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Amarillo, TX 79106
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Economic Value of Feedyard Manure

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August 28, 2008

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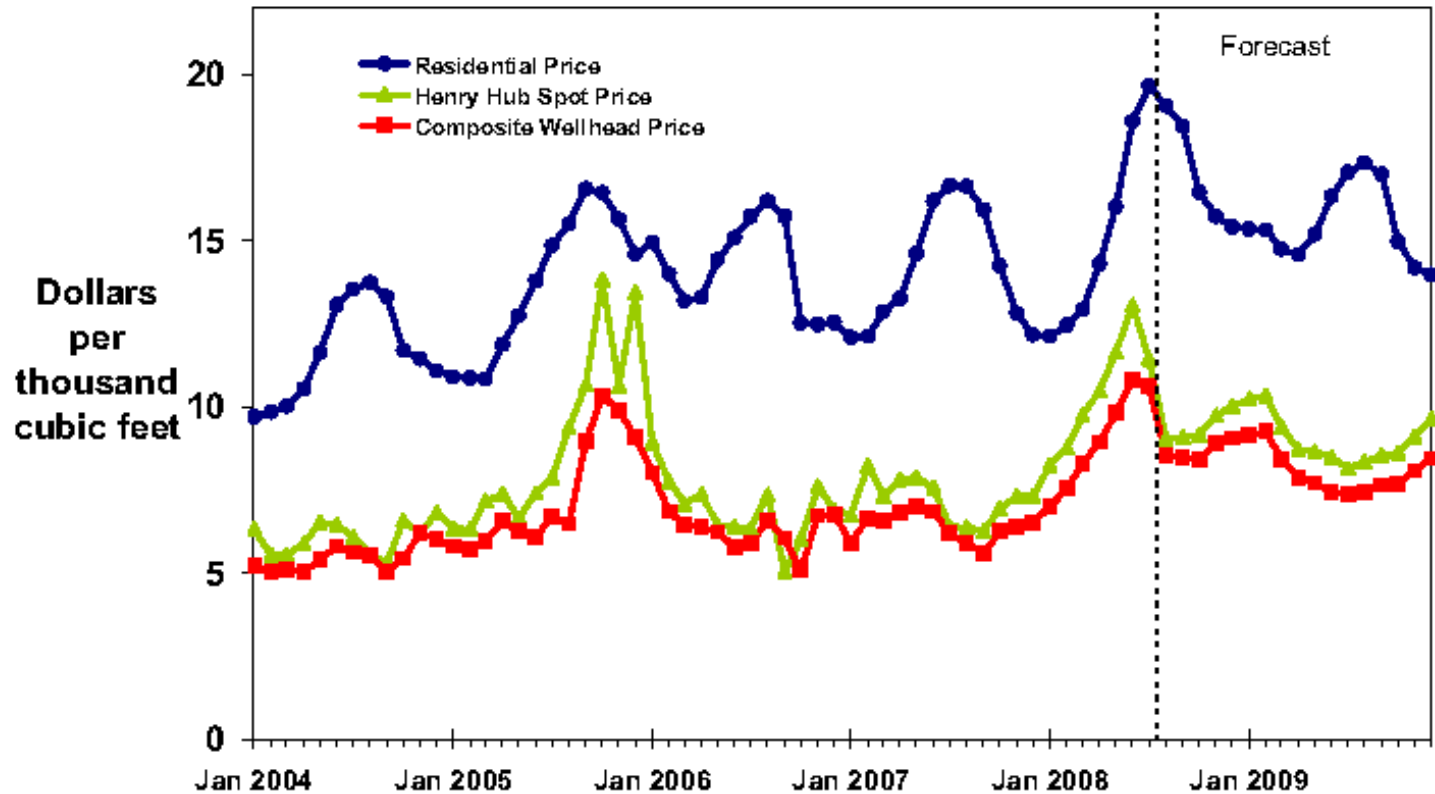


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Natural Gas Price History & Forecast

Natural Gas Prices





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Natural Gas and Anhydrous

Fact

- 33,500 cubic feet of natural gas is required to produce a ton of anhydrous.

Rule of Thumb

- A \$1.00 change in natural gas price will change the cost of anhydrous \$34/ton.



