

Body Scoring Impact on Improving Prolific Sow Productivity

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Outline of the presentation

- Body condition management
- Body condition assessment using caliper
- Association between caliper measurement and reproductive performance
- Feeder box calibration and adjustment
- Summary

Body Condition Management

Targets



None **THIN** at farrowing

As many **IDEAL** as possible

None **FAT** at weaning

Body condition management

Correlation between body condition and reproductive performance

	 Simple  Subjective	 Objective  Time/labor consuming	 Simple  Objective
	Visual	Backfat	Caliper Score
Born alive	████████████████████	████████████████████	████████████████████
Birth weight	████████████████████	████████████████████	████████████████████
Pig weaned	████████████████████		████████████████████
Wean weight	████████████████████	████████████████████	
Pre weanig Mortality	████████████████████		████████████████████
Wean-to-estrus	████████████████████	████████████████████	████████████████████
Farrow rate		████████████████████	████████████████████

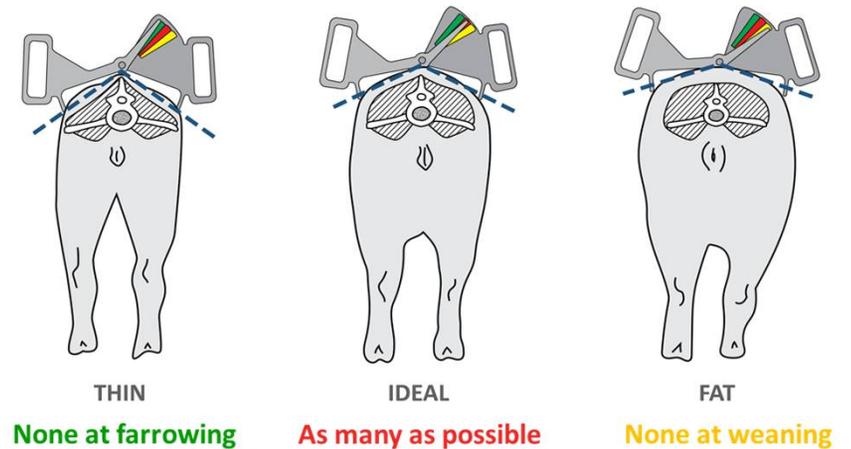
• Knauer and Bryan (2015)

- Sows at breeding (n = 1571)
- Sows at farrowing (n = 887)

Body Condition Management

Sow caliper development

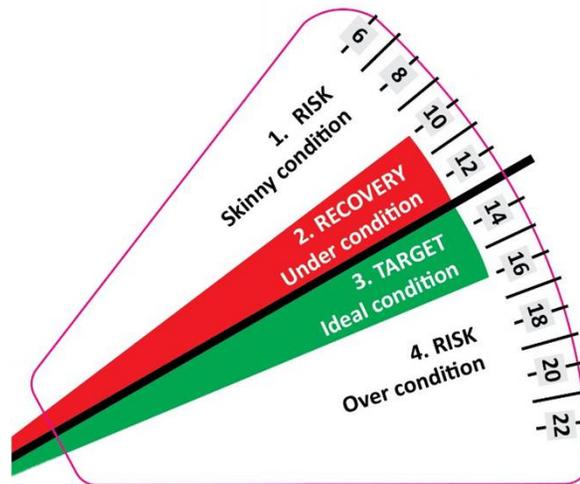
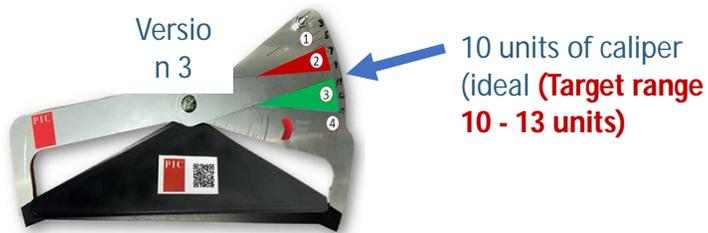
- Developed by Knauer and Baitinger (2015) – NC State University
- Quantifies the angularity of a top-line of the sow
- Based on the findings of Edmonson et al. (1989) that proposed that as an animal back loses fat and muscle it becomes more angular.



It replaces the subjective
Visual Body Condition Scoring

* Adapted from Huerta et al., 2021

Updated Caliper Recommendations:



Categories:

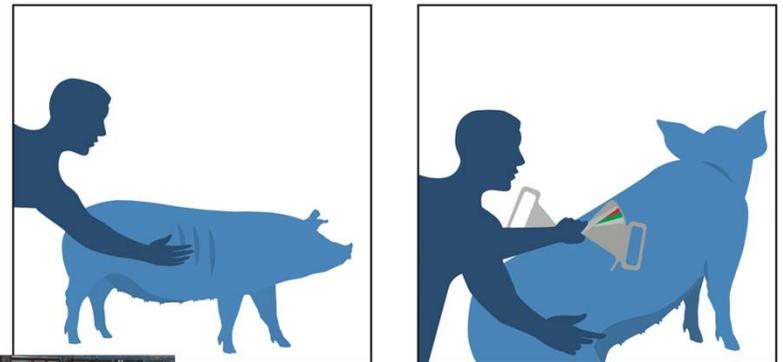
- ① Risk: Skinny condition
- ② Recovery: Under condition
- ③ Target: Ideal condition
Target: 13-16 caliper points
- ④ Risk: Over condition

Body Condition Management

Caliper placement location is an area of opportunity in every single visit!

