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Dynamics of the land fund: how the land resources of Ukraine changed after February 24, 2022

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The RF's military invasion of Ukraine, military actions, and the occupation of the territories led to significant pollution of the Ukrainian agricultural land and made it impossible to use these lands in agricultural production for many years after the end of the military conflict.

To assess the resource potential and forecast the development of the agricultural sector of the country's economy, it is necessary to assess the consequences of the war, in particular, to determine the area of land that became inaccessible due to military aggression. Inaccessible lands are the territories occupied by the aggressor country before the February 24, 2022, territories of troop transfer since February 24, 2022, occupied and de-occupied territories and lands contaminated by mines[1].

As part of a joint initiative of the Polissya National University, the KSE Agrocenter and the National University of Life and Environmental Sciences of Ukraine, a study was conducted, the purpose of which is to clarify the area of the land fund of Ukraine as a whole and in terms of its individual components (namely: forests and other wooded lands, agricultural lands, including arable land and fallows, hayfields and pastures) taking into account the consequences of occupation, mining and conducting active combat operations.

The research uses data from the ecological passports of the administrative regions of Ukraine[2] and the results of joint research by the World Bank, the Government of Ukraine, the European Commission, and the United Nations regarding the assessment of damage and losses suffered by Ukraine in the period from February 2022 to February 2023 as a result of the full-scale invasion of the Russian Federation[3]. The relevant calculations are based on the assumption that the specified types of land are evenly distributed within the territories of the administrative regions of Ukraine.

[1] UKRAINE Rapid Damage and Needs Assessment February 2022 – February 2023. March 2023, the World Bank, the Government of Ukraine, the European Union, the United Nations, p. 117. https://ukraine.un.org/sites/default/files/2023-03/P1801740d1177f03c0ab180057556615497.pdf

[2] https://mepr.gov.ua/diyalnist/napryamky/ekologichnyj-monitoryng/ekologichni-pasporty/

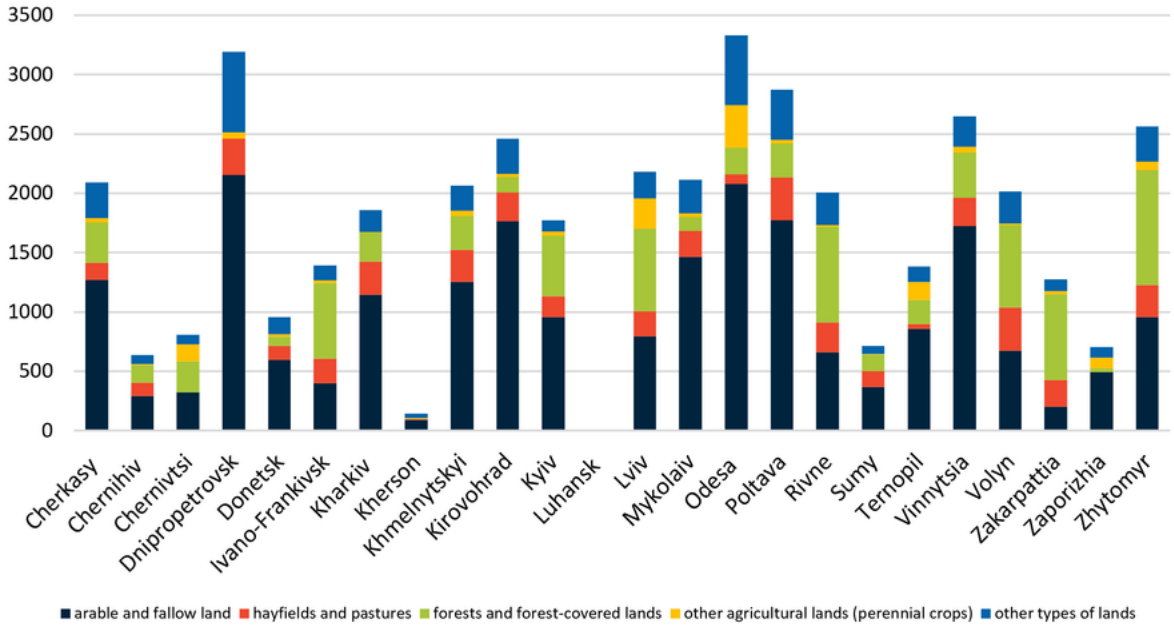
[3] UKRAINE Rapid Damage and Needs AssessmentFebruary 2022 – February 2023. March 2023, the World Bank, the Government of Ukraine, the European Union, the United Nations. https://ukraine.un.org/sites/default/files/2023-03/P1801740d1177f03c0ab180057556615497.pdf