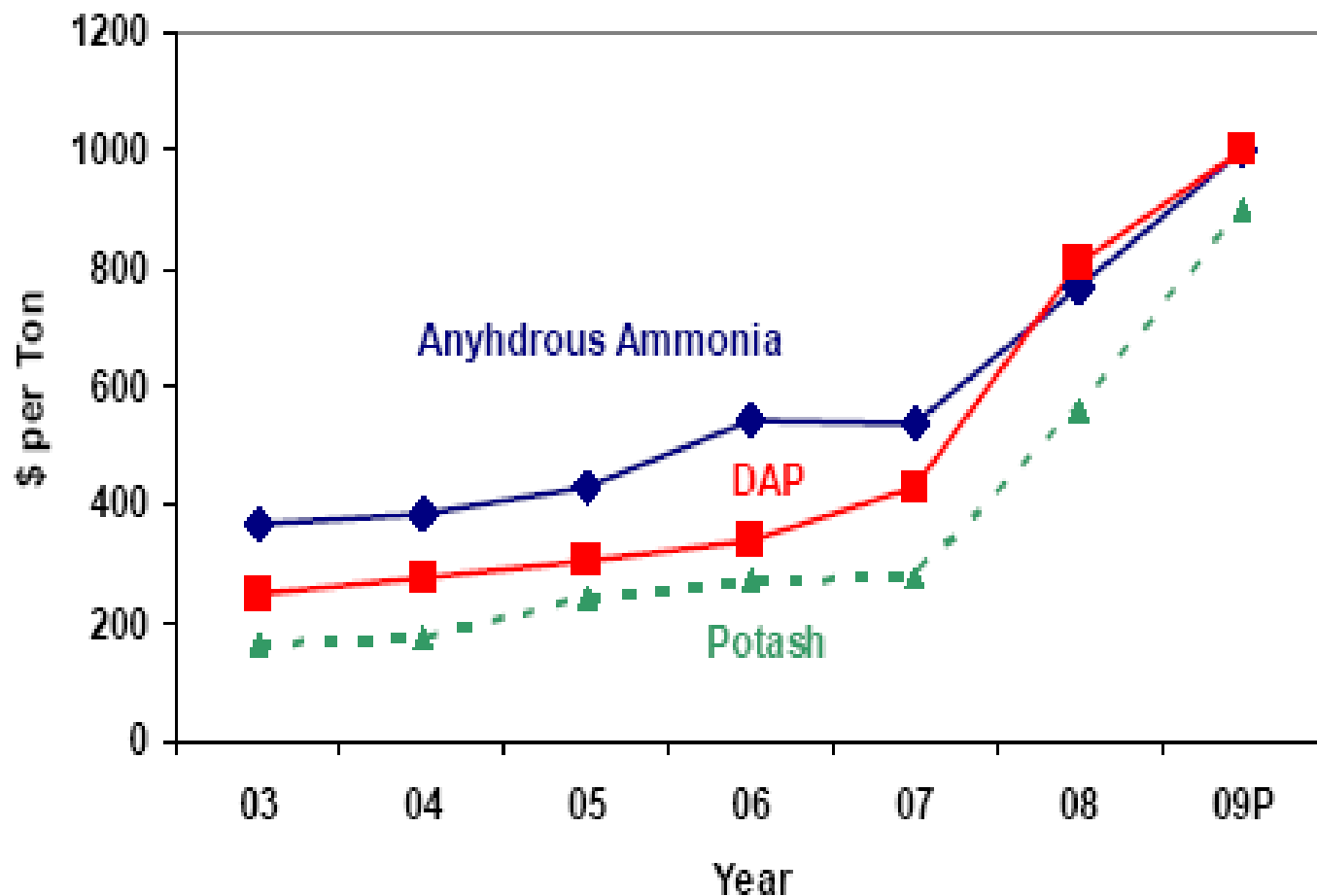
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Projected Fertilizer Prices

(Pioneer / University of Illinois)

**Figure 1. Fertilizer Prices, 2003 through 2009
Projected.**





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Manure Surveys

	<u>1998</u>	<u>2007</u>	<u>2008</u>
Anhydrous (\$/ton)	\$250	\$435	\$1,000
Base fee (\$/ton)	\$2.15	\$3.00	\$3.50
Freight (\$/ton/mi)	\$0.11	\$0.20	\$0.25
	<u>1998</u>	<u>2007</u>	<u>2008</u>
Distance (miles) --N value only	10	15	40
Distance (miles) --N & P value	49	50	102



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Nutrient Content of Manure -- 2007

	<u>Avg.</u> <u>(%)</u>	<u>Std.</u> <u>Dev.</u>	<u>Pounds/</u> <u>Dry Ton</u>	<u>Pounds/</u> <u>Wet Ton</u>
Nitrogen	1.9	+/-0.53	38.5	26.3
P₂O₅	2.0	+/-0.62	40.8	27.7
K₂O	1.8	+/-0.67	36.1	24.6
Zinc	0.03	+/-0.01	0.5	0.4
Iron	0.46	+/-0.17	9.2	6.3
M.C.	31.7	+/-9.7	-----	-----

