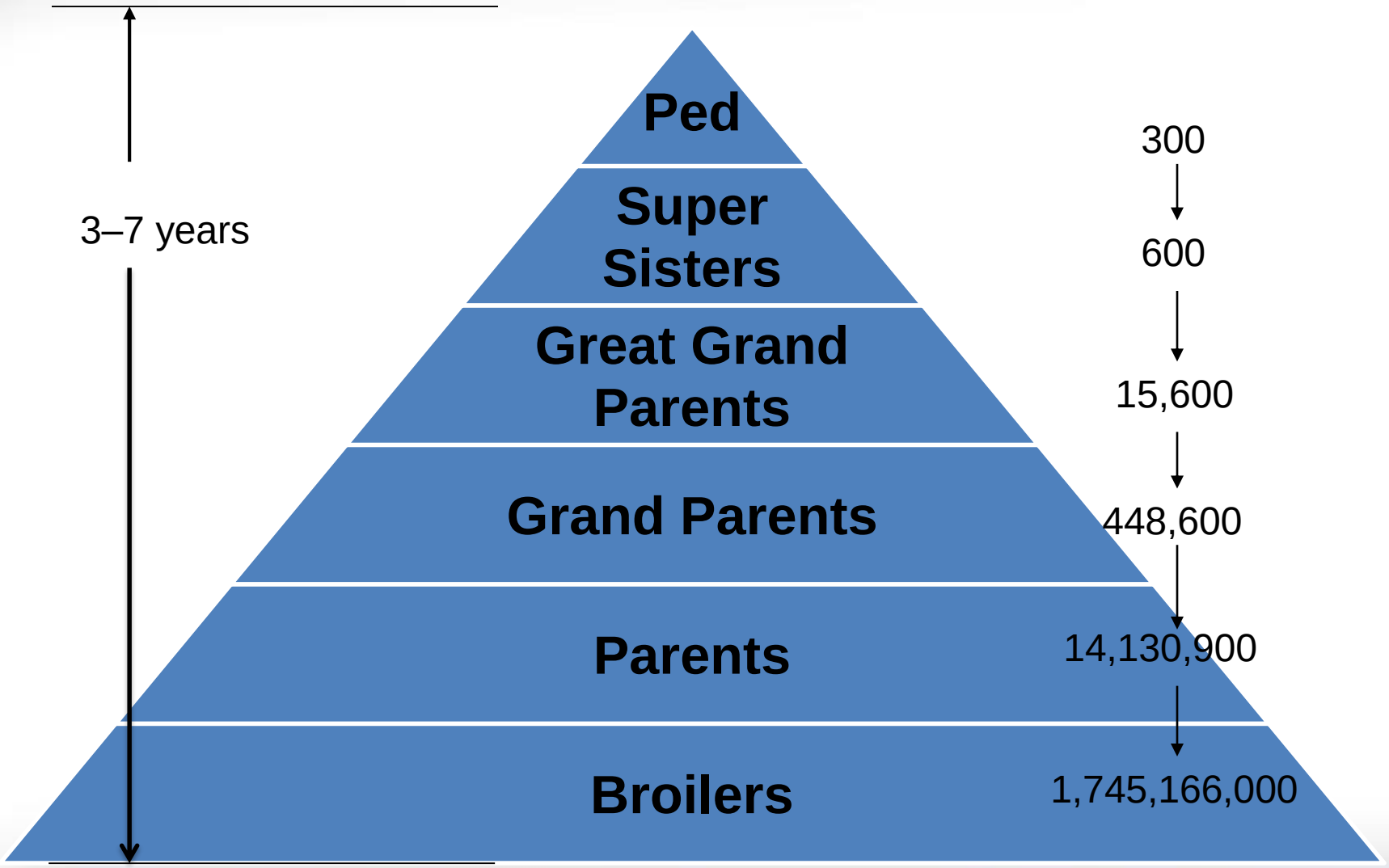
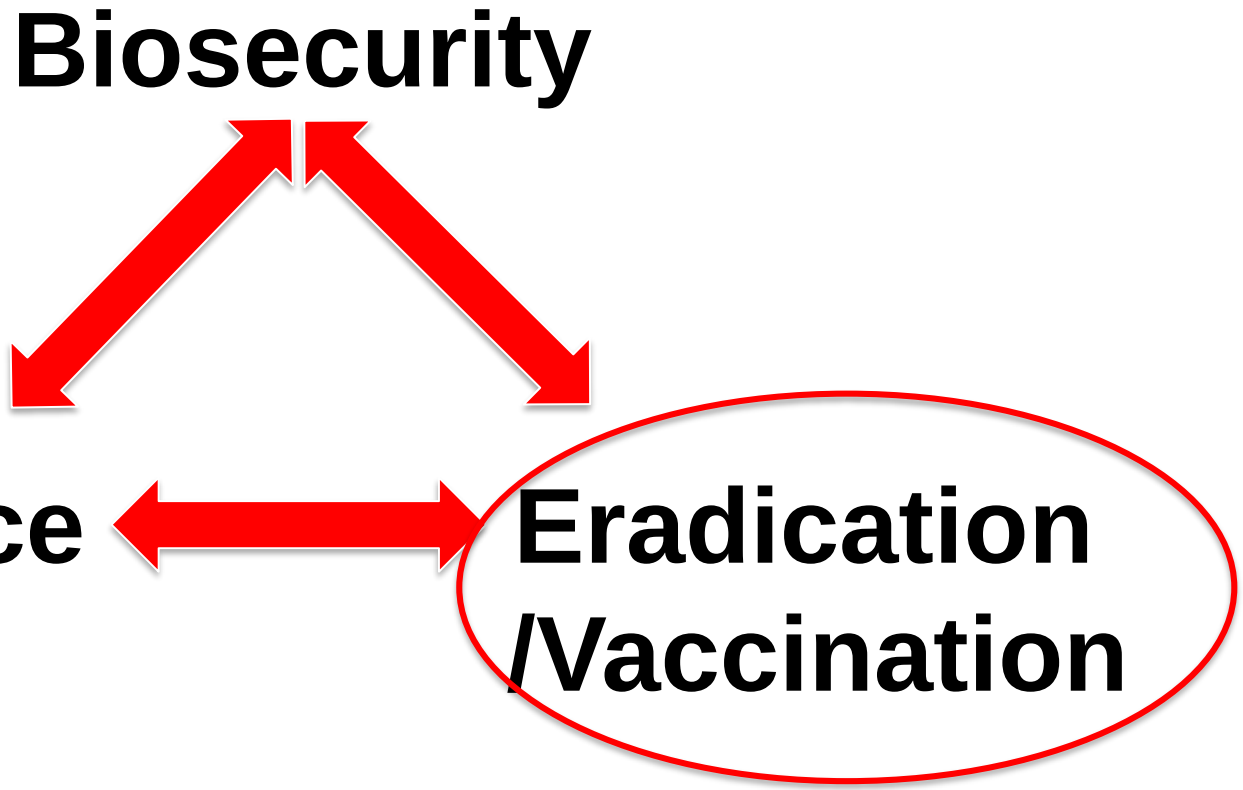
A multiple facet approach to optimising bird health

