

INFLUENCE OF PREDECESSORS ON SPECIES

diversity of weeds in winter wheat crops in the Eastern Forest-Steppe of Ukraine

Goal. Determine the species composition of weeds, their dominant role and establish the type and level of weediness of winter wheat crops by cultivation on black fallow, after peas for grain and winter wheat as predecessors in the Eastern Forest-Steppe of Ukraine. **Methods.** The research was carried out by means of route surveys in field experiments located in a stationary nine-field fallow-grain-row crop rotation and in a monoculture of winter wheat. **Results.** In total, according to the results of research in 2011–17, 63 species of weeds were found in crops. In the conditions of crop rotation in the fields of winter wheat after black fallow and peas for grain, 50 species and 45 species were found, respectively, and in monoculture — 41 species. The largest number of spring early and late weeds (41–49%), and the second and third places were occupied by wintering, winter and biennial (33–37%) and perennial (18–22%). The main weeds in the crops were: after black fallow — *Setaria glauca*, *Chenopodium album*, *Amaranthus retroflexus*, *Solanum nigrum*, *Fumaria officinalis*, *Polygonum lapathifolium*, *Cyclachena xanthifolia*, *Delphinium consolida*, *Viola arvensis*, *Erigeron canadensis*, *Cirsium arvense*; after peas for grain — *S. glauca*, *Echinochloa crusgalli*, *C. album*, *A. retroflexus*, *S. nigrum*, *F. officinalis*, *P. lapathifolium*, *Stachys annua*, *Malva neglecta*, *Polygonum aviculare*, *D. consolida*, *Thlaspi arvense*, *V. arvensis*, *C. arvense*, *Convolvulus arvensis*; after winter wheat — *S. glauca*, *E. crusgalli*, *Ambrosia artemisiifolia*, *Fallopia convolvulus*, *Lactuca serriola*, *Capsella bursa-pastoris*, *D. consolida*, *Matricaria inodora*, *Crepis tectorum*. In winter wheat crops, the largest share of dominance and subdominance, respectively, were *Solanum nigrum* L. (71%) and *Setaria glauca* (L.)

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Beauv. (71%) after peas for grain. The type of weediness of winter wheat crops depended on the predecessor. In monoculture, there was a higher level of weediness of winter wheat than in crop rotation. **Conclusions.** Rational selection of predecessors creates the basis for successful weed control in winter wheat crops.

winter wheat; weeds; predecessors; crop rotation; monoculture

The production of competitive agricultural products is possible only on the basis of improving the culture of agriculture. Preservation and increase of soil fertility is a necessary condition for the introduction of advanced technologies with the rational use of local soil and climatic conditions, means of intensification and crop rotation system. Crop rotation is one of the most important factors that determine the efficiency of agriculture. Violations of the established requirements by alternation of agricultural crops in crop rotation or permanent crops are motivated by market conditions,

which dictate the production of the most profitable field crops.

Alternation of crops in crop rotation after the best predecessors provides favorable conditions for plant growth and development [1]. The yield of winter wheat varies significantly depending on the predecessor. When growing winter wheat on fallow, the yield level exceeds on average by 1.0 t/ha of the variant where it was grown after sunflower [2]. Among the predecessors for winter wheat, the field after perennial grasses was noted increased soil biological activity, but after corn for silage, the field was less active [3].

Studies on the peculiarities of the formation of quality indicators of winter wheat flour depending on predecessors in the central part of the Forest-Steppe of Ukraine showed that the maximum content of protein (13.4%) and crude gluten (28.9%) on average for all growing seasons was after soybean, the largest precipitation volume (67 ml) were after green manure, and the lowest quality indicators (12.5%, 26.8% and 63 ml, respectively) were after corn [4].

The formation of yield and grain quality of winter wheat is significantly hindered by the spread of pests, especially weeds, in crops [5].

