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PHYSICAL PARAMETERS OF GRAIN QUALITY OF SPELT-LIKE CHERNOBYL RADIOMUTANTS OF WINTER WHEAT

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Topicality. *Winter wheat (Triticum aestivum* L.*) is the main grain crop that ensures food security of the population. The combination of yield and grain quality is important in wheat breeding research. Physical indicators of grain quality include the 1000 grain weight, test weight and grain hardness.* ***Purpose.*** *To analyze spelt-like radiomutants of winter wheat by 1000 grain weight, test weight and grain hardness.* ***Materials and Methods.*** *The material of the study was 10 spelt-like RM-samples of Chornobyl radiomutants of winter wheat and the Lisova pisnia variety standard. The research was conducted at the Bila Tserkva Experimental Breeding Station of the Institute of Bioenergy Crops and Sugar Beet of NAAS in 2016–2019. The 1000 grain weight was determined according to DSTU 4138–2002. The grain hardness was determined according to the method specified in DSTU 3768–2019. The test weight was determined according to DSTU GOST 10840:2019. Homeostasis (Hom) and breeding value (Sc) were calculated according to V. V. Khanhildin and M. A. Lytvynenko.* ***Results.*** *On average for 2016-2019, spelt-like wheat breeding samples produced a 1000 grain weight of 41.2 g (RM-3) to 48.8 g (RM-4). The variability of 1000 grain weight in the studied breeding samples was insignificant, with a coefficient of variation of 2.4–9.0 %. The highest indicator of homeostasis by the 1000 grain weight was recorded in Lisova Pisnia variety-standard (4217), high indicators were recorded in the breeding samples RM-8 (1838), RM-7 (1753), RM-2 (1600), RM-3 (1204). The following radiomutants RM-5 (42.5), RM-4 (41.9), RM-10 (41.8), RM-1 (41.4), and RM-7 (41.1) were identified in terms of breeding value. The highest test weight (797 g/l) was found in the RM-3 radiomutant. The breeding samples RM-4 (72270) and RM-3 (48940) were distinguished by the indicator of high homeostasis of grain test weight. The breeding value of the studied radiomutants was 689.5–771.3. The highest grain hardness was obtained in the breeding samples RM-8 (97.1 %), RM-1 (94.0 %), RM-10 (93.8 %), which also had high homeostatic parameters – RM-8 (3730), RM-4 (1039), RM-10 (1023), RM-1 (1000). According to the indicator of breeding value of grain hardness formation, the breeding samples RM-4 (91.3), RM-1 (75.5), RM-8 (75.1) were distinguished.* ***Conclusions.*** *The identified spelt-like radiomutants of winter wheat, based on the results obtained –1000-grain weight, test weight and grain hardness, are valuable for further breeding work.*

Key words: *winter wheat, Chernobyl radiomutants, 1000 grain weight, test weight, grain hardness, quality*

Introduction. The rapid growth of the world's population requires a corresponding increase in food production, particularly wheat production, crop which has high nutritional value. Growth in grain production that meets international standards is one of the key objectives of agricultural science [1].

Improving the quality characteristics of winter wheat grain is of particular importance for agricultural producers.

Increased yields in most new varieties are often accompanied by a decline in the technological and biochemical characteristics of the grain. The breeding process involves continuous assess-

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ment of grain quality according to specific criteria, starting from the early stages, and involves the work with thousands of numbers [2]. Assessing the quality indicators of winter wheat grain allows determining its use, since wheat grain is the main source of global food security [3, 4].

Grain quality indicators consist of three groups: physical, biochemical, and technological. Physical indicators include test weight, 1000-grain weight, grain hardness, uniformity, etc. The physical indicators of winter wheat depend on numerous factors, with abiotic and anthropogenic factors playing a particularly important role [5–9].

A key indicator determining the grain quality of wheat crops is test weight, which characterises grain plumpness. It depends on many factors, such as density, shape, surface condition and grain size [10]. Test weight is also associated with drought resistance [11].

Fully plumped grain is characterised by the completion of the synthesis processes of the substances that comprise it. Such grain contains more endosperm and, accordingly, more protein, starch and sugars. Greater grain plumpness results in higher grain quality. Grain quality is influenced by factors such as the previous crop, sowing date and variety. With increasing value of the test weight indicator, the protein and gluten content in the grain also increases [12, 13].