- Stand behind the sow and place the caliper close to the sow's last rib.
- Align the caliper bolt to the sow's spine.
- Do not place the caliper in bone structures, such as the sow's rib cage and hips.
- Do not press the caliper down.

Info Graphic on Caliper Usage



Scan for
Instructional Video

Body Condition Management

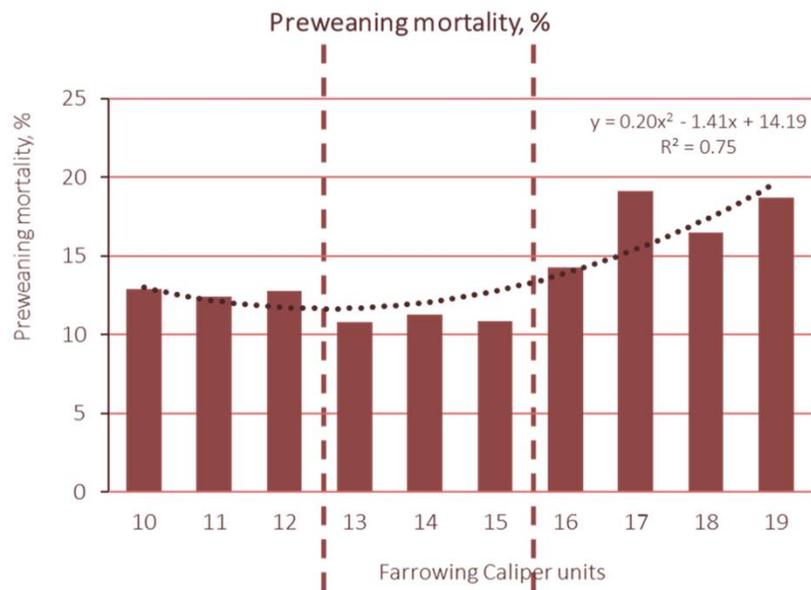
Body condition assessment routines



- Ideally performed by two people:
 - One for assessment and marking
 - Second for feeder adjustment and documentation
- First thing in the morning when dropping feed as the sows are standing up
- Mark caliper placement point with permanent marker to facilitate subsequent readings

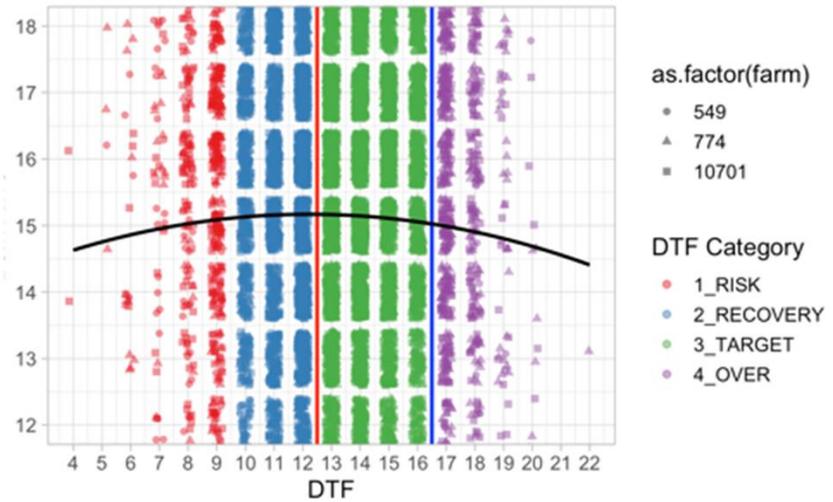
Body Condition Management

Association between caliper measurements & reproductive performance: PWM and born alive



- * Rosero et al., 2019, Allen D. Lemman Swine Conference

Caliper Score DTF vs Born Alive - Sows
L2/L3 Maternal Lines



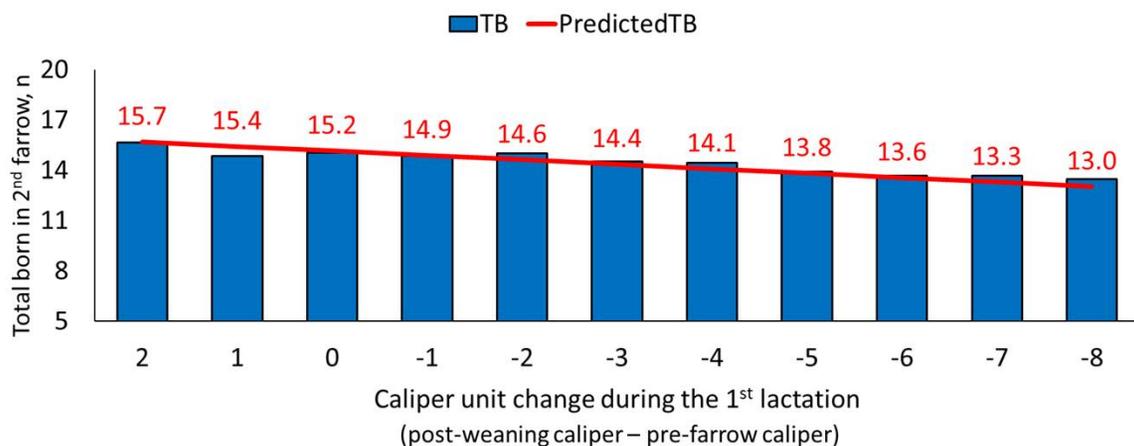
Between Red and Blue line is considered Target Range at DTF

