

fact file: vegetable crops

PRODUCT NITROSOL

Application to beans, brassicas, capsicums, carrots, chilli peppers, cucurbits, herbs, kumera, lettuce, peas, potatoes, pumpkin, squash, tomatoes, etc

Mix Nitrosol with water as a 1:200 dilution (5 ml per litre of water) and use as the watering fluid weekly, or add to the spray tank as the last ingredient, in conjunction with crop protection materials, and spray to the drip point. Alternatively, apply 2 - 8 litres per hectare in conjunction with each application of plant protection or disease control materials. When mixing with other materials be sure to check for compatibility first and add Nitrosol to the spray tank as the last ingredient.

Irrigation or fertigation systems

As a booster, add Nitrosol to the liquid feed concentrate tank at the rate of 1 litre of Nitrosol per 200 litres of soluble salts concentrate. It may also be used as the primary source of nutrients in liquid feed systems. Nitrosol diluted to 1:200 with water will yield a CF (conductivity factor) of approximately 20. Note: Nitrosol is a colloidal liquid suspension that has been screened through 60 mesh, and therefore it contains finely ground particles up to 250 microns, that could block fine drippers. It is recommended that filters be checked and cleaned regularly and fertigation lines be flushed with plenty of water, after using Nitrosol.

Specific trace element deficiencies

Where observation or foliar analysis identifies a specific nutrient or trace element deficiency, the deficient element may be supplemented by the addition of small quantities of the relatively inexpensive sulphate form. For example, copper sulphate for a copper deficiency, Solubor™ or Timbor™ for a boron deficiency, zinc sulphate for zinc deficiency etc. In this situation, Nitrosol acts as the carrier to chelate and convey the deficient trace element effectively into the affected plant.

Important user information

- Nitrosol may settle in its container over time. Contents should be agitated before using. This is best accomplished by rolling the drums back and forth several times on a flat surface.
- To decant, place the 200 litre drum on its side with the bung at the 12 o'clock position. Open the bung and pour into a bucket or pail, moving the drum sideways as the level reduces.
- Ask us about the 'Ugly Pump' that uses water pressure from your tank filling hose to pump Nitrosol or PhloLime directly from a 200 litre drum or 125 litre barrel, into the spray tank.
- Nitrosol should be stored away from extremes of temperature as the material may expand with heat and cause leakage. Storage in very cold conditions may cause the formation of crystals. Where this is suspected to have occurred, be sure to strain the material as it is added into the spray tank.
- Do not store product that has been mixed with water, as it will not keep.
- Nitrosol is harmless to birds, bees and animals when used as directed.
- Notice: Nitrosol Original may not be fed to sheep, cattle, deer, alpacas, goats or other ruminant animals in accordance with the ruminant feed ban regulations.

Nitrosol
Original
Nitrosol
Oceanic
Nitrosol
Organic

about nitrosol

Nitrosol is a one step colloidal liquid suspension organic based fertiliser containing:

- A balanced NPK (8.3.6.) to feed through both foliage and roots.
- A balanced formulation of trace elements and minerals to address deficiencies and imbalances.
- Organic matter including protein, amino acids, albumin, globulin and cholesterol to feed and nurture the organic activity in the soil.
- Two naturally occurring growth promotants to stimulate plants to take up and use all the available nutrients, trace elements and minerals.

nitrosol original

Made from ovine (sheep) blood and bone, Nitrosol Original has been widely used since 1971. It has gained an enviable reputation for producing strong, healthy, disease resistance plants as well as top quality flowers, fruit and vegetables.

nitrosol oceanic

Nitrosol Oceanic is made from organic material sourced from deep-sea fishing operations. It is ideal for use on pastoral grazing land with no stock withholding period, and in horticulture. Nitrosol Oceanic has the same typical analysis and will produce the same results as Nitrosol Original.

nitrosol organic

Nitrosol Organic, with an NPK of 3.3.6., has been certified by Bio-Gro for use in agriculture and horticulture by certified organic growers. With a higher organic content, Nitrosol Organic will help to produce healthy biologically active soil as well as highly nutritious and flavoursome fruit and vegetables. It will also help to produce healthy feed for grazing animals.

