

Preconditioning Demonstration: Philip Houser Farm

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What Is Preconditioning?

- Preparing calves for next phase of beef production
 - Weaning
 - Separating calves from cows with the least amount of stress possible
 - Health program
 - Preparing calves to withstand potential diseases they will be introduced to during transportation and marketing process and during the future feeding programs (stocker or finishing phase)
 - Feed program
 - Add weight while overcoming the stresses of weaning and health management practices and teaching them to eat from a feed bunk and drink from a water trough



Why Do We Not Wean & Precondition?

- Belief it will reduce income
- Perception of lower sale weight
- Possibility of sickness / death loss
- Lack of adequate facilities
- Do not want to invest the time, effort and money for feed and facilities



Why Should We Wean & Precondition?

- Increased sale weight
- Increased value/price in a group marketing event
- Reduced shrink
- Increased net return due to value of gain exceeding cost of gain



In the Feedlot - Calves With a Preconditioning Program

- Gain faster
- Have lower death loss
- Require less feed
- Have lower feed costs
- Reduced sickness and lower treatment cost
- Have fewer days on feed
- Have low interest and yardage cost
- Have lower cost of gain



Why Precondition?

- Since morbidity is reduced, feedlot performance is better, carcasses are higher valued and cattle are more profitable



Weaning Demonstrations: Cattle Performance

County	Average weight		Gain ³	Avg Daily Gain ³
	Initial ¹	Pay Weight ²		
	----- (lbs/hd) -----			
Bledsoe	579	684	105	1.84
Blount	593	733	140	2.92
McMinn	506	608	102	1.72
Meigs	414	591	177	2.95
Monroe	543	639	96	2.14

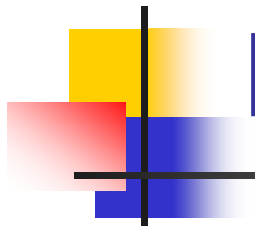
¹ All initial weights include a 1.5% shrink

² Weight at Southeast Pride Sale on 9-06-02

³ Number of days fed: Bledsoe 57, Blount 47, McMinn 59, Meigs 60, Monroe 45

Impacted by number of steers and heifers

Weaning Demonstrations: Net Added Value



County	Average value		Difference ³ ----- (\$/hd) -----	Cost of Program ⁴	Net Added Value ³
	8-02-02 ¹	9-06-02 ²			
Bledsoe	445.41	537.90	92.50	43.33	49.17
Blount	454.69	559.58	104.90	58.92	45.98
McMinn	395.31	474.45	79.14	54.03	25.11
Meigs	345.73	479.37	133.65	63.45	70.20
Monroe	427.66	516.18	88.52	61.93	26.59

¹ Based on 8-02-02 Graded Sale

² Based on Southeast Pride Sale on 9-06-02

³ Impacted by number of steers and heifers

⁴ Feed and pharmaceuticals



Weaning Methods

- Total separation in a secure pen or barn
- Place a dry cow in pen with calves
- Feed cows & calves in a pen then remove cows
- Wean on the signs of the Zodiac
- Fenceline wean so the calves and cows can touch noses
- Use of plastic weaning devices – Two-Step



Research: Two-Step & Fenceline Methods

- Canadian Research
 - 1-2 weeks pre-weaning - place anti-nursing device and put calves on grass as soon as possible
 - Weaning - remove anti-nursing device and wean – remove from cows
 - Behavioral results
 - Calves called 85% less
 - Calves walked 80% less
 - Calves spent 25% more time eating
 - Calves gained 30% more
- University of Missouri
 - 20 years - 4,500 calves weaned via fenceline
 - 4 sick calves & no respiratory disease calves
 - Gained at least 1.5 lbs/day in 1st 60 days



