



# CalMax Range

for perfect quality fruit and vegetables

- ◆ Protects against a wide range of disorders related to calcium deficiency
- ◆ Improves firmness in all fruit and vegetables giving increased shelf life
- ◆ Enhances resistance to crop diseases
- ◆ Optimises yield and quality



## the importance of calcium in fruit and vegetables

- Calcium is one of the main constituents of cell walls in plants. When it is in short supply, the structure of the cells weakens, resulting in various disorders.
- Calcium is instrumental in protecting the plant from toxins and slows down the aging process.
- Deficiency symptoms can occur even when there are adequate levels present in the soil.
- Calcium is not very mobile in the plant and during periods of rapid growth or stress, the supply of this element to low transpiring organs like fruit or young leaves can be impacted.
- Stress periods are often attributable to hot, dry weather, drying winds or high humidity.
- Excessive use of nitrogen or potassium fertilisers can inhibit calcium uptake from the soil.
- There is evidence to show that calcium plays a major role in protecting plants against fungal attack by helping to provide a physical barrier.
- Calcium is essential for cell division and development of the active root and shoot tips. Calcium plays a central role in plant structure both above and below ground.
- Calcium acts as a binding agent that is essential to the structure of stems, roots and fruits.
- Calcium is vital for activating enzymes that promote growth and stimulate immune system responses.
- Adequate levels of calcium are essential in fruit and vegetables, which are to be transported and displayed for sale.
- The application of CalMax products ensures optimum quality and shelf life.

Calcium plays a major role in protecting plants against fungal attacks

## OMEX CalMax Range

- CalMax is a high quality new generation foliar suspension fertilizer containing 22.5% calcium (CaO), 15% nitrogen (N), 3% magnesium (MgO) and a range of EDTA chelated trace elements.
- CalMax Gold is a unique water soluble suspension fertilizer containing calcium together with nitrogen, magnesium and trace elements plus amino acids.
- CalMax Ultra is an inorganic suspension fertilizer containing calcium and a balanced ratio of nitrogen, magnesium and micronutrients, formulated with eba™ additives to significantly improve calcium uptake.

## pome fruit

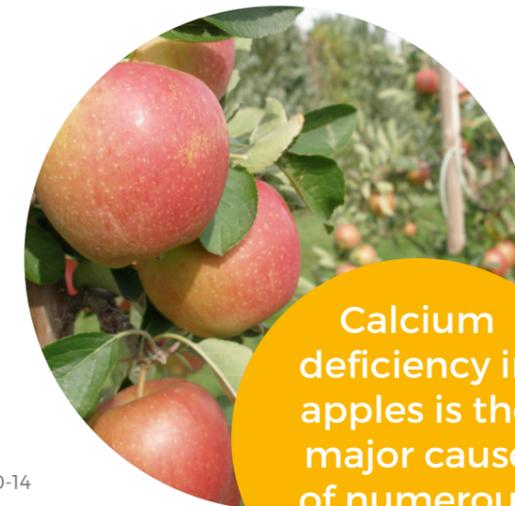
Disorders in pears include:

- Cork Spot
- Superficial Scald

These problems often occur during periods of new growth or in hot, dry periods when the movement of calcium to the fruit is insufficient despite adequate soil supply.

It is important that calcium levels are maintained for maximum output and profit margin achievement.

Rate Lt/ha	Timing	Comments
4	Post Blossom/Petal fall	Multiple applications required at 10-14 day intervals. More frequently when conditions dictate
6	Early fruit/let stage	
8	To harvest	



Calcium deficiency in apples is the major cause of numerous problems

# OMEX

Common problems in calcium deficient apples include:

- Watercore
- Lenticel Blotch Pit
- Bitter Pit
- Physiological Breakdown
- Low calcium levels can also lead to breakdown in the store and make fruit unfit for long-term cold storage

## strawberries & other berries

A common form of calcium deficiency in strawberries is 'tip burn', which appears as browning and crinkling at the edge of young leaves.

Severe deficiency will cause death of the growing point, stunted roots and brown lesions on leaf stalks.

The application of CalMax products early in the crop cycle will help to alleviate these disorders.

It is well documented that the calcium level in fruit drops as maturity is reached. The application of CalMax products directly to the fruit will compensate for this.

Calcium is an important constituent in cell walls and needs to be in sufficient supply to ensure the fruit is firm enough to give optimum storage life.

This is particularly important for fruit which are destined for export markets.

