UDC 633.85:631.25:595.7
DOI: 10.32636/agroscience.2025-(4)- 3-3

INFLUENCE OF NUTRITION SYSTEM ELEMENTS ON THE PHYTOSANITARY CONDITION OF POTATO CROP

Roman ILCHUCK, doctor of agricultural sciences, ORCID: 0000-0002-3524-4844
Volodymyr KOROL, postgraduate student, ORCID: 0000-0003-1837-4206
Institute of Agriculture of the Carpathian Region of the National Academy of Agrarian Sciences
Street Hrushevskoho, 5, Obroshyne village, Lviv district, Lviv degion, 81115, Ukraine
e-mail: volodymyr.korol.20@gmail.com

Weeds negatively affect the level of crop yields, including potatoes. Effectiveness in limiting the growth and development of weeds in crops can be achieved by selecting crop rotation, predecessor, methods of primary soil cultivation, fertilization system and protection against weeds. By correctly accounting for the segetal vegetation in potato plantations, it is possible to carry out regulatory measures regarding the number of weeds.

Unjustified use of agrotechnological and chemical measures in weed control can lead to increased costs for growing products and violations of the ecological component of the production process. The article presents the results of an experimental study of the influence of elements of the nutrition system on the weediness of potato crops. It was established that the smallest number of weeds was noted in the variant with the application of Biohumus fertilizer (4.0 t/ha locally).

For the Slauta potato variety, their number was 91.0 pcs/m^2, and for the Legenda potato variety, respectively, 93.5 pcs/m^2. The general analysis of weed types indicated that the main littering agents of potato crops in the experiment were small-year monocotyledonous and dicotyledonous weeds, which, on average, accounted for 60-75%. The rest were perennial weed types, represented by root-shoot and rhizomatous biological groups, and the ratio between weed species did not change significantly over the years of the study.

Keywords: potato, variety, nutrition, weediness.

Introduction

The most significant negative factor affecting agricultural crops' yield and quality indicators is crops' weediness. Segetal vegetation or weeds that are part of agrophytocenosis become competitors for cultivated plants in the struggle for survival and the ability to absorb nutrients. Yield losses from the weediness of crops largely depend on the onset of the development phases of cultivated plants, and the lack of timely protective agricultural measures leads to the mass death of the agrocenosis consisting of the cultural component (Shuvar I. A., Korpita G. M., 2016; Shuvar I. A., Korpita G. M., 2017; Shuvar I. A., Korpita G. M., Yunyk A. V., 2019).

As is known, the global average annual data on losses from weed infestation of winter wheat is 24-26%, corn – 29-32%, sugar beet – 37-40% and potatoes – 23-25%. These indicators indicate the results of the acute competitive struggle of cultivated plants with weeds for the main factors influencing growth and development (Yu. P. Manko et al., 1998; Shuvar I. A., 2008).

Weeds that adapt to the life of cultivated plants can acquire similar properties inherent in the latter because, as higher forms of plants, they have high ecological plasticity properties. On land, cultivated plants and weeds grow side by side and form agricultural agrophytocenoses, where, thanks to the vitality inherent in weeds, their resistance to competition is preserved.

Clogging of fields with weed vegetation leads to losses of soil moisture, i.e. weeds require significantly more moisture to form 1 kg of dry matter than cultivated plants. Some types of weeds are foci for various types of pests and pathogens of crops, and their presence significantly complicates the performance of mechanized work. Weed populations are present in agrophytocenoses, forming the so-called "component" with the species composition and number of individual weed species specific to each field (Tkalich Yu. I., Shevchenko, S. M., 2020; S. V. Masliiov et al., 2019). The properties that help weeds resist intensive anthropogenic impact have been formed in their centuries-old development history (E. M. Lebid et al., 2008; E. Yu. Morderer et al., 2014).

Weeds in potato fields also have a negative impact on yield and stolon quality. In addition, weeds are a source of the spread of pathogens of various diseases and a breeding ground for pests (Sayuk O. A., Troyachenko R. M., Pavlyuk I. O., 2019).

The potato cancer pathogen (*Synchytrium endobioticum Percival*.) can be transferred from the black nightshade (*Solanum nigrum L*.) to the crop. Weeds in potato plantings have a rather bad effect on their ventilation, which creates conditions for developing the late blight pathogen (*Phytophthora infestans (Mont) de Bary*). The sharp shoots of creeping wheatgrass (*Elytrigia repens L*.) can grow into young tubers, mechanically damage them and deprive them of their marketable appearance and appropriate quality (Tomashivskyi Z. M., Konyk G. S., Ivanyuk V. Ya., 2018; Vavrynovych O. V., 2021).