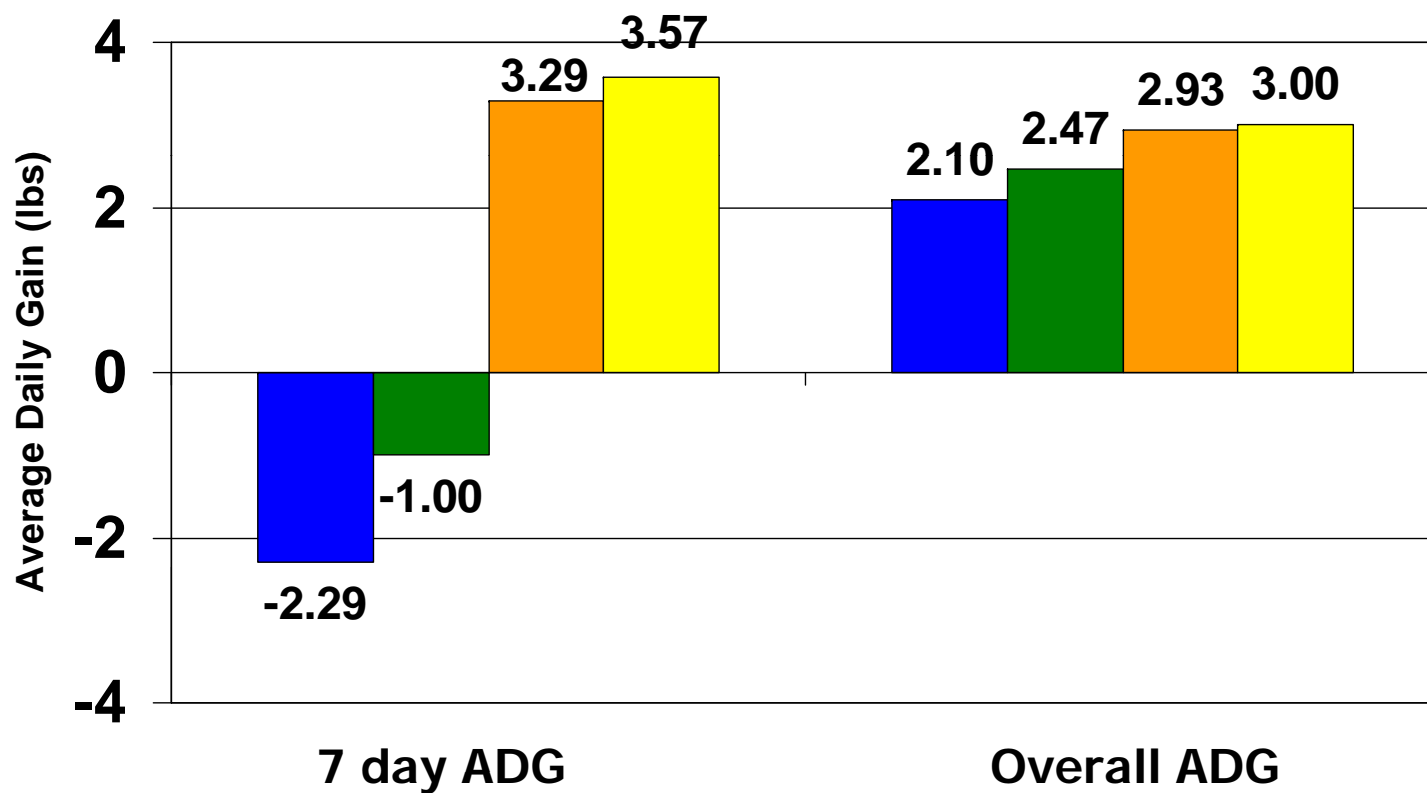
Lawrence County Demonstration

- Conducted by Calvin Bryant, Extension Agent
- Weaning method comparison
 - Total separation
 - Fenceline weaning
 - Two-Step
- Calves had been on soy hull creep feed
- At weaning, hand fed Co-op 13% high fiber feed at 8-10 lbs per day
 - ½ morning, ½ evening

Lawrence County Demonstration

Groups	Initial Weight 10/8/05	Weight at 7 days	Gain	Weight at 58 days	Overall Gain
Fenceline	581	604	+23	751	170
Two-step	545	570	+25	719	174
Total separation not de-horned	575	568	-7	718	143
Total separation & dehorned at weaning	629	613	-16	751	122

Average Daily Gain Comparison Among Groups



■ Total Separation ■ Total Separation ■ Fenceline ■ Two-Step



Value of Gain vs Cost of Gain

	Net Return*	Cost of Gain	Value of Gain
	----- \$/cwt -----		
Fenceline & Two-Step	89.10	32.79	84.59
Total Separation	60.99	44.41	92.43

* Net Return over Feed & Health Program



Preconditioning Demonstration

- Comparison: Feeding 5 lbs/head/day
vs Feeding 10 lbs/head/day
- 30 calves
 - Weighed June 4, 2009
 - Divided into two groups with equal number steers & heifers



