

ORGANIC



ALL NATURAL ORGANIC FERTILIZER

Neptune's Harvest

What is Neptune's Harvest Fish Hydrolysate?

Neptune's Harvest fish hydrolysate is an all organic highly nutritional protein fertilizer, made utilizing naturally occurring enzymes present in fresh North Atlantic fish.

We produce this using a cold process employing enzymes (natural biological catalysts) which break down fish, or fish frames (the part left after the fillet is removed for human consumption) to simpler protein complexes. This process is called Hydrolysis. The only manipulation the product undergoes is grinding and hydrolysis. This process yields a stable, non-odorous, liquid fertilizer that is an easy to use, safe product.

The nitrogen in Neptune's Harvest fish fertilizer is derived from fish protein in the form of amino acids which, when added to soil, slowly break down into basic nitrogen compounds. While a percentage of nitrogen becomes soluble due to the nature of the manufacturing process, no inorganic nitrogen has been added.



Did you know? It takes 10 pounds of fish parts [called gurry] to make 1 gallon of Neptune's Harvest Fish Fertilizer.

In the past there have been advantages in using manufactured chemical fertilizers. However, as we now realize, this has been at the expense of the environment and depletion of many soil elements. The continued application of only concentrated chemicals on the soil have reduced much of the biological life that contributes to the efficient utilization of many plant nutrients.

Neptune's Harvest Hydrolyzed Fish does no biological damage to the soil and will promote the growth of beneficial bacteria making the soil less compact and better able to drain, yet hold moisture better for future plant use as it is needed. With our cold process, the vitamins, amino acids, enzymes, and growth hormones are not damaged or destroyed. Because no oils or proteins are removed, the nutrients remain in the soil longer, and lower N-P-K rates can be used to meet or exceed the results obtained by chemicals with much higher rates.



In review, our fish fertilizer rebuilds soil fertility, gives excellent plant growth with increased yields, and is made from a renewable aquatic resource.

Easy to Spray or Drip - Neptune's Harvest liquid fertilizers are filtered through a 165 mesh screen as a first step, and then through a 150 micron screen before it is packaged. This ensures an ease of application with most irrigation sprayer systems that is second to none.

Beware of imitations — Neptune's Harvest is the leading manufacturer of fish hydrolysate fertilizers in the United States with extensive sales in the U.S. and throughout the world.



Top - Kimm Seed Potato Farm
Left - John Martin, Distributor
Right - Lenny McCollum, Filleting

Hydrolyzed Fish vs. Fish Emulsion

The main difference between Fish Emulsions, Solubles or ‘so-called’ Hydrolyzed Fish concentrates with the Nitrogen being four or greater, and Neptune’s Harvest Hydrolyzed Fish are as follows:

1. Neptune’s Harvest is made from several species of edible North Atlantic Fish (the part that is left after the fillet is removed for human consumption). Using several different species is better, because each species has a different nutrient analysis profile, so you get a full range of nutrients, vitamins, amino acids, enzymes and growth hormones. We mix all the Hydrolyzed Fish in a 10,000-gallon holding tank before it is pumped into storage tanks. This process ensures a very consistent product from day to day and year to year. The fish we use are caught a minimum of three miles from shore and usually much further, in the icy, clean waters of the North Atlantic.

Emulsions are made from so-called ‘Trash Fish’ (fish that Americans won’t eat), usually Menhaden. Menhaden are caught in harbors and rivers on the coast, and thus are exposed to coastal pollutants. Also, lake fish used can contain mercury and PCB’s, and won’t contain the sea minerals and other nutrients found only in saltwater fish.

2. Neptune’s Harvest unloads fishing boats, cuts the fish, grinds the fish remains and stabilizes them all the same day, so there is no offensive odor. Fresh fish does not smell — but lesser-quality fish and emulsions stink!

3. Neptune’s Harvest is cold processed from start to finish. The fish is converted through the grinding process and by the naturally occurring enzymes that continually break down the fish into a liquid. These enzymes are still alive in our final product as well, so they are there to keep your soil alive. We then screen filter it to take out any remaining bone particles. Nothing else is removed from the product, and the only thing added is phosphoric acid to stabilize. It is more expensive than sulfuric acid, but it is safer to use for our employees and yours, and is something the plant needs anyway. This is why our phosphorus content is higher than fish emulsion, on the analysis.

Emulsions first remove the fish meal (protein) part of the fish and sell that for animal feed. Then they remove oils from the fish for Codfish Liver Oil or other products. Whatever is left after these processes is then boiled down to a 50% concentration and sold as a fertilizer. This process has two major problems. First, when the product is boiled down to a 50% concentration, the chlorine can be as high as 14% in the final product. Second, once heat is used, all the heat-sensitive vitamins, amino acids, growth hormones and the enzymes are destroyed. Some companies add enzymes back into the product so they can call it a hydrolyzed process, but technically it is far from it, and is actually just a hydrolyzed emulsion. Note: Fish naturally contains approximately 2.3% nitrogen. If a company is selling a fish with a higher analysis than that on the nitrogen, it has been boiled down (or evaporated). Therefore no matter what the salesperson tries to tell you, the heat sensitive components from the fish are gone. The only other possibility is that they have artificially added nitrogen from other sources.

4. Neptune’s Harvest is put through a 165 mesh screen before going into the holding tank, and then a 150 micron screen before going into the final container and shipping. It is the consistency of chocolate milk and is very easy to apply.

Emulsions, on the other hand, are thick, having the consistency of molasses. They are hard to handle and are notorious for clogging sprayers and getting stuck in holding tanks. Because they are so thick, farmers and growers can’t pump it all from their tanks, especially towards the bottom.

To Summarize:

Neptune's Harvest Hydrolysate

- ▶ Uses several species of fish
- ▶ No offensive odor
- ▶ Cold processed
- ▶ No oils removed
- ▶ No proteins removed (except fillet)
- ▶ No chlorine
- ▶ Won't clog equipment

Emulsions

- ▶ 1 type of fish (trash fish)
- ▶ Stinks
- ▶ Cooked
- ▶ Oils removed
- ▶ Meal removed
- ▶ Contains chlorine
- ▶ Clogs equipment

Nutrient Analysis of Hydrolyzed Fish 2-4-0.5

Elements

Nitrogen	2.23
Phosphorous	4.35
Potassium	0.30
Calcium	0.75
Sulfur	0.17
Magnesium	0.04
Sodium	0.16
Iron	26.0 ppm
Manganese	3.0 ppm
Copper	< 0.1 ppm
Zinc (total)	8.8 ppm
Boron	2.5 ppm
Aluminum	8.0 ppm
Barium	< 0.1 ppm
Mercury (total)	n.d.
Selenium (total)	n.d.
Nickel (total)	n.d.
Cobalt (total)	n.d.
Cadmium (total)	n.d.
Arsenic (total)	n.d.
Molybdenum (total)	n.d.
Chromium	n.d.
Silver	n.d.
Lead (total)	n.d.
pH	3.5 S.U.

Fat Analysis

		<u>% of Total Fat:</u>
Total Fat per Serving	2.96	
Saturated Fat/Serving	1.23 g	41.46%
Polyunsaturated Fat/Serving	0.51g	17.08%
Monounsaturated Fat/Serving	1.23g	41.46%
Trans Fatty Acids	0.00g	0.0%
Omega 3 Fatty Acids	0.06g	2.01%
Omega 6 Fatty Acids	0.17g	5.62%

The above total fat report is on our mixed fish product, and represents the minimal levels. At certain times of the year, we have access to fish with higher levels of fat and Omega 3 & 6 fatty acids (ask for special reports).

E. Coli	n.d. cfu/g
Fecal Coliform	n.d. MPN/g
Salmonella	negative org/25h
*n.d. = not detected	

OMRI™
Listed
 Organic Materials
 Review Institute

Available in 5 gallon pails, 55 gallon drums, 275 gallon bulk totes, and 4500 gallon tanker trucks

We feel our fertilizer is the best in the world.

