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Calcium ... Nutrient or Hormone - Page 1 of 2

CALCIUM . . . NUTRIENT OR HORMONE?

Most physiological disorders in plants have been attributed to the lack of calcium.

Such disorders can be in the fruiting parts of the plant or the vegetative parts of the plant. Following are some common disorders of plant that are attributed to calcium deficiency.

- Blossom end rot on tomatoes
- Black heart in celery
- Kernel abortion in peanuts
- Bitter pit in Apple's
- The heads of cauliflower, broccoli, or asparagus which are open and no longer tight
- Leaves of cereal grains that will not uncurl as they emerge from the plant
- Alfalfa greening on pears
- Hollow heart or internal browning in potatoes
- Kernel abortion in corn
- Bottom seed abortion and wheat, barley, and rice

The above problems normally occur during a period when the plant is under stress. The stress may be due to the either dry weather, hot temperature, or any other factor that unduly effects the way that the plant grows.

It is a fact that under stress conditions the plant produces an abundant amount of the hormone called ethylene. It is the effect of ethylene, because of stress symptoms, that weakens the plant.

If the presence of stress ethylene and its activity always corresponds to the period of calcium deficiency, one can logically ask the question, "Is the calcium deficiency symptoms caused by ethylene and the activity of ethylene that occurs when the plant is under stress?"

The experiment was conducted to test the effect of three different calcium products for the control of blossom end rot on tomatoes. The three calcium treatments were compared against a hormone application which reduced the level of activity of ethylene. The result of this experiment showed that the hormone treatment gave the same degree of control of blossom end rot as any of the three calcium treatments.

It has now become more obvious that calcium reduces the activity of stress ethylene. This is a hormone effect. Is not a calcium nutrient deficiency. The foliar application of calcium appears to reduce the level of activity of stress ethylene.



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Most treatments, for apparent calcium deficiency, are normally administered as a foliar spray. This is logical because the activity of stress ethylene is always in the foliage. It can be possible, however, to be able to put enough calcium through the roots so there will be adequate calcium in the plant to inhibit this effect of stress ethylene.

The use of calcium for crop production has been limited by the lack of understanding concerning the function of calcium. When we begin to understand that calcium acts like a hormone, the logic of using calcium becomes clearer. When this logic becomes more apparent to growers of high value crops, the use of calcium will be standard for their fertilizer program.

The most logical way to apply calcium in any crop is to be soil application of Nitro Plus. This will put adequate calcium into the roots so that plants will have a natural defense mechanism against plant stress.

The recognition that calcium is more important to combat ethylene stress, than it is as a nutrient itself, will only be understood if one first understands The Language of The Plant.