PHLOLIME™

about phlolime

PhloLime sprayable rapid action lime will help to raise the pH and sweeten the soil adding calcium, one of the most important minerals for healthy soil, plants, animals and humans. PhloLime contains 98% calcium carbonate on a dry matter basis. With an average particle size of only 5 microns, PhloLime will move into the soil profile rapidly where it can begin to raise the pH. It can be applied in conjunction with Nitrosol.

Telephone 0800 80 30 60 for more information

CONTINUED OVERLEAF 

NITROSOL LIQUID FERTILISERS AND PHLOLIME ARE MANUFACTURED AND MARKETED BY RURAL RESEARCH LIMITED

www.nitrosol.com

fact file: vegetable crops

PRODUCT NITROSOL

(continued)

Typical analysis (elemental w/w) of Original & Oceanic

Nitrogen - N	8%	Manganese - Mn	193 ppm
Phosphorus - P	3%	Zinc - Zn	67 ppm
Potassium - K	6%	Copper - Cu	90 ppm
Sulphur - S	1.7%	Boron - B	192 ppm
Calcium - Ca	1.3%	Molybdenum - Mo	119 ppm
Magnesium - Mg	0.2%	Cobalt - Co	10 ppm
Sodium - Na	0.3%	Selenium - Se	60 ppm
Iron - Fe	883 ppm	Gibberellins	0.01 ppm

Plus Triacntanol (Tria) growth promotant and organic material

Gibberellins - GA

GA is widely distributed in flowering plants and is shown as C₁₉H₂₂O₆. It is often used by horticulturists on its own, to assist with the development and improvement of specific aspects of growing, for example stimulation of flowering, and fruit quality improvements. As a contribution to the efficacy of Nitrosol, its broad action is to aid in the growth of cell size and to stimulate the plant to take up and use the available nutrients.

Triacntanol - Tria

Tria is a 30 carbon straight-chain fatty alcohol and occurs in certain waxes and the foliage of some plants. It is shown as CH₃(CH₂)₂₈CH₂O. Its effects on stimulating plant growth and crop yields, by increasing the growth in the number of cells, have been studied extensively in China, India, Japan and the United States. Tria has been shown to have beneficial effects towards improving the quality of fruit and flowers, in fruiting and flowering plants as well as enhancing plant health, vigour and root development. It has been demonstrated to stimulate photosynthesis within seven minutes of application. Tria is known to promote development of carbohydrates (sugars and energy) in plants. It will help stress recovery after adverse weather conditions, transplanting or application of a selective herbicide.

What Nitrosol will achieve for vegetables

- Supplies crops with the right combination of nutrients at a rate appropriate to the plant's need.
- Combines with plant protection or herbicide materials where it acts as an effective sticker and spreader to achieve better and more efficient application.
- Helps to produce vibrant healthy plants with good colour and strong root development. They become more resistant to attack from insect pests or disease often resulting in a reduced need for application of plant protection materials.
- Provides an 'organic' input where plants are grown in either soil or a 'non-soil' medium resulting in better quality, better tasting fruit and vegetables with a longer shelf life.
- Rapid recovery for plants stressed by transplanting or adverse weather conditions.
- Maximise the cost effectiveness of fertiliser inputs to feed plants on the basis of 'a little and often' to provide ongoing and balanced growth stimulus.
- The two natural growth promotants will stimulate plants to take up and use all available nutrients.
- It can more effectively address mineral and trace element imbalances and deficiencies because it is a liquid.
- Substantial freight and application cost savings because Nitrosol is shipped in a highly concentrated form, adding water as the carrier at the point of application.

