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***“Impatto della guerra in Ucraina sulla società civile e sull’agricoltura: perdite, adattamenti e vie di resilienza”***



# Direct and indirect losses in Agrisector from Russian military aggression in Ukraine, since Feb 2022

## Scale of Damage and Losses

Total damages and losses exceed **€74 billion**.

**20% of agricultural land** is lost or contaminated.

**Every fifth farmer** is serving in the Armed Forces of Ukraine.

World Bank estimates:

- **\$11.2 billion** in direct damages
- **\$72.7 billion** in indirect losses

## Structural Challenges

Long-term pressures similar to the EU:

- Recurring droughts
- Climate change impacts
- Ageing rural population

## Sector Resilience and Performance

Despite the war, Ukraine continues **agricultural reforms** aligned with EU legislation.

In 2024, agriculture generated:

- **15% of GDP**
- **60% of export revenues**

Since 2022, Ukraine exported **230+ million tonnes** of agricultural products, earning **over \$81 billion**.

## Strategic Importance for Europe



**Ukraine's agriculture remains a pillar of national economic stability and a driver of global food security**

# TERRITORIAL CHANGES IN UKRAINE



Ukraine agricultural sector has lost \$78.3 billion from war damage, that amounts to 20% of its capital stock and 25% reduction of sowing area.

# Civil Society in Ukraine before and after full scale invasion

DIMENSION	Before the Full-Scale Invasion (Pre-2022)	After the Full-Scale Invasion (Post-2022)
Geographical Disparities	Civil activity concentrated in central and western regions; <b>Kyiv, Lviv, Kharkiv</b> dominated NGO density (approx. <b>60% of total</b> ).	Big decentralization due to displacement; civil initiatives active in <b>all 24 oblasts</b> ; increased activity in Western regions absorbing <b>5–6 million internally displaced persons (IDPs)</b> .
State–Society Relations	Public trust in government institutions averaged <b>25–30%</b> (Razumkov Centre, 2021); limited cooperation frameworks.	Trust in Armed Forces and local administrations exceeds <b>90%</b> ;
Displacement and Migration	Internal displacement affected about <b>1.5 million people</b> (since 2014, primarily Donbas).	As of 2025, over <b>5 million IDPs</b> inside Ukraine and <b>6 million refugees</b> abroad (UNHCR);
Resource Base and Sustainability	Around <b>70%</b> of NGOs relied on foreign grants;	Explosion of domestic and diaspora crowdfunding (e.g., <b>Come Back Alive, United24</b> ); over <b>\$1.8 billion</b> raised through civic and volunteer initiatives (2022–2025).
Public Engagement and Identity	Voter turnout around <b>49% (2019 elections)</b> ; civic participation moderate; regional identity divisions persisted.	Over <b>80%</b> of Ukrainians report participation in volunteering or donations (2023 KIIS survey);
Media and Information Space	Approximately <b>60%</b> of media owned by oligarchs; limited trust in news sources.	Rapid rise of <b>independent digital media</b> and <b>Telegram networks</b> for civic coordination; media trust increased to <b>~70%</b>
Policy Influence	Civil society played limited advocacy role; policy inputs mainly through donor-funded projects.	Civic actors now directly shape <b>reconstruction policy, anti-corruption monitoring, and EU integration agenda</b> ; recognized as strategic partners in Ukraine’s <b>Recovery Plan (2023)</b> .
International Linkages	Engagement mainly with <b>EU-funded</b> and <b>UN-affiliated</b> projects;	Deep collaboration with <b>European NGOs, diaspora organizations, and international donors</b> ; participation in global advocacy on sanctions and justice.