- * PIC unpublished data

Body Condition Management

Association between caliper measurements & reproductive performance: Total born in 2nd, 3rd and 4th farrowing

For every unit of caliper lost during 1st lactation, subsequent TB was reduced by 0.27

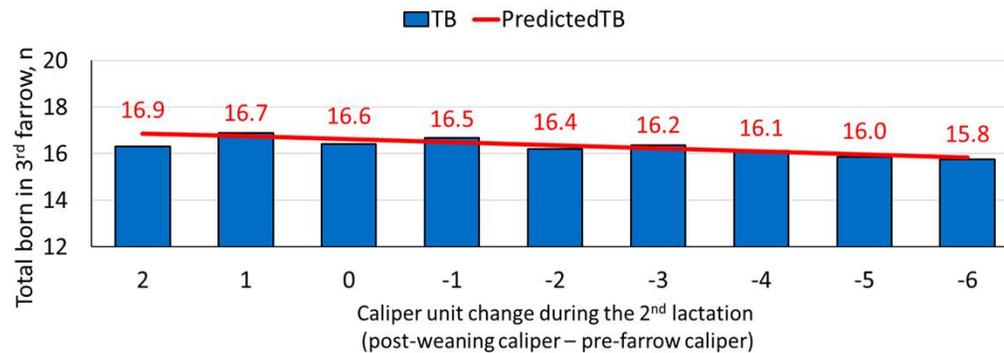


- * Huerta et al., 2021
- ** Data from 4500 sows measured from parity 1 to 6
- *** In collaboration with Technical Services of UVESA Spain

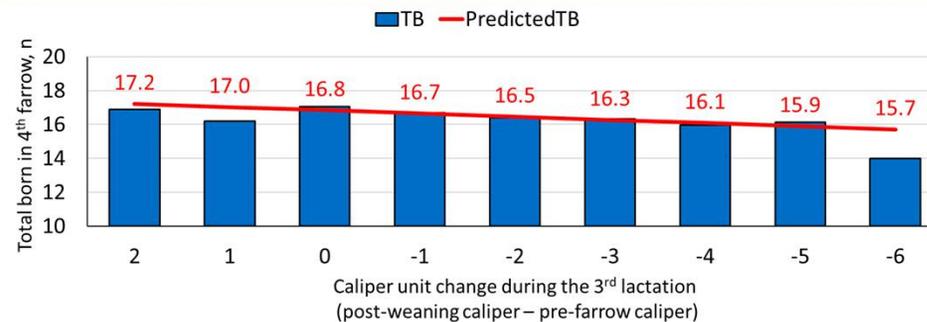
Body Condition Management

Association between caliper measurements & reproductive performance: Total born in 2nd, 3rd and 4th farrowing

For every unit of caliper lost during 2nd lactation, subsequent TB was reduced by 0.12



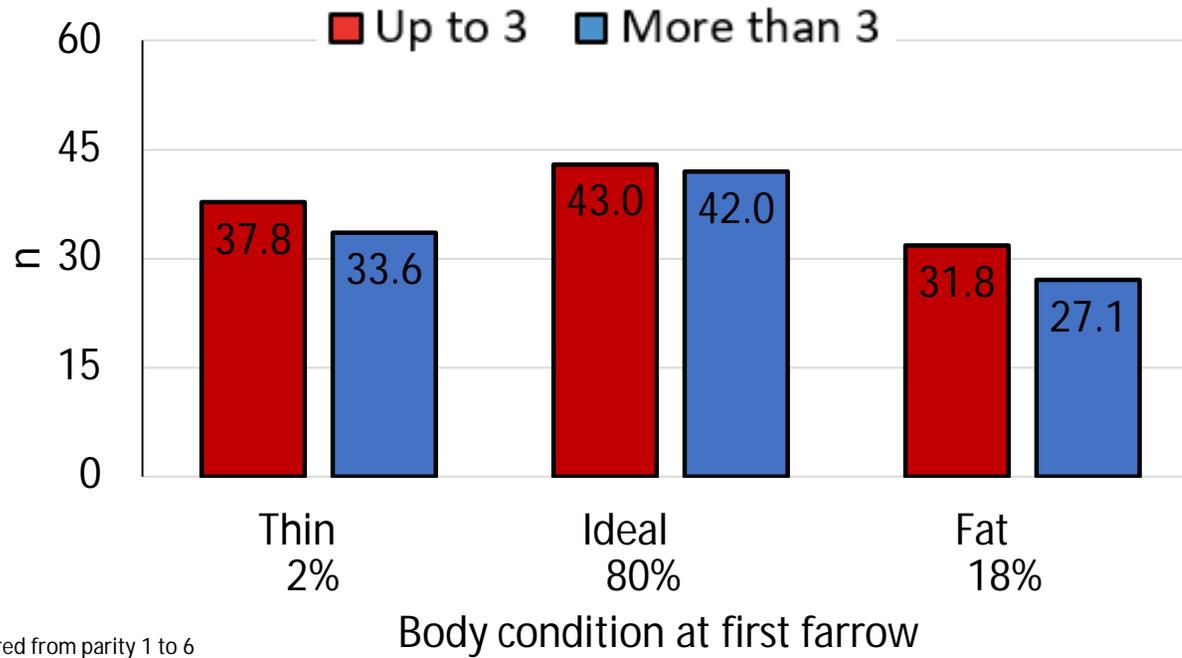
For every unit of caliper lost during 3rd lactation, subsequent TB was reduced by 0.19



