



VIV ASIA 2017

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INTERNATIONAL PLATFORM
FROM FEED TO FOOD

Trends in Pig Health

VIV Master Class Vietnam

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Trends in Pig Health

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Outline



- Current trends in Animal Health Care
 - Immunization
- Future Trends in Animal Health Care
 - Immunization



“A New Era Has Arrived”



The screenshot shows a web browser window with the URL <http://www.allaboutfeed.net/Nutrition/Feed-Additives/2015/11/Probiotics-and-its-effect-on-gut-health-and-lameness...>. The page features a navigation menu with links for HOME, WORLD POULTRY, PIG PROGRESS, DAIRY GLOBAL, and RBI AGRI. A search bar and social media sharing options are also present. The main content area displays the article title "Colistin resistance found in Chinese pigs and poultry" with a sub-header "home > nutrition > feed additives". The article text states: "A new form of antimicrobial resistance has been discovered in Chinese poultry and pigs, which is called a threat to the 'last line of antibiotics'." Below the text is an image of two piglets. To the right, a "most read items" section lists three articles: "Public is confused about antibiotic resistance", "The use of bacterial endoxylanase in layers", and "Probiotics and its effect on gut health and lameness". A BUHLER advertisement for grain processing is also visible. On the left side of the browser, there is a sidebar for "excentials.com" with the text "All selenium in most effective organic form" and an image of a chicken. The Windows taskbar at the bottom shows the system clock as 2:48 PM on 11/26/2015.



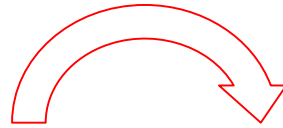
Know thy self, know thy enemy. A thousand battles, a thousand victories.

Sun Tzu

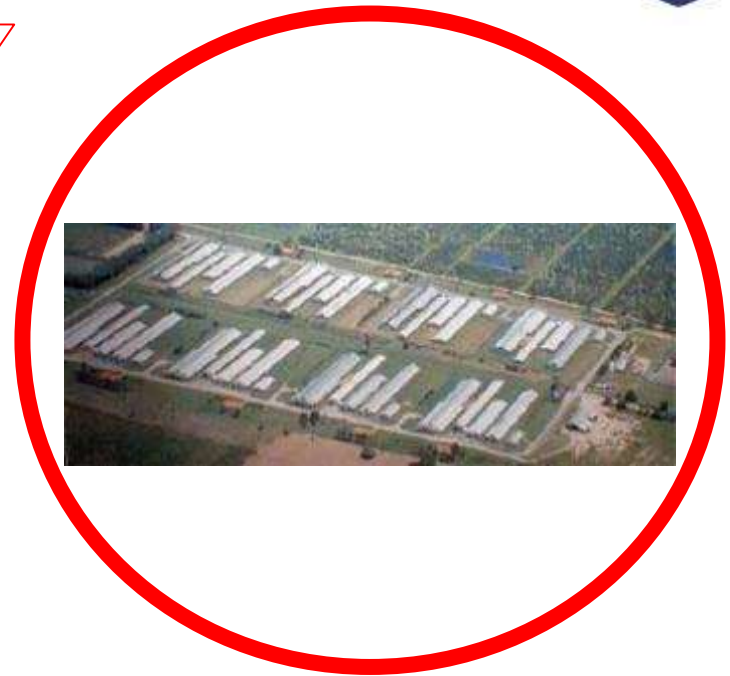
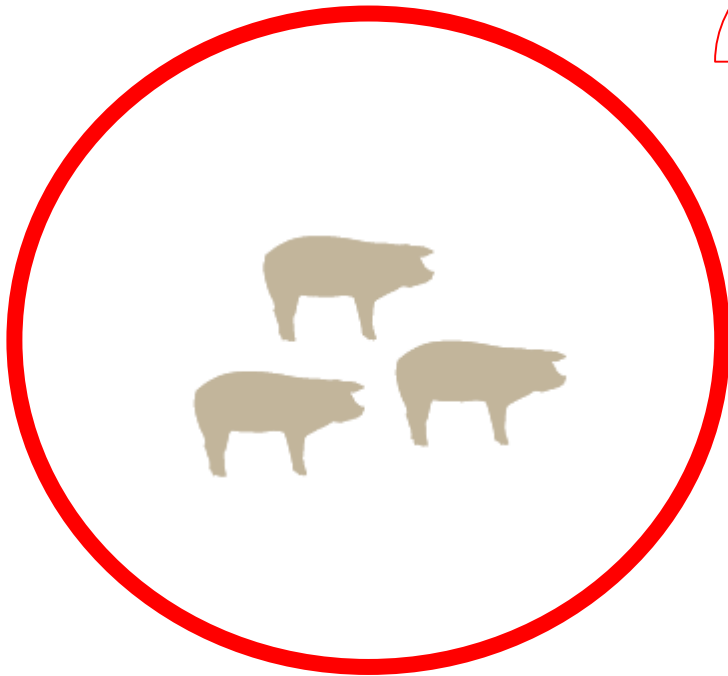
Infection Process



Pig Approach



System Approach



- It is aiming to connect epidemiological events (**infection chain**) between the different production phases (**production chain**)
- It is aiming to utilize a logical chain-thinking to create multi phase intervention strategies (**prevention chain**)