The results of research conducted at the Bila Tserkva Research and Breeding Station show that the weediness of winter wheat crops depends on both the structure of crop rotations and the fertilizer system. The highest density of weeds at spring tillering period was observed against unfertilized background in crop rotation and grain-row crop rotations — 145.3 units/m² and 146.3 units/m², weed weight — 13.46 cwt/ha and 16.4 cwt/ha, respectively. The use of fertilizers reduced the weight of both mono-



cotyledonous and dicotyledonous weeds. Against the background of fertilizers, weed density decreased to 27.1 units/m² and 34.0 units/m², and their weight — to 6.20 cwt/ha and 5.77 cwt/ha [6].

In the conditions of the Western Forest-Steppe of Ukraine, the cultivation of winter wheat in crop rotation contributes to reduce the density of weeds by more than twice compared to long-term re-cultivation (monoculture) [7].

Saturation of the structure of sown areas with grain crops up to 75% leads to a significant increase in weediness of winter wheat. The greatest abundance of weeds was obtained in the units with corn for silage with soybean sowing and in crop rotation with grain saturation up to 75%, in the unit buckwheat — spring barley — winter wheat [8].

Research led by SP Tanchika shows that the weediness of winter wheat crops is largely determined by its predecessors. The maximum number of winter and wintering weed species was in the areas after winter rape, due to the common biological characteristics of these crops. There was a significant increase in weed infestation due to the placement of winter wheat after corn for silage and soybeans, due to the late harvest of these crops. Among the predecessors in terms of antiweed efficiency, buckwheat was the best, providing a lower level of weediness compared to the control (peas). This is due to the ability of buckwheat to suppress weeds due to rapid growth and intensive accumulation of vegetative mass [9].

According to Latvian scientists, winter wheat grown in repeated crops had a significantly lower total number of weeds than winter wheat after winter rape as a forecrop [10]. At the same time, winter wheat crops for two years in a row, in the zone of insufficient moisture in the Eastern Forest-Steppe of Ukraine, led to an increase in weeds of re-sowing by 1.7 times compared to crops after peas [11].

Different predecessors provide the formation of a different typology of weeds in winter wheat crops. After meadow clover, it was represented mainly by annual dicotyle-

dons, and after soybeans the species composition of the agrophytocenosis changed to dicotyledonous and monocotyledonous weeds with the predominance of annual dicotyledons. After corn for grain as a forecrop, the characteristic type of weed changed to monocotyledonous-dicotyledonous with a higher proportion of monocotyledonous cereal weeds and dicotyledonous representatives of the root-sprout group. In general, the use of meadow clover as a forecrop for winter wheat can reduce the number of weeds by 15–20% [12].

According to research OM Kurdyukova and MI Konoplya culture had the lowest level of weediness in crops after black fallow and legumes, while after cereals and row crops it was 2.6–2.8 times higher. However, under favorable conditions of autumn moisture, wintering and winter weed seedlings were equally abundant after all predecessors, including after black fallow, while the largest number of spring weeds appeared on poorly thawed and liquefied crops after non-fallow predecessors at spring tillering and tube emergence periods. The number of perennial and biennial weeds naturally decreased on black fallows and after legumes [13].

Studies in Vinnytsia Oblast have shown that the predecessors of winter wheat (corn for silage, sugar beet and winter wheat) do not significantly affect the level of weeds and grain yield on a herbicide-free background. The lowest number and raw weight of weeds was in crops after sugar beets. The highest yield of winter wheat was obtained after sugar beet in the variant of herbicide application [14].

In the Right-Bank Forest-Steppe of Ukraine, alfalfa proved to be the most effective predecessor in terms of herbological indicators of winter wheat crops. The most weediness crops were after peas, and after corn for silage had intermediate rates. At the same time, over 14 years of research, weed infestation of winter wheat after peas increased by 2 times with a decrease in weed weight by 80% [15].

