



**ecofarma**  
Restoring Soil Fertility

**Company Profile**

# Our Mission

Healthy soils are a  
cornerstone to all  
ecosystems on earth.

***“We want to become  
the leading company  
in restoring the  
farmland humus layer,  
to return sustainable,  
natural soil  
productivity”***



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"Behind every  
SUCCESSFUL CROP,  
- Ecofarma"



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## About Us

Ecofarma is a biotech company based in Pretoria, South Africa and headquartered in Gothenburg, Sweden.

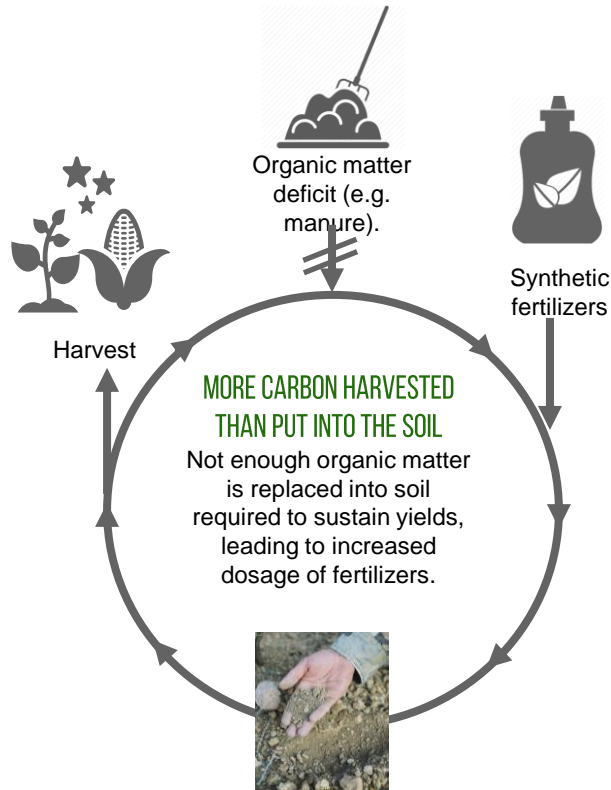
We are primarily focussed on the research, development and industrial production of Humic and Fulvic Acids for the agricultural sector. Ecofarma's Humic and Fulvic based organic acids are extracted using our patented process.

We offer a broad range of high-value products for application in crop production, livestock breeding, environmental technology and the industrial sector.

Ecofarma believes in providing products to ensure the sustainability of soils for future generations.

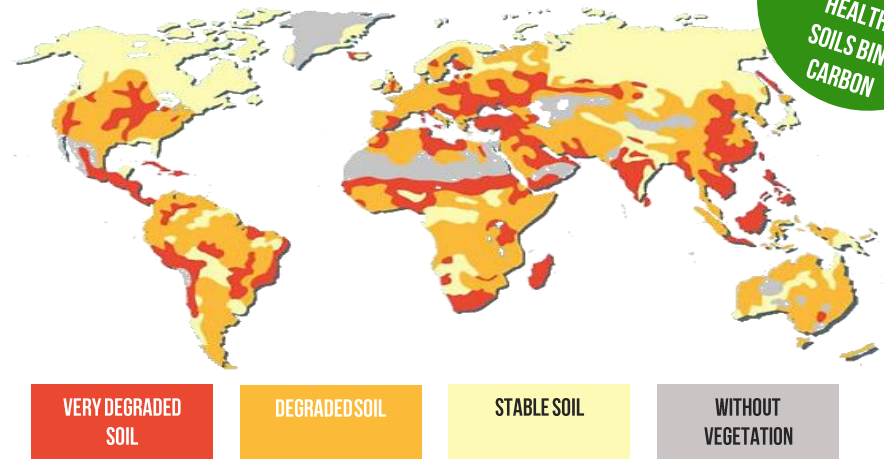
# What is Our Motivation?

