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OPTIMIZATION OF BREEDING CHRYSOPIDAE IS THE WAY TO RATIONAL NATURE MANAGEMENT AND CONSERVATION OF BIOLOGICAL RESOURCES

To solve the problem, elements of technologies are proposed for the creation and use of Chrysopidae agrobiocenosis adapted to the conditions. Of the 2,000 Chrysopidae described in Europe, 70 species are found. Chrysopidae inhabit agrobiocenoses of organic farming and are potential agents of biological control. Larvae of Chrysopidae are characterized by a great search possibility and gluttony.

The predatory species of the genus Chrysopa, which actively destroy phytophages Aphidoidea, Psylloidea, Pseudococcidae, Tetranychidae are interesting. In the conditions of Ukraine, Chrysopidae are successfully used to control a complex of pests of protected soil. In natural conditions, the Chrysopa wintering grounds are different: non-residential premises, homestead and industrial gardens, forest belts.

Proper assessment of representatives of the family Chrysopidae according to the criteria of effectiveness is relevant. However, cost-effective production and use of predatory Chrysopidae is impossible without a thorough study of their biology and ecology. The obtained information on the state of the artificially created, ecologically isolated population of entomophages reduces the costs of their mass cultivation and marketing.

It has been established that the effectiveness of Chrysopidae is determined by the quality and quantity of plant resources, the population density of prey, the biological potential of predators, and their adaptability to long-term existence in agrobiocenosis. A special place belongs to studies showing the potential of predatory Chrysopidae using modern pesticides.

The aim of the research was to evaluate the effect of food ration on the ontogenesis of Chrysopidae in optimizing the elements of trophism in an artificial biotechnical system.Experimental results show that, according to food specialization, Chrysopidae are typical polyphages.Chrysopidae feed on eggs and larvae of aboriginal phytophages limit their potential harm.The experimentally proved the possibility of full reproduction, increase in productivity, and the effectiveness of using Chrysopidae as biological agents to limit the harmfulness of native phytophages.Technological parameters of optimization of the diet for Chrysopidae are consistent with the criteria of effectiveness, strategies for the preservation of biological diversity, consistent with the priorities for the preservation and improvement of natural ecosystems.

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INFLUENCE OF THE LENGTH OF THE "EMERGENCE – EARING" PERIOD ON YIELDS OF SPRING BARLEY SAMPLES

Thelength of the "emergence–earing" periodis an important feature of a variety and is determined both by several external conditions of the growing zone and by its genetic peculiarities.

The purpose was to evaluate the effect of the "emergence–earing" periodlength on yields of spring barley samples from a collection of the National Center for Plant Genetic Resources under the conditions of the eastern forest–steppe of Ukraine. 298 spring barley samples were taken as the study material in 2010–2017.

The longest "emergence–earing" periods of, on average, 48.7 days and 45.5 days were recorded in 2016 and 2017, respectively. In 2014, with sufficient rainfall, the period lasted 42.6 days. In 2011, 2012, 2013, and 2015, the period length was similar: 41.2; 41.8; 41.7, and 41.5 days, respectively. The shortest "emergence–earing" period (40 days) was observed in 2010.

The following samples were the most early–season: 'Hatunok' (33 days), 'Hermes' (36 days), 'Skhidnyi' (37 days) – UKR; 'Timerkhan' (33 days), 'Kazak' (36 days), 'Biom' (36 days) – RUS; 'Harmal' (31 days), 'Moroc' 9-75 (34 days) – SYR. The longest "emergence–earing" periods were intrinsic to the following varieties: CDC 'Carter' (51.5 days), 'CDC Clear' (52 days) – CAN; 'Vienna' (49 days) – AUT; 'Stalyi' (49.3 days) – UKR; 'Nudum 95' (49 days) – RUS; 'Velikan' (52.5 days) – KAZ.

It was found that the most high–yielding samples with yields exceeding 700 g/m^2 came into ear within 45–50 days. The following samples gave highest yields: 'Solnechnyi' – 956 g/m^2 (KAZ) in 2015–2017, 'KWS Bambina' – 812 g/m^2 (DEU) in 2015–2017, 'Yaromyr' – 806 g/m^2 (RUS) in 2015–2017.