Analysis of agrophytocenosis in winter wheat crops in terms of indi-

vidual predecessors showed that the number of weeds in winter wheat fields on fallow as a forecrop was almost 2.0–2.5 times less than after corn or sunflower [16].

The results of surveys in agrophytocenoses of winter wheat in five-field crop rotations in conditions of sufficient moisture of the Right-Bank Forest-Steppe of Ukraine showed the highest number of weeds in crops after peas, compared to other predecessors (clover of two cutting, soybean, corn for silage, alfalfa of two years application) [17].

The purpose of the research is to determine the species composition of weeds, their dominant role and to establish the type and level of weediness of winter wheat crops by growing black fallow, peas for grain and winter wheat in the conditions of the Eastern Forest-Steppe of Ukraine.

Materials and methods of research. The research was conducted during 2011–17 in the stationary nine-field fallow-grain-row crop rotation of the Department for Plant Production and Cultivar Investigations Yuriev Plant Production Institute of the National Academy of Agrarian Sciences of Ukraine (black fallow — winter wheat — sugar beets — spring cereals — peas for grain — winter wheat — corn for grain ½ + soybean ½ — spring cereals — sunflower) and monoculture of winter wheat (control). These crop rotations and monoculture are located in Kharkiv region, which is territorially part of the eastern part of the Forest-Steppe of Ukraine.

Surveys of winter wheat crops for weeds in crop rotation after the predecessors of black fallow and peas for grain and in monoculture of winter wheat were carried out simultaneously (in the second half of the growing season) according to the method developed by us [18]. A separate form was allocated for each predecessor, in which the identified species of weeds or contaminants (mostly field seed carrion) were entered after the survey. Both dominant and subdominant weed species were considered. The dominant role of each species was assessed approximately based on its share

in the formation of the total mass of the segetal group in the field. Dominant were those species that weighed more than 10% of the total mass of all weeds, and subdominant were considered to be 3–10%, respectively.

In determining the type of weed in its name, the group that was most represented in the total mass of weeds was placed first, and the groups of weeds were placed second or third, according to their participation in the segetal group. The level of weeds in each field was determined by the proportion of weeds in the total mass of agrophytocenosis: up to 1% — very weak; 1–5 — weak; 6–15 — average; 16–45 — strong; over 45% — very strong.

Results. During the research 2011–17 period, 58 species of weeds and 5 species of contaminants (sunflower, millet, soybeans, beans, clover) were found in winter wheat crops. All species were divided into three groups. 30 species of spring early and late weeds were included: *Setaria glauca* (L.) Beauv., *Setaria viridis* (L.) Beauv., *Echinochloa crus-galli* (L.) Roem. et Schult., *Sinapis arvensis* L., *Chenopodium album* L., *Chenopodium hybridum* L., *Amaranthus retroflexus* L., *Amaranthus blitoides* S. Watson, *Solanum nigrum* L., *Portulaca oleracea* L., *Galeopsis tetrahit* L., *Fumaria officinalis* L., *Ambrosia artemisiifolia* L., *Polygonum lapathifolium* L., *Polygonum aviculare* L., *Stachys annua* L., *Malva neglecta* Wallr., *Fallopia convolvulus* (L.) A. Love, *Xanthium strumarium* L., *Cyclachaena xanthifolia* (Nutt.) Fresen., *Avena fatua* L., *Galinsoga parviflora* Cav., *Cannabis ruderalis* Janisch., *Oxalis corniculata* L., *Sonchus oleraceus* L., *Sonchus asper* (L.) Hill, *Helianthus annuus* L., *Panicum miliaceum* L., *Glycine max* (L.) Merrill., *Phaseolus vulgaris* L.

