Managing For a Successful Outcome: The Sow, her Litter, and the Lactation Period

Leman China Conference

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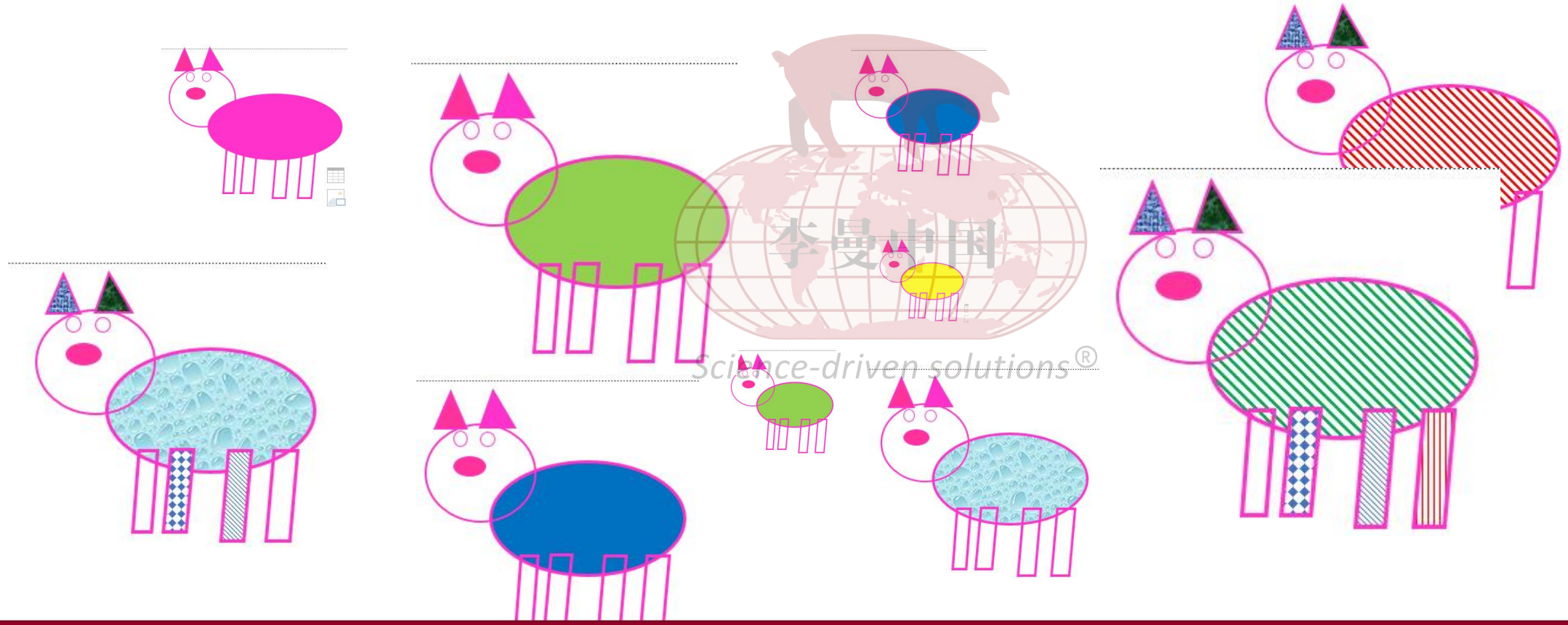
Mark Schwartz

Begin with the end in mind

- What is our goal?
  - To wean healthy, robust, high-quality pigs while preparing the sow for her subsequent mating, gestation and farrowing events