- * Huerta et al., 2021
- ** Data from 4500 sows measured from parity 1 to 6
- *** In collaboration with Technical Services of UVESA Spain

Body Condition Management

Association between caliper measurements & reproductive performance: Total born up to 3rd parity per gilt farrowed

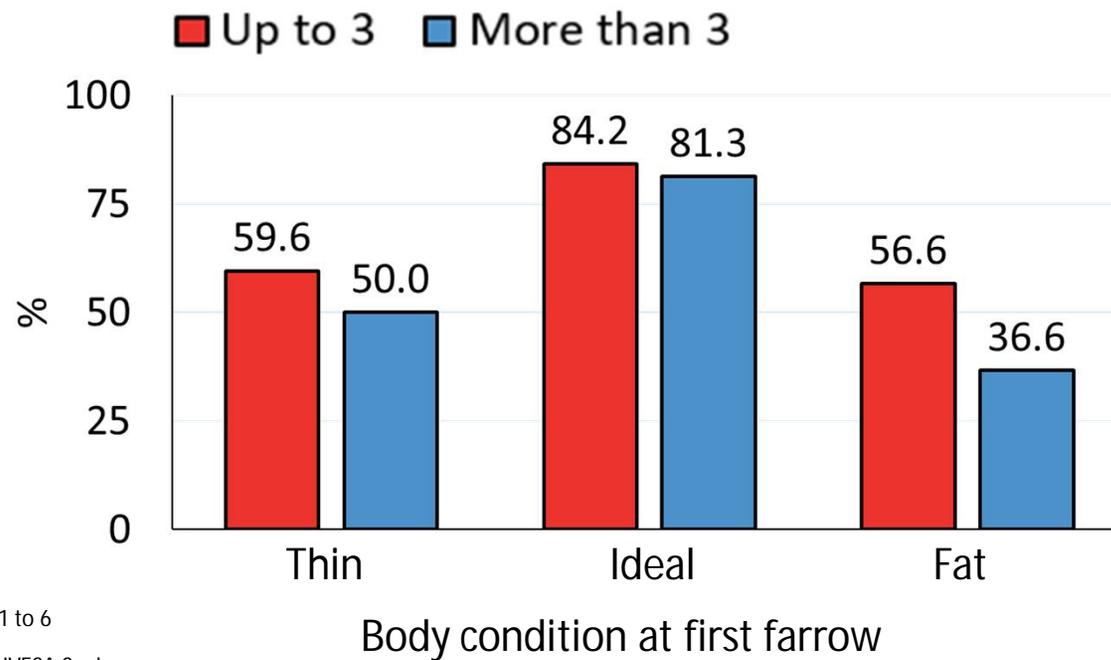


- * Huerta et al., 2021
- ** Data from 4500 sows measured from parity 1 to 6
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Body Condition Management

Association between caliper measurements & reproductive performance: Retention rate up to 3rd parity

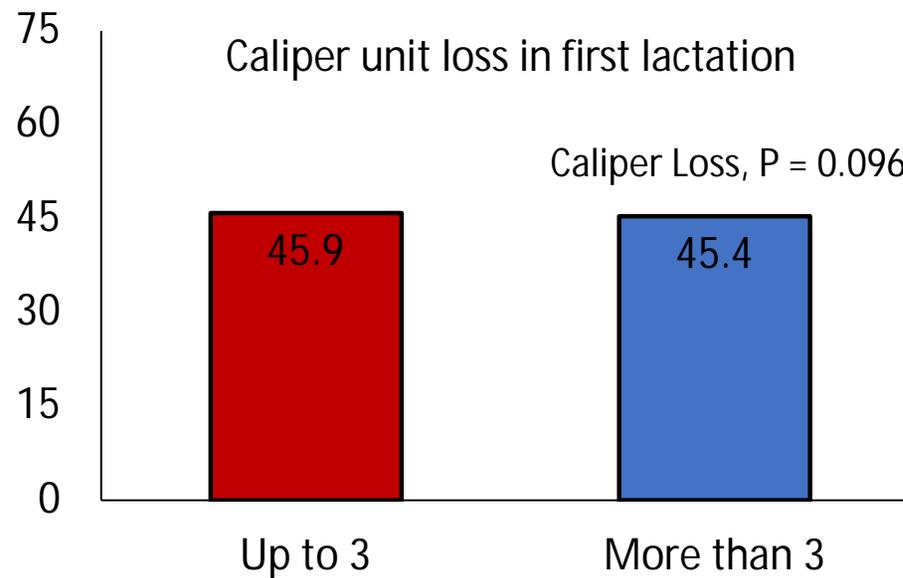
Caliper unit loss in first lactation



- * Huerta et al., 2021
- ** Data from 4500 sows measured from parity 1 to 6
- *** In collaboration with Technical Services of UVESA Spain

Body Condition Management

Association between caliper measurements & reproductive performance: Total born up to 3rd parity (considering only females that had 3 farrowing)



