



Amisorb - a Nutrient Absorption Enhancer

by
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In 1996, a series of articles appeared in horticulture trade magazines touting the benefits of Amisorb®, a biodegradable, chemical called polyaspartate that promotes nutrient uptake by plants. This chemical, a long-chain polymer produced from one of the ingredients found in Nutrasweet® sweetener promotes the uptake of fertilizer and results in a 10 to 15 percent increase in yield. It also promotes early maturity, moving harvest dates up by 7 -10 days on such crops as peppers and tomatoes. The chemical is not absorbed by plants but acts as an extension of the plants' root hairs. Each polyaspartate molecule carries a negative charge that attracts positively-charged nutrients and makes them more available to the plant. Of course, all data is from the "lower 48", and we were very interested to learn if it would have any benefits in our cold soils.

We requested a sample from the company, Amilar International, and set up a greenhouse experiment to learn if it would



The tomato plant on the left received a liquid fertilizer treatment twice during the season, while the plant on the right received fertilizer plus Amisorb®.

promote the growth of vegetable and flower bedding plants. We germinated seeds of cabbage, peppers, tomatoes, marigold and nicotiana and transplanted the seedlings into cell packs two weeks after germination. They were grown in a soilless bedding plant mix. Immediately after transplanting, the mix was drenched with Amisorb® using the recommended rate of 3 quarts per acre. Seedlings were harvested at four to eight weeks depending on the maturity date of each species. They were harvested at the age they would normally be ready to go into the garden. Seedlings were removed from the potting mix, washed, dried and weighed to compare dry weight between treated and non-treated plants. After washing and weighing zillions of roots, not one of the plants showed a response to the Amisorb®. Neither roots not shoots showed any gain in weight and size with the treatment.

We were discouraged with the results, but a representative from Amilar International told us we may not have followed the directions correctly. He recommended applying the Amisorb® with a solution of liquid fertilizer rather than as separate drench. We had applied the Amisorb® alone, immediately after transplanting the seedlings into cell packs, then fertilized weekly.

Our next experiment was outdoors with 'Subarctic 25' tomatoes and the giant cabbage, 'O-S Cross'. [If Amisorb® really increased yield and size, could it make a super giant cabbage?] Tomatoes and cabbages were started as seedling transplants in the greenhouse, then transplanted outdoors the first week of June. Tomatoes



The giant 'O-S Cross' Cabbage did not become super giants with the Amisorb® treatment. There was no difference in yield between treated and untreated plants

were grown through IRT polyethylene mulch with trickle irrigation, while cabbages were grown without mulch. Plants received a June drench of a complete soluble fertilizer (15-16-17), with and without Amisorb. This was followed by a second mid-summer application. Half the total Amisorb was applied in June, and half in July.

The cabbages did not become super giants. In fact, there was no difference between Amisorb®-treated plants and those that received only fertilizer. Tomatoes, on the other hand showed a great response. In most field experiments, the results don't become visible until all the fruit is weighed, but the Amisorb® had an immediate, visible effect on the tomato plants. Visitors to the Garden could easily identify the treated plants. They were larger, more robust, and with a lot more leafy branches than the untreated plants.

This early growth stimulus translated into higher yields. Plants treated with the Amisorb® drench yielded nearly 8 pounds of tomatoes per plant. Untreated plants averaged 6.3 pounds per plant. That's a 25 percent increase in tomato yield with the Amisorb treatment! Individual size of fruit did not differ between treatments, so the yield increase was due to greater numbers of fruit being produced. Twenty-five percent is a significant increase in yield, much greater than the yield increase reported from the "lower 48". This is an experiment definitely worth repeating, perhaps with peppers as well as tomatoes. It would also be interesting to try plants, perhaps beans, that grow without polyethylene mulch. Check out the continuing story next year.

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