The term 'test weight' refers to the average weight of a cereal as measured in grams per 1 litre of grain. For soft winter wheat, the test weight of grain is in the range of 725 to 785 g/l and is classified according to the following data: more than 785 g/l – very high; 764–785 – high; 725–764 – medium; less than 724 g/l – low one. The test weight indicator is used to determine the milling properties of grain. If the test weight does not exceed 750 g/l, the grain produces a lower flour yield, and if it is higher than 750 g/l, this pattern is not observed. The test weight of grain with a value of up to 700 g/l also affects its technological qualities, which impairs the baking properties of the grain. In general, a decrease in the test weight of grain can result in a reduction in wheat yield [1].

An important physical indicator of winter wheat is also the 1000-seed weight, which characterises the technological qualities of the variety, the uniformity of the grain and its size. As a rule, this indicator correlates with size; at the same size, it characterises the density of the internal structure of the grain and the amount of nutrients it contains. The 1000-seed weight is determined by the genotype and is modified to a certain extent by growing conditions. Different varieties, species, subvariety, regions and conditions during the growing season can cause significant variability in the 1000-seed weight of the same crop [14–18].

The 1000-seed weight is also one of the main quantitative indicators characterising the winter wheat yield, which is determined not only by the varietal characteristics of the crop, but also by the environmental conditions of cultivation and agrotechnical practices [14].

Grain hardness of wheat is also an important quality characteristic that affects milling and nutritional properties. It is particularly important for durum wheat varieties used in pasta production. The degree of grain hardness is influenced by genetic, environmental and technological factors. The list of the main factors that determine vitreousness includes weather and climatic conditions and varietal characteristics of the crop. High temperatures, lack of moisture, a short period of grain filling and ripening increase grain hardness, while precipitation during the milky-waxy stage and full ripeness, on the contrary, reduce this trait [5, 9].

Hard vitreous grains usually have higher protein content and are harder in consistency than floury grains. This hardness is associated with a highly compacted endosperm structure, which is less porous than that of floury grains. Grains with a vitreous endosperm have greater mechanical strength, improving the technological processes of their processing [19].

Wheat is the main ingredient in most common foods in our daily lives, and obtaining high-quality grain is an important task for food production [20], so researching the source material in terms of its physical quality indicators is a very relevant area of study.

Materials and Methods. The research was conducted at the Bila Tserkva Research and Breeding Station of the Institute of Bioenergy Crops and Sugar Beets of NAAS in 2016–2019.

The research material consisted of 10 spelt-like RM-samples of Chernobyl radio-mutants of winter wheat and the standard variety Lisova Pisnia. The weight method (two repetitions of 500 seeds) was used to determine the 1000-seed weight in accordance with DSTU 4138-2002: Seeds of agricultural plants. Methods for seed testing. Grain hardness was determined using the standard method according to DSTU 3768-2019: Wheat. Specifications. The test weight was determined according to DSTU GOST 10840:2019: Grain. Method for determination of test weight (GOST 10840-2017, IDT). Homeostasis (Hom) and breeding value (Sc) were calculated according to V. V. Khangildin and M. A. Litvinenko (1981): Hom = $\bar{x}^2 / S$, Sc = $\bar{x} \times (x_{lim} / x_{opt})$.

The predecessor was peas. Sowing was carried out at the optimal dates for winter wheat using a Klen-1.5 plot seeder. The recorded area of each sample was 10 m2, with three repetitions. The winter wheat variety Lisova Pisnia was selected as the standard. The research was conducted in accordance with the methodology for conducting a qualification examination of plant varieties for suitability for dissemination in Ukraine [21]. The arithmetic mean ($\bar{x}$), minimum and maximum values of the studied traits (min–max), variance (S2), and coefficient of variation (V, %) were determined [22].

To characterize the moisture conditions for winter wheat cultivation, the hydrothermal coefficient (HTC) was calculated using the method developed by G. T. Selyaninov [23]. The following differentiation of HTC indicators was accepted: < 0.4 – very severe drought; 0.4–0.5 – severe drought; 0.5–0.6 – moderate drought; 0.7–0.9 – mild drought; 1.0–1.5 – sufficiently moist conditions; > 1.5 – excessively wet conditions.