- * Huerta et al., 2021
- ** Data from 4500 sows measured from parity 1 to 6
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Body Condition Management

Critical time points to evaluate sow body condition

Primiparous

Multiparous

-d 90 if sows in stalls
(visual assessment in pens)



1st Breeding

- ✓ Use tape to estimate gilt breeding weight
- ✓ Minimum body weight for breeding 300 lbs
- ✓ When average gilt breeding weight is over 350lbs, It requires an adjustment in the base feeding level for sows, **+0.5lb/day**

Farrowing

- ✓ Measure caliper only to evaluate changes in body condition during 1st lactation

Weaning

- ✓ Identify sows in under condition to provide more feed for recovery
- ✓ Consider category 1 sows (skinny condition) as candidates for culling or skip a heat
- ✓ Younger parities are more prone to lactation losses and weaning in risk of under condition
- ✓ Caliper measurements between the recovery and target categories should be treated as recovery for feeding purposes until the next body condition assessment at pregnancy check.

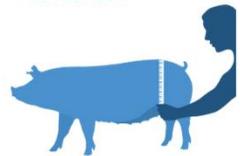
Preg Check ~30 d

- ✓ Ensure at least 50% of sows are recovered by preg-check
- ✓ Review group formation and feeding in group-pens
- ✓ Review feed box settings and feeding curve assignment based on body condition for ESF

Farrowing

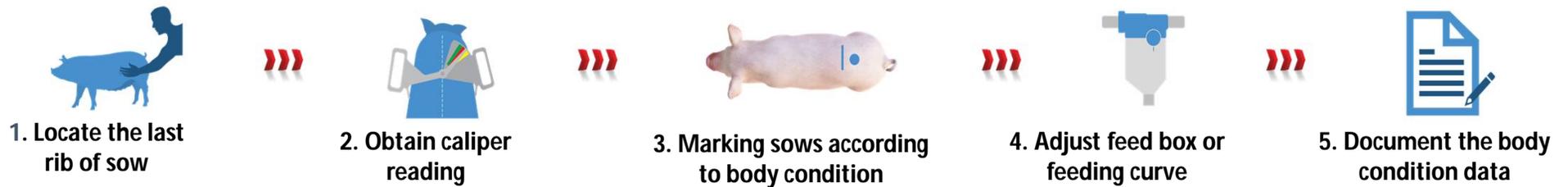
- ✓ Measure caliper and track progress targeting < 10% recovery sows at DTF
- ✓ Suggest actions to mitigate if >10%

Weaning



Body Condition Management

Body condition assessment routines

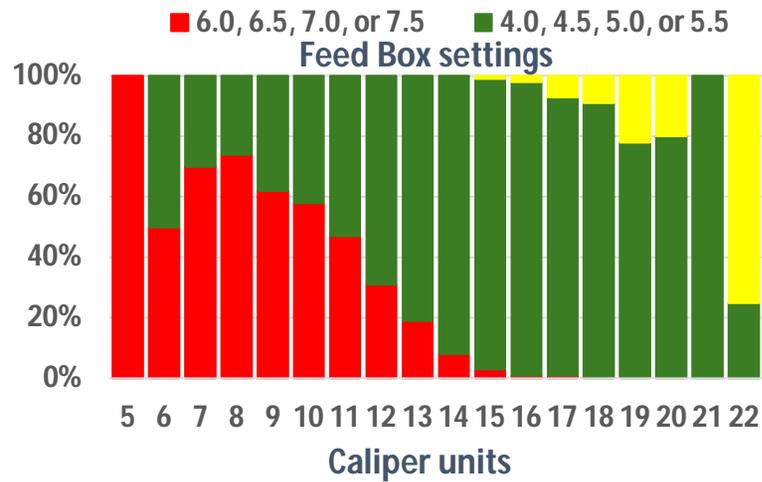


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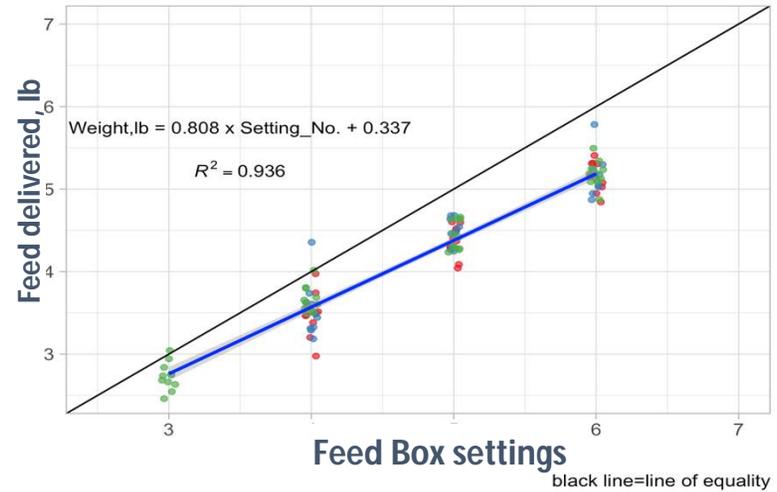
Feeder Box Calibration and Adjustment

Not exciting but Important!

Feed Box Adjustment



Feed Box Calibration



Feeder Box Calibration and Adjustment

Not exciting but Important!