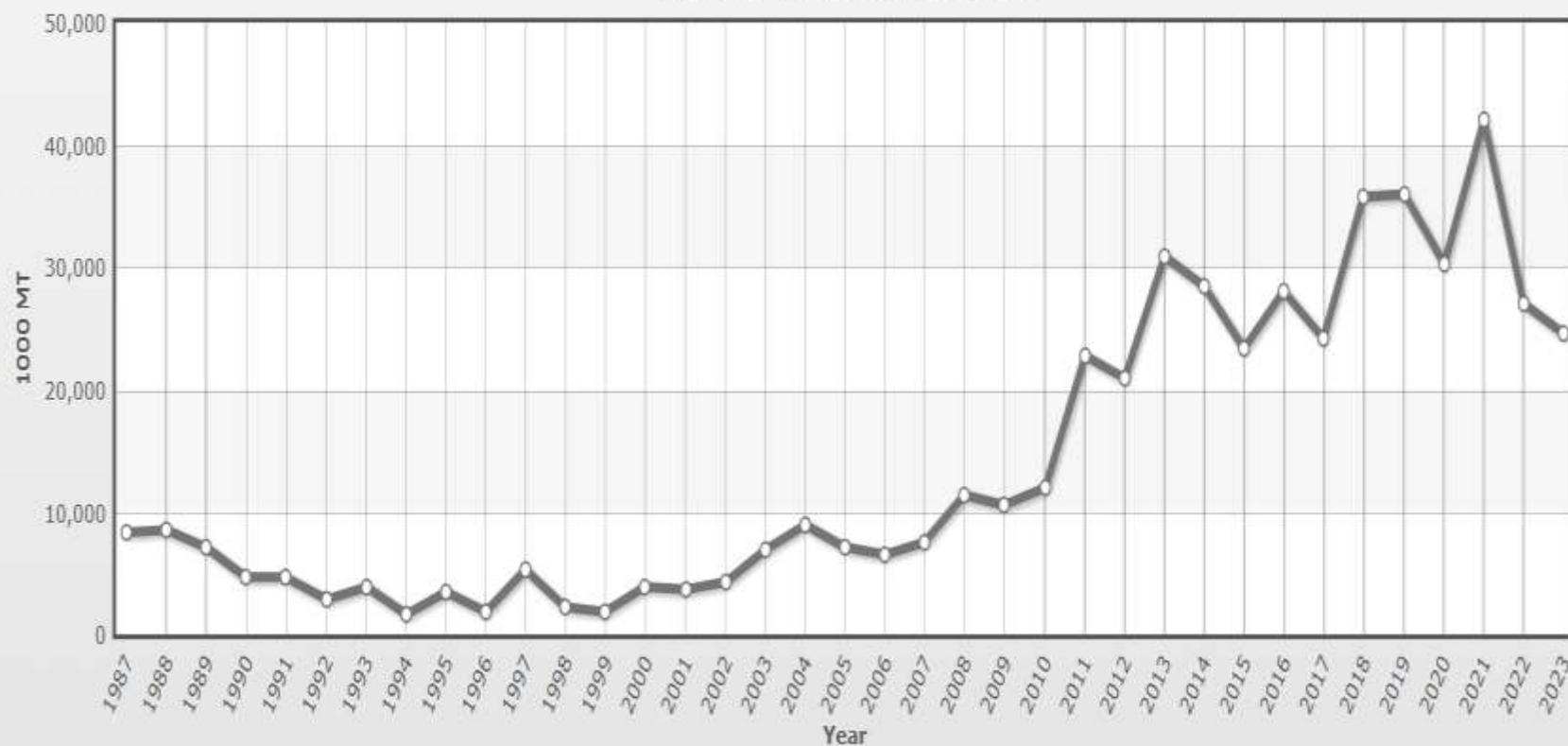
# The dynamics of wheat production in Ukraine 1987-2023