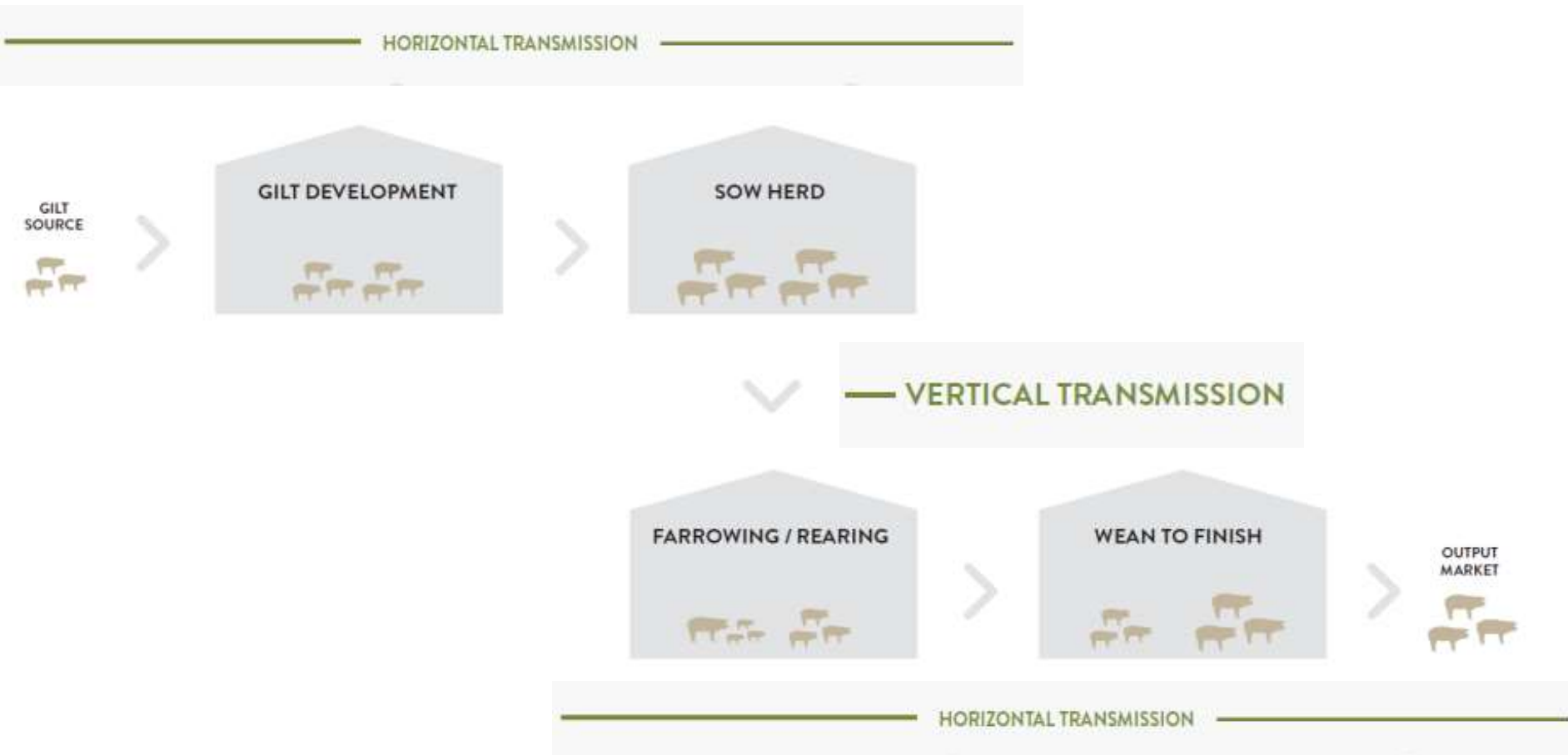


Production Chain

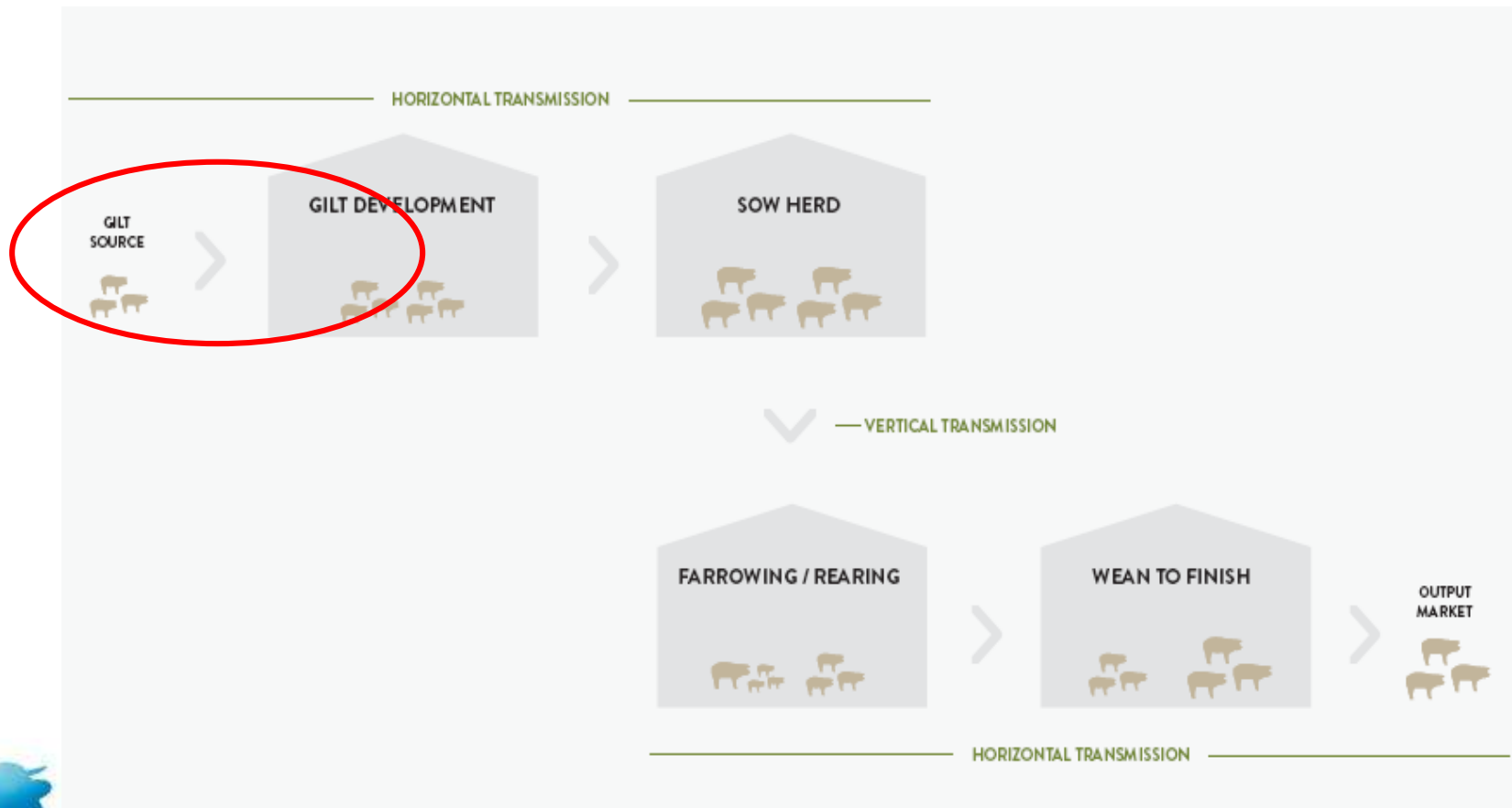


Infection Chain –

The whole herd/system approach



Mycoplasma Infection Chain™



Mhp gilt acclimation initiative



FLEX

FLEXFAMILY PROVE IT PROGRAM

M. hyo Gilt Acclimation Survey

Intended for gilts entering into commercial sow herds.

Number of sows utilizing this method of gilt acclimation (a) _____ if not, why? _____

What is the replacement rate for these sows? (check one)

<40%
 40-45%
 46-50%
 51-55%
 >55%

Gilt source M. hyo status
 Positive Negative

Gilt M. hyo status (by diagnostics and clinical symptoms) during grow-out: (sketch only if gilts were sketched older than weaning age into the recipient sow herd)
 Positive Negative

Receiving sow herd M. hyo status:
 Positive Negative

If the last three responses above are negative, please do not proceed.

