

Micronutrients, when does it pay to apply them?

NEWARK, Dela. — Increased cost of production is forcing farmers to strive for maximum yields with the greatest possible efficiency.

This means identifying and eliminating every limiting factor. Micronutrient needs of crops are one area of concern for farmers trying to boost yields without excessive costs.

Micronutrients like boron, manganese, zinc and copper are just as essential to plants as nitrogen or phosphorus, but they're needed in much smaller amounts — usually 1 or 2 per acre, or not much more than a handful.

Because so little is used, the likelihood of deficiencies is much less than for the so-called major nutrients, which are applied in much greater quantities, says University of Delaware extension soil specialist Leo Cotnoir.

Boron has received the most attention in recent years. Two pounds per acre of actual boron is routinely recommended for high boron requiring crops like alfalfa. Cauliflower, asparagus, cabbage and tomatoes have moderate requirements. One to two pounds per acre should be applied to these high cash value crops.

The most convenient was to apply boron is by mixing in the proper amount with your other fertilizer. How much you add will depend on the rate at which you expect to use the other fertilizer.

Does it pay to apply boron to corn? This crop has a low boron requirement.

Currently available soil tests have a very poor track record when it comes to predicting crop response to added boron. Plant analyses do a little better, but they're far from infallible. And by the time a boron deficiency is determined, it's too late to do anything about it.

Responses to boron are more likely in very wet years and on irrigated fields, says the specialist. When increased yields do occur, they're usually in the 4 to 8 bushel per acre range.

Everything considered, it appears that \$2 to \$3 invested for boron may return \$10 to \$20 in one out of five years — probably more frequently on high-yielding, irrigated fields.

Boron for corn may be mixed with dry fertilizer or placed in the nitrogen solution. Use ½ to 1 pound per acre.

Soybeans, snap beans and limas have very low boron requirements. These crops seldom respond to this micronutrient and are easily injured by relatively low amounts of it.

Apples are in the medium requirement range. Boron may be applied on apple trees as a foliar spray four days after bloom and again with petal fall and first cover sprays. Use ¼ ounce per tree under five years, ½ ounce for trees five to ten years, and 1 ounce per tree for those over ten years old.

Manganese deficiency is fairly common on soybeans. It also occasionally occurs on small grains and corn. Deficiencies are associated with high pH and over-liming, but they can occur at pH values as low as 5.8.

A soil test will indicate where shortages can be expected. In most cases, though, past experience on a particular field is the best guide.

Some varieties of soybean are more susceptible to manganese deficiency than others. It's usually best to wait for deficiency symptoms to appear. On soybeans these include yellow leaves with green veins on newer growth.

To correct this problem, spray with 1 pound of actual manganese in 20 gallons of water. Manganese sulfate is the material used. It can be combined with insecticide sprays.

Results should be visible in four to six days. A second application may be needed in severe cases on fields with known histories of manganese deficiency — especially if there is evidence of over-liming.

Manganese also can be mixed with other fertilizer and banded in. Use 4 to 6 pounds of manganese if applied this way. This alternative method may not be as attractive since it requires more material and few farmers band fertilize for soybeans.

Broadcast manganese is not very effective, says Cotnoir, unless rates of 40 pounds per acre of actual manganese are used.

Manganese deficiency on corn results in a generally pale green color compared to the dark green of healthy plants. It's almost always associated with soil pH values over 6.0 on loamy sands and sandy loams. It is seldom encountered on fine-textured soils such as loams or silt loams.

Correct with foliar sprays applied in the same way as for soybeans. Band applications may be more convenient on corn fields with known deficiencies than in the case of soybeans.

Where the shortage is not severe, a band application of an acid fertilizer may be just as effective as an application of manganese. A fertilizer blend containing ammonium sulfate is especially effective because of the high acidity produced by this material.

Manganese deficiency is occasionally observed on small grains such as oats and barley — especially at high pH levels. Symptoms are yellow streaks between the veins. A foliar spray of 2 pounds manganese in 20 gallons of water is the best way to correct this problem.

Some people have questioned the practice of waiting for deficiency symptoms to appear before applying manganese. The concern is

that by the time these signs appear, some reduction in yield may already have occurred.

