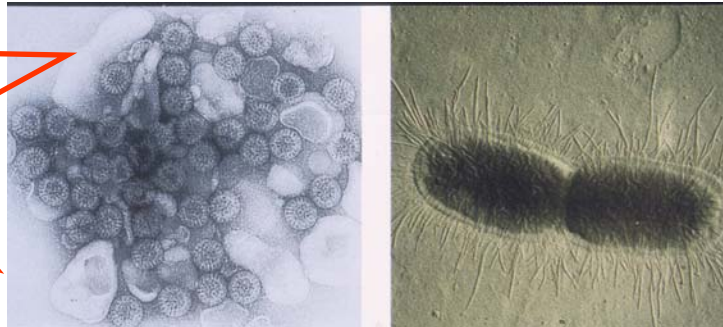


Managing Infectious Subfertility in Expanding Dairy herds



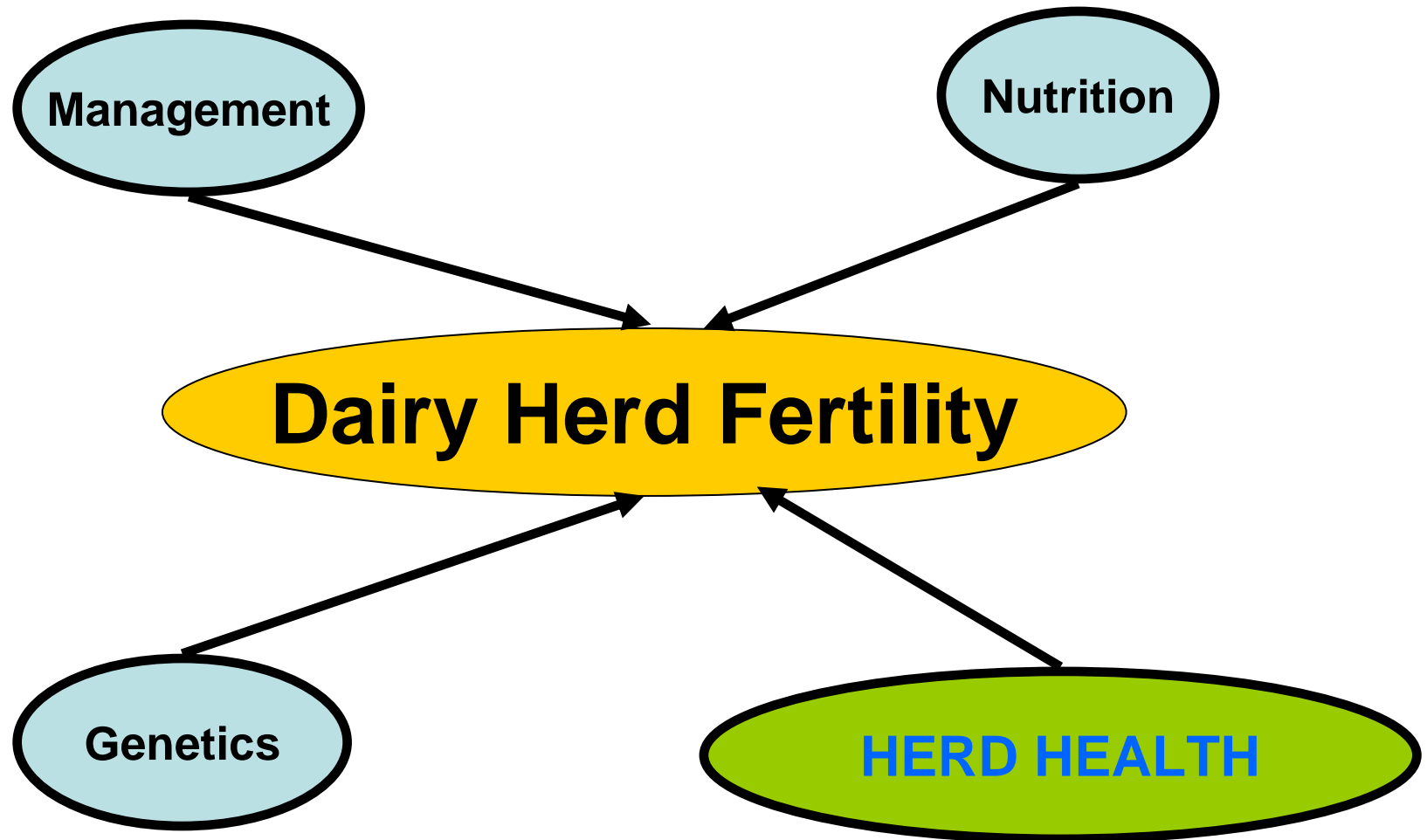
