

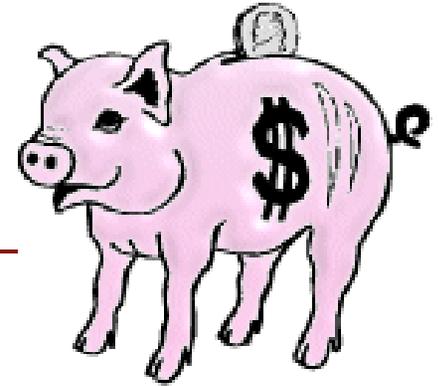
Production and Management Strategies to Minimize the Effects of Higher Feed Costs on Pork Profitability

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EXTENSION

Introduction



- Goal:

- Provide maximum return or profit for pork produced

- Options:

- Decrease cost of production

- Increase revenue

- Optimize vs. maximize

Introduction

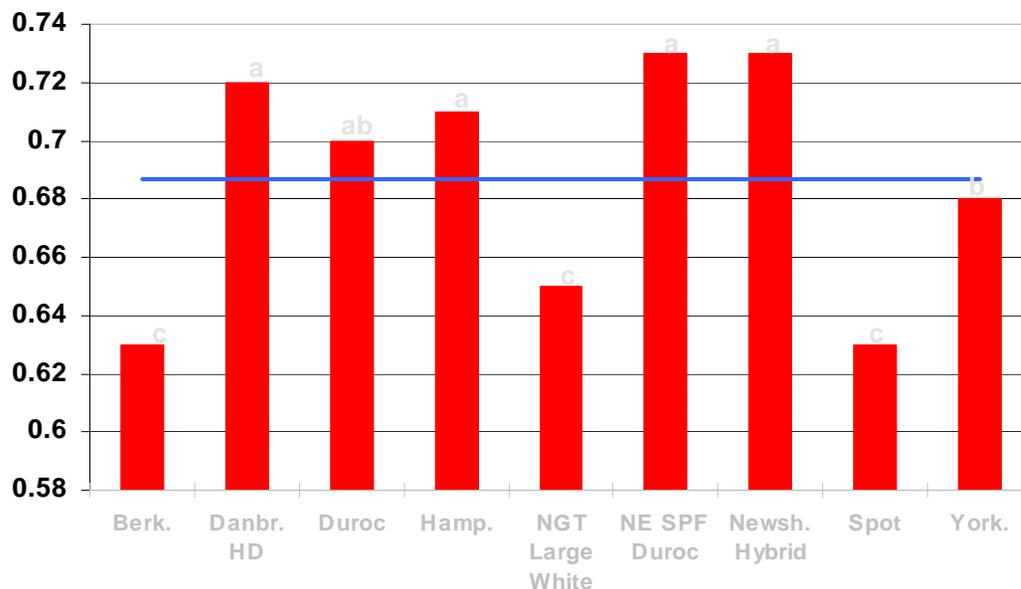
- Assess
 - Genetic merit
 - Animal health
 - Diet
 - Feeding management
 - Environment
 - Marketing



