

Does manure contain enough boron?

- Animal manures contain varying concentrations of most plant nutrients.
- The average boron content of animal manure is 0.03 lbs/ton.
- Assuming an application rate of 10 tons/acre, the resulting boron rate of 0.3 lbs/acre may not be sufficient for high-boron requiring crops, such as alfalfa.
- Supplemental boron applications should be based on yield goals for the specific crop and on results of soil tests and/or plant analyses.

Animal manure is a good source of organic matter for crops and can contribute a significant amount of nitrogen (5 lbs/ton), phosphorus (3 lbs/ton) and potassium (5 lbs/ton). However, on average, farmyard manure contains only 0.03 lbs of boron (B) per ton. Nutrient content should be determined by testing the manure.

Normal rates of manure do not usually exceed 10 tons per acre. Assuming that all of the boron in the manure would be available to plants, 10 tons of manure would supply only 0.3 lbs of boron. This rate of boron per year will not supply alfalfa and other crops with their total boron requirements.

The boron content of manure may be even lower. Early studies in Connecticut showed that a ton of mixed cattle manure might contain only 0.006 lbs of boron, or only one-tenth as much boron as is in a ton of alfalfa hay. Poultry manure contained as little as 0.01 lbs of boron per ton.

In a long-running series of alfalfa experiments in Storrs, Connecticut, stable manure applied at 10 tons per acre annually reduced the prevalence of boron deficiency only slightly, as shown by soil and plant tissue test results.

Treated poultry litter may be an exception

Untreated poultry manure contains about the same amount of B as other manures, but in some cases, boron materials are applied to poultry manure for control of insects. Based on the maximum rate of B applied and manure produced, boron-treated poultry manure will normally contain approximately 0.7 lbs of boron per ton.

If it is assumed that all of the B in the manure is available to plants, 4 tons of poultry manure (the average application rate) would supply 2.8 lbs of boron. This rate of boron per year would meet most crop needs. Unboronated poultry manure, however, contains only about 0.03 lbs of boron per ton and the 4-ton rate would not supply crop needs.

Boron analyses of liquid waste management systems by Dr. Mark Flock of Brookside Laboratories, Inc. showed an average of 0.04 lbs of boron per 1,000 gallons of hog and dairy waste. This translates to 0.01 lbs of boron per ton of liquid manure and 0.06 lbs of boron per ton of fresh hog, poultry and dairy manure (wet basis). Again, these levels of boron would not be sufficient to supply most crop needs.