Results

According to the study made by the World Bank, the Government of Ukraine, the European Commission, and the UN, regions with the largest share of territory affcected by the full-scale invasion of the Russian Federation in 2022 are Luhansk (100%), Kherson (95%), Chernihiv (80%), Zaporizhia (74%), Sumy (70%) and Donetsk (64%) oblasts **(Fig.1)**.

In general, the share of the territory of Ukraine affected by occupation, mining and hostilities in the total area of the country was 31.74% **(Table 2, Appendix)**. The area of affected agricultural land in 2022 was 10514.13 thousand ha, and the area of land that could be used for agricultural activities that year was 32924.00 thousand ha, which is 26.04% less compared to the area before the beginning the full-scale invasion. The area of arable land and fallow land, which did not undergo changes during the RF military aggression, was 22280.45 thousand hectares, which is 31.93% less than before the start of the invasion. The area of hayfields and pastures decreased by 43.45%, primarily due to the fact that the largest share of these lands is concentrated in the regions most affected by military actions - from 17.5% in Chernihiv Oblast to 21.88% in Luhansk Oblast. As of forests and other wooded lands, their area compared to the pre-war period decreased by 26.05% from 10686.6 to 7903.03 thousand hectares.

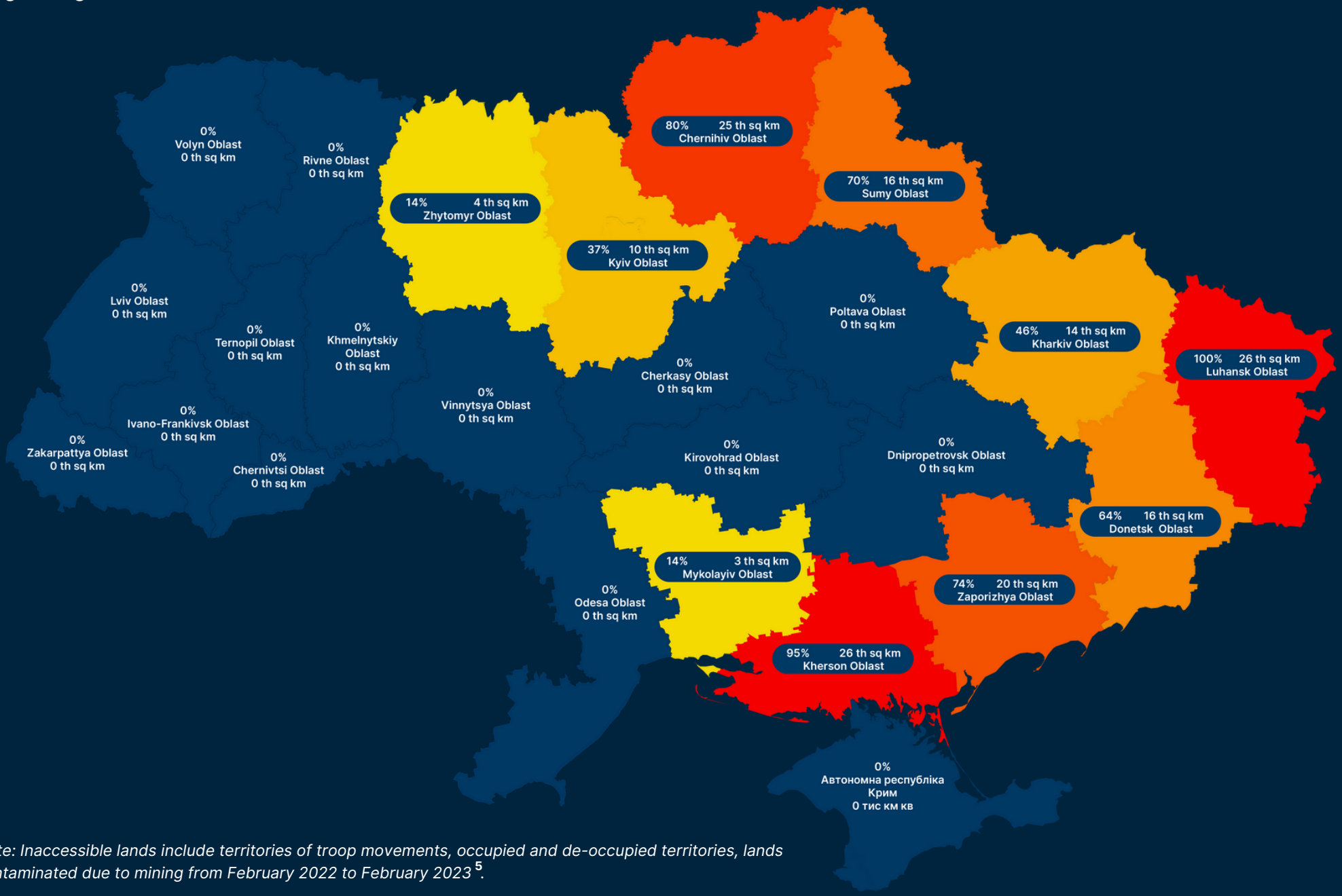
Figure 2. The amount of available land after the invasion, in thousands of hectares