The ultimate value is in the market pig

Meeting the goal at the individual level vs the population level



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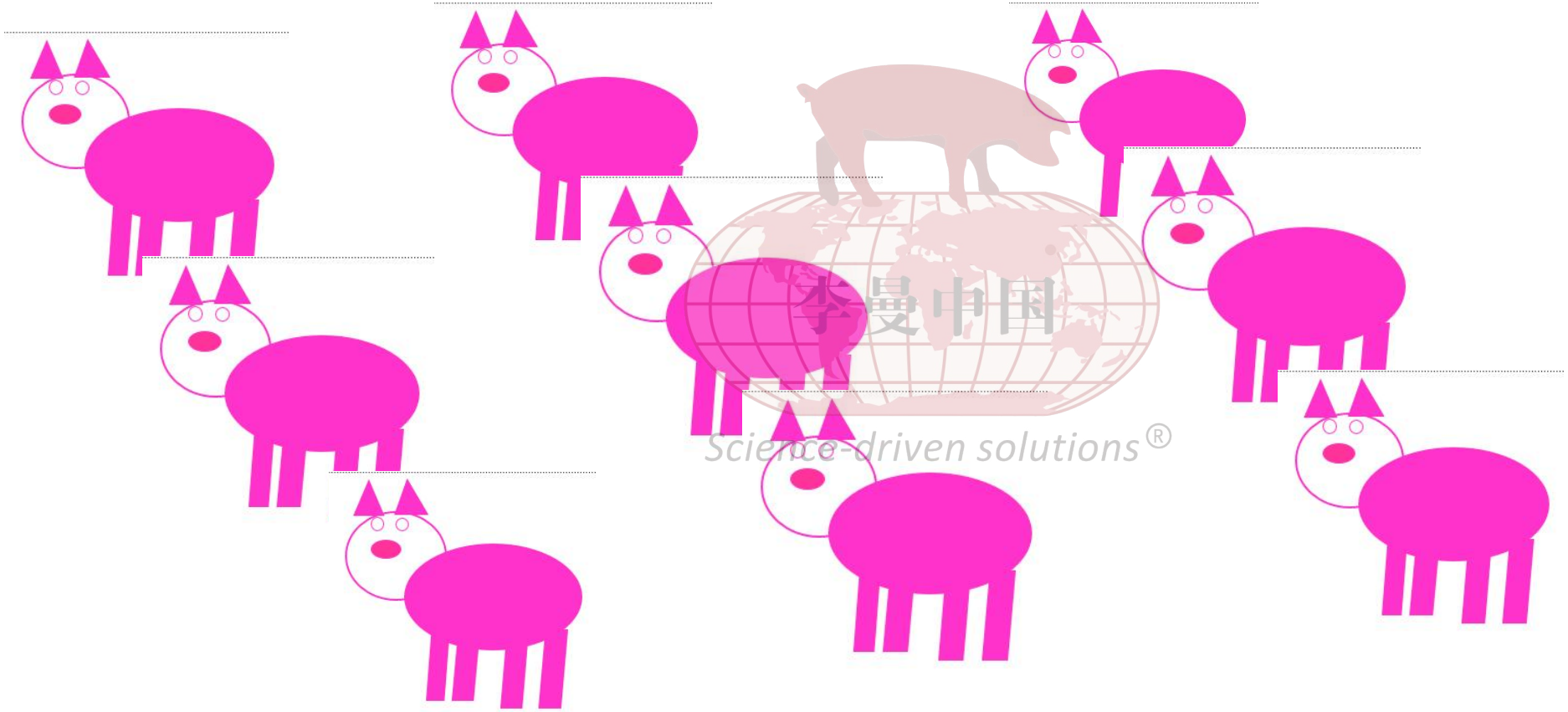
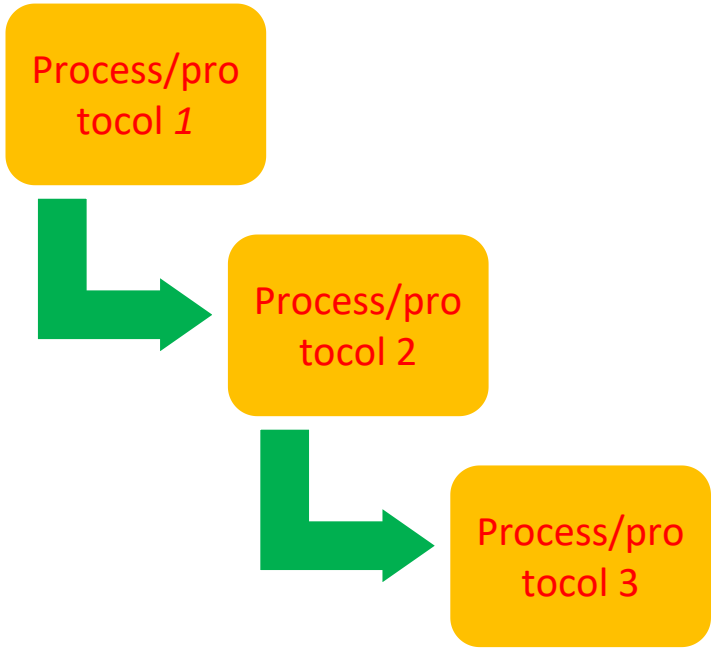
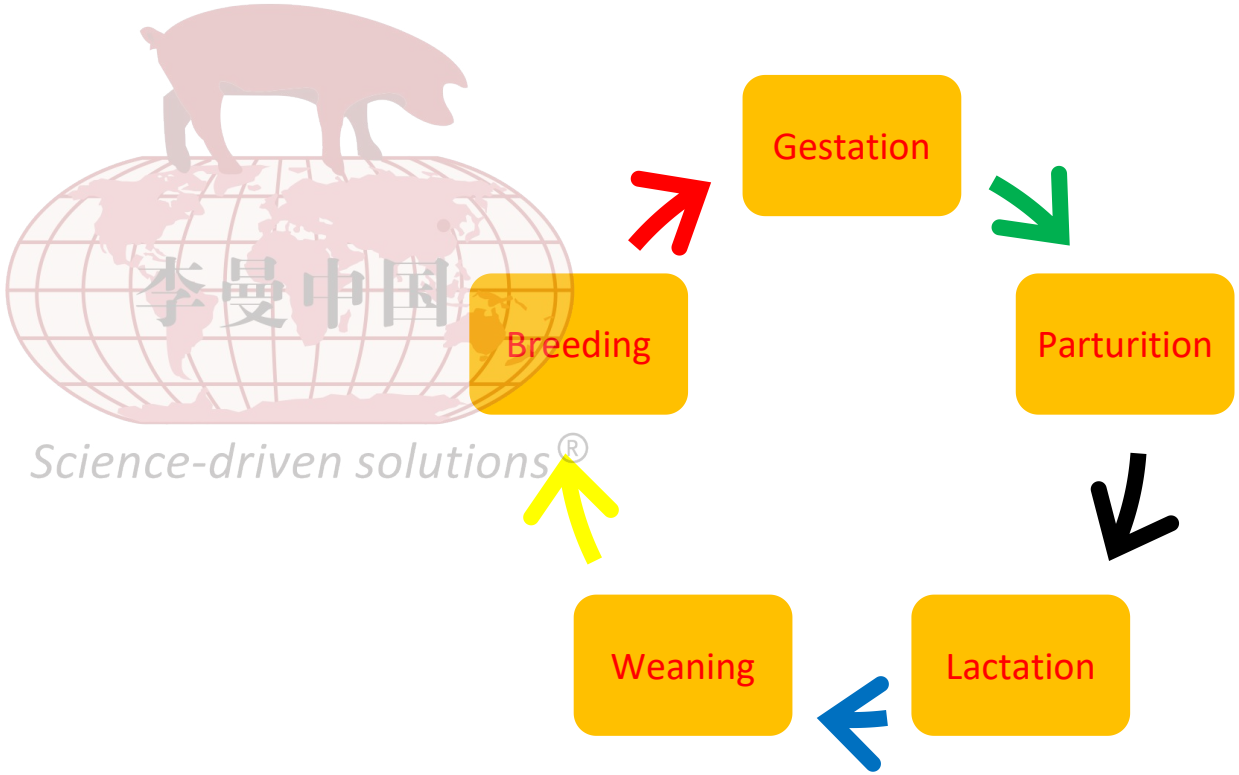


