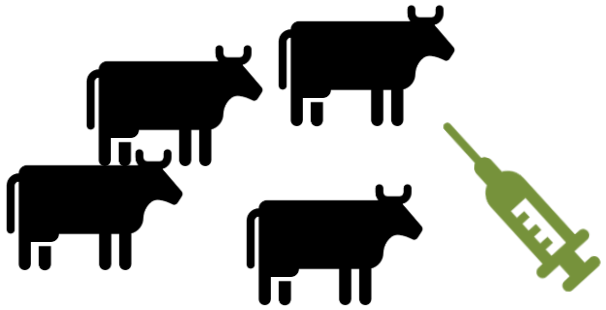
Interpretation of 'Snapshot' results

- **0 or 1 positive – Negative Snapshot**
- Estimated proportion of seropositive animals in the herd typically is **0-15%**

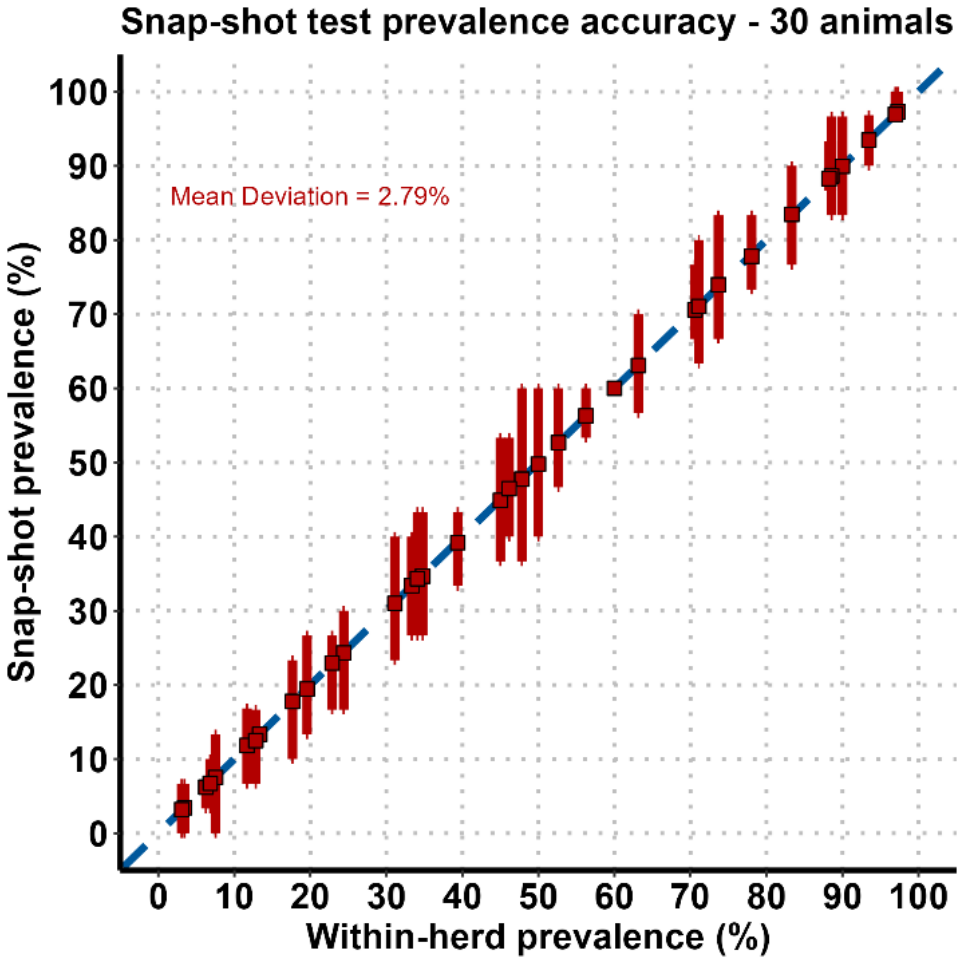
- Low seroprevalence herds: Option to pursue freedom

- **2 or more positives – Positive Snapshot**
- Estimated proportion of seropositive animals typically is **>15%**

- Medium- High seroprevalence herds: Vaccinate and monitor



How accurately does the Snapshot test reflect within-herd prevalence?