## CONVENTIONAL PRODUCTION PRACTICES DEplete CARBON



*Decades of synthetic fertilization have degraded farmland soil*

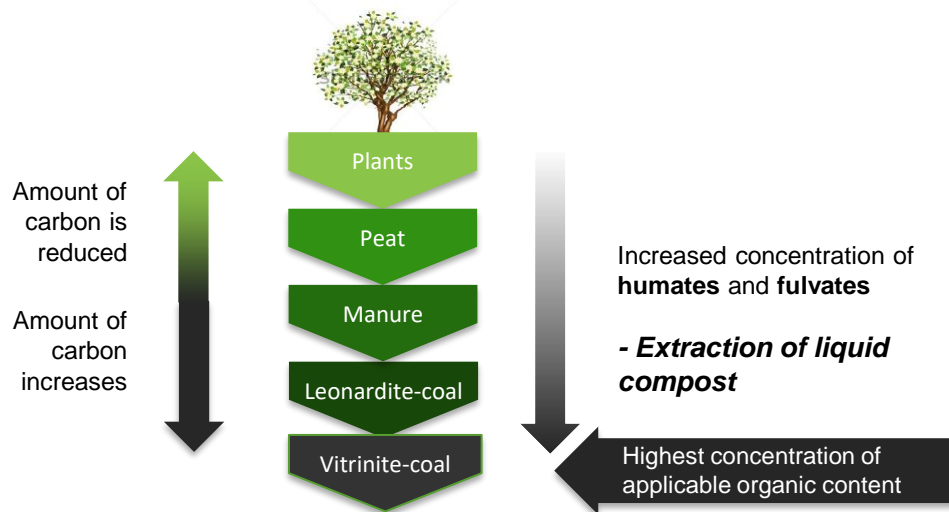
## GLOBAL STATUS OF HUMAN SOIL DEGRADATION



- 10 % of earth's farmland has died
- 30 % of Europe's farmland is under stress
- Desertification is increasing
- Soils with low organic matter requires significantly more nitrogen, and do not manage to retain excess nutrients.
- Stressed soils have become completely dependent on synthetic fertilizers because they cannot decompose organic matter.

# Humates are the Only Viable, Large Scale Solution To Restore Soil for Sustainable Productivity

## ALTERNATIVES FOR SOIL CARBON RESTORATION



- Present farming practices oxidises carbon from soil.
- Additional sources for replacing organic matter as a source of carbon are needed.
- Humates are the only known source of carbon that may economically be distributed in large volumes to restore and maintain farmland productivity.

## HUGE IMPACT ON CARBON FOOTPRINT

Healthy soils are a cornerstone to all ecosystems on earth.

Restoring soil productivity would have the single most significant impact on the carbon footprint on a global scale and lowers the water irrigation need by more than 30 %.

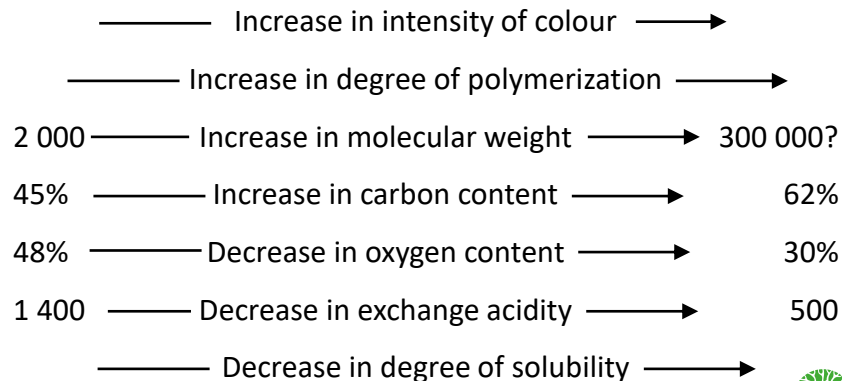
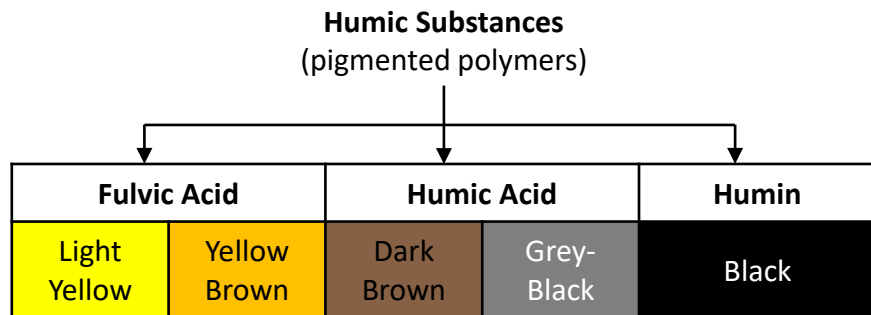
The production of N chemical fertilizers alone was estimated to release 410 million tons CO<sub>2</sub> eq. per year.\*

