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## JOHN'S CORNER

### ORGANIC FERTILIZERS AND NUTRIENTS 33: SHRIMP AND CRAB MEAL

*by John Ferguson*

A couple very useful organic fertilizers are made from the shells of shrimp or crabs. It is widely used in other areas of the country and many brands are available online, but we do not see them very often in our area.

They are sometimes combined and sold as shellfish fertilizer or a.k.a. Crustacean Meal. Both shrimp and crab shells are a natural source of nutrients and they contain one item that most other organic fertilizers do not, Chitin.

These meals are a renewable resource and are generally made from waste products from the seafood industry. Basically the process is to dry the shells and then grind them into a powder that can be sold as a meal or even pelletized. Some manufactures wash the shells to remove excess salts like sodium (Na) and the method of drying can also effect the quality of the meal. Hence, just like any other product in life the quality and value will vary between brands.

The exoskeletons of some pathogenic fungus, parasitic nematode eggs, and many species of insects contain chitin. When these meals are applied they encourage the growth of chitin consuming microbes in the soil. Over a few months these microbes can grow to very high numbers as they eat the chitin in the meal. When all the chitin has been consumed they start looking for other sources of chitin to eat that can be found in the bad fungus, pest nematodes and other insect pests, killing them in the process resulting in a natural control as a side benefit.

For example chitin digesting bacteria produce enzymes (chitinases) that degrades chitin hence it attacks insects and other pest that use chitin in there exoskeleton. One of the chitinases called Chitosan has been shown to increase photosynthesis, stimulate plant growth, activate natural plant immune system defenses, increase nutrient uptake, increase seed germination and sprouting, and increase overall plant vigor.

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These meals in addition to being a natural fertilizer are considered a bio-pesticide (prevents, destroying, or repelling) many pests. It is non-toxic to birds, animals, fish, pets or us. Several manufacturers also claim that Flea eggs have chitin as a component of their shells hence it works on them also. Crab and Shrimp shells provide a slow release form of nitrogen (N) and other nutrients along with minor and trace minerals including chitin.

Due to the chitin effects some manufacturers claim that crab shells can help with ants, grubs, slugs and many other insects and a natural source of N-P-K (2-3-0) and 23% calcium (Ca), 1.3% Magnesium (Mg).

Shrimp meal has more nitrogen and less calcium and may have a N-P-K of 6-6-0 and only 10% calcium. Some vendors blend the two together and call it Crustacean Meal.

Typical usage would be 10 pounds per 100 square feet, or a couple of tablespoons per transplant hole. Another use for these types of meal is in making a special compost to make compost tea. For years we have made a special compost called "Compost Tea Blend" where we have used crab meal as an ingredient just to drastically increase the population of chitin degrading microbes. Thus when the tea is brewed in addition to its disease preventing and nutritional components it will also have a bio-pesticide aspect.

Home owners can make their own meal by just drying the shells in the sun and then crushing them with a hammer. Some folks will also run them through their chipper/shredders if they have a lot of shells and grind them up for use as a fertilizer.

The shells are also a great feedstock for a compost pile. The only negative is that animals may try and dig them up.

Note: Lobsters, crayfish and other crustaceans also contain chitin and will have similar benefits.

#### **SUMMARY:**

Crab and shrimp meal is a very important organic fertilizer that gardeners should be using more for the trace elements and bio-pesticide benefits as part of their regular management plan. My only concern is that along



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the Gulf Coast using them too often may cause a salt issue, however using one or two times a year should not cause any problems.

**PROS:**

- excellent source of slow and long acting nitrogen
- often used as an ingredient in organic fertilizers
- renewable resource
- many brands available
- excellent slow release nitrogen source for a compost pile
- does not pollute waterways
- sometimes used in animal feed
- good source of calcium
- good source of trace elements
- does not burn plant
- additional bio-pesticide benefits

**CONS:**

- nitrogen slowly available
- may be dusty
- limited availability
- poorly processed brands may create odors
- may attract animals