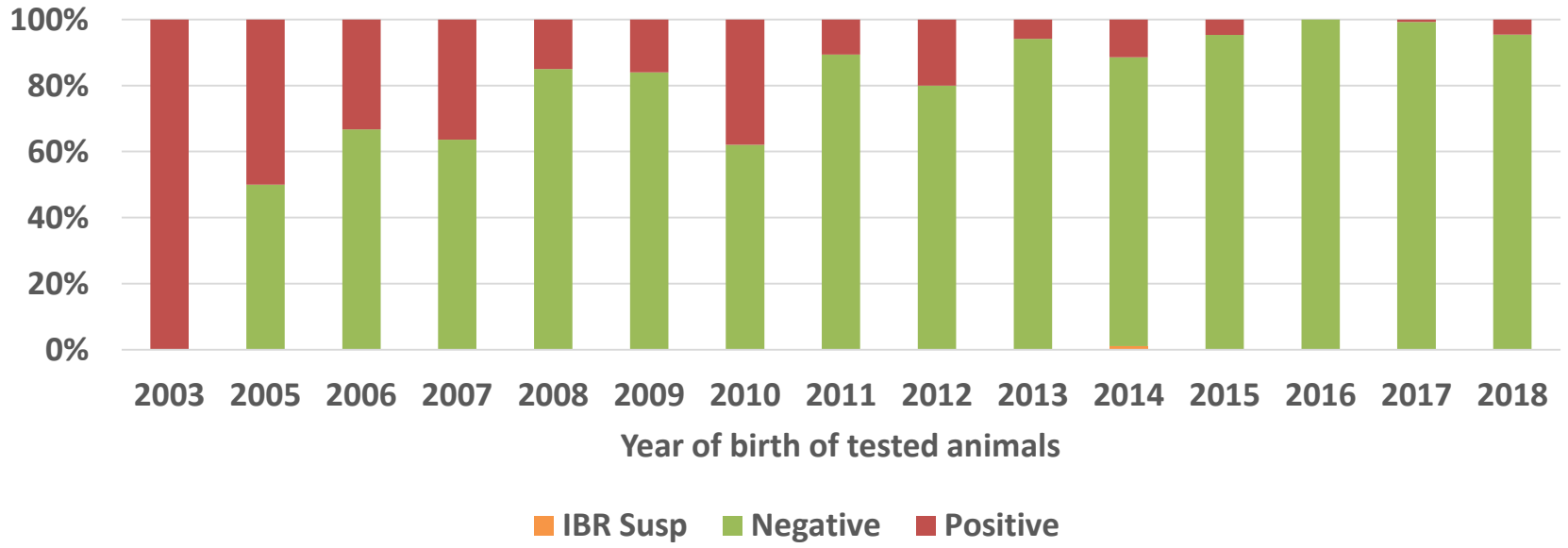


Based on random samples

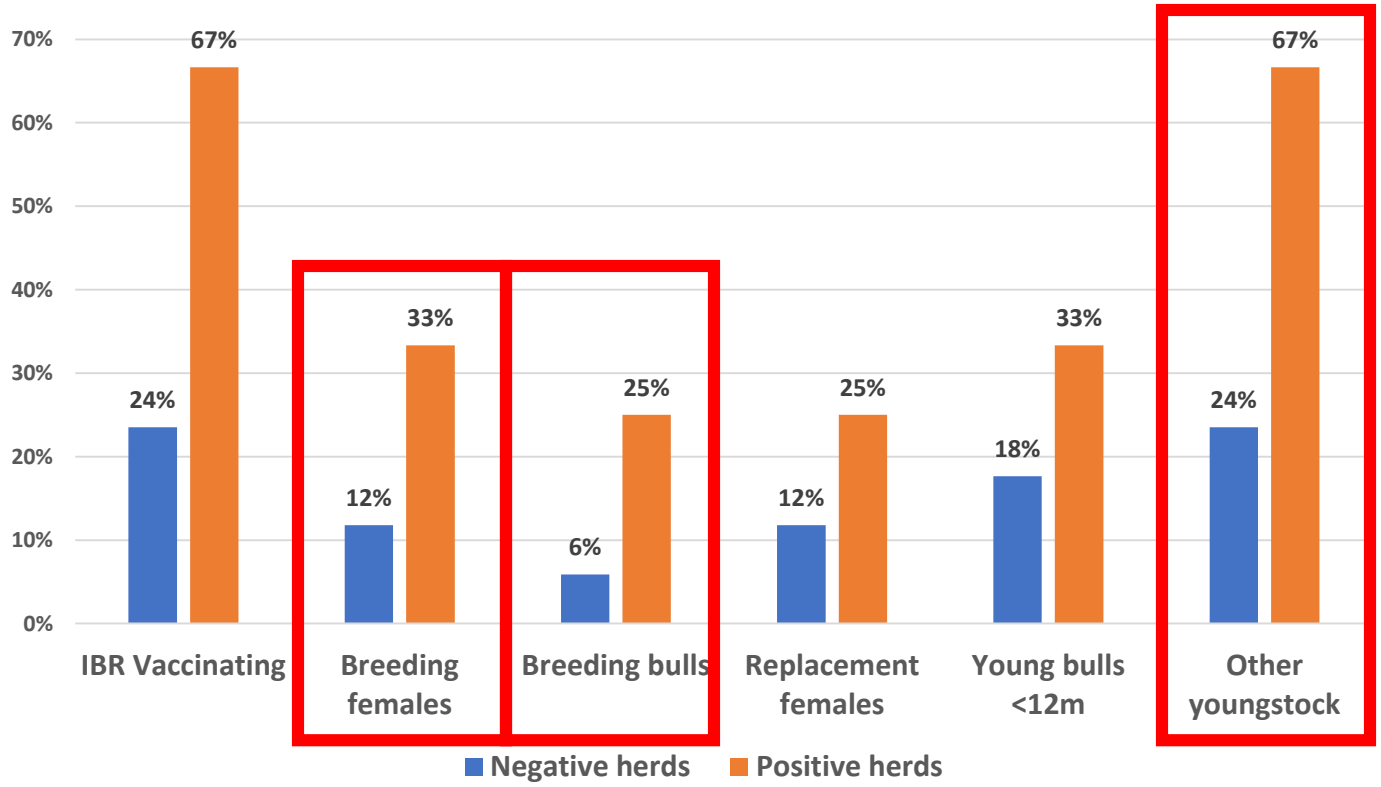
IBR Pilot Test result Summary

Negative 'snap shot' 17/29 (**59%**):

