

by Dr. D.L. Wright

All About Starters

Florida scientist offers tips on how to use starters, plus describes the many benefits that accrue from their use. He focuses on corn.

Of course we all know starters are used to enhance crop growth and development of crops with the end result of producing a higher yield return per unit area. But there are benefits other than yield that accrue from the use of starters.

The purpose of this article will be to illustrate some of these benefits by citing field research and conclude with several important tips on the use of starter fertilizers and hybrid selection.

Value added

Earlier maturity. Important in the Southeast is earlier maturity of corn when grain sorghum or soybeans are to be planted as the second crop in late summer. Planting a week to ten days earlier on the second crop results in much better growing conditions.

Reduced moisture. Figure 1 shows that starter placement is helpful in decreasing grain moisture for earlier harvest.

Placement of ammonium polyphosphate near the seed, in addition to the normal fertilization program, resulted in quicker drydown and higher yields. The earlier maturity may have allowed the corn to mature before stalk rot cut off movement of photosynthates into the ear. The result was higher yields, especially where starter was placed 2 by 2 or on the surface.

Speeded growth. Starters speed plant growth early in the season, especially when row-applied. Silking and tasseling occur 7 to 10 days earlier. Time in the vegetative stage of growth is reduced, resulting in lower ear and plant heights in most cases (Figure 2).

Interaction. In many cases a starter will consist of only NP combinations, but no-till corn has responded to applications of

NP + K when used in the row as a surface-applied fertilizer (Figure 3). As we know, acreage of minimum and no-till crops has expanded dramatically since 1977. This

has resulted in higher yields by reducing sand blasting and erosion and made for more timely planting of a second row crop.

Versatile. Any form of fertilizer may be

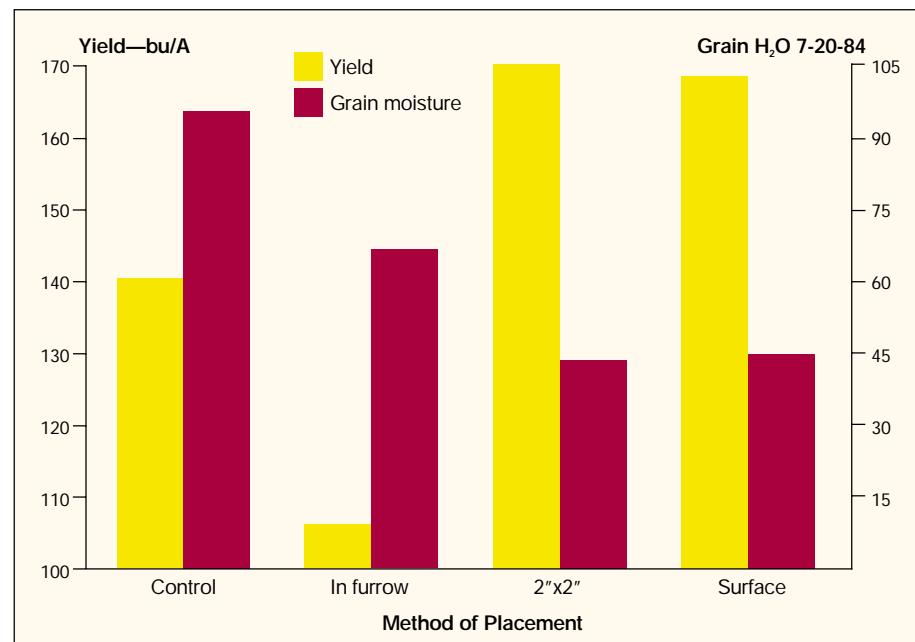


Figure 1. Starter effect on no-tilled corn moisture and yield.

