

Feed First

Ethanol as the Byproduct

*Brief Overview of
Dry Milling Ethanol Production*

*Optimizing Forage and Rangeland
Efficiency*

Ethanol Plant with Feed Byproduct

VS.

Feed Plant with Ethanol Byproduct

- **8 X Net Ethanol Energy Benefit**
- **Provides a Risk Reduction Strategy**
- **Improves Animal Health**
- **Improves Soil Fertility**

Dry Milling Ethanol Plant

Corn yields

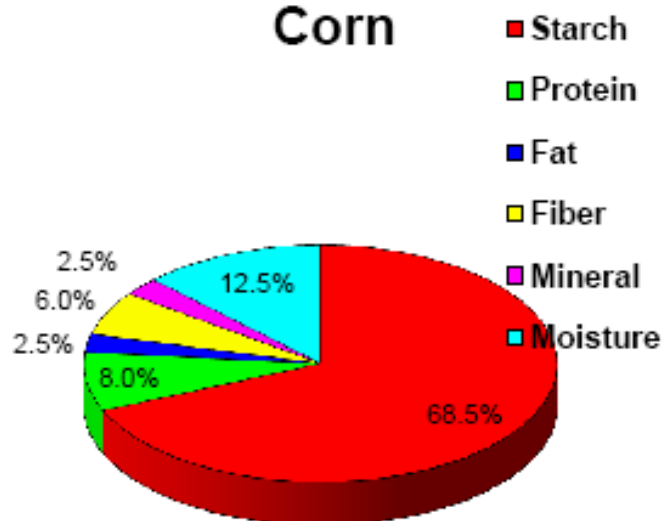
18 lbs. Ethanol

18 Lbs. CO₂

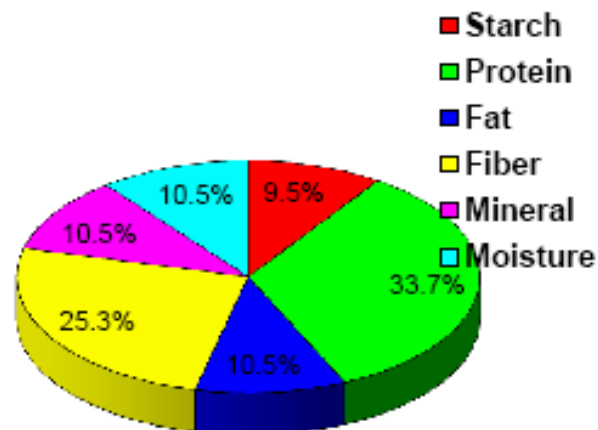
18 Lbs. DDGS

Feed Composition after Fermentation

Corn



Distillers Grain (ddgs)



Dry Milling Ethanol Plant

- **56 Lbs / bushel**
- **(5 Lbs of water and 51 Lbs of Dry Matter)**
- Starch 68.5
- Protein 8
- Fat 2.5
- Fiber 6
- Mineral 2.5
- Moisture 12.5
100 %
- **18 lbs Distillers Grains**
- **18 lbs Ethanol**
- **18 lbs Carbon Dioxide**
- Starch 2.25
- Protein 8
- Fat 2.5
- Fiber 6
- Mineral 2.5
- Moisture 2.5

Nothing much happens unless there's money to be made.

Start with the economics –

**Not creating anything out of thin air -
rather, making more economical use of solar energy
and animal harvesting power.**



**More efficient days back-grounding equal
fewer days in Feedlot on grain.**

**Improved Soil Fertility - Improved Animal Health
(Higher Omega 3 & CLA in meat)**

Dry Milling Ethanol Plant

• Ethanol	\$1.65	x	2.7	=	4.46	78%
• DDGS \$139	\$0.07	x	18	=	<u>1.25</u>	22%
					5.71	
• Corn \$107	\$3.00	x	1	=	3.00	
• Process Cost	\$0.60	x	2.7	=	1.62	
• Capital Cost	\$0.18	x	2.7	=	<u>0.49</u>	
					5.11	
Net per bushel					0.60	
Return on Sales					11%	