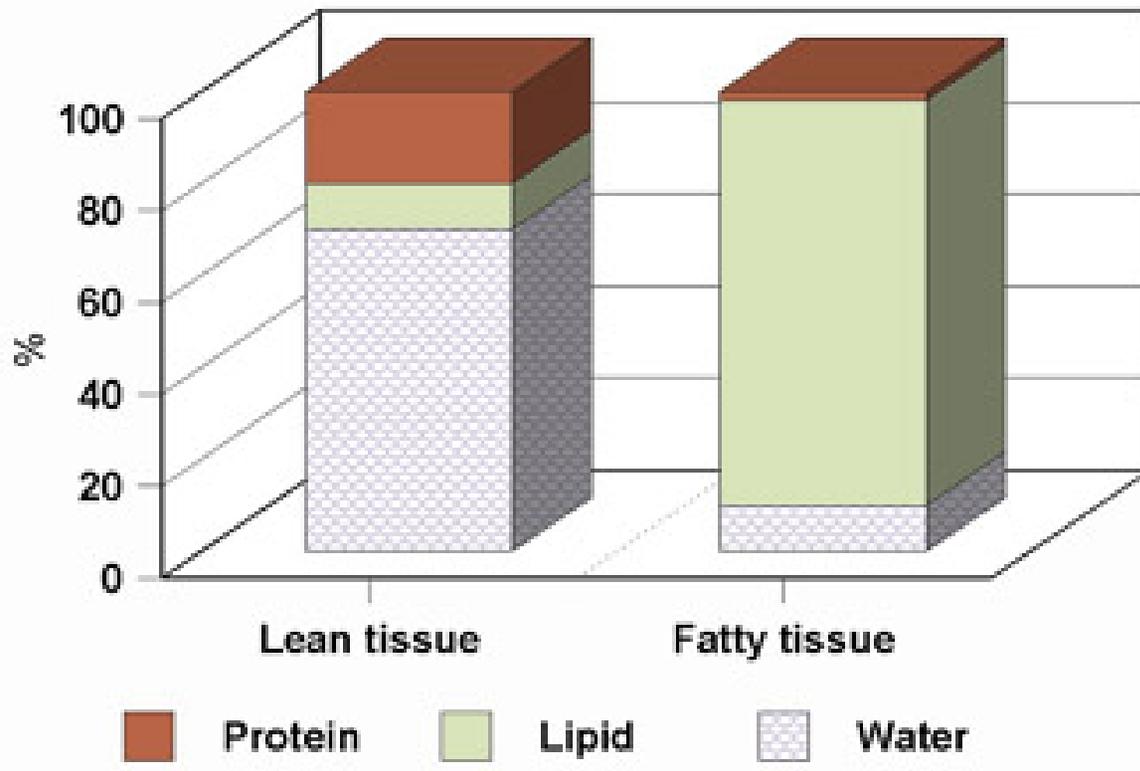
Assess Genetic Merit

- Genetics drive what is possible for growth or reproductive performance
 - ↓ performance = ↑ cost per pig
- Current market desires leaner, later-maturing market hogs

Lean Gain Per Day



Relative composition of lean and fatty tissues



Genetic Improvement

- Key to genetic improvement is maximizing heterosis

Trait	Heritability (%)
# pigs born	10
# pigs weaned	10
Litter wean weight	25
Average daily gain	35
Feed conversion	45
Backfat	55

Animal Health

- Disease:
 - Clinical vs. subclinical
 - Pigs go off feed
 - Greater proportion of nutrients used for maintenance vs. growth
 - Energetic cost of activating immune system

Effect of Immune Stimulation on Pig Performance (27-112 kg)

Trait	Immune System Status	
	Low	High
Daily feed, kg	2.63	2.52
Daily gain, kg	.95	.79
Feed/Gain	2.78	3.12
Hot carcass wt., kg	80.0	79.6
10 th rib backfat, mm	25.4	29.5
Dissected muscle, kg	45.4	42.4
Dissected fat, kg	20.0	23.7

Williams, 1996

Maintaining Animal Health

- Strict biosecurity
 - Clothing and boots
 - Rodent/bird/animal control
 - Personnel traffic between barns/units
 - Vehicle traffic
 - Feed and/or grain
 - AI-AO mgmt w/ thorough cleaning and disinfecting between groups
- Minimize stress
 - Provide proper diet and environment
 - Use good animal handling techniques



Maintaining Animal Health

- Update herd health plan with your veterinarian
 - Do not cut corners with vaccinations or treatments
 - Ensure using health products properly and getting value from them
- Establish and enforce euthanasia program
 - Poor-doing pigs consume disproportionate amounts of feed for amount of gain
 - Extra expense of medications also
 - Fall-behind pigs harbor disease pathogens
 - Continually improve identification of at-risk pigs
 - Daily walk-through of pens
 - Timely treatment and euthanasia if needed

Examine Diets



- Nutrient needs of pigs
 - Pigs require daily amounts of nutrients, not %
 - Maintenance, growth, and/or reproduction
 - Meet requirement by intake x diet % of nutrient
 - Estimate or determine fat-free lean gain & actual feed intake for given pigs and facilities/mgmt
 - More than recommendation from genetic supplier
 - May be able to glean most information from existing records
 - May need to run well-designed on-farm trial

