



# AUTUS

## GROWTH

BIOACTIVE CARBON

REGENERATION

BIOSTIMULANTS



# PUTTING WORDS INTO ACTION

Our mission is to unlock a new paradigm in Agriculture designed to -

- Reduce and Reverse the impact of climate change
- Promote Soil Health through regeneration and sustainability for human health
- Deliver effective and practical solutions to the Agriculture industry

**Biostimulants** are defined as “a substance or micro-organism that, when applied to seeds, plants, or on the rhizosphere, stimulates natural processes to enhance or benefit nutrient uptake, nutrient use efficiency, tolerance to abiotic stress, or crop quality and yield.” (2018 USA Farm Bill)

## BIOSTIMULANTS - the future of soil health in Agriculture

Did you know? Biostimulants are broadly categorised as -



Seaweed Extracts



Amino Acids



Organic Compounds



Biologicals e.g. fungi, bacteria



Inorganic Compounds



We produce a range of Organic Compound Humates and Fulvates to improve soil, plant, and human health

The **Biostimulant industry** was valued at US\$ 3.4 billion in 2023, and projected to reach US\$4.5 billion in value and 446 000 metric tons in volume by 2025 and likely to grow very strongly into the future as **more environmentally friendly and greener technologies** become favoured.



# WHAT ARE HUMATES?

**Humates are the most chemically active compounds in soils and are the major component of soil organic matter.** Humates are formed in nature through the humification of plant matter over a long period of time.

There are **three major components of humates:** Humic Acid (soluble above pH of 4), Fulvic Acid (soluble at any pH), Humin (insoluble).

Presence of **multiple functional groups** is the key to quality of manufactured humates.

Global research papers in the public domain and current ongoing research concludes clearly that **humates can also be very beneficial in the animal health and nutrition.**

**The key areas of humate research** focuses on Production Parameters, Mucosal Protection, Detoxifying Agents and NPN (non protein nitrogen) stabilisation.

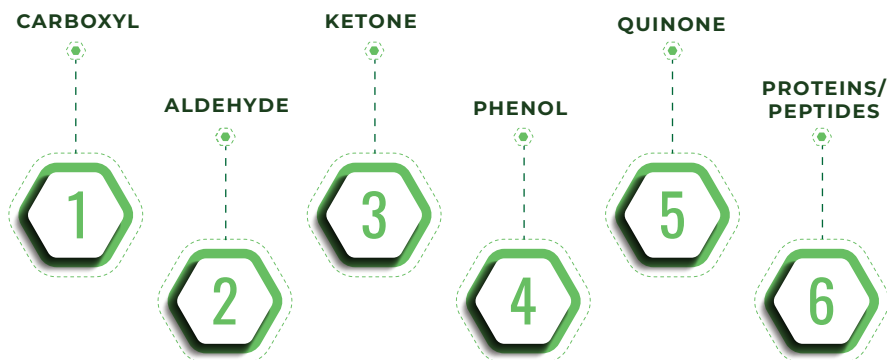
Including humates in animal nutrition is now believed to improve **gut health, mineral uptake,** boost the **immune system,** and provide **anti-inflammatory properties.**

**Autus is currently embarking on an animal health research program.**

[Read more on autusgrowth.co.za](https://autusgrowth.co.za) →

## FUNCTIONAL GROUPS

Autus Growth contains 6 different functional groups. The slow brewing design of the Autus production process is a key to building an activated humate product containing a good mix of these functional groups.



## FOR LARGE SCALE SUCCESS

The Autus Product Range of Humic and Fulvic Acids are available in a wide range that can accommodate agricultural operations at any scale.

