

Calculating YOUR CARBON Footprint

Based on the current Ontario farm diesel prices, the following comparison indicates the potential energy savings provided by **(2)Harvestore structures** powered by **(2) 30 hp XL 400** unloaders versus a **JD 544J pay loader rated at 167 hp** for loading the haylage and corn silage estimated at (1 hour daily.) required to feed a 140 cow dairy.

Bunker Storage

Average rate of fuel consumption for year round operation of a diesel tractor is rated at .048 gal (US)/hp/hr (18.2 litres/hr) < Applied Engineering in Agriculture> Vol. 20(5):533-561

Example assumes a reduced workload @75% of normal year round average power requirements.

$167 \text{ hp} \times .036 \times 3.785 = 22.8 \text{ l/hp/hr} \times 365 \text{ days} = 8,322 \text{ litres @ } 1.02 \text{ ¢ /litre}^* = \$8,488 \text{ annually}$

*ONTARIO FARM INPUT MONITORING PROJECT SURVEY Oct 5, 2011 Univ.of Guelph Ridgetown

Based on a 15 year life cycle and no increases in the price of fuel higher than the current prices >

$$15 \times \$ 8,488 = \$ 127,326$$

Surveys indicate that total lubrication costs on most farms average about 15 percent of fuel costs.

$$\$127,326 \times 15\% = \underline{\$19,098}$$

Total Energy costs feed out of bunkers (15 years) \$146,424 or \$9 762 annually

Harvestore Storage

Comparison(2)XL unloaders)

(A)Haylage 3 tonnes /daily : XL 400 unloading @400 lbs/min = 17 minutes run time.

(B)Corn Silage 1.65 tonnes/daily XL 400 @ 450 lbs/min = 8 minutes run time.

(A) $30 \text{ hp} \times 0.7457 \text{ kw} \times .28 \text{ hours/day} = 6.3 \text{ kwh/day} \times 365 = 2,310 \text{ kW} \times 0.14 = \323 annually

(B) $30 \text{ hp} \times 0.7457 \text{ kw} \times .13 \text{ hours/day} = 2.91 \text{ kwh/day} \times 365 = 1,062 \text{ kW} \times 0.14 = \underline{\$149 \text{ annually}}$

Total Energy costs feed out of Harvestores (15 years) \$ 7,080 or \$472 annually