Dry Milling Ethanol Plant

EXAMPLES	1	2	3	4	5
Ethanol	\$1.65	\$1.35	\$1.35	\$1.35	\$1.35
Corn	\$3.00	\$3.50	\$3.50	\$3.50	\$3.50
ROS	11.0%	-10.0%	0.3%	1.8%	3.1%

+ Value Added
Feed Plant

Dry Milling Ethanol Plant

With Feed Plant

Ethanol		\$1.35 x 2.7 =	3.65	71%	3.65	42%
DDGS \$163		\$0.08 x 18 =	1.46	29%	1.46	17%
Value Added Products (V.A.P.)				0%	3.50	41%
			<u>5.11</u>		8.61	
Corn \$125		\$3.50 x 1 =	3.50		3.50	
Process Cost		\$0.60 x 2.7 =	1.62		1.62	
Capital Cost		\$0.18 x 2.7 =	0.49		0.49	
Feed Cost etc.		85% of V.A.P.			2.98	
			<u>5.61</u>		8.58	
Net per bushel			-0.50		0.03	
Return on Sales			-10%		0.3%	

Dry Milling Ethanol Plant

With Feed Plant

Ethanol		\$1.35	x 2.7	=	3.65	71%	3.65	38%
DDGS \$163		\$0.08	x 18	=	1.46	29%	1.46	15%
Value Added Products (V.A.P.) \$1/bu						0%	4.50	47%
					<u>5.11</u>		9.61	
Corn \$125		\$3.50	x 1		3.50		3.50	
Process Cost		\$0.60	x 2.7	=	1.62		1.62	
Capital Cost		\$0.18	x 2.7	=	0.49		0.49	
Feed Cost etc. @ 85% of V.A.P.							3.83	
					<u>5.61</u>		9.43	
Net per bushel					-0.50		0.18	
Return on Sales					-10%		1.8%	

Dry Milling Ethanol Plant

With Feed Plant

Ethanol	$\$1.35 \times 2.7 = 3.65$	71%	3.65	34%
DDGS \$163	$\$0.08 \times 18 = 1.46$	29%	1.46	14%
Value Added Products (V.A.P.) \$2 / bu.		0%	5.50	52%
	<u>5.11</u>		<u>10.61</u>	
Corn \$125	$\$3.50 \times 1 = 3.50$		3.50	
Process Cost	$\$0.60 \times 2.7 = 1.62$		1.62	
Capital Cost	$\$0.18 \times 2.7 = 0.49$		0.49	
Feed Cost etc. @ 85% of V.A.P.			4.68	
	<u>5.61</u>		<u>10.28</u>	
Net per bushel		-0.50	0.33	
Return on Sales		-10%	3.1%	

Carbohydrates

Sugar
Starch
Hemi Cellulose
Cellulose
Lignin

Protein

Peptides
Amino Acids

Lipids (FAT)

Omega 6
Omega 3
Etc.

Minerals

Macro

Calcium
Phosphorus
Potassium
Magnesium
Sodium
Sulfur

Micro (Trace Minerals)

Copper
Zinc
Manganese
Cobalt
Iodine
Selenium
Etc.

Vitamins

Fat Soluble (storable)
A,D,E, K

Water Soluble
C, B-complex

Broken down by

Grinding
(chewing)

Acid

Enzymes

Microbes

Single Cell

Proteins

(*Secrete Enzymes*)

Carbohydrates

Sugar
Starch
Hemi Cellulose
Cellulose
Lignin

Protein

Peptides
Amino Acids

Lipids (FAT)

Omega 6
Omega 3
Etc.

Minerals

Macro

Calcium
Phosphorus
Potassium
Magnesium
Sodium
Sulfur

Micro (Trace Minerals)

Copper
Zinc
Manganese
Cobalt
Iodine
Selenium
Etc.

