

UDC 69: 577.4

**AGROECOLOGICAL ASSESSMENT OF USE OF PESTICIDES IN
THE CONDITIONS OF THE KHERSON REGION**

V. G. Ilyina, cand.tech.sci., **L.A. Prikup**, cand.tech.sci.
Odessa state ecological university

It is executed an agroecological assessment of a current state of use of pesticides in the agrotsenozakh of the Kherson region taking into account their possible influence on quality of the agricultural production which is grown up in this territory.

Key words: pesticides, the gravity of pesticide toxicity, making dynamic content pesticide.

Introduction. Pesticides are one of the important elements of intensive technologies, which are essential to obtain high and stable yields of almost any crop. Features of the effects of pesticides on the environment are in their circulation in the biosphere for a long time. In places, this is due to the fact that some of their decomposed into non-toxic products for months and leaves a noticeable negative impact, while the other part is stored for years and falls in circulation in nature.

Problem. The highest agricultural development areas have land Kherson (82%) regions. Slightly below it in the steppe areas in half - two times less within Polissya. Plow land in Ukraine is the highest in the world [1].

Analysis of recent research and publications. KV Korsak and O. Plakhotnik studied the expression "chemical warfare" against the people of insects and plants [2]. Scientists and Manfred Heinrich Dieter Herht (2001) point out that pesticides used should be properly selected for the target group. They emphasize that the effect of pesticides often depends on the method used. In open space or pesticides rozpylyayutsya rozbryzkuyutsya, indoors they are applied in aerosol form. In sheltered soil release dates ranging typically from 2 to 5 days. In some cases they extended to 7 days, and for nematocides which made the ground in large numbers are 20 - 30 days [3].

The purpose of research. The study is to perform agro-ecological assessment of the current state of pollution by pesticides agrocenoses Kherson region considering the degree of danger.

Results of researches. To preserve the favorable ecological situation in the local and regional scale, it is necessary to normalize the quantity, assortment of pesticides at levels corresponding to the intensity of self-purification agricultural landscapes. The best option of chemical plant protection measures set based on an analysis of three options: the properties of the drug, the quantitative load of the territory and the intensity of the schedule to the specific soil and climatic conditions. Properties range indicator used pesticides is their average degree of risk (PRS), which is calculated by the formula [3]:

$$C_{CH} = \frac{C_{CH1}m_1 + C_{CH2}m_2 + \dots + C_{CHn}m_n}{M} \quad (1)$$

where, C_{CH} - the gravity of that pesticide; m - scheduled or used the number one pesticide; M - the total amount of all pesticides; C_{CH} - Integrated the gravity of the drug.

Loading pesticides on the farm area ecotoxicological measured dose (Dekt) [3]

$$D_{\text{ект}} = \frac{M_c}{S} \quad (2)$$

where, M_c - seasonal total consumption of pesticides kg / l; S - total arable area, ha.

Figure 1 shows the dynamics of pesticide by region Kherson region in 2010. Number average made pesticides varies limits of 18.8 mg / kg soil each year, the districts, is to increase the total weight of pesticides used type of break, and karbofos hematoks that when used properly, provide high yields at relatively low cost and has a long effect. Mainly used pesticides that are characterized by contact spectrum of action for prevention. The graph shows that the use of pesticides in 2010 by region Kherson region is uneven. Number of listed pesticides in areas change every year [4]. However, not only continuous introduction of pesticides affect the quality of soils and their productivity. Pesticides that have been used in agriculture, such as DDT is still in the soils of the Kherson region in amounts that are high in some places, but not exceeding the maximum permissible concentration of 1.0 mg / kg to hundreds of times. In general mechanism of DDT on the environment can be represented as follows: during use, inevitably DDT enters the food chain then it is not neutralized, disintegrating into harmless substances, but instead begins to circulate accumulate in the bodies of living creatures [3]. In addition, DDT has toxic effects on living organisms at different levels of the food chain, which in some cases will inevitably depressing effect on vital functions or entail the death of a living organism. Such effects on the environment may cause a change in the species composition of flora and fauna up to complete distortion of the food chain, which in turn can cause general crisis and cause irreversible ecosystem degradation of the earth. Since DDT was discovered in Antarctica, thousands of kilometers from the nearest place of use of this chemical. Analysis of soil farm field was conducted on the contents of persistent organochlorine pesticides (DDT, HCH) and 2,4-D, which are major pollutants of soil Kherson region. Analyzing the content of residual amounts of DDT (sum of metabolites) should be noted that from 1052 analyzed samples contaminated - 895, which is 85%. The maximum content was 0.046 mg / kg at maximum concentration limit of 0.1 mg / kg. For HCH MAC exceedances were found with 1052 analyzed samples contaminated with 611, which is 58%. Discovered maximum content - 0,009 mg / kg at maximum concentration limit of 0.1 mg / kg. The level of contamination of the sample preparation of 2,4-D is 14.9 percent. The analysis of pesticide residues (HSC) in soils of the Kherson region showed that the drug HCH in the last 5 years of sharp changes in identifying the isomers is not observed. For the preparation of DDT remains a general tendency to reduce contamination of soils and reduce the amount exceeding the maximum allowable amounts. The content of the drug 2,4-D (amine salt) in soils in recent years dramatically reduced,

