
MANURE VALUE, COST AND TIME MANAGEMENT

GLOSSARY

Age of equipment: is the number in years that the equipment has been owned. The first year of ownership is year “1”.

Ammonium – N: (NH_4^+) is an inorganic form of nitrogen found in soils, fertilizer and manure. Ammonium - N can be lost to the atmosphere by volatilization.

Application: is the act of applying the manure to the land.

As-applied value: is the fertilizer replacement value of manure discounting N lost through volatilization and excess N applied; however, all future organic-N and excess P_2O_5 and K_2O are credited for current and future crops. This value can be realized through the use of application management decisions that credit past manure applications and take into account soil test results.

Break-even: is the production point at which the variable (or operating) cost of production is equal to the value of production.

Clock hours: is the total amount of time that a task requires. The clock hours may be different from machinery or labor hours as multiple machines and people may be working on a task at the same time.

Cost of capital: is the annual rate of return expected on an alternative investment with a similar risk. The Cost of Capital is used to

calculate the annual interest on equity charge.

Currently needed value: is the fertilizer replacement value of manure when only current crop N, P_2O_5 and K_2O needs are credited (no value is credited for potential future needs).

Density: in the context of this spreadsheet, is the weight in lbs of one gallon of manure. The default density is the density of water, 8.34 lbs per gallon. This value is commonly found on a manure analysis report.

Depreciation: is a way to allocate the cost of a capital asset over the period that the asset is used in the business. The annual depreciation in this spreadsheet is calculated by dividing the purchase less salvage costs by the equipment lifespan.

Equipment lifespan: is the time in years between equipment purchase and sale or scrap.

Field efficiency factor: is the percentage of the theoretical field work accomplished after deducting for efficiency losses due to turning, overlap and other minor work stoppages. The field efficiency factor will depend on the shape of the field, the crop, machinery size, etc.

Fuel efficiency: is the number of gallons of fuel needed to perform the designated task (loading, hauling, spreading, or incorporating) for one hour.

Hauling: is the act of moving the manure from the storage or barn to the fields. Hauling time is considered to be from the point that the manure is loaded into the spreader, truck or tanker to the point that it is unloaded at the field or satellite storage area and time spent returning to the source, excluding time spent applying the manure to the field.

Incorporation: is the act of mixing soil and manure to limit odor and nitrogen loss. Incorporation can be done simultaneously with manure application or manure can be plowed or disked into soil following application.

Inorganic nitrogen: is the ammonium form of nitrogen and represents most of the N present in chemical fertilizers and 50% or more of the N in manure.

Insurance: is the cost of purchasing risk management policies for capital assets.

Interest on equity: is an annual charge against the amount of capital that is invested in the manure handling enterprise and is used to estimate the opportunity cost of owning the manure management equipment instead of some alternative investment. The interest on equity is calculated as the undepreciated value of the investment multiplied by the annual cost of capital.

Loading: is the act of moving the manure from the source (storage or barn) area to the manure spreader. In the context of this spreadsheet, spreading directly from the storage to fields via draghose or irrigation would not include any loading time or expense.

Manure analysis: is a laboratory analysis of the nutrient components in a manure sample. At the very least a manure analysis should report; percent Total N, percent ammonium-

N, percent phosphorus (P), percent potassium (K) and percent solids.

Manure application rate: is the amount of manure applied per acre. This is usually measured in tons or gallons.

Manure application method: describes how quickly manure is incorporated into the soil after it is applied. This information is necessary to estimate the inorganic N credit from the manure.

Manure application timing: describes the time of year manure is applied and together with manure application method is used to estimate the correct amount of inorganic N to credit from the manure.

Net: is the difference between the value (income or worth) and cost (expense).

Nitrogen: is a soil and plant mobile, essential macro-nutrient for plant growth. It is used within amino acids that build proteins, protoplasm, alkaloids and hormones. It is also used in chlorophyll. The forms preferred for plant uptake are nitrate (NO_3^-) and ammonium (NH_4^+). It is the nutrient that most-often limits productivity in cultivated cropping systems.

Nitrogen credit: is a fertilizer equivalent credit of nitrogen given to corn crops from soil, manure applications, a managed sod or soybean crop and sometimes a plowed down cover crop.

Operating costs: are those farm costs that change proportionally with a change in production level. Farm costs are separated into two categories: operating (or variable) and ownership (capital or fixed).

Organic N or Organic nitrogen or O-N: is the nitrogen combined in organic molecules such as proteins, amines, and amino acids.

Ownership costs: are those farm costs that are “fixed” and do not change with a change in production level. These costs are also called “Capital”, “Fixed” or “Overhead” costs. Examples include depreciation, interest, insurance, and taxes.

Purchase cost: is the total cost of equipment investments including taxes, service and transportation charges.

Repairs and maintenance: include routine maintenance, variable repairs and fixed repairs. Cost of equipment housing can also be included in repairs and maintenance cost.

Salvage value: is the amount the machinery investment could be sold for at the end of the ownership period.

Spreader capacity: is the actual holding capacity in gallons or tons of the manure spreader accounting for foaming, head space, mounding and other factors.

Total solids: is the dry matter content on a percentage basis of manure. This value is commonly found on a manure analysis report.

For more information:

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