John Mee



Moorepark

Dairy Production Research Centre

The Four Pillars of Dairy Herd Fertility

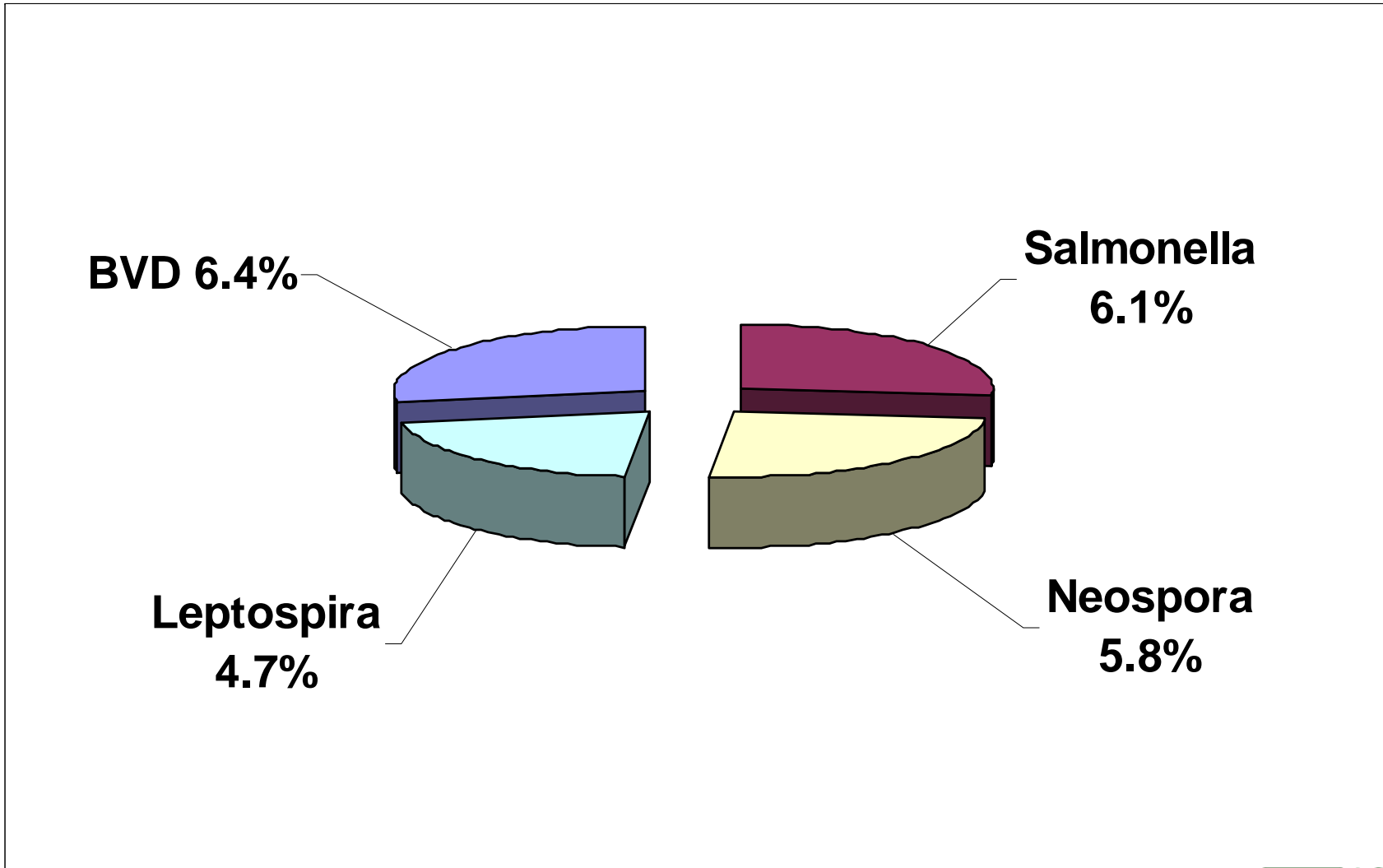


Herd Health - Infectious Diseases

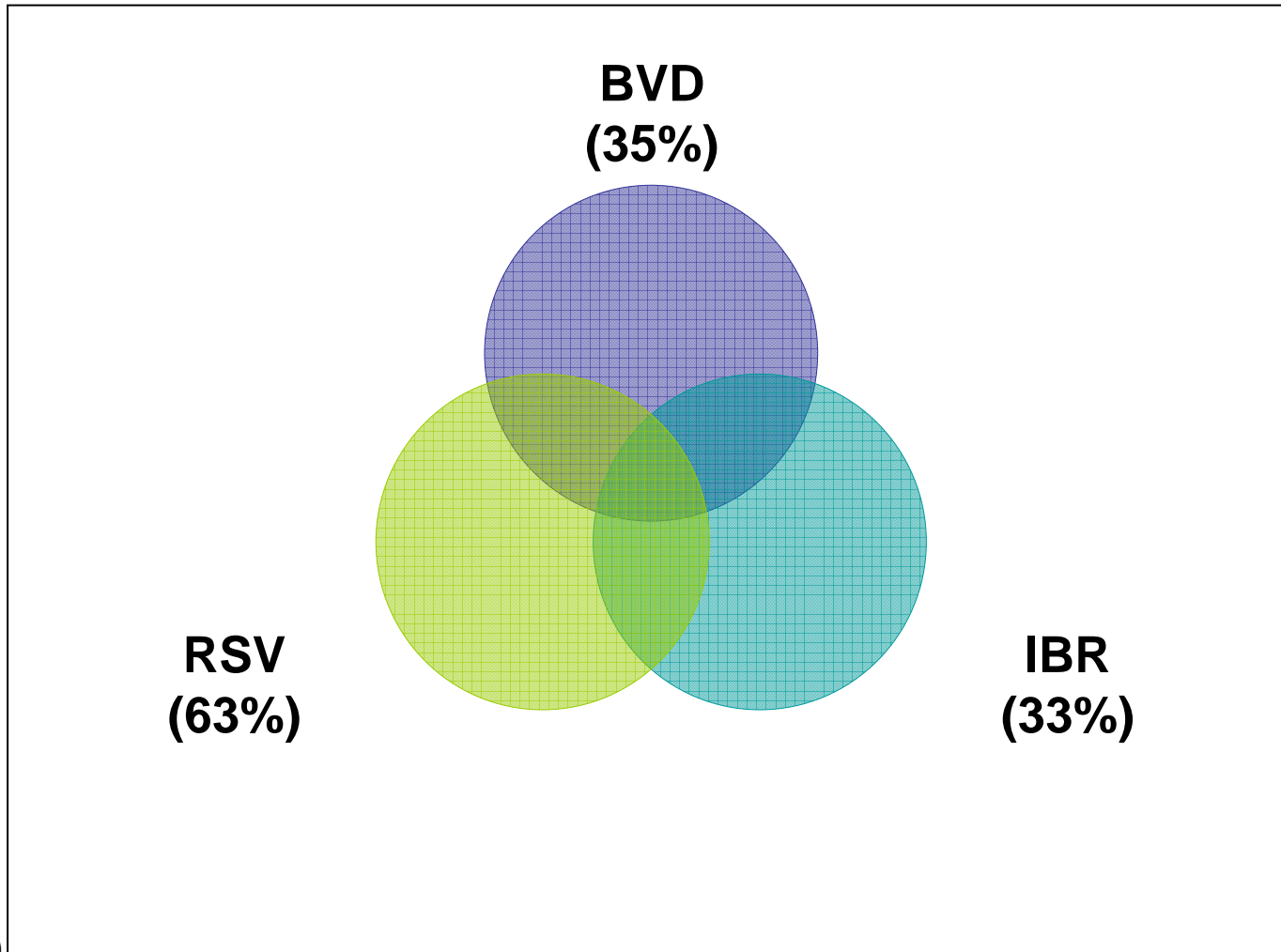
“The Big Six”