due to the survey in previous years had contaminated areas. Determination of pesticide residues in soils in the Kherson region from 2006 to 2009 are listed in Annexes [5].

Dynamics made pesticides 2010

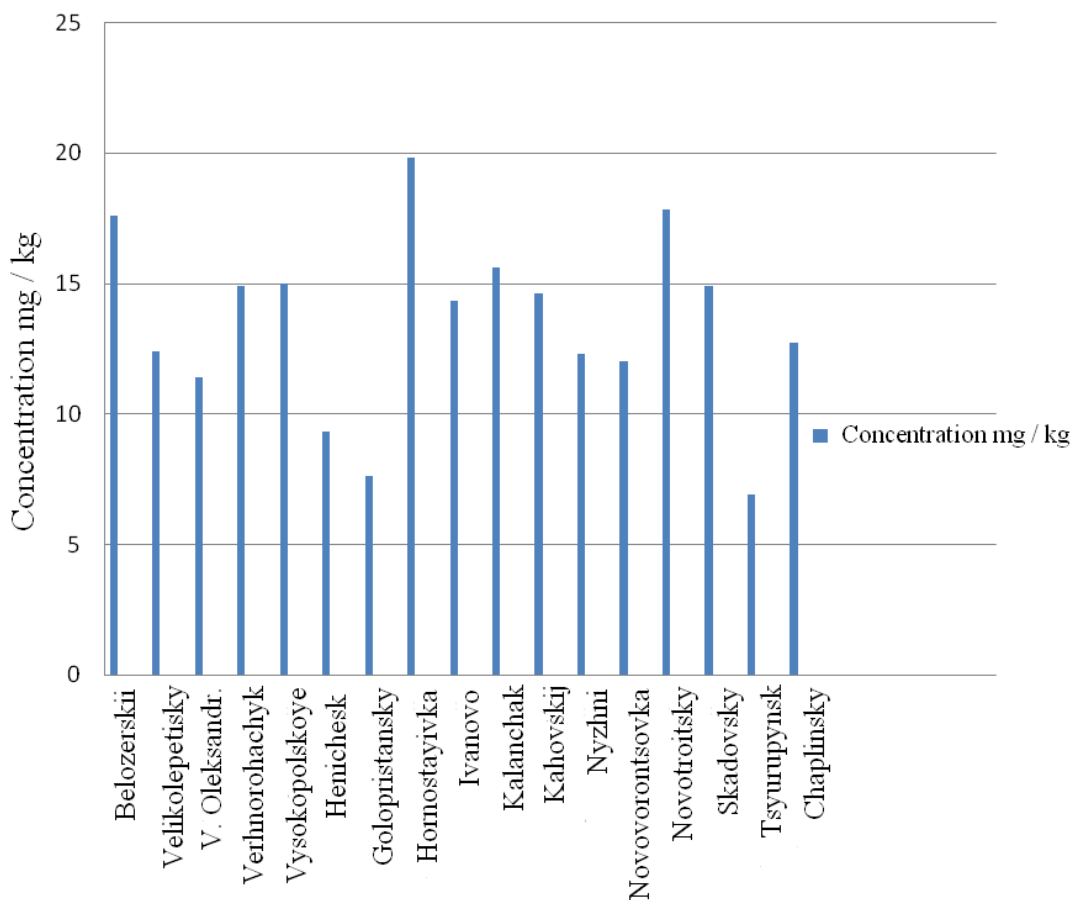


Fig.1.Dynamics of pesticides listed in 2010

Content analysis of pesticide residues of DDT in soils of the Kherson region shown in Figure 2. The most common drugs found in the soil of DDT and its metabolites simazine, semeron, HCH and its isomers, STCA, atrazine. Also in the soils of the Kherson region accumulated a large number of HCH and its derivatives [6]. By using the above technique was the estimation of the content of certain pesticides in plants of sugar beet (Table 1).