Preconditioning Demonstration

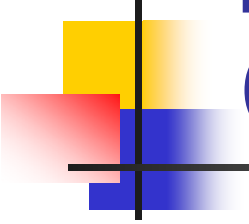
- Comparison: Feeding 5 lbs/head/day
vs Feeding 10 lbs/head/day
- Feed
 - Corn Gluten Pellets
 - Hand fed – ½ morning & ½ evening
 - Access to good fescue/clover pasture
 - Rotated as needed

***Why did calves fed 10 lb. of Corn
Gluten Feed NOT gain a lot more
than calves fed 5 lb. of Corn
Gluten Feed per day ?***

Dr. Jim Neel

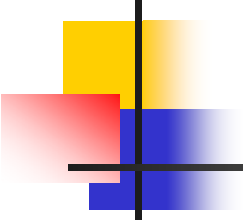
**Professor and Extension Beef Cattle
Specialist
UT Extension
University of Tennessee**



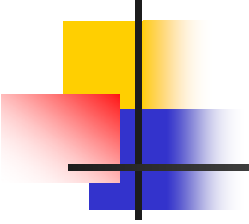


Performance of Pre-conditioned Calves Fed 5.0 lb or 10.0 lb of Corn Gluten Feed (CGF) per Day Plus Pasture

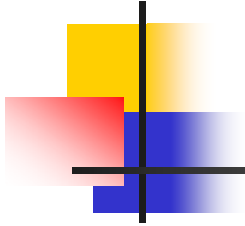
Daily CGF Provided		
Cattle Performance	5.0 lb	10.0 lb
Initial wt. (lb) (6/4/09)	565	566
Final wt. (lb) (7/17/09)	641	657
Gain (lb)	76	91
Average Daily Gain	1.8	2.2

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- Feeder calves are the number one source of agricultural income in Tennessee

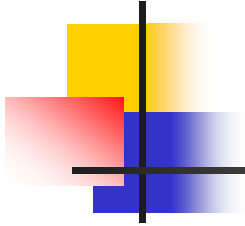


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- Most feeder calves are sold directly off the cow
 - Calves experience lots of stress during marketing
 - Results in a large percentage of sick or dead calves





- Research and industry experience has shown that calves that have been weaned, fed at least 45 days and been exposed to a recognized health and management program are better able to withstand the stress during marketing
- These calves are more valuable to the industry than those marketed directly from the cow
- Preconditioning



- Producers are now taking another look at weaning calves and preparing them to withstand the market stresses
 - Feeder cattle alliances
 - Added Value
 - Alternative feeds, “by products”





By-Product Feeds

1. By product feeds are what is left after an ingredient to be used for human consumption is removed from the commodity
2. Composition of the by-product can be quite different from the whole grain from which it is derived
3. Nutrient composition of by-product feeds can be variable



Example of By-Product Change in Composition

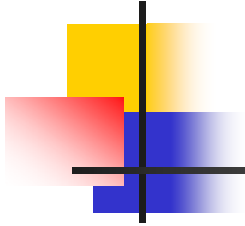
- Soybean meal is the remains after the oil is removed from the soybeans

	TDN (%)	Crude Protein (%)
Soybeans	85	38
Soybean Meal	75	54



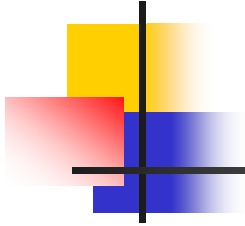
Common By-Product Feeds Derived from Food and Fiber Processing

Raw Product	By-Product Feed	Component Derived
Soybean	Soybean Meal	Soybean Oil
	Soy Hulls	Dehulled Soybean Meal
Wheat	Middlings (Midds)	Flour (starch)
	Bran	Starch & Germ
Barley	Brewers' Grains	Starch/Alcohol
Corn	Distillers' Grains	Starch/Alcohol
	Gluten Feed	Starch/Sweeteners
	Hominy	Degermed Corn Meal
Cotton	Whole Cottonseed	Cotton Fiber
	Cottonseed Meal	Hulls & Oil



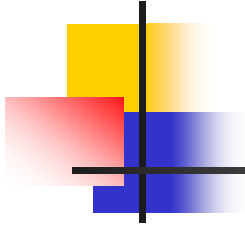
- We now know that there are feedstuffs that are “Fiber Friendly”
 - High in digestible fiber
 - Complement the forages that make up most preconditioning rations that results in more efficient energy utilization





- “Friendly Fiber” Feeds include:
 - Soybean hulls
 - Wheat midds
 - Corn gluten feed



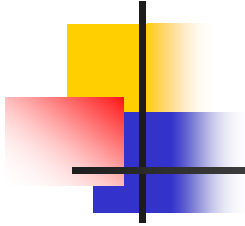


If your goal is to maximize forage intake and digestibility, adding grain (corn, barley, or wheat) to the ration beyond a threshold of about 0.5% of body weight would be counter productive.