- **BVD** - Bovine virus diarrhoea virus
- **IBR/IPV** - Bovine herpes viruses (BHV-1,4)
- **Johne's** - *Mycobacterium avium* subsp. *paratuberculosis*
- **Leptospirosis** - *Leptospira interrogans* serovar *hardjo*
- **Neosporosis** - *Neospora caninum*
- **Salmonellosis** - *Salmonella dublin, typhimurium...*

Infectious Causes of Abortion



Infectious Causes of Respiratory Disease



1. Bovine Viral Diarrhoea

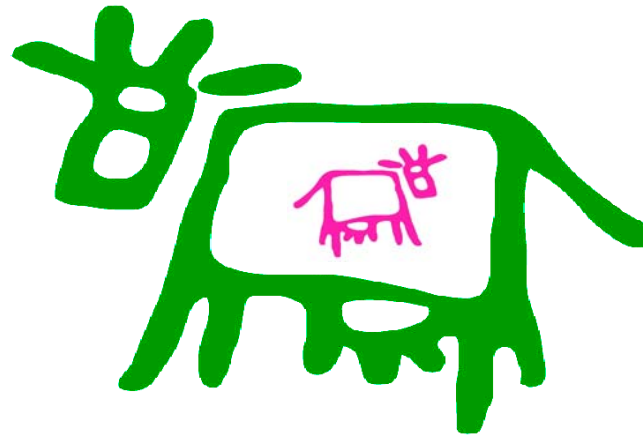
Signs depend on stage of pregnancy/age

- Mucosal disease - Persistent infection (PI)
- Repeat breeders
- Abortions/IUGR/Mummification
- Reduced yield, increased SCC
- Deformed calves - neurological/ocular
- Immunosuppression
- Scour/pneumonia/illthrift in calves/weanlings
- Haemorrhagic syndrome

Risk factors for entry of BVD into a dairy herd

Open herd

- PI animal
- 'Trojan cow'
- Large herds
- Transiently acutely infected animal



Other animals - sheep, biting flies

Equipment - nose tongs, gloves, needles

2. IBR/IPV

Infected cattle become latent carriers and can relapse

Calves/Weanlings

- High temperature
- Oculonasal discharge
- Coughing
- Pneumonia

Cows

- Milk drop
- High temperature, Conjunctivitis
- Infertility – repeat breeders
- Pneumonia

Risk factors for entry of IBR into a dairy herd

- Added females
- Bull (semen)
- Contiguous animals
- Aerosol (4m)
- Multi-shot injection devices

3. Johne's Disease

Signs generally only seen in older cattle

- Loss of body condition
- Poor milk yield
- Reduced fertility
- Diarrhoea
- Increased culling

Risk factors for entry of JD into a dairy herd

Acquisition of an infected animal

- Purchase/non-purchase
- Added from multiple sources
- Herd depopulation (complete/partial)
- Large herd size
- Expanding herd
- Pregnant heifer/cow and foetus
- Bull
- Imported animals/progeny of imports

'Borrowed' colostrum

4. Leptospirosis

- **Abortion** - underestimated diagnosis rate
- **Milk drop syndrome** - also poor yield, SCC
- **Perinatal mortality** - also weak calves
- **Infertility** - repeat breeders
- **Zoonosis** - Safety, Health & Welfare at Work Regulations (1993)

Risk factors for entry of *Leptospira* into a dairy herd

Transmission rates are highest in summer

Carriers can spread lepto. in urine for over a year

Lepto survive up to 6 mths. in wet conditions.