The absence of agrotechnical or chemical measures to combat weeds significantly increases the

amount of nutrients consumed by them. Accordingly, agricultural crops require a greater amount of mineral nutrients to form an appropriate harvest (Tsykov V. S., Matyukha L. P., Tkalich Yu. I., 2007). According to scientists, pink thistle and creeping wheatgrass can remove 67 and 46 kg of nitrogen, 29 and 32 kg of phosphorus, and 160 and 69 kg of potassium from 1 ha of land during one growing season (Sayko V. F., Maliyenko A. M., 2007; Pacanoski Z., Mehmeti A., 2018).

Studies have proven that creating the most favourable conditions for the germination of weed seeds in the surface layers of the soil is possible by turning the soil to a depth of 4–5 cm, and increasing this depth to 10 cm significantly weakens its viability and contributes to the death of a significant part of it.

Regarding weed control measures, the methods and depth of the main soil cultivation and crop care play an important role. Shallow and "zero" cultivation lead to a significant increase in weed infestation, which requires the use of chemicals (Krivenko A. I., Pochkolina S. V., Bezedi, N. G., 2019).

In this regard, it is necessary to know that the economic threshold of harmfulness depends on the number of weeds, and the fight against them becomes expedient and effective. For this, scientists conduct a detailed study of the genus and species composition, the number of weeds in individual crops, and, on average, across crop rotation under different systems, methods, and depths of main soil cultivation (Borger Catherine P. D., Hashem Abul Gill, Gurjeet S., 2020).

Today, the main task of scientists and agricultural producers is to eradicate weeds, but this is practically impossible to achieve. It is possible to reduce the number of weeds and the damage they cause to a practically insignificant amount. Monitoring the state of potato crops for actual weed infestation and timely protection work minimizes losses in gross tuber yield (O. Vavrynovych, O. Kachmar., 2023).

Ukraine's leading natural and climatic zones favour potato cultivation, allowing its cultivation almost everywhere. However, in potato plantations, as in other agrocenoses, an increase in the number of weeds is noted. Potatoes, by their morpho-biological characteristics, have a relatively long period between planting and the appearance of seedlings, which allows a significant number of weeds to emerge and develop. They become competitors for potatoes in the "struggle" not only for light, moisture, and nutrients but also accumulate harmful organisms in the form of diseases and pests.

The most typical and widespread weeds for potato plantations are common amaranth (*Amaranthus retroflexus L.)*, white quinoa (*Chenopodium album L.*), wild radish (*Raphanus raphanistrum L.*), various types of thistles (*Sonchus*), field bindweed (Convolvulus arvensis L.), creeping wheatgrass (*Elytrigia repens L.*), small-flowered galinsoga (*Galinsoga parviflora Cav.)* (Vavrynovych O. V., Kachmar O. Y., Dubytsky O. V., 2018).

By properly recording the weed vegetation in potato plantations, it is possible to implement regulatory measures regarding the number of weeds. Unjustified use of agrotechnical and chemical measures in weed control can lead to increased costs for growing products and violations of the ecological component of the production process. Taking into account that potatoes are practically the main food product, the use of plant protection products is necessary for each specific case, where it is necessary to take into account the quantitative and species composition of the weed component, determine and establish a forecast of weediness and soil contamination (Vavrynovych O. V., 2023).

Materials and methods

The study was carried out on the fields of a 4-field crop rotation of the Department of Crop Breeding of the Institute of Agriculture of the Carpathian Region of the National Academy of Sciences of Ukraine, located in the village Obroshyne, Lviv district, Lviv region. Winter grains were sown as a predecessor to potatoes with post-harvest sowing of sideral crops.

Mineral fertilizers were applied in the form of nitroammophoska ($N_{16}P_{16}K_{16}$); the lack of potassium was balanced by introducing potassium magnesium ($K_{28}Mg_8S_{15}$).

The soils under the experiments were greyforest surface-gleyed coarse-silty-light-coal on loess-like deposits. They are heterogeneous in terms of the profile of the mechanical composition, and their moisture regime largely depends on this.