The group of wintering, winter and biennial weeds included 19 species: *Lactuca serriola* L., *Capsella bursa-pastoris* (L.) Medik., *Delphinium consolida* L., *Galium aparine* L., *Matricaria inodora* L., *Sisymbrium Loeselii* L., *Thlaspi arvense* L., *Viola arvensis* Murr., *Erigeron Canadensis* L., *Crepis tectorum* L., *Melandrium album* (Mill.) Garcke, *Carduus acanthoides* (L.) Pall., *Medicago lu-*

pulina L., *Onopordum acanthium* L., *Gypsophyla muralis* L., *Buglossoides arvensis* (L.) I.M. Johnst., *Descurainia Sophia* (L.) Webb ex Prantl., *Vicia villosa* Roth., *Lamium amplexicaule* L. This group of weeds also includes ephemeral — *Stellaria media* (L.) Vill.

The perennial weed group consisted of 13 species: *Cirsium arvense* (L.) Scop., *Sonchus arvensis* L., *Convolvulus arvensis* L., *Plantago major* L., *Plantago lanceolata* L., *Artemisia absinthium* L., *Artemisia vulgaris* L., *Chamaenerion angustifolium* (L.) Scop., *Taraxacum officinale* Web. et Wigg, *Ajuga genevensis* L., *Rumex crispus* L., *Euphorbia virgata* Waldst. et Kit. and *Trifolium pretense* L.

Seven years of research have revealed differences in the quantitative and species composition of weeds in the cultivation of winter wheat after different predecessors. In the conditions of crop rotation in winter wheat crops after black fallow 50 species of weeds and contaminants were found (spring early and late — 48%; wintering, winter and biennial — 34%; perennial — 18%), and after peas for grain — 45 species (spring early and late — 49%, wintering, winter and biennial — 33%, perennial — 18%). During the cultivation of winter wheat in the monoculture, only 41 species of weeds were found (spring early and late — 41%; wintering, winter and biennial — 37%; perennial — 22%).

Despite of the quantitative composition of weeds differed depending on the predecessor, in winter wheat crops after all predecessors were: *E. crus-galli*, *S. glauca*, *A. retroflexus*, *C. album*, *S. nigrum*, *P. oleracea*, *F. officinalis*, *A. artemisiifolia*, *S. annua*, *F. convolvulus*, *X. strumarium*, *P. aviculare*, *P. miliaceum*, *L. serriola*, *C. bursa-pastoris*, *D. consolida*, *G. aparine*, *M. inodora*, *T. arvense*, *V. arvensis*, *E. Canadensis*, *C. tectorum*, *M. album*, *C. arvense*, *C. arvensis*, *A. genevensis* and *T. officinale*.

In addition to these species in the crops found: on black fallow — *G. parviflora*, *C. ruderalis*, *O. corniculata*, *S. oleraceus*, *A. blitoides*, *A. absinthium*, *R. crispus*; after peas for grain — *S. arvensis*, *C. hybridum*, *H. annua*, *S. asper*, *V. villosa*; after

monoculture of winter wheat — *S. media*, *L. amplexicaule*, *P. lanceolata*, *T. pretense* L., *G. max*, *P. vulgaris*.

Compared to other predecessors, no winter wheat was found: on black fallow — *A. fatua*, *P. major*, *A. vulgaris*; after peas for grain — *G. muralis*, *B. arvensis*, *E. Virgata*, *C. acanthoides*; after monoculture of winter wheat — *S. viridis*, *G. tetrahit*, *P. lapathifolium*, *C. xanthifolia*, *M. neglecta*, *S. Loeselii*, *M. lupulina*, *O. acanthium*, *D. Sophia*, *S. arvensis*, *C. angustifolium*.

According to generalized seven-year data, the main weed species (share of 71% to 100%) in winter wheat crops in crop rotation on black fallow and after peas for grain occupied respectively 22% and 33% of the total species composition of weeds against a specific predecessor, and in the monoculture of winter wheat — 22%. The distribution of the main weed species by agrobiological groups on black fallow, after peas for grain and winter wheat (control) as forecrops were as follows: early spring — 37; 33 and 11% of the total number of major weeds against the predecessor; late spring — 27; 33 and 33%; wintering — 27; 20 and 56%; perennial root-sprouting — 9; 14 and 0% (Table 1).