Source: TCFA, 2007 manure samples (n=100)



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Forms of Nutrients

$$\text{Phosphorus} = P \times 2.29 = P_2O_5$$

$$\text{Potassium} = K \times 1.2 = K_2O$$

$$\text{Wet basis} = \text{Dry basis} \times \text{D.M.}/100$$



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Nutrient Availability

MANURE:

	<u>1st year</u>	<u>2nd year</u>	<u>3rd year</u>
Nitrogen	45%	25%	15%
P₂O₅	70%	20%	5%

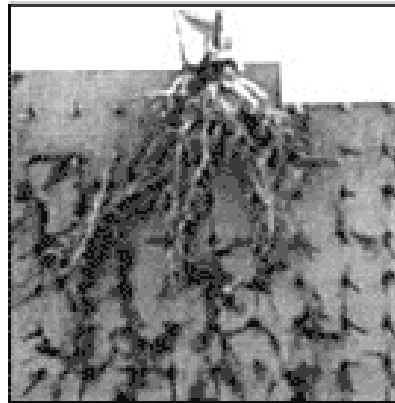


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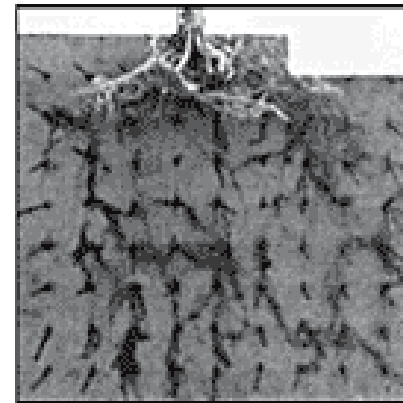
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No-Till

- **Nitrogen availability ~38% in first year**
- **Phosphorus conc. in runoff – higher**
- **Total Phosphorus loss was less**
 - **Better infiltration**
 - **Reduced sediment loss**



Conventional Tillage



No Tillage



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Feeding Distillers Grains

- **Similar nutrient levels in manure**
- **Increase in dry matter excretion**
- **Increase in “collectible” manure ~20%**



Manure vs. Compost (Relative Comparison)

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	<u>Manure</u>	<u>Compost</u>
Volume	↑	↓
Hauling Distance	↑ ↓	↑ ↓
Odor	↑	↓
Weed Seed	↑	↓
Nutrient Stability	↑ ↓	↑ ↓
Compaction	↑	↓
Debris	↑	↓

**End result – personal preference &
product availability**

Update Reset Print

Value of Manure from Beef Cattle Feedyards

TCFAD
August 2008

This worksheet can estimate the value for manure based on current commercial nitrogen and phosphorus prices and compare the costs of "Commercial Fertilizer Only" vs. "Manure + Commercial Fertilizer."

Current Cost of Commercial Fertilizers

(ENTER at least ONE value for nitrogen source and ONE value for phosphorus source)

Nitrogen Source			Phosphorus Source		
	\$/ton	cents/lb		\$/ton	cents/lb
Anhydrous Ammonia (82-0-0)	<input type="text"/>	\$0.00	Mono-Ammonium Phos. (11-52-0)	<input type="text"/>	\$0.00
Urea (46-0-0)	<input type="text"/>	\$0.00	Liquid Ammonium Phos. (10-34-0)	<input type="text"/>	\$0.00
UAN Liquid (32-0-0)	<input type="text"/>	\$0.00			
UAN+Sulfur (28-0-0-5)	<input type="text"/>	\$0.00			

Manure Analysis, Nutrient Value, Cost of Manure and Crop Plans

Manure Analysis	lb/wet ton	Nutrient Value of ONE TON of Manure (based on commercial fertilizer prices above)						Total Value of N and P ₂ O ₅ in three years
		1 st year		2 nd year		3 rd year		
		% avail.	lb/ton \$/ton	% avail.	lb/ton \$/ton	% avail.	lb/ton \$/ton	
N	<input type="text"/>	<input type="text"/>	0 0.00	<input type="text"/>	0 0.00	<input type="text"/>	0 0.00	\$ 0.00 /ton
P ₂ O ₅	<input type="text"/>	<input type="text"/>	0 0.00	<input type="text"/>	0 0.00	<input type="text"/>	0 0.00	\$ 0.00 /ton
K ₂ O*	<input type="text"/>							
Total =			0.00		0.00		0.00	
Total 3-Year Nutrient Value =							\$ 0.00 /ton	

*(Assume no K₂O value-- most soils have excess)

- www.tcfa.org
- Click on "Manure Value Calculator"
 - Manure Value Worksheet
 - Instructions & Example
 - Feedyard Manure: A Farmland Fertilizer



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TCFAD
August 2008

This worksheet can estimate the value for manure based on current commercial nitrogen and phosphorus prices and compare the costs of "Commercial Fertilizer Only" vs. "Manure + Commercial Fertilizer."



