Organic Crop Protectants

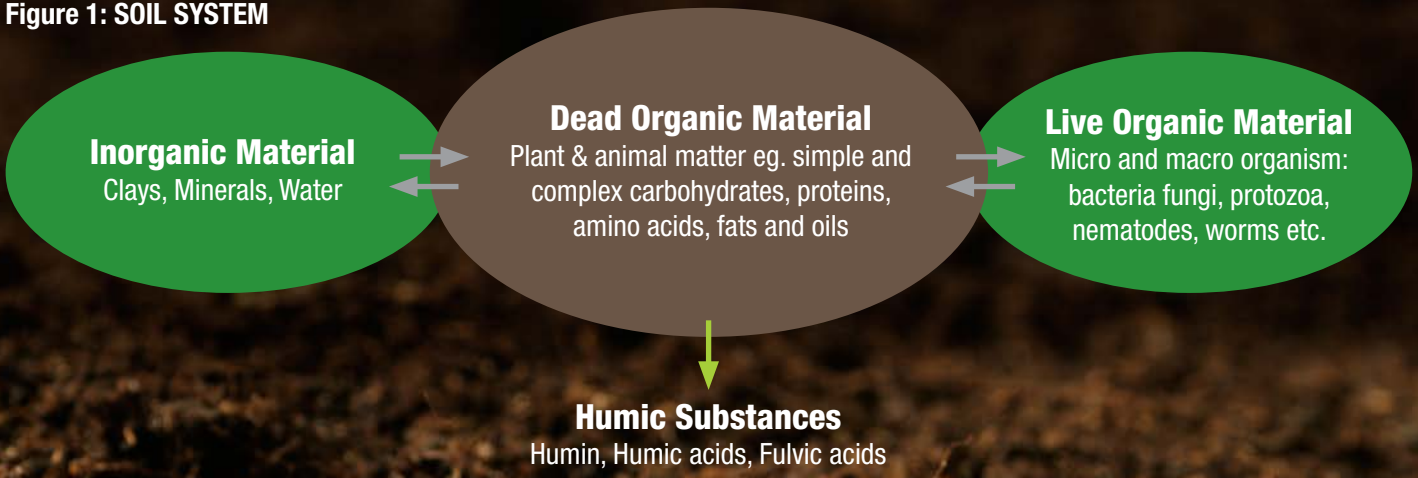
Australian Organic Registered Farm Input
ALLOWED INPUT 222AI

HUMIC PRODUCTS

SOIL SYSTEM AND THE IMPORTANCE OF HUMIC SUBSTANCES

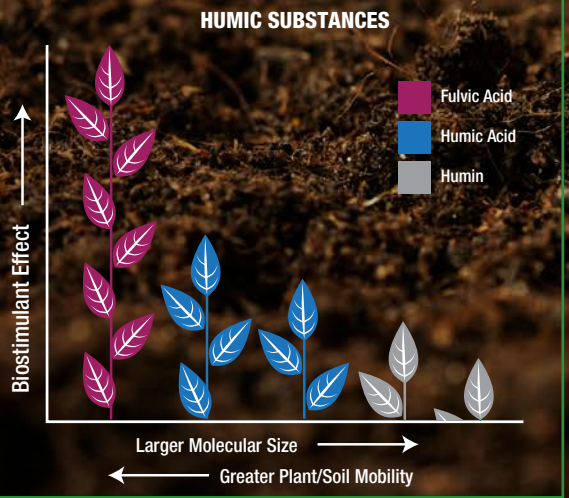
A healthy soil system can be broken down in three interdependent groups (Figure 1). Soil fertility relies on the continuous cycling of the system to facilitate the release of nutrients and production of humic substances. Humic substances form the glue that hold the system together and provide the key components for sustainable soil fertility. Sustainable soil fertility should be the goal of all cropping enterprises wanting to maintain healthy yields with minimal inputs.

Figure 1: SOIL SYSTEM



TYPES OF HUMIC SUBSTANCES

Recently there has been a rapid increase in the number of humic based products available to growers. They come from many sources ranging from hard black coal, ROM (Recent Organic Matter eg. sludge, composted plant matter and manure) to the more complex and richer humic sources such as brown coal, peat and leonardite. Leonardite is a medium brown coal and it contains the most complex and bio-active forms of humics.



Definition of Humic Substances

Humic substances (humics) can be broken down into three main categories:

1. HUMIN: The most stable, least bio-active immobile component of humics. Adds physical structure to soils helping to maintain moisture levels and air movement. Very large molecular size.
2. HUMIC ACID: The more bio-active and mobile forms of humics due to their smaller molecular size and solubility. Humic acids can be alkaline or acid soluble. The most common example of alkaline soluble humic acid is potassium humate (potassium hydroxide soluble). The acid soluble forms are sometimes referred to as Fulvic acids. Humic acids add structure, improve CEC (nutrient retention) and moisture retention.
3. FULVIC ACIDS: Are the most bio-active and soluble forms of humics due to their very small molecular size compared with humic acids. Fulvic acids interact with plant membranes and are referred to as plant bio-stimulants. They are sometimes used as nutrient “shuttles” or chelators to improve the uptake of nutrients and other foliage applied substances. Fulvic acids are much lighter in colour than humic acids ranging from brownish to almost yellow.