A positive medium correlation (r = 0.54) between the "emergence–earing" periodlength and yield was detected in highly–humid 2016. There were positive weak correlations in 2011 (r = 0.15), 2012 (r = 0.21), 2014 (r = 0.14), 2015 (r = 0.21), and 2017 (r = 0.24), indicating insignificant positive relationship. No relationship (r = -0.07) was seen in 2010, and there was a negative weak correlation (r = -0.24) in 2013. Thus, the correlation coefficients indicate weak or no relationship between the length of the "emergence–earing" periodand the crop yield.

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GAMMA-RAYS EFFECTIVENESS IN WINTER WHEAT PLANT HEIGHT MUTATION INDUCTION

More than 3,200 mutant varieties have been directly or indirectly derived through mutation induction, including 256 bread wheat varieties. Induced mutations have been applied to produce mutant varieties by changing the plant characteristic for a significant increase in production and improve quality. Much excitement was generated as novel mutants overcame major obstacles in crop improvement and/or produced new and valuable variants. New forms such as semi-dwarfism, early maturity, disease resistance, etc. met immediate market demands and were often released directly as commercial varieties without recourse to refinement through cross breeding. The development of direct mutants into commercial varieties is still a common practice in seed propagated crops.

Dried wheat grains of 'Favoritka', 'Lasunya', 'Hurtovina', 'line 418', 'Kolos Mironovschiny', 'Sonechko` and 'Kalinova', 'Voloshkova' of winter wheat (*Triticum aestivum L.*) were subjected to 100, 150, 200, 250 Gy gamma irradiation (Co^{60}, 0.048 Gy/s). The main purpose of our investigation was to determine rate and spectra of winter wheat mutations by plant height (high steam, short steam, semi-dwarf and dwarf) after gamma-rays action and develop relations between number and type of mutations and gamma-rays doses, genotypes of mutation object.

Mutation rate was varied from 0,2 to 1,6 % (line 418, 100 Gy) for high steam, from 0,2 to 2,8 % (line 418, 200 Gy) for short steam, from 0,2to 1,0 % (variety Sonechko, line 418, 150 – 200 Gy) for semi-dwarfs and from absence to the 100 -150 Gy doses for some genotypes to 0,6 % (line 418, 200 Gy) for dwarfs forms. Total Size of population 17 600 families at second-third generation.

We can subdivided initial material by the method of breeding as radiomutants ('Favoritka', 'Hurtovina', 'Lasunya'), chemomutants ('Kalinova' and 'Sonechko'), thermomutants (low plus temperature at plant development stage of vernalizaion has been used as mutagen factor) ('Voloshkova') and forms, obtained after hybridization ('Kolos Mironivschini', 'line 418'). According to our investigations more effectiveness at mutation induction were for high steam form doses 100 – 150 Gy, for short steam mutants 100 – 150 Gy, for both semi-dwarf and dwarf forms 150 – 250 Gy with peak for most part of genotypes at 200 Gy dose. Part of genotypes (preferable radiomutants) hasn't been shown these kinds of changes at 100 – 150 Gy doses at all. Due to the discriminant analyses only fact of semi-dwarfs mutants appearance can be used as indicator of gamma-ray action for initial material classification. Cluster analyses confirmed complicated and complex character of mutagen-genotype interaction. Only first group has been identified with statistically reliability.

Regarding analyze of these groups it has been developed that rate of these types of mutations was significantly lower for first group, than for others. According to ANOVA analyses number of mutations was depended on dose at all cases, relation with genotype and mutation rate has been identified with significance reliability for only one case short steam mutations (F 2,49, $F_{critical}$ 2,36).

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БІЛОГІЧНІ ОСОБЛИВОСТІ РОЗВИТКУ ОЗИМОЇ СОВКИ НА ОЗИМИХ ЗЕРНОВИХ

На сьогоднішній день аграрна промисловість багатьох країн світу досягла інтенсивного розвитку завдяки зерновій галузі. Провідне місце серед яких займає пшениця. На озимих зернових культурах небезпечним є такий шкідник, як озима підгризаюча совка, яка поширена повсюдно.

Метою дослідження є вивчення динаміки чисельності озимої підгризаючої совки, визна-