1. Do you intentionally acclimate gilts to the sow herd-specific strain of M. hyo?
 Yes No

If yes, how? _____

If no, why not? _____

2. At what age are gilts eligible for sow herd-specific acclimation? _____

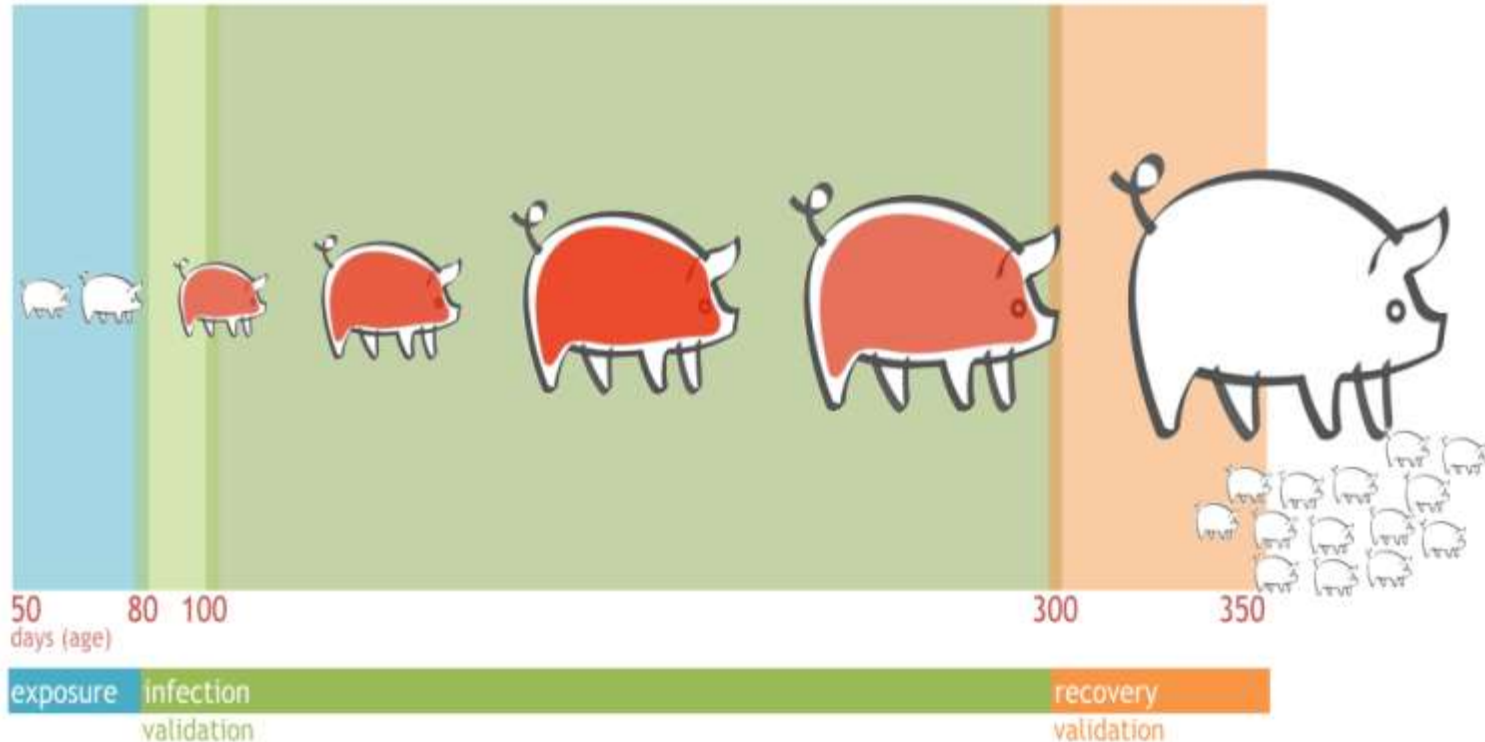
Is acclimation started at that time?
 Yes No

Boehringer Ingelheim

Respondents (%)	Risk Factor
55%	Receive Naïve Gilts into Positive Herds
41%	Have >50% replacement rate
60%	Do not acclimate to herd specific strain
53%	Late (age) gilt acclimation, beyond 20 weeks of age
20%	Validate exposure and recovery methods

Mhp Gilt acclimation initiative

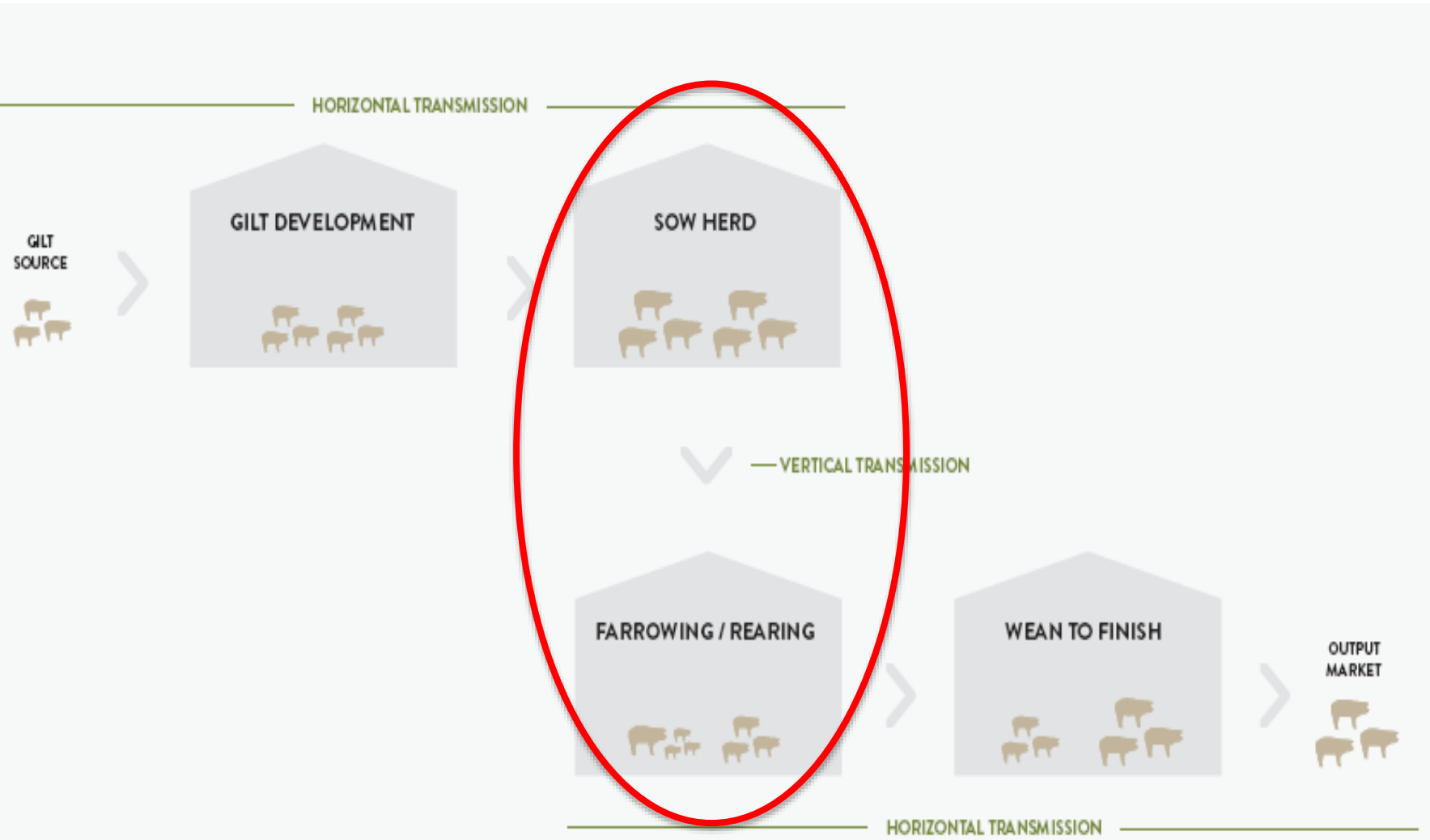
“50 – 350”