Results and Discussion. Soil moisture reserves at the sowing of winter wheat (late September) were insufficient in 2015 and 2016. At the same time, in 2017 and 2018, actual precipitation exceeded the long-term average by 18.2 mm and 12.9 mm, respectively. Subsequently, autumn vegetation occurred under sufficient moisture availability and favourable temperature conditions (Tables 1, 2).

The actual amount of precipitation during the winter months of the growing season exceeded the long-term average (112 mm) by 27.3 mm in 2016/2017 and by 45.4 mm in 2017/2018. The temperature regime during this period was close to the long-term average.

After the resumption of spring vegetation (February 29, 2016, March 6, 2017, March 8, 2019), a gradual rise in air temperature was observed along with sufficient moisture availability during the first month of vegetation. At the same time, in 2018 (when vegetation resumed on April 4), a sharp warming trend was observed, which accelerated the passage of macro-stages of plant growth and development on the BBCH scale. The hydrothermal coefficient from April to the third ten days of June 2018 was 0.4, indicating a very severe drought. For the third ten days of June and the first ten days of July, the HTC was 1.7, indicating excessive moisture conditions. For the same periods in 2016, the hydrothermal coefficient was 2.9 and 1.5, respectively, indicating excessive moisture conditions and sufficient moisture availability.

In 2017, in the period from the third ten days of April to the third ten days of June, wheat growth and development occurred under conditions of mild drought (HTC = 0.7), and from the third ten days of June to the second ten days of July, under conditions of moderate drought (HTC = 0.6). For the corresponding periods of 2019, the hydrothermal coefficient was at the level of 1.1 and 1.4 respectively, which indicates sufficient moisture availability.

The 1000-seed weight of spelt-like Chernobyl radio-mutants of winter wheat depended on the genotype and year of research.

In 2016, the 1000-seed weight of all RM-samples exceeded the standard variety Lisova Pisnia (42.0 g) by 0.5 g (RM-3 – 42.5 g) to 11.5 g (RM-4 and RM-6) (Fig. 1).

Radiomutants of winter wheat formed a larger 1000-seed weight in 2017 (42.9–47.8 g) and 2018 (44.7–50.8 g), compared to the standard variety (41.9 g in 2017 ; 42.5 g in 2018, respectively), with the exception of the RM-3 breeding sample, which weighed 41.7 g and 41.2 g, respectively. The 1000-seed weight of eight RM samples varied from 43.2 g (RM-4) to 46.9 g (RM-9) in 2019, exceeding the standard variety Lisova Pisnia (42.8 g), while samples RM-3 (39.2 g) and RM-6 (40.9 g) were inferior to the standard variety.

Table 1. Precipitation (mm) during the years of research

Month	Ten-day period	2015	2016	2017	2018	2019	Long-term average
September	-	20.4	9.6	53.2	47.9	-	35
October	-	30.4	62.0	50.4	22.0	-	33
November	-	66.9	74.4	36.4	23.1	-	41
December	-	17.6	61.8	92.3	71.1	-	44
January	-	-	68.8	36.0	30.5	56.8	35
February	-	-	62.2	41.5	34.6	21.4	33
March	-	-	37.8	17.2	74.0	23.4	30
April	I	-	3.6	40.0	1.5	0.0	14
	II	-	52.9	15.3	1.3	14.2	17
	III	-	4.5	2.8	5.3	31.3	16
May	I	-	45.2	14.6	3.7	26.7	16
	II	-	66.7	9.8	19.1	15.3	12
	III	-	57.8	16.1	0.0	12.0	18
June	I	-	22.7	10.2	2.2	35.3	23
	II	-	50.1	14.3	23.3	0.0	27
	III	-	32.2	17.9	33.2	43.9	23
July	I	-	30.7	5.5	30.0	12.1	35
	II	-	28.9	9.7	21.3	2.8	24