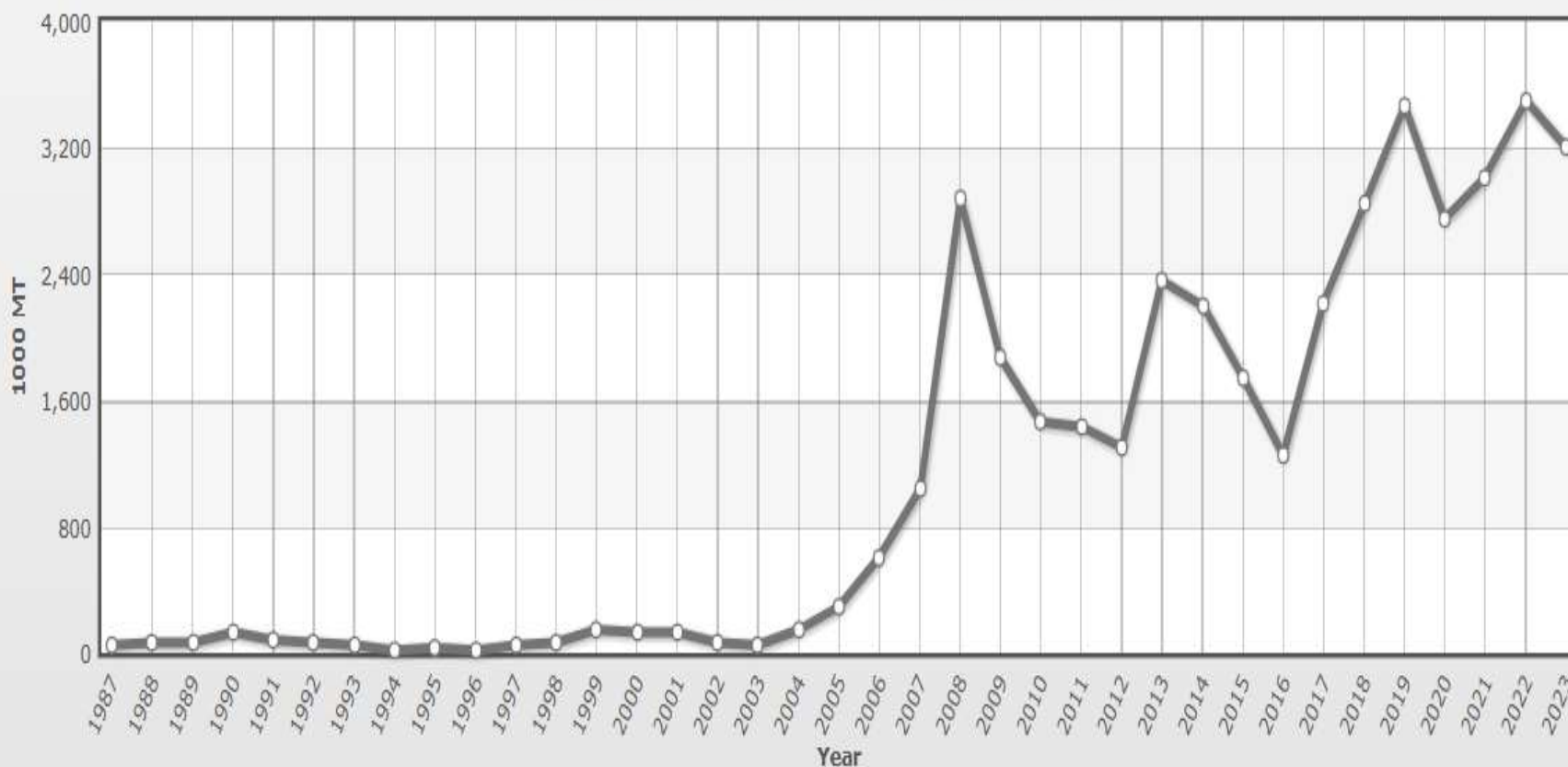
# The dynamics of corn production in Ukraine 1987-2023