Note: Calculated as of beginning of 2023.
Source: Calculated according to the data of ecological passports of administrative regions of Ukraine [4]

[4] https://mepr.gov.ua/diyalnist/napryamky/ekologichnyj-monitoryng/ekologichni-pasporty/

Figure 1. Inaccessible lands as a result of the military aggression of the Russian Federation, by regions, as of the beginning of 2023.

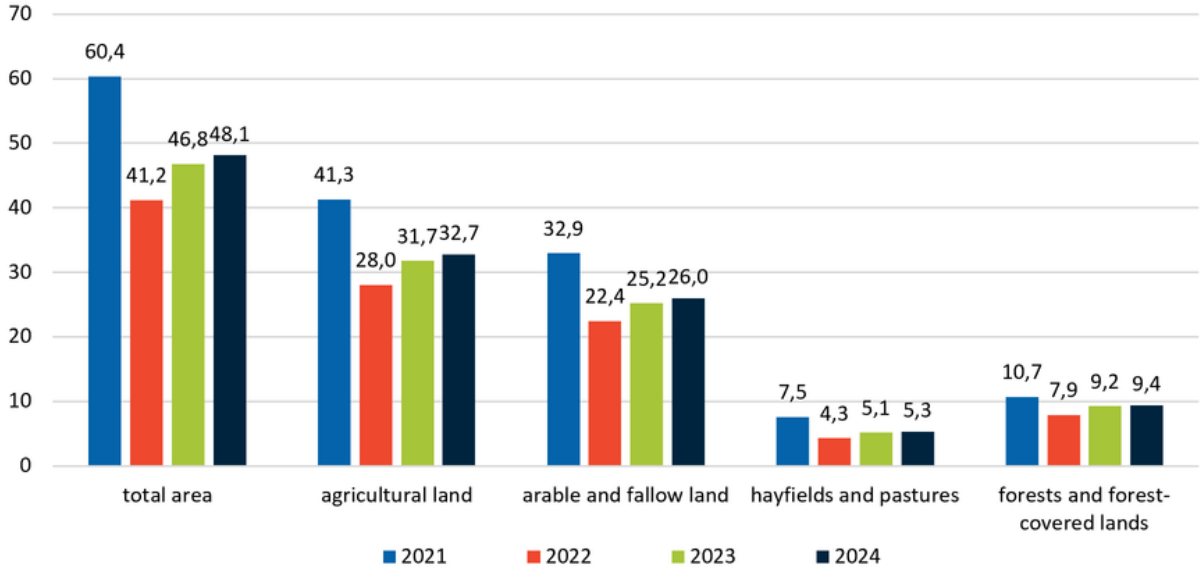


Note: Inaccessible lands include territories of troop movements, occupied and de-occupied territories, lands contaminated due to mining from February 2022 to February 2023 [5].