Table 2. Average daily air temperature (℃) during the years of research

Month	Ten-day period	2015	2016	2017	2018	2019	Long-term average
September	-	17.9	15.6	16.1	16.2	-	13.8
October	-	6.6	6.9	8.0	9.9	-	7.9
November	-	4.1	1.4	3.2	-0.1	-	2.0
December	-	1.6	-1.9	1.6	-2.0	-	0.4
January	-	-	-6.0	-5.6	-2.7	-4.8	-5.9
February	-	-	1.7	-3.4	-4.2	0.4	-4.4
March	-	-	4.4	5.8	-2.1	4.7	0.3
April	I	-	12.3	11.6	10.3	9.6	7.0
	II	-	13.8	7.5	13.8	7.3	7.8
	III	-	10.9	11.8	15.7	13.2	10.4
May	I	-	13.8	13.5	20.4	12.1	13.5
	II	-	12.4	12.7	15.9	18.3	15.3
	III	-	16.8	18.3	18.8	19.3	15.8
June	I	-	15.3	18.8	19.4	21.1	17.3
	II	-	19.4	18.8	21.9	23.6	17.4
	III	-	23.5	21.6	19.1	21.4	18.7
July	I	-	19.3	19.0	18.8	19.0	18.5
	II	-	22.6	21.0	20.5	17.2	19.4

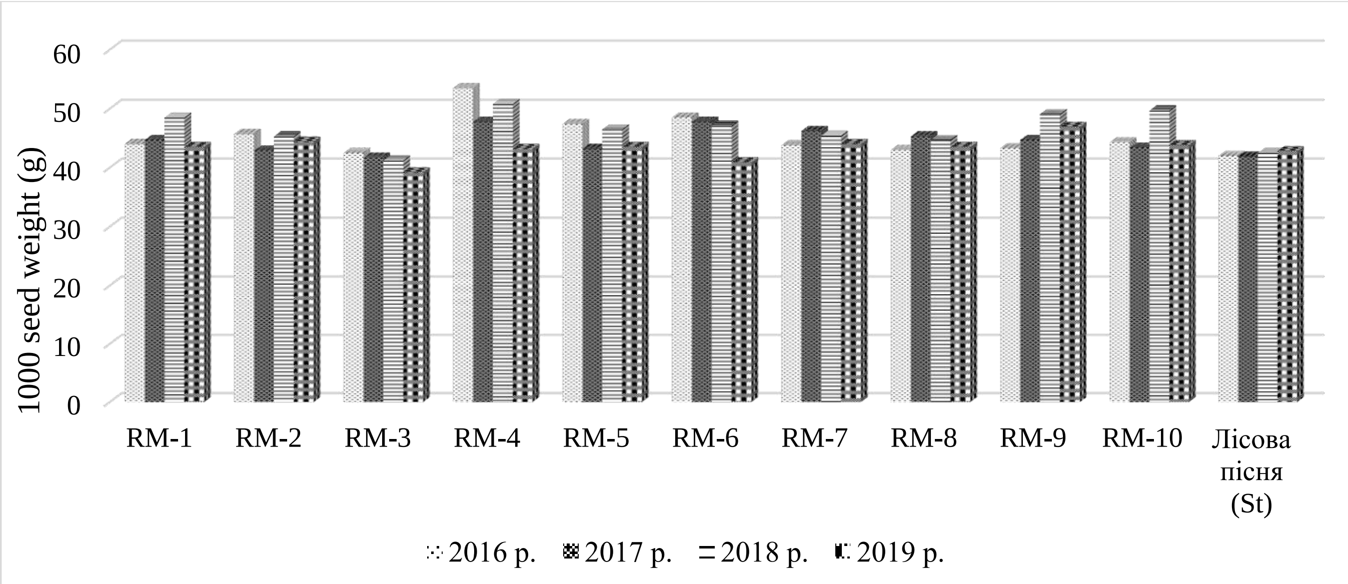

Fig. 1. The 1000-seed weight (g) of spelt-like radiomutants of winter wheat, 2016–2019.

In 2016–2019, spelt-like wheat breeding forms formed an average 1000-seed weight from 41.2 g (RM-3) to 48.8 g (RM-4) with a significant excess in nine out of ten radiomutants from 1.8 g (RM-8) to 6.5 g (RM-4) (Table 3).