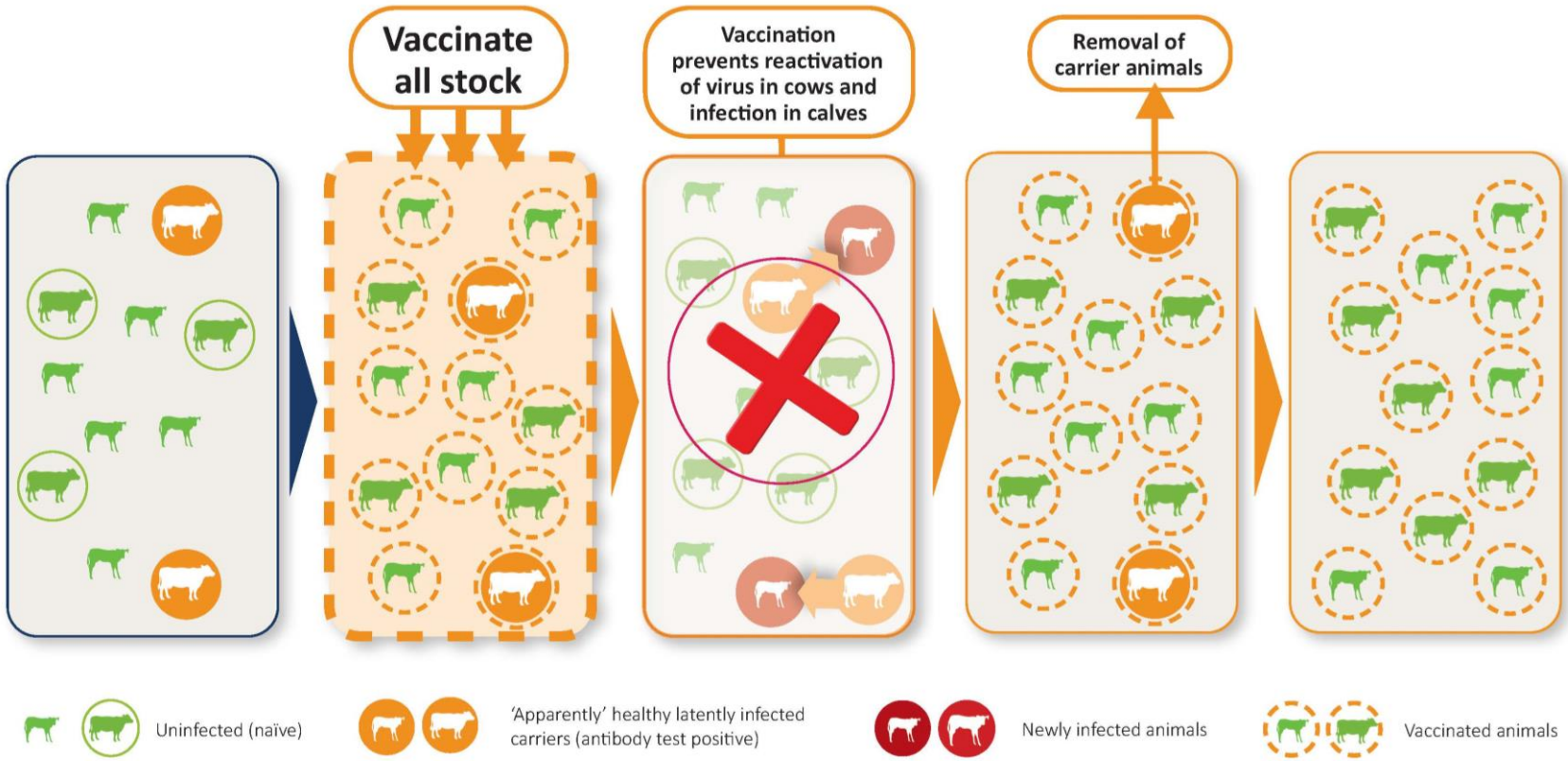
Positive 'snap shot' 12/29 (**41%**):



IBR Pilot herds IBR vaccination



IBR vaccination



IBR vaccination – marker vaccines

- Very useful to reduce the clinical signs of IBR and reduce virus shedding following infection and reactivation.
- Vaccines do not prevent field viruses from causing limited infections.
- Vaccinating the **breeding herd** will help to reduce the level of reactivation and new infections in infected herds, and in consequence reduce the number IBR-positive animals with time in a herd.
- Vaccinating only young stock will not achieve this effect.
- Bulls with potential for use as AI sires must not be vaccinated.

IBR ELISA test result interpretation

	Marker (gE) ELISA	Conventional (gB/Wv) ELISA
Naïve	Negative	Negative
Infected	Positive	Positive
Marker-vaccinated	Negative	Positive

Interpreting results

1. Negative/positive snapshot - estimation of within herd prevalence.

2. Individual animal level:

- Which cohort is seropositive?

