



# NUTRI-CAL *Not just another calcium*

- ★ FOR VEGETABLES AND COLE CROPS
- ★ ORGANICALLY COMPLEXED CALCIUM SOLUTION WITH T.O.G.
- ★ NON-PHYTOTOXIC, NON-CORROSIVE
- ★ IMPROVES FIRMNESS & STORAGE LIFE

## What Makes Nutri-Cal Different?

Nutri-Cal is an organically complexed calcium solution which consists of specific polyhydroxycarboxylic acids and 5-carbon carbohydrate groups, referred to as T.O.G, which are extracted from natural plant tissue. The T.O.G. complexes the elemental calcium ion allowing the ion to be *absorbed directly through the leaf and fruit cell walls immediately*. Inorganic forms of calcium must go through ion exchange to be absorbed by the plant, and after entering the plant, readily forms insoluble compounds that are not available for translocation to the fruit. The T.O.G./Calcium complex provides a unique delivery system, which protects the calcium from forming insoluble compounds, enabling more efficient movement of calcium to the fruit where it is needed most.

The Nutri-Cal (2) 5-carbon carbohydrate groups are of the same elemental makeup as pectin, the gel-like substance that binds cell walls together. As such, it enables more of the calcium from Nutri-Cal to be absorbed and utilized by the pectin to form calcium pectate, which solidifies the gel and strengthens the cell wall against disease and breakdown. **Thus, Nutri-Cal treated fruits and vegetables maintain their quality much longer.**

The carboxylic acids play a major role in the metabolism of the plant by enhancing the process of photosynthesis and respiration for improving fruit growth and development.

## Calcium may be the single most important nutrient for vegetable development and storage.

- Enhances quality, firmness and shelf-life of most vegetables.
- Reduces or eliminates many physiological disorders.
- Primary building block for cell wall structure.
- Necessary for cell division and flower formation.
- Regulates the exchange balance of other nutrients.
- Enhances disease resistance.
- Aids plant recovery from stress.

## Factors Affecting Calcium Uptake and Translocation:

1. Unavailability, insolubility of calcium in the soil
2. Unprotected calcium readily forms insoluble compounds within the plant - thus poorly translocating to the fruit
3. Natural movement of calcium into the fruit occurs during a very short period — 4-6 weeks after bloom

## Deficiency Symptoms of Calcium:

**Blossom-end rot of tomatoes**, peppers and melons occurs because of low calcium levels in the fruit, usually when the plant is under stressed conditions. Also, during rapid growth periods, calcium translocation to the fruit is very limited since it goes to the growing points first.

**Blackheart of celery** is caused by low calcium movement to the growing points of the fast growing young leaves. Calcium may be present in the older petioles but is in an unavailable form and the rate of calcium uptake cannot meet the needs of the plant. Usually occurs near harvest.

**Tipburn of cabbage** can be an internal problem caused by low calcium levels at the growing points of newly formed leaves. Outer leaves and other parts of the head may show damage, since the plant is continually growing. Internal browning of brussels sprouts is another problem associated with calcium deficiency.

**Cavity spot of carrots** involves the breakdown of the cells just beneath the epidermis. Again, periods of stress limits the movement of calcium to rapidly growing cells.

**Hollow heart and internal brown spot in potatoes** develop in the tuber when there is insufficient calcium present. Symptoms show up as "spots" which are groups of dead discolored cells. May occur during the growing season or after harvest in storage.

## NUTRI-CAL Is Non-Phytotoxic

Nutri-Cal is an **UNIQUE, ORGANIC** complexing agent perfectly compatible with plants. This organic complex also makes Nutri-Cal the **safest source** of calcium for growers to spray on plants and vegetables.

## NUTRI-CAL is Environmentally Safe

Derived from **natural** raw materials, the complexed calcium is ultimately applied to soil, plants, and fruits in an environmentally safe form, leaving no residuals, such as toxic chloride or synthetic molecules, in plants, air, soil, or water.

