ABSTRACT

Corn is one of the most important plants cultivated in the world, its beans being used in human alimentation, in industries and animal feeding. Corn beans have a large usage in the industry of alcohol, starch , dextrin and glucose. From corn germs is made a quality oil, used mostly in diet eating. (Bilteanu, 1984).

In men's feeding, from germinated beans by dry grinding is obtained: corn wheat, corn flakes, babies food, artificial milk etc. By wet grinding (the bean with the embryo) are obtained, besides these products, a fructose syrup for diabetics , beer, dextrose, coffee replacers. Through different treatments, after wet grinding, are obtained: starch, glucose, dextrose, whisky, gasohol, drugs etc.

A major usage for animal feeding comes from green or dried corn plants. The silage corn harvested in the wax-milk stage ensures, per hectare, the best nutrition at the lowest price, besides beet. In feeding animals corn has a nutritive value of 1,17-1,30 nutritive units/kilo of beans. The strains of corn cultivated for beans are also important for animal feeding. They are also used in the cellulose industry and panels.

Through the big quantity of pollen it produces is also an important honey-bearing and medicine plant. (Axinte and collaborators, 2003)

From the Coleoptera order, one of the most important families is the Carabidae family, which has almost 40000 species of insects, spread all around the world. As they vary in dimensions, the Carabides have a typical shape that makes them easy to recognize. Their color is dark, often with metallic reflexes.

The species of this family are mostly insect-eaters, but there are also a few species that eat mixed or plant- feeders. In the agricultural areas and forests, many of the carabides are important ecosystem indicators, having fast responses to factors like pesticides, that determine paralysis or death of adult insects or larvae at a short time after the treatments.

Important factors to this are also the human intervention in nature, excessive pollution and the acid rains that appeared in the last decades, whose effects are not even well known, and also the superficial attitude of people, that is not at least concerned about saving life on the planet. This context makes researches made on insects very important, as they have an important role in the ecosystem due to the fact that 90 % of them have useful activities for humans , and this is the case for carabides also (Coleoptera, Caradidae).

As they have been considered a comfortable way of solving different ecology problems , during the last decades have been made many important researches on carabides. Carabides as predators have, with certainty, the most important role among insects, as they are important for adjusting the number of harmful insects, both in natural or man-made environments. However, it is impossible to make new extinction methods for the harmful insects, through biologic ways, without knowing the relations and the ecosystem first.

The doctorate thesis approaches the study of the main carabidae species from corn fields, in Iasi county, using different research methods. The researches were made between 2010-2012 in Iasi county.

The thesis was structured in two parts, the first being the introduction and Chapters and part two with Chapters, bibliography and the list of published materials.

The first chapter contains general aspects with the importance of corn crops, the spread area , the environmental conditions and the technology of growing corn.

The second chapter contains the carabides in Romania, being 501 species and 17 subfamilies , 29 tribes , 34 sub-tribes, 87 genres, 154 sub-genres, 501 species, and 171 subspecies.

The third chapter –the role and economical importance of carabides contains information about the useful species of carabides, their density and behavior . without that the integrated extermination on scientific base was impossible. For using an effective extermination method is important to know the main harmers and their biology, as well as used methods . It's necessary to know the spread area , the biologic cycle, the alternative feeding sources and how their feeding changes due to environmental changes.

Chapter four is named The status of researches in our country and in foreign countries concerning carabides, with more subchapters.

The stage of researches in Europe concerning carabides

Fundamental studies on the biology and ecology of carabides

Eco-fauna studies

The structure and dynamic of carabides communities

Daily and seasonal activity of carabides

Carabides food

Research studies of carabides in Romania

Chapter five is from the second part of the thesis, containing the natural environment of Iasi county. This chapter presents information about geographic position and climate conditions in the three stationaries that have been studied. An important subchapter is

Meteorology and agro-meteorologyc conditions etween 2010-2012

The chapter presents the aim, objective and research methods used.

Objectives and activities

1. Knowing of the actual stage of structure, dynamic , abundance and activity of the carabidea species in the corn crops in Iasi county.
2. Identification of the carabides species in the corn crops in Iasi
3. Comparative study of the carabide fauna as to harmful factors control

For reaching these objectives, there will be more activities like:

- Bibliographic study of the literature connected to the subject, both national and international
- Making work schemes of the field and of each surface
- Installing soil traps
- Direct observations
- Collecting biologic material with Barber traps
- Preparing the material for identifying the types of carabides
- Analising the material collected, recognizing the species and calculating some ecologic factors of the fauna
- Establishing the specific structure, abundance , dynamics and of the role the carabides have in the corn crops in Iasi
- Calculating the main ecologic indicators: abundance (A), dominant (D), constant (C), the ecology factor (W) etc.
- Watching the evolution of the fauna for each experimental field.

Organizing the experiment:

- There were taken four working fields, respectively four corn soles from the same stationary but located at distances of 500 and 700 meters from each other and that were cultivated with corn in the past. On two of the sole there was deep plowing of the soil, of 35 centimeters, in the autumn, and in the other two the soil was superficial worked in the spring, with a combinatory made of two heavy disks, two rows of claws and a grader at a depth of 18 cm.
- On each of the two variants of soil working were seeded two fields of corn using another cultivating technology, from the most common: two were with untreated seeds, and the extinction of the weeds was made mechanical with three mechanic machine and one manual,

respectively the not treated areas, and on the other two soles were used certified seeds (treated with tebuconazol +imidacloprid), and the weeds were extermined chemically by a pre-emergent herbicide (nicosulfuron +bromoxinil) at the treated areas.

Research methods

Methods and materials used for collecting, preparing and preserving

Researches were made during three years, each year starting from May to September 2009-2009. The entomologic material for the study will be collected from three ecosystems of corn located in three stationaries in Iasi county: Ezareni, Trifesti and Schitu Duca. Collecting the materials will be through Barber soil traps. There will be used protected plastic jars , with a 500 ml volume, 9,5cm width and 12,5 cm height. As fixing and preserving liquid is used acetic acid 50% diluated.

Interpreting methods

The ecologic and classification area of a biocoenosis represents mainly the first step for knowing its structure. For understanding the dynamics and structure, there are many indicators needed.

The synecological analysis

There will be analyses of carabides in the corn crops, in order to appreciate the exact role of every species in the environment.

The Conclusions chapter presents the main conclusions from the previous chapter.

The thesis also contains a bibliography and a list of published works.