- **Water course access** - unfenced (eightfold)
- **Co-grazing with sheep** - regional (sixfold)
- **Stock bulls** - 70% of dairy farms (fourfold)
- **Open herd** - most herds (twofold)
- **Large herds** - > 60 cows

5. Neosporosis

Stage of pregnancy at infection determines outcome

- Infertility - embryo mortality (repeat breeders)
- Abortion - 3-7 mths., re-abortion
- Stillbirths - myocarditis, encephalomyelitis
- Deformed calves - encephalitis, no suck, recumbent
- Healthy PI calves
- Mummified fetuses
- Milk drop
- Neonatal paralysis in dogs.

Risk factors for entry of *Neospora* into a dairy herd

- Parasite found in ruminants & carnivores
- Sources of infection: transplacental infection
canid faeces
purchased female cattle
- Infected for life - persistent infection
- Cattle do not shed the organism
- Reactivation of infection causes disease

6. Salmonellosis

Abortion

- Large herd
- Mid to late term
- October - December
- Multiple cases
- Older cows
- Retained placenta
- Decomposed, rotten foetus

Risk factors for entry of *Salmonella* into a dairy herd

- **Region**
- **Carrier animals (S.d)**
- **Around calving**
- **Brought-in slurry**
- **Purchased feed**
- **Wild birds access to stored feed & water (S.t)**
- **Cats, Vermin**

Biosecurity

(“When Buying in think Buy-o-Security”)

- **Bioexclusion**
- **Biocontainment**

- Global/EU
- National
- Farm-specific “Fortress farming”
- Risk-based management

Bioexclusion

Risk factor analysis

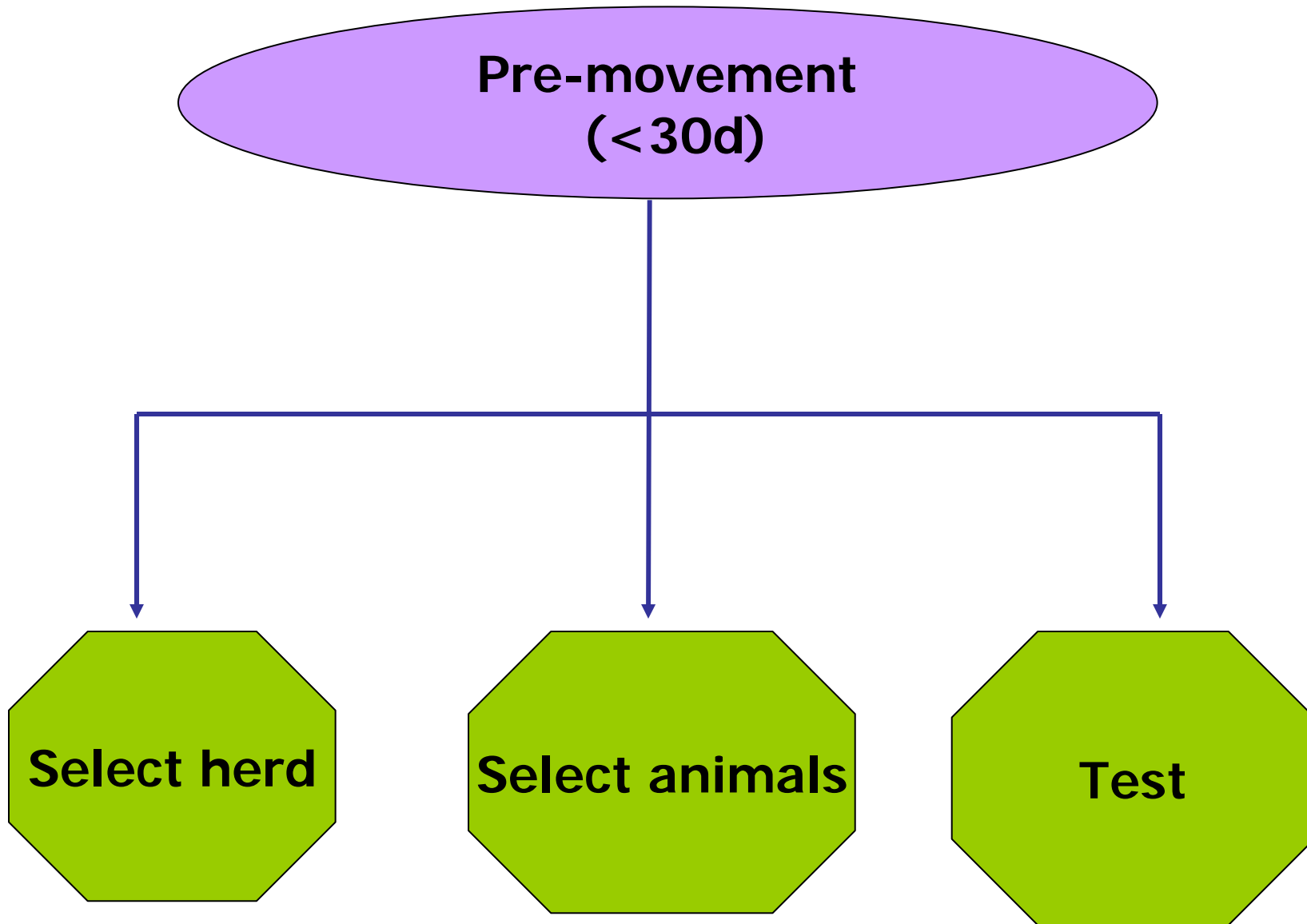
- Added animals
- Contiguous animals
- Water sources
- Wildlife
- Slurry, etc...