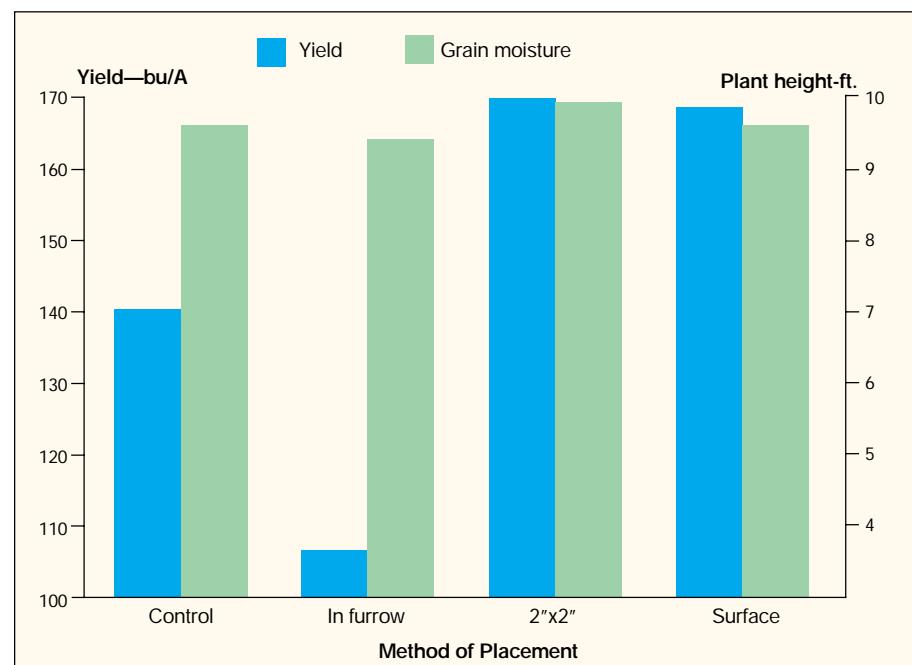


Figure 2. Starter effect on no-tilled corn growth and yield, Wright.

used as a starter and may contain nutrients such as N, P, K, S, Mg, B, Zn, Cu.

Managing tips

Soil test. If P or K levels are high in the soil, response of starter applications may be low. If you don't soil test, you may needlessly waste valuable dollars fertilizing when you could put them elsewhere. Table 1 shows the importance of soil testing before applying starters.

Source of fertilizer used for starter does not appear to make much difference. All NP sources reduced plant and ear height as compared to control. However, ammonium polyphosphate appeared to reduce ear height slightly more than other NP sources.

Micronutrients are often yield limiting factors in the Coastal Plain. Growers might include them in starters when soil tests show a shortage of two or more pounds of these secondary elements. The results, however, are often a mixed bag. For example, if ammonium polyphosphate is used, sulfate forms of micronutrients cannot be used unless a separate tank and pumping unit are used. This is because they'll react and clog nozzles. To compensate, chelates are often used in the same tank at a rate of a half pound or less of actual nutrient. Figure 4 shows some yield advantage in using micronutrients.

Hybrids. Studies have shown that a hybrid failing to respond to NP starters under field conditions produces a larger root system than one that consistently responds. If response under field conditions is due to only one element (N or P) because the other is supplied in adequate amount from the soil, then it is not known whether each hybrid responds in the same manner to the other element. Best practice is to be careful when selecting hybrids if using starters.

Cautions. When applying starters, several cautionary rules should be observed:

1. Do not use high rates of N or K directly over the seed since they may be leached around the seed and reduce germination

2. Avoid fertilizer in contact with the seed as it may reduce stand

3. Applying either 2 by 2 or surface banding is safer.

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Table 1. Probability of a profitable response to row-applied phosphorus or potassium, Minnesota.