Here are a few reasons why:

1. Neptune's Harvest contains much more than N-P-K. It also provides the Vitamins, Amino Acids, Enzymes, and Growth Hormones, necessary for optimum plant growth.
2. We have a unique cold process that protects the above mentioned, leaving them undamaged by temperatures and readily available to plants.
3. The trace elements and minerals found in the macro-micro nutrients in the fish are all chelated, so they can be utilized by the plant, the day it is applied.
4. Unlike solubles or emulsions, we remove no oil or meal from the fish. This is what holds the fertilizer in the soil so that it is available to your plants.
5. Promotes the growth of beneficial bacteria, making the soil less compact and better able to drain.
6. Works as an outstanding compost enhancer, by building the micro organisms. Experts have reported usable compost in half the time.
7. It is 100% organic, so it won't burn plants or roots, or pollute the environment.
8. Studies have shown it to outperform 20-20-20 chemical fertilizers.
9. Builds sugars in plants, which make plants healthier and less susceptible to fungus, disease and insect damage. This also makes fruit, vegetables and herbs taste better.
10. Blooms are more plentiful and longer lasting on flowering plants.
11. Farmers have reported little or no deer problems on crops sprayed with fish, where there was heavy damage in previous years.
12. Neptune's Harvest fertilizer is first filtered through a 165 mesh screen and then through a 150 micron screen before it is packaged.
13. We use only fresh fish, so there is no offensive odor.
14. Builds beneficial bacteria colonies in the soil, so it will draw nitrogen from the air, adding more nitrogen to the plants.
15. Results achieved on Hay and Pasture:
 - ▶ Higher Yields
 - ▶ More nutritional grass (i.e., higher protein, sugar, omega oils, vitamins and minerals)
 - ▶ Faster breakdown of manure (less flies, more dung beetles, more earthworms, more nitrogen in the soil)
 - ▶ Healthier soil (builds beneficial bacteria, and gets soil microbes going)
 - ▶ Healthier Animals

How Often and When to Apply Neptune's Harvest Fish, Fish & Seaweed, and Seaweed formulas

VEGETABLE CROPS: For vegetable crops and sweet corn we recommend you apply 3 gallons per acre 4 times a year.

- 1ST APPLICATION:** At planting. Broadcast or drip in the furrow.
- 2ND APPLICATION:** Foliar spray when first primary leaves come out on vegetables, or on corn when plants are 8 to 10 inches tall.
- 3RD APPLICATION:** Pre-blossom, or with corn, pre-tassel.
- 4TH APPLICATION:** Pre-harvest.

Never waste a trip; if you're going to the field to spray anything add some fish to your mix. The fish will enable your inputs to stay in the soil longer and could allow you to cut your application rates. You can not overuse the fish as long as you mix it with enough water. Any time the plant is going through stress, it is wise to spray fish. Some people use fish every time they irrigate. Fish will act as a sticker/spreader and it is systemic, which means it will be absorbed through the leaf, along with what you spray with it.

Remember, it is better to fertilize more often with less, than less often with more.

FIELD CROPS: On field crops we recommend you put 2 to 3 gallons per acre 4 times a year. If you have constraints with your equipment or you are not able to get onto the fields four times, put 8–12 gallons when you are able.

- 1ST APPLICATION:** At planting.
- 2ND APPLICATION:** When grains are 4 to 5 inches tall, corn 8 to 10 inches tall, and beans have first true leaves.
- 3RD APPLICATION:** Pre-boot, pre-tassel, or pre-blossom.
- 4TH APPLICATION:** Pre-harvest.

PASTURE APPLICATION RATES: For best results you should put 2–3 gallons per acre mixed with a minimum 20–30 gallons of water, per application. For every gallon of Fish, you'll need a minimum of 10 gallons of water. You can spray every 21 days ideally, or when the grass gets grazed down low and you rotate the animals. However, every 4 to 6 weeks still shows good results.

HAY APPLICATION RATES: Apply 2–3 gallons per acre with a minimum of 20–30 gallons of water, per application.

- 1ST APPLICATION:** When hay comes out of dormancy.
- 2ND APPLICATION:** 2 to 3 weeks before cutting, or the latest time you can get on the field.
- 3RD APPLICATION:** After cutting.
- REPEAT FOR EVERY CUTTING.**

Note: Higher amounts of Fish can be used on poor soil in the beginning, to get it healthy, so you'll see the best results.

Fish & Seaweed contains macro and micronutrients, amino acids, vitamins, trace elements, trace minerals, enzymes, naturally occurring growth promoters, and omega oils.

Cattle, horses, and goats love fields fertilized with Fish. They have even been known to follow behind the sprayer when it's being applied.

Crab and Lobster Shell

5 - 3 - 0

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LEVEL	FOUND UNITS
Nitrogen Total (N)	4.54 - 6.71%
Phosphorus (P205).....	2.79 - 2.91%
Potassium (K20).....	0.30 - 0.45%
Sulfur.....	0.25 - 0.42%
Magnesium.....	0.80 - 1.01%
Calcium	17.40 - 20.10%
Sodium.....	1.10 - 1.48%
Iron	132 - 187 ppm
Manganese	76.2 - 104 ppm
Copper.....	21.1 - 46.6 ppm
Zinc.....	62.5 - 72.7 ppm
Moisture.....	4.30 - 5.20%
pH.....	8.6 - 8.8

Crab and Lobster Shell is not a fungicide or a nematocide.

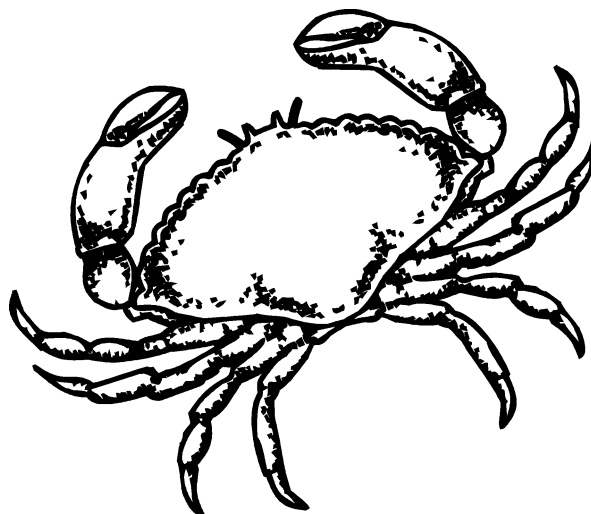
Crab and Lobster Shell is high in chitin, which promotes the growth of chitin-eating bacteria. The exoskeletons of fungus and nematode eggs are high in chitin.

Crab and Lobster Shell, when added to the soil, helps to create a hostile environment for the fungus and nematodes by feeding the biological life that eats chitin and chitin-based organisms. It has also been shown to reduce ant population on lawns and in gardens.

Suggested Application Rates

The following application rates are approximate and may vary depending on climate, region, soil type and soil fertility.

Garden	3 lbs. per 100 sq. feet
Field	100 to 200 lbs. per acre
Row	1 to 2 lbs. per 100 feet
Orchards	½ lb. per inch of tree diameter
Compost	3 to 6 oz. per cubic foot
Turf	10 lbs. per 1000 sq. feet
Potting Mixes	2% of total volume
Seedbed	½ to 1 lb. per 100 sq. feet
Bedding Plants	1 oz. per tray
Fertilizers	5 to 10% of total volume



**Crab Flour also available, in 44 lb bags!

Soluble Seaweed Powder

Neptune's Harvest Soluble Seaweed Powder is derived from fresh *Ascophyllum nodosum* seaweed harvested from the North Atlantic coastal waters, along the shoreline of New England. Kelp Meal contains nutrients plants need to optimize conditions for yields, quality and vigor.

PHYSICAL DATA

APPEARANCE	Brownish-black crystals
ODOR	Seaweed-like
SOLUBILITY IN WATER	100% soluble
pH	10–10.7

**pH of diluted seaweed at 1 oz./gal H₂O is 9.0*

TYPICAL ANALYSIS

DRY MATTER	95%		
ORGANIC MATTER	45–55%		
ASH (MINERALS)	45–55%		
CARBOHYDRATES	Alginic Acid, Mannitol, Laminarin		
TOTAL NITROGEN (N)	1.0–2.0%	SODIUM (Na)	3.0–5.0%
AVAILABLE PHOSPHORIC ACID (P ₂ O ₅)	2.0–4.0%	BORON (B)	100–150 ppm
SOLUBLE POTASH (K ₂ O)	18.0–22.0%	IRON (Fe)	150–250 ppm
SULPHUR (S)	1.0–2.0%	MANGANESE (Mn)	8–12 ppm
MAGNESIUM (Mg)	0.3–0.6%	COPPER (Cu)	30–50 ppm
CALCIUM (Ca)	0.1–0.2%		



AMINO ACIDS (average grams of amino acid per 100 grams of protein)

ALANINE	3.81	LYSINE	1.33
ARGININE	0.22	MENIONINE	1.39
ASPARTIC ACID	5.44	PHENYLALANINE	2.82
CYSTINE	trace	PROLINE	4.42
GLUTAMIC ACID	7.69	SERINE	0.14
GLYCINE	3.16	THREONINE	1.27
HISTIDINE	0.42	TYROSINE	1.80
ISOLEUCINE	1.94	VALINE	3.46
LEUCINE	4.84		

Available in dry form in 44 lb. boxes or liquid in 5 gallon pails, 55-gallon drums, 275-gallon bulk totes or 4500-gallon tanker trucks. Also available is a Liquid Fish (75%) and Seaweed (25%) blend in the same quantities as noted above.