Ukraine Corn Production by Year



# The dynamics of rape production in Ukraine 1987-2023

Ukraine Rapeseed Oilseed Production by Year

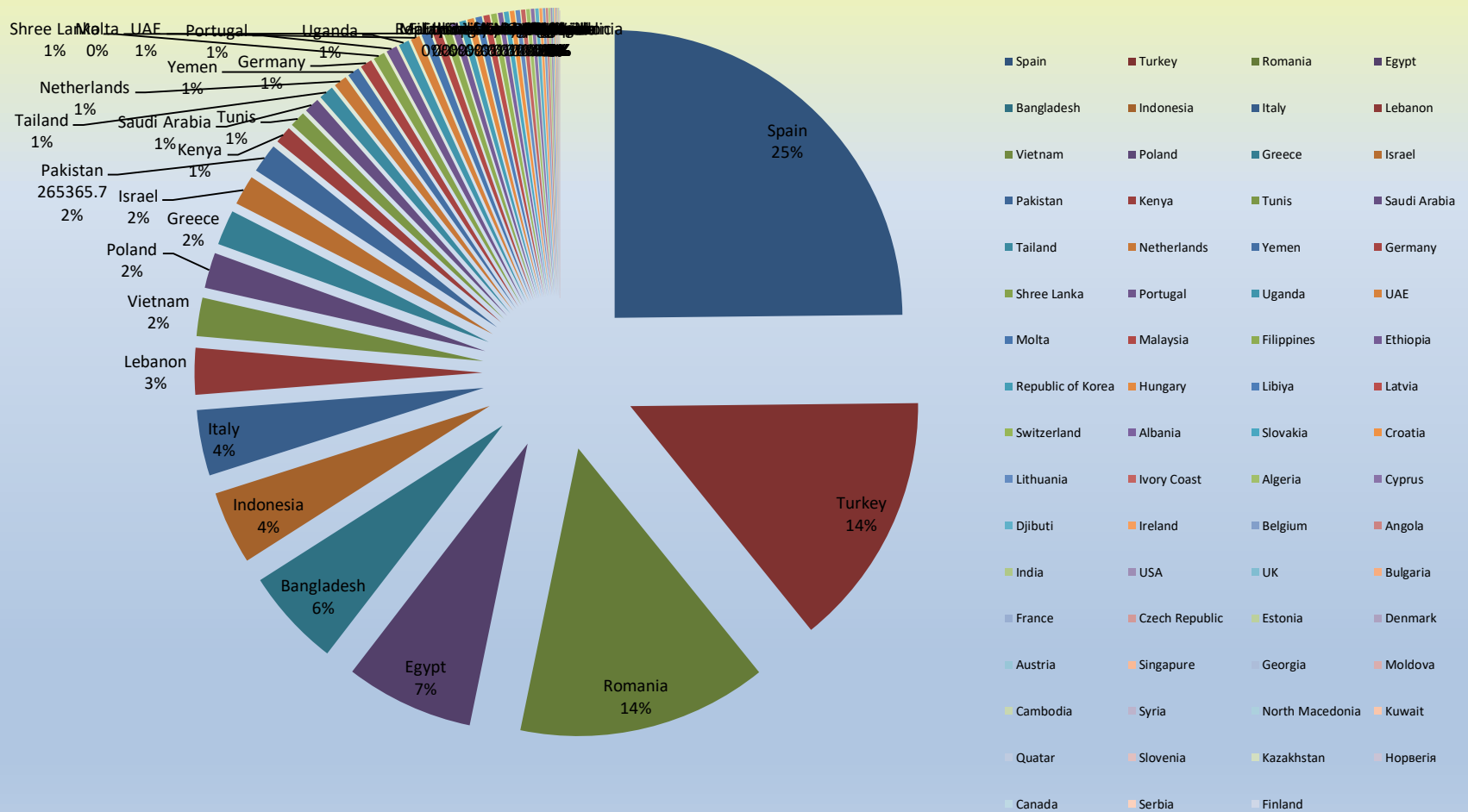


# Wheat, corn/maize, barley production in Ukraine 2018-2023

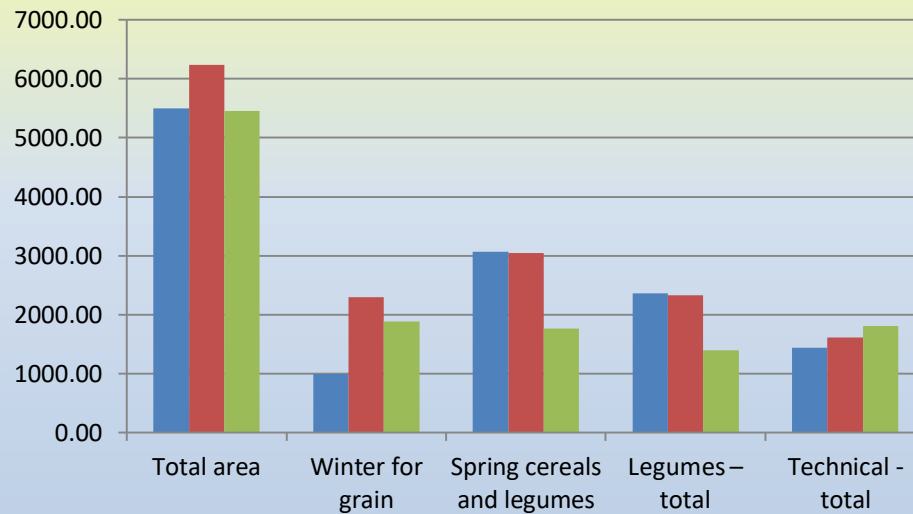
	Line code	All agricultural holdings				Enterprises				Households						Crop Capacity/ Crop Loss	
		sown area, thsd. ha	harvested area, thsd. ha	volume of production (gross collection), thsd. centner	yield, centner per ha of the harvested area	sown area, thsd. ha	harvested area, thsd. ha	volume of production (gross collection), thsd. centner	yield, centner per ha of the harvested area	sown area, thsd. ha	harvested area, thsd. ha	volume of production (gross collection), thsd. centner	yield, centner per ha of the harvested area			crop capacity	Underachieved volume of production
																11,90	13 808,76
																35,80	32 391,84
																9,80	7 868,42
																6,70	8 754,22
wheat	0040	4 664,80	4 658,40	216 251,70	46,40	3 504,30	3 498,00	172 714,50	49,40	1 160,50	1 160,40	43 537,20	37,50	wheat	2023	25,80	23 178,72
corn	0110	4112,7	3975,2	310304,4	78,1	3191,1	3070,4	264715,4	86,2	921,6	904,8	45589,0	50,4	maize		5,60	5 045,04
barley	0120	1495,3	1494,3	55071,9	36,9	692,5	691,4	29139,2	42,1	803,0	802,9	25932,7	32,3	barley		-	-
																8,60	14 340,50
wheat	0040	5435,3	5281,5	207292,4	39,3	4098,4	3974,9	162614,8	40,9	1336,9	1306,6	44677,6	34,2	wheat	2022	34,60	37 492,56
corn	0110	4325,3	4124,5	261869,3	63,5	3394,3	3226,1	223009,8	69,1	931,0	898,4	38859,5	43,3	maize		8,90	10 234,11