It is established that among the main types of weeds in winter wheat crops after all predecessors there were only *S. glauca* and *D. consolida*. Also, in addition to these two species, the main weeds in the crops were: on black fallow — *C. xanthifolia*, *E. Canadensis*; after peas for grain — *S. annua*, *M. neglecta*, *P. aviculare*, *T. arvense*, *C. arvensis*; after monoculture of winter wheat — *A. artemisiifolia*, *F. convolvulus*, *L. serriola*, *C. bursa-pastoris*, *M. inodora*, *C. tectorum*. The main weeds in winter wheat crops in the crop rotation after both predecessors were *C. album*, *A. retroflexus*, *S. nigrum*, *F. officinalis*, *P. lapathifolium*, *V. arvensis*, *C. arvense*. Also, after peas for grain and winter wheat as forecrops, a significant proportion of cases were found *E. crus-galli*.

Every year, the main weeds in winter wheat crops were: on black fallow — *S. glauca*, *S. nigrum*, *D. consolida*; after peas for grain —

S. glauca, *C. album*, *A. retroflexus*, *S. nigrum*, *D. consolida*, *C. arvense*; after monoculture of winter wheat — *S. glauca*. Among the main weeds, the largest share of dominance and subdominance in crops was identified, respectively: on black fallow — *S. glauca* (29% and 43%); after peas for grain — *S. nigrum*, (71%) and *S. glauca* (71%); after monoculture of winter wheat — *D. consolida* (57%) and *S. glauca* (57%).

During this period of research, in the total mass of weeds in winter wheat crops, after almost all predecessors, dicotyledonous species were found the most, and the second place was occupied by annual cereal species. Perennial weeds, primarily root-sprouting species, were the least represented in the total mass of weeds in crops. In total, five complex weed types were formed in the crops (Table 2), of which the dicotyledonous-cereal-annual-root-sprouting type predominated (38% of the total number of types during all years of research). It was also found that the types of weeds in crops differed depending on the predecessor, except for 2012 and 2017, when all predecessors formed the same type of weeds (dicotyledonous-cereal-annual-root-sprouting).

It was found that the level of weediness of winter wheat crops mostly differed depending on the predecessor and the year of research. The cultivation of winter wheat in monoculture in almost all years of research showed a higher level of weeds, compared with the cultivation of crops in crop rotation after peas for grain, and especially on black fallow (Table 3).

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1. Species composition of the main weeds in winter wheat crops for cultivation after different predecessors, 2011–17

