

# MANURE VALUE, COST AND TIME MANAGEMENT CALCULATOR

## DATA COLLECTION WORKSHEET

### Fertilizer Replacement Value

- Manure analysis (% , lb/gal, or lb/ton of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O).
- Crop requirements (lb/acre of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O).
- Value of fertilizer (\$/lb of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O).
- Field size (acres).
- Application rates (gal/acre or ton/acre).
- Spreader capacity (gal or ton).
- Operating costs: fuel price, hourly labor costs.
- Fuel efficiencies: average equipment speed (miles/h for hauling; acres/h for application and incorporation), fuel consumption (gal/h).

### Whole Farm Cost

- Total manure to spread for the entire year (gal or ton).
- Total acres on which manure is spread and/or incorporated.
- Total hours required to haul, spread, and incorporate manure.
- Capital costs: purchase and salvage values of equipment, lifespan, age, repair costs; % of capital cost used by the business, equipment insurance cost, value of insured equipment.

### Information Taken from Other Sheets

- Fuel efficiency (Fertilizer Replacement Value, Section (5)).

### Export

- Field size (acres)
- Application rate (gal/acre or ton/acre, same units as in Fertilizer Replacement Value).
- Distance from source (miles, one-way).
- Crop needs (lbs/acre of N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O).

### Information Taken from Other Sheets

- Manure analysis and density (Fertilizer Replacement Value, Section (1)).
- Fertilizer values and application cost (Fertilizer Replacement Value, Section (2)).
- Application units (Fertilizer Replacement Value, Section (4)).
- Spreader capacity (Fertilizer Replacement Value, Section (4)).
- Hauling speed (Fertilizer Replacement Value, Section (5)).
- Total gallons of manure to spread (Whole Farm Manure Costs).
- Total hours to spread manure (Whole Farm Manure Costs).

- Total per hour costs for spreading and incorporation (Whole Farm Manure Costs).
- Total equipment and machinery ownership costs (Whole Farm Manure Costs)

#### Time

- Total loads of manure hauled or spread.
- Time for each hauling trip (hours).
- Speed of spreaders (loads/hr).

Note: you should distinguish between different tasks or days of work based on different hauling distances, rates, etc.

## Fertilizer Replacement Value Sheet

### (1) Manure Nutrient Content (you will need an up-to-date manure analysis).

Animal Species (circle)	Cows	Poultry	Swine	Horses	Sheep
Units (circle)	%	lbs/ton	lbs/1000 gallons		
Ammonium-N					
Organic-N					
P <sub>2</sub> O <sub>5</sub>					
K <sub>2</sub> O					
Total Solids					
Density					

### (2) Current Fertilizer Costs

N (\$/lb)	
P <sub>2</sub> O <sub>5</sub> (\$/lb)	
K <sub>2</sub> O (\$/lb)	
Application (\$/acre)	

### (3) Crop Needs

N (lbs/acre)	
P <sub>2</sub> O <sub>5</sub> (lbs/acre)	
K <sub>2</sub> O (lbs/acre)	

### (4) Manure Application

Units (circle)	Pounds	Gallons
Application Rate		
Method & Timing		
Spreader Capacity		

**(5) Operating costs and fuel efficiencies**

<b>Loading:</b>	
Fuel cost (\$/gallon)	
Labor cost (\$/hour)	
Loading time (min/load)	
Fuel efficiency (gal/hr)	
<b>Hauling:</b>	
Fuel cost (\$/gallon)	
Labor cost (\$/hour)	
Speed (miles/hour)	
Fuel efficiency (gal/hr)	
<b>Application:</b>	
Fuel cost (\$/gallon)	
Labor cost (\$/hour)	
Speed (acres/hour)	
Fuel efficiency (gal/hr)	
<b>Incorporation:</b>	
Fuel cost (\$/gallon)	
Labor cost (\$/hour)	
Speed (acres/hour)	
Fuel efficiency (gal/hr)	

## Whole Farm Costs Sheet

### (1) Farm Manure Use

<b>Units</b> (circle)	Gallons	Tons
<b>Total Manure</b>		

### (2) Manure Spreading

<b>Total Manured Acres</b> (acres)	
<b>Total Hours to Spread</b> (hours)	

### (3) Manure Incorporation (if operated separately from manure spreading)

<b>Total Incorporated Acres</b> (acres)	
<b>Total Machinery Hours</b> (hours)	

### (4) Capital Costs

Equipment name	Manure handling % Time	Purchase cost (\$)	Salvage value (\$)	Lifespan (years)	Current age (years)	Annual repair and maintenance (\$)

## Export Sheet

### (1) Characterize Exports

<b>Application Rate</b>	
<b>Distance one way from source</b>	

### (2) Export Crop Nutrient Needs

<b>N (lbs/acre)</b>	
<b>P<sub>2</sub>O<sub>5</sub> (lbs/acre)</b>	
<b>K<sub>2</sub>O (lbs/acre)</b>	

## Time Sheet

### (1) Time Record Sheet

Number of loads	Hauling How many power components?	Loading and hauling roundtrip time (hours)	Application How many power components?	Application speed (loads/hour)