

## Worksheet I - "How Far Can You Afford to Haul Manure?"

### 1. Calculate the nutrient content and value per unit of your manure.

A "unit" is either a 1000 gallons (liquid/slurry) or a ton (solid/semi-solid).

From Manure Analysis	Manure Type: <input style="width: 100px;" type="text"/>	Availability Factor*	Available Nutrients (lbs/unit)	Fertilizer Equivalent Value** (\$/lb)	Value Per Unit (\$/unit)
Ammonia-N	<input style="width: 80px;" type="text"/>	x	<input style="width: 80px;" type="text"/>	x	<input style="width: 80px;" type="text"/>
Organic-N	<input style="width: 80px;" type="text"/>	x	<input style="width: 80px;" type="text"/>	x	<input style="width: 80px;" type="text"/>
P <sub>2</sub> O <sub>5</sub>	<input style="width: 80px;" type="text"/>	x	1.00	x	<input style="width: 80px;" type="text"/>
K <sub>2</sub> O	<input style="width: 80px;" type="text"/>	x	1.00	x	<input style="width: 80px;" type="text"/>
Total Value (\$/unit)					<input style="width: 80px;" type="text"/>

\*Refer to Tables on back to determine N availability  
 \*\*See Worksheet II on back

### EXAMPLE

From Manure Analysis	Manure Type: <input style="width: 100px; border: 1px solid black;" type="text" value="Liquid"/>	Availability Factor	Available Nutrients (lbs/unit)	Fertilizer Equivalent Value (\$/lb)	Value Per Unit (\$/unit)
Ammonia-N	12.0	x	0.70	x	5.46
Organic-N	13.0	x	0.36	x	3.04
P <sub>2</sub> O <sub>5</sub>	8.0	x	1.00	x	4.96
K <sub>2</sub> O	20.0	x	1.00	x	10.00
Total Value (\$/unit)					\$23.46

### 2. Calculate the cost per mile per unit to haul your manure.

This cost is per one-way mile to haul the manure but does account for the return trip.

Spreading Cost (\$/hr)	÷	Average Speed* (mph)	=	\$/mile	÷	Load Capacity (units)	x 2 =	Hauling Cost (\$/mile/unit)
<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>

\* Average speed of loaded to field and unloaded for return trip.

### EXAMPLE

Spreading Cost (\$/hr)	÷	Average Speed* (mph)	=	\$/mile	÷	Load Capacity (units)	x 2 =	Hauling Cost (\$/mile/unit)
\$110.00		15		\$7.33		5.2		\$2.82

### 3. Calculate breakeven distance.

(How far you can travel one-way and breakeven on costs.)

Total Value (\$/unit)	÷	Hauling Cost (\$/mile/unit)	=	Breakeven Distance (miles)
<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>

<b>EXAMPLE</b>	Total Value (\$/unit)	÷	Hauling Cost (\$/mile/unit)	=	Breakeven Distance (miles)
	\$23.46		\$2.82		8.3

### 4. Calculate breakeven travel time.

(How long can you travel one-way and breakeven on costs.)

Breakeven Distance (miles)	÷	Average Speed (mph)	x 60 =	Breakeven Travel Time (minutes)
<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>		<input style="width: 80px;" type="text"/>

<b>EXAMPLE</b>	Breakeven Distance (miles)	÷	Average Speed (mph)	x 60 =	Breakeven Travel Time (minutes)
	8.3		15		33

## Worksheet II - Calculating Fertilizer Nutrient Value

### 1. Calculate the value of nitrogen (N) per pound using urea

Urea analysis: 46-0-0 (920 lbs N per ton)

Fertilizer			EXAMPLE		
Cost (\$/ton)	lbs N per ton	N Value (\$/lb)	Fertilizer Cost (\$/ton)	lbs N per ton	N Value (\$/lb)
[ ]	920	= [ ]	\$600	920	= \$0.65

### 2. Calculate the value of phosphate (P<sub>2</sub>O<sub>5</sub>) per pound using MAP

MAP analysis: 12-52-0 (240 lbs N and 1040 lbs of P<sub>2</sub>O<sub>5</sub> per ton)

Fertilizer Cost (\$/ton)	lbs N per ton	N Value (Step 1.) (\$/lb)	Value of P2O5 per ton	lbs P2O5 per ton	P2O5 Value (\$/lb)
[ ]	240	x [ ]	= [ ]	1040	= [ ]

#### EXAMPLE

Fertilizer Cost (\$/ton)	lbs N per ton	N Value (Step 1.) (\$/lb)	Value of P2O5 per ton	lbs P2O5 per ton	P2O5 Value (\$/lb)
\$800	240	x \$0.65	= \$643	1040	= \$0.62

### 3. Calculate the value of potash (K<sub>2</sub>O) per pound using muriate of potash

Muriate of Potash analysis: 0-0-60 (1200 lbs K<sub>2</sub>O per ton)

Fertilizer			EXAMPLE		
Cost (\$/ton)	lbs K2O per ton	K2O Value (\$/lb)	Fertilizer Cost (\$/ton)	lbs K2O per ton	K2O Value (\$/lb)
[ ]	1200	= [ ]	\$600	1200	= \$0.50

Organic-N Availability*		
(In First Year)		
Percent Dry Matter of Manure	Soil Drainage Class	Availability Factor
< 20%	Well Drained - tilled in	0.36
< 20%	Poorly drain - tilled in	0.24
< 20%	Well Dr. - surface appl	0.24
< 20%	Prly. Dr. - surface appl	0.16
> 20%	Well Drained - tilled in	0.30
> 20%	Poorly drain - tilled in	0.20
> 20%	Well Dr. - surface appl	0.20
> 20%	Prly. Dr. - surface appl	0.14

\* Source: Nutrient Recommendations for Field Crops in Vermont (W. Jokela), Un. of Vermont

Ammonia-N (NH <sub>4</sub> -N) Availability*		
Season of Spreading	Days From Spreading To Incorporation	Availability Factor
Spring	< 1 hr	0.80
Spring	1 to 8 hrs.	0.70
Spring	1 day	0.55
Spring	2 days	0.50
Spring	3 to 4 days	0.45
Spring	> 4 days	0.40
Spring	Unincorporated	0.40
Fall	Within 2 days	0.30
Fall	Unincorporated	0.15