Soil test level-P or K	% response to P or K
Low	95 - 100
Medium	65 - 95
High	30 - 65
Very High	10 - 30

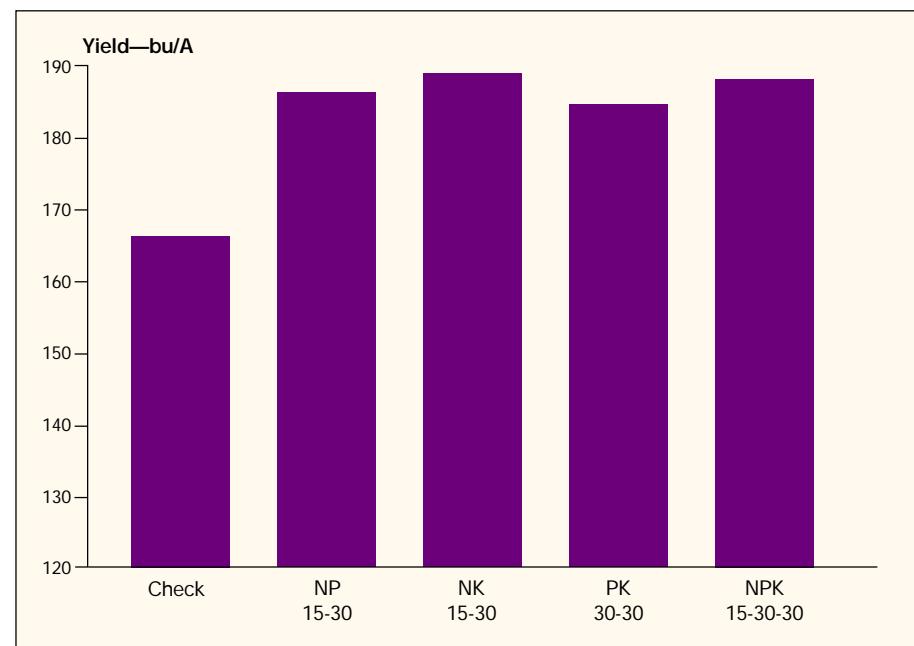


Figure 3. Effect of adding K to an NP starter on corn yield.

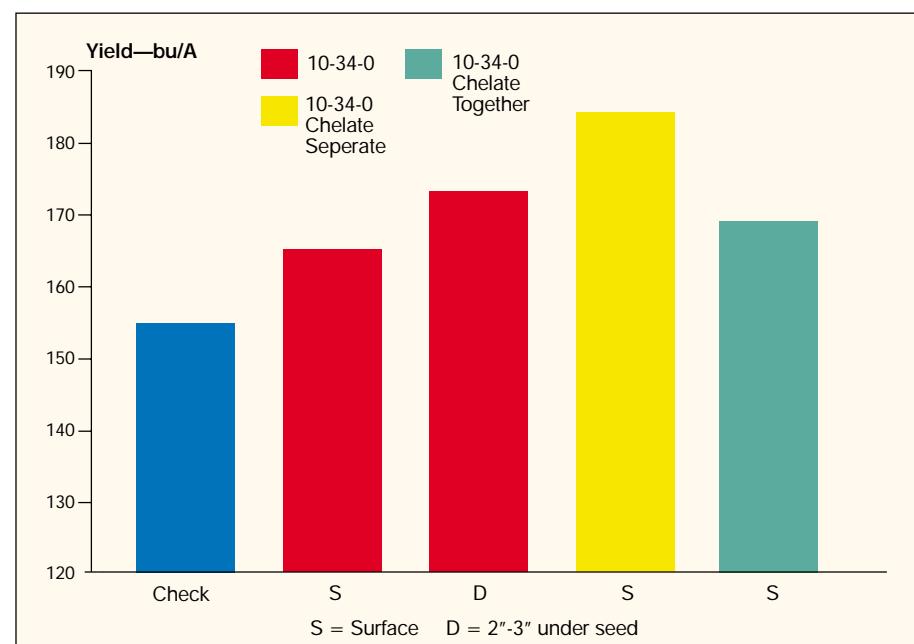


Figure 4. Effect of using micronutrients in starters on no-till corn yield.