



Nutrient Management

Contracting certified manure haulers

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<http://nutrient.psu.edu/>

websites & other resources for nutrient management



Topics include:

- Advantages
- Disadvantages
- Alternatives to hiring certified haulers
- Economic evaluation
- Producer checklist

INTRODUCTION

Contracting services for livestock operations has gained acceptance and popularity for the past decade. Environmental concerns and regulations continue to be part of animal agriculture and involve proper nutrient management practices, intense record keeping, and diligence by the farm owner. Contract manure hauling offers several opportunities to producers.

ADVANTAGES

Depending on the farm's size, number of acres, and the field distance from the manure storage unit, the time and labor involved in spreading manure can be substantial. Hiring a custom operator allows better utilization of the farm labor force. Focusing farm labor on production related jobs such as heat detection, transition cow management, or calf care has the potential to generate more farm income than spreading manure.

State regulations are increasing and becoming more complex. Hiring an operator certified in manure application can minimize errors in nutrient application rates and procedures. Certified haulers are updated on the specifics of nutrient management plans based on nitrogen or phosphorus application, planned spreading periods, and the exportation of manure.

Hiring a certified hauler to handle manure can reduce producer liability associated with accidents. Haulers normally have contingency plans for

Contracting custom haulers to apply manure allows the producer to focus more time on other operational areas that potentially can generate more revenue. This fact sheet will address the advantages and disadvantages of contracting and it will evaluate the direct and opportunity cost benefits to the individual producer.

manure spills and carry their own insurance. When hiring a manure contractor, the producer should inquire, and be comfortable with, the applicator's insurance coverage.

Contract haulers often have equipment that is better suited for fast loading and unloading of manure. Their sole focus is handling manure, allowing them to complete the task more efficiently compared to the producer. When a custom hauler is hired, the producer has no investment or maintenance of expensive equipment.

Contract manure application can also lead to greater crop production. Floation tires are often available to minimize soil compaction in the field. Professional applicators are also more likely to apply manure evenly on the field and at the rate recommended for efficient nutrient use and maximum crop yield. Even application based on planned rates can optimize nutrient availability to the crops.

DISADVANTAGES

There is the risk of disease introduction associated with hiring custom labor. Consideration to biosecurity practices is necessary because many diseases are spread via fecal – oral contamination. Improper sanitation from one farm to another has the potential for spreading Johnes, Salmonella, and other diseases. It is imperative that all outside surfaces of manure hauling equipment be sanitized before arriving onto a new farm. Realistically, it is unlikely that the interior of the tank can be thoroughly sanitized.

The timing of manure application is often critical to scheduled planting or crop growth. Weather and commitments to other clients may prevent the hauler from applying manure within desired timeframes.

The kind of tires used on the hauling equipment could be an issue. If the tire pressure and diameter size are not appropriate for the load being hauled, then yield reducing soil compaction may occur. Compaction is a concern when soils are wet, because wet soils compact easily.

ALTERNATIVES TO HIRING CERTIFIED HAULERS

Hiring custom manure haulers is not the only choice for handling and spreading manure. Employing short-term labor to work with the farm's own equipment is a viable option. The producer can also hire the temporary labor and rent/lease the necessary equipment for the period of time it is needed. These scenarios could be attractive to the smaller sized farm where labor is an issue. It also provides the opportunity to eliminate expensive equipment and their associated costs.

There are several challenges with hiring short-term labor. It may be difficult to find a reliable and qualified person. The producer may spend extra time developing standard operating procedures and schedules for the hired labor.

ECONOMIC EVALUATION

There can be considerable economic advantages in hiring a custom manure hauler, especially to the smaller producer. As with any decision concerning the hiring of a custom operator, there are numerous variables that must be taken into account. The more important of these are the direct costs associated with owning and maintaining the equipment required to haul and spread manure. Commonly, manure-handling equipment is used infrequently, sometimes only once or twice a year. These costs can add up quickly, especially ownership costs, which consist of depreciation and interest.

In addition, the opportunity costs for the producer who hauls manure can accumulate. Opportunity costs are the benefits that are foregone if money were invested elsewhere. Interest income is a good example.

To illustrate the direct and opportunity costs that accompany manure hauling/spreading, let's consider the following example.

Example: Farmer Green is considering whether to hire a custom manure hauler. The operation consists of 100 lactating dairy cows. Currently the producer owns the following manure

The owner will be liable for any accidents or problems that are incurred by the employee.

In the scenario where the producer owns the farm equipment and just hires the labor, expenses related to fuel, oil, repairs, housing, etc. would still exist for the producer. This may not be as economically advantageous as contracting both labor and equipment.