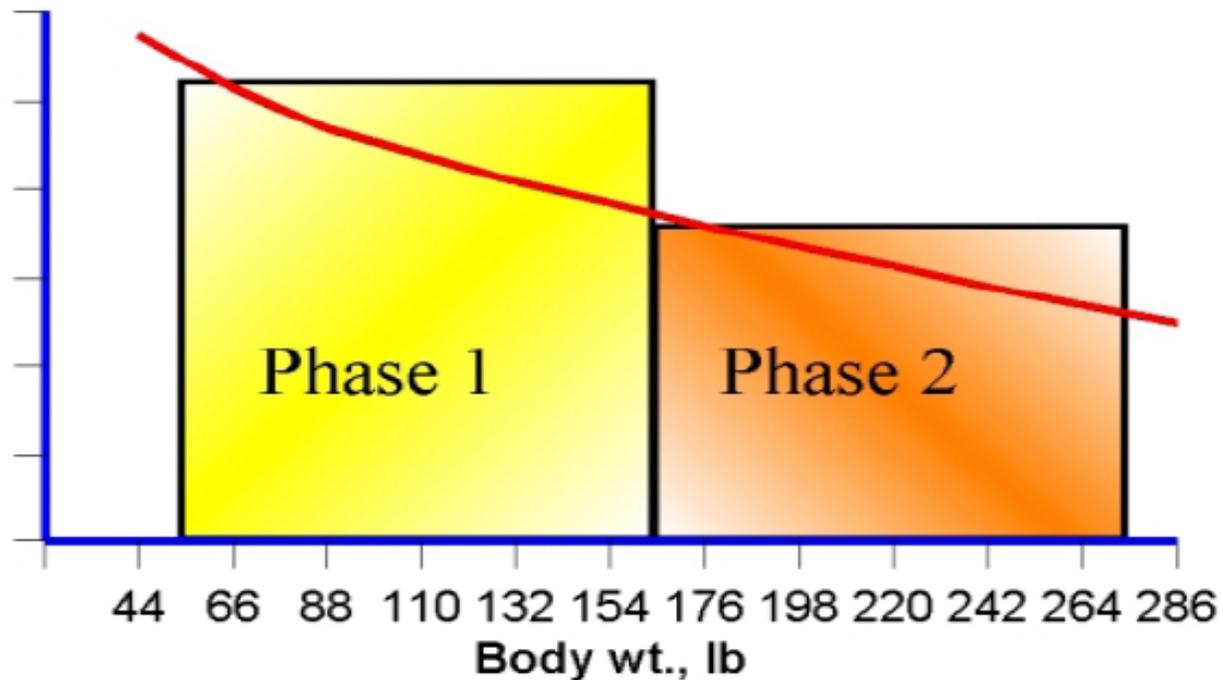
Split-Sex Feeding

Typical trait differences in barrows and gilts

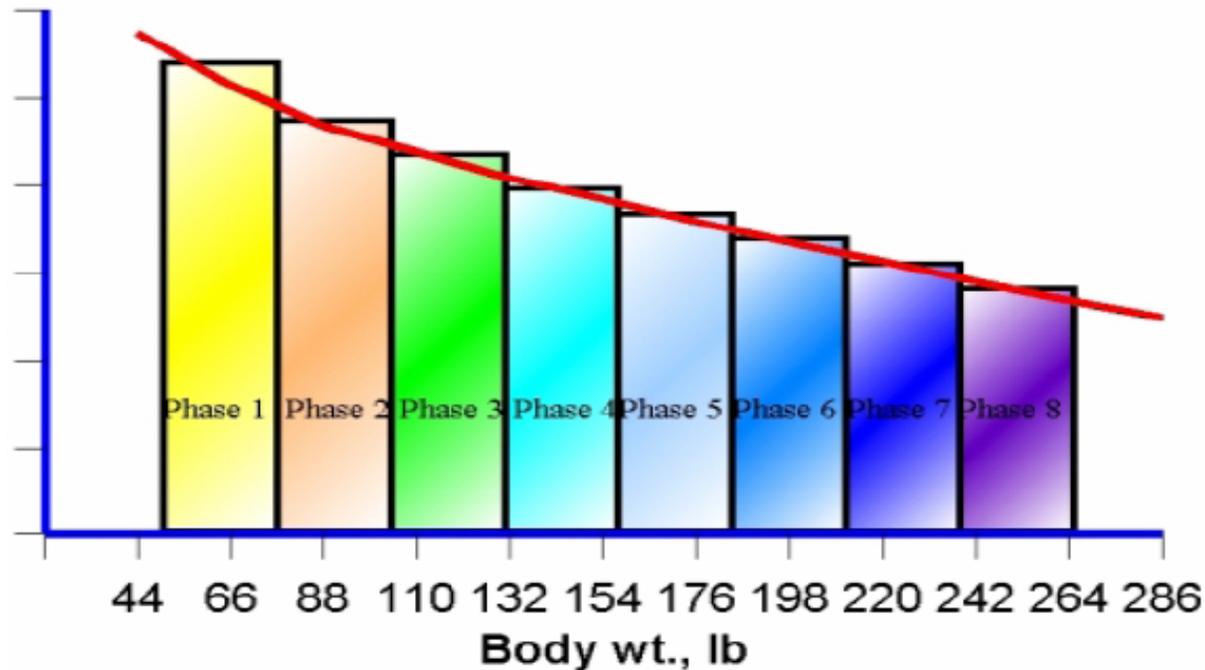
Trait	Gilt advantage	Barrow advantage
Feed intake		10-12%
Growth rate		10-14 days, 8-10%
Feed gain	0-4%	
Back fat	8-10%	
Lean percentage	2-3%	
Loin muscle area	10-12%	