- Use a supplement with a low level of starch
 - Soybean hulls, corn gluten feed, wheat midds, brewers grain — all have low levels of starch

Nutrient Value of Selected By-Products Feeds and Grains (values are % of dry matter)

Feed	Dry Matter Content	TDN	Starch & Sugar	Crude Protein
Whole Soybeans	90	85	22	38
Soybean Meal	90	75	32	54
Soy Hulls	91	75	14	14
Ground Wheat	89	86	70 ✓	14
Wheat Midds	89	80	38	18
Ground Barley	88	80	60 ✓	12
Brewers' Grains	21 or 92	66	14	26
Cracked Corn	88	87	75 ✓	10
Distillers' Grains	25 or 91	89	14	29
Corn Gluten Feed	30 or 90	82	30	20
Hominy	90	92	52 (?)	12
Whole Cottonseed	90	87	55 ✓	22
Cottonseed Meal	92	77	15	44
Beet Pulp	91	74	40	10



- When supplements with a high level of starch are fed, the starch and sugars are rapidly fermented, which results in a lower rumen pH.
 - When starch intake reaches a critical level it lowers feed intake and digestibility
 - When the starch feeds are fed at levels greater than 0.4-0.5% of body weight, forage intake and digestibility may be reduced.



Energy or TDN

1. TDN makes up largest portion of cattle rations
2. TDN values for many feeds change as the amount in the ration changes, especially when forage is supplemented with a concentrate—and starch is a major part of the concentrate



Most common by-product feeds in this area are:

Corn Gluten Feed (CGF)

Soybean Hulls (SBH)



Corn Gluten Feed (CGF)

- By-Product from the production of corn syrup—a sweetener of soft drinks
- Starch, gluten, and germ are extracted
- Moderate protein and highly digestible fiber make CGF an economical protein/TDN supplement (“Fiber Friendly”)
- When CGF is fed at 0.5% of body weight or less, the TDN value is equal to or better than corn



Corn Gluten Feed (CGF) continued...

- As CGF increases in ration, TDN values decrease.
- CGF should not make up more than 50% of the dry matter intake of the cattle.
- Even at 50%, the TDN value will be less than when it is fed at a lower rate
- Can have high levels of sulfur



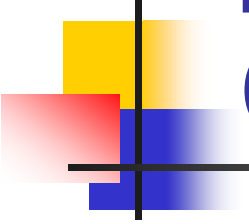
Soybean Hulls (SBH)

- By-product of soybean processing for soybean oil and soybean meal
- Soybean oil and dehulled soybean meal are removed
- Moderate protein and highly digestible fiber make SBH an economical protein and TDN supplement ("Fiber Friendly")
- Should not be only source of fiber, SBH fiber is highly digestible
- When SBH are fed at a rate of 0.5 percent of body weight or less, SBH are equivalent to corn in TDN content



SBH (continued...)

- When fed at higher rates, the TDN value is reduced
- TDN value depends on the amount fed and the type of ration (forage or concentrate)
- SBM will be more beneficial as a supplement for animals that are grazing or being fed hay compared to high energy rations
- SBH can be “self-fed” to growing cattle with hay or pasture and they will eat 10-18 lb per day and gain 2-3 lb per day
- Can be “limit” fed with salt



Performance of Pre-conditioned Calves Fed 5.0 lb or 10.0 lb of Corn Gluten Feed (CGF) per Day Plus Pasture

Daily CGF Provided		
Cattle Performance	5.0 lb	10.0 lb
Initial wt. (lb) (6/4/09)	565	566
Final wt. (lb) (7/17/09)	641	657
Gain (lb)	76	91
Average Daily Gain	1.8	2.2

Do you have an answer to the original question?



Nutrient Requirements

Nutrients (lb)			
	<u>DM</u>	<u>CP</u>	<u>TDN</u>
<u>Requirements</u>			
Percent Nutrients Provided by CGF	15.0	1.6	10.2
10 lb. CGF	9.0 (60.0%)	1.8 (112.5%)	7.2 (70.5%)
5 lb. CGF	4.5 (30%)	1.4 (87%)	3.6 (34.2%)



Why did calves fed 10 lb. of Corn Gluten Feed “Not” gain a lot more than calves fed 5 lb. of Corn Gluten Feed per day?

