Established in 2010 with the sole goal of the production of worm castings, numerous side projects have evolved and given life to Optigrow.
The Optigrow family continues production and sales of its Opti-cast worm castings, with the additions of its farming division and tree nursery.

Optigrow produces the oldest and most successful compound used in fertilisation and soil remediation in history.
It is a compound that physically, chemically and biologically stabilises soil, stimulates further plant growth even when plants are already receiving optimal nutrition.

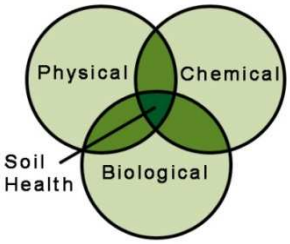
Consistently improves seed germination, enhances root development and seedling growth, and increases plant productivity and health.
It's been proven to effectively regulate, pests, fungus, disease, soil toxicity and chemical imbalance.
It exists in all healthy soil and if you are suffering from an unhealthy soil, your soil in all likelihood, is lacking it.

So what exactly are earthworm castings?
Castings are a thick black compound produced by earthworms, a living fertiliser and soil rehabilitator that is highly microbially active.
It makes available nutrient more plant available, microbial activity makes minerals and micro nutrients otherwise locked away in mineral sand, soluble, making them available to plants.
The microbial activity and physical structure of castings stabilise chemicals and minerals within the substrate keeping nutrient available more consistently and for longer and helps stabilise moisture levels, reducing drain away.

Your Soil

Soil is a complex web of mutualistic and symbiotic interaction, complex relationships between plants and animals both big and microscopic.
It is comprised of two main components, mineral sand and organic matter, but that is not the whole picture.

In order to support plants, soil health is based on three components.
It's Physical, Chemical and Biological structure, the three structures within soil that castings works to naturally repair.

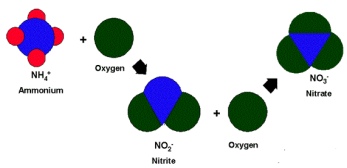


The *Physical structure* of soil is what holds moisture in place so that roots don't become either too dry or to wet. Holds chemicals in place without being washed away.

Chemical structure is having a readily available supply of all the nutrient plants need to grow and thrive, but most importantly in plant available formats that plants can readily absorb.

B*iological structure* of soil.
Probably the most important component in soil. It is the microbial activity within soil that works on the chemical nutrient and micronutrient, to convert it into the plant available formats plants require.

Earthworms do not create nutrient they simple refine it and convert it into a format that is the most efficient form for plants to take up.
Castings can be as much as 1000 times as microbially active as compost, with castings being higher in nitrates, the more plant-available form of nitrogen.



Nitrogen fixation is a process by which relatively inert atmospheric molecular nitrogen (N_2) is converted into ammonium (NH_4^+) freeing up to be used in other ways for in the case of castings, to be converted to nitrates.

Nitrogen is required to create the basic building blocks of plants with earthworms directly cycling this nitrogen by excretion in their casts, urine and mucoprotein.
Nitrifying and nitrogen fixing microbes are all found established in worm casts.

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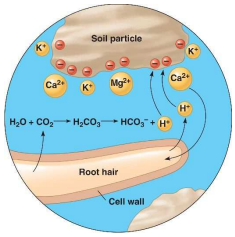
Plant growth stimulants: Several valuable compounds are produced through the earthworm and microfloral interaction, which includes vitamins such as B12 and plant growth hormones (gibberellins).

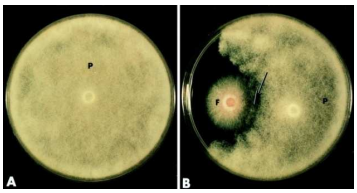
Cationic exchange is important in your soil, but what is it: Trace elements are attracted to castings and bond to it in the same way that opposite poles of a magnet attract each other.



Everything in nature has an electrical charge. Some charges are positive, cations, and some are negative, anions.
Organic vegetative matter is anionic and, because castings are highly vegetative matter, it is strongly anionic. Most trace elements are cationic.

Castings act like a sponge holding trace elements in place increasing bio availability of that nutrient for when plants need it. Plants have a stronger pull than the castings and can therefore draw the trace elements away and into their roots.

Disease: Extensive study results show with small applications of worm castings, the incidence of disease is significantly suppressed.



Earthworm movements act to disperse not only microorganisms but also root symbiots that form mutualistic associations between fungus and the roots of a vascular plant.

In addition microbial antagonists of plant pathogens and pest microorganisms are also dispersed, microbes that eat or destroy other plant pathogens or pest microorganisms.
Instances of fungus can be controlled with the use of worm castings.

Insects? Chitin is a compound that makes up the main part of the shell of insects.
Chitinase is the naturally occurring enzyme that breaks chitin down into chitosan.
Worm castings contain enzymes known as various forms of chitinase of which insects have a strong aversion.

Castings boost the chitinase-producing bacteria found naturally in plants.
The natural level of chitinase found in most plants is not sufficient to repel insects.
When the chitinase concentration is low, insects are not repelled, but with the use of worm castings, the level of chitinase is multiplied to a repulsion level.

Soil toxicity and chemical imbalance: Earthworms can live in highly contaminated soils. They are generally tolerant to many chemical contaminants including heavy metals and organic pollutants in soil and can bio-accumulate them in their tissues.

Earthworms through the use of a special detoxifying layer in their gut and specific metal binding proteins, remove and isolate toxic heavy metals
Chemical contaminants are absorbed through their moist body walls and mouth and are either bio-transformed or biodegrade , rendering them harmless in their bodies.

Results are commonly seen quickly but with Opti-cast the benefits lie in the steady and ongoing results, unlink the stressful feast and famine peaks and troughs experienced with chemicals.

We look forward to working with you towards a healthier and more consistent soil environment.

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