Phase Feeding

- Avoid over- or under-feeding nutrients as much as possible



Phase Feeding



- Problem - All pigs are not equal!
 - Provide margin of safety with formulation levels

Feed Budgeting

- System to ensure right feed is fed for right period of time at the right phase of production
 - Only works if check periodically to ensure you are on feeding to the budget
 - Is pig weight correct when switching diets?
 - Is feed intake and F/G on target?
 - How do you determine # of diets and where breaks should be in the budget?
 - Often due to size of bin
 - More phases = more management, chance for error

Alternative Ingredients

- Important to consider now with ↑ corn price
- Rules to remember:
 - Providing nutrient, not ingredients, so think from standpoint of cost/nutrient
 - Energy, protein/amino acids, phosphorus
 - Use digestible levels when formulating diets
 - Necessary for accurate comparison
 - Need consistent supply and quality
 - Ensure no other factors that may affect intake, growth, carcass value, reproduction, etc...
- Wheat, other cereal grains, coproduct ingredients

Alternative Ingredients - DDGS

- Coproduct from ethanol industry
 - Significant increase in supply
- Fits better in beef and dairy rations
- Concerns in swine diets
 - Nutrient levels and variability
 - Effect on feed intake and/or growth
 - Mycotoxin potential
 - Flowability and handling
- UMN research indicates
 - 10 – 20% inclusion in GF diets
 - 30 – 40 % inclusion in gestating sow diets
 - 10 – 20% inclusion in lactation sow diets



Alternative Ingredients - DDGS

- Economical fit in swine diets?
 - Based on price relationships and ingredient substitution levels

Add: 200 lbs DDGS (\$???/ton)	\$???????
3 lbs limestone	\$ 0.09
	\$ 0.09
Less: 178 lbs corn (\$3.75/bu)	\$ 11.92
19 lbs SBM (46% CP, \$200/ton)	\$ 1.90
6 lbs dicalcium phosphate	\$ 0.90
	\$ 14.72
Opportunity cost: (\$14.72 - \$0.09) x 10 =	\$ 146.30

DDGS @ \$130/ton provides savings of \$1.63/ton feed at 10% level

Growth Promotants / Repartitioners

- Antibiotics
 - 5 – 10 % ↑ in ADG, 3 – 6 % ↓ in F/G
- Antibiotic alternatives
 - Prebiotics, direct fed microbials, botanicals, supranutritional trace mineral levels, diet acidifiers, exogenous enzymes
- Metabolic repartitioners
 - Ractopamine (Paylean™)
 - Increases lean growth
 - Use final 28 days at 4.5 g/ton
 - Improve feed conversion and growth 10 - 15%

Optimize Feeding Management

- Feed processing / form

- Pelletizing

- Decreases feed wastage 20%
 - Improves feed efficiency slightly (↑ nutrient utilization)
 - Must weigh against increased feed process cost

