

Low Input – Small Scale Feeding

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Mixed Delivered Rations Predominate

■ Advantages

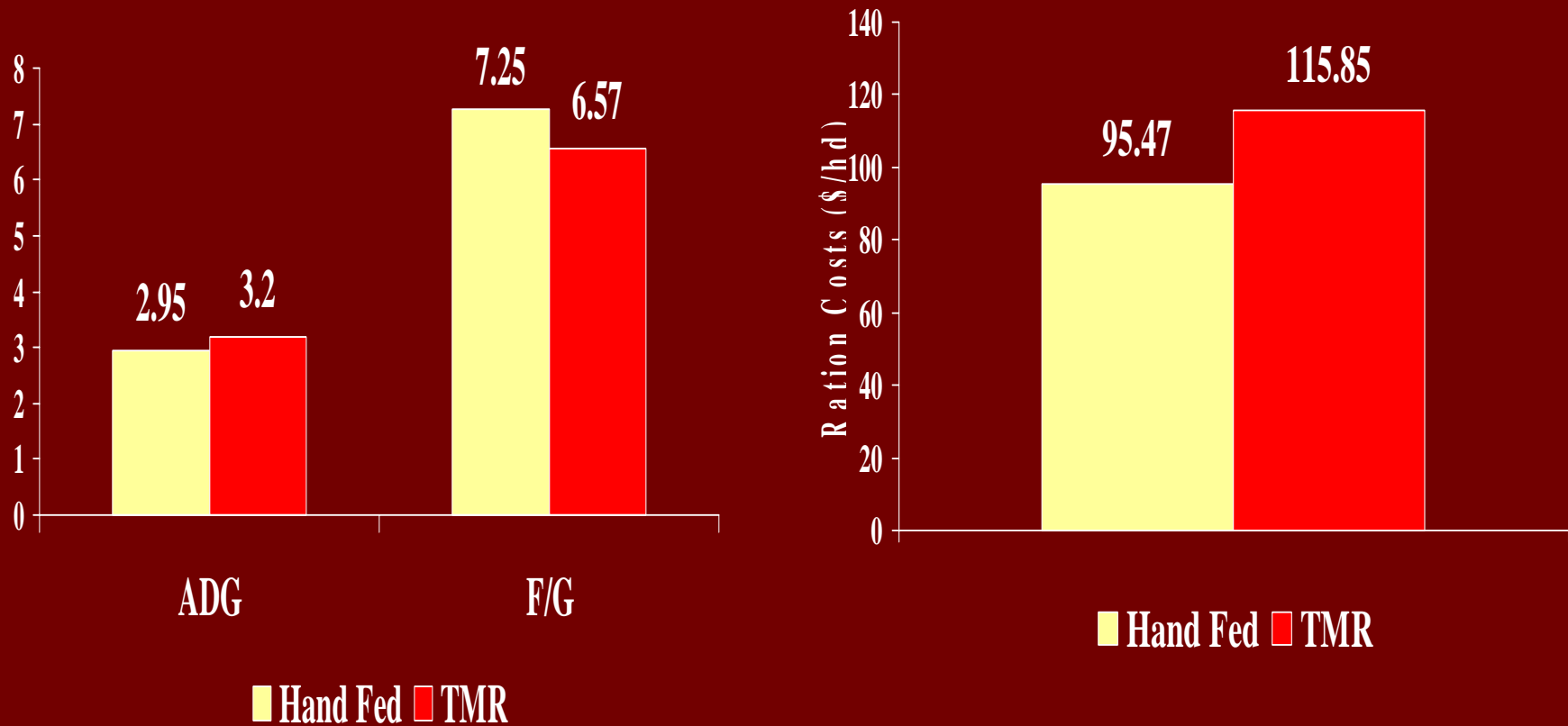
- Handle feed to lots of cattle
- Wide range of feeds
- Precise accurate rations
- Low waste
- Gain and conversion advantages
- Monitoring and projections

■ Disadvantages

- High investment
- Machinery operation
- Size of Scale –
economics/practicality



TMR vs Hand Fed - Anderson 1992



Feeding Alternatives

- Self fed hay
- Hand feeding grain + self fed hay
- Self fed grain + self fed hay

Self Fed Hay



■ Issues

- Low labor and investment
- Need high digestible hay
- Limited gain possible
- Self fed mineral/vit/protein
- Chopping increases intake and gain
- Considerable waste, hay feeders essential
- Fluff hay, move feeders, feed cleanup to cows
- Start calves with some hay on ground

■ Examples

– Forage (CP > 12%, TDN > 60%)

- Millet hay
- Alfalfa-brome hay
- Tame – fine stem grass hay
- Early cut barley or oat hay

– Projected performance

- 550 lb steer
- 16.5 lb hay + mineral (\$60/t - \$500/t)
- 1.25 adg 13.2 F/G
- Daily feed cost: \$.52
- Feed cost/lb: \$.42

Hand Feeding Grain

■ Issues

- Low investment and high labor (daily)
- Limited capacity
- Grain processing and storage concerns
 - Pelleted by product, oat, corn, pea ??
 - Barley, wheat – coarse crack or roll
 - Commercial feed
- Supplements
 - Free choice, top dress, blend in processed grain
- Self fed forage – avoid alfalfa
- Start calves low and increase slowly
 - .5 % body weight to 2% (target 1.75)
- Can monitor health and appetite closely



■ Examples

– Grain (CP > 13% TDN > 80%)

- Peas + oats
- Barley + corn
- Corn + wheat midds

– Forage (CP > 10% TDN > 57%)

