

Sweet Corn Waste Where does it fit into Dairy Rations?

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Sweet Corn Waste – What is it?

- Three options
 - Sweet Corn Stalks
 - Sweet Corn Stalklage
 - Bypassed Acreage of Sweet Corn
 - Sweet Corn Silage
 - Corn-Canning Factory Waste
 - Sweet Corn Waste (SCW)

SCW

- Tops of plants
- Husks
- Cobs
- Culled ears
- Little corn ("grain")

SCW – Nutritional Value

- High moisture (20-25% DM)
- Low ADF, low starch
- High fiber content
- Low protein, low energy

What is the quality of SCW?

Dairy One	Avg (%)	Min (%)	Max (%)
DM	23.9		
CP	9.9		
ADF	36.3		
NEI	.55		
Starch	10.4		

Rock River	Avg (%)	Min (%)	Max (%)
DM	22.7		
CP	9.0		
ADF	33.3		
NEI			
Starch	12.6		

What is the quality of SCW?

Dairy One	Avg (%)	Min (%)	Max (%)
DM	23.9	11.5	36.2
CP	9.9	8.5	11.4
ADF	36.3	30.6	42.0
NEI	.55	.44	.65
Starch	10.4	3.0	17.9

Rock River	Avg (%)	Min (%)	Max (%)
DM	22.7	14.4	39.1
CP	9.0	6.1	12.1
ADF	33.3	22.5	43.7
NEI			
Starch	12.6	3.5	30.8

SCW in Dairy Rations

- Lactating Cow Ration - Challenges
 - Cows thrive on consistency
 - Limiting factor in most rations is energy
 - Space in diet is almost always limiting
 - Extra fiber in diet will limit intake
 - Fiber has less energy than grain
 - Anything that limits intake is a problem
 - DM levels
 - Smells / Taste

DMI vs. Diets High in Moisture Content

- 2001 NRC, page 7

- *“Published reports on the relationship between dietary dry matter content and DMI are conflicting and no optimum DM content of the diet for maximum DMI is apparent.”*
- Water per se does not limit DMI and because low pH and elevated organic acids are not a concern with WDGS, it does not seem likely that this product will adversely affect intake of dairy cows.

SCW in Dairy Rations

	Normal Diet	SCW Diet
Haylage	15.0	
Corn Silage	15.0	
Dry Corn	12.0	
SCW	0	
SBM (extra)	0	
Prot/Min	12.0	
- 90 lbs/day/cow, 3.5% BF		

SCW in Dairy Rations

	Normal Diet	SCW Diet
Haylage	15.0	11.2
Corn Silage	15.0	9.5
Dry Corn	12.0	13.2
SCW	0	7.2
SBM (extra)	0	1.0
Prot/Min	12.0	12.0
- 90 lbs/day/cow, 3.5% BF, Bucky Ration Evaluator		

SCW in Dairy Rations

	Current Feed Prices			
	Own Corn	Buy Corn		
Corn	\$80			
SBM48	\$220			
SCW	\$15			
Norm Diet	\$3.61			
SCW Diet	\$3.58			

SCW in Dairy Rations

	Current Feed Prices			
	Own Corn	Buy Corn		
Corn	\$80	\$130		
SBM48	\$220	\$220		
SCW	\$15	\$15		
Norm Diet	\$3.61	\$3.96		
SCW Diet	\$3.58	\$3.96		

SCW in Dairy Rations

	Current Feed Prices		\$4 Corn, \$300 SBM	
	Own Corn	Buy Corn	Own Corn	Buy Corn
Corn	\$80	\$130	\$80	
SBM48	\$220	\$220	\$300	
SCW	\$15	\$15	\$15	
Norm Diet	\$3.61	\$3.96	\$3.61	
SCW Diet	\$3.58	\$3.96	\$3.62	

SCW in Dairy Rations

	Current Feed Prices		\$4 Corn, \$300 SBM	
	Own Corn	Buy Corn	Own Corn	Buy Corn
Corn	\$80	\$130	\$80	\$155
SBM48	\$220	\$220	\$300	\$300
SCW	\$15	\$15	\$15	\$15
Norm Diet	\$3.61	\$3.96	\$3.61	\$4.14
SCW Diet	\$3.58	\$3.96	\$3.62	\$4.20

SCW in Dairy Rations

	Current Feed Prices		\$4 Corn, \$300 SBM	
	Own Corn	Buy Corn	Own Corn	Buy Corn
Corn	\$80	\$130	\$80	\$155
SBM48	\$220	\$220	\$300	\$300
SCW	\$15	\$15	\$15	\$15
SCW/cow	\$0.23/d	\$0.23/d	\$0.23/d	\$0.23/d
Norm Diet	\$3.61	\$3.96	\$3.61	\$4.14
SCW Diet	\$3.58	\$3.96	\$3.62	\$4.20

SCW in Dairy Heifer Rations

■ Heifers

- Small Heifers (<12 months)
 - Diets fairly dense
 - More sensitive to changes
- Large heifers (12-24 months)
 - "Earless Corn Silage", Zen Miller
 - "Feeding 12-24 month Heifers", Bob Kaiser
 - Limiting factor is high energy, protein levels
 - Need low energy, low protein, high volume product

SCW in Dairy Heifer Rations

Forage Cutter Needs in Thermal Neutral Enviroments (Fed 50:50 Ratio)

50:50 Ratio of Corn Silage to Alfalfa Silage

Weight	TDN Requirement	% of Dry Matter		
		Corn Silage TDN = 72	Alfalfa Silage TDN = 60	Cutter TDN = 48
300	68.0	50.0	50.0	Grain Needed
600	66.0	50.0	50.0	0.0
900	63.3	43.0	43.0	15.0
1200	62.3	39.0	39.0	22.0

Courtesy Bob Kaiser & Pat Hoffman

SCW in Dairy Heifer Rations

- Large Heifers
 - Need volume, cheap ingredient
 - Need low energy density
 - Fat heifers have more health problems
 - Moderate levels of protein
 - No mold or heated feeds

SCW in Rations

- Other animals
 - Dry cows
 - Low potassium, low energy (some rations)
 - Beef cattle
 - Still have fiber requirement
 - Others?

How to market SCW

- Think of what the buyer wants
 - Consistency
 - No heating
 - Bunker management

Tips to Prevent Heating



Tips to Prevent Heating



Tips to Prevent Heating



How to market SCW

- Think of what the buyer wants
 - Consistency
 - No heating
 - Bunker management
 - Use of Bunk Stabilizers
 - Buffered Propionic Acid
 - 60 hrs vs 30 hrs aerobic stability on CS (Kung, 2000)
 - \$.60-\$1.00/lb, at 4-6 lbs/ ton, \$2.50-\$6/ton
 - *Buchneri* Inoculant
 - About \$1.25/ton, will it work?

How to market SCW

- Think of what the buyer wants
 - Consistency
 - No heating
 - Price point
 - Target correct producer
 - Large dairies?
 - Heifer raisers

SCW for Dairy Rations

- Other Considerations
 - Permits for storage
 - Pesticides
 - Mixing with other ingredients
 - Soyhulls, dry distillers, corn stalks?
 - Trucking costs
 - Bringing animals to the feed
 - Store feed near animals