



## Black Castings™

Black Castings™ is a pure, living, organic fertilizer full of beneficial microbes and nutrients that are natural, quickly available to plants and odorless. These earth worm castings are teeming with micronutrients and living soil microorganisms that are essential to soil improvement and plant development.

Black Castings™ provide the essential nutrients in a form that plants need to thrive and grow. Black Castings provides remarkable benefits such as: increased yields, reduced transplant shock, vigorous plant growth, and larger flowers and fruit.

Black Castings™ is extremely high in biodiversity for nutrient cycling (nitrogen up take), nutrient retention (retain nitrogen when plants are not growing), improved structure, infiltration and water-holding capacity (stabilize larger aggregates), competes with disease causing organisms, and degradation of pollutants.

Black Castings™ is naturally produced through a patented process using European Night Crawlers and Efficient Microbes (EM) technology, resulting in a high-quality, living, sustained-release fertilizer. These earthworms consume a humus, grain and Efficient Microbes (EM) mixed in an indoor, automated system with climate-controlled conditions. The castings are not derived from any petroleum products.

### How do they work?

- Stimulation of beneficial soil microorganism's natural activity
- Promotion of enzyme activity and natural plant growth regulators
- Regulate the availability of essential plant nutrients and enhance fertilizers

### What will they do for plants?

- Naturally improve plant health and appearance
- Invigorate and rejuvenate potted plants and perennials
- Enhance germination and early growth of seedlings and cuttings
- Stimulate root growth, plant development and flowering
- Improve fruit set and quality
- Reduces water and chemical use
- Promotes rapid plant growth
- Promote plant health, stress tolerance, and pest and disease resistance

A basic concept of soil health is to promote a diverse and active community of beneficial microorganisms in the soil. Black Castings™ are derived from earthworms that serve as both a source and a catalyst for this activity.

### What is the difference between Vermicompost and Black Castings?

Vermicompost contains worm castings and other organic matter that has been partially or fully composted. The amount of pure worm castings will vary from batch to batch and from one vermicomposting facility to another.

Black Castings™ are pure worm castings. There are no variables. Each bag, each month and each year consistently delivers high quality worm castings

- 100% pure, organic, odorless worm castings
- Created indoors in climate controlled facilities
- Contains beneficial microorganisms, humic acids, enzymes, minerals and bioactive substances
- Free of weed seeds, nematodes, E-coli & Salmonella
- Reduces algae in greenhouse and ponds, lagoons - no nitrogen run-off
- Can be applied to phosphate sensitive areas
- Increases drought resistance and reduces irrigation cost
- No ground water contamination
- Zero environmental contamination

### **Why should you treat your soil with worm castings?**

Our soil is a huge living, breathing and digesting organism. The health of the soil depends mainly upon the population of the soil microorganism. Each microorganism living in the soil can be considered a nutrient production plant in miniature. Through the use of chemical fertilizers, herbicides and pesticides, many of our soil microorganisms have been depleted. Black Castings restores these microorganisms.

### **Black Castings Benefits:**

- Restores soil microorganisms
- High in soluble nitrogen, potash, potassium, calcium, magnesium and many other trace elements
- Immediately available food for plants
- Great source of organic matter
- Holds 10 times their weight in water, which is beneficial in drought conditions and reduces watering costs
- Adds active microbial life to the soil, which slowly releases nutrients and micro nutrients to the plants as on demand
- Improves seed germinating ability, drainage, stimulates root formation and promotes plant growth
- Acts as a buffer for plants where soil pH levels are too high or low
- A product ideally suitable for the improvement of degraded soils
- Enhances the biochemical and biophysical properties of the soil and increases worm activity

### **Why there are no large quantities of N, P or K in worm castings?**

A healthy soil has the natural ability to biologically (nitrogen fixation bacteria) fix nitrogen compounds and unlock the readily available P & K compounds from the soil reserve. Therefore there is no need to artificially incorporate large doses of N, P, K compounds.

### **What microbes are found within each tiny Black Castings™ cast?**

The family of microbes contained in each tiny cast is comprised primarily of phototropic bacteria (nitrogen fixation), lactic acid bacteria, yeast, actinomycetes and fermenting fungi that are all compatible with one another. All of this is neatly wrapped in a calcium coating produced by the worm's calciferous gland that is immediately available for the plant uptake. Various thicknesses of this coating make Black Castings a great sustained release organic fertilizer.

