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Problems of potential weediness of soil in Ukraine

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The purpose. To determine the level of potential weediness of plowlands in the main soil-climatic zones of the country. **Methods.** Field and laboratory — sampling of soil on fields of Kyiv, Cherkasy, Vinnytsia, Poltava, Sumy, Kropyvnytskyi, Mykolayiv, Odesa, Rivne and Ternopil oblasts for selection and determination of seeds of weeds. On fields of every soil-climatic zone in the autumn, after harvesting and execution of basic soil cultivation, they took samples from an arable layer (0 – 30 cm) and from depth (0 – 10 cm) (from surface soil layers germinates more than 90% of sprouts of weeds). **Results.** From seeds sampled in soils of Polissia, as a result of sprouting during 20 days 7,7% of different sorts of weeds germinated on the average. Accordingly on the average 1887 plants of weeds are capable to germinate on plowlands on the area of 1 m^2 from the depth of 0 – 10 cm. In Forest-steppe from the washed off seeds of different sorts 8,2% germinate on the average. 4674 pieces of plants of weeds are capable to germinate on square meter of plowlands from the depth of 0 – 10 cm. 5,9% (or 2242 pieces/m^2) of seeds of different sorts of weeds, washed off of soil of Steppe, formed plantlets and sprouts during sprouting for 20 days. **Conclusions.** Contemporary agrarian production for successful operation and effective use of plowlands demands development and realization of system of complex measures of gradual level recession of potential weed infestation of soil by seeds of weeds and organs of their vegetative reproduction, in view of specificity of each field.

Key words: *weeds, stores of seeds, soil, lowering weediness, field.*

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The level of efficiency of agrarian production in the country is based primarily on the work of plant growing. Almost all the set of necessary food, feed, plant material is formed as a result of growing crops of agricultural plants.

Of the more than 235 thousand known species of plants from the Department of Carnation - *Angiospermae* edible there are more than a third, that is, almost 80 thousand species. At the same time, modern humanity 90% of the required amount of food needs satisfies only 20 species of cultivated plants. Another 100 kinds of cultivated plants have developed cultivation technologies and a corresponding breeding work is being carried out. All other potentially edible plants are used by humanity as food only locally and episodically. Questions of the practical introduction of them into culture have not yet come [1, 2].

Significantly broader range of human use of plants as fodder and especially medicinal. In modern pharmacology, almost 44% of the entire nomenclature of drugs is made on the basis of plant material from plants both introduced into culture and wild. For far not complete calculations as medicinal plants, modern mankind uses more than 5 thousand species of plants from the Department of Carnation. In the temperate zone of the planet, their number is almost 1.5 thousand species [3, 4, 5].

According to paleobotanists, polynologists and paleosoliologists, biological species of both plants and animals traditionally exist on the planet within a period of between 2-7 mill. years That is, the main

amount of modern species diversity of plants was formed on land almost at the end of the Tertiary period of the Cenozoic era in the period of Pliocene, and in the era of the Holocene of the Quaternary period. That is, during the last 12 million years. [6, 7, 8]. It is right to assert, for example, that the species *Chenopodium album L*. and *Chenopodium aristatum L*., which are common in arable land, as well as others, exist in our spaces for several million years. Accordingly, the main botanical families, which belong to the types of weeds, arose even earlier, most of them at the beginning of the Tertiary period, in the Paleocene and Eocene years, it 36-55 million years ago [9, 10].

Arriving from Africa to Europe and Asia is a reasonable person - *Homo sapiens* almost did not affect the species diversity of local herbaceous plants. However, at the beginning of Neolithic, that is, more than 10 thousand years ago, since the formation of agriculture, the destructive impact of man on the environment has steadily increased. The transformation of a part of the land into arable land radically changed the species composition of plants populated by certain regions. Releasing space for the cultivation of necessary and cultivated plants, a person destroyed the undesirable wildlife that interfered with such a vegetation. Among the wild plants that were to be destroyed on arable lands as a result of human activity, there were also botanical species with a different strategy of ontogenesis. Some species of plants were practically eliminated on the cultivated areas in the process of continuous soil loosening and propagation, while other species easily adapted to the new vegetation conditions.