- Complete feed vs. basemix vs. VTM

- Need to evaluate by accounting for all costs
 - Equipment
 - Energy usage
 - Labor and time



Optimize Feeding Management

■ Feed quality

- Establish feed quality control program
 - Whether ingredients/feed is purchased, home-grown, or home-mixed
 - Evaluate nutrient and physical characteristics
 - Sampling and testing guidelines
 - Main nutrients to monitor
 - Proximate analysis – GE, CP, CF, EE
 - Amino acid analysis
 - Vitamin and mineral analysis
 - Mycotoxins
 - Particle size – goal of 650 – 750 microns
 - Improve F/G 1.2% for each 100 micron ↓

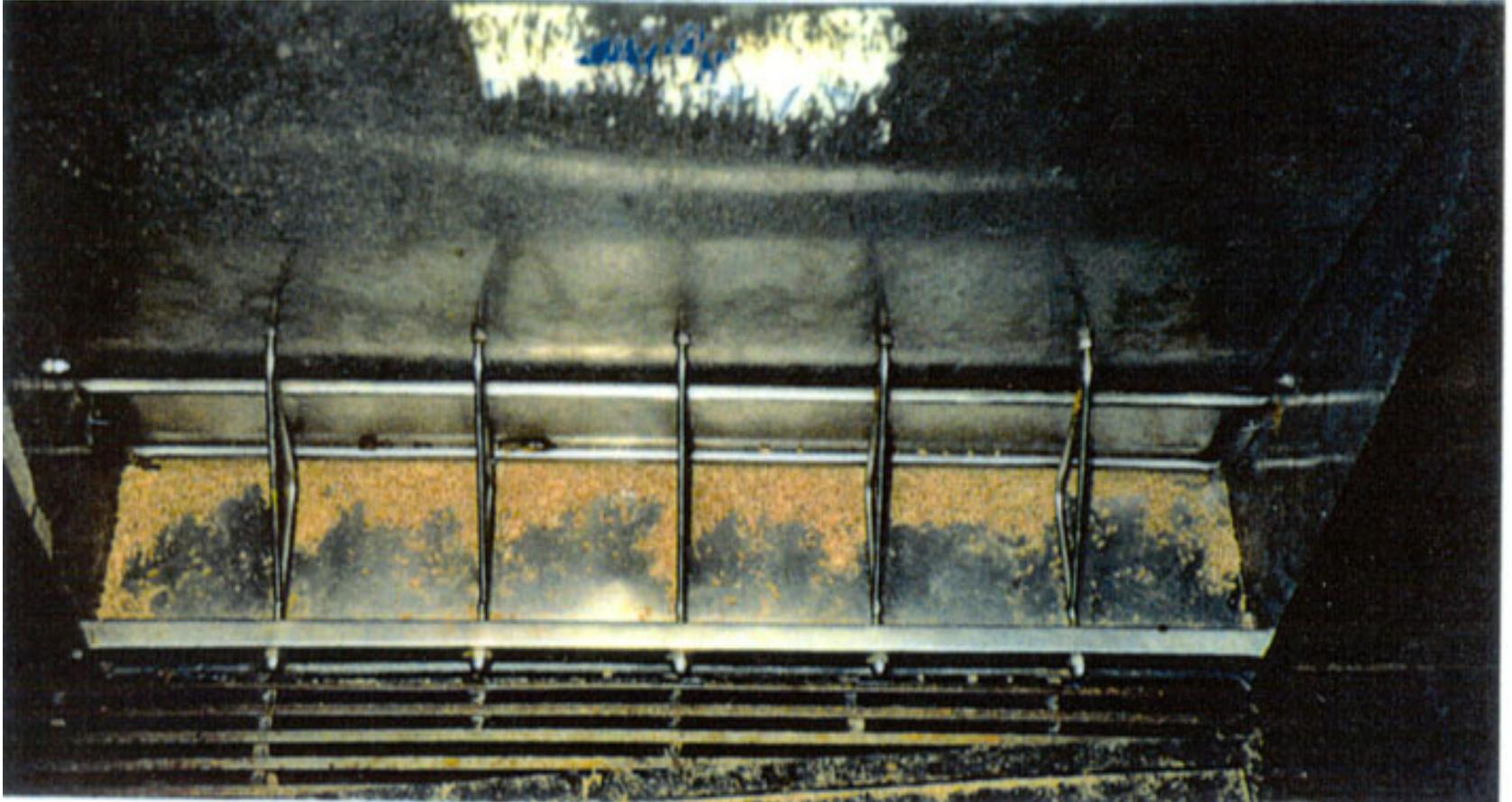


Optimize Feeding Management

- Feeder Management
 - Starting pigs: $\frac{1}{2}$ - $\frac{2}{3}$ of feed trough covered
 - After started: $\frac{1}{3}$ - $\frac{1}{2}$ of feed trough covered