Rate of use: 6.0 litres/hectare

Timing:

1. 2 applications just after planting
2. 3 applications before harvest
3. After periods of stress as required



## lettuce, endive, brassicas, celery & chicory

- Low calcium status can result in leaf cupping, tip burn, collapse of root tips and stems, and the blackening of young leaves.
- These symptoms can affect 100% of the crop in the case of lettuce which is very susceptible.
- Internal Browning in brussels sprouts and Blackheart in celery and chicory due to localised calcium deficiency, can lead to rejection of the crop by processors.
- Calcium is key to the maintenance of plant firmness which is essential in transport and long shelf life.
- Research with lettuce has indicated that the higher the level of calcium in the leaf, the greater the plants' resistance of *Botrytis cinerea*.

The foliar application of CalMax products will reduce the incidence of disorders related to calcium deficiency and improve storage life. In all cases CalMax products should be applied early in the crop cycle.

Crop	Rate	Comments
Cabbage, Cauliflower		
Endive, Lettuce	3.5 - 5.0	4-6 applications starting before head formation
Chinese Cabbage	2.5 - 5.0	2-4 applications per season
Brussels Sprouts	4.0 - 8.5	Multiple applications
Celery, Chicory	3.5 - 5.0	Multiple applications

## potatoes

Calcium is important in helping to reduce mechanical damage associated with lifting and storing potatoes. It is essential for strengthening cell walls and membranes, activates enzyme systems and stimulates the plants natural resistance to disease.

Calcium deficiency in potatoes can lead to:

- Weakening of cell walls often leading to breakdown in store
- Increased susceptibility to blight and other fungal diseases
- Increased incidence of Internal Rust Spot and Hollow Heart

Independent trials have shown that the calcium level in potatoes treated with CalMax was significantly higher than those treated with calcium chloride or calcium nitrate.

## tomatoes, peppers, cucumbers and melons

Low calcium status results in;

- Leaf cupping in seedlings
- Stunting due to reduced tip growth
- Death of root tips
- Blossom end rot.

Blossom end rot is a major cause of loss of marketable produce and can have a direct impact on profitability. It is caused by calcium deficiency in the tissue around the blossom end of the fruit. It occurs normally under conditions of water stress or during periods of rapid growth, when calcium transport to low transpiring fruit organs can be impaired. Calcium deficiency does most damage early in the development stage. The application of CalMax products during fruit expansion significantly reduces the incidence of blossom end rot, provides a balanced nutritional programme for optimal yield and quality and improves firmness and shelf life.

## stone fruit

### Plums & Cherries

Skin cracking or splitting at fruit maturity can be a major cause of crop loss. High rainfall, rapid growth and low calcium status all contribute to this problem.

The application of CalMax products:

- Prevents cracking by ensuring optimum levels of calcium are made available to the fruit.
- Improves fruit firmness and storage life.
- Helps prevent premature flower abortion

Rate of use: 4.0-6.0 litres / hectare  
Timing: Spray from early fruit stage.  
Application: 3-4 sprays at 10-14 day intervals

### Peaches, Nectarines & Apricots

The application of CalMax products will improve fruit finish and storage life.

Rate of use: 3.0 litres / hectare  
Timing: Spray from early fruit stage  
Application: 3-4 sprays at 10-14 day intervals

Rate of use:  
2.5-5.0 l/ha

Timing:  
From early hook stage  
Early applications are  
essential to raise Calcium  
levels in the plant

Application:  
Multiple applications at  
10-14 day intervals

Rate of use:  
1.5 - 3.0 L/ha

Timing:  
Spray from the start  
of fruiting

Application:  
Spray at 7-10 day intervals.  
Ensure fruits are  
wetted

# grapes



Stem necrosis is a physiological condition associated with a low calcium and magnesium status.

Dead tissue caused by this disorder often becomes infected with *Botrytis cinerea*, which may then spread to healthy berries.

Stem necrosis is especially prominent in table grapes.

#### Foliar application with CalMax starting at the beginning of ripening:

- Helps prevent stem necrosis
- Reduces conditions favouring the development of *Botrytis cinerea*
- Reduces premature berry drop
- Improves berry quality and shelf life

Rate of use: 5.0 - 10.0 litres / hectare

Timing: From start of berry softening to maturity

Application: 3-4 sprays at 10-14 day intervals. Apply directly to bunches.

## other crop uses

This brochure describes only the main uses of the CalMax range of products. CalMax, CalMax Ultra and CalMax Gold can be used on any crop where a lack of calcium needs to be rectified.

