



Supply Chain Management Recommendations during Plant Closures

Objective: Create space in pig flow to allow implementing strategies that slow down pig growth.

Pig Flow

- Utilize double stocking of WTF facilities to create more wean pig space and time for finishing pigs to be harvested

Recommendations for double stocking

- Determine useable square footage in your building – pen space minus alleys and space taken up by feeders
- Square feet per pig and length of time pigs can be held at stocking rates

Square feet/pig	Optimum time to thin down	Maximum time to thin down
4.0	12 weeks post-wean	14 weeks post-wean
3.5	11 weeks post-wean	13 weeks post-wean
3.0	10 weeks post-wean	12 weeks post-wean
2.5	8 weeks post-wean	9 weeks post-wean
2.0	6 weeks post-wean	7 weeks post-wean

- Utilize extra mats and extra mat feeding at lower stocking rates
- Ensure ventilation is set up appropriately for number of animals in the barn
- Make sure water pressure is set to maintain appropriate flow rate at the end of the line
- May require alternative uses of some WTF facilities.
 - Utilize a WTF barn as a nursery (dump all pigs into feeder pig barns so it opens back up for wean pigs)
 - Look at all of your barns and think outside the box on utilization – use alleyway, titrate square footage to the age of pigs
 - All in all out principles may need to be flexible – try to avoid putting weaner pigs with market hogs, but feeders in the same barn as markets or weaners with feeders can be done if necessary
- Identify unconventional space
 - Cattle feedlot
 - Pasture
 - Hoop buildings

Strategies for Slowing Pig Growth

Marketing weights have a wide target window currently due to the incremental cost of gain being equal to or greater than current market prices. Therefore, plan to take as many market loads as the plants will schedule, and keep your market weights as low as you can. Current market conditions would indicate you should not go below 250 lbs, although this can change rapidly if the cash price of fat hogs deteriorates more. It is to your advantage to slow down growth of all pigs in the finishing supply chain as much as your space position will allow.

Example calculation for the cost of incremental lb of gain:

- Feed cost: 3.5 FCR (late finishing) x \$0.095 = \$0.33/lb gain
- Housing = \$0.06/lb gain
- Daily mortality 0.03% = \$0.03/lb gain
- Assumes 2.0 lb daily gain, 3.5 FCR, \$110 pig value, 0.2% weekly mortality, last diet cost of \$190/ton

Current incremental cost of gain is \$0.42/lb

Data from Nick Gabler – ISU

- After 7 day feeding period – 15% and 25% NDF fiber, 97% corn, 2% and 4% calcium chloride were effective.
- After 21 day feeding period – 97% corn and 4% calcium chloride were most effective
- **Use caution feeding calcium chloride in late finishing. Feeding immediately prior to loading and transport for harvest may increase transport losses (DOAs and downers). Remove at least 2 weeks prior to shipment.**

Growth Trial - Results

	Diet							SEM	P-value	
	CON	15% NDF	20% NDF	25% NDF	97% corn	89% corn	4% CaCl2			2% CaCl2
BW Day 0, lbs	164.4	159.1	162.0	166.3	162.4	174.5	171.5	167.4	5.42	0.156
BW Day 7, lbs	184.4	170.1*	178.9	178.4	167.5*	187.9	169.0*	178.8	7.35	0.102
BW Day 14, lbs	203.9	190.7	193.2	195.5	177.7*	206.1	173.9*	196.3	13.65	0.002
Day 0-7										
ADG, lbs	2.85	1.57*	2.40	1.72*	0.73*	1.91	-0.37*	1.66*	0.558	<0.001
ADFI, lbs	6.72	6.18	6.33	5.55*	6.17	7.14	3.90*	6.00	0.532	<0.001
G:F	0.42	0.23	0.38	0.31	0.12*	0.26	-0.13*	0.28	0.071	<0.001
FCR	2.44	5.92	3.11	3.93	2.65	4.16	71.42	4.72	26.048	0.563
Day 8-14										
ADG, lbs	2.77	2.97	2.07	2.43	1.43*	2.61	0.70*	2.51	0.372	<0.001
ADFI, lbs	7.27	6.25	7.45	6.88	6.15	7.43	3.63*	6.75	0.575	<0.001
G:F	0.39	0.49	0.28	0.37	0.24	0.35	0.16*	0.36	0.056	0.003
FCR	2.74	2.12	0.39	2.98	4.56	3.11	3.73	2.91	1.511	0.608
Day 0-14										
ADG, lbs	2.80	2.27	2.22	2.10	1.10*	2.28	0.15*	2.08	0.288	<0.001
ADFI, lbs	6.98	6.22	6.87	6.25	6.17	7.30	3.73*	6.35	0.527	<0.001
G:F	0.41	0.36	0.32	0.34	0.17*	0.31	0.01*	0.32	0.049	<0.001
FCR	2.51	2.92	3.54	3.05	6.09	3.29	-9.92	3.15	4.91	0.331