Properly adjusted feeder



Source: Kansas State University

Properly adjusted feeder



Source: Kansas State University

Ingredient Purchasing

- Large quantities often qualify for a volume discount
 - Bulk vs. bagged
 - Consider forming a purchasing cooperative
 - Use for ingredients, drugs, or other expendable supplies

Evaluate the Environment

- In a typical swine facility, 85 – 90% of heat loss is associated with ventilation
 - Reducing ventilation could cost you more
 - Proper ventilation management is the key



Cold



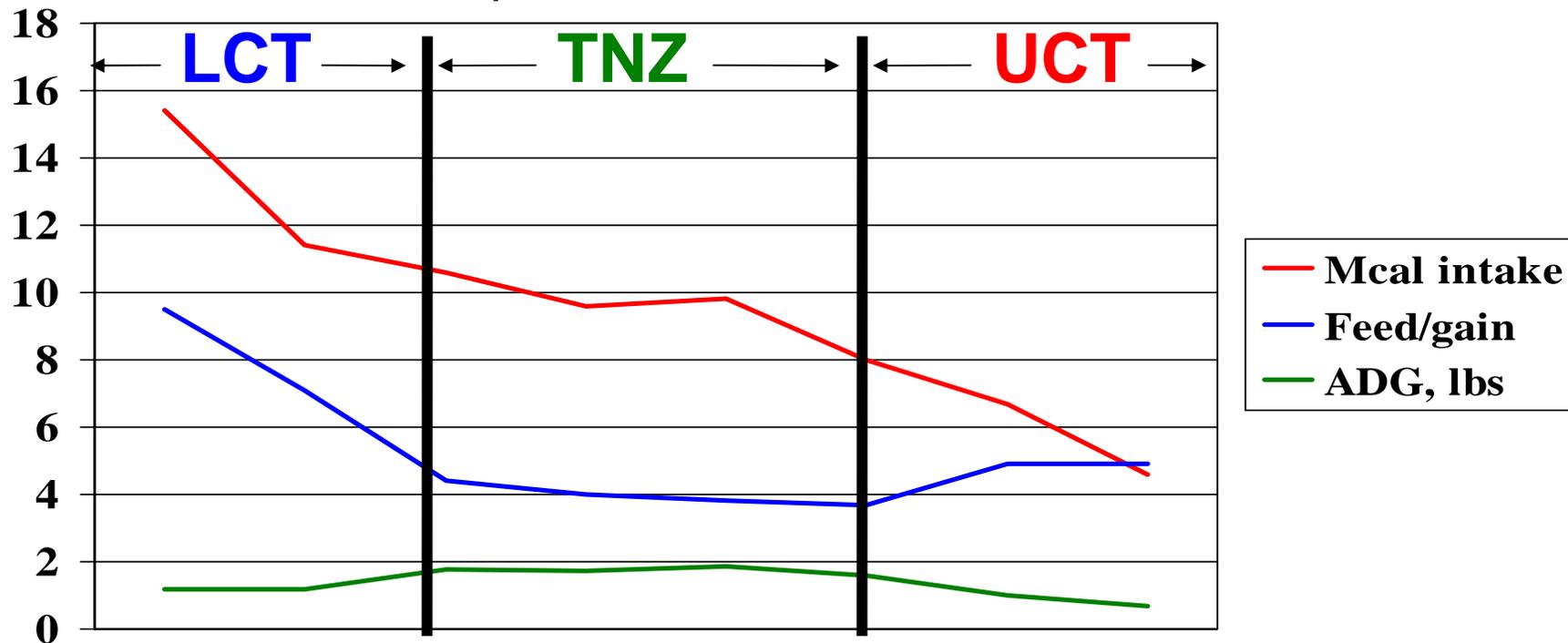
Comfortable



Hot

Environment Control

- Meet pig's thermoneutral temperature zone
- Minimize temperature fluctuations



Environment Control

- Tendency in many barns is to minimize ventilation and have temps on the high end of the TNZ