The variability of the 1000-seed weight in the breeding forms studied was insignificant, with a coefficient of variation of 2.4–9.0 % and a correspondding indicator in the standard variety Lisova Pisnia of 1.1 %.

Table 3. Variation in the 1000-seed weight (g) in spelt-like radiomutants of winter wheat, average for 2016–2019

Breeding form, line	$\bar{x}$ *	Lim, min-max	S^2	V, %	Hom	Sc
RM-1	45.2	43.5–48.5	5.2	5.0	899	41.4
RM-2	44.6	42.9–45.7	1.5	2.8	1600	39.6
RM-3	41.2	39.2–42.5	2.0	3.4	1204	40.6
RM-4	48.8	43.2–53.5	19.5	9.0	540	41.9
RM-5	45.2	43.2–47.4	4.5	4.7	964	42.5
RM-6	46.1	40.9–48.5	12.2	7.6	607	38.9
RM-7	44.9	43.8–46.2	1.3	2.5	1753	41.1
RM-8	44.1	43.0–45.3	1.1	2.4	1838	39.4
RM-9	46.0	43.3–49.1	6.5	5.5	832	38.0
RM-10	45.3	43.4–49.7	8.7	6.5	694	41.8
Lisova Pisnia (St)	42.3	41.9–42.8	0.2	1.1	4217	40.5

Note. *LSD_{05} *2016 – 0.57; 2017 – 0.47; 2018 – 0.52; 2019 – 0.4.*

It was found that as the 1000-seed weight of spelt-like RM samples increased, its variability also increased.

The highest homeostasis index of 1000-seed weight was obtained in the standard variety Lisova Pisnia (Hom = 4217), while high indices were obtained in the breeding forms RM-8 (Hom = 1838), RM-7 (Hom = 1753), and RM-2 (Hom = 1600).

Based on the data obtained, radiomutants were selected according to their breeding value, with the highest values being RM-5 (Sc = 42.5), RM-4 (Sc = 41.9), RM-10 (Sc = 41.8), RM-1 (Sc = 41.4), and RM-7 – (Sc = 41.1).

An important indicator of winter wheat grain quality is test weight. The results obtained over years of research on determining the test weight of winter wheat radiomutants are presented in Fig. 2.

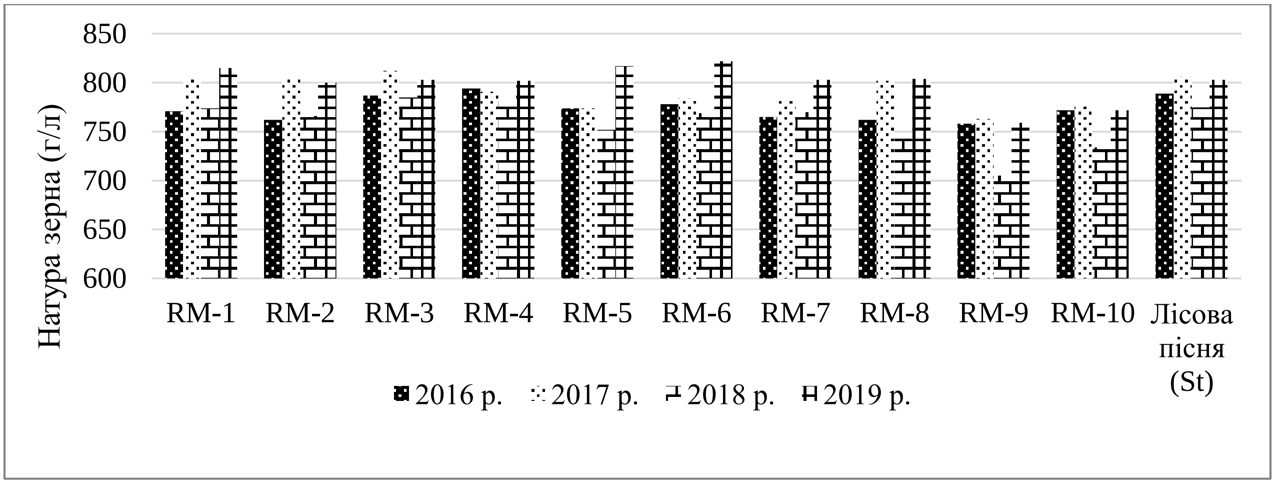

Fig. 2. Test weight (g/l) in spelt-like radiomutants of winter wheat, 2016–2019.