- Fine stem grass

– Projected Performance

- 550 lb implanted steer
- 8 lb hay + 6.5 lb midds + 3 lb corn + .3 lb mineral
(\$50/t - \$100/t - \$130/t - \$500/t)
- 2.5 adg 7.2 F/G
- Daily feed cost: \$.84
- Feed cost/lb: \$.34

Self Feeding



■ Issues

- Low labor with modest investment for feeder
- Limitations of suitable feeds
 - High fiber, slow digestion (limit fines)
 - Blending ingredients
 - Intake regulators
- Ration additives – ionophore (rumensin) and buffer (NaHCO_3)
- Risk of digestive problems
 - Overeating, off feed, bloat, founder
 - Out of feed events
- Self fed forage – medium quality, no alfalfa
- Start calves with good hay, limited feed in trough, or by prior creep feeding or hand feeding or 50% forage
- 4-6 inches per calf

■ Examples

– Rations

- Wheat midds plus whole corn, peas, oats and pelleted byproduct supplement
- Ground corn and “accuration” supplement
- Ground straw/hay plus coarse cracked oats, corn, peas plus high calcium/rumensin supplement prepared in grinder/mixer
- Complete commercial pellet (appropriate fiber, protein, minerals)

– Projected performance

- 6 lb hay + 5.5 lb midds + 2.5 lb corn + 2.5 peas + 0.5 lb mineral with rumensin
(\$50/t - \$100/t - \$130/t - \$130/t + \$500/t)
- 2.8 adg 6.1 F/G
- Daily feed cost: \$.87
- Feed cost/lb: \$.31

Central Grasslands Research Trial

- **Table 1. Effect of feed delivery system (totally mixed ration vs. self-fed) on performance of heifers fed wheat midds**

■ .	TMR		Self-Fed	
	Yr 1	Yr2	Yr1	Yr2
■				
■ Total intake	18.9	24.7	18.7	24.3
■ Hay intake	9.2	11.9	9.5	9.7
■ Wheat midds intake	9.4	12.8	8.5	14.5
■ Average daily gain	1.88	1.70	1.77	1.67
■ Efficiency				
■ Gain to Feed	0.10	0.068	0.09	0.068
■ Feed to Gain	10.06	14.64	10.65	14.60

Intake Modifying (limiting) Technology

■ Purina Mills, Inc

– Accuration supplements

- Monensin 130g/t
- Crude protein 32.0 %
- Fat (fish oil) 5%
- Minerals and Vitamins

– Current prices

- \$12.95 50lb bag
- \$399 /ton bulk
- \$246.5/ton 70/30 mix with ground corn
- \$222.80/ton 80/20 mix with ground corn

Purina Mills, Accuration Comparison

	Accuration	hand fed
■ .		
■ Stating weight	656	666
■ Days on feed	65	65
■ Ending Weight	823	815
■ Average daily gain	2.57	2.28
■ Concentrate Lbs	6.07	8.00
■ Cost/lb/gain	\$.196	\$.193
■ Value of gain	\$133.6	\$119.20
■ Net Benefit	\$+10.43	

CGREC results finishing trial

(gain, carcass weight, grade similar for both treatments)

	Self-Fed	TMR
■ Carcass value (\$112/cwt)	\$904.96	\$917.28
■ Initial value (\$82/cwt)	\$724.88	\$724.88
■ Feed cost	\$128.57	\$140.13
■ Trucking and marketing	\$36.12	\$36.49
■ Interest (7%)	\$21.44	\$21.73
■		
■ Return to Labor, Management		
■ Yardage and equipment	-\$6.05	-\$5.95
■ ADVANTAGE		\$0.10

Feed Value Comparison

- Nutrient Composition
 - Protein
 - Energy (TDN, Mcals)
- Additional Costs
 - Trucking
 - Storage
 - Shrink
- Non Nutritive Benefits
 - Intake
 - Ration Mixing



	%DM	%CP	TDN	\$/T	\$/CP	\$/TDN	\$/BU
Canola Meal	0.9	0.41	0.69	\$116.0	0.1571		
Corn	0.88	0.1	0.9	\$125.0		0.0789	\$3.50
Barley	0.88	0.135	0.84	\$126.3			\$3.03 86.%
Oats	0.91	0.13	0.75	\$116.3			\$1.86 53.%
Barley Malt	0.89	0.14	0.74	\$115.1			
DDGS	0.9	0.28	0.86	\$173.0			
Wet DG	0.3	0.28	1.15	\$72.63			
Peas	0.88	0.23	0.88	\$158.1			\$4.75 135.%
Screenings	0.86	0.14	0.7	\$105.8			
Wheat Midd	0.88	0.14	0.78	\$119.4			
Soy Hull	0.92	0.12	0.8	\$121.9			
Hay	0.86	0.09	0.54	\$63.53			with 10% waste

	%DM	%CP	%TDN	\$/T	\$/CP	\$/TDN	\$/BU
Canola Meal	0.9	0.41	0.69	\$0.00	0.00		
Corn	0.88	0.1	0.9	\$125.		0.078	\$3.50
Barley	0.88	0.135	0.84	\$116			\$2.80 80%
Oats	0.91	0.13	0.75	\$107			\$1.72 49%
Barley Malt	0.89	0.14	0.74	\$103			
DDGS	0.9	0.28	0.84	\$119			
Wet DG	0.3	0.28	1.15	\$54			
Peas	0.88	0.23	0.88	\$122			\$3.67 105%
Screenings	0.86	0.14	0.7	\$95			
Wheat Midd	0.88	0.14	0.78	\$108			
Soy Hull	0.92	0.12	0.8	\$116			
Hay	0.86	0.09	0.54	\$65			with 10% waste