• Younger animals = recent infection

• Older animals = older infection

- Are the seropositive animals non-homebred?

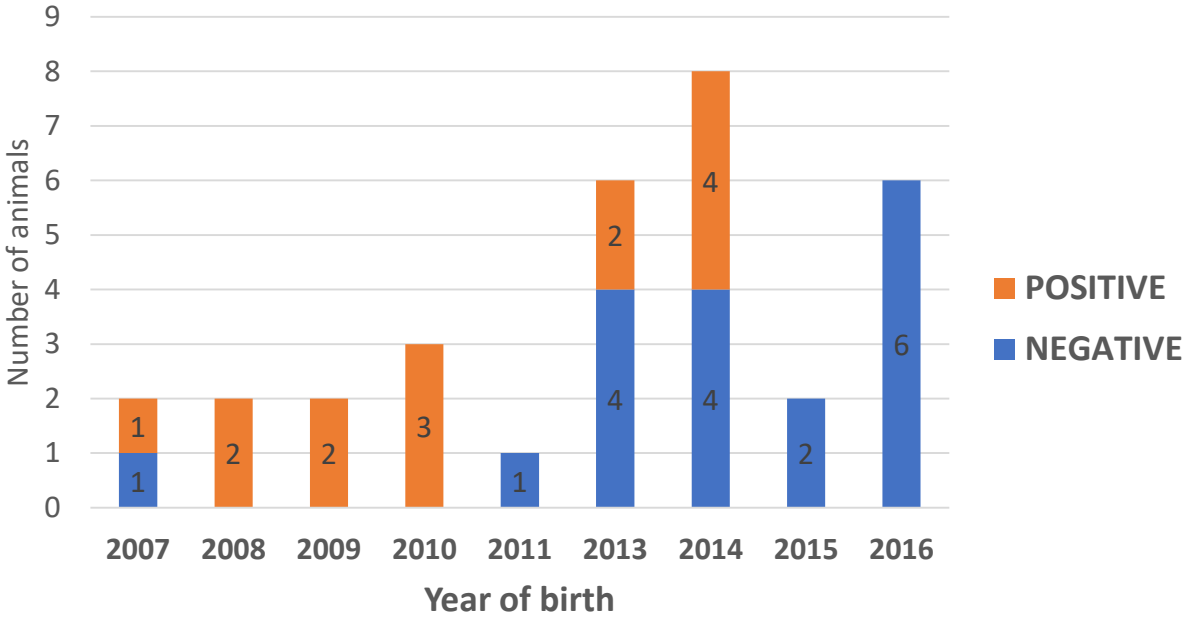
- Could they have had a conventional vaccine?

3. Review biosecurity to prevent re-introduction of disease

- Higher risk practices

Example 1: Herd 12

- Number tested: 32:
- **14 positive** to IBR gE - Positive snapshot



All seropositive animals are non-homebred

Example 1: Herd 12

- Number of animals: 162, 47 breeding cows, 1 breeding bull
- Homebred and bought in replacements
- **Open herd**
- **Vaccinating calves only for IBR for last year** for prevention of clinical disease in the herd