Under the anthropic influence, the species surviving for the first time survived in nature for millions of years the function of plants - "repairmen" of damaged climax (permanent) phytocenoses. It is these kinds of plants that, according to biological laws, play an important role as stabilizers in the transitional successions of temporary phytocenoses, on their way to the restoration of permanent (climax), have a strategy of plants - explorers, which people call weeds. That is, such specialized types of herbaceous plants with an appropriate vegetation strategy quickly filled out and filled out the man-made plots of arable land. Accordingly, they perform today the same biological and ecological role that they performed in nature long before the era of agriculture, for millions of years [11, 12].

Species that are exploiters - weeds have a number of specific adaptations that allow them to be successfully present on a particular territory, even in the event of the complete death of their plants in a certain period. One such adaptation is their ability to have high seed yield and to form different seeds and fruits on one plant (heterospermia and heterocarpia). The ability to heterospermia provides the offspring of certain botanical species with a different conservation strategy the viability and time for germination of the seed, that is, the continuation of the ability to maintain the presence of the species on a particular territory [13, 14, 15, 16].

The main place of accumulation and preservation of seeds of species - weeds is an arable layer of soil. The use of man on arable lands of different systems of the main cultivation of the arable layer promotes the penetration of the weed seeds in different horizons of the soil. At one time, in the 7-8th century BC, mankind made a brilliant invention - a plow. Such an agricultural tool not only rolled the awn layer, but also cut the layer from below and turned it over. That is, thanks to the plow, it was possible to turn and put on the surface a layer of soil in which there is no theoretically no seeds of weeds. However, this is only in theory. In practice, modern arable land that has been used for growing crops for a long period of time has significant reserves of weed seeds in all the horizons of the arable layer. Therefore, the use of such an agroforce as a plow, only partially reduces in the upper horizons of the soil reserves of unwanted vegetation - weeds [17,18].

For many millennia, humanity has sought rational ways to get rid of weeds from arable land. Various systems of basic cultivation and care of crops, crop rotation, the use of various mechanical methods for the destruction of weed stands, the use of herbicides, etc., have been consistently

developed. However, complete victory over wild vegetation in crops has not been achieved [19, 20, 21]. The laws of biology are objective facts and act independently of the will of man. The task of the farmers of all ages: to free the arable land from the presence of weeds comes into conflict with the laws of biology and ecology. That is why even the achievement of modern scientific and technological progress has not brought us victory over species - weeds in arable lands. The short-term positive results on arable lands after the decrease of the intensity of anthropic pressure on the environment are obtained, we quickly return the weeds to fields [22, 23]. Therefore, a rational way is to coordinate our actions with the laws of nature. Human egocentrism today limits such activity in practice.

As a result of many years of activity in the arable land of our country in the arable layer of soil, significant reserves of seeds and organs of vegetative reproduction of weeds of various species have been formed. The size of such depot is an important indicator of the level of agronomic culture of farming in regions or specific farms and fields [24, 25]. Less stock of weed seeds in the soil significantly facilitates control of their stairs in crops of cultivated plants. That is why monitoring the stock of weed seeds in the arable layer is important both for science and for the activity of agrarian production.

Known domestic scientists of agrarians engaged in researches of ways of formation of reserves of weeds seeds in an arable layer, their sizes and ways of reduction. Among them, a significant contribution to the study of problems and patterns of changes in the size of weed seeds reserves in arable lands were made by: Fisyunov A.V, Veselovsky I. V., Manko Yu. P., Matushkin SI, Kunak V. D., and others [26, 27, 28].

Over the past decades, the country's agrarian sector has undergone significant changes. The transformation of the management system, the liquidation of Soviet forms of farms, the emergence of large agricultural holdings and the farming system. Agrarian production is completely reoriented to the needs of the market. Traditionally, such changes have been made without regard to the known laws of agronomy, and often even contrary to them.

At the same time, the system of priority needs of agrarian production and market of demand for scientific developments was not formed in the country. There is no effective and civilized system of legal, economic copyright and patent law. There is no clear and transparent system of support and encouragement for the implementation of scientific advances in the broad practice of production. The only agrarian complex of the country has broken up into independent fragments, living in their own coordinate system.

