

AGGRAND®

Fish Emulsion-Based Fertilizers

VS.

Fish Hydrolysate-Based Fertilizers

The fish in fish-based natural fertilizers is generally obtained in one of two forms: condensed fish solubles (CFS) or enzymatically digested fish (EDF).

CFS-based ingredients, or emulsions, use a strictly controlled, pressurized heating process to extract the raw materials necessary to make fertilizer. EDF-based ingredients, or fish protein hydrolysates, are derived from a process that minces the whole fish, then enzymatically digests, then grinds and liquefies the resulting product. While both forms provide acceptable performance, emulsion-based fertilizers are more concentrated and uniform than hydrolysate-based fertilizers for optimum performance.

Superior Formulation

AGGRAND Natural Fertilizer (NOF) is formulated from fish emulsions from a single species of fish: the menhaden. Caught within U.S. territorial waters in the Atlantic Ocean and Gulf of Mexico, menhaden are not intended for human consumption, but are commercially important for their high oil content, feed and emulsion quality. This oceangoing fish provides nitrogen, phosphorus and potassium, essential nutrients for plant growth, along with a number of micronutrients, vitamins and amino acids. The fish emulsion used in AGGRAND products are caught, immediately refrigerated, and processed in such a way to reduce degradation of the protein compounds. No other species or fish renderings are used in the process.

Fish-hydrolysate is processed around 130°F and requires acid for pH stabilization. Oftentimes, fish hydrolysate manufacturers add more phosphoric acid than necessary based on the desire to increase the phosphorus analysis rather than decreasing the pH to stabilize the product. Fish emulsions used in AGGRAND Natural Fertilizer contain only enough sulfuric acid to stabilize the product at pH 3.8 - 4.0. The process is strictly controlled and monitored to ensure maximum quality.

High Nitrogen Content

Increased nitrogen levels in the soil results in increased soil microbial populations and increased nutrient uptake in crops. Fish hydrolysates have lower nitrogen levels than fish emulsions do because hydrolysates use only a small amount of the fleshy part of the fish. AGGRAND Natural Fertilizer features fish emulsions that are heated (not boiled) and condensed to 50 percent solids. This results in a finished product with the highest level of organic nitrogen possible (5 percent).

Increased Sulfur Levels

Proper sulfur levels provide high levels of protein in seed crops, forages and legumes. In addition, flour quality and vegetable flavor are enhanced when there are adequate sulfur levels in the soil. Fish emulsions used in the formulation of AGGRAND Natural Fertilizer contain almost 2 percent sulfur, resulting in greater yields of higher-quality fruits and vegetables.

Beyond Emulsions

While fish emulsions are the basis of AGGRAND Natural Fertilizer, there are many more premium ingredients necessary to complete its formulation.

Kelp Extract gathered from the north Atlantic coast contains amino acids, micronutrients and potassium that help feed beneficial micro-organisms that enhance plant growth. Kelp also supplies plant growth hormones such as auxins and cytokinins that enable increased root and shoot growth. Increased microbial activity can produce digestive enzymes that attack and kill undesirable fungal pathogens. In addition, they compete for space, nutrients and water, leaving less room for bacteria that could potentially harm the plant. This results in plants with fewer diseases and better establishment of seedlings. When applied to foliage, the kelp in AGGRAND Natural Fertilizer induces a systemic acquired resistance in plants that results in enhanced photosynthesis.

Bloodmeal provides additional nitrogen and organic matter for plant cell and microbial growth, leading to the creation of humus. Extremely fine grade of **sulfate of potash** from the Great Salt Lake in Utah provides more sulfur and potassium for improved fruit and seed quality and better cell-wall and stalk strength. This results in reduced susceptibility to insect attack, drought and disease. **Chelation Agents** help plants absorb nutrients and provide an extra source of carbon to help stimulate microbial activity, increasing the effectiveness of the fertilizer. **Fulvic Acid** – Derived from Leonardite shale,

fulvic acid helps delivery of nutrients to the root and provides an extra source of carbon to help stimulate microbial activity, which increases the effectiveness of the fertilizer.

Finally, incorporation of small amounts of B1 as a vitamin supplement for improved plant health and molasses sugar produced from fresh cane provides carbon source nutrients for soil micro-organisms. The addition of natural wintergreen oil improves the scent of AGGRAND Natural Fertilizer products.