[Visit our website for full product brochures](#) →





**OUR  
ESTABLISHED  
SOUTH  
AFRICAN  
CLIENT BASE**

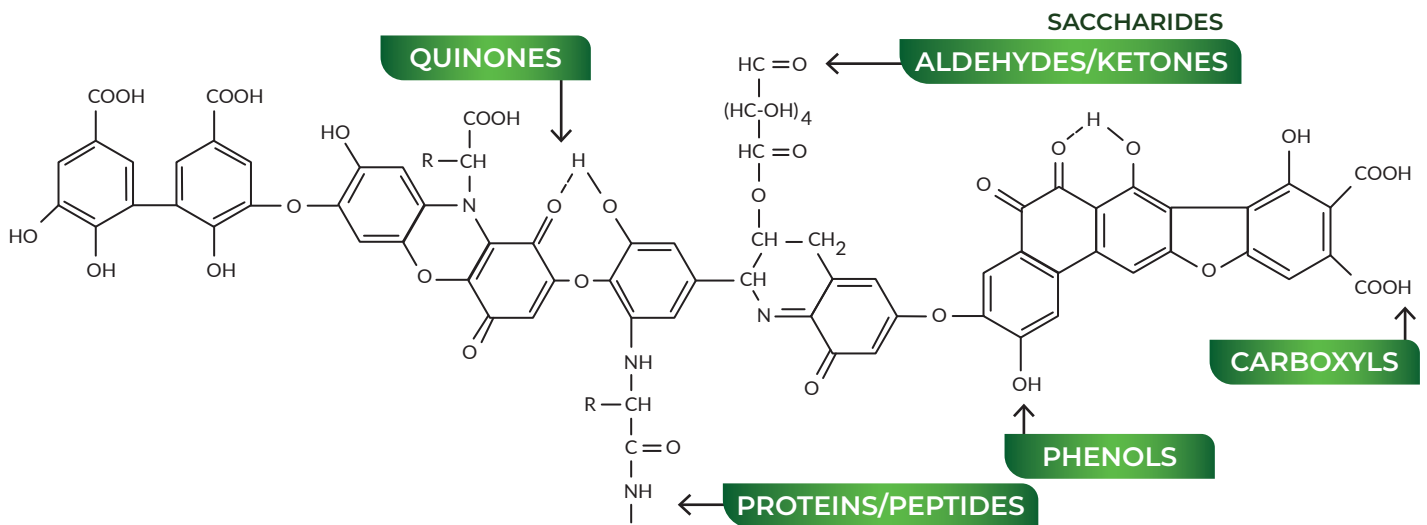
<b>KYNOCH ETG</b>	<b>INTELIGRO/ WINFIELD UNITED</b>
<b>METSON</b>	<b>MULTIGREEN</b>
<b>D FERT</b>	<b>LTS - LOWFELD TRADING SOLUTIONS</b>
<b>INTROLAB</b>	<b>NUTRIGRUN</b>
<b>LIMPOPO BIOFERTILITY</b>	<b>VS AGRI/ NUTRIBIO</b>
<b>WINFERT</b>	<b>Ongoing R&amp;D with 8 customers</b>



## Benefits of using Humates

-  Improved plant health and crop yields
-  Better seed germination
-  Increased root vitality
-  Improved nutrient uptake
-  Stimulates beneficial microbial activity
-  Increased fertiliser uptake, lower leaching
-  Increased chlorophyll synthesis
-  Adds organic matter to organically deficient soil









# COMPLEX STRUCTURES OF HUMATES



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INCORPORATING HUMATES

## INTO AGRICULTURAL PROGRAMMES:

-  Coating of Urea and MAP
-  Liquid fertilisers e.g. with UAN
-  Foliar Spray
-  Direct application to soil via fertigation
-  Coating / application with granulated lime, gypsum and other granular products
-  Seed dressing
-  Crop chemicals
-  Animal Nutrition



Application Case Studies available on our website →



**AUTUS**  
GROWTH

# PRODUCT CATALOGUE



# AUTUS BLACK

Registration Number M419, Act No 36 of 1947

## FERTILIZER GROUP 3



A liquid fertiliser containing humic and fulvic acid. Use in agriculture as a fertiliser. Read the label before use. Use only as directed.

**AUTUS BLACK** is a proprietary humate with a wide range of applications.

Suitable for Maize, Sweetcorn, Sorghum, Millet, Barley, Oats, Rye, Dry Bean, Green Bean, Soybean, Lentils, Lupins, Clover, Alfalfa, and Peanut.

- Improved plant health and crop yields
- Better seed germination
- Increased root vitality
- Improved nutrient uptake
- Stimulates beneficial microbial activity
- Increased fertiliser uptake, lower leaching
- Increased chlorophyll synthesis
- Adds organic matter to organically deficient soil

<b>TOTAL HUMATES</b>	15.0% (by mass)
<b>HUMIC ACID</b>	12.0% (by mass)
<b>FULVIC ACID</b>	3.0% (by mass)
<b>ORIGIN</b>	extract from coal via oxidation
<b>COUNTRY OF ORIGIN</b>	South Africa
<b>POTASSIUM (K)</b>	3.0%
<b>pH</b>	11.5 - 12.5
<b>SPECIFIC GRAVITY</b>	1.08 - 1.10 g/cm <sup>3</sup>

<b>APPEARANCE</b>	Dark brown to black liquid
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# AUTUS GROWTH

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[www.autusgrowth.co.za](http://www.autusgrowth.co.za)

**Emergency Contact Numbers: 082 506 7818**

**Registration Holder and Supplier**  
Autus Fertilizer (PTY) Ltd  
Registration Nr | 2011/130411/07



# AUTUS YELLOW

Registration Number M427, Act No 36 of 1947

## FERTILIZER GROUP 3



A liquid fertiliser containing humic and fulvic acid.  
Use in agriculture as a fertiliser.  
Read the label before use.  
Use only as directed.