A global long term 30% penetration of use of humates alone has the potential to lower global GHG emissions by 120 million tons.

The potential long-term carbon binding effect is even greater.

# What are Humates or Humic Substances?

## Postulated Relationships Between Different Humic Substances



Humic Substances occur naturally in our environment and are the remains of a process called humification, which is the biodegradation of biomatter that then recombines and synthesizes into dark coloured complex compounds with no definite chemical structure.

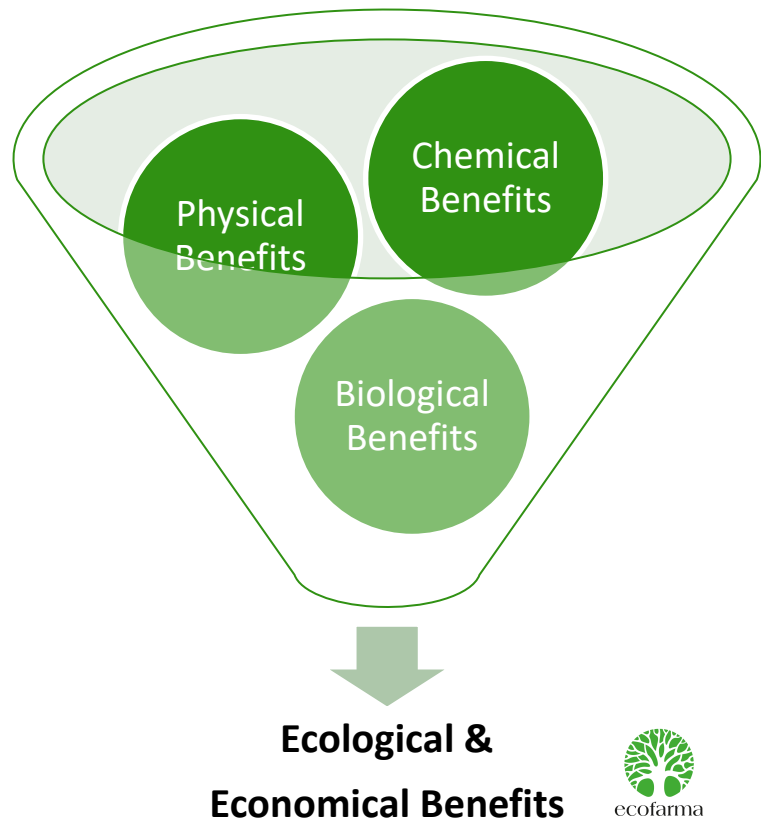
Humic Acids and Fulvic Acids are extracted from Humic Substances.

These organic compounds are differentiated according to their solubility in either acidic or basic solutions. They also vary in molecular size, carbon-hydrogen-oxygen-nitrogen content and their function in biological systems.

