

Bacteria

Bacteria exist virtually everywhere.

Some bacteria are capable of causing widespread mortality in insect populations (i.e. epizootics). The registered bacterial agents *Saccharopolyspora spinosa* (Figure 1) and *Bacillus thuringiensis* (Figure 2) are perhaps the two best known bacterial agents. These bacteria are commonly used in organic agriculture and due to low toxicity to marine life and mammals are attractive alternatives in grain, forage and vegetable production.

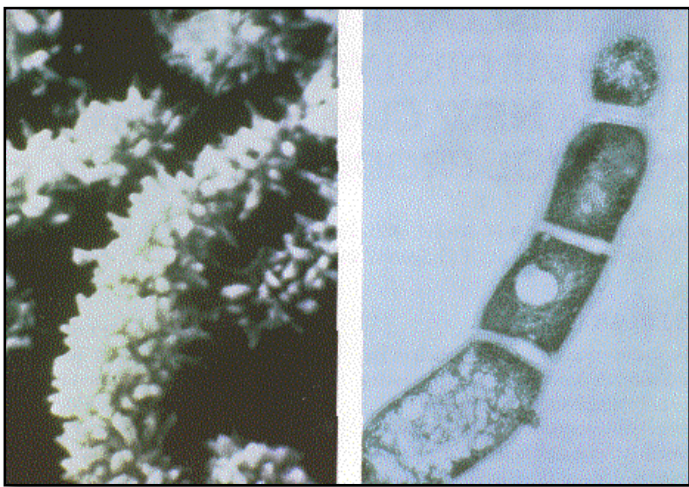


Figure 1. *Saccharopolyspora spinosa*



Figure 2. Alfalfa webworm killed by *B. thuringiensis*.

Activity

Bacterial agents such as these may be sprayed on fields or as in the case of Bt the active insecticidal agent may be purified and sprayed in the absence of the bacteria that produced it. Genes used by the bacteria may alternatively be transferred to the plants for production *in vivo* (as a GMO).

Research

WTARC is researching the use of bacterial agents in crop and stored grain protection. Many agents have been used in other crops, but have yet to be tested against pests afflicting Montana's crops. Bacteria offer novel control strategies for reducing environmental impact while increasing crop production.

Products

Saccharopolyspora spinosa

(Spinosad, Entrust, Naturalyte)

Bacillus thuringiensis

(Javelin WG, DiPel DF)