barley	0120	1774,5	1740,2	56081,7	32,2	863,1	839,3	29497,9	35,1	911,4	900,9	26583,8	29,5	barley		-	-
																7,40	11 876,26
wheat	0040	7095,2	7090,2	321510,2	45,3	5427,7	5422,7	256872,1	47,4	1667,5	1667,5	64638,1	38,8	wheat	2021	23,70	25 560,45
corn	0110	5522,4	5481,8	421098,5	76,8	4438,8	4398,2	367906,8	83,7	1083,6	1083,6	53191,7	49,1	maize		5,50	6 302,45
barley	0120	2475,6	2472,1	94370,2	38,2	1325,7	1322,2	55925,6	42,3	1149,9	1149,9	38444,6	33,4	barley		-	-
																7,60	12 201,04
wheat	0040	6595,7	6554,5	248774,2	38,0	4990,8	4949,6	196831,1	39,8	1604,9	1604,9	51943,1	32,4	wheat	2020	27,70	28 888,33
corn	0110	5431,9	5392,1	302903,4	56,2	4353,4	4313,6	262802,5	60,9	1078,5	1078,5	40100,9	37,2	maize		6,40	7 425,28
barley	0120	2395,1	2374,5	76363,4	32,2	1249,2	1228,6	42810,1	34,8	1145,9	1145,9	33553,3	29,3	barley		-	-
																5,00	7 653,50
wheat	0040	6817,6	6812,4	283278,6	41,6	5212,2	5207,0	225777,9	43,4	1605,4	1605,4	57500,7	35,8	wheat	2019	37,80	39 153,24
corn	0110	5004,8	4986,9	358800,5	71,9	3961,9	3944,0	306644,1	77,7	1042,9	1042,9	52156,4	50,0	maize		5,80	6 813,84
barley	0120	2612,7	2609,2	89167,8	34,2	1452,5	1449,0	53685,4	37,0	1160,2	1160,2	35482,4	30,6	barley		-	-
																6,30	9 337,86
wheat	0040	6614,0	6603,9	246058,4	37,3	5083,3	5073,2	194951,3	38,4	1530,7	1530,7	51107,1	33,4	wheat	2018	18,80	19 788,88
corn	0110	4579,7	4564,2	358010,5	78,4	3543,9	3528,4	307060,6	87,0	1035,8	1035,8	50949,9	49,2	maize		4,90	5 906,95
barley	0120	2492,2	2484,3	73491,4	29,6	1317,4	1309,5	42334,3	32,3	1174,8	1174,8	31157,1	26,5	barley			