Nitrosol
Original
Nitrosol
Oceanic
Nitrosol
Organic

did you know

- Nitrosol has a specific gravity of about 1.24 so one litre weighs 1.24 kgs.
- Because Nitrosol is a colloidal suspension containing organic material, it will not leach or wash away even under heavy rain or irrigation.
- Nitrosol feeds via foliage and roots meaning that it can be applied directly to plants and the surrounding soil with excellent results.
- The natural growth promotants in Nitrosol help plants to use the available nitrogen more efficiently with less waste.
- Nitrosol acts as an effective sticker and spreader and may help to improve the effectiveness of plant protection materials when they are applied together.
- Nitrosol is widely accepted as an important part of integrated fertiliser programmes to improve soil sustainability.
- Nitrosol is exported from New Zealand to Europe, Asia, North America, Australia and South Pacific Islands.

Telephone 0800 80 30 60 for more information

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A MAF lettuce trial

Following is the summary of a large scale trial conducted by MAF Horticulture at Levin in 1992 in which some 25 different commonly available fertiliser products were tested according to their manufacturers instructions. Included in the trial were soluble granules, slow release types, dry powders and various forms of liquid feeds.

The growing medium used was low fertility Levin topsoil amended with 15% of good quality peat. The plants were grown in a heated glasshouse with a minimum temperature of 14° C and ventilation at 22° C. All plants were watered daily as required.

The results were advised to each manufacturer in the form of their specific product(s) and compared to the average results from all of the products tested.

Rate of feed: Nitrosol was used at the rate of 5 ml per litre of water (1:200) and the resulting dilution was used as the watering fluid.

Frequency and amount: One feed per week was given at rate of 100 mls of the dilution, then 200 mls per week from week 10, onto both the foliage and the growing medium.

Visual assessment: Scale 1 = poor, 5 = excellent.
 First assessment 6 weeks after transplanting
 Second assessment 10 weeks after transplanting
 Harvest at 13 weeks after transplanting

	1 st assess	2 nd assess	Dry weight
Nitrosol	3.7	4.7	20.3
Mean of all	2.1	2.8	8.0

Conclusion: It is clearly apparent that Nitrosol has produced a yield significantly ahead (153% more!) of the average result of all 25 products tested.



Nitrosol recommendation

Winter lettuce requires higher levels of fertility than summer lettuces, in particular nitrogen and phosphorus. The ideal soil pH range is considered to be 6.3 – 7.3 and this indicates a requirement for lime especially where acidic base dressing fertilisers have been used. Lettuce can also develop deficiencies of calcium, manganese and copper, that will limit yield and quality.

Prior to planting, a soil test is suggested to determine pH levels and plant nutrient requirements. If a nutritional deficiency becomes apparent while the crop is growing, a leaf test sample should be submitted to an appropriate laboratory for analysis.



Application of 40 – 80 litres per hectare (4 – 8 mls per square metre) of PhloLime mixed in whatever amount of water to ensure even coverage, should be applied to add calcium and boost the pH of the soil is recommended prior to planting out of the seedlings. Apply PhloLime by spray systems or watering can, depending upon the particular situation.

Application of Nitrosol Original at 20 litres per hectare may be made in conjunction with PhloLime or on its own as convenient, but prior to planting.

Soak the seedlings in a dilution of 1:200 of Nitrosol overnight prior to transplanting into soil or medium to help overcome transplant shock and use the soaking solution to water in the seedlings. Alternatively follow transplanting with a soil drench of 1:200 of Nitrosol.

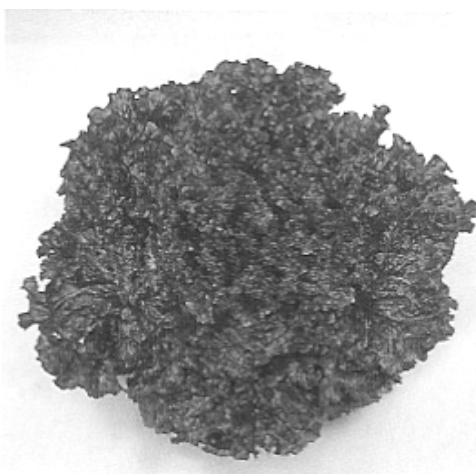
Every 7 – 10 days apply a foliar spray of a 1:200 dilution of Nitrosol to the drip point, up to 10 – 14 days prior to the expected harvest time. This may be done in conjunction with insect pest or disease protection materials if these are required. Be sure to check for compatibility first, by pre-mixing a small sample in the same ratio as they are to be used. Always add Nitrosol as the last ingredient and agitate the mixture well.