Brief characteristics of organic fertilizer – dry granulated chicken manure: total nitrogen – 2.8-2.3%; ammonium nitrogen – 0.8-0.7 %; mobile phosphorus – 2.6-2.1 %; mobile potassium – 2.0-2.4 % moisture – 18.1 %; looseness – 12.8 %; acidity – 7.6 %.

Biohumus fertilizer is an ecological fertilizer with a large number of humic substances and a whole complex of beneficial microorganisms necessary for the formation of a fertile soil layer. It is ideal for fertilizing all types of crops. Promotes the resuscitation of depleted soils and improves the air-water balance of soils with a high clay content. Composition: concentrated fertilizer, which contains in a balanced combination a whole complex of necessary nutrients and trace elements, soil enzymes, antibiotics, vitamins, plant growth and development hormones. Biohumus contains a large number of humic substances and a unique coexistence of microorganisms that contribute to the creation of soil fertility. Purpose: used as the leading organic fertilizer when planting and fertilizing all types of crops in forestry and floriculture, as well as in soil resuscitation and reclamation. The advantages of the fertilizer are increasing yield by 40%, reducing the time of seed germination and fruit ripening by 15-20%, minimizing the ability of plants to accumulate nitrates, increasing the biological value of the crop, and

increasing the amount of vitamin C, sugars, biologically active substances, which are indispensable for humans, and strengthening the immunity of plants.

Bioactive fertilizer is an environmentally friendly organic fertilizer made by controlled biofermentation based on bird droppings and pond organic peat. Composition: total nitrogen – 2.3-3.5 %, phosphorus – 2.3-3.2 %, potassium – 1.0-1.4 %; trace elements: magnesium – 300-400 mg/l, copper – 60-80 mg/l, iron – 10 mg/l, as well as zinc, cobalt, boron, copper, molybdenum, etc.

The advantages of the fertilizer are providing plants with easily accessible forms of nutrients, increasing the yield of crops, improving the quality of grown products, blocking the transfer of heavy metals, radionuclides, nitrates, and pesticide residues from soil to plants, has a prolonged effect (from the moment of application throughout the growing season) and the next 2-3 years; strengthens plant immunity; increases soil microbiological activity; increases field germination of plants, improves stress resistance. Certified – "Organic Standard" (Organic Production Certification Body, Ukraine) and "IMO control" (Ecocert Swiss AG, Switzerland) for the use in organic agriculture according to regulations (EC) No. 834/2007 I (EC) No. 889/2008.

The research was conducted with methodological approaches used in international practice and also met the standards of the State Standards of Ukraine and the requirements of ISO 17025. The layout scheme, the area of the experimental plots, and the repetition were carried out under: “Potato Growing: Research Methodology”, “Methodology for Evaluating Potato Varieties for Resistance to Major Pests and Diseases”, “Fundamentals of Scientific Research”, “Potato Growing: A Training Manual”, “Methodological Recommendations for Conducting Research with Potatoes” and “Methodology for Conducting Field Research to Determine Weeds and the Effectiveness of Their Control Means in Agrophytocenoses” (Bondarchuk A. A., Koltunov V. A., 2019; I. O. Fedosiy et al. 2022; Bondarchuk A. A., Oliynyk T. M., 2020; Veselovsky I. V., Manko Yu. P., Kozubsky O. B., 1993; Lebid E. M., Tsykov V. S., Matyukha L. P., 2008; Veselovsky I. V., Lysenko A. K., Manko Yu. P., 1988; V. M. Polozhenets et al., 2024).

Results and discussion

One of the factors limiting the realization of the potential yield of potato plants is the degree of soil contamination of the arable layer with seeds and vegetative organs of reproduction of segetal vegetation.

Reducing weed infestation of crops is one of the main factors of the effectiveness of any agro-technological measure. This problem is especially relevant for implementing the so-called "ecological farming", which involves replacing mineral fertilizers with organic ones. According to scientists, the contamination of arable land in the last 20-25 years has increased almost 10 times and today amounts to 1.5-2.0 billion weed seeds in the arable layer of soil (Volkogon V. V., 2010).

Studies by scientists (Koval A. V., Ilchuk R. V., 2019) have established that the yield on littered fields for grain crops can decrease by 26.0-35.0, and for potatoes by 33.0-36.0 %.