There's no good research evidence to support this view, says Cotnoir. On the contrary, available evidence suggests that correcting the deficiency when symptoms appear rather than sooner does not result in significant yield reductions. This is an area where more data is needed.

Manures — especially poultry

manure — contain all the micronutrients. What's more, decomposing manures probably help to make micronutrients in the soil available for plant needs. So it's not surprising that deficiencies seldom occur where manure is used.

Besides being an excellent source of nitrogen and other major nutrients, poultry manure may be one of the best sources of micronutrients, says Cotnoir.

Nat'l soybean acreages decrease while Mid-Atlantic acres rise

ST. LOUIS, Mo. — American soybean growers plan to plant 157,000 fewer acres than in 1980, according to a survey released last Thursday by American Soybean Association economists Robert Acton and Parry Dixon.

The decrease means farmers will plant 69.93 million acres of soybeans this spring. In 1980 soybean planted area totaled 70.087 million acres.

The survey was a random sample of growers in 22 major soybean-producing states conducted by a questionnaire mailed April 6 and telephone follow-up and verification on May 4 and 5.

The ASA planting intentions survey indicates a 113,000-acre increase in soybean plantings over USDA's March 1 Prospective Plantings Report that showed soybean planting intentions of 69.82 million acres, a .4 percent decrease from 1980.

USDA March 1 estimates were used in eight non-surveyed states to obtain information on total U.S. soybean acreage.

The planting intentions have been divided into five regional areas. The Eastern Corn Belt states of

Illinois, Indiana, Ohio, Kentucky, Michigan and Wisconsin will produce 20.03 million acres, a 415,000 acre (2 percent) decrease from 1980.

The Western Corn Belt states of Iowa, Minnesota, Missouri, Kansas, Nebraska and the Dakotas will produce 23.16 million acres, a 10,000 acre (0.1 percent) decrease from 1980.

The Mid-South states of Arkansas, Louisiana, Mississippi, Texas, Oklahoma and Tennessee will produce 16.16 million acres, a 211,000 acre (1.3 percent) increase from 1980.

The Southeastern states of Alabama, Georgia, Florida and the Carolinas will produce 8.92 million acres, a 14,000 acre (0.2 percent) increase over 1980.

The Mid-Atlantic states of Delaware, Maryland, New Jersey, New York, Pennsylvania and Virginia will produce 1.66 million acres, a 43,000 acre (2.7 percent) increase over 1980.

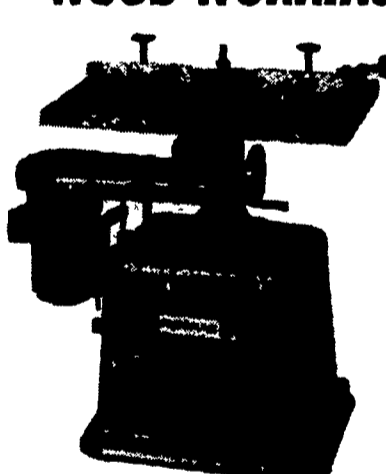
The ASA survey also showed farmers were planning to plant 84.8 million acres of corn: a 1 percent increase of 712,000 acres over 1980. The Eastern Corn Belt showed the largest acreage change with an increase of 496,000 acres. The Western Corn Belt showed little change with an increase of 30,000 acres. The Mid-South showed a decrease of 116,000 acres.

Again, USDA March 1 estimates were used in the non-surveyed states to obtain information on total U.S. corn acreage.


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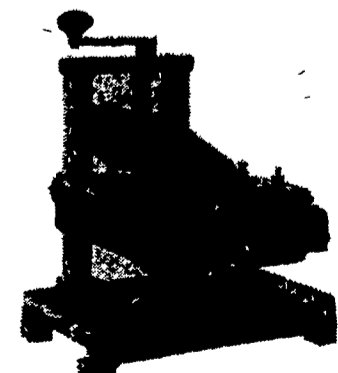
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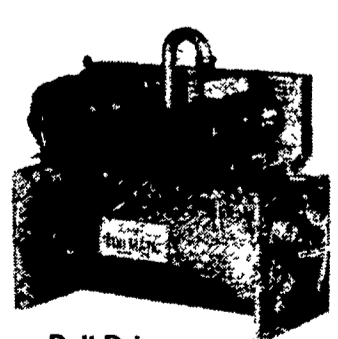
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