Risk reduction

Control measures to prevent infectious agents entering your herd.

1. Added Animals

- Select source *herd*
 - Limit number of herds & buy direct
- Select source *animals*
 - Young, non-pregnant & home-bred
- *Test* and sample source animals
 - Mandatory and voluntary testing
- *Quarantine* and medicate
 - Within one month of purchase

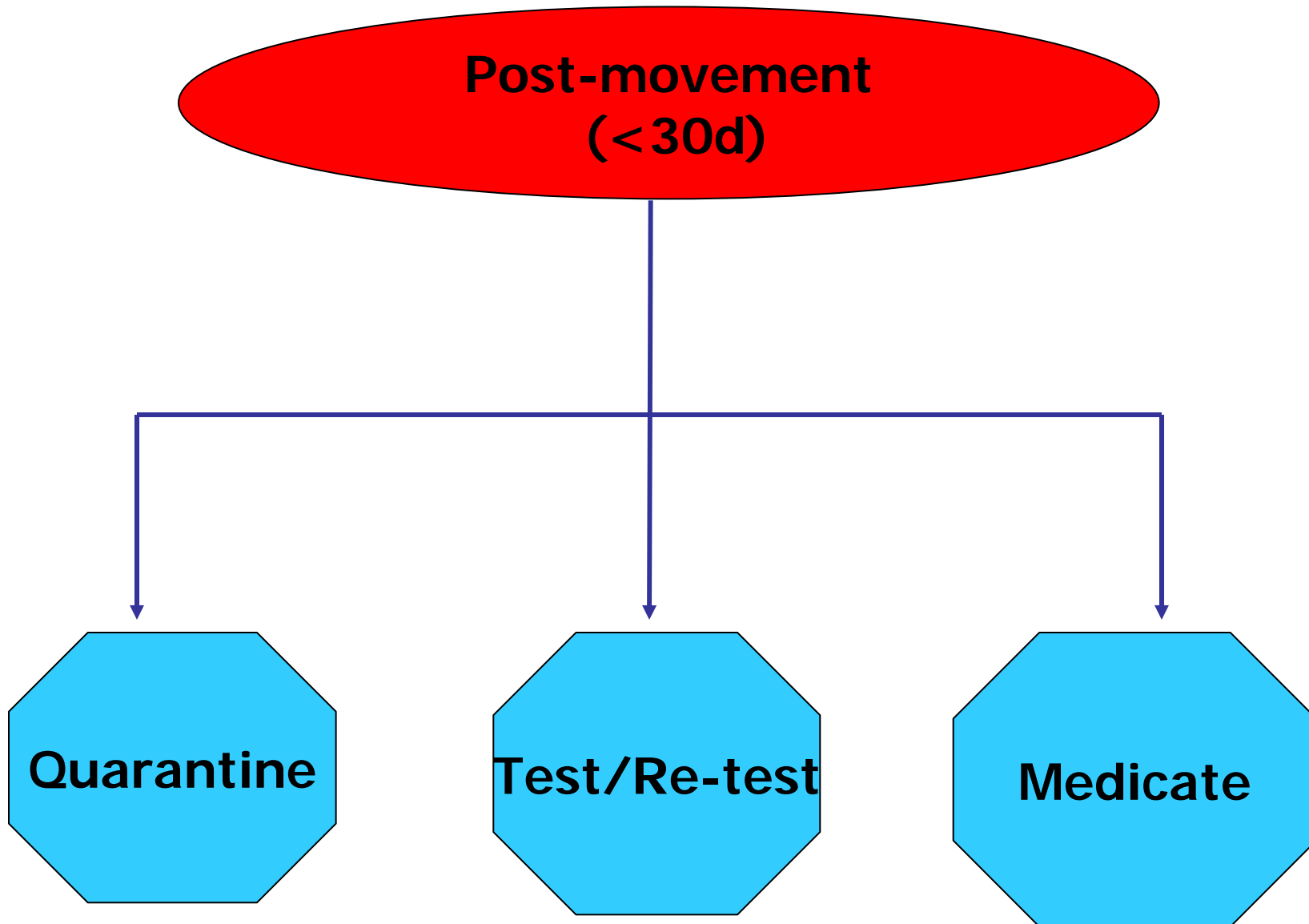


Pre-movement Test Options

- *Tuberculosis*
- *Brucellosis*

- Bovine virus diarrhoea (antibody/virus)
- Johne's disease (dam)

- IBR (virus)
- Neosporosis
- Salmonellosis
- Leptospirosis
- Mycoplasmosis



Quarantine

- Pre-movement, if feasible
- For 4 weeks
- Until brucellosis results clear
- By individual source herd
- In dedicated isolation unit
- On vacant out-farm
- If pregnant, until calved
- Regular inspections

Post-movement Testing

- *Brucellosis*
- Tests not conducted premovement: BVD, JD
- Pregnancy
- Offspring testing –BVDV, Neospora.

Medication

To home herd status

- **Antimicrobial**
- **Anthelmintic**
- **Antiseptic**
- **Ectoparasiticide**
- **Vaccination**

2. Contiguous Animals

Stock-proof boundary fencing

- Home and out-farms
- Secure natural boundaries
- Double fencing
- 3m separation

Human Health - Zoonoses

- Brucellosis
 - (Johne's)
 - Salmonellosis
 - Leptospirosis
-
- Abortions
 - Retained placenta
 - Scouring calves/cows
 - Urine
 - Raw milk

Take Home Messages

Biosecurity = Bioexclusion + Biocontainment

Primary Risks

- Added animals
- Sick/aborted animals
- Carrier animals

Control Measures

- Closed herd
- Pre/post-purchase screening
- Active surveillance

In the Future?

- Voluntary Disease Accreditation

Conclusions

- **Herd expansion** increases the risk of infectious infertility
- **Assess the risks** for **your herd** with your veterinary practitioner
- **Manage these risks** in conjunction with your local veterinary practitioner



When Buying in Think BUY-O-Security