31st August 2016

Production potential



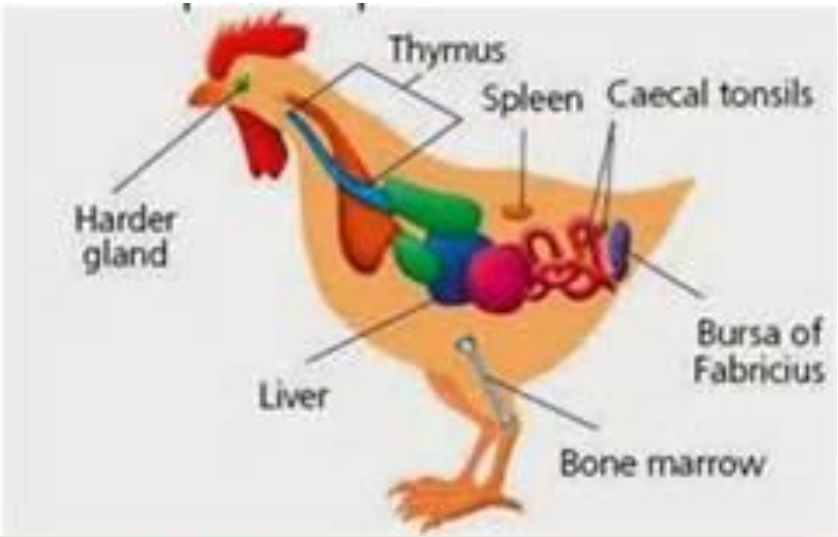
Bird health



Immune system

- **Local immunity**
  - Difficult to measure
- **Humoral immunity**
  - Measurable antibody response

