Liquid Organic Humate

A SPECIALISED SOIL TREATMENT FOR IMPROVING SOIL STRUCTURE AND PLANT NUTRIENT AVAILABILITY

INSTRUCTIONS FOR USE

1. **Liquid Organic Humate** must be diluted in water. Use sufficient water to achieve adequate coverage when applying as a foliar spray.
2. Shake or agitate before use. Maintain agitation during dilution and application if possible. 3. Climatic stress - use 5/10L / ha 3-7 days prior to and after extreme stress events (e.g. heatwave and frost) to mitigate crop damage and assist recovery.

APPLICATION GUIDELINES

Category	Crop	Rate	Application / Critical Comments
Nut Trees	Almonds, Hazelnuts, Macadamias, Pecans	5-10L/ha or 1ml per sq mtr of plant area	Planting - drench or water in with 1:400 dilution. Apply from green tip/first growth flush. Recommend 5 applications at critical growth stages inc post harvest. Use higher rate for larger trees
Deciduous Fruit Trees	Pome Fruits, Stone Fruits and other deciduous species	5-10L/ha or 1ml per sq mtr of plant area	Planting - drench or water in with 1:400 dilution. Apply at each growth flush or 5 applications at critical growth stages and post harvest. Higher rates for larger trees
Evergreen Tree Crops	Avocados, Bananas, Citrus, Olives	5-10L/ha or 1ml per sq mtr of plant area	Planting - drench or water in with 1:400 dilution. Apply from Bud initiation and at each growth flush 10 L/Ha/ month on mature trees, fertigated in every month that you irrigate
Fruiting Annuals	Capsicums, Cucurbits, Strawberries, Tomatoes, Pumpkins	5L/ha	Apply at seedling and transplanting and from 15cm growth. Every 10-14 days or 4 applications as required
Leafy Vegetables	Asparagus, Brassicas, Celery, Herbs, Lettuces	5L/ha	Planting out - 1:400 dilution (2.5 ml/L or 2.5L/1,000L water), for watering in of seedlings in a water wheel planter or similar device. Apply at seedling and transplanting and from 3-4 leaf. Every 10-14 days or 4 applications as required
Root Vegetables	Carrots, Onions, Potatoes, Sweet Potatoes	10L/ha	Apply from in furrow. 4-5 applications at critical growth stages
Vine & Berry Crops	Blueberries, Raspberries, Wine and Table Grapes	5-10L/ha or 1ml/ sq mtr	Apply regularly during the growing season. As a minimum, use the product at times of plant stress or recovery such as Pre-Flowering, Fruit Filling & Post Harvest. Higher rates for larger canopies. **Do not apply directly over flowers where flowers are essential to crop productivity. Where bloom is a feature of fruit (e.g. blueberries & table grapes) do not apply as a foliar spray once the bloom develops to avoid any damage**
Broadacre	Canola, Cotton, Pasture Crops (inc Lucerne), Sugar Cane, Turf	10L/ha or 1ml/ sq mtr	Apply at the start of the growing season and after each cut or grazing event in a rotational or strip grazing situation. Apply post emergence, 4-5 applications at critical growth stages. Seed coating (Cereals) Up to 4-10L/tonne of seed. Do not exceed a total of 10L of total liquid per tonne. Sugar Cane - 5L/ha in furrow or billet dip, 2nd app 10L/ha at tillering. Ratoon crops 10L/ha at tillering

GENERAL INSTRUCTIONS

Foliar Spraying: Apply the product as soon as possible after mixing in the spray tank. Maintain agitation in spray tank if possible. **Liquid Organic Humate** can be used as a foliar application or applied directly to the soil and can be applied with boom sprays, air blast sprays, drip systems, travelling irrigators, centre pivots and by aerial application.

Fertigation: Agitate the product regularly in the fertigation tank. For best results use the product on its own. **Liquid Organic Humate** can be mixed with a number of agricultural chemicals, DO NOT COMBINE WITH CALCIUM NITRATE. See tank mix compatibility information at www.seasol.com.au

STORAGE AND HANDLING

Not to be kept for prolonged periods in hot conditions (>30°C) or in direct sunlight. Always use safe work practices for lifting and handling drums. Once diluted, the product should be applied within 24 hours. Agitate the product prior to using and re-agitate if the product is left standing for an extended period of time.

SAFETY DIRECTIONS

Not to be taken. Keep out of reach from children. May irritate the skin and eyes. Avoid inhalation. Use in a well-ventilated space. Wash hands after use. Wash all edible plants before eating. If splashed, wash off with water. If swallowed or irritation persists, seek prompt medical advice. Additional information is listed in the Safety Data Sheet.