Vitamins

Fat Soluble (storable)
A,D,E, K

Water Soluble
C, B-complex

Broken down by

Grinding
(chewing)

Acid

Enzymes

Microbes

Single Cell

Proteins

(Secrete Enzymes)

6.5 pH

Healthy Rumen

Optimum pH Range 6 - to - 6.5

Fibrolytic Microbes

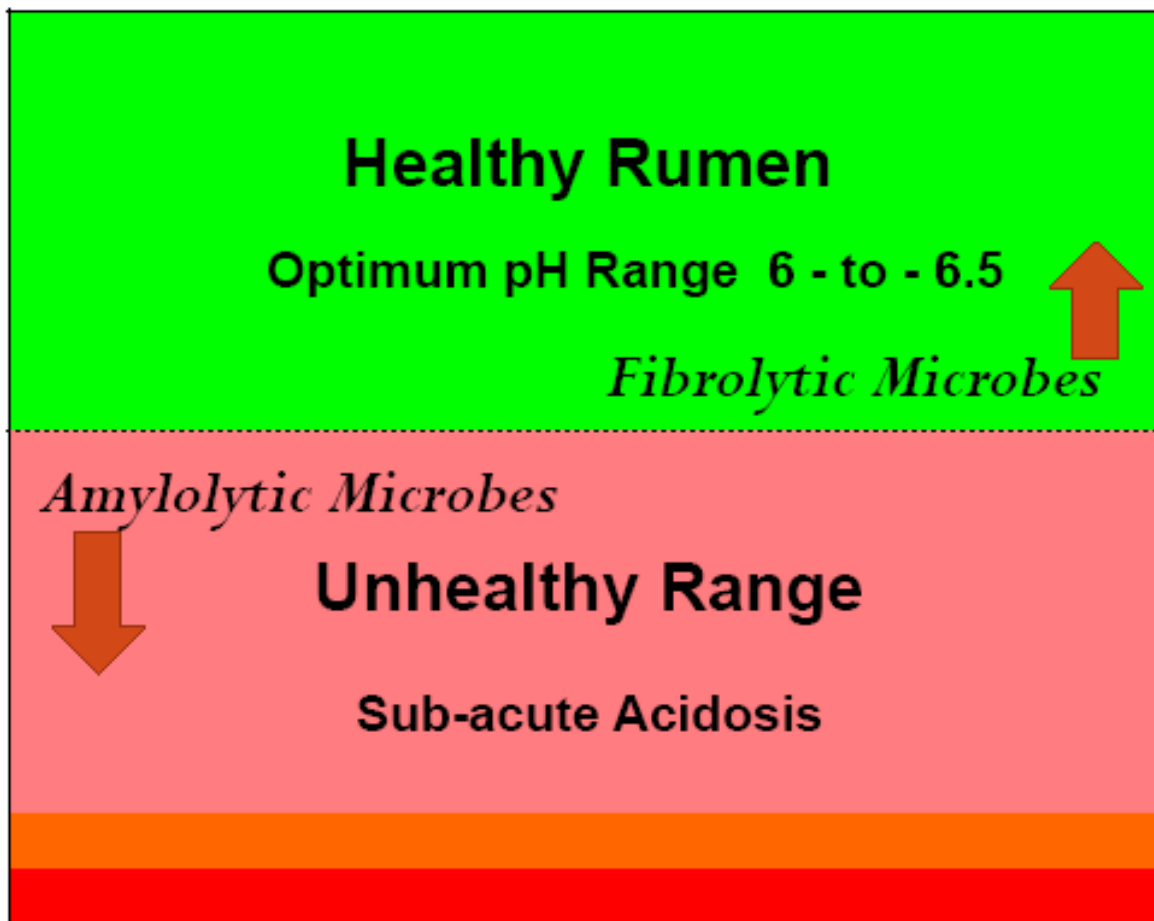
6 pH

Amylolytic Microbes

Unhealthy Range

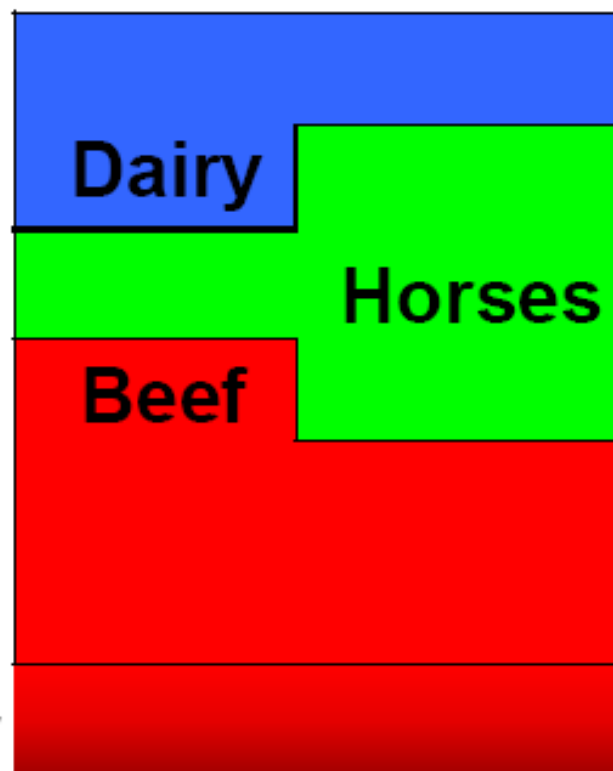
Sub-acute Acidosis

5 pH



Relative Feed Value

Prime	over 151
Premium	125 to 150
Good	103 to 124
Fair	87 to 102
Poor	86 to 75
Reject	74 and below





Save 25% of Your Hay



***Strategic use of Distillers Feeds
on Pasture and Range Land can
Improve Net Ethanol Energy Balance:***

Eight Fold -- 800% Gain

Plus it will also:

Improve Pasture Fertility

Improve Animal Health

	Energy	Rancher
	<i>Interests</i>	<i>Interests</i>

Hay Intake: Lbs / Cow / Day (maint.)	30	30
Savings with SweetPro "Distillers" tub	<u>25%</u>	<u>25%</u>
Hay Saved	7.5	7.5
Btu / Lb of Hay	<u>7,000</u>	<u>\$0.05</u>
Btu Saved/day @ 1/2 lb DDGS / lb of tub	52,500	\$0.38