**AUTUS YELLOW** is a proprietary humate with a wide range of applications.

Suitable for Wheat, Barley, Rye, Oats, Cabbage, Lettuce, Broccoli, Brussel Sprout, Spinach. Different application rates are recommended.



Improved plant health and crop yields



Better seed germination



Increased root vitality



Improved nutrient uptake



Stimulates beneficial microbial activity



Increased fertiliser uptake, lower leaching



Increased chlorophyll synthesis



Adds organic matter to organically deficient soil

<b>FULVIC ACID</b>	10.0% (by mass)
<b>ORIGIN</b>	extract from coal via oxidation
<b>COUNTRY OF ORIGIN</b>	South Africa
<b>pH</b>	1.6 - 2.2
<b>SPECIFIC GRAVITY</b>	1.01 - 1.05 g/cm <sup>3</sup>

<b>APPEARANCE</b>	Light brown to yellow liquid
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# AUTUS GOLD

Registration Number M417, Act No 36 of 1947

## FERTILIZER GROUP 3



A liquid fertiliser containing humic and fulvic acid. Use in agriculture as a fertiliser. Read the label before use. Use only as directed.

**AUTUS GOLD** is a proprietary humate with a wide range of applications.

Suitable for Dry Bean, Green Bean, Soybean, Lentils, Lupins, Clover, Alfalfa, Peanut

- Improved plant health and crop yields
- Better seed germination
- Increased root vitality
- Improved nutrient uptake
- Stimulates beneficial microbial activity
- Increased fertiliser uptake, lower leaching
- Increased chlorophyll synthesis
- Adds organic matter to organically deficient soil

<b>TOTAL HUMATES</b>	18.0% (by mass)
<b>HUMIC ACID</b>	15.0% (by mass)
<b>FULVIC ACID</b>	3.0% (by mass)
<b>ORIGIN</b>	extract from coal via oxidation
<b>COUNTRY OF ORIGIN</b>	South Africa
<b>TOTAL NITROGEN (N)</b>	0.5%
<b>POTASSIUM (K)</b>	4.5%
<b>pH</b>	9.5 - 10.5
<b>SPECIFIC GRAVITY</b>	1.08 - 1.10 g/cm <sup>3</sup>

<b>APPEARANCE</b>	Dark brown to black liquid
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# AUTUS GROWTH

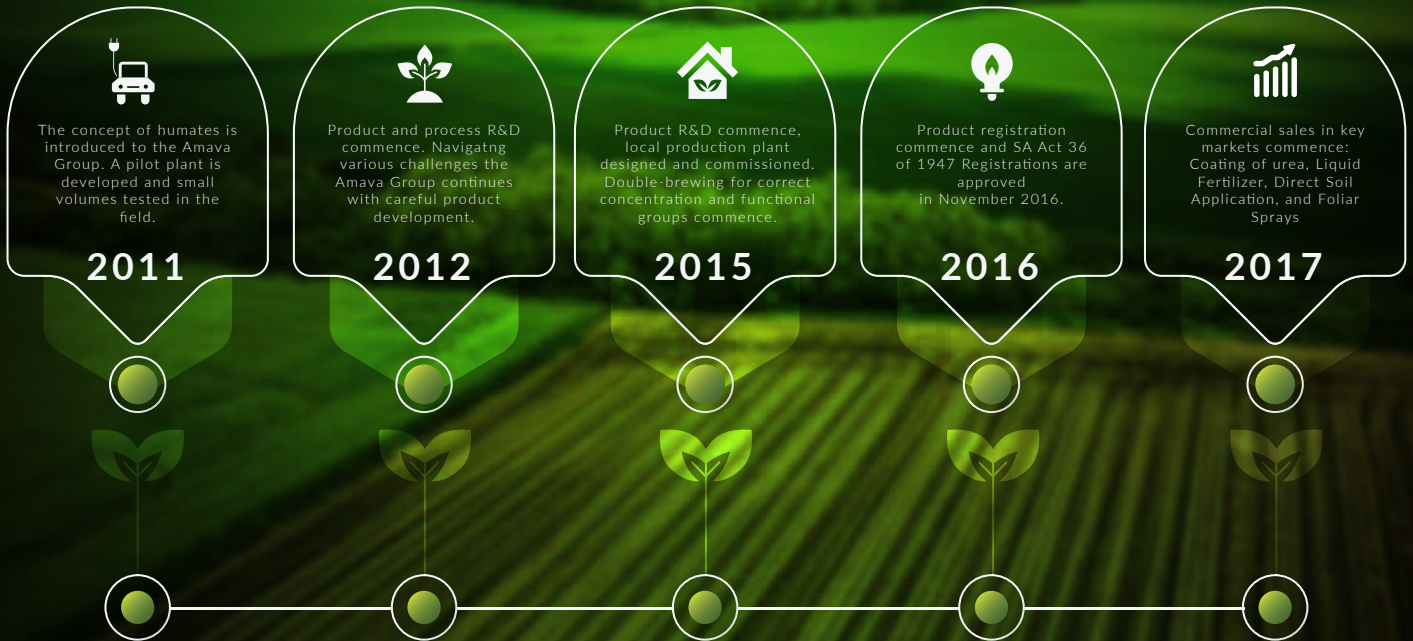
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# THE AUTUS GROWTH DEVELOPMENT TIMELINE