CONDITIONS OF SALE

This product must be used strictly in accordance to the directions. The efficacy of the product may be influenced by environmental conditions and application procedures and no warranty, express or implied is offered.

For your safety, please wear gloves and safety glasses when handling this product.

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Liquid Organic Humate

TECHNICAL GUIDE

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Liquid Organic Humate

TECHNICAL INFORMATION

OVERVIEW

Liquid Organic Humate is a highly concentrated 100% organic soil treatment manufactured in Australia. Humate assists the development of improved soil structure, soil moisture retention and plant nutrient availability. Liquid Organic Humate is ideal for use after soil cultivation or seed-bed preparation.

100% **Liquid Humate Extract**

ABOUT LIQUID HUMATE

Liquid Humate is an organic carbon extracted from the Lignite seam of coal deposits. Sources are carefully selected form specific mines in Australia and overseas.

When Liquid Humate is applied to the soil it helps release bound nutrients, providing on going benefits to plants. In sandy soils it also helps reduce nutrient leaching. Humate also assists the development of improved friability in clay soils and soil moisture retention in sandy soils.

FEATURES AND BENEFITS

- Improves soil structure and moisture retention
- Stimulates soil microbial activity
- Improves soil carbon levels
- Increases plant nutrient uptake and reduces leaching

An organic carbon extracted from the Lignite seam of coal deposits. Sources are carefully selected form specific mines in Australia and overseas.

LIQUID ORGANIC HUMATE IMPROVES SOIL PROPERTIES

Liquid Humate is an extract rich in organic carbon content and composed of accessible carbon in the forms of humic and fulvic acids. Liquid Organic Humate has a 21% total solids content and 2.4% (w/v) Potassium *(Typical Analysis April 2017)*. The humic and fulvic acids are biologically active and accessible to soil microbes for decomposition. Liquid Organic Humate is made from a dried Humic and Fulvic extract of lignite producing a refined liquid organic humate product and filtered to 150micron for agricultural use.

Humic substances such as humic and fulvic acids are natural organic molecules originating from the biological and chemical transformations of plant matter that eventually decomposed to form peat *(Canellas et al 2015)*. The carbon in these forms are available to the soil microbiology for processing. Other fractions of the Soil Organic Matter are resistant to decomposing and slower to enter the soil carbon cycle.

Humic substances can be extracted by liquefying humate in lignite using chemical hydrolysis and acid and alkaline processing. Humic acids are complex and heterogenous in chemical structure, have amphiphilic (having both hydrophilic and hydrophobic parts) properties, are linked by intramolecular associations which makes their precise characterisation difficult despite possessing a distinguishable carbon backbone.

Humic acids are useful in agriculture for their soil improving properties and accessible carbon *(Canellas et al 2015; Jindo et al 2020; Zanin et al 2019)*. Liquefied humic substances are generally applied as a soil drench to improve:

- **Soil Structure:** The addition of humic acids to soils triggers the formation of clay-humic complexes which increase soil aggregation. Improved soil aggregation results in improved structural stability and soil porosity, increased water holding capacity, less soil compaction and improved soil aeration. Soil treated with Humic acids have improved soil aggregate stability after successive wetting and drying cycles.
- **Buffering capacity:** Humic acids are rich in reactive acid-functional groups which provide an inherent buffering capacity. Humic acids buffer over a wide pH range which is useful as many fertilisers acidify the soil.
- **Chelation:** Humic substances have chelation properties. The abundance of functional groups in the complex humic substances allows them to have positive and negative charges. In the soil these charges attract both cations and anions making more of these ions available to the plant. The aliphatic (open chain) nature enables humic acids to reduce nutrient leaching, enhances fertiliser efficiency and prolongs the period that the bound nutrients are available to the plant.
- **Microbial activity and soil carbon:** Humic acids are a source of food for various micro organisms and can increase microbial activity, abundance and biomass. Lower molecular weight fractions of humic acids tend to be the most biologically active. Increases in microbe activity enhances the mineralization of soil organic matter, thus increasing the pool of nutrients available to plants.

Humic acids have been found to be more effective under soil conditions of poor fertility and low organic matter content. Humic acids are synergistic with agricultural products that increase plant root growth because of improved nutrient availability and access to plants.

AVAILABLE IN 3 SIZES

Whatever your requirements, we now have sizes to suit your needs. Liquid Humate is available in 20L, 200L & 1000L quantities.

Thinking roots?
Think Seasol.