K E L P M E A L

Neptune's Harvest *Ascophyllum nodosum* Kelp Meal products are a natural and cost effective enhancement to any soil fertilization and conditioning program. It is suitable for all crops and applications, and can be mixed with most soil conditioners and fertilizers. It can also be incorporated into potting soils, seed and transplant beds, as well as composting material.

For use on agronomic crops and gardens, apply in early spring as soon as soil can be worked. For perennial crops, apply at the end of dormancy. Mix thoroughly with the soil or growing media, taking care not to apply in concentrated form directly to the roots. To apply as a soil conditioner for fruit groves, ornamental trees, lawns and turf, apply directly as a top dressing.

The following application rates are approximate and may vary depending on climatic conditions, soil type and soil fertility.

FIELD CROPS:

200–400 lbs. per acre; 225–450 kg. per hectare

ROW CROPS:

2 lbs. per 100 feet; 1.5 kg. per 50 meters

VEGETABLE & FLOWER GARDENS:

3 lbs. per 100 sq. feet; 1.5 kg per 10 sq. meters

TREES & FLOWER GARDENS:

1 lb. per inch of tree diameter; 200 g. per cm. of tree diameter

TURF GRASSES & LAWNS:

10 lbs. per 1000 sq. feet; 5 kg. per 100 sq. meters

SEEDBEDS:

1 lb. per 100 sq. feet; 500 g. per 10 sq. meters

BEDDING PLANTS:

1 oz. (2 tbsp.) per 100 sq. feet; 500 g per sq. meter
20–25 g per 1000 cm² tray

POTTING MIXES:

2–3% of total volume of mix

FERTILIZER MIXES:

5–10% of total volume of mix

COMPOSTS:

10 lbs. per cubic yard; 6 kg. per cubic meter

Typical Analysis

ORGANIC MATTER

66.0%

ASH (MINERALS)

22.0%

MOISTURE

12.0%

100.0%

MINERALS

TOTAL NITROGEN (N)

0.6–2.0%

AVAILABLE PHOSPHORIC ACID (P₂O₅)

0.3–0.9%

SOLUBLE POTASH (K₂O)

2.5–3.7%

ALUMINUM (Al)

20–100 ppm (mg/kg)

ARSENIC (As)

<3 ppm (mg/kg)

BARIUM (Ba)

15–50 ppm (mg/kg)

BERYLLIUM (Be)

<1 ppm (mg/kg)

BORON (B)

80–100 ppm (mg/kg)

CADMIUM (Cd)

<1 ppm (mg/kg)

CALCIUM (Ca)

1.0–3.0%

CHLORINE (Cl)

1.0–3.0%

CHROMIUM (Cr)

<1 ppm (mg/kg)

Kelp Meal Typical Analysis (continued)

COBALT (Co)	1–10 ppm (mg/kg)
COPPER (Cu)	4–15 ppm (mg/kg)
IODINE (I)	0.05–0.08%
IRON (Fe)	0.015–0.10%
LEAD (Pb)	<1 ppm (mg/kg)
MAGNESIUM (Mg)	0.5–1.0%
MANGANESE (Mn)	0–5 ppm (mg/kg)
MOLYBDENUM (Mo)	<1 ppm (mg/kg)
NICKEL (Ni)	1–5 ppm (mg/kg)
SELENIUM (Se)	3–4 ppm (mg/kg)
SODIUM (Na)	2.4–4.0%
STRONTIUM (Sr)	100–200 ppm (mg/kg)
SULPHUR (S)	2.0–2.3%
TIN (Sn)	<10 ppm (mg/kg)
TITANIUM (Ti)	3–6 ppm
VANADIUM (V)	2–5 ppm (mg/kg)
ZINC (Zn)	35–100 ppm (mg/kg)

pH

6.0

CARBOHYDRATES

ALGINIC ACID	18.0–27.0%
MANNITOL	3.0–8.0%
LAMINARIN	2.0–5.0%
OTHER CARBOHYDRATES	20.0–22.0%

AMINO ACID CONTENT (EXPRESSED AS GRAMS OF AMINO ACID NITROGEN PER 100 G OF PROTEIN)

ALANINE	5.3
ARGININE	8.0
ASPARTIC ACID	6.9
CYSTINE	trace
GLYCINE	5.0
GLUTAMIC ACID	10.0
HISTIDINE	1.3
ISOLEUCINE	2.8
LEUCINE	4.6
LYSINE	4.9
METHIONINE	0.7
PHENYLALANINE	2.3
PROLINE	2.6
SERINE	3.0
THREONINE	2.8
TRYPTOPHAN	trace
TYROSINE	0.9
VALINE	3.7

Neptune's Harvest Kelp Meal is produced from 100% pure *Ascophyllum Nodosum*, hence its composition may vary due to natural variations in live seaweed.

Available in 50 lb. bags.

Benefits of Using Liquid Fish and Seaweed with Animal Feed

The most important time to feed the sows is two weeks before she has piglets and for cows two months before calving. Recommended feed applications 2oz. per head per day for cattle and pigs and 1/4 oz. for hens and chickens. Mix in with regular feed.

A. Will increase feed consumption.

To test this, try taking fish/seaweed away for a day & within 24 hours, feed consumption will drop off.

B. Will calm down animal/make more contented.

Flight zone will be cut in half. If cow would move when you get within 10 ft., now it won't move until you're within 5 ft.

C. May be able to reduce or eliminate antibiotics.

Some farmers have reported not needing any more antibiotics after feeding Fish and Seaweed, saving money and labor.

Benefits of Using Dry Kelp Meal with Animal Feed

The regular use of Kelp Meal as a feed supplement helps increase the utilization of all the ingredients in the complete feed ration, improving the overall health and performance of animals.

Kelp Meal should be mixed in at 2–2.5% of the feed ration. Young animals should receive 1% of the feed ration. Kelp is an excellent free choice animal feed supplement. The animals will eat the kelp when their bodies are depleted of the nutrients and minerals needed, and leave it alone when they don't need it. It will keep the animals very healthy and calm.

Observation by farmers and breeders, as well as controlled testing, indicate the following benefits from feeding Kelp Meal:

DAIRY AND BEEF CATTLE

- ▶ more efficient feed utilization, less feed required
- ▶ increases regularity of heat cycles
- ▶ improves rate of conceptions and healthy births
- ▶ fewer problems caused by dietary deficiencies such as mastitis, retained placenta, milk fever, abortions and infertility. Milk Fever can be averted by feeding Kelp Meal 3–4 months before calving.

DAIRY CATTLE

- ▶ increases milk yield
- ▶ increases butterfat content in milk
- ▶ increases iodine and vitamin A content in milk
- ▶ minimizes production losses during stress periods
- ▶ prolongs lactation periods
- ▶ increases hemoglobin content in blood

BEEF CATTLE

- ▶ increases weight gains on less feed
- ▶ increases loin size
- ▶ reduces back fat

POULTRY - BROILERS

- ▶ increases weight gains on less feed
- ▶ reduces mortality
- ▶ better feathering
- ▶ increases pigmentation
- ▶ increases meat on shanks

POULTRY - LAYERS AND BREEDERS

- ▶ increases hatchability of eggs
- ▶ reduces blood spots
- ▶ increases iodine content of eggs
- ▶ increases yolk pigmentation
- ▶ reduces coccidiosis
- ▶ more uniform shell texture with reduced breakage
- ▶ increase laying period in older hens

POULTRY - TURKEYS

- ▶ increases weight gains on less feed
- ▶ increases hatchability of eggs
- ▶ lighter meat texture

SWINE

- ▶ rapid gains for earlier marketing
- ▶ increases loin length and size
- ▶ larger loin eyes
- ▶ reduces back fat
- ▶ reduces internal parasites
- ▶ increases litters

SHEEP

- ▶ increases birth rate
- ▶ easier lambing
- ▶ better quality wool

GOATS

- ▶ increases birth rate
- ▶ increases weight gains on less feed, for meat goats
- ▶ increases milk yield for dairy goats

HORSES

- ▶ increases fertility in brood mares
- ▶ reduces incidence of cracked hooves
- ▶ minimizes stable vices and nervous habits
- ▶ increases resistance to infection and reduces healing time for injuries

SHRIMP AND PRAWNS

- ▶ increases weight gains
- ▶ reduces susceptibility to disease

Humate

WHAT IS HUMATE?

Humate is a natural stimulator for the growth and development of plants. The word humate is derived from the term *Humas*, an organic component of any soil, which provides its fertility. Although humic acids form the basis of humas, they are insoluble and therefore biologically inactive. In order for soil to be adequately fertile, the humic acid content must be 5–6% or at least 80 tons per acre. Such soils however are few and far between. So what is the solution? Nature itself provides the answer. The greatest reserves of humic acid are to be found in lignites, oxidized and brown coals. This coal may simply be spread over the soil in its unprocessed form, as both American and Australian farmers do quantities of 50–80 tons per acre, however this is far from the best alternative available. As long as 50 years ago in Russia, it was proven that when humic acids are converted into water-soluble Sodium, Potassium or Ammonium salts, their biological activity increases by more than 10,000. These salts are called HUMATES.