On arable lands almost everywhere in the country destroyed the classic crop rotation. Today, the rotation of crops in fields is not in accordance with scientific agronomic knowledge, but in the market element. We wanted to go to the market, but we got a wild market where nobody lives under civilized and social laws and where there are no concepts of morality and ethics.

Under such conditions, working with arable land, where the main element is the bazaar and money, we have very disturbing tendencies. Today, almost 80% of the country's arable land has active processes of water and wind erosion, there is an intense reduction in humus content, in all soil-climatic zones of the country there is a significant imbalance of nutrients and organic carbon in the arable layer. For such "management" the main national wealth of the people - fertile land is rapidly degraded. This is well-known, however, at all levels of state structures nobody really worries about such a situation with arable land. In the entire society of the country reigns the spirit of temporality. The vast majority live only in modern reality. By the prospect for the future of the country and the arable land should think and care for someone else. Landowners who live on land also live on today's day. What future will be in our agriculture? The question requires an answer in the present.

An important indicator of the quality of agrarian management is the level of potential littering of the arable layer of the soil and the tendency of its changes.

Thanks to the constant concern of all our Presidents and Prime Ministers, all Cabinet of Ministers, and the Agrarian Committee of the Verkhovna Rada during more than a quarter of their century of active activity, agricultural science in the country is still melting. There is nothing to fight for a long time and it will soon not be and to whom. Our country is unique: its leadership is simply unnecessary knowledge and the intellect of its own nation in any field of activity.

The agrarian sector of the economy of our country has an area of almost 33 million. ha of arable land, or twice as big as in a civilized agrarian France. In the entire area of the country's arable land in the NAAN system for the study of weeds and the scientific provision of systems for controlling them in the conditions of production there is only less than a dozen people (this is to count all the workers and scientists including) who work in the problems of herbology.

For comparison, in France, dozens of powerful research centers and more than a thousand employees are actively engaged in similar issues in France. Therefore, the order and scientific provision of agricultural activity in the arable land of France is difficult to compare with domestic ones. There is also a market economy like us, but there is a clear state agrarian policy on all issues: from the maintenance of arable land fertility, the country's independence regarding the provision of seeds of cultivated plants, control over the structure of crops, agro-chemical systems and protection of crops from harmful organisms and implementation of regulations on the use of pesticides in the conditions of production, to support and ensure the normal activities of agrarian science. As an example, the area under crops of sunflower in the structure of France's arable land does not exceed 4.7%.

The level of potential littering of the arable layer of soil by weeds in the EU countries is on average less than ours, an indicator of the quality and civilization of agricultural production in them, unlike our reality.

Even in order to carry out the necessary monitoring of the level of potential abrasion of arable land by seeds of weeds in our country, first of all, trained scientific personnel, appropriate modern equipment and facilities are needed. All this in the domestic science is almost absent for at least a quarter of a century. Young, promising people in science, after protecting their theses, mostly leave scientific institutions with their scanty salaries at $ 100-150 and involuntary leave without pay due to a real lack of funding. They mostly go to commercial firms where it is possible to earn a young family and a modest apartment. It is very difficult to work effectively under such conditions in domestic agrarian science.

To carry out regular herbological monitoring, as it is carried out by scientists of civilized countries, in our country will not be possible soon enough. For example, for comparison in Germany, the entire territory of the country is conditionally divided into squares with a side of 50 km. On each square regularly (every 10 years), scientists carry out a whole range of inspections: from the level of potential litter of the arable layer to the seeds of weeds, to the diversity of the species composition of weeds in the crops, their abundance. detection of herbicide-resistant populations, etc. On the basis of the results of such monitoring, the agrarians are developing and submitting sound scientific recommendations for the organization of rational protection of crops from weeds. The implementation of herbological monitoring - this is only a small part of the issues that are actively engaged in herbologists.

The great volume of problems that really exists in the work of the domestic agrarian sector must be solved precisely by our agrarian science. It's very difficult to do such work for decades with one desire and enthusiasm.

We offer the readers a generalized scientific material which, in the efforts of several enthusiast scientists, was carried out in 10 regions of the three soil-climatic zones of the country over the past 5 years to assess the level of potential debris of the arable layer of soil by weeds.

