## Integrating Health Protocols in the Incoming Gilts

#### Health Assurance Team SIPAS Congress March 2016

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## >>>>> Outline

- Why we need the quarantine?
- Complexities of the topic
- The perfect world Including performance targets.
- The real world (a) Biology; and (b) people as the weakest link.
- How to adapt the replacement for the most current pathogens in commercial farms?
- This is more than just PRRS, but also is PRRS
- Summary and recommendations

- Quarantine is based on isolation and acclimatization
- Objectives:
  - **Prevents** the introduction of new pathogens
  - **Allows** the animals to adapt to the pathogens
  - Maintenance of the farm stability



• Acclimatization:



### Recovery "coold down"

The key point is how much time we need for this process

	Process	Isolation	Acclima	itization
	Phase	Surveillance	Exposure	Recovery
	Goal	Avoid disease introduction	Maximize immunity	Minimize shedding
	Quarantine (facility/process)			
	Site location			
	Source health status			
Factor	On-site vs. off-site GDU			
impact	GDU flow (AIAO vs CF)			
	Frequency of introduction			
	Recipient health status			
	Age of introduction			

GDU: gilt development unit AIAO: all in – all out CF: continuous flow

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	Goal	Avoid disease Maximize introduction immunity		Minimize shedding
	Quarantine (facility/process)	+++	-	-
	Site location	+++	-	-
	Source health status	+++	++	+
Factor	On-site vs. off-site GDU	++	+++	++
Impact	GDU flow (AIAO vs CF)	++	+++	++
	Frequency of introduction	-	+++	+++
	Recipient health status	-	++	+++
	Age of introduction	-	++	<b></b>

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## >>>>> Ideal Situation

- Periodical introduction of gilts To keep a balanced parity structure.
- Body weight >85% of the gilts bred within 130 kg
- Arrival to breeding No less than 6 weeks in Breeding & Gestation prior breeding.
- No health challenges
- No health procedures during the 3 weeks prior to breeding – Health protocols completed before that.

### >>>>>> Ideal Situation

Good farms

- They do prefer to take control of their gilts at earlier ages, even as nurseries
- Multi weight groups in two quarantines

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## Same Goal, Different Perspective

Top 3 Health Priorities

Control of external risks

Develop immunity

Maintain herd stability

Top 3 Production Priorities

Right number & quality of gilts

Frequency of introductions

Lifetime performance

## >>>>> Challenging Targets for Gilts

Performance Traits	Proposed Target
Litter Size	15.5 TB; 14.5 BA; 13.5 W (87% W/TB; 6% SB & Mummies; 7% PWM)
Farrowing Rate P1	> 93%
Wean-to-Service Interval (first weaning)	< 6 days
Breed back (first weaning)	> 90%
P2 dip	Absent or non-relevant
Annual sow mortality	< 5 %
Retention P0-P1-P3-P6	100% - 95% - 75% - 50%

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## >>>>> Accept the Brutal Facts

- Multiplication is inconsistent Huge variations within and between system(s) in volume, selection rate, body weight, ADG, arrival to breeding.
- **Improper acclimatization is not uncommon** Effective exposure, recovery and immunity are needed to prevent disease breaks.
- Unstable farm health Premature introduction to a farm that is not yet ready to receive replacements.

### • In the field –

- High number of gilt introductions per year.
- Gilts bred within days from introduction into the sow herd.

- Avoid trying to force biology Nature never breaks its own rules.
- Plenty of examples
  - Anticipate deliveries, so gilts are vaccinated "on average" two weeks before breeding.
  - Large systems manage gilts for the whole system and not for individual farms.



## >>>>> Biology Should Dictate the Flow

- Facilities- Site location Ideally 2-3 km
- Facilities- Time They should ensure a minimum of 4 effective weeks of isolation and 4 effective weeks of acclimatization to start the conversation:
  - Is 4 weeks of acclimatization enough time to expose and recover gilts without shedding?
- Farm source Vet-to Vet communication
- People and flows Human contact
  Never unrestricted movements



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## >>>>> Biology Should Dictate the Flow

- Facility management- AI/AO, controlling the level of exposure
- Accommodation Space
  Temperature, light, ventilation
- Monitoring/surveillance

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### Make health plans executable -

- By any person in the farm.
- Explain well.
- Trust but verify.

### • Murphy's Law –

- High personnel turn-over.
- Importance of worker's actions (what they do or don't do) in terms of health impact.
- Maintenance teams and tools circulating from (+) to (-) populations.

- Have the GDU department at the same level as farrowing and breeding and gestation -
  - Have priorities.
  - Expertise.
  - Impact of contract growers (?).

- Health protocols must be developed during this period by a veterinarian with knowledge in the disease dynamics within the system and not just replicated from another system.
- Gilts need 3 weeks after exposure to develop active immunity
- Vaccination of animals to develop acquired immunity and/or exposure to receiving herd pathogens to develop natural immunity

| Exposure method       | Examples                                  |
|-----------------------|-------------------------------------------|
| Feedback              | Parvovirus, PED, TGE, Rotavirus, other    |
|                       | diarrheal agents                          |
| Direct                | PRRSv                                     |
| inoculation/injection |                                           |
| Seeder/Infected pigs  | Mycoplasma hyopneumoniae, other           |
|                       | Mycoplasmas, Pasteurella                  |
| Vaccination           | PRRSv, PCV2, IAV, Erysipelas, Parvovirus, |
|                       | Арр                                       |
| Environmental/passive | Parvovirus                                |

