

10th Mid-Atlantic Dairy Grazing Conference

Economics of Integrating Corn Silage into Pasture-Based Dairies



Corn Silage Shrink is Hidden

Expected Dry Matter Losses of Corn Silage from Harvesting, Storage and Feeding

Corn Silage Moisture %	Harvest %	Storage %	Feeding %	Total %
>70%	4.0	13.7	4.0	21.7
60-69%	5.0	6.3	4.0	15.3
<60%	16.2	6.3	4.0	26.5

Source: Corn Silage Production, Management and Feeding, North Central Regional Extension Publication



2015 Corn Silage Production Costs

Operating Expenses	2015 Costs (\$/Acre)	\$/Ton (18 Ton Yield)
Seed	\$78.00	
Fertilizer	\$177.78	
Crop Protection	\$60.00	
Custom Hire	\$82.00	
Machinery Fuel	\$27.84	
Machinery Repairs	\$16.45	
Labor	\$25.02	
Other	\$15.05	
Total Operating Costs	\$482.14	\$26.79

2015 Corn Silage Production Costs

Ownership Expenses	2015 Costs (\$/Acre)	\$/Ton
Farm Business overhead	\$4.00	
Machinery overhead	\$25.25	
Machinery depreciation	\$31.39	
Real estate charge (rent ~ 3.33% of \$4,800/A land)	\$160.00	
Total Ownership Costs Per Acre	\$220.64	\$12.26

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2015 Corn Silage Production Costs

Corn Silage Costs Per Ton at Different Yields				
Category	Production Costs at different yields (as fed)			
	12 Tons/ Acre	18 Tons/ Acre	24 Tons/ Acre with 12" irrigation	30 Tons/ Acre with 12" irrigation
Operating Cost/ton	\$ 35.48	\$ 26.79	\$ 31.48	\$ 27.86
Ownership Costs/ton	\$ 25.72	\$ 12.26	\$ 12.86	\$ 10.29
Total Costs/ton	\$ 61.20	\$ 39.04	\$ 44.34	\$ 38.15

Silage Storage Costs

	Bunker Silo	Drive over pile	Plastic Bags
Annualized cost per ton for land & structure	\$ 8.98	\$ 2.75	\$ 2.44
Estimated Storage Dry Matter Loss	17%	18%	8%
Estimate Feedout Dry Matter Loss	3%	4%	3%
Total DM Loss	20%	22%	11%
Total \$/Ton silage coming out of storage	\$ 64.21	\$ 57.87	\$ 53.62
Total \$/D.M. Ton silage coming out of storage	\$183.47	\$165.36	\$153.21

Feeding Costs

Feed Wagon Assumptions

Feed Wagon Purchase Price: \$35,000 Salvage Value: \$10,000
Expected Years of Use: 10 years Daily usage: 1 hour per day

Feed Wagon Costs (per hour)

Hourly depreciation: $(\$35,000 - \$10,000) / 10 / 365 = \$6.84$ depreciation
Hourly interest cost $\$35,000 + \$10,000 / 2 * 6\% / 365 = \3.69 interest
Hourly repairs and maintenance $(\$35,000 + \$10,000) / 2 * 1.5\% / 365 = \0.92 R&M
Total cost per hour to run the feed wagon = \$11.45/hour

Cost to run feed wagon and tractor per hour

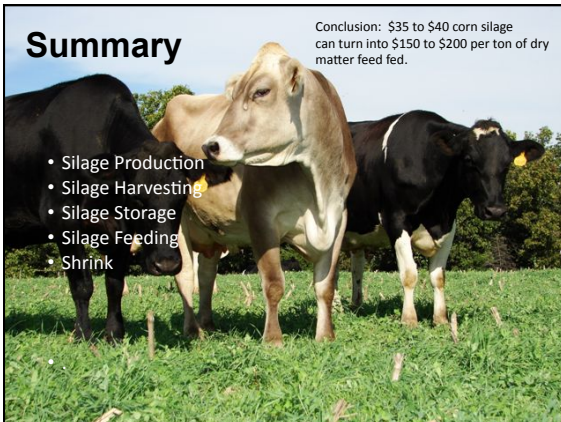
Tractor 105 HP \$34.86
Wagon \$11.45
Labor \$12.00
Total cost per hour \$58.31

Costs per Ton to Feed Corn Silage

Minutes to Feed	Tons of Corn Silage Delivered to Cows Per Feeding				
	4 tons/ feeding	6 tons/ feeding	8 tons/ feeding	10 tons/ feeding	12 tons/ feeding
15 minutes	\$3.64	\$2.43	\$1.82	\$1.46	\$1.21
30 minutes	\$7.29	\$4.86	\$3.64	\$2.92	\$2.43
45 minutes	\$10.93	\$7.29	\$5.47	\$4.37	\$3.64
60 minutes	\$14.58	\$9.72	\$7.29	\$5.83	\$4.86
75 minutes	\$18.22	\$12.15	\$9.11	\$7.29	\$6.07
90 minutes	\$21.87	\$14.58	\$10.93	\$8.75	\$7.29

Summary

Conclusion: \$35 to \$40 corn silage can turn into \$150 to \$200 per ton of dry matter feed fed.



- Silage Production
- Silage Harvesting
- Silage Storage
- Silage Feeding
- Shrink