Weed species	The proportion of weed infestation and dominance in the segetal group after the predecessors,%											
	black fallow				peas for grain				winter wheat			
	d	s	a	Σ	d	s	a	Σ	d	s	a	Σ
<i>Setaria glauca</i>	29	43	28	100	–	71	29	100	29	57	14	100
<i>Echinochloa crus-galli</i>	–	–	–	–	–	43	43	86	14	43	14	71
<i>Chenopodium album</i>	14	–	72	86	–	29	71	100	–	–	–	–
<i>Amaranthus retroflexus</i>	–	14	57	71	14	14	72	100	–	–	–	–
<i>Solanum nigrum</i>	14	29	57	100	71	14	15	100	–	–	–	–
<i>Fumaria officinalis</i>	14	29	43	86	29	–	42	71	–	–	–	–
<i>Ambrosia artemisiifolia</i>	–	–	–	–	–	–	–	–	14	14	43	71
<i>Polygonum lapathifolium</i>	–	–	71	71	–	14	72	86	–	–	–	–
<i>Stachys annua</i>	–	–	–	–	–	14	57	71	–	–	–	–
<i>Fallopia convolvulus</i>	–	–	–	–	–	–	–	–	–	14	57	71
<i>Cyclachaena xanthifolia</i>	–	–	71	71	–	–	–	–	–	–	–	–
<i>Malva neglecta</i>	–	–	–	–	–	–	86	86	–	–	–	–
<i>Polygonum aviculare</i>	–	–	–	–	–	–	71	71	–	–	–	–
<i>Lactuca serriola</i>	–	–	–	–	–	–	–	–	–	–	71	71
<i>Capsella bursa-pastoris</i>	–	–	–	–	–	–	–	–	–	29	42	71
<i>Delphinium consolida</i>	–	–	100	100	14	–	86	100	57	–	29	86
<i>Matricaria inodora</i>	–	–	–	–	–	–	–	–	–	–	86	86
<i>Thlaspi arvense</i>	–	–	–	–	–	–	86	86	–	–	–	–
<i>Viola arvensis</i>	–	14	57	71	14	–	72	86	–	–	–	–
<i>Erigeron Canadensis</i>	–	–	86	86	–	–	–	–	–	–	–	–
<i>Crepis tectorum</i>	–	–	–	–	–	–	–	–	–	–	71	71
<i>Cirsium arvense</i>	–	–	86	86	–	43	57	100	–	–	–	–
<i>Convolvulus arvensis</i>	–	–	–	–	–	–	71	71	–	–	–	–

Note: d — dominant species; s — subdominant species; a — assectators (related species); Σ — occurrence of the species (sum d, s, a); «–» — the species did not have a dominant influence or had a share of less than 70%.

2. Type of weediness of winter wheat crops for cultivation after different predecessors

Year of research	Predecessor		
	black fallow	peas for grain	winter wheat
2011	Dicotyledonous-cereal-annual	Dicotyledonous	Cereal-annual-dicotyledonous
2012	Dicotyledonous-cereal-annual-root-sprouting	Dicotyledonous-cereal-annual-root-sprouting	Dicotyledonous-cereal-annual-root-sprouting
2013	Cereal-annual-dicotyledonous	Dicotyledonous-cereal-annual	Dicotyledonous
2014	Dicotyledonous	Dicotyledonous-cereal-annual	Dicotyledonous-cereal-annual
2015	Dicotyledonous-cereal-annual	Dicotyledonous	Dicotyledonous-cereal-annual
2016	Dicotyledonous-cereal-annual-root-sprouting	Dicotyledonous-root-sprout-cereal-annual	Dicotyledonous-cereal-annual-root-sprouting
2017	Dicotyledonous-cereal-annual-root-sprouting	Dicotyledonous-cereal-annual-root-sprouting	Dicotyledonous-cereal-annual-root-sprouting

CONCLUSIONS

In the conditions of the Eastern Forest-Steppe of Ukraine, a total of 63 species of weeds were found in winter wheat crops. During the cultivation of winter wheat in the stationary nine-field fallow-grain-row crop rotation on black fallow, 50 species were identified (48% — early and late spring; 34% — wintering, winter and biennial and 18% — perennial), of which 11 species were classified as basic (*Setaria glauca*, *Chenopodium album*, *Amaranthus retroflexus*, *Solanum nigrum*, *Fumaria officinalis*, *Polygonum lapathifolium*, *Cyclachaena xanthifolia*, *Delphinium consolida*, *Viola arvensis*, *Eriogon canadensis*, *Cirsium arvense*). During the cultivation of crop in crop rotation after peas for grain, 45 species were identified (49; 33 and 18%), of which the main were 15 species (*S. glauca*, *Echinochloa crus-galli*, *C. album*, *A. retroflexus*, *S. nigrum*, *F. officinalis*, *P. lapathifolium*, *Stachys annua*, *Malva neglecta*, *Polygonum aviculare*, *D. consolida*, *Thlaspi arvense*, *V. arvensis*, *C. arvense*, *Convolvulus arvensis*). During the cultivation of winter wheat in monoculture, 41 species were identified (41, 37 and 22%, respectively), of which 9 species are the main (*S. glauca*, *E. crus-galli*, *Ambrosia artemisiifolia*, *Fallopia convolvulus*, *Lactuca serriola*, *Capsella bursa-pastoris*, *D. consolida*, *Matricaria inodora*, *Crepis tectorum*). The largest share of dominance and sub-dominance, respectively, is recorded in *S. nigrum* (71%) and *S. glauca* (71%) after peas for grain. The type of weed depended on the predecessor. Weed level in monoculture were higher than in crop rotation. Thus, the weediness of winter wheat