Methodology and conditions of research

The survey and selection of soil samples for laundering and analysis of weed seeds was carried out on fields at the farms of Kyiv, Cherkasy, Vinnytsya, Poltava, Sumy, Kirovograd, Mykolaiv, Odesa, Rivne, Ternopil regions in 2013-2017.

At the selected fields in each soil-climatic zone in the autumn, after the field work and the main soil cultivation, samples were collected from the arable layer (0-30 cm) and from 0-10 cm depth (from above the horizons sprouting more than 90% of all shoots' yani.) [29].

Samples were sampled at 20 points along two diagonals on an area of 100 g. (5kg soil sample) were thoroughly mixed and the average samples were taken up to 1kg. Such specimens were placed in linen bags, embedded labels and sent to the laboratory of herbology for analysis.

In the laboratory of the average samples, weighed up to determine the level of soil moisture. After establishing the level of moisture presence, we made 0.5 kg, based on dry soil, and hand-washing on soil soils. The soil sieve should have a cell size of 0.25 mm. After careful manual washing of soil particles with water, sieve seeds are present in the sieve and organic residues (straws, stalks of plants) are placed on a filter paper for drying.

The dried sample at room temperature was disassembled manually under a magnifying glass or binocular according to the type of seed and its number. The results obtained are converted into hectare and the volume of the arable layer or a specific ground horizon.

The selected weed seeds of the species were placed in a Petri dish on a damp filter paper and placed in a cupboard for subsequent germination at a temperature of 20^0 C for 20 days. The dynamics of germination of weed seeds was carried out every 3 days of germination.

Sampling of the soil, analysis of the presence of seeds and their germination were performed in accordance with the requirements of the Testing and Application of Pesticides [30].

The obtained results of the analysis summed up and carried out the counting of seed sprouted to an area of one square meter or hectare.

Results and discussion

The conducted inspections and analysis of soil samples were performed in the main soil-climatic zones of the country and prove the real presence of significant reserves of weed seeds and organs of vegetative reproduction in the arable layer.

For farmers practitioners, the stock of the weed seeds is most important in the upper horizon (0-10 cm) of the arable layer. Regular movement of the horizons of the soil as a result of the main field cultivation leads to a relatively uniform clogging of all the horizons of the arable layer to a depth of 30 cm.

Zone Polissya

In the zone of the Polissya of our country (samples of soil samples were taken from the fields of the Kiev, Ternopil and Rivne regions indicate the presence of a large bank of seeds of different types of plants of explorers - weeds. On average, per square meter of arable land of this soil-climatic zone in the arable soil layer (in the horizon of 0-10 cm), the stock of seeds is 49 thousand pieces. At the same time, not all the seeds of wild plant species present in the process of germination can sprout.

As a result of germination for 20 days, the seeds of different types of weeds broke off from the ground, an average of 7.7%. Accordingly, on arable land area m2 are capable of sprouting 1887 weed plants. Of course, this indicator is generalized. On each specific field, the size of the stock of weed seeds and their ability to germinate will be appropriate. The main amount of washed weed

seeds is alive, but does not sprout, but is in a state of biological rest, which has a different nature and is defined by both morphological and biochemical mechanisms of inhibition.

In the structure of the soil that was washed off from soil samples, the largest proportion - 62.7% - of seeds from plants from the family - *Chenopodiaceae* in the Polissya region. Among them are - *Chenopodium album L*., *Chenopodium polyspermum L*., *Chenopodium hybridum L*., *Atryplex patula L*., *Atriplex hastate L*., and others.

In the area of Polissya widespread and types of weeds from the botanical family - *Amaranthaceae*. In the structure of weed seeds in the soil depot, their share is 21.6%.

Among the species of gherkins, the most commonly known species is - *Amaranthus retroflexus L*., *Amaranthus blitoides S*., *Amaranthus albus L*. *Amaranthus lividus L*.

Among the species from the botanical family Poaceae (Grasses - *Gramineae*), the seed reserves make up 6.4% in the structure of weeds.