## CHALLENGES FACED IN THE R&D PROCESS

- Credibility (local SA production of these products were not regarded as possible).
- Limited recognized laboratories equipped or skilled to test humates (SA and globally).
- Skepticism around high quality locally manufactured product.
- QC variations beyond norms.
- Poor quality snake oils offered in the market. Poor results as high costs led to low application rates.

The production process currently used by Autus can best be described as slow brewing.

A carefully selected source of coal provides the solid foundation on which this very deliberate process is built. This coal is slowly oxidized to build the humic and fulvic acid in the form of oxidized humate and oxidized fulvate.

## THE AUTUS PRODUCTION PROCESS

**CONSISTENCY**

**REPEATABILITY**

**FUNCTIONAL QUALITY**

Diligent care is taken during the slow brewing stage to ensure that brewing temperatures are well controlled to prevent a reduction in quality of these temperature sensitive organic acids and functional groups. The critical temperature of 80C cannot be exceeded. The production team follows this very disciplined process for every batch produced – a high quality product with excellent consistency is the result.

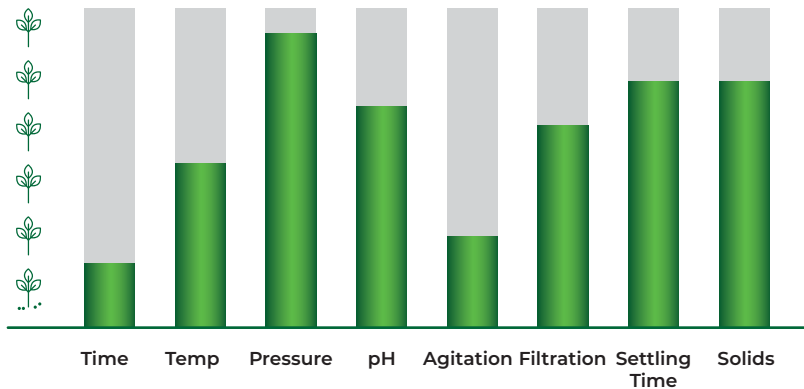


### Key process and control parameters during the production process:

- Batch preparation of the coal.
- Oxidative Polymerization, which is the rebuilding of the humic and fulvic acid molecules, using an oxidizing agent.
- Extraction of fulvic acid (at a low pH ) creating Autus Yellow.
- Increasing the pH to solubilize the humic acid, which is then extracted yielding Autus Black.
- Autus Gold is produced without removal of the fulvic acid – hence the richer blend of both fulvic and humic acid.

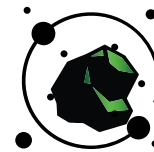


A fundamental understanding of how all of the above process variables impact on the quality and functionality of the Autus products was developed through process R&D over a number of years.



Natural  
State

AUTUS ENGINEERED PROCESS



Active  
State

- Batch preparation of the coal.
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# GLOBAL PERSPECTIVES ON HUMATES IN AGRICULTURE

1  
kg

1 kg of humic acid concentrate can contain the equivalent humic value of 30 tons of organic manure.

2X

"Using optimum amounts of humic materials in the soil, plants can grow twice as fast". Geoffrey Davies, Professor of Chemistry at North Eastern University USA.

Applying humic acids to soil with fertiliser significantly increases the amount of water soluble phosphate available and increases P uptake and yield by 25%. (Wang et al., 1995).

Humic acids significantly increase plant enzyme activity.



Humic acids aid in seed germination making it an ideal seedbed fertiliser.



Humic acids help convert key nutrients into plant available nutrients.



22  
%

Dry matter yield of roots and shoots increased by 22% in the presence of humic acids (Kausar et al., 1985).

Dan Olk and Dana Dinnes (2016) reported in a USDA funded trial that plant yield and root growth was increased on all crops using humic acid products over a 3 year period.

Humic acids act as an energy source for soil micro – organisms.



## A NEW CHEMISTRY FOR

# *climate remediation?*



The carbon content of humic matter significantly exceeds all carbon contained in the biosphere and the atmosphere. Considering climate solutions with only biomass (e.g., reforestation) leaves out the biggest factor of all:  
**the soil.**



A very small increase of the humic matter concentration in the soil, kickstarted by using artificial humates, has the potential to cure the complete climate problem while establishing improved agricultural fertility and food safety at the same time.



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