[5] built on data [https://mepr.gov.ua/diyalnist/napryamky/ekologichnyj-monitoryng/ekologichni-pasporty/, https://ukraine.un.org/sites/default/files/2023-03/P1801740d1177f03c0ab180057556615497.pdf]

As a result of the successful actions of the Armed Forces of Ukraine in 2022 and at the beginning of 2023, the territories of Kyiv, Zhytomyr, and Chernihiv regions were deoccupied; part of the lands of the Mykolaiv and Sumy regions were also returned, however, 3 and 15% remained under occupation, respectively. As a result, in 2023, the total area of Ukraine's land resources, excluding occupied territories, zones of active combat operations, zones along the Ukrainian-Russian border and other territories where economic activity is impossible, increased by 13.58% to 46787.98 thousand hectares, compared to 2022. In particular, the area of agricultural land increased by 13.19% (including due to the increase of arable land and fallow land by 12.31%), and the area of forests and wooded land - by 16.73% **(Fig. 3)**.

Figure 3. Dynamics of land resources of Ukraine in 2021–2024, millions of hectares



As of the beginning of 2024, the area of the territories of Ukraine suitable for conducting economic activity amounted to 48109.77 thousand hectares, that is, it increased by 16.78% compared to 2022 and by 2.83% compared to 2023 due to the deoccupation of a part Kharkiv and Kherson regions. The area of forests on wooded lands increased by 18.53% compared to 2022, agricultural land - by 16.69%, in particular arable land and fallow land - by 15.31%, hayfields and pastures - by 24.07%.

Appendix

Table 1. Distribution of land resources of Ukraine by regions, 2021

Administrative region (oblast)	Total area, thsd ha	Agricultural land	Arable and fallow land	Hayfields and pastures	Forests and forest-covered lands
Cherkasy	2091.60	1451.57	1280.06	143.27	338.84
Chernihiv	3190.30	2060.93	1477.11	558.30	746.53
Chernivtsi	809.60	469.57	324.65	0.00	258.26
Dnipropetrovsk	3192.30	2512.02	2152.57	309.01	0.00
Donetsk	2657.70	2046.43	1655.83	329.55	204.64
Ivano-Frankivsk	1392.70	630.89	404.00	210.20	635.07
Kharkiv	3441.82	2639.88	2123.60	516.27	457.76
Kherson	2846.10	1966.66	1787.35	156.54	153.69
Khmelnytskiy	2062.90	1565.74	1254.24	270.24	286.74
Kirovohrad	2458.80	2032.20	1764.68	242.44	130.81
Kyiv	2816.20	1855.88	1529.20	278.80	811.07
Luhansk	1838.97	1401.30	989.00	402.37	246.05
Lviv	2183.10	1261.83	794.65	211.76	694.23
Mykolayiv	2458.55	1993.88	1706.23	253.23	135.22
Odesa	3331.38	2517.19	2104.10	82.29	223.54
Poltava	2875.00	2164.88	1776.46	359.38	284.63
Rivne	2005.10	926.36	661.68	254.65	806.05
Sumy	2383.20	1696.84	1227.35	448.04	459.96
Ternopil	1382.47	1050.68	861.28	40.09	201.84

Vinnytsya	2649.20	2014.19	1726.48	236.31	380.43
Volyn	2014.40	1047.49	672.81	362.59	696.98
Zakarpattya	1275.30	451.46	200.22	224.45	724.37
Zaporizhya	2718.30	2242.60	1902.81	0.00	119.61
Zhytomyr	2982.70	1509.25	1175.18	313.18	1124.48
Ukraine	57057.69	39509.68	31551.55	6202.97	10120.78