The largest part of the seed of the is *Setaria glauca (L.) Pal. Beauv*., *Echinochloa crus-galli (L.) Pal. Beauv*., *Apera spica venti (L.) Pal. Beauv., Digitaria ischaemum (Schreb.),* and other species.

From the botanical family *Polygonaceae*, weed seeds make up 4.5% of the total stock in the soil.

Among the species most of the seeds are *Polygonum persicaria L*., *Polygonum lapathifolium L*.,*Polyginum convolvulus L*., *Polygonum scabrum L*., and other species.

From the Botanical Family of Brassicaceae (Cruciferae), the share of seeds in the overall structure of reserves in the soil is 1.6%.

Of these, it is a mustard seed of the *Sinapis arvensis L., Descuriania Sophia (L.)Webb*., *Raphanus raphanistrum L*., *Thlaspi arvense L., Sisimbrium altissimum L., Cardaria draba L*., the dried *Sisymbrium officinale (L.) Scop*., the *Barbarea vulgaris R.Br*., and other species.

Among the species from the family *Asteraceae (Compositae*), seeds in the general depot in the soil were 1.1%.

The seeds were represented by the *Galinsoga parviflora Cav., Erygeron canadensis L., Ambrosia artemisiifolia L*., *Centaurea cianis L., Matricaria*, *Bidens tripartite L*., *Anthemis arvensis L*., *Anthemis cotula L., Senecio vulgaris* L., and other species

From the one-year weed species belonging to different botanical families in the general bank of weed seeds, the seeds of the *Solanum nigrum L., Galium aparine L., Galeopsis tetrahit L.,* were also present in the soil: *Silene noctiflora L., Stellaria media (L.)Vill*.

Seeds and organs of vegetative multiplication of perennial weeds are present in the layer of soil: the *Cirsium arvense L*., the*Elitriga repens (L.) Pal. Beauv*., the *Sonchus oleraceus L*., the *Tussilago farfara L*., the *Rumex obtusifolius L.,* the *Artemisia vulgaris L*., the *Eguisetum arvense L.* (only rhizomes), and other species.

Zone of the forest-steppe

In the zone of the forest-steppe of our country (samples of soil samples were taken from the fields of Kiev, Cherkassy, Vinnitsa, Poltava and Sumy regions indicate the presence of a powerful bank of seeds of different kinds of plants of explorers - weeds.) For each meter of square arable land of the soil-climatic zone in the arable the soil layer (in the horizon 0-10 cm), the seed stocks reach an average of 57 thousand pieces. At the same time, not all the seeds of wild plant species present in the process of germination can germinate. On average, from the washed seeds of different species sprout in c Ref 8.2%. That is, per square meter of arable land in the forest steppe zone from a depth of 10 cm 4674 sht able to grow. weeds.

In the structure of the depot, which was washed off from the soil, the largest proportion is the seeds of representatives of the family - *Chenopodiaceae*. Their share is - 51.8%.

Among the types of weeds, this is primarily the seeds of *Chenopodium album L.*, *Chenopodium aristatum L.*, *Chenopodium rubrum L.,Chenopodium polyspermum L.*, *Chenopodium hybridum L., Atriplex patula L.*, *Atriplex nitens Sehk.*, *Kochia scoparia (L.) Schrader*, and other species.

The next largest amount of seed stocks in the soil is the botanical family *Amaranthaceae*. Types of weeds from this botanical family form - 16,5% in the structure of the washed seeds.

The depot of the seed forms the following species: *Amaranthus reroflexus* L., *Amaranthus blitoides S.*, *Amaranthus albus L., Amaranthus lividus L.,* and other species.

Significantly smaller amounts of seeds in the arable soil layer are the representatives of the botanical family - *Poaceae* - 8.8%.

Among the types of weeds, this is primarily the seed of a *Setaria glauca (L.)Pal. Beauv,. Echinocloa crus-galli (L.) Pal. Beauv.*, *Elevsine indica Gaertn., Apera spica venti (L.) Pal. Beauv.*, *Digitaria ischaemum (Schreb.), Poa annua (L.)Pal. Beauv.*, the *Avena fatua (L.) Pal. Beauv* and other species.