- Exposure: 50 – 80 days of age
- Complete population Infection: 100 days
- Validation (diagnostics): 100 days
- Stop Shedding (Recovery): 300-320
- First Farrow: ~ 350 days of age



Mycoplasma Infection Chain™



Sow herd stability project



Result	Percentage of Farms
M.hyo PCR positive, at any time point	52% (n=11/21)
1 of 3 positive sampling points	64% (n=7/11)
2 of 3 positive sampling points	9% (n=1/11)
All positive sampling points	27% (n=3/11)
Prevalence $\geq 10\%$ in at least one sampling	38% (n=8/21)
Total prevalence of individual pigs (including all farms)	7.0%

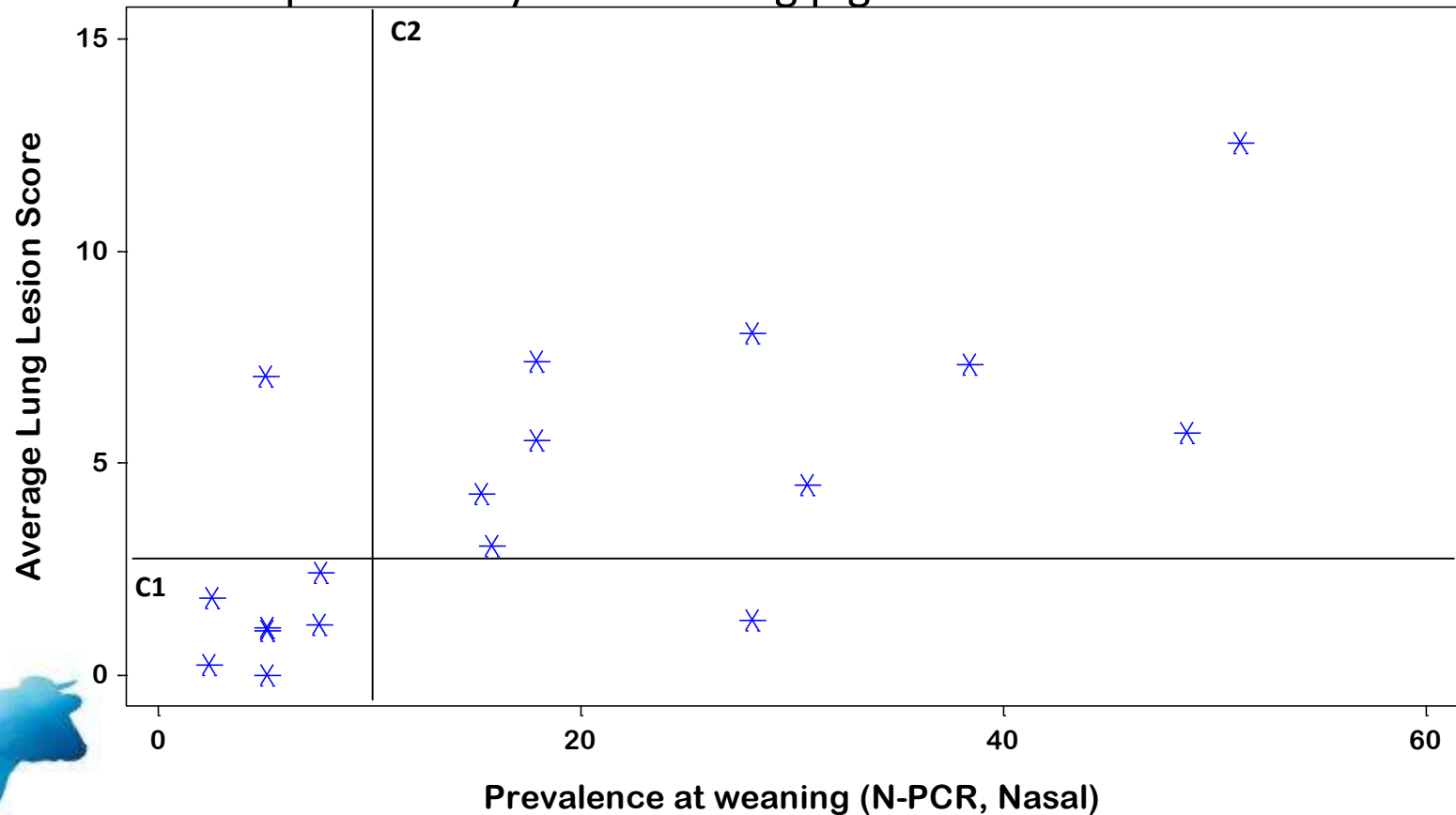
- Variability in M.hyo prevalence at weaning within a farm over time and variability between farms was documented in this study.
- Multiple sampling points over time are necessary to assess sow herd stability.
- **Over half of the sow herds evaluated in this study showed some evidence of M.hyo instability.**



Consequence of vertical transmission:



- Higher the prevalence at weaning higher
- the clinical impact of Mhyo in finishing pigs