The introduction of intensive farming makes it possible to influence the degree of soil littering with weed seeds due to factors such as crop rotation, basic tillage system, organic fertilisers' application, and a complex of plant protection products. Using fertilisers, it is possible to increase crop yield and reduce the proportion of weeds because, at the same time, the competition between the cultivated plant and the weeds increases. However, this does not always work because the application of organic fertilisers can significantly affect the increase in weediness and the development of their vegetative mass, which has been proven by studies by a number of scientists (Kravchuk M. M. et al., 2019).

Manure, as the leading organic fertilizer, is the main factor affecting the weediness of fields because it contains many weed seeds, which, when passing through the gastrointestinal tract of ruminants, not only do not lose their germination but are even more stimulated. According to some reports, in 1 ton of manure or compost, the number of seeds can be several tens or even hundreds of millions of pieces (Ilchuk R. V., 2016).

Our studies have shown that a significant increase in the number of weeds was observed with 40 t/ha of manure and the same amount of manure combined with mineral fertilizers (Table). In these variants of the feeding system, the number of weeds increased by 50 % compared to the control variant (without fertilizers). When manure (40 t/ha) was applied in combination with the recommended dose of mineral nutrition, the number of weeds per 1 m^2 was the highest for the Legenda potato variety and amounted to 170.5 pcs., and for the Slauta potato variety, respectively, 159.5 pcs.

The application of manure only (40 t/ha) to both potato varieties included in the study also showed high results in terms of crop littering. It was 167.0 pcs/m^2 for the Slauta variety and 167.5 pcs/m^2 for the Legenda variety.

A low number of weeds was noted in the variants of the feeding system, which provided for the application of the recommended dose of fertilizers, dry granulated chicken manure and Bioactive fertilizer (8.0 t/ha, locally) under potatoes. This contributed to the trend of reducing weed infestation of potato crops. Under the above variants, the number of weeds per 1 m^2 decreased by 68-75 pcs/m^2 for the early-ripening potato variety Spas and 73-75 pcs/m^2 for the mid-ripening potato variety Legenda.

On average, over the years of research, these indicators ranged from 96.5 pcs/m^2 for the application

of Bioactive fertilizer (8.0 t/ha) to 103.5 pcs/m^2 for the application of dry granulated chicken manure (0.5 t/ha) for the Slauta variety and from 95.5 pcs/m^2 for the application of the recommended dose of fertilizer $N_{90}P_{90}K_{120}$ to 107.0 pcs/m^2 for the application of dry granulated chicken manure (0.5 t/ha) for the Legenda potato variety.

Table. Number of weeds depending on the dose of fertilizer application for potato cultivation, average for 2023-2024, pcs/m^2

Research options	Year of study		Average of 2023-2024
	2023	2024	
v. Slauta			
Without fertilizer (control)	100	102	101.0
Manure, 40 t/ha + $N_{90}P_{90}K_{120}$	167	152	159.5
Recommended fertilizer dose $N_{90}P_{90}K_{120}$	99	98	98.5
Manure, 40 t/ha	168	166	167.0
Granulated chicken manure, 0.5 t/ha	107	101	103.5
Biohumus, 4.0 t/ha (locally)	92	90	91.0
Bioactive, 8.0 t/ha (locally)	96	97	96.5
HIP_{05}	1.80	1.99	1.80-1.99
v. Legenda			
Without fertilizer (control)	105	109	106.0
Manure, 40 t/ha + $N_{90}P_{90}K_{120}$	171	170	170.5
Recommended fertilizer dose $N_{90}P_{90}K_{120}$	95	96	95.5
Manure, 40 t/ha	168	167	167.5
Granulated chicken manure, 0.5 t/ha	109	105	107.0
Biohumus, 4.0 t/ha (locally)	93	94	93.5
Bioactive, 8.0 t/ha (locally)	98	97	97.5
HIP_{05}	2.04	1.83	1.83-2.04

The smallest number of weeds was noted in the variant with the application of Biohumus fertilizer (4.0 t/ha locally), where for the potato variety Slauta their number was 91.0 pcs/m^2, and for the potato variety Legenda, respectively, 93.5 pcs/m^2. A general analysis of weed types was also conducted. Analyzing the research data, it should be noted that the main littering agents of potato crops in the experiment were young monocotyledonous and dicotyledonous weeds, which, on average, amounted to 60-75 %. The rest were perennial types of weeds, which were represented by root-shoot and rhizome biological groups. The Figure shows, that the ratio between weed types did not change significantly over the years of the research.