## NUTRI-CAL is Easy to Use

Nutri-Cal is a pure solution. It does not need any pre-agitation. Can be easily mixed with most all insecticides and fungicides, saving time and money. Nutri-Cal is conveniently packaged in 2 x 2½ gallon plastic jugs for easy measuring and handling.

## NUTRI-CAL is Non-corrosive

There are no hazardous warnings on the package, no need to invest in expensive, stainless steel sprayers, and no need to wash corrosive material off equipment. Non-corrosive NUTRI-CAL **eliminates** extra maintenance costs and replacement of sprayers and pumps **SAVING YOU REAL DOLLARS!**

## Guaranteed Analysis

Calcium (CA) .....	8%
derived from calcium nitrate	
Total Nitrogen (N) .....	6%
5.5 % Nitrate Nitrogen	
0.5% Ammonical Nitrogen	
Active non-plant food materials:	
Polyhydroxycarboxylic acids .....	3%
Natural Carbohydrates .....	2.4%

**Caution: Should Not Be Mixed with Phosphates or Sulphate Bearing Fertilizers Without Doing a Compatibility Test First!**

### Mixing

Nutri-Cal mixes with most chemicals used in the horticulture industry. A compatibility test is advised for each combination before tank mixing. Always start with the desired percentage of water in your test container, then add Nutri-Cal and other chemical to the test solution.

### Handling

Wear protective clothing, goggles, aprons. Wash after skin contact.

### Warranty

Because of the importance of calcium supplied from the soil, rates and recommendations given on a broad basis are not a guarantee, or necessarily the total solution to each situation. Sound soil management and fertility practices, along with NUTRI-CAL as a foliar source of calcium are the keys to preventions and control of calcium deficiency disorders.

Since weather, crop, soil, and other conditions vary, the seller makes not warranty of any kind, expressed or implied, concerning the use of this product. The user assumes all risks of use of handling whether or not he follows directions.

## Application Recommendations:

### FOLIAR APPLICATION:

NUTRI-CAL may be applied with conventional ground equipment, airplane, suitable power or handgun sprayers, irrigation systems or small hand pump sprayers.

NUTRI-CAL mixes with most all pesticides. Since calcium is taken into the plant in very small amounts, multiple applications at partial rates provide the best results. **It is very important to begin applications pre-bloom, since calcium plays a major function in the development of plant and fruit cell walls, especially during the cell division phase. The natural movement of calcium into the fruit occurs during a very short period of time. Multiple applications must be made throughout the growth and development phases to continually supply the fruit with calcium.**

**GENERAL APPLICATION RATES: 3-5 gallons Nutri-Cal per acre total for season. Dilute in an adequate amount of solution for thorough coverage.**

### SPECIFIC APPLICATION RATES:

#### TOMATOES, PEPPERS, CUCURBITS, MELONS

Apply 2 quarts per acre per application, make first application just before flowering, second at fruit set, then every 7 - 14 days to harvest or until the desired rate is achieved. Since the plant continues to flower and produce fruit throughout the season, multiple applications are most effective.

#### LETTUCE, CELERY, COLE CROPS

Make multiple applications of 1-4 quarts per acre (use lower rates when plants are small) beginning just after transplanting and continue throughout the season on a weekly basis. Timely applications made during rapid plant growth are critical.

#### POTATOES

Apply 2-4 quarts per acre per application. Make first application at hooking or tuber initiation, then every 10-14 days until the desired rate is achieved. The higher rates of Nutri-Cal should be used for reducing incidence of hollow heart and internal brown spot.

#### ONIONS, ROOT CROPS

Apply 2 quarts per acre per application. Make first application just before bulb formation. Continue applications every 10 - 14 days.

### SOIL APPLICATION:

Nutri-Cal may also be applied through a drip irrigation system. NO PHOSPHATE precipitate can be left in the lines. Thoroughly flush lines with water before inducting Nutri-Cal.

## NUTRI-CAL THE BEST SOURCE OF CALCIUM

Distributed by

## CSI CORPORATION

10980 N.E. Hubbell Avenue • Bondurant, Iowa 50035 • 1-800-247-2480