In the event that a specific trace element deficiency is identified from a leaf analysis, a small quantity of the relevant materials can be added to a foliar application of Nitrosol. For example, add calcium nitrate, manganese sulphate or copper sulphate into the spray tank for deficiencies of calcium, manganese or copper. Be sure to fully dissolve these materials in water before adding them to the spray tank. Be aware that each of these elements is already present in Nitrosol and regular foliar application of Nitrosol is most likely to have reduced or removed the chance of one of these elements being deficient anyway. This means that if one or more of these elements is found to be deficient only a very small amount of the extra material would generally be necessary to correct a deficiency.

How Nitrosol works

Most fertiliser materials work by supplying one of more of the major nutrients required by plants in order for them to grow to maturity. We consider that Nitrosol produces results that are so far above the average results produced by so many fertilisers, because it does so much more than simply provide a source of major nutrients. In fact Nitrosol works in four ways:

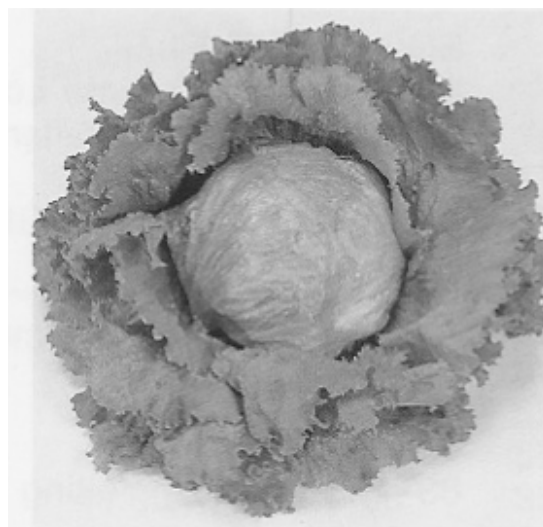
1. It contains the three major nutrients, nitrogen, phosphorus and potassium in the ratio of 8.3.6. as a carefully balanced formulation in a readily plant available form that will feed plants via both the foliage and the roots.
2. Nitrosol also contains all the remaining nutrients and trace elements that are essential for healthy plant growth and development. These are also plant available and in a balanced form to minimise undesirable antagonisms that can occur between various elements.



LETTUCE SC-16
Deepest dark red.

3. Nitrosol is made from a source of organic material rich in nutrients and trace elements but more importantly it contains protein, amino acids, cholesterol, albumin and globulin, ingredients not normally associated with growing plants but that are in fact the building blocks of life. The organic material is present to feed and nurture the biological activity in the soil. The result of this is usually evidenced by increased earthworm activity, better soil structure, better drainage and better water retention. Increased biological activity in the soil leads to better quality, better tasting, healthier, better keeping produce, and improved yields.
4. The two naturally occurring growth promotants in Nitrosol, namely gibberellins and triacontanol, are extracted from certain plants and waxes. In general they stimulate plants to take up and use all the available nutrients, both those in Nitrosol as well as those in surrounding soil. Each of these also has some specific actions with plants. One boosts the process of photosynthesis within minutes of its application and also encourages cell division. The other helps to increase cell growth.

As we note above, Nitrosol is so much more than simply a few major nutrients! That is why successful growers everywhere regard Nitrosol as an essential part of their strategy and programme.



LETTUCE – Excellence
Excellent all round. Tolerates low temperature. Autumn – Spring cropper.