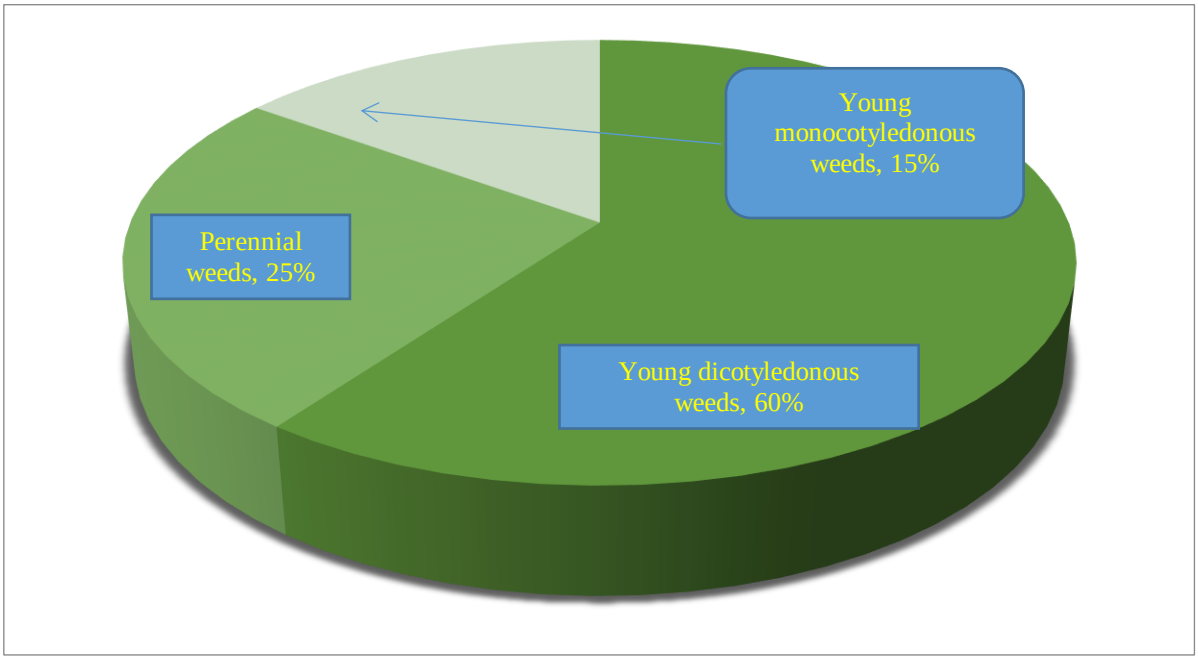

Figure. Types of weeds present in potato crops, average for 2023-2024

Conclusions

It is necessary to know the nature and degree of weediness, their dynamic indicators of growth and development during the growing season, and the influence of such a factor in potato growing technology as nutrition to carry out timely measures to combat weeds in potato crops.

It is advisable to introduce into production the most effective elements of the nutrition system at which the intensity of weeding is the lowest to reduce segetal vegetation in potato crops and obtain high tuber yields.

The primary nutrition for the crop should be Biohumus fertilizers (4.0 t/ha, locally) and Bioactive (8.0 t/ha, locally) and dry granulated chicken manure (0.5 t/ha) in doses that are proposed by the results of the conducted research.

References

Bilinska O. M. et al. (2021). The effect of using the drug Albit on the formation of seed productivity of pre-basic potato material. Visnyk ahrarnoi nauky Prychornomoria. 2021. Issue 2. P. 71-79. https://bsagriculture.com.ua/en/journals/tom-25-2-2021/vpliv-zastosuvannya-preparatu-albit-na-formuvannya-nasinnyevoyi-produktivnosti-dobazovogo-materialu-kartopli.

Borger Catherine P. D., Hashem Abul Gill, Gurjeet S. Comparison of growth, survivorship, seed production and shedding of eight weed species in a wheat crop in Western Australia. *Weed Research*, 2020. Vol. 60, Is. 6, P. 415–424. doi: 10.1111/wre.12444.

Burda R. I. The concept of modern science on segetal weeds. *Agroecological Journal*. 2002. No. 1. P. 3–11.

Change in soil and potato productivity agrophysical indicators under soil protection technologies / Kravchuk M. M. et al. *Scientific horizons*. 2019. No. 11 (84). P. 61-68. doi: 10.33249/2663-2144-2019-84-11-61-68.