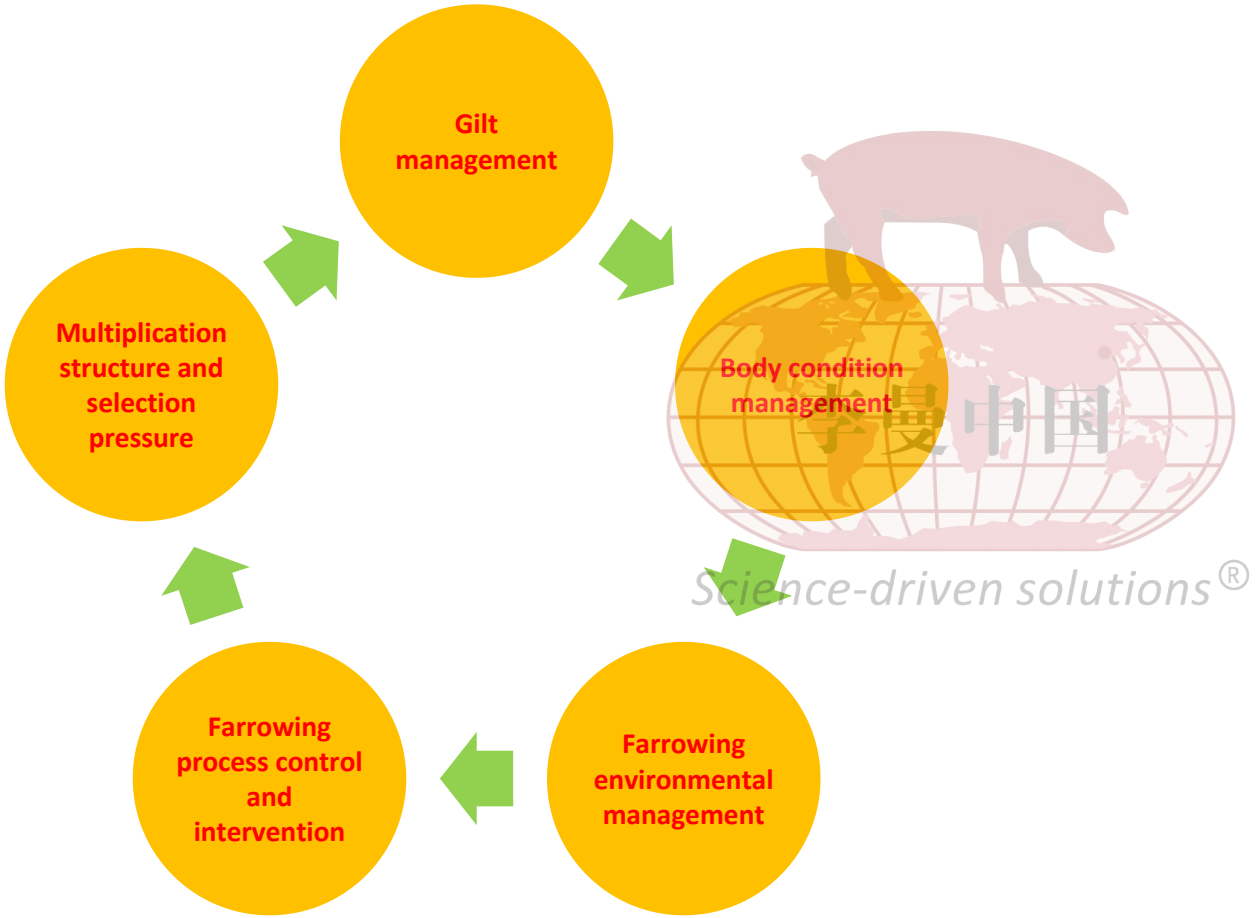
How do we achieve this goal?