BIOLOGICAL BENEFITS:

1. Stimulates plant enzymes
2. Acts as an organic catalyst
3. Stimulates growth and proliferation of desirable soil microorganisms as well as algae and yeasts
4. Increases root respiration and formation
5. Increases the availability of micronutrients
6. Increases the permeability of plant membranes, which increases the uptake of nutrients
7. Increases the vitamin content of plants
8. Increases the viability and germination of seed
9. Accelerates cell division and root development
10. Contains a wealth of micro-elements such as Si, Fe, Mg, S, Ba, B, Mn, Co, Ni, Ti, Mo, Cu, Pb, Ag and more
11. Increases photosynthesis in plants
12. Contains soluble silicon
 - ▶ Silicon strengthens cell walls
 - ▶ Silicon helps block disease invasion at the cell level
 - ▶ Silicon helps plants maintain more uniform cell temperature, which increases drought and frost tolerance

CHEMICAL BENEFITS:

1. Increases buffering properties of soil
2. Rich in both organic and mineral substances essential to plant growth
3. Retains water soluble fertilizers in the root zones and releases them to plants when needed
4. Has an extremely high CEC (cation exchange capacity)
5. Promotes the conversion of insoluble nutrients into forms available to plants
6. Reduces or eliminates many soil-related phenomenon, such as dry spots on golf greens

PHYSICAL BENEFITS:

1. Makes soil more friable and crumbly
2. Improves soil workability
3. Increases aeration of soil
4. Reduces thatch build-up in turfgrasses
5. Increases water holding capacity
6. Improves thermal coloring of soil

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Humate

The term *humic acid* represents a group of powerful natural substances that are so complex that science will not be able to replicate them for generations to come. Because of their incredible complexity, all humic acid products must be derived from naturally occurring deposits, which are found in certain types of oxidized lignite (Leonardite). The humic acids in these natural deposits have withstood millions of years of weathering, yet they have not broken down or leached out of the earth into the water table. Therefore, they are extremely insoluble and inactive in their natural state. Prior to our new technology, techniques used to make the humic acids soluble have proven to be quite complicated and costly. This has resulted in the unfortunate practice of applying large volumes of the raw material to the soil in hopes that some of the humic acids will become available to the plants and soil over time. However, even if a very small fraction of the humic acids in the raw material were soluble or able to be released over time, this practice is an extreme waste of a valuable natural resource and is nothing more than a hit-or-miss approach.

Through many years of research, we have developed a new breakthrough technology for the production of maximum quality humic acid products from these natural deposits. Our specialized processing activates the insoluble humic acids found in the lignite and makes them readily available for use by plants and the soil. This allows for very precise application and utilization of the humic acids. After our processing, 10 pounds of activated Super Humate will provide more value to crops and soil than 1000 pounds of the raw material. By maximizing the efficacy of the raw material, we can also help ensure that the supply of these natural deposits will last until science is able to fully understand and replicate humic acids.

After humates are processed and activated with our new technology, their use will significantly influence all of the components of the plant-water-soil system. Once inside the plant, humic acids activate the metabolic process, leading to an acceleration of growth, the development of a powerful root system, and the formation of special enzymes. This increases the turf's resistance to stress, and at the same time increases the accumulation of vitamins, sugars, protein, and chlorophyll in the plant.

Unlike any other humate technology in the world, our new technology is able to convert the silica portion of raw lignite into soluble silicon, which is then available for plant nutrition. With all other processing technologies, the silica portion of the lignite is unable to be utilized and is discarded as waste. Silicon is a vital component of cell walls. Plants supplied with soluble silicon are able to produce stronger and thicker cell walls, in essence creating a 'mechanical barrier' to piercing and sucking insects. The thickened cell wall also allows the cell to regulate its internal temperature more effectively, which significantly enhances the plant's tolerance to heat, frost, and drought stress. Moreover, it has been found that plants are uniquely able to deposit silicon at the site of a fungal infection, thereby blocking or combating further penetration of the cell walls by the attacking fungus. In addition, silicon in plants has been shown to improve leaf stiffness, stem strength and the prevention or depression of iron and manganese toxicity.

Through nuclear magnetic resonance (NMR) spectroscopy, we have proven that when Neptune's Harvest **Super Humate** products are added to water at specific concentrations, the structure of the water becomes physically altered, taking on the structure commonly referred to as 'melted water.' In this highly structured state, water molecules can penetrate the plant leaves and stems much more efficiently. This significantly improves the penetration of humic acids and any companion materials (fertilizers, pesticides, etc.) into the plant.

Activated humates can both improve and restore the structure of soil by creating beneficial conditions for the development of microorganisms. Our humate is also able to form assimilating complexes that transport microelements into the plants.

Usage Guide for LC-12 — Soil Applications:

Crop	Soil rates per acre per treatment*	Suggestions and Methods
Corn and Sorghum	1 to 2 gallons	Apply soil treatment before emergence and again as late as machinery passage allows.
Rice — Dryland	1 to 2 gallons	Apply soil treatment before emergence and again between joining and early heading.
Rice — Lowland	1 to 2 gallons	Apply first treatment 7 days before flooding and make foliar treatment at the boot stage.
Winter Grains	1 to 2 gallons	Apply soil treatment before emergence and again at spring green-up.
Spring Grains	1 to 2 gallons	Apply soil treatment before emergence and again at the onset of flowering.
Beans, field beans, soybeans, peas, and peanuts	1 to 2 gallons	Apply soil treatment before emergence and again at the onset of flowering.
Cotton	1 to 2 gallons	Apply soil treatment before emergence and again at the onset of flowering.
Hay and Forages	1 to 2 gallons	Apply soil treatment in spring at the beginning of growth and again after each cutting.
Pastures	1 to 2 gallons	Apply soil treatment in the spring at the beginning of growth, again at midseason and a third treatment before dormancy.
Tropical Grasses	1 to 2 gallons	Apply soil treatment every 3 months.
Potatoes	1 to 2 gallons	Apply soil treatment before emergence and again at the hook stage.
Sugar Cane	1 to 2 gallons	Apply soil treatment before emergence and again at 3 months and 6 months after planting.
Root Crops (<i>beets, radishes, carrots, etc.</i>)	1 to 2 gallons	Apply soil treatment at or within 15 days of planting.
Vegetables (<i>tomatoes, okra, eggplant, peppers, cucumbers, cauliflower, broccoli, etc.</i>)	1 to 2 gallons	Apply soil treatment at planting or before emergence and then every 6 weeks during active production.
Leaf Crops (<i>lettuce, parsley, dill, herbs</i>)	1 to 1½ gallons	Apply before emergence and again 6 weeks after emergence.
Citrus	2 gallons	Apply soil treatment every 2 months during the active/productive season.
Fruits (<i>apples, peaches, pears, apricots, plums, cherries, walnuts, pecans, etc.</i>)	2 gallons	Apply soil treatment 1–2 weeks prior to leaf emergence and again at the beginning of fruiting.
Tropical Fruits (<i>mangoes, papayas, guavas, bananas, pineapples, pistachios, brazil nuts, etc.</i>)	2 gallons	Apply soil treatment every 2 months during the active/productive season.
Vineyards (<i>Grapes</i>)	1 to 2 gallons	Apply soil treatment at leaf emergence and again when fruit is half mature.
Berries (<i>strawberries, raspberries, blackberries, blueberries, etc.</i>)	1 to 2 gallons	Apply soil treatment at the beginning of growth and again when fruit is half mature.
Melons (<i>watermelons, cantaloupes, etc.</i>)	1 to 2 gallons	Apply soil treatment at planting or before emergence, and again at the onset of flowering.
Landscape Ornamentals	6 oz. per 1000 sq. ft. of beds	Apply soil treatment in spring at green-up or at transplanting and again prior to dormancy. Year-round climates should make soil applications every 3 months.
Flowers	1 oz. per 10 gallons of irrigation water	Apply weekly in irrigation water.
Greenhouse plants	1 oz. per 10 gallons of irrigation water	Apply weekly in irrigation water.
Potting Mixes	16 oz. per cubic yard of mix	When moistening the dry potting mix, add enough LC-12 into the water/fertilizer/fungicide solution to deliver 16 ounces of LC-12 per cubic yard of potting mix.
Hydroseeding	2 to 5 gallons	Once the water is added to the hydroseeding tank, add enough LC-12 to deliver 2 gallons per acre. In very harsh environments, add up to 5 gallons of LC-12 per acre in the hydroseeding solution.
Turf and Golf Course	1 to 2 gallons	Apply soil treatment at spring green-up and with (or at the time of) each normal fertilizer application. Tees and greens may be treated more frequently with half-rate applications.