The botanical family *Polygonaceae* was inferior to the previous botanical family for seed stocks in the arable soil layer. In the structure of seed stocks, the species belonging to this botanical family form 5,3%.

The depot of the seeds of the botanical family that was abandoned and from the soil samples is presented primarily by seeds of *Polygonum persicaria L.*, *Polygonum lapathifolium L.*, *Polygonum convolvulus L., Polygonum scabrum Moench.*, *Polygonum aviculare L.*, *Polygonum tomentosum Schrank*, and other species.

Representatives of the Botanical Family of *Brassicaceae* are quite common in the arable lands of the Forest-Steppe zone, with their seeds in the arable soil layer of 6.2%.

Mostly, among the samples that was washed from soil, there *Sinapis arvensis L., Descurania Sophia (L.) Webb*, *Raphanus raphanistrum L., Thlaspi arvense L.*, *Sisimbrium altissimum L.*, *Brassica campestris L.* and other species.

The proportion of weed seeds belonging to the family - *Asteraceae* reaches 2, 0% in the structure of washed soil samples.

The depot consists of the seeds of the unbreakable *Galinsoga parviflora Cav.*, the *Erigeron canadensis L.,* the *Ambrosia artemisiifolia L.*, the corms of the - *Centaurea cianis L.,* the species of *Matricaria*, the *Bidens tripartita L.,* non-essential oil of the *Xanthium strumarium L.*, romance of the *Anthemis arvensis L., Anthemis cotula L.*, *Senecio vulgaris L., Cyclachena xanthifolia(Nutt.) Fresen*, *Lactuca seriola L.*, and other types of weeds.

Among the one-year weed species from different botanical families in the arable layer of soil there is the seeds of the - *Solanum nigrum L.*, the *Galeops istetrahit L.*, the *Silene noctiflora L.*, the poppy of the - *Papaver rhoeas L.,* the *Stellaria media (L.) Vill.*, *Mercurialis annua L.*, *Portulaca oleracea L.*, *Veronica arvensis L.*, *Galium aparine L.*, *Lycopsis arvensis L.* others.

In the arable layer there is also seeds and organs of vegetative reproduction of perennial weeds: the *Cirsium arvense L.*, *Sonchus arvensis L., Elitriga repens(L.) Pal. Beauv.*, *Artemisia vulgaris L.*, sorrowful heap.

Zone of the Steppe

In the zone of the Steppe of our country (samples of soil samples were taken from the fields of Kirovograd, Mykolaiv and Odesa regions indicate a high level of potential debris of the arable layer of soil by seeds and organs of vegetative propagation of weeds.

The specificity of the potential clogging of the arable soil layer by seeds and the bodies of vegetative propagation of weeds in the Steppe zone is primarily due to the presence of a significant moisture deficit in the upper layer of arable land and the traditionally neutral or alkaline reaction of the soil solution.

Such conditions have an impact on the species composition of weed plants -explerants and indicators of the viability of their seeds and the level of germination in the process of germination.

In the zone of the Steppe the most thermophilic types of weeds are distributed and in the soil the reserves of their seeds are concentrated. The system of surveys and selection of soil analyzes to determine the level of potential abrasion of the arable layer of soil allowed to establish the following indices: Average reserves of weed seeds in the horizon 0-10 cm in one square meter are 38.0 thousand pieces. From the washed seed from the soil seeds of different types of weeds in the process of germination for 20 days were formed sprouts and stairs 5.9% or 2242 pieces / m^2 .

The largest amount of weed seeds in the soil belonged to representatives of the botanical family - *Chenopodiaceae*.

Among them: *Chenopodium album L., Chenopodium aristatum L*., *Chenopodium polyspermum L.*, *Chenopodium hybridum L., Chenopodium urbicumL. Chenopodium glaucum L., Atriplex patula L., Atriplex hastate L., Solsola ruthenica Iljin*, and other species.

According to the size of the stock of seeds, the representatives of the family - *Amaranthaceae.* Their seeds reach 12.8% of the total depot in the soil. Among them, the most common are seeds of *Amaranthus reroflexus L., Amaranthus blitoides S*., *Amaranthus albus L*., *Amaranthus lividus L*., and others.