- Which activities, practices and protocols will most probably lead to the desired outcome?





The necessity of creating a systems approach



Characteristics of a gilt that will most probably produce our desired outcome

- 330-360 days before farrowing:
  - Adequate colostrum intake
  - Reduced nursing pressure
  - Adequate space allowance

Faccin JEG, Tokach MD, Goodband RD, DeRouchey JM, Woodworth JC, Gebhardt JT. Gilt development to improve offspring performance and survivability. J Anim Sci. 2022

Growth and Feed Intake

- Mammary Development
  - Day 90 of age to puberty
    - Restricting feed from growing gilts will reduce mammary development
  - Means of restriction:
    - Space allowance
    - Environmental conditions
      - Temperature
    - Health challenges

Farmer, C., Achieving optimal sow performance, still an on-going challenge in 2022, Animal Frontiers, Volume 12, Issue 6, December, 2022.

Gilt age and size at mating

- Minimum requirements:
  - 125 kg
  - 200 days of age

Age at first breeding(*)	200 to 225 days >225 days gradually show lower retention rate and added cost
Body weight at first breeding(*)	>90% of gilts bred within the 300 to 350 lbs (135-160 kg) range Do not breed any gilt lighter than 300 lbs (135 kg)

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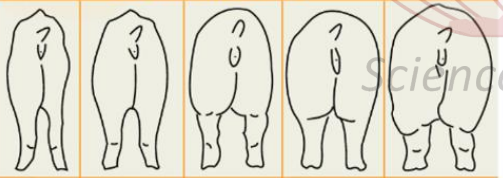
The gestating gilts and sows

- Homogenization of status
  - Seven to 10 weeks of gestation
    - Attempting to expose gilts to the cohorts
- Management of body condition
  - Feeding for successful farrowing and lactation

BODY CONDITION SCORING

Image					
Score	1	2	3	4	5
Condition	Emaci-ated	Thin	Ideal	Fat	Obese
Detection of Ribs, Back Bone, "H" Bones and Pin Bones	Obvious	Easily detected with pressure	Barely felt with firm pressure	None	None

Taken from "Assessing Sow Body Condition" by R.D.Coffey, G.R. Parker, and K.M. Laurent (ASC-158; 1999)

The stage is set for delivery and lactation

- Preparing the farrowing and lactating space
  - Providing a clean environment
  - Micro-environmental controls
  - Delivery of feed and water
  - Creating the proper atmosphere for the sow and piglets
  - Assisting at the time of birthing
  - Allowing the sow to do her task

Preparing a clean environment

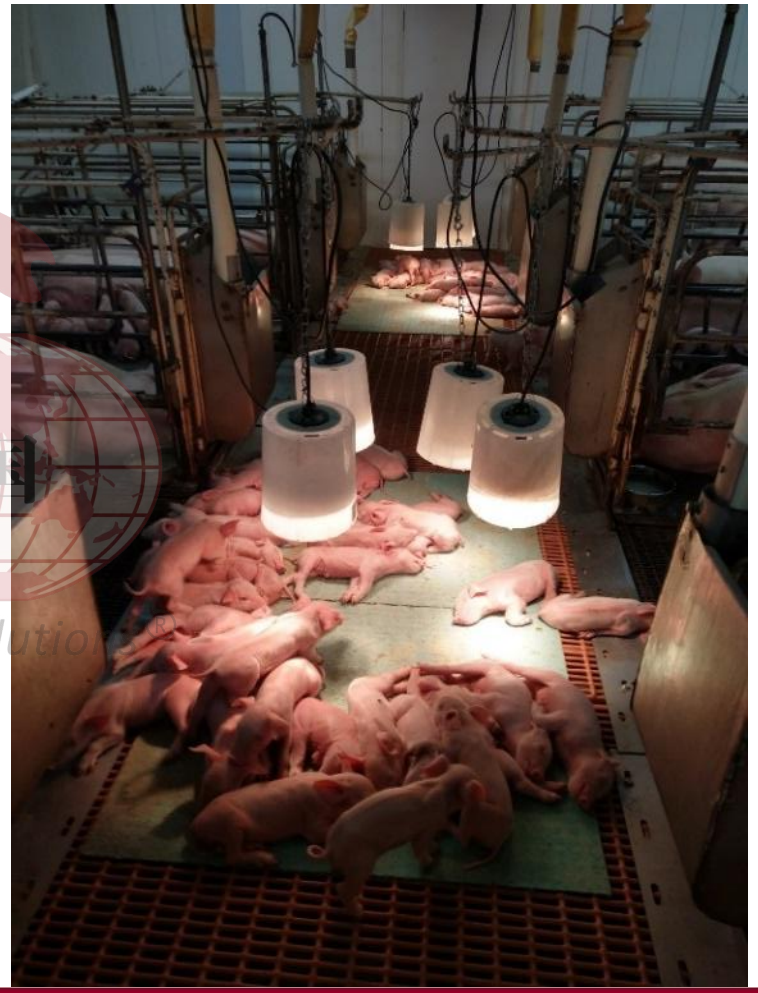
- Cleaning and decontamination between groups
  - Rotavirus A, B, C
  - *Cystoisospora suis* (coccidia)
  - *E. Coli*
  - *Clostridium perfringens*
  - *Clostridium difficile*
  - *Streptococcus suis*
  - PRRSV
  - Sapovirus