*Soil applications can be made in numerous ways. LC-12 can be sprayed onto the soil or dripped into the crop row, or it can be run through overhead, trickle, or underground irrigation systems.

Irrigation Applications:

When making soil treatments through irrigation equipment it is important to keep the final concentration of LC-12 to water being emitted to the soil within the parameters listed below. It may be necessary to adjust the irrigation system to deliver more or less water per acre per cycle to deliver the desired amount of LC-12 listed for the crop you are treating.

Maximum Concentration	Optimal Concentration	Minimum Concentration
1 ounce LC-12 per gallon of water	1 ounce LC-12 per 10 gallons of water	1 ounce LC-12 per 20 gallons of water

Foliar Applications:

All crops will benefit from foliar applications of humic acids when it fits into the crop management practice. Foliar applications should be made in addition to the soil treatments. Foliar applications should be made at the rate of 16 to 32 ounces of LC-12 per acre per treatment. Foliar treatments with LC-12 are strongly recommended during four growth stages of the crop: immediately before the appearance of buds, before blossoming, after the flowers have fallen, and during ripening. When soil treatments are not possible, foliar treatments may be made every 14 days using 16 ounces of LC-12 per acre. It is important to always use LC-12 within the concentration parameters listed below.

Maximum Concentration	Optimal Concentration	Minimum Concentration
1 ounce LC-12 per gallon of water	1 ounce LC-12 per 10 gallons of water	1 ounce LC-12 per 20 gallons of water

Additional Usage Notes:

- ▶ When applied together with fertilizers or pesticides, the use of humate increases the efficacy of the companion materials. In most cases, systemic pesticide rates can be reduced by 25% or more when the humate is added to the application. The total annual need for nitrogen can be reduced by 30% or more when the full program of soil treatments using humate are applied to the crop. In all cases, we suggest using personal experience and experimentation to determine the rates of companion products that will provide acceptable performance.
- ▶ Humates have proven compatible with virtually all companion products except those with a very low pH. In laboratory experiments, no problems have been found other than when companion materials have a pH less than 3.0. However, if there is any doubt about compatibility, a jar test is strongly recommended. To be safe, a jar test is recommended with any material that has a pH less than 4.0.

Usage Guide for SP-85 — Soil Applications:

Crop	Soil rates per acre per treatment*	Suggestions and Methods
Corn and Sorghum	1.5 to 3 pounds	Apply soil treatment before emergence and again as late as machinery passage allows.
Rice — Dryland	1.5 to 3 pounds	Apply soil treatment before emergence and again between joining and early heading.
Rice — Lowland	1.5 to 3 pounds	Apply first treatment 7 days before flooding and make foliar treatment at the boot stage.
Winter Grains	1.5 to 3 pounds	Apply soil treatment before emergence and again at spring green-up.
Spring Grains	1.5 to 3 pounds	Apply soil treatment before emergence and again at the onset of flowering.
Beans, field beans, soybeans, peas, and peanuts	1.5 to 3 pounds	Apply soil treatment before emergence and again at the onset of flowering.
Cotton	1.5 to 3 pounds	Apply soil treatment before emergence and again at the onset of flowering.
Hay and Forages	1.5 to 3 pounds	Apply soil treatment in spring at the beginning of growth and again after each cutting.
Pastures	1.5 to 3 pounds	Apply soil treatment in the spring at the beginning of growth, again at midseason and a third treatment before dormancy.
Tropical Grasses	1.5 to 3 pounds	Apply soil treatment every 3 months.
Potatoes	1.5 to 3 pounds	Apply soil treatment before emergence and again at the hook stage.
Sugar Cane	1.5 to 3 pounds	Apply soil treatment before emergence and again at 3 months and 6 months after planting.
Root Crops (<i>beets, radishes, carrots, etc.</i>)	1.5 to 3 pounds	Apply soil treatment at or within 15 days of planting.
Vegetables (<i>tomatoes, okra, eggplant, peppers, cucumbers, cauliflower, broccoli, etc.</i>)	1.5 to 3 pounds	Apply soil treatment at planting or before emergence and then every 6 weeks during active production.
Leaf Crops (<i>lettuce, parsley, dill, herbs</i>)	1.5 to 2.5 pounds	Apply before emergence and again 6 weeks after emergence.
Citrus	3 pounds	Apply soil treatment every month during the active/productive season.
Fruits (<i>apples, peaches, pears, apricots, plums, cherries, walnuts, pecans, etc.</i>)	3 pounds	Apply soil treatment 1–2 weeks prior to leaf emergence and again at the beginning of fruiting.
Tropical Fruits (<i>mangoes, papayas, guavas, bananas, pineapples, pistachios, brazil nuts, etc.</i>)	3 pounds	Apply soil treatment every month during the active/productive season.
Vineyards (<i>Grapes</i>)	1.5 to 3 pounds	Apply soil treatment at leaf emergence and again when fruit is half mature.
Berries (<i>strawberries, raspberries, blackberries, blueberries, etc.</i>)	1.5 to 3 pounds	Apply soil treatment at the beginning of growth and again when fruit is half mature.
Melons (<i>watermelons, cantaloupes, etc.</i>)	1.5 to 3 pounds	Apply soil treatment at planting or before emergence, and again at the onset of flowering.
Landscape Ornamentals	1 oz. per 1000 sq. ft. of beds	Apply soil treatment in spring at green-up or at transplanting and again prior to dormancy. Year-round climates should make soil applications every 3 months.
Flowers	1 oz. per 55 gallons of irrigation water	Apply weekly in irrigation water.
Greenhouse plants	1 oz. per 55 gallons of irrigation water	Apply weekly in irrigation water.
Potting Mixes	3 ounces per cubic yard of mix	When moistening the dry potting mix, add enough SP-85 into the water/fertilizer/fungicide solution to deliver 3 ounces of SP-85 per cubic yard of potting mix.
Hydroseeding	3 to 8 pounds	Once the water is added to the hydroseeding tank, add enough SP-85 to deliver 3 pounds of SP-85 per acre. Allow to mix for at least 5 minutes before spraying. In very harsh environments, add up to 8 pounds of SP-85 per acre in the hydroseeding solution.
Turf and Golf Course	1.5 to 3 pounds	Apply soil treatment at spring green-up and with (or at the time of) each normal fertilizer application. Tees and greens may be treated more frequently with half-rate applications.

*Soil applications can be made in numerous ways. SP-85 can be mixed into or coated onto dry fertilizers and soil amendments, it can be mixed with water and sprayed onto the soil or dripped into the crop row, or it can be run through overhead, trickle, or underground irrigation systems.

Irrigation Applications:

When making soil treatments through irrigation equipment, the total amount of SP-85 to be used should be thoroughly pre-mixed in a separate container before adding it to the final irrigation tank or system. SP-85 has a particle size ranging from 50–80 microns and will not block irrigation openings if it is properly pre-mixed with water. It is important to keep the final concentration of SP-85 to water being emitted to the soil within the parameters listed below. It may be necessary to adjust the irrigation system to deliver more or less water per acre per cycle to deliver the desired amount of SP-85 listed for the crop you are treating.

Maximum Concentration	Optimal Concentration	Minimum Concentration
1 ounce SP-85 per 5.5 gallons of water	1 ounce SP-85 per 55 gallons of water	1 ounce SP-85 per 110 gallons of water

Foliar Applications:

All crops will benefit from foliar applications of humic acids when it fits into the crop management practice. Foliar applications should be made in addition to the soil treatments. Foliar applications should be made at the rate of 3 to 6 ounces of SP-85 per acre per treatment. Foliar treatments with SP-85 are strongly recommended during four growth stages of the crop: immediately before the appearance of buds, before blossoming, after the flowers have fallen, and during ripening. When soil treatments are not possible, foliar treatments may be made every 14 days using 3 ounces of SP-85 per acre. It is important always to use SP-85 within the concentration parameters listed below.