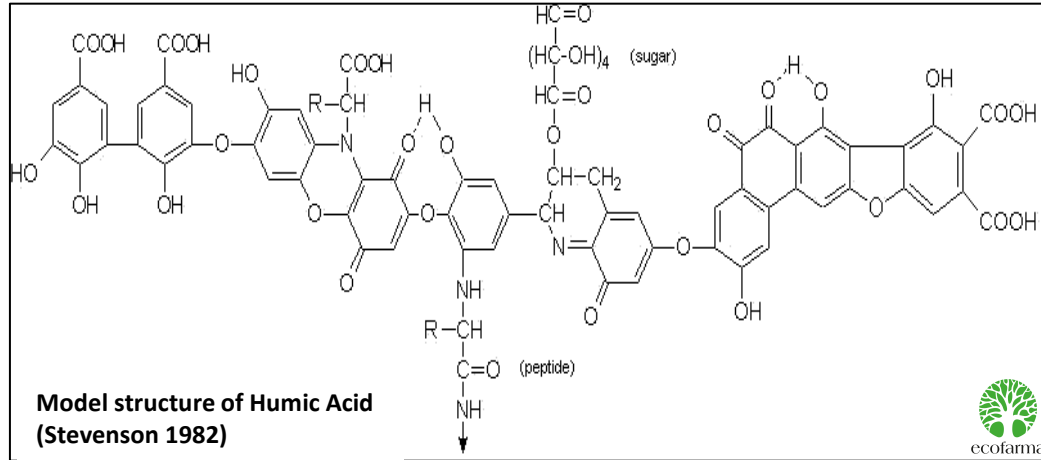
# Known Benefits of Humates

Various scientific studies have shown that the humic acids content in soil is a significant contributor to soil fertility. Improved soil fertility and plant growth are positively influenced by these substances due to their effect on the cation-exchange capacity (CEC), the oxygen content and above average water holding capacity.

Humates' most important feature is their ability to bind insoluble metal ions, oxides and hydroxides, and to release them slowly and continually to plants when required. These properties result in physical, chemical and biological benefits in soils which in turn translate to ecological and economical benefits.



# What are Humic Acids?



## Characteristics:

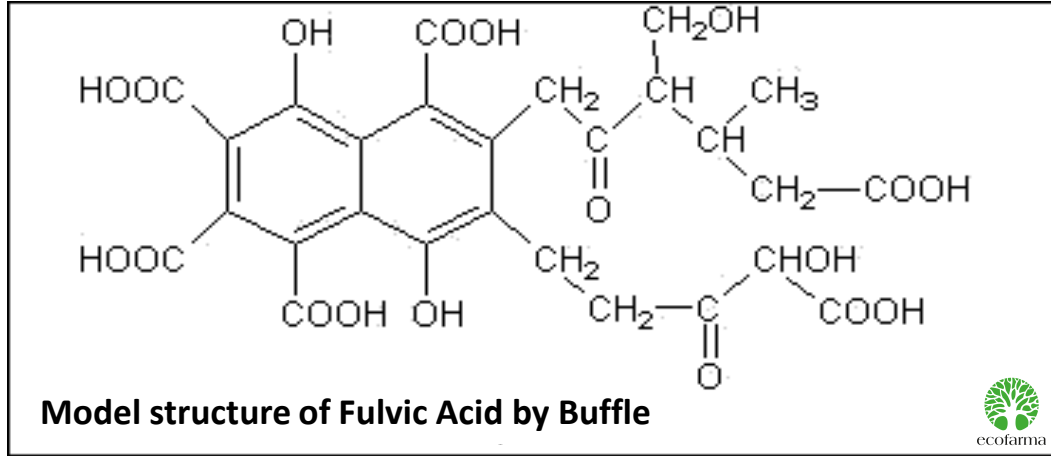
- Relatively large molecules (150 – 300nM in size).
- Has a lower chemical reactivity, i.e. less functional groups or ionic charges.
- A chemical solution at a pH of 10, i.e. alkaline.
- Cannot be absorbed by plant roots or leaves.
- Cannot shuttle complexed nutrients into the plant.
- Enhances the utilization of nutrients and prevents reaction with Phosphate anions which will form insoluble Phosphate compounds.
- It contributes towards cation exchange capacity (CEC) of soil.

## Definition:

Humic Acids is a broad term used in commerce and science to identify a class of isolated compounds that can be extracted from natural humic substances in a number of ways, typically with alkali solutions, and then precipitated from the alkaline aqueous solutions by acidification.



