

Dioxin '97, Indianapolis, Indiana, USA

THE POLLUTION OF HALOGENATED PESTICIDES OF BRYANSK REGION AND RESULTS OF IT.

Dr. of Chem. Science Komogortseva Ljudmila K.
(Bryanskaya State Agriculchural Academy)

Numerous scientific facts prove the halogenated pesticides (HOP) influence the most negativety on nature and man: for example, DDT, DDE, isomers, hexachlorocyclohexane, amine salt- 2,4 D and others. These matirials obtain high persistence and dcn't have time to decompose in soil during the vegetative period. This results in accumulation in soil, especially if they cultivate the agricultural lands yearly.

We have experimental data about finding of remaining of DDT and its metabolite taken in the forests where arable lands have taken place and DDT has used 50 years ago (Komogortseva L.K.)

It was banned in Bryansk region to use such HOP as DDT, DDE, isomers of hexachlorocyclohexane and others at the end of eightyth. But we can find out the remaining of stable HOP nearly in all samples of soils, opened reservoirs, some plants and cows milk.

During the period of intensive using of chemical toxines in agriculture of Bryansk region they introdused 3000-4000 tons of 65 species of pesticides yearly (1980-1991). Moreover, 59 % of chemical toxines were dispersed with aviation. About 1350 thousand hectares of agricultural lands were cultivated with chemical toxines in this region.

The fact is that the most part of chemical toxines flows with downpours and floods into the surface reservoirs. As far as the subsoil waters on the area of Bryansk region come close to the surface the remaining of pesticides are found sometimes in samples of drinking water, taken from wells and artesian wells.

Air-chemicalprocesses have contributed to hitting of pesticides in forest belts and large forest areas, inhabited places and rivers.

The observance and non-observance of rules of pesticides keeping and the absence of a field for burying of unfit chemical toxines have also contributed to the environment pollution. Pesticides were thrown into ravines, brooks, dust-heaps, they eve tried to fair them.

The results of that are very sad.

LEVELS IN THE ENVIRONMENT

Annually the veterinary service of the region registrate the accidents of poisoning of animals, birds, fishes, bees and food. HOP are able to be accumulated in organs and tissues of people and animals including the milk of suckling mothers.

Analysing some samples of milk we have found out that HOP keep in all samples, but true to say in the most of samples they haven't exceeded the permissible concentration limit (PCL). Throgh, to my mind, we must not speak about PCL of HOP in the milk of suckling mothers. Consequences come be unpredictable! The facts put us in our guard, so as tests for HOP took places 5 years late after the banning to use them.

We have date that the rate of genetic mutation is higher among the people living in regions, where HOP are used more intensively than in the controled districts.

Because of the absence of necessary laboratory equipment we can't study thoroughly the influence of toxic metabolites on the people and animals.

It is known that DDE-metabolite-is more toxic than heptachlor and epoxide is twice more toxic.

The mechanism of long lasting effects of small doses is not absolutely clear (the same goes to radionuclides). Though the date of medical statistics on dioxines and radionuklides prove that the question is very serios, for conservation of genetic fund of living people.

If we plough the soil annually dusty fraction with the rest of pesticides gets us into the air. The toxyty of such dust is 40-107 times higher than the estimated figures (Dorophejev V.M.).

In the air of the working zone of a driver-chemicalizator PCL of HOP is 5-10 times higher.

Tractor-drivers is more subjected to chronic nonspecific disease of lungs and of respiratory tracts. The activity of blood cell enzymes of the people who works with chemical toxines changes.

HOP, particularly hexachlorocyclohexane and its isomers are the most powerful inhibitories of enzymes.

They influence oxidation-reducing and catalytic enzymes of leucocytes. (Ovchinnickova N.N.)

On the territory of Bryansk region more than the thirs part of area is occupied with forests. So in different of the regions we can watch essential difference in tilling with chemical toxines.

There was the try to compare the quativity is intruduting of HOP

Dioxin '97, Indianapolis, Indiana, USA

with the index of malignant formation. (Adamovich V.L.)

The sharp graphical dependence was revealed. Increasing of the cultivated lands from 5 % to 80 % during 30 years the quantity on-copathology become 10 times higher. The figures were taken only for agricultural regions.

It was established that harmful insects and agents of plant disease adopt very quickly change the rhythmical of reproduce and survive wonderfully.

We can't say so about wild fauna. It was caused destriment, especially it is concerned with air-chemical process with amine salt-2,4-D and its butyl ether. We must remark the mass destruction of song-birds, fish, beavers. It's difficult to count the full damage. The data is taken from the questionnaires. (Adamovich V.L.)

Because of getting the remains of HOP into the organisms of mammals, some birds of prey nearly disappeared from the Bryansk forests: hawks, harriers and falcons.

For example during the using of HOP (in 1983) 1160 hares, 55 roes and elks and about 2000 species of birds perished.

In 1957, when only 1% of the plough-land in Bryansk region was tilled with chemical toxines, we stored up 22 350 rabbit-skins of "European"; in 1982, when 64% of the ploughed field was tilled, we stored up only 1917 of them.

Nowdays, when using of chemical toxines has decreased, the air-chemical process is prohibited completely, quantity of wild animals species begins to increase.

Now we can hope on improvement of ecology. For Bryansk region the questions of ecology are highly actual, because one third of the territory is polluted with radionuclides after the Chernobil accident and because of the for coming destruction of 7200 tons of phosphororganic chemical weapons (Pochep arsenal).