Maximum Concentration	Optimal Concentration	Minimum Concentration
1 ounce SP-85 per 5.5 gallons of water	1 ounce SP-85 per 55 gallons of water	1 ounce SP-85 per 110 gallons of water

Additional Usage Notes:

- ▶ When applied together with fertilizers or pesticides, the use of humate increases the efficacy of the companion materials. In most cases, systemic pesticide rates can be reduced by 25% or more when the humate is added to the application. The total annual need for nitrogen can be reduced by 30% or more when the full program of soil treatments using humate are applied to the crop. In all cases, we suggest using personal experience and experimentation to determine the rates of companion products that will provide acceptable performance.
- ▶ All humate powders contain a small portion of mineral content that is not soluble in water. If humate powders are added directly to a final spray or irrigation tank (not pre-mixed and settled in a separate container), the insoluble portion will settle to the bottom of the tank once any agitation is stopped. When high concentrations of humate powders are added to the final spray or irrigation tank and the liquid is not fully run-out (applied), the insoluble material that settles to the bottom may necessitate more frequent tank and filter cleaning.
- ▶ Humates have been proven compatible with virtually all companion products except those with a very low pH. In laboratory experiments, no problems have been found other than when companion materials have a pH less than 3.0. However, if there is any doubt about compatibility, a jar test is strongly recommended. To be safe, a jar test is recommended with any material that has a pH of less than 4.0.

Helpful Conversions:

When it is not possible to accurately weigh the SP-85 powder, the following table provides close approximations for measuring the amount needed:

Humate by Weight	Humate by Measure
0.5 ounces	1 tablespoon
1.0 ounces	2 tablespoons
8 ounces	1 cup

Atmospheric N-Fixing Azotobacter Products

The BioNatural Blooming Blossoms® line of N (Nitrogen) fixing products consists of three OMRI products, two for soil and one for foliage. All contain multiple species of stabilized cyst Azotobacter for N fixation. BioNatural **Bioplin** fixes N in both nitrate and ammonia forms in the soil. It is used in-row and/or after planting and emergence when root hairs are present. Bioplin feeds off root offshoots making N available for continuous, sustained uptake. BioNatural **NutriTech** is used in conjunction with Bioplin. NutriTech's primary function is to release phosphate and it also fixes some N. If you have a low P (Phosphorus) reading on your soil test, we urge you to use both ground products. BioNatural **NutriFoliar** fixes N on the leaf as well as supplies Vitamins B, C and E. B Vitamins are well known growth factors. Foliar N fixation, with this product and the Fish Fertilizer mixed together, represents a major breakthrough in plant feeding, and really increases yield and quality potential.

BioNatural Blooming Blossoms products provide growers with a valuable tool for taking the “ups & downs” out of a typical organic nitrogen cycle which always seems to be out of sync with the plant needs during its growth cycle. This is particularly true during the late season. Dr. Reams taught that if you could influence/feed a plant during the last 30-45 days, you would have the potential for almost doubling the yield. We believe the BioNatural technology has the potential to stabilize the N flow into a plant through the roots and then provide a steady supply from the leaf surface whenever used. We urge you to try the late foliar feeding of **NutriFoliar** with Fish or Fish and Seaweed Blend. This will be easy for most high value crops as you are usually going through the fields of berries, grapes, apples and nuts anyway. Field crops may be more difficult, but it may be worth it if you can do it.

BioNatural Blooming Blossoms multiple award winning products successfully use naturally occurring soil bacteria to unlock N from the air for plant uptake. BioNatural products provide a constant flow of the essential element N, resulting in superior plant growth. BioNatural products are patented worldwide, are very simple to use, and are non-toxic, non-hazardous, environment friendly and 100% natural. Their programs have lead to increased yields on Corn of 24 – 45%, increased germination of 95-100% with N fixation in the 50-55 lbs/A range, have produced 49.5% increased dry matter yield in Wheat, 41% increases in Grapes, 45% increases in Strawberries and 38% increases with Apples.

The recommended application rate is 125 ml/Acre each of Bioplin & NutriTech combined soil products (4.4 oz each) in 50 gallons of water to get the spores down into the root zone for high value and field crops. Fields in “bad” biological shape may need more, and reports from Farmers who went out at double strength said it paid for itself with additional yield. The foliar program uses 250 ml/Acre (8.8 oz.) in 50 gal water for thorough coverage of foliage. Reduce to 125 ml/A for third and subsequent foliar sprays. It is recommended **best to use with 2-3 gal Fish/Acre to insure maximum N fixation**. The products can function in soil pH from 4.5 to 9.0; in temperature ranges from 32 degrees to 110 F and in very low to very high humidity.

Important to note; these products cannot freeze. Make sure they don't get below 20 degrees. Once opened, product should be used up completely. If you not do this, balance of product must be stored in a refrigerator, until balance can be used.

GSR CALCIUM

Brief Description:

Unlike any product currently on the market, GSR Calcium attacks and corrects the cause of the problem rather than reacting only to the symptoms. Calcium is the tour guide and referee to nutrients in the soil. Calcium lowers the conductivity of the soil, and with a lower conductivity minerals that were previously locked up are now available for the plants use. Calcium allows and guides phosphorus to the plants. This process is the start of photosynthesis. It increases sugar, which is energy to the plant and energy increases the growth, structure and nutrient content of the plant. Throughout the world, we stand confident in knowing that the addition of Calcium is a great solution to a wide source of soil problems, including salt, sodium, fungi, weeds, insects, pH, and drought. The growth, health and productivity of all plants are determined by the balance and interaction of many nutrients. Calcium's role is to use its electrical power to assist other minerals for an overall healthy soil that produces quality food.

Calcium is said to be the "Foundation of Life" and is involved in many metabolic and physiological functions. Calcium is one of the most abundant minerals in our bodies, giving us structure and electrically fueling our hearts. It is also one of the most abundant mineral in the bodies of animals. Looking at the food chain, common sense tells us that Calcium should be one of the most abundant minerals in soil. Without available Calcium, none of the other minerals can work at the efficiency needed for optimum plant production. When looking at Calcium, the molecular weight is quite heavy, science tells us that it carries a (++) electrical charge. Conventional markets offers a (++) Calcium that has very low availability and a slow break down. Until recently, Dolomite, Gypsum or high Calcium has been about the only choices for Calcium. When looking at soil tests and pH levels, options for balancing available Calcium have been less than desirable. Because of the way GSR Calcium is processed, we feel it is the best on the market.

This Calcium comes in 2 formulas: **GSR Dormant** – applied on direct soil contact in the fall or on dormant soil. **GSR Growing**– applied in the spring to growing plants before, during or after seeding. It can be applied every time you spray the Fish Fertilizer.

Guaranteed Analysis: Calcium (Ca) Growing Formula 23.56% Dormant Formula 25%

Derived from: Limestone

Directions for Application:

Apply 1 lb. of Calcium per 10 acres, with a minimum of 10 gallons of clean water per acre. Mix prior to application in a 5-gallon bucket of warm water and then add to the tank. Spraying out in the same tank with the Fish, helps the Calcium work best. Take normal precautions. Do not ingest, or breath in. Wear appropriate eye and mouth protection. Keep out of reach of children. Store in a cool, dry place. In case of oral or eye contact, rinse and flush with clean water. If irritation persists, contact a physician.

This product should only be applied in accordance with the recommendations from a professional crop consultant, based on a soil analysis and the plant or the crop to be grown. Best results can be achieved by surface application with a sprayer or through an irrigation system. Carefully follow the recommended application rates on the label. Do not deviate from such instructions. **Review www.gsrcalcium.com/metal.pdf for more directions and disclaimers that may be required under state law.**

Garlic

For centuries—since ancient time—garlic has been used as an insect repellent on plants. Garlic Spray repels almost every kind of insect from all plants and is completely safe to use on everything you grow. To make our Garlic Spray a special variety of garlic is used. The oil is then processed in a unique way to insure that our concentrate is “just right” and powerfully effective. The true key to using garlic as a repellent spray is to put it on the plant BEFORE the bugs arrive, to keep the insects off plants in the first place.

GARLIC SPRAY ADVANTAGES

GARLIC SPRAY is an organic substance made from a vegetable, that when sprayed on crops of all kinds, keeps insects off the plants, has no lingering odor and leaves no after taste. The cost is considerably less than insecticides and it is completely organic. There is nothing in this product but garlic oil and water. There are no poisons or harsh chemicals used in GARLIC SPRAY.

IMPORTANT THINGS TO OBSERVE

- ▶ Unlike chemicals, GARLIC SPRAY must be protected against heat.
- ▶ Store GARLIC SPRAY in the shade away from heat; do not store in hot, closed buildings. Never store in direct sunlight.
- ▶ Do not leave diluted product in the tank overnight; if you must, be sure to re-agitate the next morning.
- ▶ Do not mix GARLIC SPRAY with poisonous and harsh chemicals, but you may mix it with Hydrolyzed Fish.
- ▶ Hydrolyzed Fish explanation: Hydrolyzed Fish is a preferred sticker-spreader, because it gives ultraviolet protection to the garlic, and also brings the garlic into the plant so it won't wash away with rain.
- ▶ Ideal spraying times are very late in the afternoon, evenings or at sunrise. Never spray in the heat of the day.

If you have heavily chlorinated water, we prefer you use well water if possible.