Determination of agrophytocenosis of weeds in modern technologies of winter wheat cultivation / S. V. Masliiov et al. *Karantyn i zakhyst roslyn*. 2019. Vol. 11–12 (258). P. 1–4 doi: 10.36495/2312-0614.2019.11-12.1-4.

Fedoruk Yu.V., Molotskyi M. Ya. (2008). Changes in the biochemical composition of potato tubers depending on the variety and fertilizers in the Central Forest-Steppe of Ukraine. Kartopliarstvo. Issue. 37. P. 194-212.

Fundamentals of scientific research in agronomy / V. M. Polozhenets et al. 2024. 168 p.

Herbological substantiation of the competitiveness of agricultural crops in farming systems: Monograph / O. Vavrynovych, O. Kachmar. Obroshyne: Publishing House of the Institute of Agriculture of the Carpathian Region of the NAAS. 2023. 152 p.

Ilchuk R. V. Patterns of potato yield and quality formation depending on agrotechnical factors in the Western Forest-Steppe: author's abstract. Dissertation for the obtaining degree of Doctor of Agricultural Sciences: 06.01.09. *National University of Life Resources and Environmental Management of Ukraine*. 2016. 43 p.

Krivenko A. I., Pochkolina S. V., Bezedi, N. G. Weeds species and weediness in winter wheat crops depending on predecessors and different systems of basic soil tillage in the Black Sea Steppe Region. *Tavriiskyi naukovyi visnyk*. 2019. Vol. 108. P. 53–62 doi: 10.32851/2226-0099.2019.108.8.

Koval A. V., Ilchuk R. V. The influence of macro- and microelements on the productivity of potatoes and other agricultural crops. *Foothill and mountain farming and animal husbandry*. 2019. Issue 66. P. 103-116. DOI: http://phzt-journal.isgkr.com.ua/ua-66/7.pdf.

Lebid E. M., Tsykov V. S., Matyukha L. P. Methodology for conducting field studies to determine weed infestation and the effectiveness of their control in agrophytocenoses. Dnipropetrovsk, 2008. 36 p.

Methodology for conducting field experiments to determine weed infestation and the effectiveness of its control measures in agrophytocenoses / E. M. Lebid et al. *Institute of Grain Economy of the NAAS.* 2008. P. 5–7.

Pacanoski Z., Mehmeti A. POST herbicide program for effective weed control in winter wheat (*Triticum aestivum L.*). *Agronomy Research*. 2018. Vol. 16(4), R. 1796-1808. doi: 10.15159/AR.18.177.

Potato growing: breeding / edited by A. A. Bondarchuk, T. M. Oliynyk. 2020. 624 p.

Potato growing: research methodology / Edited by A. A. Bondarchuk, V. A. Koltunov. 2019. 652 p.

Potato growing: textbook / I. O. Fedosiy et al. 2022. 382 p.

Sayko V. F., Maliyenko A. M. Soil cultivation systems in Ukraine. 2007. 44 p.

Sayuk O. A., Troyachenko R. M., Pavlyuk I. O. Species composition of the weed component of the potato agrocenosis. *Bulletin of the Poltava State Agrarian Academy. Series: Agriculture, crop production*. 2019. No. 1. P. 35–40. https://www.pdau.edu.ua/sites/default/files/visnyk/2019/01/06.pdf

Tsykov V. S., Matyukha L. P., Tkalich Yu. I. Efficiency of weed control agents in corn cultivation. *Bulletin of Agrarian Science*. 2007. No. 7. P. 19–24.

Shuvar I. A. Ecological foundations of reducing weed infestation in different agrophytocenoses. 2008. 494 p.

Shuvar I. A., Korpita G. M. Productivity of agrocenoses of spring barley and potatoes depending

on the type and degree of their weeding. *International periodic scientific journal*. 2016. Issue 2 Part 2. https://elibrary.kubg.edu.ua/id/eprint/35623/1/Proshkin_SW_7_FiTu.pdf

Shuvar I. A., Korpita G. M. The influence of elements of cultivation technology on weediness and productivity of spring barley and potatoes. *Collection of scientific papers of the National Scientific Center "Institute of Agriculture of the NAAS"*. 2016. Issue 3-4. P. 71-81. http://nbuv.gov.ua/UJRN/znpzeml_2016_3-4_9.