Preparing a clean environment

- Breaking the disease cycle
- Extraordinary circumstances require extraordinary responses

Micro-environment control

- Sow optimal temperature
  - 17° C for lactation
- Piglet optimal temperature (d 1)
  - 35° C



Delivery of feed and water

- Remember the basic fundamentals of animal husbandry
  - Feed
  - Water
  - Air
- Daily observation of feed and water intake

Creating a proper *atmosphere* for the sow and piglets

- Goes beyond the environmental controls
  - the tone or mood of a place or situation
- Includes ventilation management and people management
  - The manner in which care-takers go about their tasks
- The creation of the proper atmosphere
  - Quiet
  - Calm
  - Gentle

Assisting at the time of birth

- The balance between intervention and quiescence
  - Minimizing dystocia
  - Minimizing asphyxia
- The goal of assisting the sow in the farrowing process
- The goal of providing rapid onset of colostrum intake

Measuring the results of interventions at birth and subsequent weaning proficiency

- Assisting the sow at birth
  - Timing and frequency
- Drying piglets
- Split suckling within litters
- Fostering among litters
- Creating small-birthweight litters

Allowing the sow to do her task

- Intervention at the time of birth
- Creating a balance
  - Split suckling
  - Piglet movement
  - Handling piglets
- The goal
  - Maximize colostrum intake in the first hours of birth
  - Maximize milk intake from birth to weaning

Allowing the sow to do her job

- Optimizing milk intake
  - Minimize interventions
  - Length of intervention
  - Timing of interventions
- Interventions
  - Processing
  - Vaccinations
  - Daily observation of lactating sows and her piglets

Key targets: What numbers indicate a successful outcome?

- Gilt total born per litter: => 16.0
- Whole herd total born per litter: => 16.5
- Pigs weaned per litter: => 14.0
- Wean weight/pig: => 6.4 kg
- Parity 1 retention: => 95%

Is there an optimal weaning age for piglet growth performance and sow reproductive performance

- Piglet growth performance post-weaning
  - Interventions required in the nursery phase
    - Weaning age:
      - 19, 22, 25, 28 days
      - Percentage of pigs losing weight the first week post-weaning:
        - 35.1%, 28.7%, 17.9%, 9.2%
  - Outcome of interventions
    - Weaning through grow-finish phase

Faccin, Jamil E G et al. "Impact of increasing weaning age on pig performance and belly nosing prevalence in a commercial multisite production system." *Journal of animal science* vol. 98,4 (2020)

What are the obstacles of reaching a successful outcome consistently?

- Gilt development structure and facility design
  - Inability to achieve the desired age/size at first mating
- Health challenges
  - Disease outbreaks
    - PRRSV
      - Breeding and farrowing recovering animals
      - Increased removals results in breeding more gilts with a fixed supply
  - Piglet health challenges
    - Enteric diseases
      - Reduced suckling
        - Reduced milk output
- Heat stress
  - Thermoneutral zone of the lactating sow: 21° C

Thank you!

Thank you:

Dr. John Deen

University of Minnesota College of Veterinary Medicine Swine Group