

## *Insecticide Bait Technology – Grub Guard™*

*Biogreen™* peat is readily consumed by the larvae of a wide range of soil borne pests including canegrub, whitegrub, cockchafers, Japanese beetle larvae, wireworms and rootworms, as well as slugs and termites. Peat also absorbs a wide range of pesticides and other organic and inorganic molecules. Building on these properties, Grotech has developed an innovative insecticide bait technology. Its first product, called *GrubGuard™*, is designed for the control of the scarab beetle larval pest of sugarcane.

Grotech's technology involves a system of key ingredients, in addition to the peat, that enhance the bait's performance and longevity in the soil, while reducing the cost of manufacturing the product. These key ingredients include volatility control agents, hydrophobicity agents, solubilising agents, lubricants, feeding stimulants, and viscosity and pH modifiers.

The advantages of the Grotech's baits over alternative pest control products are that they

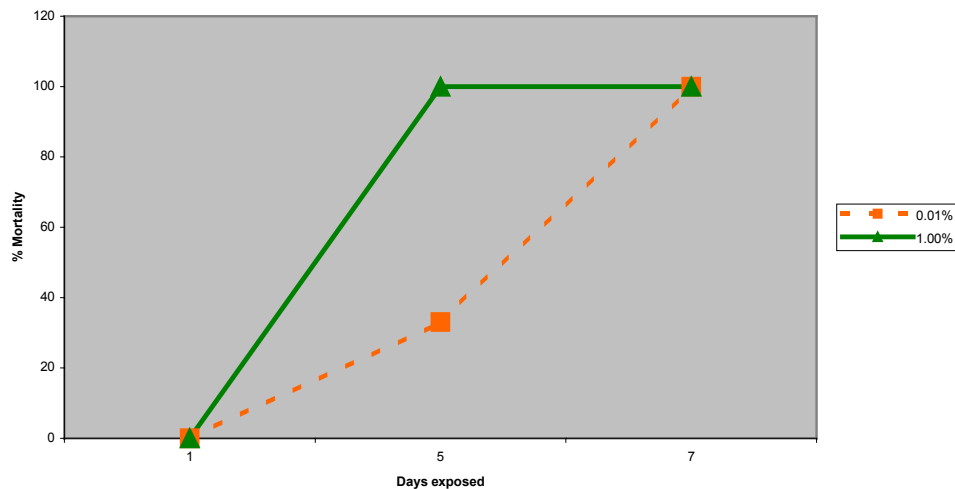
- are **highly effective** against target organisms;
- **add organic content** to the soil;
- are **compatible** with modern integrated pest management models;
- **prevent pollution**, by minimising off-target migration into groundwater and soil;
- greatly **reduce toxicity to users** who otherwise have to handle concentrated insecticides;
- are **effective in aggressive soil types**, either acidic or alkaline, that break down other products,
- minimise the pesticide exposure of non-target soil living organisms, many of which are beneficial to soil health, and
- provide a greatly reduced chemical loading on the environment compared to traditional chemical methods, thereby promoting the overall health of the soil.

Grotech has lodged patents to protect this technology worldwide.

*GrubGuard™* uses chlorpyrifos, and is targeted specifically at cane grub. Grotech's technology is currently being developed to accommodate other pesticides and target other pests, and the Company is conducting field trials at a number of locations around the world. In addition, the technology is being developed to produce a range of cost-effective **sustained release fertilisers**.

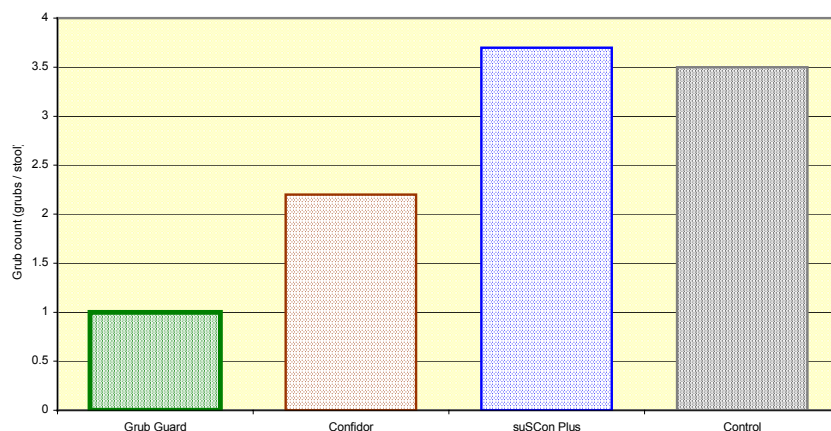
When Grotech's bait, prepared at various concentrations of *chlorpyrifos*, was placed into soil containing 1<sup>st</sup> instar canegrub scarab beetle larvae, mortality after just 5 days varied from 33% for 0.01% *chlorpyrifos* baits to 100% for 1% baits. By 7 days after treatment all grubs were dead in all treatments containing baits, even at the very low concentration of 0.01% *chlorpyrifos*.

1st INSTAR MORTALITY when EXPOSED to CHLORPYRIFOS in BAIT



When baits prepared at 1% chlorpyrifos were placed into soil containing the harder-to-kill 3<sup>rd</sup> instar canegrub, 70% of grubs were killed within 20 days. The later addition of feeding stimulants has further increased the rate of kill of the older larvae.

Efficacy of Grub Guard



In sugar cane field trials *Grub Guard™* has demonstrated the ability to control canegrub as well as or better than the currently available control agents, which lack the environmental, safety and integrated pest management (IPM) advantages of Grotech's bait.

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