- **Stumbling block…..**
- **Early Genetic Selection**
  - 6-7 weeks



Bird health goals

- **Restrict vertically transmitted disease**
- **Eradication of ‘breeding associated disease’**
  - Avian Leukosis Virus
- **Maximise vertical transmission of antibodies from previous generation**
- **Exposure of birds to naturally occurring pathogens**
  - Intestinal health focus

Vaccination/Eradication

- **Flock vaccination programs built around bird health surveillance history, as well as requirements to comply with health certificates**
- **Maximise protection of birds to localised challenges, as well as ensure satisfactory maternal antibody levels**
- **Use of novel vaccines, such as vector vaccines as they become available**
- **Use of In-ovo and Novatech technology**

Vertically transmitted disease

- **Mycoplasmosis**
  - M. gallisepticum, presenting mainly as Chronic Respiratory disease complex
  - M. synoviae, presenting mainly as Infectious synovitis
- **Salmonellosis**
  - S. pullorum, S. gallinarum, S. enteritidis
- **Reovirus**
  - Arthritis/ tenosynovitis
- **Avian encephalomyelitis**
- **(Avian Leukosis Virus)**

Protection through vaccination

- **Along with biosecurity and surveillance, this is the main focus point throughout the entire breeding pyramid**
- **Achieved through the administration of live and inactivated vaccines**
- **For certain diseases, the level of protection can be measured through serology testing**
- **Action plans in place for failure of a ‘vaccine take’**

Protection through vaccination

- **Golden rule….Prime the immune system with a live vaccine, follow up with an inactivated vaccine after 3-4 weeks**
- **Ensures prolonged periods of protection, as well as a sustained level of maternal antibody protection**
- **Commercial vaccine options may limit the level of protection**
  - Infectious bronchitis virus, Reovirus

Protection through vaccination

- **Administration of multiple virus strains to increase the level of cross protection**
- **Comes with limitations**
  - Finding space in the vaccination program according to product registration
- **Naturally occurring viruses which impact production have the ability to undergo genetic recombination, and impact virulence**
  - Reoviruses, Infectious bronchitis, Mareks disease

Protection through vaccination

- **Control of immunosuppressive diseases takes priority as this impacts the control of all other diseases**
  - Mareks disease
  - Reovirus
- **Immune suppression will impact vaccine response to standard vaccines, and reduce level of protection passed onto progeny**
- **Acts as open door to commensal non-pathogenic and pathogenic bacteria**

Surveillance testing

- **Optimised through**
  - Intensive surveillance/screening
  - Comprehensive laboratory facilities and up to date technology
  - Multiple test approach (enrichment, PCR, ELISA)
- **Range of testing to support export Health Certificate (EHC) requirements, along with co-ordination of results with official laboratories**
- **Rapid communication between laboratory and veterinary team**

Surveillance testing

- **Laboratory testing**:
  - Avian Influenza screening
  - Mycoplasma PCR testing increased in frequency and Rapid Serum Plate Agglutination (as per EHC requirements)
  - Salmonella by routine accredited microbiological examination, as well as PCR
  - Routine serological surveillance of antibody response to live and inactivated vaccinations, with goal of achieving consistently high maternal antibody levels in progeny

Biosecurity

- Only as strong as the weakest link
- Becomes a way of life for personnel on farms
- Staff movement restrictions
- Visitor movement restrictions
- Quarantine periods
- Dedicated feed deliveries
- Frequent auditing of standard operating procedures
- Limiting the exposure to pathogens

Going forward

- **Increased use of competitive exclusion products early in life**
  - Aid in the control of bacterial disease challenges
  - Optimise intestinal health by outcompeting the unfavourable bacterial populations
- **Coccidiosis vaccination**
- **Increased use of vector vaccines**
  - Infectious laryngotracheitis (ILT)
  - Newcastle disease (NDV)
  - Infectious bursal disease (IBD, Gumboro)

Thank you for your attention.

Questions?