### Natural exposure

- Contact with "seeder" animals from the recipient herd along with feedback
- One cull, parity-zero gilt or parity-one female to 20 animals has been satisfactory for exposure
- -Take in account the transmission rate for each disease

| Disease          | R estimate | Source               |
|------------------|------------|----------------------|
| IAV              | 10.4       | Allerson et al, 2012 |
| PRRSV            | 2.6        | Charpin et al, 2012  |
| M. hyopneumoniae | 1.16       | Meyns et al, 2004    |
| PCV2             | 5.9        | Andraud et al, 2009  |

### Natural acclimatization

-Feedback protocols are important especially for generating maternal immunity against several pathogens that cause scouring in neonatal pigs



#### Natural acclimatization

#### -Feedback protocols: Three areas are quite important



- **PRRSv** Initial reason for quarantines
- Most of the breeding companies are delivering PRRSv negative/naïve gilts into positive farms
- Key:

Timeline for Exposure-Infection-Recovery No viremia before introduction into the herd Monitoring

### **TOOLS:**

• Natural exposure:

|                | Pro                         | Cons                            |
|----------------|-----------------------------|---------------------------------|
| LVI            | Time of exposure controlled | Other pathogens                 |
|                | Homologous strain           | Clinical signs                  |
|                |                             | Not easy                        |
| Direct contact | Easier                      | Uncontrolled time of expos.     |
|                | Homologous strain           | Inconsistent exposure           |
|                |                             | Increased time of viremia/group |
| Ropes          | Easy                        | More further investigations     |

### >>>>> But it can be PRRSv

One dose of LIV on day 0

| Serum |           |           |       |           |       | Oral Flu  | ids       |      |           |
|-------|-----------|-----------|-------|-----------|-------|-----------|-----------|------|-----------|
| weeks | Avg<br>Ct | Range Ct  | %Pos  | Pos/total | weeks | Avg<br>Ct | Range Ct  | %Pos | Pos/total |
| 0     |           |           |       |           | 0     |           |           |      |           |
| 1     | 23.6      | 22.4-24.9 | 100%  | 9/9       | 1     | 26.7      | 25.0-28.1 | 100% | 10/10     |
| 3     | 29.9      | 27.8-32.2 | 100%  | 9/9       | 3     |           |           |      |           |
| 6     |           |           |       |           | 6     | 35.2      | 33.5-37.8 | 100% | 10/10     |
| 8     |           |           |       |           | 8     | 36.5      | 35.0-37.0 | 30%  | 3/10      |
| 10    | 36.0      | 31.3-37.0 | 44.4% | 4/9       | 10    | 37.2      | 35.8-38.8 | 50%  | 5/10      |
| 12    | 37.0      | 37.0      | 0%    | 0/9       | 12    | 37.0      | 37        | 0%   | 0/10      |

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### >>>>> But it can be PRRSv

### **TOOLS:**

• Vaccines:

|     | Pro                                          | Cons                                 |
|-----|----------------------------------------------|--------------------------------------|
| MLV | Easy                                         | Variable cross-protection (strain)   |
|     | Time of exposure controlled                  | Reversion to virulence-recombi.      |
|     | Consistent exposure                          | SN Ab appear 4 weeks after infection |
|     | Decreased viremia after field virus exposure |                                      |
|     | Reduce congenitally infec. piglets           |                                      |
| KV  | Easy and safe                                | Protection in positive animals       |
|     | Induce INFy, CMI, and SN                     | Variable cross-protection            |

## >>>>> But it can be PRRSv

### TOOLS:

• Vaccines:

-Consider always a first vaccination with a live vaccine and check gilts serologically 14 days after vaccination in order to see that they have been correctly vaccinated.

-In some instances, when infectious pressure in the destiny farm is high, consider revaccination 4 weeks after the first vaccination.

- If your replacements are serologically positive to PRRS because of a previous infection when younger, a single vaccination (again with an attenuated vaccine to assure a high level of immunity) would suffice.

One dose of MLV vaccine 28 days before inoculation

| Serum |           |           | Oral Fluids |           |       |           |           |       |           |
|-------|-----------|-----------|-------------|-----------|-------|-----------|-----------|-------|-----------|
| weeks | Avg<br>Ct | Range Ct  | %Pos        | Pos/total | weeks | Avg<br>Ct | Range Ct  | %Pos  | Pos/total |
| -3    | 29.1      | 27.6-30.5 | 100%        | 9/9       | -3    | 32.4      | 29.5-35.4 | 100%  | 12/12     |
| 0     | 36.9      | 32.3-40.0 | 55.6%       | 5/9       | 0     | 34.4      | 30.9-38.1 | 100%  | 12/12     |
| 1     | 30.4      | 27.0-34.3 | 100%        | 9/9       | 1     | 31.2      | 29.2-32.5 | 100%  | 12/12     |
| 2     |           |           |             |           | 2     | 33.1      | 31.7-35.0 | 100%  | 12/12     |
| 4     |           |           |             |           | 4     | 35.7      | 33.0-37.3 | 83.3% | 10/12     |
| 6     |           |           |             |           | 6     | 36.8      | 35.0-37.7 | 58.3% | 7/12      |
| 8     | 36.2      | 33.3-37.0 | 33.3%       | 3/9       | 8     | 37.5      | 37.0-38.7 | 45.5% | 5/12      |
| 10    | 37.0      | 37.0      | 0%          | 0/9       | 10    | 36.7      | 34.0-39.1 | 50.0% | 6/12      |
| 12    |           |           |             |           | 12    | 37        | 37        | 0%    | 0/12      |

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## >>>>> One-Page-Summary

- Gilt introduction is still a work in progress:
  - Still not seen as key by many.
  - Some flows do not optimize the power of health and good management combined.
- Biology should modulate the flow and not the other way around.
- People can make mistakes (and they will).
- PRRS concerns are always valid and time for acclimatization is key to maintain the stability of your farms.
- Monitor the success of the acclimatization !!!!





### GRAZIE A TUTTI