* denotes treatments that differ significantly from CON (P<0.05)
 Pigs blocked by Day 0 BW, used as a random effect in statistical model
 n=5-6 pigs/trt, mix of barrows and gilts

- Remove all growth promoting feed additives immediately from all phases
 - Examples: Ambitine, Skycis, fat, copper, Lean Fuel, enzymes, direct fed microbials, etc
- Reduce the feeder space available in each pen to reduce ADFI
 - Put a feed sack, towel, or other similar material in the bottom of the hopper to stop feed from flowing to the trough on some of the feeder holes
 - Block enough feeder holes so there are 18-22 pigs per 14" feeder hole
 - Target approximately $\frac{3}{4}$ inch of lineal feed space per pig in the pen
 - Vice behavior will be a risk and need to be addressed if observed
- Tighten feeder adjustments to allow for 10-15% pan coverage
- Raise temperature set points by 7-10 degrees
 - **IMPORTANT NOTE:** Its critical to maintain minimum CFM requirements for the weight of the pig in the barn – do not raise set points if minimum air exchange cannot be achieved. Do set minimum stage fans to 100% variable speed if barn stages down to minimum ventilation.
 - Barn temperatures above 78 degrees are discouraged.
- Work with your nutritionist or contact CVS to reduce the overall nutrient density in your feed. Objective is to slow all pigs down, not just pigs close to market. Implement diet strategies in pigs 60 lbs and heavier
 - Reduce lysine levels – other amino acids and SBM will reduce accordingly
 - Consider an all corn + VTM diet for pigs 200 lbs and heavier when shackle spaces are significantly reduced. An all corn diet will cut growth rate in half. This can provide up to 3 weeks of extra time without moving pigs completely out of the weight grid if implemented soon enough.
- Increase finishing stocking rates
 - Stock pigs between 6.0 and 6.5 square feet per pig. If implemented by 14 weeks post-weaning this will result in 5-7 additional days to reach a common market weight compared to stocking at 7.0-7.5 square feet per pig.

Euthanasia Recommendations

- Based on current economic conditions and general assumptions of cost structure, mass euthanasia of pigs of any age is not recommended at this point. In the current market, pigs will cover their remaining variable costs. Severe supply chain restrictions may override this decision if conditions persist.
- If you must euthanize a group of pigs due to space restriction, the most economical pigs to euthanize are between late gestation (abort late term sows) and wean pigs. If you need help determining this answer, please reach out to CVS. Additionally, if mass euthanasia becomes unavoidable, please consult your veterinarian on the best method.
- Euthanasia of cull pigs
 - If you are 80-90% certain any pig will not make it into a grade A market, immediate euthanasia is recommended. Cull pigs have little to no value for the foreseeable future, therefore there is no margin over remaining costs to be incurred.

- Examples would be belly ruptures, extremely small pigs in finishers, scrotal ruptures, etc
- Bottom 10% of wean pigs, assuming 80% full value %.

On-Farm Euthanasia of Swine – Recommendations for the Producer

Table 1: Methods of Euthanasia Appropriate for Pigs of Different Sizes (weights)

	Suckling pig (up to 12 lbs)	Nursery pig (up to 70 lbs)	Grower - Finisher pig (up to market weight)	Mature pig, sow or boar
Carbon dioxide (CO₂)	Yes	Yes	Yes, but not practical [†]	Yes, but not practical [†]
Gunshot	No	Yes	Yes	Yes
Penetrating captive bolt	No	Yes	Yes	Yes
Non-penetrating captive bolt	Yes	Yes with secondary step	No	No
Electrocution, head-to-heart	Only for pigs over 10 lbs	Yes	Yes	Yes
Electrocution, head-only	Only for pigs over 10 lbs	Yes, with secondary step	Yes, with secondary step	Yes, with secondary step
Veterinarian administered anesthetic overdose	Yes	Yes	Yes	Yes
Blunt trauma	Yes	No	No	No

[†]This method is an acceptable form of euthanasia for this size of pig but may not be practical for individual pig euthanasia on-farm due to lack of equipment suitable for this size.