Avg Temp	Gallons LP	Annual Cost	Difference from Base
72 F	712 gal	\$1054	- \$419
74 F	837 gal	\$1238	- \$235
76 F	995 gal	\$1473	Base
78 F	1154 gal	\$1708	+ \$235
80 F	1361 gal	\$2014	+ \$541

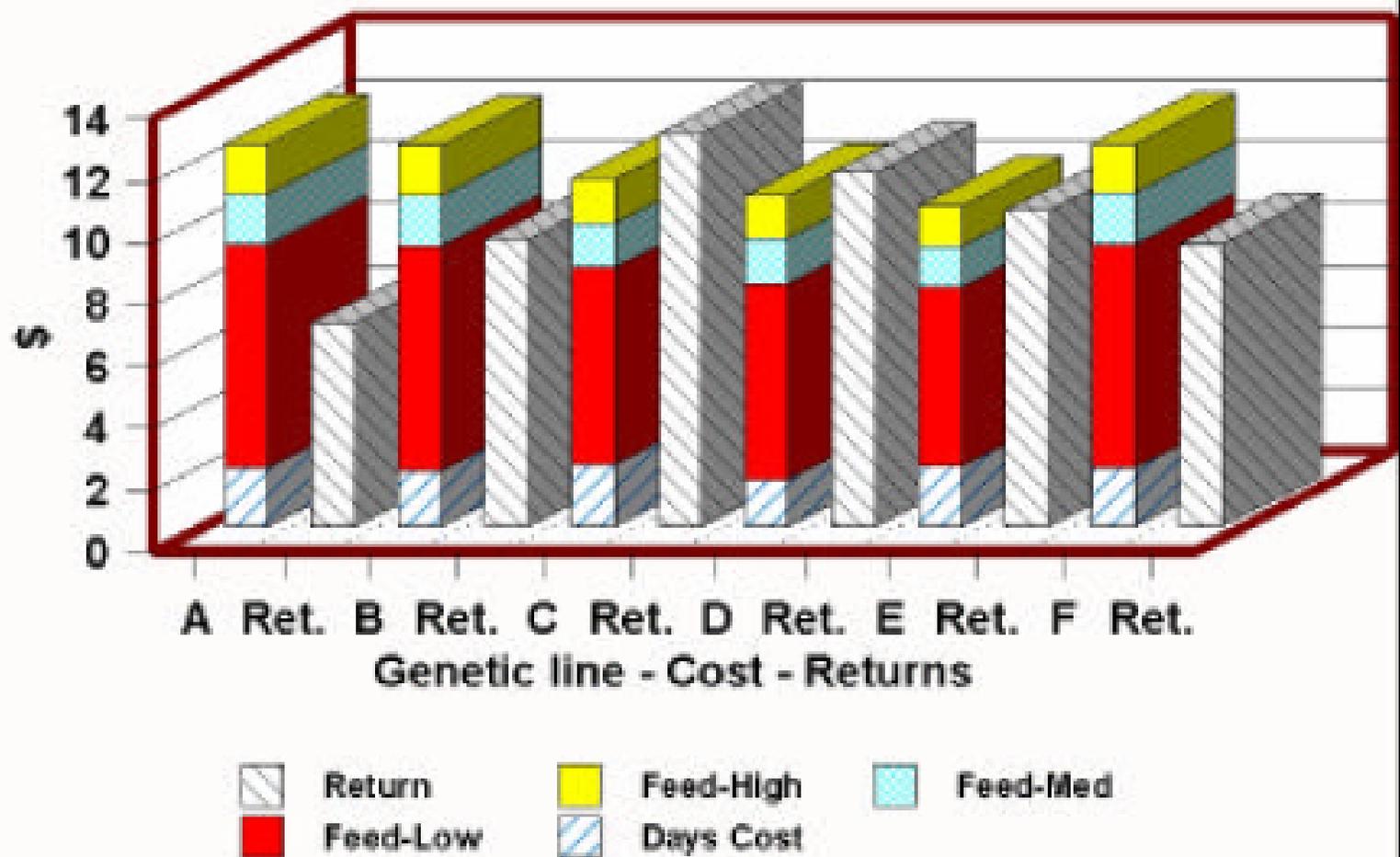
Source: Jay Harmon, ISU, 1000 hd nursery, \$1.48/gal propane