# Main Crops trade(wheat) Ukraine, Export

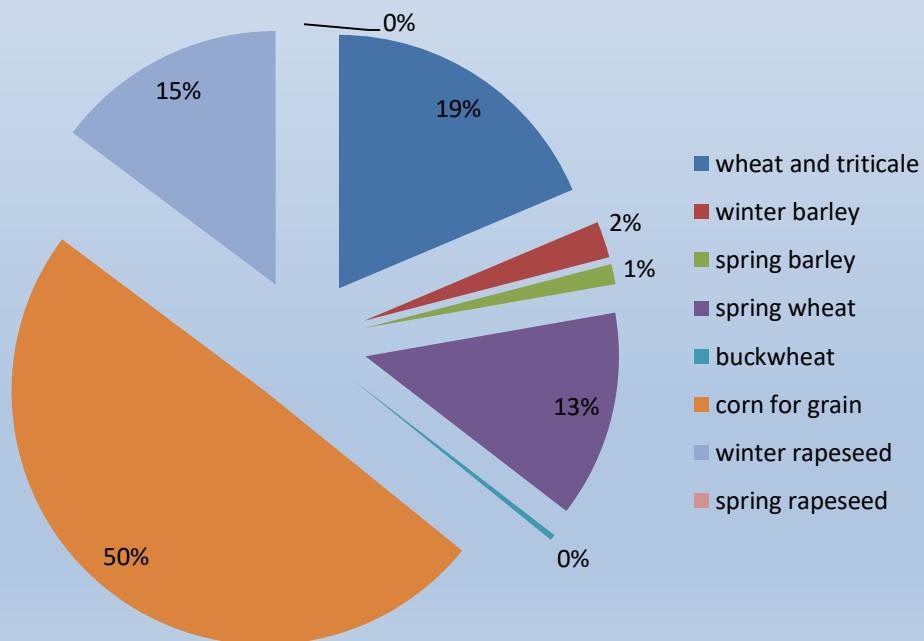
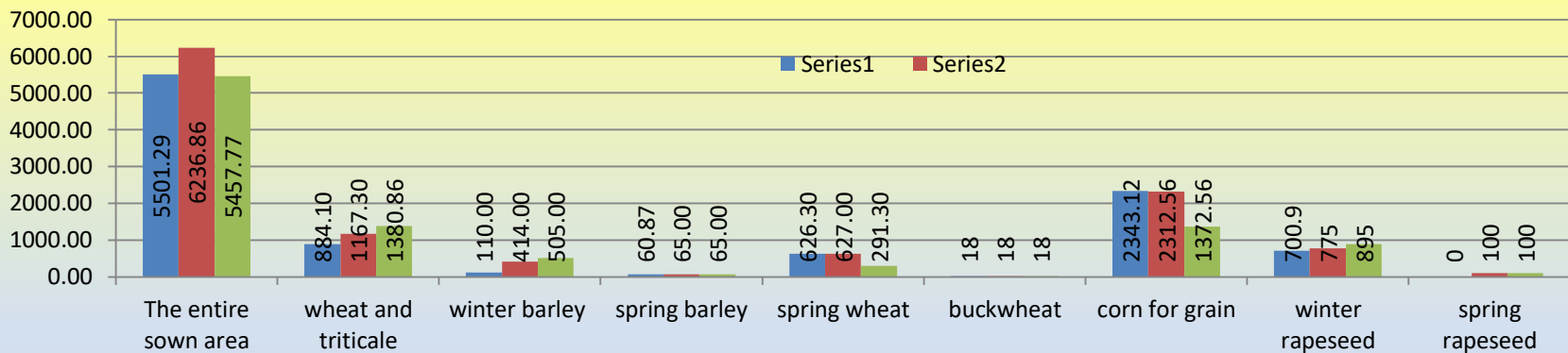