The largest stocks of seeds in the arable layer and representatives of the botanical family - *Poaceae* - 11.2%.

Among them, the most common are*Setaria glauca (L.) Pal. Beauv*., *Echinocloa crus-galli (L.) Pal. Beauv*., *Digitaria ischaemum (Schreb.), Avena fatua L., Poa annua (L.) Pal. Beauv*, *Setaria viridis (L.) Pal. Beauv*., and other species.

Significantly smaller stocks of seeds in the arable layer of the soil of the Steppe zone are formed by the representatives of the botanical family *Polygonaceae* – 5,3%

Among them: *Polychonum persicaria L*., *Polygonum lapathifolium L*., *Polygonum convolvulus L*., *Polygonum scabrum Moench*., *Polygonum tomentosum Moench*., and other species.

By the size of seed reserves in the soil, the botanical family of *Brassicaceae* inferior to the previous families. Her seed reserves make up 3,0%. First and foremost, this is a mustard seed of *Sinapis arvensis L*., *Descurania Sophia (L.) Webb*, *Raphanus raphanistrum L*., *Thlaspi arvense L*., *Sisimbrium altissimum L*., *Cardaria draba L., Sisymbrium officinale (L.)Scop., Barbarea vulgaris R. Br*. and other.

Representatives of the Botanical Family - *Asteraceae* in the total stock of seeds in the soil make up 2.6%.

These are, first of all, the seeds of the *Erigeron canadensis L.,* the *Galinsoga parviflora Cav*., *Ambrosia artemisiifolia L*., *Centaurea cianis L., Xanthium strumarium L*., *Xanthium spinosum L., Lactuca seriola L.,* and others.

In addition to these types of weed depot in the soil contains seeds of species belonging to other botanical families. Among the one-year weed species in the arable layer are seeds of the *Solanum nigrum L*., the submerger of the *Galium aparine L*., the *Galeopsis tetrahit L*., the *Silene noctiflora L., Papaver agremone L.* , *Papaver rhoeas L*., an asterisk of the *Stellaria media (L.) Vill*., *Erodium cicutarium (L.) L. Her*., *Ammi majus L*. and others.

In the arable soil layer of the Steppe zone there are also seeds and organs of vegetative multiplication of perennial weeds: the *Cirsium arvense L.,* the – *Elitrigarepens (L.) Pal. Beauv*., *Sonthus oleraceus L*., *Artemisia vulgaris L*., *Cynodon dactilon L*., *Sorghum halepense L. (Pers.), Agathyrsus tataricus (L.),Artemisia absintium L*., *Onopordum acanthium L*., *Acroptilon repens (pink), Sorghum halepense L. (Pers.) (L.) DC*., *Aristolochia clematitis L*., *Euphorbia helioscopiaL*., *Phragmites australis L*., *Convolvulus arvensis L*., *Rumex confertum L*. and others.

Conclusions

1. The level of potential littering of arable land by seeds and organs of vegetative reproduction of weeds (0-30 cm) in the main soil-climatic zones is very high and makes up from 114 thousand units. (Step) to 171ths. pcs. (Forest-steppe) per meter square.

2. Virtually all soil-climatic zones are present on arable lands and form the most important parts in the structure of the stock of seeds in the soil, the representatives of the botanical families of *Chenopodeaceae* 51,8 - 62.7%, *Amaranthaceae* 12,8 -21,6%, *Poaceae* 6,4-11,2%,*Polygonaceae* 4,5 - 5,3%, *Brassicaceae* 1,6-6,2%, Asteraceae 1,1-2,6%.

3. The average indices of the ability of ground-weed seeds of weeds of different species to germination are: Polissya - 7,7%, Forest-stepp - 8,2%, Steppe - 5,9%. On arable land on an area of one meter square are able to germinate on average: Polissya -1887ps / m^2, Forest-step - 4674st / m^2, Steppe - 2242sq / m^2.

In each soil-climatic zone, the depot of seeds in the soil also has specific types of weeds.

4. Modern agrarian production for successful operation requires for arable land, the development and implementation of a system of complex measures for the gradual reduction of the level of potential soil debris by seeds and bodies of vegetative reproduction of weeds, taking into account the specifics of each field.

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