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BENEFITS TO GROWERS

Commercially available humic products based on leonardite are valuable to growers who have not got the time or resources to green manure and fallow or apply large quantities of compost on a regular basis.

HUMIC ACIDS: Humic acids from leonardite are beneficial to growers with the following issues:

1. If growers are seeing a general decline in soil fertility, meaning that the same levels of fertiliser are no longer delivering the same crop response
2. Light sandy soils are having difficulty holding nutrients and nutrients are leaching away from the root zone too quickly
3. Soil pH and salinity are impacting on soil structure and fertility
4. Irrigation water is not percolating or being held in the root zone long enough to benefit plant growth

PRODUCT	SPECIFICATION		USE	RATES AND TIMINGS
OCP HUMIC 90 Potassium humate crystal	pH	8-9	The small crystal can be dissolved for use in fertigation or can be applied with fine seeding or other fertiliser blends.	Vegetables and other annual crops: Sandy soils 2 kg/ha with first irrigation and again @ 2kg at tuber set or heart formation. Reduce to 1kg for heavier soils. Vines, Bananas and Tree crops: Sandy soil 2kg/ha applied just after budburst or first flush or prior to liquid soil applied fertiliser 2. Reduce to 1kg/ha for heavier soils. Turf - Greens & tees: 2kg/ha, Fairways: 1kg/ha at renovation. Ornamentals: 0.5 g/L through fertigation Seed dressing: 1-2kg/ton of seed
	Solubility	Min 98%		
	Humic & fulvic	Min 82%		
	Potassium	Min 8%		
	Carbon Min	70%		
OCP Humic 18 Liquid Potassium humate	pH	9-10	The liquid is simply more convenient to use as it does not require any time to allow the humates to adsorb the water. SHAKE WELL BEFORE USING	Vegetables and other annual crops: Sandy soils 10L/ha with first irrigation and again @ 5L/ha at tuber set or heart formation. Reduce to 5L for heavier soils. Vines, Bananas and Tree crops: Sandy soil 10L/ha applied just after budburst or first flush or prior to liquid soil applied fertiliser 2. Reduce to 5L/ha for heavier soils. Turf - Greens & tees: 20L/ha, Fairways: 10L/ha at renovation. Ornamentals: 2.5ml/L through fertigation Seed dressing: 5L/ton of seed
	Solubility	Min 99%		
	Humic & fulvic	Min 14%		
	Potassium	Min 1.4%		
	Carbon	Min 12%		

FULVIC ACID: Fulvic acids are beneficial to growers who are seeing the following effects in their crops:

1. Increasing irregular yields lacking uniform maturity
2. Crop stresses brought about by frost, hail and reduced moisture levels
3. Reduced flavour and other quality indicators
4. Greater levels of post harvest breakdown

PRODUCT	SPECIFICATION		USE	RATES AND TIMINGS
OCP FULVIC 90 Fulvic acid powder	Fulvic acid	Min 90%	Fulvic acid is the most bio-active form of humic substances and is best applied to plant foliage for maximum effect. Can be mixed with other nutrients as a chelating agent and with herbicides.	**Organic vegetable** bed prep in sandy soils: 500g/ha or 0.1% of tank solution with other foliar fertilisers. Avoid applying close to harvest as some minor staining may occur. **Trees/Vines/Bananas:** 500g/ha or 0.1% of tank solution with other foliar fertilisers. Avoid applying close to harvest as some minor staining may occur. **Turf establishment** 50g/100kg of seed.100g/100m^2 during sodding, stolonizing with other liquid starter fertiliser application.**Turf maintenance** 500g/ha with other liquid fertilisers.
	Yellow/brown pH	5-7		
	Solubility	>97%		
OCP FULVIC 9 Liquid fulvic acid (Minimum order 1000L)	Fulvic acid	Min 9%	The liquid is more convenient to use. Can be easily mixed with other liquid foliar nutrients to act as a highly effective organic chelator. Other dilutions like 6% or 3% can be made on request	**Organic vegetable** bed prep in sandy soils: 5L/ha with other foliar fertilisers or 1% of tank solution. Avoid applying close to harvest as some minor staining may occur. **Trees/Vines/Bananas:** 5L/ha with other foliar fertilisers or 1% of tank soltuion. Avoid applying close to harvest as some minor staining may occur. **Turf establishment** 1L/100m^2 during sodding, stolonizing with other liquid starter fertiliser application **Turf maintenance** 5L/ha with other liquid fertilisers.
	pH	5-7		
	Solubility	100%		

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