Examples of other crops where the CalMax range has been used successfully:

**Cotton:** Helps to prevent square shedding

**Citrus:** Improves skin finish and prevents premature fruit abortion

**Walnuts, Pistachios and Almonds:** Decreases dropping of immature nuts

**Kiwi Fruit:** Reduces blossom end rot

**Avocados:** Pulp Spot reduction

**Onions & Garlic:** Reduces young leaf die back

**Peas, French Beans, Runner Beans & Soya Beans:**

Prevents tissue collapse and improves firmness

**Ornamentals:** Reduction of marginal bract necrosis in Poinsettias

Cutting establishment in African Violets.

Reduction of node splitting in Carnations.

#### General Recommendation:

A rate of 3.5 litres per hectare applied in a water volume of 200-1500 litres per hectare will generally be sufficient for most crops not described in detail in this guide.

#### Application guidelines:

For optimum uptake of nutrients into the plant the following guidelines should be followed:

- In early morning or evening when humidity is relatively high
- To actively growing crops

#### AVOID

- Application in hot, dry conditions
- Application to crops under stress from drought or frost damage



## spray mixture preparation:

- Quarter fill the spray tank with clean water.
- Add the required amount of CalMax /CalMax Ultra /CalMax Gold this will dissolve completely with agitation.
- Half fill the spray tank
- Add any pesticide going into the mixture, preferably pre-mixed or dissolved with a small quantity of water.
- Fill the spray tank under agitation.

## compatibility:

The CalMax range of products is compatible with most, but not all pesticides, growth regulators and micronutrients with regard to both physical mixing in the tank and biological effect on the crop.

OMEX cannot accept liability for any loss or damage as not all agrochemicals have been tested and because the efficacy of any mix will depend on, among other factors, the agrochemical concerned, crop conditions, growth stage, weather and water volume used.

## shelf life:

The CalMax Range of products is a very stable formulation and if stored in cool dry conditions in original, unopened containers, has a shelf life of a minimum of 2 years from date of manufacture.

## storage:

The CalMax range of products should be stored in a covered frost-free store with an optimum temperature range between 5-40°C.

## precautions:

The CalMax range of products are non-hazardous and non-flammable foliar fertilizers. Gloves and face shield should be worn when handling the concentrate.



For specific information contact  
**OMEX** Agrifluids directly, or their distributor



# CalMax Range

for perfect quality fruit and vegetables



## CalMax

		Wt/Wt*	Wt/Vol
Nitrogen	N	10.00%	15.00%
Calcium	CaO	15.00%	22.50%
Magnesium	MgO	2.00%	3.00%
Manganese	Mn	0.10%	0.15%
Iron (EDTA)	Fe	0.050%	0.075%
Boron	B	0.050%	0.075%
Copper (EDTA)	Cu	0.040%	0.060%
Zinc (EDTA)	Zn	0.020%	0.030%
Molybdenum	Mo	0.001%	0.0015%
pH (10% solution)			5.5-6.5
Specific Gravity		1.48-1.52 @ 18°C	



## CalMax Gold

		Wt/Wt*	Wt/Vol
Nitrogen	N	10.00%	16.00%
Calcium	CaO	15.00%	24.00%
Magnesium	MgO	2.00%	3.20%
Manganese	Mn	0.10%	0.16%
Iron (EDTA)	Fe	0.10%	0.16%
Boron	B	0.050%	0.080%
Copper (EDTA)	Cu	0.050%	0.080%
Zinc (EDTA)	Zn	0.050%	0.080%
Molybdenum	Mo	0.001%	0.0016%
Amino Acids		5.50%	9.00%
pH (10% solution)			4.0-5.0
Specific Gravity		1.60-1.64 @ 18°C	



## CalMax Ultra

		Wt/Wt*	Wt/Vol
Nitrogen	N	9.80%	14.60%
Calcium	CaO	14.60%	21.80%
Magnesium	MgO	1.95%	2.90%
Manganese	Mn	0.098%	0.15%
Iron (EDTA)	Fe	0.049%	0.073%
Boron	B	0.049%	0.073%
Copper (EDTA)	Cu	0.039%	0.058%
Zinc (EDTA)	Zn	0.019%	0.029%
Molybdenum	Mo	0.001%	0.0015%
pH (10% solution)			6.0-7.0
Specific Gravity		1.47-1.51 @ 18°C	



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