Crop, Grain Storage and Garden Management with Diatomaceous Earth

Higher yields

No Plant Shock

Can be used as a “Sun block” and insulator from freeze damage

Decreased susceptibility to disease, insect and fungal attacks

Decreased production expenses i.e. less fertilizer, insecticide, fungicide.

Completely Organic

Sequential and concurrent exposure of flour beetles (Tribolium confusum) to tapeworms (Hymenolepis diminuta) and pesticide (diatomaceous earth).

http://www.ncbi.nlm.nih.gov/pubmed/22263651

Acaricidal effect of different diatomaceous earth formulations against Tyrophagus putrescentiae (Astigmata: Acaridae) on stored wheat.

http://www.ncbi.nlm.nih.gov/pubmed/20214386

Evaluation of a granulovirus (PoGV) and Bacillus thuringiensis subsp. kurstaki for control of the potato tuberworm (Lepidoptera: Gelechiidae) in stored tubers.

http://www.ncbi.nlm.nih.gov/pubmed/18950035

Electrostatic application of inert silica dust based insecticides onto plant surfaces.

http://www.ncbi.nlm.nih.gov/pubmed/17390789

Influence of instar and commodity on insecticidal effect of two diatomaceous earth formulations against larvae of Ephestia kuehniella (Lepidoptera: Pyralidae).

http://www.ncbi.nlm.nih.gov/pubmed/17066829

Susceptibility of different European populations of Tribolium confusum

(coleoptera: Tenebrionidae) to five diatomaceous earth formulations.

http://www.ncbi.nlm.nih.gov/pubmed/17066828

Effect of temperature and humidity on insecticidal effect of SilicoSec against Ephestia kuehniella (Lepidoptera: Pyralidae) larvae.

http://www.ncbi.nlm.nih.gov/pubmed/16937711

Effect of temperature, exposure interval, and depth of diatomaceous earth treatment on distribution, mortality, and progeny production of lesser grain borer (Coleoptera: Bostrichidae) in stored wheat.

http://www.ncbi.nlm.nih.gov/pubmed/16813345

Persistence and efficacy of two diatomaceous earth formulations and a mixture of diatomaceous earth with natural pyrethrum against Tribolium confusum Jacquelin du Val (Coleoptera: Tenebrionidae) on wheat and maize.

http://www.ncbi.nlm.nih.gov/pubmed/16602086

Acaricidal effect of a diatomaceous earth formulation against Tyrophagus putrescentiae (Astigmata: Acaridae) and its predator Cheyletus malaccensis (Prostigmata: Cheyletidae) in four grain commodities.

http://www.ncbi.nlm.nih.gov/pubmed/16573344

Persistence and efficacy of three diatomaceous earth formulations against Sitophilus oryzae (Coleoptera: Curculionidae) on wheat and barley.

http://www.ncbi.nlm.nih.gov/pubmed/16156597

Mortality and F1 progeny of the lesser grain borer, Rhyzopertha dominica (F), on wheat treated with diatomaceous earth: effects of rate, exposure period and relative humidity.

http://www.ncbi.nlm.nih.gov/pubmed/16041696

Influence of grain type on the insecticidal efficacy of two diatomaceous

earth formulations against Rhyzopertha dominica (F) (Coleoptera: Bostrychidae).

http://www.ncbi.nlm.nih.gov/pubmed/15726565

Effect of diatomaceous earths Fossil Shield and Silico-Sec on the egg laying behaviour of Callosobruchus maculatus (F.) (Coleoptera: Bruchidae).

http://www.ncbi.nlm.nih.gov/pubmed/?term=effect+of+diatomaceous+earths+fossil+shield+and+silico-sec

Natural silicon fertilizer in Queensland, Vladimir Matichenkov and John Campbell Institute Basic Biological Problems – Russian Academy of Sciences

This article discusses the use of our Mt Garnet silica as a soil amendment.

Abstract

Silicon is the second most abundant element in the Earth's crust. This element is recognized as beneficial but not as essential for plant growth. Numerous investigations have shown positive effects of silicon on both soil fertility and plant growth. A deposit of natural source of Si (Natural Silica, NS) near Mr Garnet in North Queensland can be used as a soil amendment. This material was tested in greenhouse investigations under drought and salt toxicity conditions and in unreplicated tests conducted on 150 commercial fields from Mossman to Bundaberg during 2008-2010. Natural Silica had a positive influence on soil properties and increased average yields of sugarcane, hay, potato, banana, and tropical fruits. Natural Silica provided the possibility of reducing the application of traditional fertilizers by 20 to 30% without negative impact on crop production.

http://www.regional.org.au/au/asa/2010/crop-production/soil-biology-nutrition/7055_matichenko.htm

Effects of silicon on growth processes and adaptive potential of barley plants under optimal soil watering and flooding

Tamara I. Balakhnina; Vladimir V. Matichenkov; Teresa Wlodarczyk; Aneta Borkowska; Magdalena Nosalewicz; Irina R. Fomina

Barley (Hordeum vulgare L.) was grown in pots with brown loess soil and highly soluble amorphous silicon dioxide as the source of monosilicic acid to examine its influence on plant growth and adaptive potential under optimal soil watering and flooding. The adaptive potential of plants was estimated by the concentration of the thiobarbituric acid reactive substances (TBARs) as well as superoxide dismutase (SOD), guaiacol peroxidase (GPX) and ascorbate peroxidase (AsP) activities. Application of amorphous silica to the soil increased the Si content in barley shoots and roots and stimulated their growth and biomass production under optimal soil watering. Soil

flooding suppressed the growth both of the (−Si)- and (+Si)-plants. The intensity of oxidative destruction estimated by the concentration of TBARs was lower in the roots and leaves of the (+Si)-plants. Soil flooding induced SOD activity in the roots and in the leaves of the (−Si;+flooding) and (+Si;+flooding)-plants, but no significant differences were observed due to the Si treatment. GPX activity in the roots of (+Si)-plants was higher than in the (−Si)-ones under optimal soil watering, but under soil flooding no differences between (+Si)- and (−Si)-treatments were observed. AsP activity was not influenced by Si treatment neither under optimal soil watering nor under flooding. Thus, application of Si stimulates growth processes of barley shoots and roots under optimal soil watering and decreases intensity of oxidative destruction under soil flooding without significant changes in the activities of antioxidant enzymes.