The PIC Feed Box Bulk Density Tool was developed to help ensure that the gestation feed box settings correspond with the amount of feed that should be dropped.

MAIN MENU

- Step by Step Instructions
- Volume of Feed Buckets
- Determining Bulk Density
- Feed Box Adjustment Output

For questions on this tool, please contact your PIC representative or the PIC Technical Services Teams.



Date: 1/4/23

Output: Based on the feed box volume at the farm and the bulk density of the feed, the feed boxes should be set to the following settings to achieve the desired amount of feed dropped.

Enter desired amount of feed to be dropped (lb) into the yellow cells.

PIC Feeding Recommendations	Desired amount of feed to be dropped, lb*	Feed Box Setting**
Gilt	5.0	5.0
Base	5.0	5.0
Recovery	6.0	5.5

*Consult with your nutritionist or the PIC technical team to set the appropriate feeding levels based on energy density of the diet and gilt breeding weight. In addition, if you are dropping feed more than once daily, please contact the PIC technical team for assistance.

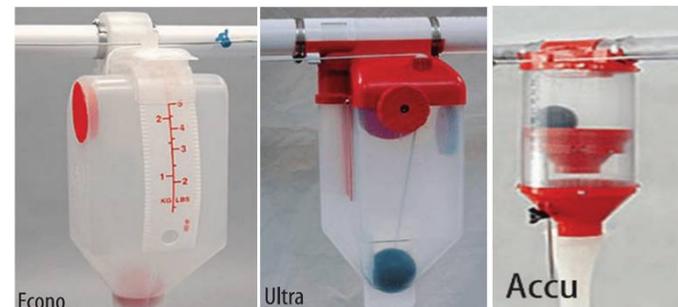
**Output values for feed box settings are not rounded. It is important for individuals at the farm to be aware of the precision of their feed boxes, and if feasible, adjust values to the nearest quarter.

- Go Back to Main Menu
- Go Back to Volume of Feed Buckets
- Go Back to Bulk Density

Feeder Box Calibration Tool

Variation of feed box accuracy

- **Type of feed box** – Feed boxes from different manufacturers have different accuracies on the feed dispensed at a feeder setting.
- **Angle relative to feed line** - Boxes are intended to be consistently positioned at 90° to the feed line.
- **Density of the diet** - Different diet formulations may lead to bulk density changes, requiring feeder setting adjustments to dispense the same weight of feed.
- **Distance from the feed bin to the feed drop** - The greater the distance traveled; the less feed dropped.



Type of feed box

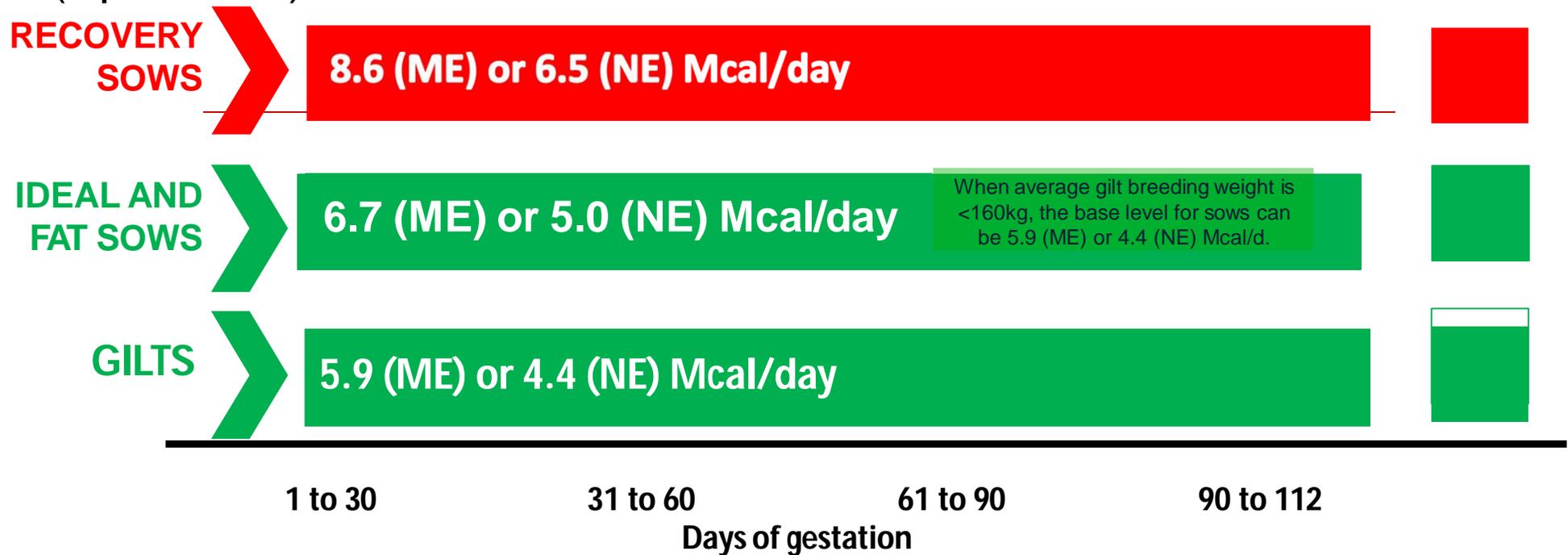


Angle relative to feed line

Nutrition: PIC feeding levels for Camborough females

(April 2025)

It assumes a minimum daily intake of 6.8 g of STTD Phosphorus and 11.0 g of SID Lysine



Please note that the feeding levels should be adjusted by body condition (feed to the caliper). The baseline feeding levels need to be constantly monitored based on feed density, health, season, group housing, av. gilt breeding weight, etc.