HOW TO APPLY GARLIC SPRAY

METHOD OF APPLICATION:	Use a fine spray either by ground or by air equipment.
NUMBER OF APPLICATIONS:	We recommend three applications—one early in the season, another about 6 weeks later, and one more in 4 weeks.
AFTER EACH APPLICATION:	Seal the bottle securely to maintain product freshness. Store in a cool dry place, inaccessible to children & pets.
DISPOSAL OF EMPTY BOTTLE:	Do not re-use, the container is made for recycling.
WARNING:	Do not apply GARLIC SPRAY just prior to pollination or during pollination as it repels bees and may adversely affect pollination.

Dilute quarts in water — 20 parts water to 1 part GARLIC SPRAY. Gallons, and 5-gallon pails dilute in water 100 to 1, and 300 to 1, depending on the concentration you purchase. Unused concentrate stays fresh up to 3 years.

- ▶ 1 quart diluted 20 to 1 covers 1 acre.
- ▶ 1 gallon diluted 100 to 1 covers 20 acres.
- ▶ 1 gallon of 100 to 1 concentrate contains the equivalent of 300 lbs. of fresh raw garlic.
- ▶ 1 gallon of super plus 300 to 1 dilutes 300 to 1 and covers 60 acres.
- ▶ 1 gallon of super plus 300 to 1 contains the equivalent of 900 lbs. of fresh raw garlic.

This is the strongest and most effective natural insect repellent ever. There is nothing else like it on the market today.

Mixing and usage requirements for Neptune's Harvest Fish, Fish/Seaweed Blend and Seaweed Fertilizers:

Products must be stirred well -

Because of the oils in the fish, it will separate, so stirring well is very important.

- Paint stirrers with an extension on a drill work, but are often larger than the 2" bung hole on drums. Although they do fit into the 275 gal. bulk totes.
- You can also aerate to mix. Introduce air hose into the 55 gal drums or totes and SLOWLY increase airflow. Some farmers use a shower head attached to a ½" pipe which will fit through the bung hole and attaches easily to an air compressor.
- Collapsible drum mixers however are the best option, and can be found at <http://www.bascousa.com> Search for (tms-5 t-style mixer) <http://www.bascousa.com/heavy-duty-portable-mixer-blades-tms-55-1.html>
- You can also pump from one bung hole back into the other and circulate the product that way.

Pumps, spray equipment and/or drip lines must be cleaned out after every use -

- To assure that your equipment works its best and lasts as long as possible, it is extremely important to flush your equipment with clean water after using our products. It will also help to prevent any clogging issues due to oily buildup, and corrosion due to the phosphoric acid we use to stabilize the Fish.

Do not store diluted -

- Once you have mixed our products with water, they must be used up the same day. We bring our Fish products down to a pH of 3.5 in order to keep them from spoiling. Once water has been added, the pH goes up so the plant can accept it. If you do store it diluted, it will still work, but will become malodorous.

Mix with enough water before spraying -

- Each gallon should be mixed with a minimum of 10 gallons of water. You can add more water, but do not add less unless you find a way to raise the pH. Our Seaweed Extract is a good way to do that. We recommended a pH meter when in doubt. We have had ranchers spray it at 1 gallon of Fish, to 3 gallons of water, on hay and pasture, without any problems. Some crops can handle low pH's.

If mixing with other inputs -

- If you are mixing the Fish with other inputs, always add the Fish to the tank last. In almost all cases you can cut back on the other inputs by 25% when spraying with the Fish, because the Fish is a natural spreader/sticker, and is systemic, which means it will help take the other inputs into the plant, and down to the root system.

Please feel free to call or e-mail us anytime if you have any questions or need additional information – phone: (800) 259-4769.

Additional information, including OMRI Sheets, Analysis Sheets, etc... can be found on the 'Information for Farmers' section of our website. www.neptunesharvest.com.

Testimonials

As you know, we have been a loyal customer of yours for the last five years buying hydrolyzed fish for our 560-acre walnut orchard operation here in the great San Joaquín Valley of California. We mix it in a 600-gallon mobile trailer/tank and inject it into our solid set sprinkler system throughout the growing season when irrigations are frequent.

The harvest of 2005 was exceptional for quantity and quality in all our varieties of walnuts. We harvested 35% more walnuts than our previous best year of 2003 with outstanding edible yield and color, important quality parameters for walnuts. I attribute our success to our fish program and other sustainable activities that we promote to whomever will listen. We would hope that you continue to provide a quality product with which we will continue to fertilize our orchards.

—*Christopher John Locke • Locke Ranch, Inc. • Lockeford, CA*

Three years of applying Neptune's Harvest Fish Fertilizer on my alfalfa, grass hay, vegetables and sweet corn has proved to be a more economical and environmentally friendly way to feed my soil and achieve superior results for sustainable agriculture.

Especially good results were achieved when I used 10 gallons of fish per acre, for the growing season, on my alfalfa. I easily applied it through my irrigation system. I noticed it not only appeared darker green at first, but it stayed that way all season. I got 4.5 tons per acre on my first cut, where I had traditionally gotten 3 tons. The same type of success is evident throughout my farm."

—*Doug Prohl • Grand Forks, B.C. • Canada*

I'm 79 years old. I've been gardening for over 65 years. I used Neptune's Harvest for the first time, and I put it on my flowers and I've noticed a difference.

The flowers are bigger and brighter, and the greens are very firm. The funny thing is, I'm visually impaired, yet I can tell a difference and my family agrees as well. My assistant gardener is my 4-year-old grandchild Nichole, and she planted 25 pumpkin seeds, and I added Neptune's Harvest to each seed and in 15 days, 100% germination. I planted 50 tomato plants, and the next day each one was standing up straight.

Thank you Neptune's Harvest!

—*Joe Licata • Valley Stream, NY*

"Just a note to let you know the Neptune's Harvest Fish Fertilizer that I purchased from you was possibly one of the best things I have done in my several years of farming."

—*John B. Martin II*

Since mid-spring of 1994, I have been using Neptune's Harvest liquid fish to boost blossoms, vegetable production and for the over-all health of my landscape specimens. Quite literally, there is nothing that won't benefit from this water-soluble, organic fertilizer. Hanging baskets, newly-started seedlings and indoor plants have also become stronger, healthier and more vigorous. I find that portions of my gardens, fed with Neptune's Harvest on a regular basis, were more resistant to the usual summer onslaught of insects and diseases.

Amazing results also came with using Neptune's Harvest liquid fish as a compost enhancer. I would state, with confidence, that Neptune's Harvest will cut in half the normal time required to harvest rich, usable compost. Happy Gardening!"

—*Deb Lambert, Horticultural Consultant • Lynn, MA*

I just wanted to tell you that last winter was the 1st year to feed hay fertilized with your Fish. 10 to 12 pounds per day, as opposed to 20 to 25 for conventionally grown hay, to maintain a body condition score of 4. These cattle are fed on winter range so they have "pickins" other than hay. Outstanding product!! P.S. I also fed 80% less mineral!

—*Tom Seawald • Mantle Ranch • Dinosaur, CO*

Just a note to let you know the Neptune's Harvest Fish Fertilizer that I purchased from you was possibly one of the best things that I have done in my several years of farming. Over the years we have used many products on an experimental and trial basis that have performed fairly well or at least we thought until the occasion to use Neptune's Harvest Fish Fertilizer. On an experimental basis, we basically used this on open pollinated and some three way cross corn production. It was unbelievable how the fish brought alive the soil microbes to the point of which was totally amazing. Neptune's Harvest was applied in the row at one gallon with one gallon of liquid calcium at planting time and came back with one gallon as a foliar with two quarts of liquid calcium on the corn test plots. We estimate that our corn on the test harvest with strictly using the fish, yielded approximately 120–125 bushels per acre, or 5–7 bushels better than the check. We also sent a sample to a certified lab for nutrient / mineral analysis and was very surprised to see the mineral balance and 13% protein in this sample, typical corn protein runs from 6–7%.

Another interesting fact was that in late November, a state sales representative came to our farm to dig a root of corn plant. The first corn root we dug was approximately 18–20 inches in diameter. We stood in amazement of the number of earthworms that were still within the root structure of this plant. The one plant that we counted had forty-five earthworms that were still within the root structure. I contribute this earthworm population in this root zone strictly to the use of Neptune's Harvest fish with the amino acids and a total feeding program for the soil microbes. It has truly been a pleasure meeting you and I am grateful to have found your product.