# The assessment of potential of straw heat capacity for Ukraine



			for Ukraine							
			1 т wheat=0,4 straw			0,41 т staw=3 MegaVT heat=				3
	Wheat harvest		43 000 000,00							
	Total straw		17 200 000,00							
	Total heat=		51 600 000,00	MegaVT						

## Structure of sown areas (wheat, corn, rapeseed, sunflower), by Hnizdychivska TG, Stryi district, Lviv region



# Field cleaning technology post harvest



baling grain



transportation



storage



heating

<https://kobzarenko.com.ua/ua/innovacii/181-tehnologiya-pribirannya-polya-pslya-zhniv.html>

TOP-6 facts: straw as an alternative energy source

Top-1: 400 kg of straw per ton of grain

If we burn 1 ton of straw, we will get about 3 mW of thermal energy. If compared to coal and benzene, straw as a fuel would be much cheaper.

Top-2: A million tons of straw will replace 300 million cubic meters of gas Despite this fact, straw is not used as a fuel in Ukraine, or is used rarely. The main reasons are considered to be the lack of certain equipment for collecting and pressing into standard rolls and bales. However, the main obstacle is still the lack of a clear state policy aimed at the use and production of biofuels.

Top-3: 750 UAH - the cost of a ton of straw with a delivery distance of 25 km

Top-4: Processing straw into pellets solves many problems. Yes, in the form of briquettes and pellets, straw losses during storage are much lower, transportation and the process of loading into boilers are much more convenient. The heat transfer capacity of pellets is up to 4400 kcal / kg, which is approximately at the level of certain types of coal. The use of straw and other types of waste in the form of briquettes is growing at a very high rate around the world.

Top-5: Burning straw is a “green” energy source. Just like solar and wind power plants, “straw” CHPs are also considered “green”. The state is obliged to purchase electricity from biofuel producers.

Top 6: International organizations provide loans for bioenergy Funds for the purchase of straw burning equipment can be obtained from the Danish IFU fund. But before giving money, the Danes will assess your project and its prospects.

The amount of loan funds provided will be up to 1.5 million euros.

# Possible solutions to address Grain Loss in Ukraine

Ukraine has made progress in **precision agriculture, storage, logistics, and processing**, war-related damages and **financial constraints** still limit technology adoption. **Investments in AI, IoT, and automated systems** could further reduce grain losses by **15-20%** in the next decade.

Best practice: **FAO & USAID's Emergency Storage Project (2022-2023)**

Deployed **temporary grain silos and portable dryers** to Ukrainian farmers, saving over **4 million tons** of grain from spoilage.







# Conclusions:

## Technology Setbacks

- **Destruction of Modern Facilities:** The Russian war has damaged high-tech grain elevators, drying stations, and rail hubs, forcing reliance on inefficient alternatives.
- **Limited Investment in AgTech:** financial instability, high energy prices and disrupted supply chains have slowed the adoption of automation, AI-based quality control, and smart logistics solutions.
- Absence of digital supply chain trackers;

**Price volatilities for fertilizers and pest control (leading to 50-60% decrease) [gov.ua, 2023]**  
**Storage Deficiencies**

### •Limited Access to Modern Silos:

-Many farms rely on outdated granaries or temporary storage (plastic bags, open-air piles), leading to moisture absorption, pest infestations, and fungal growth.

-**Lack of Automated Climate Control:** Without temperature and humidity sensors, grain storage is prone to spoilage and excessive shrinkage losses.

-**Absence of Hermetic Storage Solutions:** Advanced sealed storage systems (like CO<sub>2</sub> fumigation) prevent pests and fungi but are not widely used.

# Thank you for attention!

