

The role of humic substances in agriculture



What are humic substances?

Humic substances are the end-product of microbial degradation of plant and animal debris and one of the most important constituents of fertile soils. They are the main component, the biological centre, of natural humic matter.

Where do humic substances come from?

Humic matter is formed through the microbial breakdown of plant and animal matter. The main component of humic matter is the humic substances, which contain both humic and fulvic substances. Humic substances are a natural way to provide plants and soils with a concentrated dose of essential nutrients, vitamins and trace elements that are normally not provided by typical fertilisation. These complex molecules exist naturally in soils, peat, oceans and fresh waters.

What do humic substances do?

Humic substances help break up clay and compacted soils, assist in transferring micronutrients from soil to plants, enhance water retention, increase seed germination rates, and stimulate the development of microflora populations in soils. Humic substances also slow down water evaporation from soils. This is especially important in soils where clay is present at low concentration or not at all, in arid areas, and in sandy soils without the capability to hold water.

Humic substances also provide sites for microflora to colonize. Bacteria secrete enzymes which act as catalysts, liberating calcium and phosphorous from insoluble calcium phosphate, and iron and phosphorous from insoluble iron phosphate.

As a result, Humic substances stimulate and promote plant development, resulting in both higher yields and higher quality. For soils to remain fertile, humus must either be replaced or added. Applying humic substances accomplishes this and increases the natural fertility of the soil.

Humic substances effect on plants and soils

Nutrient availability and biological stimulation

Humic substances have the ability to convert a number of mineral elements into forms available to plants as well as increasing the availability of phosphate. Humic substances also serve as a host for microorganisms as well as direct plant stimulation by providing a slow release of auxins, amino substances, and organic phosphates.

Physical modification

By assisting in the retention of moisture, humic substances help to prevent water and nutrient losses in sandy soils. Humic substances also assist in increasing soil particle aggregation, making the particles larger and looser.

Chemical change

Humic substances chemically change the properties of the soil. They regulate the pH of the soil whether acid or alkaline; help retain water soluble inorganic fertilisers in the root zones and reduce their leaching, and improve the cation exchange capacity.



HumicGrow HS Products

What is HumicGrow?

A highly concentrated mixture of humic and fulvic substances combined with non-traceable nitrogen, phosphorus, potassium, including core microelements like calcium, sulphur, magnesium and micronutrients like boron, chlorine, manganese, iron, zinc, copper and molybdenum – key elements for plant nutrition.

HumicGrow uses **unique ASL nano-technology** which turns its regular molecules into fine, light and highly proactive nano-elements that can penetrate plant tissue immediately. This process **significantly reduces loss by evaporation in sunlight or by being washed off with rain** and **promotes much faster uptake and nourishment** than other humic products.

HumicGrow products use rich Sapropels, Chernozem, Leonardite and Lignite originating from Northwest and Central Russia. Russian humic substances are considered by many to be the most effective in the World as they benefit uniquely from their organic interaction with fresh lake water that originated from the ice caps many thousands of years ago.

Is HumicGrow a fertiliser?

No. HumicGrow doesn't supply NPK but acts instead to increase its availability by collecting and binding its key nutrients together, delivering them efficiently into a plant's system and then retaining them there. It is a key component to any effective fertility programme.

When Humic substances enter plants at early stages of development, they increase cell division and root development; act as a respiratory catalyst and natural chelator for metal ions under alkaline conditions; convert nutrients into easily digestible form suitable for any plants; protect plants from chlorosis and increase the permeability of plant membranes. They also reduce plant reaction to stress and increase quality and yield.

Requires little or no extra labour or application costs

Using HumicGrow requires little or no change to existing fertiliser and farming methods; no special skills; no extra labour; no specialised plant or machinery. In 9 out of 10 cases its use will fit in completely with existing working practices.

HumicGrow Products

HumicGrow is produced by AgriSciences, a British company operating in the UK and Russia.

Visit agrisciences.co.uk

HumicGrow

The primary professional grade liquid for agricultural or ornamental use as part of a balanced fertility programme.

HumicGrow expert

Different environments frequently require different approaches. Expert is formulated to help growers tackle specific crop issues and conditions.

HumicGrow synergy MC

Designed to help manufacturers boost the performance of their existing fertiliser formulations.

HumicGrow granular

Designed for easy, direct application to crops. Can be applied alone to build humic matter in the soil, or mixed with a conventional fertiliser application to enhance the uptake and efficacy of the fertiliser application.

HumicGrow fine

A dry powder designed to be mixed or formulated prior to application with dry granular fertilisers, soil amendments, potting soil or any other bulk substrate which is already being applied to a crop.

HumicGrow zerebra

Highly concentrated formula with fungicidal and pesticidal properties.



For information visit agrisciences.co.uk

helpdesk@agrisciences.co.uk