crops significantly depends on the predecessors, which must be taken into account by specialists of agricultural formations when developing measures to control weeds in its crops. The effect of fertilizers on the weediness of winter wheat crops in the zone should be further investigated.

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3. The level of weediness of winter wheat crops during cultivation after different predecessors

Year of research	Predecessor		
	black fallow	peas for grain	winter wheat
2011	very weak	weak	average
2012	average	strong	very strong
2013	very weak	very weak	weak
2014	weak	weak	average
2015	very weak	very weak	average
2016	strong	very strong	very strong
2017	very weak	average	very strong



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Вплив попередників на видову різноманітність бур'янів у посівах пшениці озимої в Східному Лісостепу України

Мета. Визначити видовий склад бур'янів, їх домінуючу роль та встановити тип і рівень забур'яненості посівів пшениці озимої за вирощування після попередників чорний пар, горох на зерно та пшениця озима в умовах Східного Лісо-

степу України. **Методи.** Дослідження проводили шляхом маршрутних обстежень у польових дослідках, розміщених в стаціонарній дев'ятипольній паро-зерно-просапній сівозміні та в монокультурі пшениці озимої. **Результати.** Загалом, за результатами досліджень 2011—2017 рр., у посівах культури виявлено 63 види бур'янових рослин. В умовах сівозміни на полях пшениці озимої після чорного пару та гороху на зерно виявлено відповідно 50 та 45 видів, а в монокультурі — 41 вид. Найбільшою кількістю були представлені ярі ранні та пізні бур'янові рослини (41—49%), а друге і третє місця займали, відповідно, зимуючі, озимі та дворічні (33—37%) і багаторічні (18—22%). Основними видами бур'янів у посівах культури були: після чорного пару — *Setaria glauca*, *Chenopodium album*, *Amaranthus retroflexus*, *Solanum nigrum*, *Fumaria officinalis*, *Polygonum lapathifolium*, *Cyrtocarpus xanthifolia*, *Delphinium consolida*, *Viola arvensis*, *Erigeron canadensis*, *Cirsium arvense*; після гороху на зерно — *S. glauca*, *Echinochloa crus-galli*, *C. album*, *A. retroflexus*, *S. nigrum*, *F. officinalis*,

P. lapathifolium, *Stachys annua*, *Malva neglecta*, *Polygonum aviculare*, *D. consolida*, *Thlaspi arvense*, *V. arvensis*, *C. arvense*, *Convolvulus arvensis*; після пшениці озимої — *S. glauca*, *E. crus-galli*, *Ambrosia artemisiifolia*, *Fallopia convolvulus*, *Lactuca serriola*, *Capsella bursa-pastoris*, *D. consolida*, *Matricaria inodora*, *Crepis tectorum*. У посівах пшениці озимої найбільша частка домінування і субдомінування відповідно була за пасліним чорним (71%) і мишею сизим (71%) після гороху на зерно. Тип забур'яненості посівів пшениці озимої залежав від попередника. У монокультурі спостерігався вищий рівень забур'яненості пшениці озимої, ніж у сівозміні. **Висновки.** Раціональний підбір попередників створює підґрунтя для успішного контролювання бур'янів у посівах пшениці озимої.

пшениця озима; бур'яни; попередники; сівозміна; монокультура

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