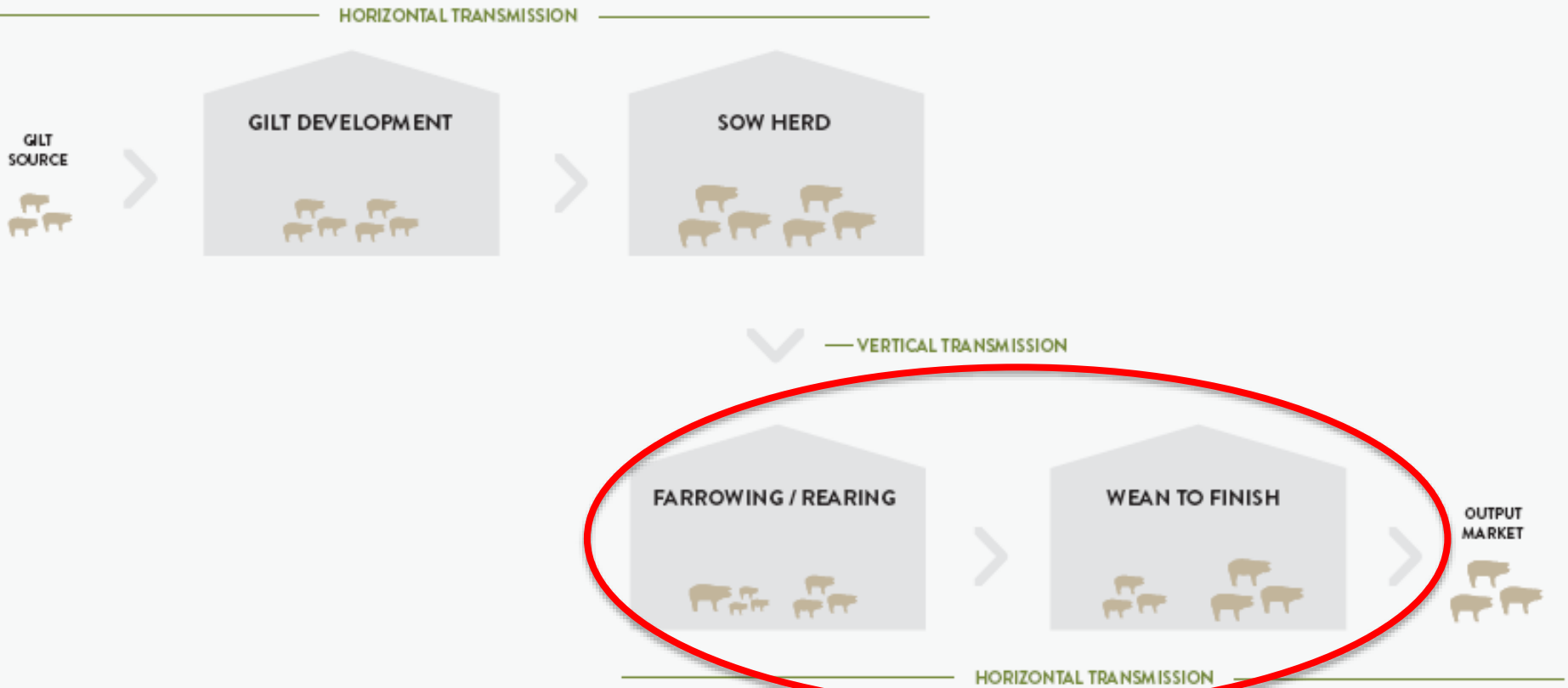


R-squared= 0.5304, P-Value= 0.0009

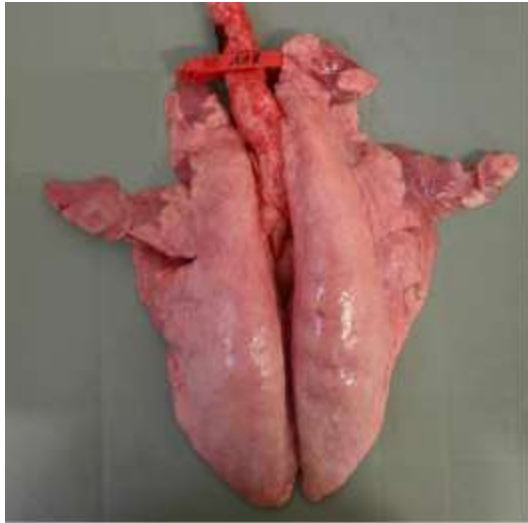
* Fano et al., 2007



Mycoplasma Infection Chain™



The Coughing Pig Project



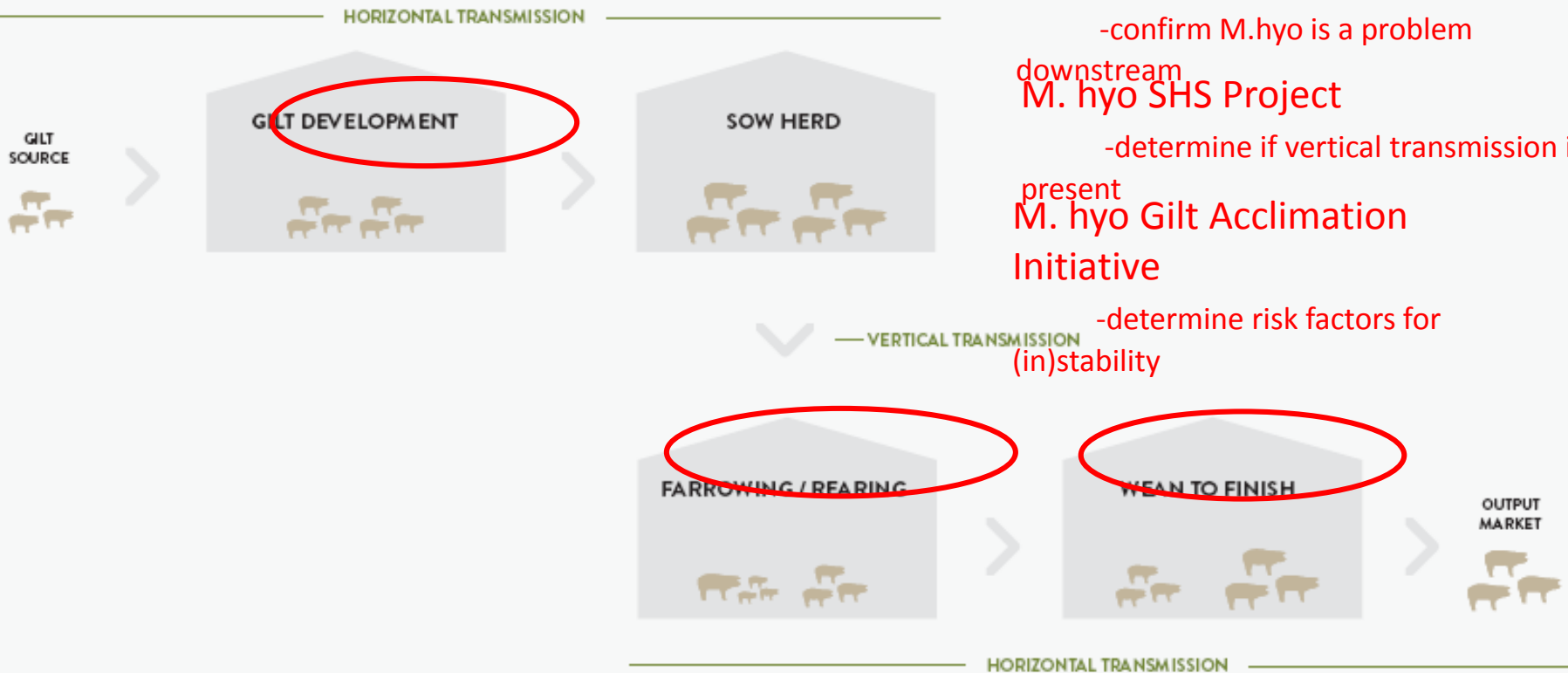
	Signs/ Gross lesions	Lesions/HP	Antigen IHC or PCR or Both	Definition
Result	+	-	-	-
	+	-	+	-
	+	+	-	-
	+	+	+	+