Table 2. Distribution of land resources of Ukraine by regions, 2022

Administrative region (oblast)	Total area before the invasion, thsd ha	Share of inaccessible lands, %	Accessible lands, thsd ha				
			Total area	Agricultural land	Arable and fallow land	Hayfields and pastures	Forests and forest-covered lands
Cherkasy	2091.60	0	2091.60	1451.57	1280.06	143.27	338.84
Chernihiv	3190.30	80	638.06	412.19	295.42	111.66	149.31
Chernivtsi	809.60	0	809.60	469.57	324.65	0.00	258.26
Dnipropetrovsk	3192.30	0	3192.30	2512.02	2152.57	309.01	0.00
Donetsk	2657.70	64	956.77	736.71	596.10	118.64	73.67
Ivano-Frankivsk	1392.70	0	1392.70	630.89	404.00	210.20	635.07
Kharkiv	3441.82	46	1858.58	1425.53	1146.75	278.79	247.19
Kherson	2846.10	95	142.31	98.33	89.37	7.83	7.68
Khmelnytskiy	2062.90	0	2062.90	1565.74	1254.24	270.24	286.74
Kirovohrad	2816.20	37	1774.21	1169.20	963.39	175.65	510.97
Kyiv	2458.80	0	2458.80	2032.20	1764.68	242.44	130.81
Luhansk	1838.97	100	0.00	0.00	0.00	0.00	0.00

Lviv	2183.10	0	2183.10	1261.83	794.65	211.76	694.23
Mykolayiv	2458.55	14	2114.35	1714.74	1467.36	217.78	116.29
Odesa	3331.38	0	3331.38	2517.19	2104.10	82.29	223.54
Poltava	2875.00	0	2875.00	2164.88	1776.46	359.38	284.63
Rivne	2005.10	0	2005.10	926.36	661.68	254.65	806.05
Sumy	2383.20	70	714.96	509.05	368.20	134.41	137.99
Ternopil	1382.47	0	1382.47	1050.68	861.28	40.09	201.84
Vinnytsya	2649.20	0	2649.20	2014.19	1726.48	236.31	380.43
Volyn	2014.40	0	2014.40	1047.49	672.81	362.59	696.98
Zakarpattya	1275.30	0	1275.30	451.46	200.22	224.45	724.37
Zaporizhya	2718.30	74	706.76	583.08	494.73	0.00	31.10
Zhytomyr	2982.70	14	2565.12	1297.95	1010.66	269.34	967.05
Ukraine	**57057.69**		**41194.97**	**28042.84**	**22409.87**	**4260.77**	**7903.03**
Change in % compared to the pre-war period*	–		31.74	32.12	31.93	43.45	26.05

**Note: including the area of the Autonomous Republic of Crimea.*

Table 3. Distribution of land resources of Ukraine by regions, 2023

Administrative region (oblast)	Total area before the invasion, thsd ha	Share of inaccessible lands, %	Accessible lands, thsd ha				
			Total area	Agricultural land	Arable and fallow land	Hayfields and pastures	Forests and forest-covered lands
Cherkasy	2091.60	0	2091.60	1451.57	1280.06	143.27	338.84
Chernihiv	3190.30	0	3190.30	2060.93	1477.11	558.30	746.53
Chernivtsi	809.60	0	809.60	469.57	324.65	0.00	258.26