Table 1. The content of pesticide residues in sugar beets in the Kherson region

Назва препарату	Вміст ЗКП			ГДК
	сер	мін	макс	
ДДТ	0,05	0,05	0,05	0,1
ГХЦХ	0,06	0,05	0,1	0,1
Бетанал	0,09	0,04	0,2	0,2
Ленацил	0,08	0,05	0,1	0,5
Дуал	0,05	0,03	0,1	0,05
Фюзілад	0,1	0,1	0,1	0,2
Тарга	0,06	0,02	0,1	0,1

From Figure 2 shows that the content of DDT in the soil surface region of Kherson oblast is different. Maximum observed in soils Vysokopolskoye district and is 0.02 mg / kg and the minimum number - the soil surface Tsyuryupinsk area (0.004 mg / kg).

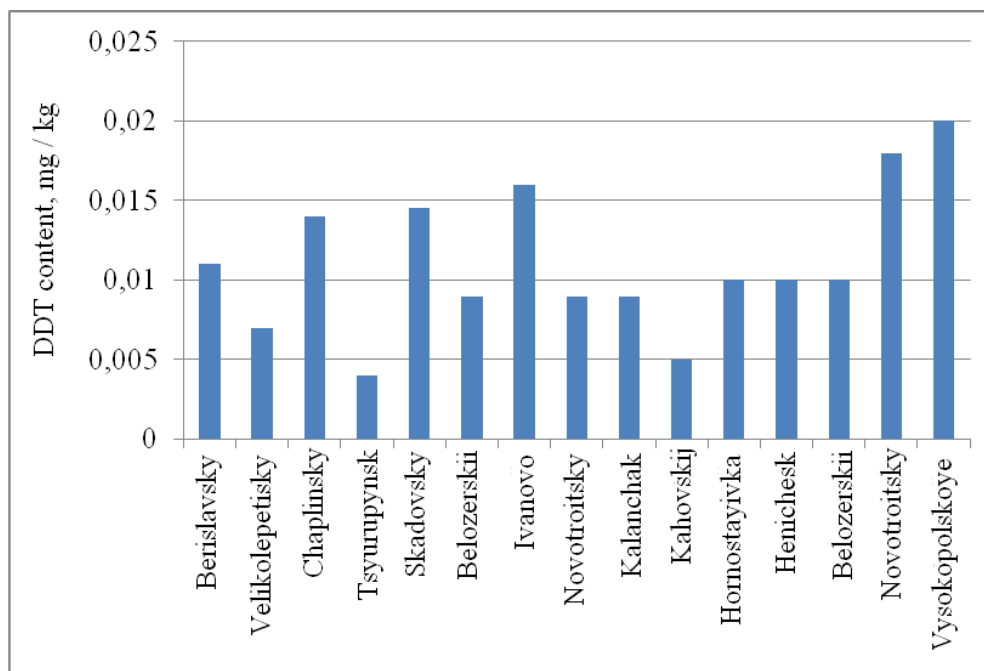


Fig.2 .Content of the pesticide DDT in areas of Kherson region

Conclusions. Soil pollution is different in the Kherson region. Use of pesticides in Ukraine for the past 10 years, fell almost 6 times, which helped reduce the proportion retrospective pollutants (DDT, HCH) in the facilities of the environment.

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АГРОЭКОЛОГИЧЕСКАЯ ОЦЕНКА ПРИМЕНЕНИЯ ПЕСТИЦИДОВ В УСЛОВИЯХ ХЕРСОНСКОЙ ОБЛАСТИ

Ильина В.Г., Прикуп Л.А.

Ключевые слова: пестициды, степень безопасности пестицида, токсичное действие, динамика внесения, содержание пестицида.

Резюме

Выполнено агроэкологическую оценку современного состояния применения пестицидов в агроценозах Херсонской области с учетом их возможного влияния на качество сельскохозяйственной продукции, выращиваемой на этой территории.

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Summary

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