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**Nitrogen
Price**

Current Cost of Commercial Fertilizers
(ENTER at least ONE value for nitrogen source and ONE value for phosphorus source)

Nitrogen Source	Current Cost of Commercial Fertilizers	
	\$/ton	cents/lb
Anhydrous Ammonia (82-0-0)	<input type="text"/>	\$0.00
Urea (46-0-0)	<input type="text"/>	\$0.00
UAN Liquid (32-0-0)	<input type="text"/>	\$0.00
UAN+Sulfur (28-0-0-5)	<input type="text"/>	\$0.00

Phosphorus Source	Current Cost of Commercial Fertilizers	
	\$/ton	cents/lb
Mono-Ammonium Phos. (11-52-0)	<input type="text"/>	\$0.00
Liquid Ammonium Phos. (10-34-0)	<input type="text"/>	\$0.00

**Phosphorus
Price**

**Manure
Nutrients**

Manure Analysis

	lb/wet ton
N	<input type="text"/>
P ₂ O ₅	<input type="text"/>
K ₂ O*	<input type="text"/>

*(Assume no K₂O value—most soils have excess)

Manure Analysis, Nutrient value, Cost of Manure and Crop Plans

Nutrient Value of ONE TON of Manure (based on commercial fertilizer prices above)

	1 st year			2 nd year			3 rd year			Total Value of N and P ₂ O ₅ in three years
	% avail.	lb/ton	\$/ton	% avail.	lb/ton	\$/ton	% avail.	lb/ton	\$/ton	
N	<input type="text"/>	0	0.00	<input type="text"/>	0	0.00	<input type="text"/>	0	0.00	\$ 0.00 /ton
P ₂ O ₅	<input type="text"/>	0	0.00	<input type="text"/>	0	0.00	<input type="text"/>	0	0.00	\$ 0.00 /ton
Total =			0.00			0.00			0.00	
Total 3-Year Nutrient Value =										\$ 0.00 /ton

**Manure
Value**

**Manure
Cost**

Cost of Manure

Feedyard charge =	\$ <input type="text"/> /ton
Loading & spreading =	\$ <input type="text"/> /ton
Hauling charge =	\$ <input type="text"/> /ton/mile
Distance to be hauled =	<input type="text"/> miles
Total cost per ton =	\$ 0.00 /ton

Crop plans

Year	Crop(s)	Yield goal(s)	Nitrogen required (lb/acre)	P ₂ O ₅ required (lb/acre)
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Crop
Plans**

Comparison of "Commercial Fertilizer Only" vs. "Manure + Commercial Fertilizer"

Commercial Fertilizer Only:

Year	Commercial Fertilizer				Cost per Year (\$/acre)
	Nitrogen Needed (lb/acre)	P ₂ O ₅ Needed (lb/acre)	Nitrogen (\$/acre)	P ₂ O ₅ (\$/acre)	
1	0	0	0.00	0.00	0.00
2	0	0	0.00	0.00	0.00
3	0	0	0.00	0.00	0.00
4	0	0	0.00	0.00	0.00

Manure + Commercial Fertilizer:

Year	Manure				Commercial Fertilizer				Cost per Year (\$/acre)
	Manure tons/acre	Manure Nitrogen (lb/acre)	Manure P ₂ O ₅ (lb/acre)	Manure Cost (\$/acre)	Nitrogen Needed (lb/acre)	P ₂ O ₅ Needed (lb/acre)	Commercial Nitrogen (\$/acre)	Commercial P ₂ O ₅ (\$/acre)	
1	<input type="text"/>	0	0	0.00	0	0	0.00	0.00	0.00
2	<input type="text"/>	0	0	0.00	0	0	0.00	0.00	0.00
3	<input type="text"/>	0	0	0.00	0	0	0.00	0.00	0.00
4	<input type="text"/>	0	0	0.00	0	0	0.00	0.00	0.00
Total =					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Fertilizer
Only**



**Manure +
Fertilizer**



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Some data from TCFA/Texas Agrilife Extension Manure Meetings – July 10, 2008,
Dr. Steve Amosson and Mr. Patrick Warminski, Texas Agrilife Extension