- 10 lb of corn gluten was fed which was 60% of dry matter requirement CGF—too high
- CGF fed at 1.6% of body weight, should have been limited to 0.5% of body weight (3-5 lb)—too much
- As result, TDN value of CGF and forage utilization was reduced
- Therefore, gain for 10 lb/day group was not as great anticipated

Cattle Performance based on amount of CGF Provided

Cattle Performance	Daily CGF Provided	
	5.0 lb	10.0 lb
Initial weight (lb) (6/4/09)	565	566
Final weight (lb) (7/17/09)	641	657
Gain (lb)	76	91
Average Daily Gain	1.8	2.2
Additional Gain (lb)		+15
Total Feed/Head	210	420
Feed per lb Gain	2.7	4.6
Feed per lb Additional Gain	--	14.0



Summary

- Use “fiber friendly” feed sources in conditioning rations for calves on either pasture or fed hay
- Limit “fiber friendly” feeds (soybeans hulls, corn gluten feed, wheat midds) to 0.5% of body weight (4-6 lb) plus pasture or hay
- Keep corn and other feeds high in starch below 0.5% of body weight
- Use ionophore in mineral supplement to stimulate gain and improve feed efficiency



Summary

- Maximize use of forage (pasture or hay)
- Small cow-calf producers backgrounding calf crop or those with a small number of calves being backgrounded should be based on forage and supplementation with single feed



Does A Preconditioning Program Pay?

Value of Gain must exceed Cost of Gain

Feeding 5 lbs/hd/day – 76# gain

565# M-1 Steer @ \$103/cwt	\$ 581.95
2% shrink	<u>- 11.64</u>
Sale Value	\$ 570.31

641# M-1 Steer @ \$96.50/cwt \$ 618.56

Value of Gain \$ 48.25

Value of Gain / lb 63¢

Feeding 10 lbs/hd/day – 91# gain

565# M-1 Steer @ \$103/cwt	\$ 581.95
2% shrink	<u>- 11.64</u>
Sale Value	\$ 570.31

657# M-1 Steer @ \$96.50/cwt \$ 633.04

Value of Gain \$ 62.73

Value of Gain / lb 69¢



Does A Preconditioning Program Pay?

Value of Gain must exceed Cost of Gain

Feeding 5 lbs/hd/day – 76# gain

Feed 210# @ \$95/ton (\$0.0475/lb)	\$ 9.98
Vaccination program	9.50
Death loss 1%	5.82
Interest 5%	<u>3.46</u>
Total Cost of Program	\$ 28.76
Cost of Gain / lb	37.8¢
Net Return	\$ 19.49

Feeding 10 lbs/hd/day – 91# gain

Feed 420# @ \$95/ton (\$0.0475/lb)	\$ 19.95
Vaccination program	9.50
Death loss 1%	5.82
Interest 5%	<u>3.52</u>
Total Cost of Program	\$ 38.79
Cost of Gain / lb	42.6¢
Net Return	\$ 23.94



Does A Preconditioning Program Pay?

- Additional Considerations
 - TAEP Payment for PVP and selling in a preconditioned sale = + \$15/hd
 - Market as part of a load = + \$4/cwt

Feeding 5 lbs/hd/day – 76# gain

Value of Gain	\$ 48.25
TAEP payment	15.00
Market in load	<u>25.64</u>
New Value of Gain	\$ 88.89
New Value of Gain / lb	\$ 1.17

Feeding 10 lbs/hd/day – 91# gain

Value of Gain	\$ 62.73
TAEP payment	15.00
Market in load	<u>26.24</u>
New Value of Gain	\$ 103.97
New Value of Gain / lb	\$ 1.14



The Take Home Message

- Weaning can be the most stressful part of a preconditioning program
- Use of lower stress methods – fenceline or two-step – can greatly reduce the stress and often results in greater gains than total separation
- Calves weaned and fed 1.5-2% of body weight for 45-60 days will gain enough to pay for feed and vaccination materials



The Take Home Message

- Buyers are demanding and paying for preconditioned cattle
- A good marketing program such as a preconditioned graded sale is needed to capture the value which has been created through a good preconditioning program

Questions?



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