# What are Fulvic Acids?



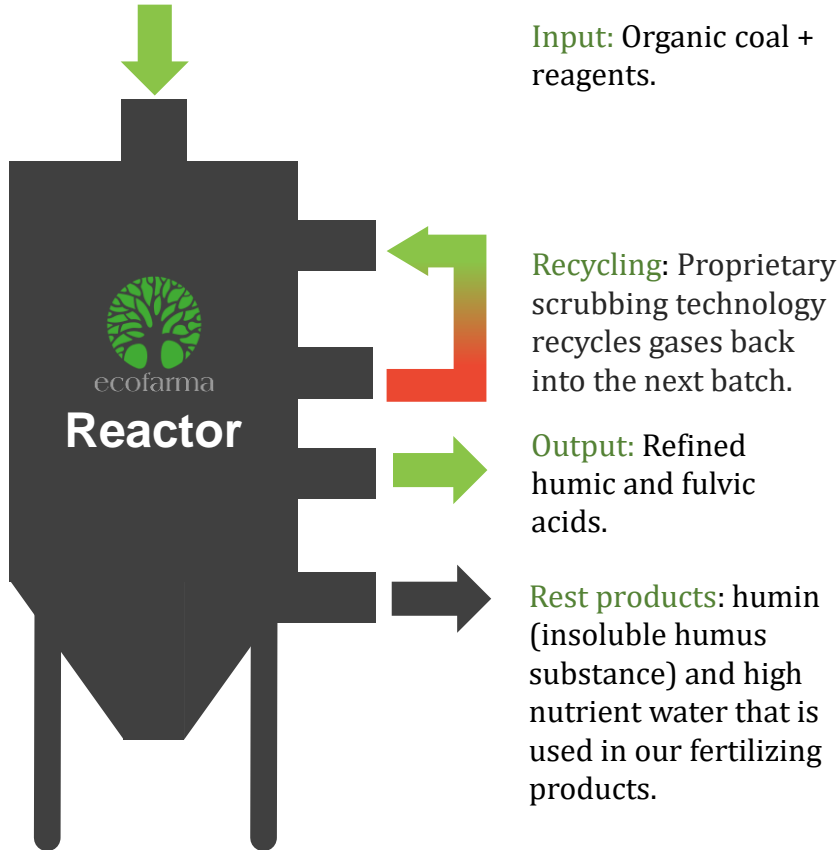
## Definition:

Fulvic Acids is a broad term used in commerce and science to identify a class of isolated compounds extracted from natural humic substances that are soluble in both alkali and acidic aqueous solutions.

## Characteristics:

- Relatively small molecules (80 – 100nM in size).
- Higher chemical reactivity – i.e. they possess a higher number of functional groups or ionic charges.
- Water soluble at any pH.
- No precipitation at any PH, i.e. always in solution, especially in productive soils.
- Can be absorbed by plant roots and leaves.
- Shuttles nutrients into the plant.
- Enhances utilization of available mineral nutrients.
- Contributes towards the CEC of the soil.

# Our Production Process

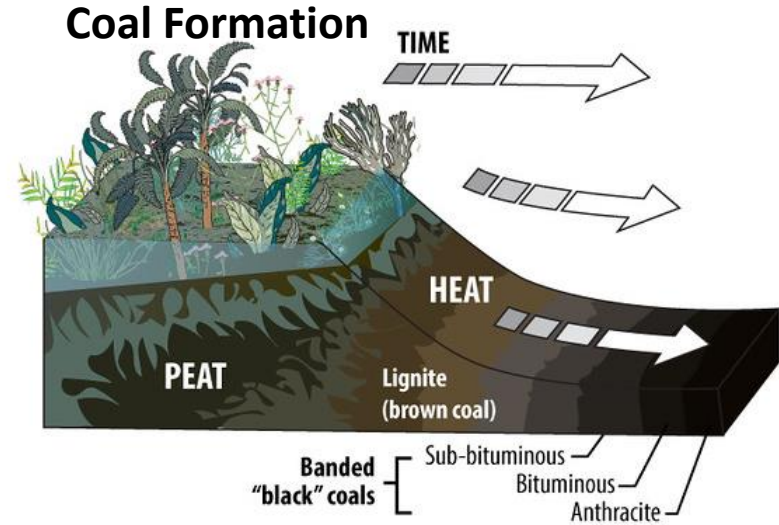


Ecofarma uses a unique production method to extract and refine Humic and Fulvic acid at our production plant located in Pretoria, South Africa. Our patented process is used to extract high quality humates from a specific coal source.