Dnipropetrovsk	3192.30	0	3192.30	2512.02	2152.57	309.01	0.00
Donetsk	2657.70	64	956.77	736.71	596.10	118.64	73.67
Ivano-Frankivsk	1392.70	0	1392.70	630.89	404.00	210.20	635.07
Kharkiv	3441.82	46	1858.58	1425.53	1146.75	278.79	247.19
Kherson	2846.10	95	142.31	98.33	89.37	7.83	7.68
Khmelnytskiy	2062.90	0	2062.90	1565.74	1254.24	270.24	286.74
Kirovohrad	2458.80	0	2458.80	2032.20	1764.68	242.44	130.81
Kyiv	2816.20	0	2816.20	1855.88	1529.20	278.80	811.07
Luhansk	1838.97	100	0.00	0.00	0.00	0.00	0.00
Lviv	2183.10	0	2183.10	1261.83	794.65	211.76	694.23
Mykolayiv	2458.55	3	2384.79	1934.07	1655.05	245.63	131.16
Odesa	3331.38	0	3331.38	2517.19	2104.10	82.29	223.54
Poltava	2875.00	0	2875.00	2164.88	1776.46	359.38	284.63
Rivne	2005.10	0	2005.10	926.36	661.68	254.65	806.05
Sumy	2383.20	15	2025.72	1442.31	1043.25	380.84	390.96
Ternopil	1382.47	0	1382.47	1050.68	861.28	40.09	201.84
Vinnytsya	2649.20	0	2649.20	2014.19	1726.48	236.31	380.43
Volyn	2014.40	0	2014.40	1047.49	672.81	362.59	696.98
Zakarpattya	1275.30	0	1275.30	451.46	200.22	224.45	724.37
Zaporizhya	2718.30	74	706.76	583.08	494.73	0.00	31.10
Zhytomyr	2982.70	0	2982.70	1509.25	1175.18	313.18	1124.48
Ukraine	**57057.69**		**46787.98**	**31742.15**	**25184.61**	**5128.69**	**9225.63**
Change in % compared to the pre-war period*	–		22.48	23.16	23.51	31.93	13.67

**Note: including the area of the Autonomous Republic of Crimea.*

Table 4. Distribution of land resources of Ukraine by regions, 2024

Administrative region (oblast)	Total area before the invasion, thsd ha	Share of inaccessible lands, %	Accessible lands, thsd ha				
			Total area	Agricultural land	Arable and fallow land	Hayfields and pastures	Forests and forest-covered lands
Cherkasy	2091.60	0	2091.60	1451.57	1280.06	143.27	338.84
Chernihiv	3190.30	0	3190.30	2060.93	1477.11	558.30	746.53
Chernivtsi	809.60	0	809.60	469.57	324.65	0.00	258.26
Dnipropetrovsk	3192.30	0	3192.30	2512.02	2152.57	309.01	0.00
Donetsk	2657.70	64	956.77	736.71	596.10	118.64	73.67
Ivano-Frankivsk	1392.70	0	1392.70	630.89	404.00	210.20	635.07
Kharkiv	3441.82	20	2753.46	2111.90	1698.88	413.02	366.21
Kherson	2846.10	80	569.22	393.33	357.47	31.31	30.74
Khmelnytskiy	2062.90	0	2062.90	1565.74	1254.24	270.24	286.74
Kirovohrad	2458.80	0	2458.80	2032.20	1764.68	242.44	130.81
Kyiv	2816.20	0	2816.20	1855.88	1529.20	278.80	811.07
Luhansk	1838.97	100	0.00	0.00	0.00	0.00	0.00
Lviv	2183.10	0	2183.10	1261.83	794.65	211.76	694.23
Mykolayiv	2458.55	3	2384.79	1934.07	1655.05	245.63	131.16
Odesa	3331.38	0	3331.38	2517.19	2104.10	82.29	223.54
Poltava	2875.00	0	2875.00	2164.88	1776.46	359.38	284.63
Rivne	2005.10	0	2005.10	926.36	661.68	254.65	806.05
Sumy	2383.20	15	2025.72	1442.31	1043.25	380.84	390.96

Ternopil	1382.47	0	1382.47	1050.68	861.28	40.09	201.84
Vinnytsya	2649.20	0	2649.20	2014.19	1726.48	236.31	380.43
Volyn	2014.40	0	2014.40	1047.49	672.81	362.59	696.98
Zakarpattya	1275.30	0	1275.30	451.46	200.22	224.45	724.37
Zaporizhya	2718.30	74	706.76	583.08	494.73	0.00	31.10
Zhytomyr	2982.70	0	2982.70	1509.25	1175.18	313.18	1124.48
Ukraine	**57057.69**		**48109.77**	**32723.51**	**26004.85**	**5286.40**	**9367.70**
Change in % compared to the pre-war period*	–		20.29	20.79	21.02	29.84	12.34

**Note: including the area of the Autonomous Republic of Crimea.*

Contacts

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