Feeder Box Calibration Tool

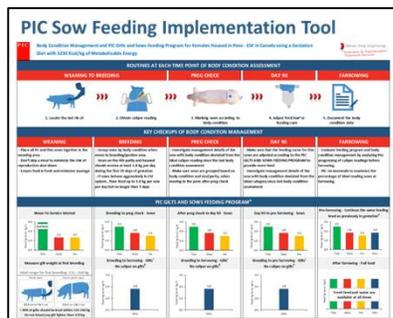
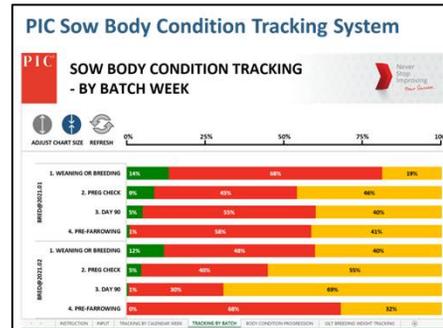
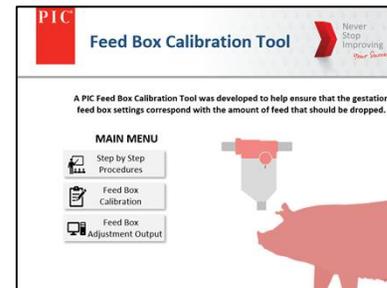
Key notes

Adjust feeding levels immediately after assessment

- Adjust feed boxes at same time the caliper is used according to nutritionists' specifications based on body condition during the assessment.
- Improper feeder adjustment is one of the most common opportunities at farms.
- Organizing your breeding row based on body condition will help with weekly execution of feeder adjustments.

Feeding Program Implementation - Resources

PIC tools available at www.pic.com/resource-category/nutrition


Sow Feeding Implementation Tool

Sow Body Condition Tracking Tool

Feed Box Calibration Tool

FAQ

Feeding Program Implementation - Resources

PIC Body Condition Management and PIC Gilts and Sows Feeding Program for Females Housed in Pens - ESF in Canada using a Gestation Diet with 3230 Kcal/kg of Metabolizable Energy Never Stop Improving
Nutrition & Reproduction
Technical Services

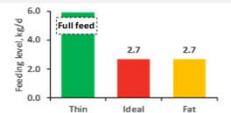
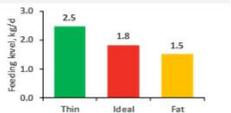
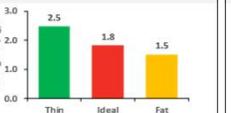
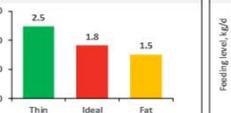
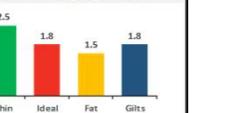
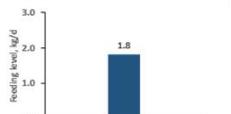
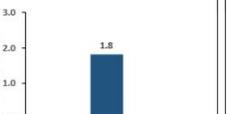
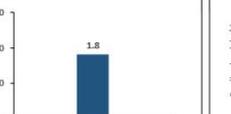
ROUTINES AT EACH TIME POINT OF BODY CONDITION ASSESSMENT

WEANING TO BREEDING	PREG CHECK	DAY 90	FARROWING
 <p>1. Locate the last rib of</p>	 <p>2. Obtain caliper reading</p>	 <p>3. Marking sows according to body condition</p>	 <p>4. Adjust feed box* or feeding curve</p>
 <p>5. Document the body condition data</p>			

KEY CHECKUPS OF BODY CONDITION MANAGEMENT

WEANING	BREEDING	PREG CHECK	DAY 90	FARROWING
<ul style="list-style-type: none"> - Place all P1 and thin sows together in the weaning area - Don't skip a meal to minimize the risk of reproduction shut-down - Ensure feed is fresh and minimize wastage 	<ul style="list-style-type: none"> - Group sows by body condition when move to breeding/gestation area. - Sows on the 4th parity and beyond should receive at least 1.8 kg per day during the first 30 days of gestation - If sows behave aggressively in ESF system, floor feed up to 3.0 kg per sow per day but no longer than 5 days 	<ul style="list-style-type: none"> - Investigate management details of the sow with body condition deviated from the ideal caliper reading since the last body condition assessment - Make sure sows are grouped based on body condition and size/parity, when moving to the pens after preg check 	<ul style="list-style-type: none"> - Make sure that the feeding curve for thin sows are adjusted according to the PIC GILTS AND SOWS FEEDING PROGRAM to provide more feed - Investigate management details of the sow with body condition deviated from the ideal category since last body condition assessment 	<ul style="list-style-type: none"> - Evaluate feeding program and body condition management by analyzing the progressing of caliper readings before farrowing. - PIC recommends to maximize the percentage of ideal reading sows at farrowing.