—John B. Martin II • OCIA Certified Organic • Williamsburg, IN

I wanted to say WAY TO GO, Sandy and Ann, and all of you at Neptune's Harvest. You all put out such a great product. We have been using the fish fertilizer on everything, from our apple trees to our 100 acres of alfalfa and can't believe the difference in our production. We were getting 4 ½ ton per acre a year and now we are up to 9. We spray it on by plane in the spring about 3 weeks before we are going to cut the hay and it instantly gives it a huge boost, it really starts growing good. Our alfalfa was chest high and no blooms last year when we harvested the first cutting. Here in Wyoming we generally only take two cuttings, we then get the hay off and then we started irrigating again and went back over it again in July and we had another bumper crop. **All of our neighbors laughed at us and teased us about raising 100% organic beef and crops and now we are the ones laughing, all the way to the bank. Thanks to you and your awesome product.**

We also fed the Kelp to our cattle and what a difference it has made in their health. They are healthy and we have not had anything sick at all since we have been feeding it. We feed it in a mineral feeder free choice and we have found that if they need it they eat it and if they don't, they leave it alone. We also till it into my garden and you should see the beautiful vegetables I had last year here in this zone 3 climate. **When I dug my root crops after using the kelp and the fish on them, I had probably 20–30 earthworms in a handful of dirt. This dirt was very sandy and didn't grow much three years ago, before I really started adding your product to it, and now it is wonderful loamy soil full of microbial life.** Thank you again for your wonderful customer service and thank you enough to take the time and the effort to get certified organic, we know what a headache it can be, your organic farms really appreciate the time and care that goes into your product.

—Shelly Neff • Heart Mountain Valley Ranch • Cody, WY

This was a very challenging year for grape growers. A very good blossom time produced an abundance of grapes but was two weeks late, consequently, the harvest was at least two weeks late. With the wet spring, unusual weather, plus the heavy crop, many of the vineyards were not producing the brix (sugar) necessary to make a ripe and flavorful grape. This year really proved the benefits of the hydrolyzed fish, seaweed, and humates. Where most grape growers were worrying and complaining about disease and ripeness, my grapes were where they should have been. The brix were at a desirable level and held up very well with the late harvest. Thank you for your excellent products, explanations on how to use them and service you have shown me. I look forward to continuing to be your customer in the future

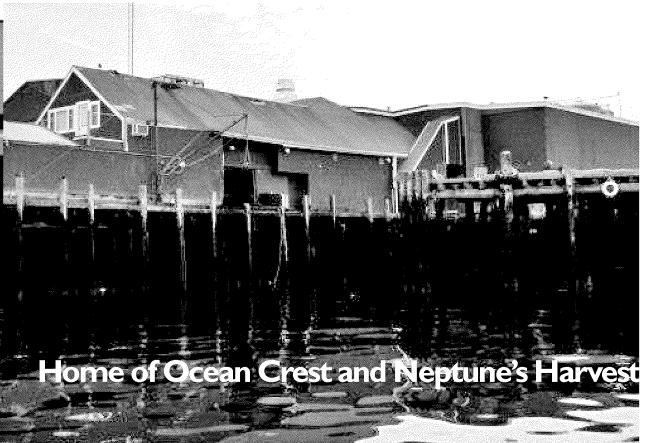
—John R. Braun • Glenside Vineyards • Naples, NY

I have replaced chemical fertilizer with Neptune's Harvest Fish Hydrolysate and Seaweed. By using these products and rotating peanuts with corn and wheat every three years, my yields have increased. My CEC, which is how good the soil is to the plant, is increasing every year. It is now 14. I am now selling some loads of peanuts with 76% meat and 61% extra large kernels. They usually run between 60 to 70% meat and 30 to 50% extra large kernels. These peanuts, grown using the fish and seaweed, are the best tasting peanuts I have ever eaten. If you want good tasting vegetables, use these Neptune products.

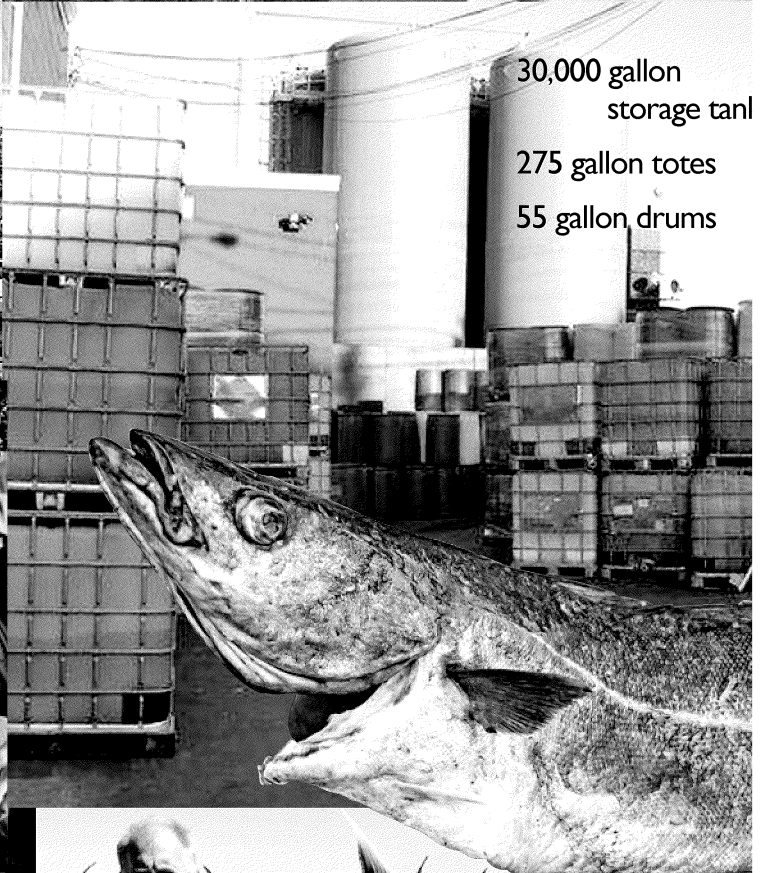
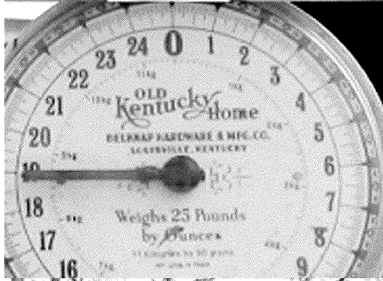
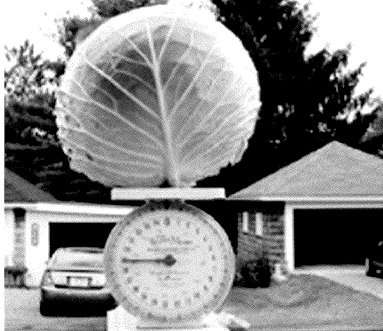
—Tom J. Harris • Littleton, NC



soybean



Home of Ocean Crest and Neptune's Harvest



30,000 gallon storage tank

275 gallon totes

55 gallon drums



270.5 pound watermelon, 2012 Ohio Record

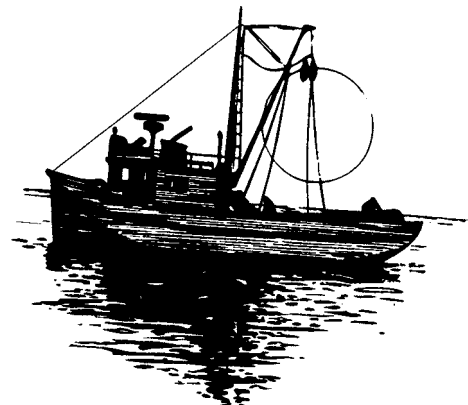


A Brief History

Neptune's Harvest is a division of Ocean Crest Seafoods Inc., which was established in 1965 as a wholesale fish and seafood company. The focus of Ocean Crest has been to purchase the freshest seafood the 'port of Gloucester' has to offer and distribute it to many of the best supermarkets, restaurants and retailers on the East Coast. We currently have exclusive agreements with many of the best-kept vessels, fishing out of Gloucester, to purchase their entire catch. In addition to providing some of the finest fresh and frozen fish and fillets available, we also offer a full line of both shellfish and live lobster.

The Neptune's Harvest division came about as an endeavor to fully utilize the fresh fish that we process. When a fish is filleted, (the process of cutting the edible portion from the fish) up to 70% of it is in the form of heads, skeletons, scales and fins. In 1986, when Neptune's Harvest was started, this portion was being brought out on fishing boats and dumped back into the sea. Clearly there was a need for a more economical and environmentally sound use for this valuable by-product. Ocean Crest Seafood's and Neptune's Harvest in conjunction with the state of Massachusetts and local Universities, developed a process through which we changed an environmental hazard into an environmental benefit. The result being Neptune's Harvest liquid fish fertilizer. After several years of trial and error and further refinements we now believe that we have the finest fertilizers (either organic or inorganic) available today.

Neptune's Harvest has been a family owned and operated business since 1965. This participation of family reflects the pride and assurance of quality that we bring to all our products, and our commitment to bringing you the best service and products available today.



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