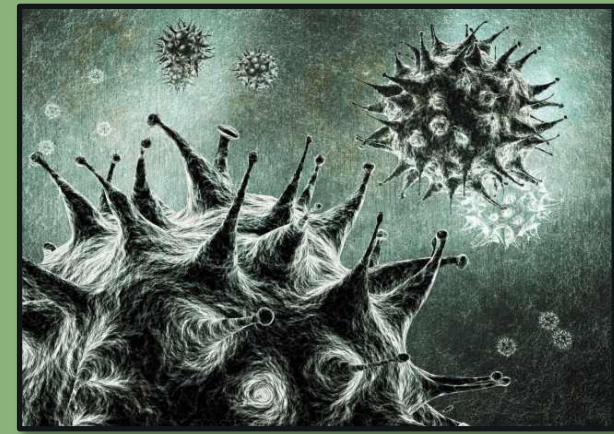
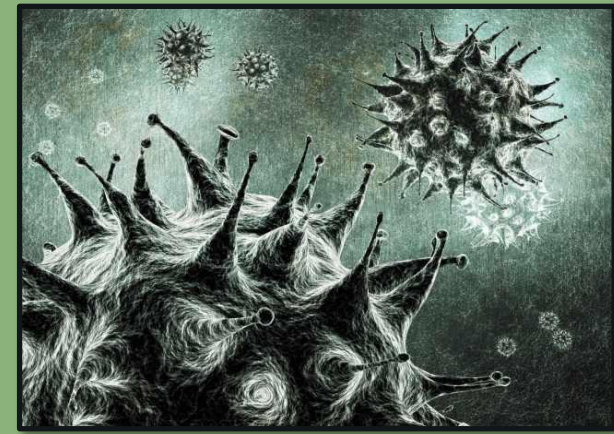


BVD Virus



- Bulls
 - Suppress immune system (more & worse disease)
 - Sub-fertility
- Calves
 - Suppress immune system (more & worse disease)
 - Scouring, pneumonia
 - ↓ Growth
- Cows
 - Suppress immune system (mastitis ++)
 - ↓ Production / ↑ SCC
 - Fertility (conception, early loss, abortion, deformity, small/weak calves, PI)

BVD Virus



- PI
 - Infection in first 4 months pregnancy...
 - BVD tricks foetus into thinking it's part of own body so never fights it
 - Infected for life (Persistent Infection)
 - Shed massive amounts of virus
 - Main source of infection
 - Usually poor performance

The cost of BVD depends on:

- **PIs**
- Cows
- Calves
- Bulls



Cost of PI's

- **Susceptibility to disease** (23% higher risk of clinical mastitis, 22% higher risk for severe illness or sudden death)
- **Growth** (18% slower – 369kg vs 450kg)
- **Milk production** (23% lower – 1.3kg vs 1.7kg)
- **Reproductive performance** (6% higher abortion rate)
- **Mortality** (17% higher to 2 yr old)
- **But... some have acceptable performance**



The cost of BVD depends on:

- Pls
- **Cows**
- Calves
- Bulls

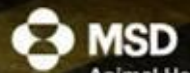


Cost of transient infection in cows

- Calving to conception: **\$39.60**
 - 6.6 days later
 - Conception to AB: **\$6.60**
 - 11% less
 - Pregnancy rate: **\$24.80**
 - 3.1% lower
 - Disease treatments: **\$10.52**
 - due to drug costs + discarded milk
-
- Total cost per infected cow: **\$81.52**

Cost of BVD in infected herds

- Herds with high antibody compared to herds with moderate or low antibody levels:
 - 5% lower daily milk production
 - 2.4% later conception (further 1% milk loss)
 - 2% higher abortion rate
- **\$81,000** per 366 cows = \$137 million for industry
 - Based on \$8 payout



The cost of BVD depends on:

- Pls
- Cows
- **Calves**
- Bulls



Cost of BVD in calves & heifers

- NZ??
- Europe reports great improvements where BVD eradicated (Scandinavia, Orkney)
- Effects:
 - Congenital infection – small weak calves + much poorer fertility later, deformities (esp. neural)
 - Disease – Many studies with much worse effects of other diseases when BVD also present
 - Growth – one recent study found 20% lower growth rates despite immunity! (immune cost?)


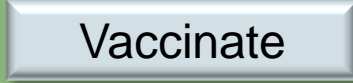


The cost of BVD depends on:

- Pls
- Cows
- Calves
- **Bulls**

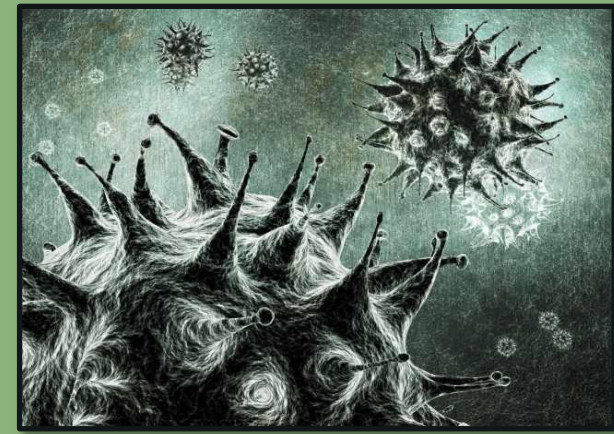


Cost of BVD in Bulls

- Risk for introducing infection
- Persistent Infection 
 - Often have poor fertility, even in immune cows, even if acceptable semen quality
 - Some (not all) offspring will be PI
 - Not fit for service
 - Risk to herd
- Transient infection 
 - Virus in ejaculate
 - Temporary drop in semen quality
 - Immune suppression increases risk of other diseases



BVD Virus



- Bulls
 - Suppress immune system (more & worse disease)
 - Sub-fertility
- Calves
 - Suppress immune system (more & worse disease)
 - Scouring, pneumonia
 - ↓ Growth
- Cows
 - Suppress immune system (mastitis ++)
 - ↓ Production / ↑ SCC
 - Fertility (conception, early loss, abortion, PI, deformity, small/weak calves)