PIC GILTS AND SOWS FEEDING PROGRAM^b

Wean-To-Service interval	Breeding to preg check - Sows	After preg check to day 90 - Sows	Day 90 to pre-farrowing - Sows	Pre-farrowing - Continue the same feeding level as previously in gestation ^c
 <p>Full feed</p>				
<p>Measure gilt weight at first breeding</p> <p>Ideal range for first breeding: 135 - 160 kg</p> <p>Flank tape: 89.4 cm to 94.7 cm</p> <p>Heart-girth tape: 126.2 to 138.7 cm</p> <p>> 90% of gilts should be bred within 135-160 kg Do not breed any gilt lighter than 135 kg</p>	<p>Breeding to farrowing - Gilts^d</p> <p>No caliper on gilts^d</p> 	<p>Breeding to farrowing - Gilts^d</p> <p>No caliper on gilts^d</p> 	<p>Breeding to pre-farrowing - Gilts^d</p> <p>No caliper on gilts^d</p> 	<p>After farrowing - Full feed</p>  <p>Fresh feed and water are available at all times</p>

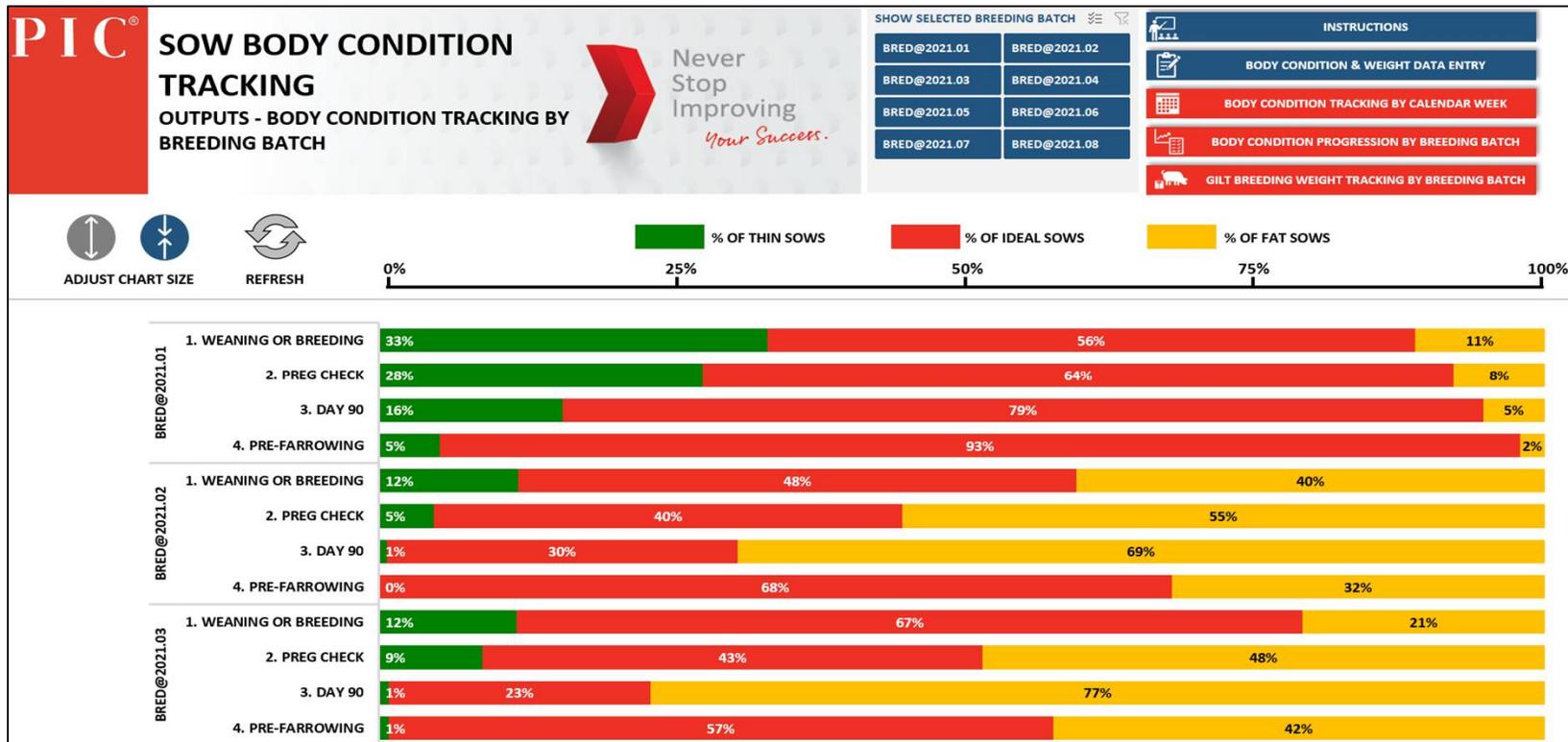
Body Condition Assessment Routines

Key Checkups

Visualized Gilt/Sow Feeding Recommendations

Feeding Program Implementation - Resources

Body Condition Tracking System



Body Condition Management

Summary

- Body condition of sows is predicting the subsequent reproductive performance
- Minimize thin sows at farrowing, fat sows at weaning, and maximize ideal sows at farrowing as much as possible
- Body condition of sows should be used as a guidelines for gestation feeding
- Record your findings - Your efforts need to be documented to learn how the herd responds to changes in feeding strategies over time

Thank you

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