**How does Black Castings™ affect the soil differently than chemical fertilizers?**

Highly concentrated chemical fertilizers contaminate soil in various ways. They can burn plant roots and are harmful to the healthy growth of soil microorganisms which results in the deterioration of soil structure, acidification of the soil, a decrease in water retention properties, decreased worm activity and salinity.

**COMPARISON OF CHEMICAL FERTILIZERS TO BLACK CASTINGS™**

	<b>Chemical Fertilizers</b>	<b>Black Castings</b>
<b>Macro nutrient contents</b>	Mostly contains only one (N in urea) or at the most two (N & P in DAP) nutrients in any one type of chemical fertilizer	Contains all i.e. nitrogen (N), phosphorus (P) & potassium (K) in sufficient quantities
<b>Secondary nutrient contents</b>	Not available	Calcium (Ca), magnesium (Mg) & sulphur (S) is available in required quantities
<b>Micro nutrient contents</b>	Not available	Zinc (Zn), boron (B), manganese (Mn), iron (Fe), copper (Cu), molybdenum (Mo) and chlorine (Cl) also present
<b>pH balancing</b>	Disturb soil pH to create salinity and alkalinity conditions	Helps in the control of soil pH and checks the salinity and alkalinity in soil
<b>EC correction</b>	Creates imbalance in soil EC affecting nutrients assimilation	Helps in balancing the EC to improve plant nutrient adsorption
<b>Organic carbon</b>	Not available	Very high organic carbon and humus contents improves soil characteristics
<b>Moisture retention capacity</b>	Reduces moisture retention capacity of the soil	Increases moistures retention capacity of the soil
<b>Soil Texture</b>	Damages soil texture to reduce aeration	Improves soil texture for better aeration
<b>Beneficial bacteria &amp; fungi</b>	Reduces biological activities and thus the fertility is impaired	Very high biological life improves the soil fertility and productivity on sustainable basis
<b>Plant growth hormones</b>	Not available	Sufficient quantity helps in better growth and production

## BLACK CASTINGS™ DIRECTIONS & USE

**Note:** A small amount of Black Castings goes a long way. Black Castings is so nutrient rich you do NOT want to plant in 100% Black Castings.

### VEGETABLES AND ANNUAL FLOWERS:

Place 8 oz. (a handful or ½ cup) of castings in the planting hole and set the plant in place. Cover with soil. Side dress with 8 oz. per plant every two months during the growing season.

### ROOT CROPS:

Place 8 oz. of Black Castings (a handful or ½ cup) in each hole or hill and cover. Top dress with the same amount when plant begins to flower.

### PERENNIALS AND OTHER ESTABLISHED PLANTS:

Top dress using 5 lb Black Castings per 100 square feet. Add mulch to cover. If no mulch is used, work the Black Castings into the top 1 inch of the soil. Apply in the spring, early summer and fall.

### SEED BEDS AND FLATS, GROWING MEDIA:

Add 20% castings to the growing basic growing media. Herbs require only 5%.

### POTTED PLANTS:

Use 4 oz. (1/4 cup) to the soil surface per each 4" diameter of pot and water well. Repeat every 2-3 months.

### ROSES, TREES, SHRUBS AND BERRIES – NEW OR TRANSPLANTS:

Mix 40% castings in the transplant mix. Place half of the mix in the hole and the other half to fill the hole.

**Application rates for established trees:** Use 2 cups of Earthworm Castings for each 1 inch diameter of tree. Top dress from the trunk to drip line, cover with mulch or compost and water.

**Application for all other established woody plants:** First year top dress with 1 lb. of Black Castings in the spring and fall, and then 1/2 lb every spring and fall thereafter.

### LAWNS (established):

Top dress with 5 lbs. per 100 sq. ft. and water well.

### LAWNS (new - seed and sod):

Seed - Use 10 lbs. per 100 sq. ft. Broadcast seed into seed bed, rake in and water.

Sod - Apply 1/8 inch to sod bed surface, apply sod.