Marketing Pigs

- Choose packer/contract that best matches your situation and hogs
 - Weight and leanness grid
- Determine optimum marketing weight
 - Minimize sort loss to maximize premiums
 - Higher feed costs may mean reduced optimal market weights
 - Not at cost of discount for being too light
 - Partial budgeting

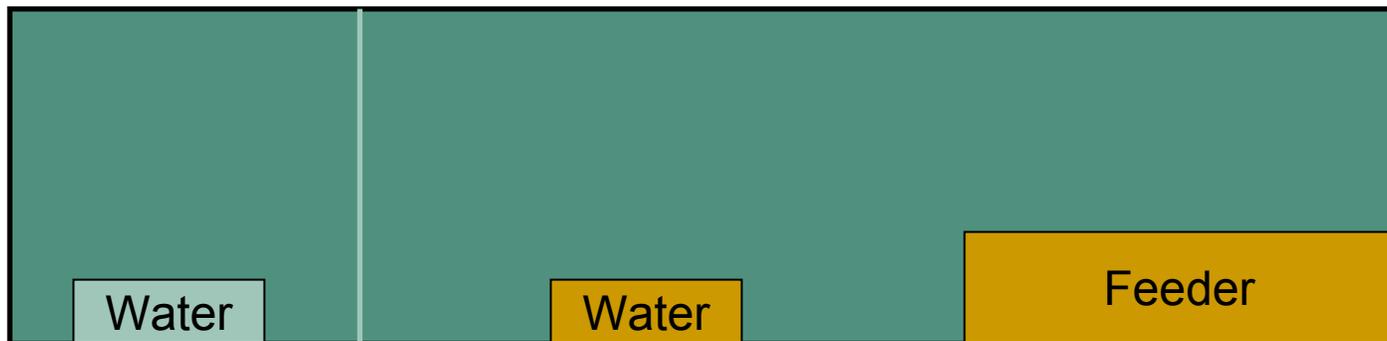


Figure 5. Added costs and returns by genetics - 250 vs.290 lb



Marketing Pigs

- Consider feed withdrawal prior to slaughter
 - Reduce feed cost
 - Pigs move easier, less stress
 - Improve pork quality, ↓ contamination risk
- Remove feed 12 hours prior to slaughter



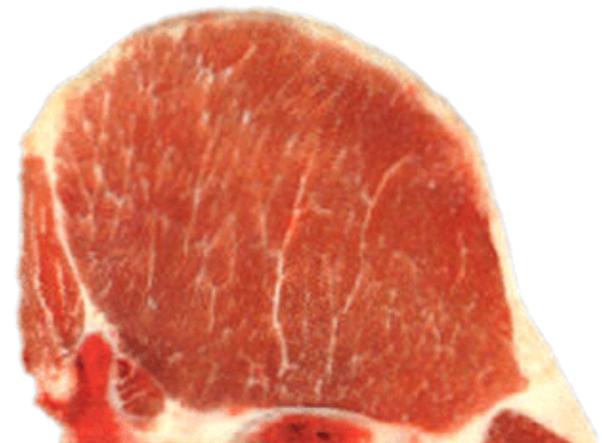
Summary



- Minimizing feed or production costs does not necessarily mean skimp on costs
 - Sample and test diets
 - Analyze rations
 - Check and maintain feeding system equipment
- Look for hidden cost factors
 - Over- or under-feeding nutrients
 - Lean gain and feed efficiency deficiencies
 - Provide proper environment at economical cost
 - Utilize purchasing arrangements

Summary

- Look to add value to production
 - Improve efficiency of system
 - Improve quality of pigs produced
 - More closely meet packer's needs and arrange contracts accordingly
- Start with most economically important areas
 - Grow-finish
 - Energy



Thank You

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