Savings For Each Full Pound of DDGS	105,000	<i>Or trade for higher stocking rates --- More beef / acre</i>
Pounds of DDGS / Gal. Ethanol	<u>6</u>	
Btu Saved with RangeTubs/Gal. Ethanol	630,000	
Btu / Gal. Ethanol	76,000	

Net Energy Efficiency Factor **8.3**

Benefits of Improved Forage Feed Efficiency

Ranchers

Feeders

Nation (Consumers etc)



Benefits of Improved Forage Feed Efficiency

Ranchers:

Heavier Calves at Weaning

Better Condition on Cows

Fewer Days on Feed to Finish

New Options for Grass Fed Finish

Improved Animal Health

Improved Soil Fertility



Benefits of Improved Forage Feed Efficiency

Feeders:

Improved Animal Health

Fewer Days on Feed to Finish

Less Corn needed (400 lbs less)

Benefits of Improved Forage Feed Efficiency

Nation: (Consumers etc)

Improved Soil Fertility

New Options for Grass Fed Finish

Improved Animal Health

***** More CLA, Omega 3, Mineral Deposition***

Ethanol as a Byproduct

***** Option for Rangeland Ethanol Plants***

The End



SweetPro

PREMIUM FEED SUPPLEMENTS



PO Box 69
Walhalla, ND 58282
800-327-9222
www.sweetpro.com