We have embarked on a focussed industrialisation process which involves increasing installed capacity, improving efficiencies in production and implementing and improving quality assurance methodologies including Good Manufacturing Processes (GMP) implemented during 2019 and ISO 9000 & 14000 to be implemented during 2020.

Our facility places a very high emphasis on compliance with all regulations – legal, H&S and environmental. Management and staff are dedicated to continued innovation to improve and refine production processes.

# Ecofarma's Raw Material: Southern African Vitrinite Coal



Humates are obtained from the Vitrinite content of coal which is the major contributor to the carbon content. Ecofarma's unique source of black coal has a 90% Vitrinite content *versus* Brown coal which only has 60%, mainly due to the age of the coal. The increased Vitrinite concentration implies a higher extraction rate and concentration of Humates from our source.

# Ecofarma Product Set



Our Humic and Fulvic Acid Base products are used to manufacture a range of proprietary blends for different applications in various sectors.

Ecofarma has obtained distribution rights for complementary products from various reputable organisations. These products include *inter alia* soil beneficial microorganisms and organic plant stimulants.

# Our Product Portfolio

## SOIL CONDITIONERS

**FULGRO** - A liquid carbon extraction that contains Fulvic Acid that chelates nutrients in soils. (\*M83)

**HUMEGRO** - A liquid carbon extraction that contains Humic and Fulvic Acids that improve soil structure and enhances the binding of nutrients in soils. (\*M80)

**FULLSPEC** - A liquid carbon extraction that contains a blend of Humic and Fulvic Acids that chelates nutrients in soils. (\*M81)

**MOS BLEND** - A blend of a wide range of beneficial microorganism inoculants to occupy the root zone of plants in the soil. Inoculants are packed in a Humate complex powder base to secure the lifespan and the effectiveness of microorganisms when colonizing in soils. (\*K8903)



## PLANT NUTRITION

**HUMEGRO DKP** - A liquid carbon extraction that contains Humic and Fulvic Acid with added Phosphate (P) and Potassium (K). (\*M82)

**FULGRO U-CAL** - A liquid carbon extraction that contains Fulvic Acid with added Calcium nitrate to improve Calcium (CA) uptake in soil. (\*M84)

**FULGRO CAAN** - A liquid carbon extraction that contains Fulvic Acid with added Nitrogen (N) and Calcium (Ca) to improve Nitrogen uptake in soil. (\*M85)

**FULDEX BOOSTER** - A liquid carbon extraction that contains Fulvic Acid to chelate macro and micro nutrients when applied as a foliar spray. (\*M86)

**FULDEX GREENCARE F** - A liquid carbon extraction that contains Fulvic acid and Potassium phosphite to improve soil health. (\*M87)

**FULPHOS-NITRO** - A liquid carbon extraction that contains Fulvic, Phosphoric and Nitric Acids to clean irrigation systems and break compacted soil surfaces. (\*M88)



# Our Product Portfolio (continued)

## LIVESTOCK FEED SUPPLEMENTS

**ECOFARMA FULLSPEC** - A golden carbon liquid containing Humic & Fulvic acids that chelate nutrients in animal feeds. (\*V30279)

**ECOFARMA FULVIC ACID** - A golden carbon liquid that contains fulvic acid that chelates nutrients in the digestive systems of animals when applied through the drinking water. (\*V30280)

## COSMETIC PRODUCTS

**Fulvia Hair Treatment™** - A unique formula which unlocks the incredible power of Fulvic Acid to help your body to absorb nutrients and remove toxins, allowing the hair follicles to function just as nature intended.

*Our liquid products are available in 20 liters, 25 liters, 1 000 liters, bulk tanks and mobile tankers.*



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# Contact Details



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