All herd to be vaccinated to prevent circulation

Quarantine of purchased stock

Washing and disinfection for all entering the farm

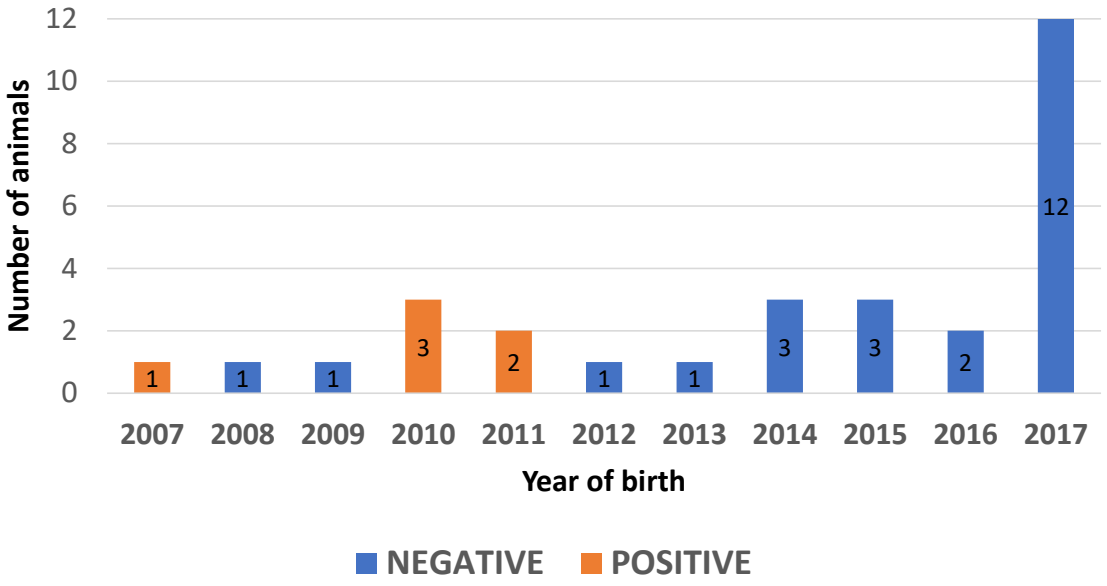
Example 2: Herd 2

- Number of animals: 170: 65 breeding cows, 1 bull
  - Homebred and bought in replacements
  - Open herd
- Number tested: 36 - **6 positive** to IBR gE

- **Vaccinating all stock**
- Live vaccine only
- Prevention of clinical disease
- For **over 5 years**

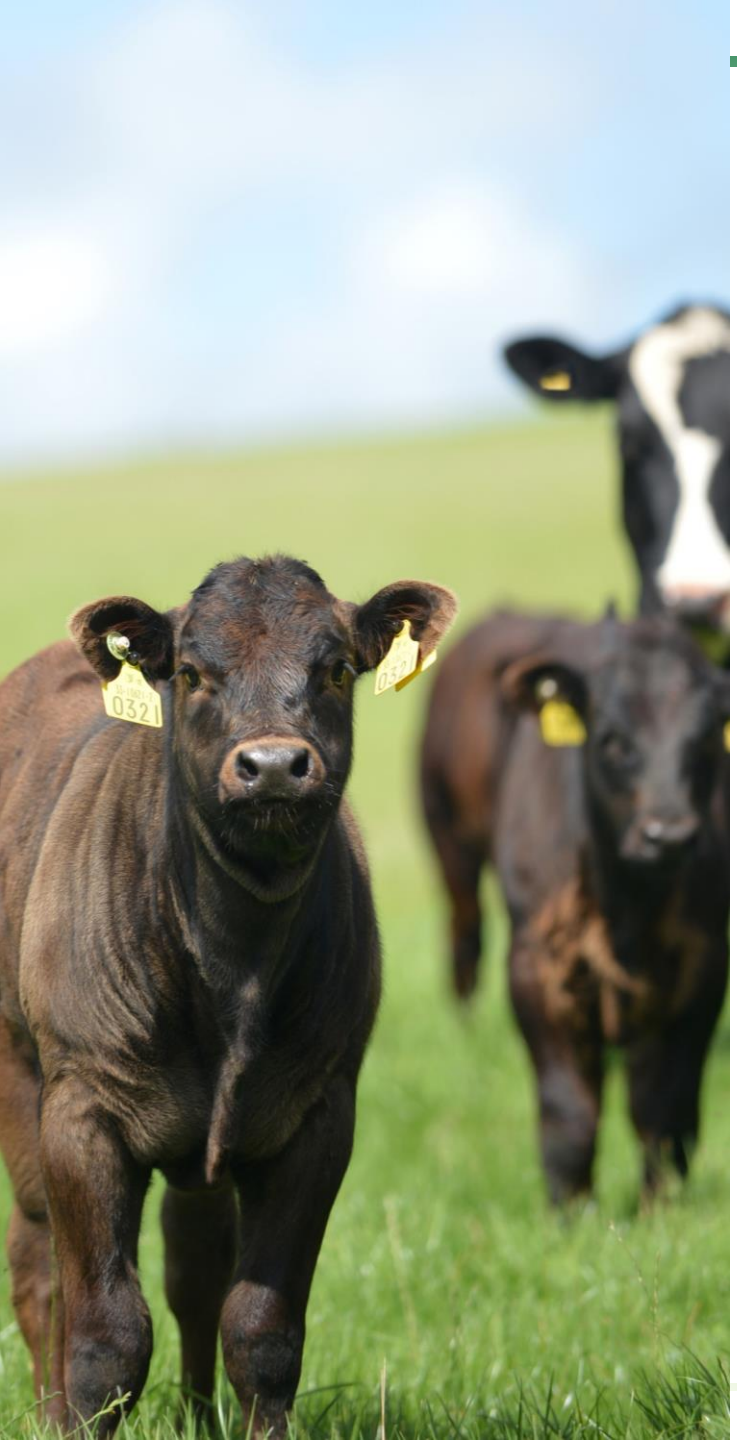
Ref	Year of birth	Age	Homebred	In herd since
1	2011	6 y 8 m	Yes	
2	2011	6 y 10 m	**No**	2014
3	2010	7 y 7 m	**No**	2013
4	2010	7 y 9 m	**No**	2011
5	2010	8 y	**No**	2012
6	2007	11 y	**No**	2009