- 22 Complete Projects
- 7/22 Associated (Antigen and lesion) with M.hyo
 - 6/7 Associated with secondary bacteria
 - 2/7 Associated with IAV
 - 3/7 Associated with PRRSV
- 11/22 Associated with PRRSV
- 8/22 Associated with IAV (SIV)
- 14/22 Associated with Secondary bacteria

In 30 % of the respiratory cases Mhp was clinically involved



Mycoplasma Infection Chain™



Coughing Pig Project

-confirm M.hyo is a problem

downstream

M. hyo SHS Project

-determine if vertical transmission is

present

M. hyo Gilt Acclimation Initiative

-determine risk factors for (in)stability



PRRSV Infection Chain™





PRRSV Prevention Chain

- **Gilt Development Units**
 - Replacement gilts acclimated w/ 2 doses of MLV (30 days apart) and completed @ least 28 days prior to entry to breeding herd
- **Breeding Herds**
 - Load-Close-Homogenize
 - Replacement gilts acclimated w/ 2 doses of MLV (30 days apart) and completed @ least 28 days prior to entry to breeding herd
 - Mass vaccinate breeding herds 2x-30 days apart
 - Maintenance w/ Qtrly mass vaccination
- **Growing Pigs**
 - Initiate w/ mass vaccination of growing pig flow 2x-30 days apart
 - Maintenance w/ vaccination of piglets at weaning or post-entry to nursery





Systematic/Holistic Approach



Its more than just vaccines:

The 5 Step Process



- **Step 1** – *Identify Desired Goals*
- **Step 2** – *Determine Current Status*
- **Step 3** – *Understand Current Constraints*
- **Step 4** – *Develop Solutions Options*
- **Step 5** – *Implement & Monitor Desired Solutions*



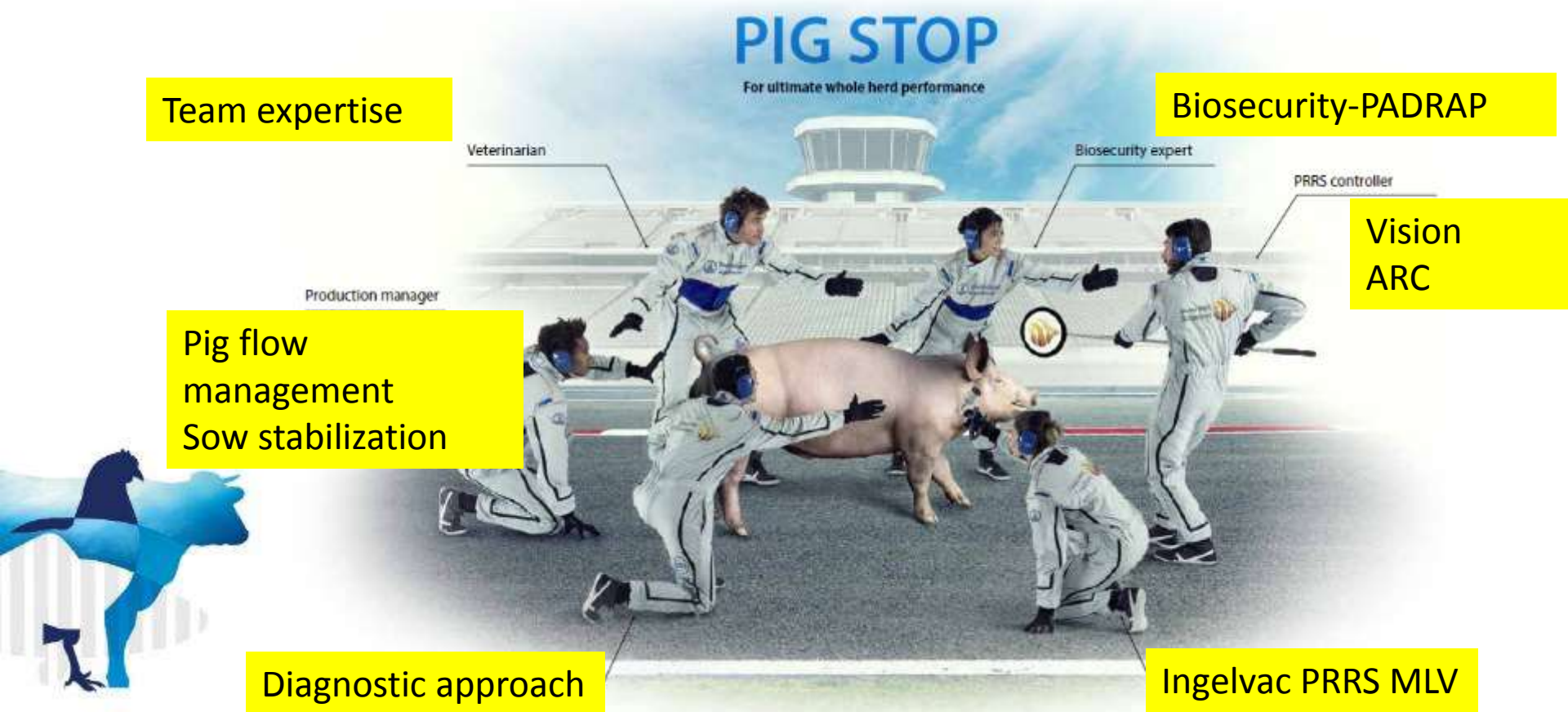
Large Scale, Long Term PRRS
Control Projects

PIG STOP



PRRS control requires a **holistic approach** and complete **Solution package**
It is our differentiator, why?

- BI team has the knowledge and expertise to control PRRS
- We have access to the key tools to make it possible.



