



SEASONAL AND CLIMATIC CONSIDERATIONS FOR SPREADER RENTAL

SEASONAL RAINFALL

The best time to spread manure and fertilizers is at least a few days after a heavy rainfall event.

Nutrient Leaching

Certain nutrients like nitrate-nitrogen, sulfate-sulfur, boron, and manganese in particular are very mobile in the soil, which means they are not adhered strongly to soil particles. These nutrients will be taken away with rainwater droplets that hit the ground. Rainwater will either travel down the soil profile in a process called leaching, and when this happens it will take these nutrients with it. When the nutrients travel below the root zone of the plant, they are no longer available.

Soil and Nutrient Erosion

Certain nutrients like phosphorus that are immobile in the soil, which means they are strongly adhered to soil particles, still have the potential of leaving through another process called erosion. Rainwater travels across the soil surface if it cannot penetrate through, and when this happens it will take soil and the nutrients in the soil with it and deposit it somewhere else downstream.

SOIL MOISTURE AND SOIL TEMPERATURE

The best time to spread manure and fertilizers is when the soil moisture and soil temperatures are in the optimal range.

Soil Microbial Activity

Soil microbial life is most active when the soil moisture and soil temperatures are in the optimal range. They are the powerhouse that breaks down organic materials into organic matter and plant available forms of nutrients. Only a small percentage of the nutrients in manure (about 30-50% depending on the type of livestock) are plant available when they hit the ground. Soil microbes are responsible for the rest of the work of turning nutrients into forms that plants can uptake. When the soil moisture is low and soil temperatures are too low or too high, soil microbial activity decreases or comes to a pause until conditions are optimal.

Field Capacity

Field Capacity is the amount of soil moisture or water content held in the soil after excess water has drained away and the rate of downward movement has decreased. This usually takes place 2–3 days after heavy rainfall or irrigation in well-draining or non-compacted soils. At or just below field capacity is the best soil moisture for optimal plant growth and uptake of nutrients in manure and fertilizers.

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PLANT GROWTH

The best time to spread manure and fertilizers is when you have actively growing plants that are often in a vegetative growth phase.

Actively Growing Plant Roots

Forage plants need to be at least 4-6 inches in height in order to have enough of an established root mass to uptake nutrients. For other crops, we can incorporate manure and fertilizers at the time of prepping the soil for transplanting or seeding. To minimize the effects of nutrient leaching and run off, we apply multiple small applications of fertilizers over the growing season.

Dormancy

The dormant stage of a forage plant or a perennial crop is when the plant is not actively growing. At a minimum, we can expect that plants are dormant in November, December, and January. Starting sometime in February, March or April, when the soil temperatures warm up and soil moisture levels are consistently below field capacity for several days, plants begin to grow again.

If you are not irrigating your hay or pasture fields, you can expect to see limited to no growth in July and August when the soil temperatures are too high and soil moisture levels are too low.