Renting or leasing equipment could be an economic alternative. Several equipment dealers and county conservation districts offer manure application equipment rental services. The challenge to producers is they will be subject to variations in equipment availability. This can be influenced by weather and supply shortages can occur during times of high demand.

handling equipment: tractor (150 Hp), pump, and a tank spreader (4000 gallons).

To make an informed decision, a producer should compile a list of all the fixed and variable costs incurred by owning the equipment and providing the necessary labor. A comparison can be made between the producer costs versus the expense of hiring a custom manure hauler for the current year.

Farmer Green's fixed costs consist of depreciation, interest, and housing for the equipment. Variable costs include labor, fuel, oil, repairs, and interest on both the fixed and variable costs. It can be difficult to determine the exact depreciation, housing, fuel, oil, and repair expenses to allocate for the tractor used to haul manure. A simple solution is to calculate annual expenses and multiply those figures by the percentage of the time the tractor was used to haul manure.

The cost to Farmer Green of hiring a custom manure hauler is the hourly rate multiplied by the number of hours required to complete the job. An interest charge on this value needs to be included as well as an opportunity cost.

ECONOMIC EVALUATION, CONT.

**Table 1:
Direct Costs Associated with Manure Hauling:
by the Producer vs. Hiring a Custom Hauler**

Example: 100 lactating Holstein dairy cows
616,850 gallons of manure annually

Producer		Custom Hauler	
Expenses	Value	Expenses	Value
Labor	\$361.90	Hauler fee (\$/hr)	\$69.00
Fuel & Oil	\$579.98	Hours	41
M & E Repairs	\$206.73	Interest	\$198.03
M & E Depreciation	\$1,791.27		
M & E Housing	\$302.04		
Interest	\$812.93		
Total Cost	\$4,054.85	Total Cost	\$3,027.03

Note: Example uses a pull tank of 4,000 gallons owned by the producer and the contract hauler uses costs for a 5,000-gallon truck.

Figure 1. Hauler and Equipment Costs

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|---|--|---|
| <i>Contract hauler – truck</i> - 5,000 gallons
\$56/hr to haul plus \$13/hr to pump* = \$69/hr | | <i>Contract hauler – tractor with pull tank</i> - 6,300 gallons
\$90/hr to haul plus \$13/hr to pump* = \$103/hr |
|---|--|---|

*Sand bedding will increase pump costs by 33% or an average of \$17.30/hr.
- 100 lactating cow producer* – 4,000 gallons (representative whether the producer uses a truck or tractor)
Equipment costs: Spreader, \$17,000 for behind tractor tank
Pump, \$7,000
Tractor, 150 HP, \$90,000
- Rental costs:
\$7/load and \$10 per day for a 5,250-gallon tractor pulled tank. This does not include a price for pump rental.

Source: Personal communication with equipment dealers and manure haulers, June 2002.

A comparison of the costs to haul and spread manure by the owner versus hiring a custom hauler is shown in Table 1. Outlined in Figure 1 are typical equipment costs and current industry prices charged by contract haulers.

Table 1 illustrates that Farmer Green would save \$1,027.82 this year if a custom hauler was hired to spread manure rather than the producer performing the task. In this example, it is

assumed that the tractor, pump and spreader are each eight years old. As the machinery and equipment ages, repair expenses (and related interest) will increase, further adding to the cost of spreading manure. Depending on the age and condition of the equipment, Farmer Green could acquire additional income from the sale of the manure pump and spreader.

ECONOMIC EVALUATION, CONT

The interest expense represents the opportunity cost to Farmer Green for the year. In this example, a 7% interest rate was used, however this can be modified. Farmer Green could have invested the money used for the other hauling expenses, (labor, repairs, etc.) and earned \$812.93 in one year.

The money saved by hiring a custom hauler can be used to improve the dairy's efficiency and profitability. For instance, Farmer Green could use the savings to allocate more of his or

an employee's time to heat detection. The savings acquired from using a custom operator can be diverted to other areas in the operation, potentially generating greater savings and increased efficiency and profitability.

An interactive spreadsheet for calculating manure handling costs can be found on Penn State's Farm Management website at: <http://farmmanagement.aers.psu.edu/> and by clicking on manure hauling economics.

PRODUCER CHECKLIST

The following checklist contains items a producer should cover with custom haulers.

1. What is the dollar charge per hour?
2. What is the total price estimate?
3. What is the record keeping system?
4. What is the term for payment?
5. What is the insurance coverage?
6. What protocols are followed to minimize disease introduction to the farm?
7. What assurances can the contractor give to scheduling manure hauling at critical times of the year?
8. Review the nutrient management plan.
 - a. Application rates
 - b. Timing of application
 - c. Crop rotation
 - d. Annual manure production
 - e. Sensitive areas
 - f. Set backs
 - g. Field boundaries
 - h. Well locations
 - i. Neighbor boundaries

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