Over the years of research, the highest test weight was obtained for RM-4 in 2016 – 794 g/l, which exceeded the standard variety Lisova Pisnia (789 g/l) by 5 g/l, while other breeding forms varied between 758 and 787 g/l in 2016. In 2017, growing conditions contributed to an increase in test weight of the studied breeding forms. The highest test weight was obtained in sample RM-3 – 812 g/l, while other radiomutants showed values of 763–805 g/l and the standard variety Lisova Pisnia showed 806 g/l. The highest test weight in 2018 was recorded in RM-3 and RM-4 – 785 and 781 g/l, respectively, compared to the standard variety – 775 g/l. In 2019, the highest test weight was observed in the RM-6 (822 g/l), RM-5 (817 g/l), and RM-1 (815 g/l) radiomutants.

On average for 2016–2019, the highest test weight (797 g/l) was reliably formed by the RM-3 radiomutant, with the lowest variability (27 g/l) and a low coefficient of variation of 1.7 % and one of the highest homeostasis indices – Hom = 48940 (Table 4).

The test weight at the standard level was recorded in samples RM-4 – 792 g/l and RM-1 – 791 g/l. These breeding forms were also characterized by homeostasis RM-4 (Hom = 72270), RM-1 (Hom = 28618) and breeding value RM-1 – Sc = 762.7. The breeding value of radiomutants varied from 689.5 (RM-3) to 771.3 (RM-8) compared to the standard of 748.3.

Table 4. Variation in test weight (g/l) in spelt-like radiomutants of winter wheat, average for 2016–2019

Breeding form, line	$\bar{x}$ *	Lim, min-max	S^2	V, %	Hom	Sc
RM-1	791	771–815	478.0	2.8	28618	762.7
RM-2	783	762–805	500.9	2.9	27411	722.2
RM-3	797	785–812	168.3	1.7	48940	689.5
RM-4	792	781–802	75.3	1.1	72270	719.9
RM-5	779	752–817	740.9	3.5	22308	743.1
RM-6	788	769–822	544.3	3.0	26634	737.4
RM-7	780	765–803	286.0	2.2	35975	717.3
RM-8	778	744–804	888.0	3.8	20312	771.3
RM-9	746	705-763	760.9	3.7	20188	770.3
RM-10	764	734–776	390.3	2.6	29505	741.4
Lisova Pisnia (St)	793	775–806	202.9	1.8	44173	748.3

*Note. *LSD_{05} 2016 – 2; 2017 – 3; 2018 – 2; 2019 – 3.*

The breeding forms of spelt-like radiomutants also differed in their grain hardness, which largely depended on the year of cultivation and genotype (Fig. 3).

