

From the data presented in Table. №1 one can see that the spring rape and brassica juncea are populated with all dominant species of oilseed cabbage crops pests most of all. White mustard as well as black mustard are colonized by these species of insects to a less extent. The oil radish is populated by pests poorly. The spring false flax is not populated by the specialized types of oilseed cabbage crops pests at all. It may be explained by its biochemical features. This fact will be studied in the future.

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**THEORY OF CYCLIC CHARACTER OF POPULATION
DYNAMICS**

The main regulations of the modern theory of the population dynamics and its practical application in forecasting are described in the works of I.Ya. Poliakov (1968, 1976). According to this theory the dynamics of harmful organisms is connected with the changes in their vital activity under the influence of nutritional conditions, heat and water exchange in which the development of the separate generations or age groups took place. The variability of these conditions causes a qualitative morphophysiological rearrangement of the state of populations which is manifested in the changes in their static spreading, reproduction intensity, and development and survival rates. He called this theory the “modern unified theory”. According to his ideas the energy resources and physical environmental factors form all the properties of the population including its reaction to the same factors in the future as well as the nature and regulating importance of intra- and interspecies relationships. The feedback principle is characteristic of the entire set of relationships between the populations and the environment. At the same time the interaction between the food reserve and the population with the simultaneous dependence of both components on the climatic factors becomes decisive.

I.Ya. Poliakov considered that the climatic conditions and energy resources were the main factors guiding the evolution of species on the Earth and they are still remainrd the same. Only those forms that could ensure a

positive energy balance have survived, i.e. the amount of energy received from the fodder or synthesised by the plants should exceed all life-support needs including the expenditure of energy and the accumulated reserves for the reproduction.

The biotic factors (parasites, predators, pathogens and intraspecies relationships) are manifested themselves depending on the degree of favourable conditions for the pest reproductions. The predators, parasites, and pathogens do not determine the pest dynamics under the optimal conditions for the mass reproduction of the harmful species populations. The phytophages serve as the energy supply sources for the predators and parasites and their phenology leads to cutting off the least viable part of the phytophage population that is late or begins the development and activity too early, and this fact does not correspond to the optimal standards. As a result in the ecosystem there are such relationships between the components which are based on the energy and its balancing and ensure the stability of the ecosystem as a whole; this is called homeostasis. According to I.Ya. Poliakov the mechanisms that ensure the balance of relationships in the triad of plant-phytophage-entomophages components in agrocenoses are destroyed under the influence of anthropogenic activity (tillage, sowing dates, fertilizers and other agricultural techniques). Therefore under the conditions of the anthropogenic landscape the dependence of the population dynamics of harmful species on the state of the energy resources (food) and climatic factors is increasing. This theory underlies the compiling of the annual forecasts. Later I.Ya. Poliakov suggested that when developing the long-term forecasts for some objects it is necessary to take into consideration the long-term variability of solar radiation activity since it significantly affects the state of the climatic factors. "However the impact on the results nature of human production activity is more powerful. Therefore it is impossible to use the cyclic changes in the activity of solar radiation as predictors (indices) of long-term forecasts of the harmful species spreading. The comparison of the long-term data on observations of the population dynamics of certain harmful species and their complexes with the cycles of the Sun activity shows that now there is no such a degree of correlation where it was in the past". Here the author emphasises the possibility of using the 100-year and 50-year periodicity of changes in the solar activity as a criterion for the background long-term forecast for some species. He believed that the changes in radiation activity affect the rate of the species response and the factors that determine the dynamics of its development and spreading.

One can agree with these contradictory statements if to have in mind the long-term (one-year) forecasts; the cyclic character is the fundamental and universal property of the long-term forecasts for the development and functioning of the populations in the case of the long-term forecasts of the mass reproduction of pests.

Thus the extensive materials on the connection, interaction and synchronization of space, climatic, trophic and population cycles have been accumulated in the literature; they give the opportunity to perform the interdisciplinary synthesis, and the latter, as it is known, necessarily assumes the emergence of a theory.

Really "... The creation of any theory, like the discovery of any natural law, often leads not only to the intradisciplinary synthesis but also to interdisciplinary one, and moreover the wider the scope of phenomena covered by this theory or this law is, the greater the degree is" (Kedrov, 1961).

In the process of the interdisciplinary synthesis of theoretical ideas of domestic and foreign ecologists about the changes in the number of the populations from the positions of a systematic approach, the analysis of modern achievements of astrophysics, biorhythmology, biophysics, space physics, heliobiology, climatology and other natural sciences, the long-term analysis and generalization of the historical information on the mass reproduction of 70 species of insect pests of agriculture and forestry in Ukraine and in other regions as well as based on his own studies of the ecology of the sun pest E.N. Beletsky (2011) substantiated the theory of cyclic character of the insect population dynamics.

The conceptual basis of this theory is the connection, interaction and synchronization in the development of the biosphere, biogeocenoses and populations with the space and climatic cycles; the cyclic character as a universal property of the development and functioning of any material system explains the regularities of the mass reproduction of harmful insects in space and time and serves as an objective criterion (predictor) for forecasting the population cycles.

The main consequences arising from this theory are given below:

1. The long-term recurrence of the insects' mass reproduction is a regular process of development and functioning of the populations synchronised with the cycles of the solar activity, weather and climate and determining the energy resources, namely the trophic base and spatial and temporal organization as well as the genetic and ecological structures of the populations.

2. The cyclic character as a universal regularity of the development process explains the recurrence of the mass reproduction of harmful insects and serves as a criterion for their forecasting.

3. The theory of the population dynamics cyclic character performs the descriptive, explanatory, prognostic and synthesizing functions. Through the law of cyclic character it combines the previously proposed theories, i.e. the climatic and trophic ones.

4. An intersystem method for a long-term forecast of the mass reproductions of insects as well as the algorithms for their forecasting have been developed on the basis of the theory of the population dynamics cyclic character.

In the last decade an ecological and genetic theory explaining the mechanism of the dynamics in the number of the phytophagous insects (Chaika, 2000) and a phenological theory explaining the difference in the dynamics of populations of the individual species of pine and leaf-gnawing insects and their synchronism with the fodder plants and entomophages (Meshkova, 2009) have been substantiated in Ukraine. The above-mentioned theories are widely discussed in the entomological literature.

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RESEARCH PROGRESS OF ATRAZINE HERBICIDE RESIDUES

Triazine herbicide atrazine is a selective internal absorption conduction type pre and post seedling herbicide, which can effectively control annual grass weeds and broadleaf weeds, and also has a certain inhibition effect on some perennial weeds (Francis, 1970). At present, it is mainly used for corn, sorghum, sugarcane, fruit trees and forest land in China, It can also be used as a non-selective herbicide on non-farm land and fallow land, atrazine has been widely used because of its excellent herbicidal effect and low price. After application, atrazine parent and its degradation products can remain in the soil for several years, which will cause pesticide