

IIS GIOVANNI DALMASSO



## **Progetto: CLIL e progettazione Web 2.0**

MIUR A00DPIT Dipartimento dell'Istruzione

# **BIOLOGICAL CONTROL**

**By : 5° f and prof.ssa E. Roero**

# THE AIMS OF THE CLIL MODULE

By the end of the module you should:

- Be able to describe in L2 the differences between Predator, pathogen and parasite
- Know more about when and how we can use biological control in Agriculture
- Understand more clearly how predators can control crops' pests.

# WHAT IS BIOLOGICAL CONTROL ?

- It is defined as the reduction of pest populations by natural enemies and typically involves an active human role



# GLOSSARY

Task: I'd like you to work in pair ,check the meaning of these words and take some notes on your notebook.

( You can use your mobile ):

Pest   Lacewing   Wasp   Parasite   Lifecycle

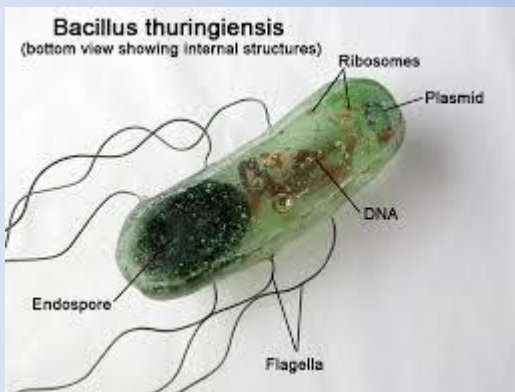
Predator   Pathogen   Ladybeetles   Host

To kill

Desease   Enemy   Prey   To breed

# Natural enemies of insects pests include:

- **PATHOGENS**
- **PREDATORS**
- **PARASITOIDS**



**Predators, such as lady beetles and lacewings are mainly free-living species that consume a large number of prey during their lifetime.**



**Parasitoids** are species whose immature stage develops on or within a single insect host, ultimately killing the host





**Pathogens are disease-causing organisms including bacteria, fungi and viruses**





# **A SUCCESSFUL NATURAL ENEMY MUST HAVE :**

- a high reproductive rate
- good searching ability
- host specificity
- adaptability to different environments

# NATURAL CONTROL

The conservation of natural enemies is important because they are adapted to the local environment and to the target pest, and their conservation is simple and cost-effective

**What can we do in order to protect natural enemies ?**

**TASK :**

Discuss together about this and try to answer the question.

# CLASSICAL BIOLOGICAL CONTROL

In many instances the complex of natural enemies associated with an insect pest may be inadequate especially to control an exotic pest ,so we have to turn to classical biological control which is the practice of releasing the natural enemies associated with the pest.

# Now I'm going to give you an example of successful classical biological programs

**Cottony cushion scale ( *Icerya purchasi* )** is a pest that was devastating the California citrus industry in the late 1800s.

**Vedalia ladybird ( *Rodolia cardinalis* )** is a predator which was introduced from Australia

Within a few years the cottony cushion scale was completely controlled by this natural enemy



**Prey : Cottony cushion scale**

Binomial name: *Icerya purchasi*



# BIOLOGICAL CONTROL BY VEDALIA BEETLE

Biological control of Cottony cushion scale is done by the *Rodolia cardinalis* that feeds on the cottony cushion scale at the larval stage and at the adult stage.



# FINAL TASK

I would like you to prepare a Power point presentation about an example of Biological control.

You can find the information you need in this following website and some instructions about this task in Moodle :

[www.bioplanet.it](http://www.bioplanet.it)

[www.fitogest.it](http://www.fitogest.it)

Your presentation have to be handed by May 15th