In 2016, the highest grain hardness was ob-

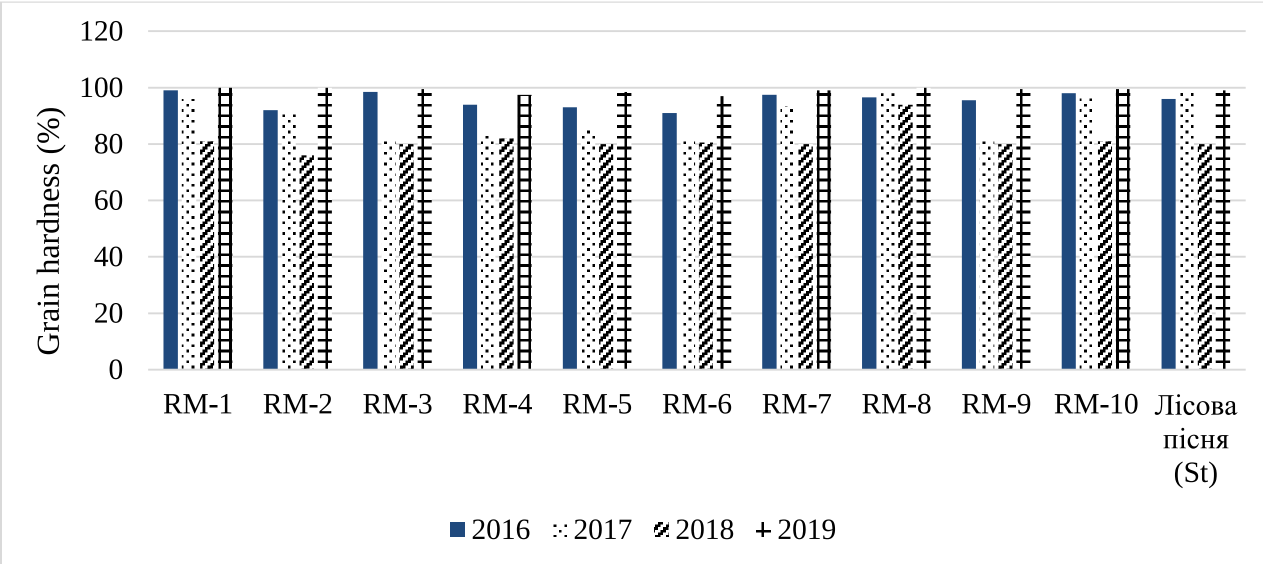

Fig. 3. Grain hardness (%) of spelt-like radiomutant of winter wheat, 2016–2019.

served in the breeding forms RM-1 – 99.0 %, RM-3 – 98.5 %, RM-10 – 98.0 %, RM-7 – 97.5 % according to the Lisova Pisnia standard – 96.0 %. In 2017, RM-8 (98.0 %), RM-10 (96.5 %), and RM-1 (96.0 %) stood out in terms of grain hardness, and in 2018 – RM-8 – 94.0%, RM-4 – 82.0%, RM-1 and RM-10 – 81.0 % for the grain hardness of winter wheat Lisova Pisnia 98.5 % and 80.0 %, respectively. The highest grain hardness was in 2019 in breeding samples RM-1, RM-2, RM-8, their indicator was 100 %, in RM-3, RM-9, RM-10 – 99.5 %, in RM-7 – 99.0 %.

The average grain hardness in winter wheat radiomutants varied from 87.5 to 97.1% over four years. The Lisova Pisnia standard (93.4 %) was exceeded in the breeding samples RM-8 (97.1 %), RM-1 (94.0 %), and RM-10 (93.8 %) with a slight coefficient of variation of 2.6 %, 9.4 %, and 9.2 %, respectively (Table 5).

High homeostasis indicators were determined in radiomutants RM-8 (Hom = 3730), RM-4 (Hom = 1039), RM-10 (Hom = 1023), RM-1 (Hom = 1000). The following samples were selected for their breeding value: RM-4 (Sc = 91.3), RM-2 (Sc = 76.3), RM-1 (Sc = 75.5), and RM-8 (Sc = 75.1).

Table 5. Variation in grain hardness (%) in spelt-like radiomutants of winter wheat, average for 2016–2019

Breeding form, line	$\bar{x}$	Lim, min-max	S^2	V, %	Hom	Sc
RM-1	94.0	81.0–100.0	78.0	9.4	1000	75.5
RM-2	89.8	76.0–100.0	100.3	11.2	805	76.3
RM-3	89.9	80.0–99.5	111.6	11.8	765	71.7
RM-4	89.3	82.0–97.5	58.8	8.6	1039	91.3
RM-5	89.3	80.0–98.5	66.4	9.1	977	74.7
RM-6	87.5	80.5–97.0	62.5	9.0	968	72.6
RM-7	92.5	80.0–99.0	74.8	9.4	989	72.5
RM-8	97.1	94.0–100.0	6.4	2.6	3730	75.1
RM-9	89.1	80.0–99.5	96.6	11.0	808	72.3
RM-10	93.8	81.0–99.5	73.8	9.2	1023	68.2
Lisova Pisnia (St)	93.4	80.0–99.0	81.2	9.7	967	76.1

*Note. *LSD_{05}: 2016 – 3; 2017 – 4; 2018 – 4; 2019 – 2.*

Conclusions. On average, over four years of research, nine out of ten spelt-like radiomutants formed a significantly greater 1000-seed weight (1.8 g to 6.5 g) compared to the standard variety

Lisova Pisnia (42.3 g), among which the following stood out for their highest values of RM-4 – 48.8 g, RM-6 – 46.1 g, RM-9 – 46.0 g, and high breeding value – RM-4 – Sc = 41.9.