Shuvar I. A., Korpita G. M., Yunyk A. V. Productivity of spring barley and potatoes in agrocenoses of the Western Forest-Steppe of Ukraine: monograph. 2019. 150 p. http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21ID=&S21REF=10&S21CNR=20&S21STN=1&S21FMT=ASP_meta&C21COM=S&2_S21P03=FILA=&2_S21STR=nvnau_agr_2016_235_1112.

Tkalich Yu. I., Shevchenko, S. M. Features of protection of winter wheat crops from weeds in crop rotation after sunflower. *Karantyn i zakhyst roslyn*, 2020. Vol. 2-3. P. 45–49 doi: 10.36495/2312-0614.2020.2-3.45-49

Tomashivskyi Z. M., Konyk G. S., Ivanyuk V. Ya. Herbology with the basics of agriculture and agroecology: a methodological manual/scientific editor Z. M. Tomashivskyi. 2018. 322 p.

Vavrynovych O. V. Agrotechnical methods of weed control in crops. *Visnyk Agroforum*. 2021. No. 8 (149). P. 10–14.

Vavrynovych O. V. Scientifically grounded ecologically adapted principles of agrocenosis formation in the agricultural systems of the Western Forest-Steppe. Scientific and practical recommendations. Obroshyne: [B. v.], 2023. 36 p.

Vavrynovych O. V., Kachmar O. Y., Dubytsky O. V. The influence of the crop rotation factor on the herbological condition of grain and legume crops. Plant Protection and Quarantine. 2018. Issue 64. P. 24-33.

Veselovsky I. V., Manko Yu. P., Kozubsky O. B. Handbook of weeds. 1993. 208 p.

Veselovsky I. V., Lysenko A. K., Manko Yu. P. Atlas-determinant of weeds. 1988. 371 p.

Volkogon V. V. Biological state and fertility of soils of Ukraine. *Handbook of the Ukrainian farmer*. 2010. P. 56-60.

Weeds and measures to combat them effectively / Yu. P. Manko et al. *Educational and methodological Centre of the Ministry of Agriculture of Ukraine*, 1998. 240 p.

Weed control in crops using herbicides: monograph / E. Yu. Morderer et al. Corresponding editor V. V. Morgun. 2014. 259 p. https://nvd-nanu.org.ua/c92f5b03-9e25-6b09-9278-a7bee16c05f1.

ВПЛИВ ЕЛЕМЕНТІВ СИСТЕМИ ЖИВЛЕННЯ НА ФІТОСАНІТАРНИЙ СТАН ПОСІВІВ КАРТОПЛІ

Роман ІЛЬЧУК, ORCID: 0000-0002-3524-4844
Володимир КОРОЛЬ, ORCID: 0000-0003-1837-4206
Інститут сільського господарства Карпатського регіону НААН

Бур’яни негативно впливають на рівень урожайності сільськогосподарських культур в тому числі і картоплі. Результативності щодо обмеження росту і розвитку бур’янів у посівах можна досягти шляхом підбору сівозміни, попередника, способів основного обробітку ґрунту, системи удобрення та захисту від бур’янів. Проведенням належного обліку сегетальної рослинності у насадженнях картоплі можливо здійснювати заходи регулювання щодо чисельності бур’янів.

Необґрунтоване застосування агротехнологічних та хімічних заходів у боротьбі з бур’янами може призвести підвищення витрат на вирощування продукції та до порушень екологічної складової виробничого процесу. У статті наведено результати експериментального дослідження впливу елементів системи живлення на забур’яненість посівів картоплі. Встановлено, що найменшу кількість бур´янів відзначено на варіанті за внесення добрива біогумус (4,0 т/га локально).

Для сорту картоплі Слаута їх кількість становила 91,0 шт/м^2, а для сорту картоплі Легенда відповідно 93,5 шт/м^2. Проведений загальний аналіз типів бур´янів вказав на те, що основними засмічувачами посівів картоплі у досліді були малорічні одно- та двосім’ядольні бур’яни, які в середньому становили 60-75 %, а решту становили багаторічні типи бур’янів, що були представлені коренепаростковими та кореневищними біологічними групами, а співвідношення між видами бур’янів за роки виконання дослідження істотно не змінювалося.

Ключові слова: картопля, сорт, живлення, забур’яненість.

Отримано: 22.5.2025
Погоджено до друку: 10.7.2025
Опубліковано: 30.9.2025