Example 2: Herd 2



No circulation in young stock = successful control

Continue all herd vaccination



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IBR control in Ireland

- **IBR Technical Working Group-** developed proposal, based in Animal Health Law:

- Commission Delegated Regulation (EU) 2020/689: rules for surveillance, eradication programme and disease-free status for certain listed and emerging diseases

- **IBR Implementation Group convened**

- **Modelling work ongoing**

IBR TWG National Programme Proposal

Reduction phase

Reduction of prevalence (using gE bulk tank milk, snap shot tests, vaccination)

Identification of first disease-free herds

Eradication phase

Once threshold reached

Total alignment with the Animal Health Law

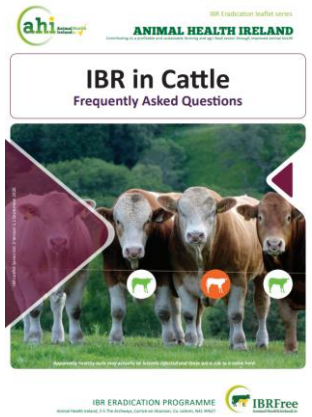
Request for approval of the program by the EU

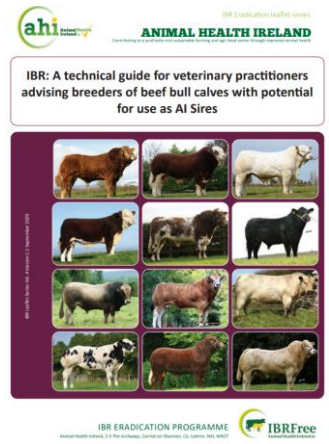
Monitoring phase

Once Ireland is recognized as IBR-Free by the EU

Vaccination prohibited

Summary





- IBR is very widespread in Ireland
- Once an animal is infected it becomes a latent carrier and stress may cause reactivation and shedding
- The first step in control is to know the herd's status – find out whether there are infected animals and the proportion of those in your herd
- Results can be used to review the herd's biosecurity
- More resources on IBR: https://animalhealthireland.ie/programmes/ibr/

Any questions?

ibr@animalhealthireland.ie

Thanks to:

- Participating farmers and vets in the Pilot IBR Programme
- IBR TWG