Breeding forms with the highest average grain hardness RM-3 (797 g/l), RM-4 (792 g/l), RM-1 – 791 g/l and homeostasis (Hom = 48940), (Hom = 72270), (Hom = 28618), respectively, and breeding value in RM-1 – Sc = 762.7 for 2016–2019.

The practical breeding value for grain hardness was 97.1 % for RM-8, 94.0 % for RM-1, and 93.8 % for RM-10, with corresponding homeostasis indicators (Hom = 3730), (Hom = 1000), (Hom = 1023) and greater breeding value in RM-1 (Sc = 75.5) and RM-8 – Sc = 75.1.

The selected spelt-like RM-samples of winter wheat are included in the breeding programs of the Bila Tserkva Research and Breeding Station of the Institute of Bioenergy Crops and Sugar Beets of NAAS.

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Актуальність. Пшениця озима (*Triticum aestivum* L.) є основною зерновою культурою, яка забезпечує продовольчу безпеку населення. Важливим у селекційних дослідженнях є поєднання врожайності і якісних показників зерна пшениці. До фізичних показників якості зерна належать маса 1000 зерен, натура і склоподібність зерна. **Мета досліджень** полягала у проведенні аналізу спельтоподібних радіомутантів пшениці озимої за масою 1000 зерен, натурою та склоподібністю зерна. **Матеріали та методи.** Матеріалом досліджень були 10 спельтоподібних RM-зразків чорнобильських радіомутантів пшениці озимої та сорт-стандарт Лісова пісня. Дослідження проводили в умовах Білоцерківської дослідно-селекційної станції Інституту біоенергетичних культур і цукрових буряків НААН у 2016–2019 рр. Масу 1000 зерен визначали згідно ДСТУ 4138-2002. Склоподібність – за методикою, зазначеною у ДСТУ 3768-2019. Показник натури зерна визначали за ДСТУ ГОСТ 10840:2019. Гомеостатичність (Hom) і селекційну цінність (Sc) розраховували за В. В. Хангільдіним і М. А. Литвиненком. **Результати.** Спельтоподібні селекційні форми пшениці сформували в середньому за 2016–2019 рр., масу 1000 зерен від 41,2 г (RM-3) до 48,8 г – RM-4. Варіабельність маси 1000 зерен, у селекційних форм, що досліджувалися була незначною, за коефіцієнта варіації 2,4–9,0 %. Найбільшу показник гомеостатичність за масою 1000 зерен отримано у сорту-стандарту Лісова пісня (4217), високі показники мали селекційні форми RM-8 (1838), RM-7 (1753), RM-2 (1600), RM-3 (1204). За одержаними даними по селекційній цінності виділено радіомутанти RM-5 (42,5), RM-4 (41,9), RM-10 (41,8), RM-1 (41,4), RM-7 (41,1). Найбільшу натуру зерна (797 г/л) отримано у радіомутанта RM-3. Селекційні форми RM-4 (72270) і RM-3 (48940) виділялися за показником високої гомеостатичності формування натури зерна. Селекційна цінність радіомутантів склала 689,5–771,3. Найбільшу склоподібність зерна мали селекційні зразки RM-8 (97,1 %), RM-1 (94,0 %), RM-10 (93,8 %), у яких також були високі значення гомеостатичності – RM-8 (3730), RM-4 (1039), RM-10 (1023), RM-1 (1000). За показником селекційної цінності формування склоподібності виділили селекційні форми RM-4 (91,3), RM-1 (75,5), RM-8 (75,1). **Висновки.** Отримані результати за масою 1000 зерен, натурою та склоподібністю зерна у виділених спельтоподібних радіомутантів пшениці озимої, вказують на їх цінність для подальшого використання у селекційній роботі.

Ключові слова*: пшениця озима, чорнобильські радіомутанти, маса 1000 зерен, натура зерна, склоподібність, якість*