Team expertise

Biosecurity-PADRAP

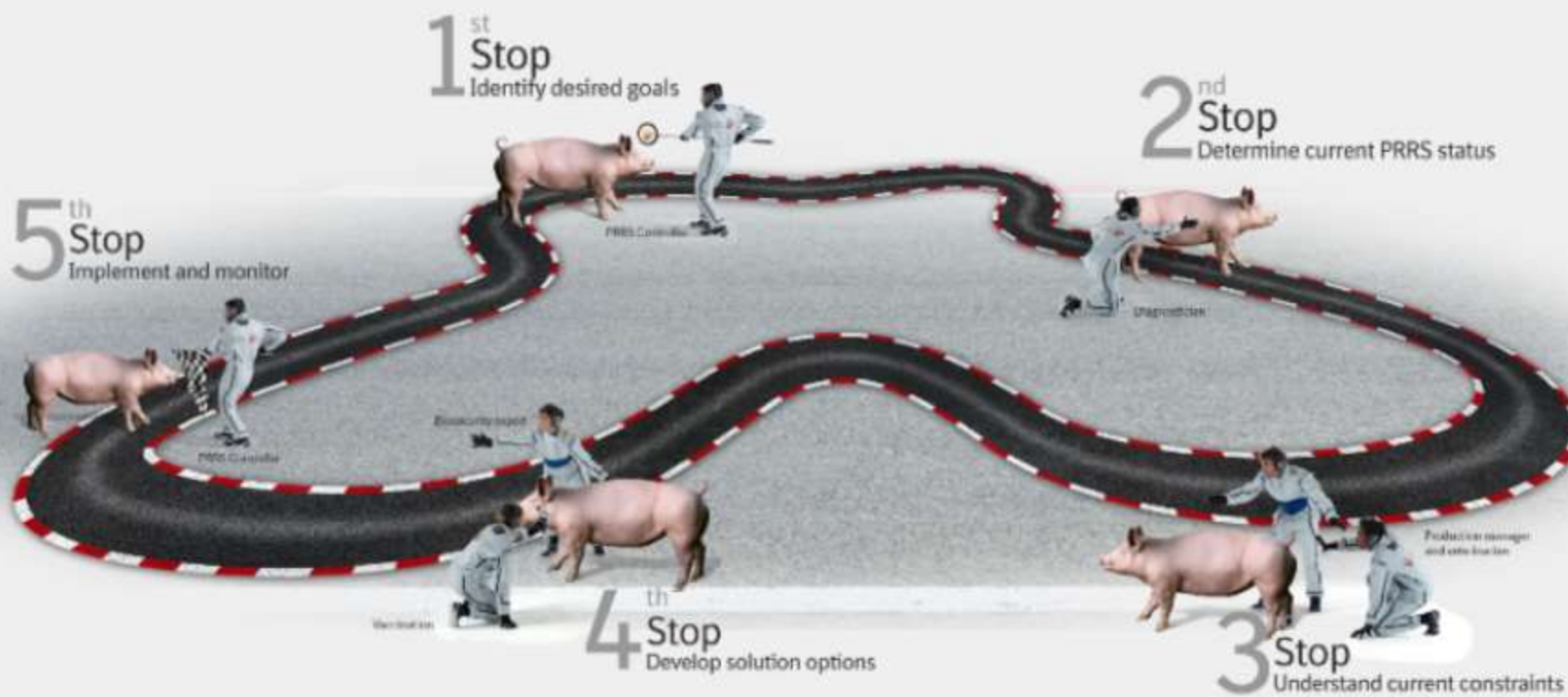
Vision
ARC

Pig flow
management
Sow stabilization

Diagnostic approach

Ingelvac PRRS MLV

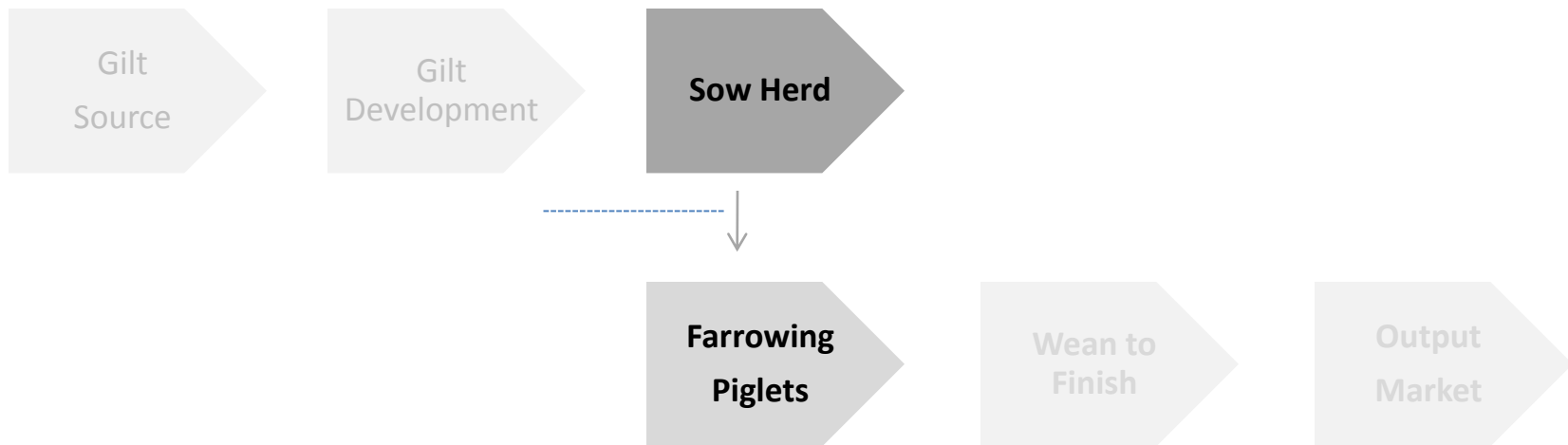
How? 5 STEP Process



Beyond the bottle



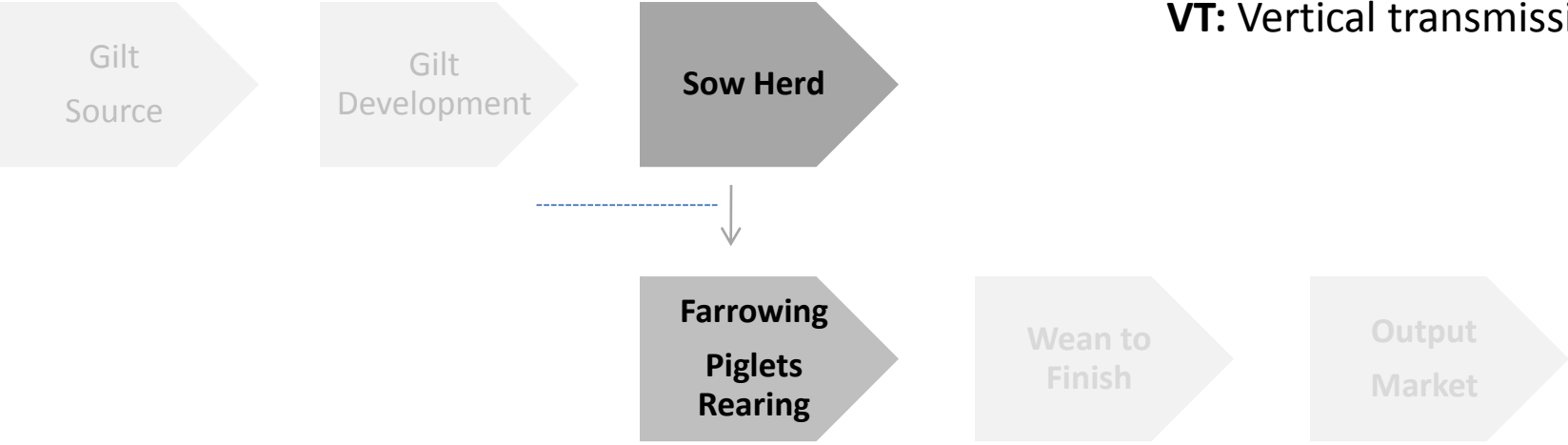
Prevention – Partial Approach



Prevention – Partial Approach



HT -----HT-----HT-----HT-----HT

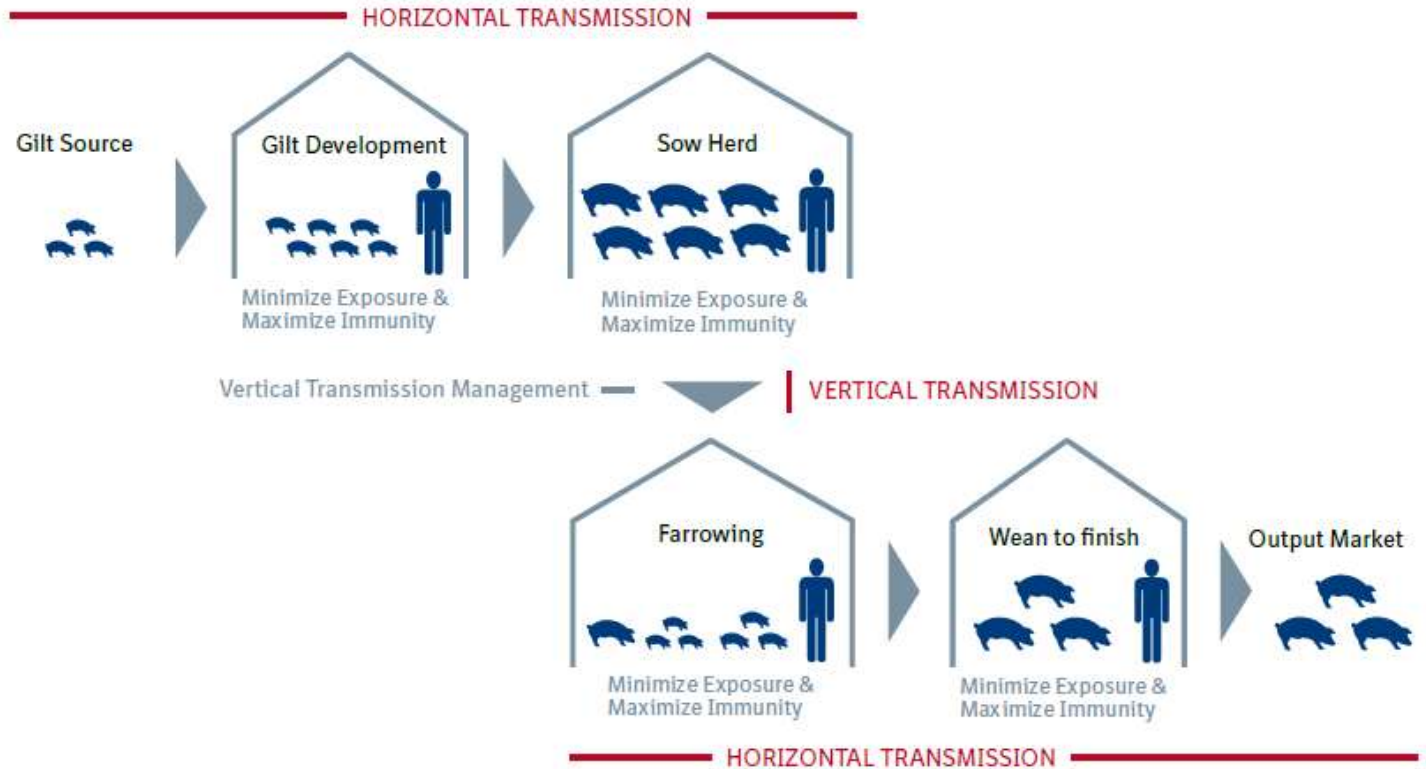


HT: Horizontal Transmission
VT: Vertical transmission

- Whole herd infection pressure
- Only Sow herd immunization
- No accomplishment of Minimizing exposure in Wean to Finish population



Infection/Prevention Chain – Whole herd approach



INFECTION CHAIN

- Horizontal Transmission
- Vertical Transmission

The Whole Herd Approach
(System)

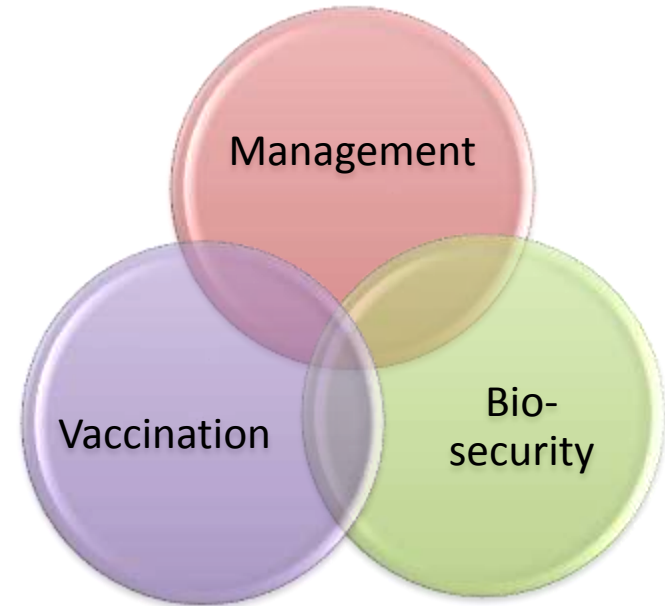
PREVENTION CHAIN

- Minimize Exposure
- Maximize immunity
- Vertical Transmission Management

Holistic Control Strategies



- **Management**
 - AI/AO
 - Test/Remove
 - Depop/repop
 - Herd Closure
 - Gilt Acclimatisation



- **Bio-security**

- **Vaccination (immunological tools)**



Take Home Message



- The swine industry has progressed and will continue to progress in terms of both approaches and specific measures to maintain and improve pig health
- The trend now is Holistic approach (both multi-factorial and in looking at herd health) and preventive medicine



Acknowledgement



- Dr. Eduardo Fano- Boehringer Ingelheim Vetmedica, USA
- Dr. Oliver Duran, Boehringer Ingelheim GmbH, Germany



A stylized blue silhouette of a pig, shown in profile facing right. The pig is composed of various shades of blue, with a darker blue for the head and a lighter blue for the body. The background behind the pig consists of vertical grey bars of varying heights, suggesting a fence or a stylized landscape.

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Thank You

Pig Production and processing

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