Expansion of corn plantings and an increase in grain yields are the result of selection progress thanks to which the productivity of hybrids has increased and their adaptability to unfavorable growing conditions has improved significantly. Earliness is an important factor in the intensification of corn production in the Steppe area, and hence step-by-step development of a parent material of southern ecotype is an important task. The purpose of the research is to do the breeding tasks by developing and evaluating a new early ripening parent material and to further synthesize highly productive early-season corn hybrids on its basis.

The parent material consisted of 194 inbred S1 corn families synthesized on the basis of sister hybrids obtained from crossing of 11 lines originated from inbreeding of commercial hybrids.

Over the years of research, determination of testcrosses of self-pollinated families has shown that the grain yield in all hybrids fluctuated from 6,73 (in combination with Cross 290C sister hybrid) to 6,90 t/ha (with DK247MV line) during the observation period. At the same time, the average yield indicator in all testcrossoes was higher in comparison with Soloniansky 298 SV, the best standard hybrid.

The best testcrossoes in 2013 (7,7 %) developed on the basis of Cross 290C tester produced a grain yield of 10,0 t/ha, which is 1,6 t/ha higher than that of standard Soloniansky 298 SV (8,42 t/ha). A great number of combinations with Cross 290C tester in 2014 (42,8 %) had a yield of 4 t/ha and did not exceed the same value of such standard hybrids as Orzhytysya 237 MV (4,43 t/ha) and Soloniansky 298 MV (4,86 t/ha), while 50,5 and 53,6 % of combinations with Cross 267C and DK247MV testers produced a yield of more than 5 t/ha. The testcrossoes based on Cross 290C hybrid were characterized by an intensive type of reaction to changes in growing conditions.

A reliable moderate positive correlation between the plant height and the height of ear attachment was established: 2013 – r = +0,43, 2014 – r = +0,37. Control samples of the testcrossoes did not reveal any problems associated with the height of attachment of the first productive cob on the plant. Over the years of research, the duration of sprouting to flowering 50 % of the ears period varied from 49 to 65 days. Distribution of the testcrossoes by the duration of sprouting to flowering 50 % of the ears period revealed a tendency to earlier flowering of hybrids bred on the basis of DK247MV tester (35,1 %).

According to the results of the research, DK247MV tester proved to be the most effective in terms of producing the best combinations. Thus 7 hybrids out of the top 15 were developed with its participation, whereas Cross 267C and Cross 290C were successfully used in breeding of only 5 and 3 respectively. Cross 290C tester was characterized by an intensive type of reaction to changes in environmental conditions as is indicated by a significant dispersion of experimental hybrids. It was found out that among the testers, the DK247MB line was the best in terms of earliness and stability of the grain yield and was distinguished by a high combinational ability with such experimental lines as DK9519 21212, DK9212 22212, DK2633 33113, and DK2821 22212, DK3185 22215 was also singled out from the group as the testcrossoes of this line ranked 1st and 3rd based on the results of 2 years of research. After full stabilization, the obtained families with high combinational ability to yield will be involved in heterosis breeding to develop new hybrids and after being tested in a competitive nursery they will be subject to qualification examination with a view to their registration to be introduced into production. The best samples will be used to set up a new breeding cycle. – P. 10–16.

Lentil seeds provide high levels of protein and, when consumed in combination with cereals, they provide adequate amounts of essential amino acids for the human diet. Their relatively short cooking time provides an additional advantage. Lentil production is equally beneficial for producers, as lentil have high tolerance for extreme environmental conditions such as drought and hot temperatures, and can be grown in semiarid regions without irrigation. Moreover, the crop can be grown in rotation with cereal crops to reduce soil erosion, improve disease and weed control, and reduce demand for nitrogen fertilizer.

It is cultivated and consumed thought the world, with Canada, Turkey and India being the top producers. As for Ukraine until the mid-twentieth century, it has been one of the largest producers and consumers of lentils in the world. But in the second part of twentieth century production and uses of lentil in Ukraine were heavily diminished.

Now in Ukraine are grown such varieties of lentil: Linza, Luhanchanka, Svitanyok, which by careful

**Key words:** corn; self-pollinated lines; germplasm; testcrosses; hybrids; earliness; grain yield.

**Key words:** lentil; genotypes; variability; heritability; correlation; yield performance.
observance of cultivation technology could provide seeds yield up to 2.0–2.5 t/ha. Welcomed zones for growing lentils are Donetsk, Dnipropetrovsk, Kirovograd, Luhansk, Poltava, Kharkov regions.

More and stability yielding are among main aims of lentil breeding. The aim of this study is developed lentil varieties which are more yield, good quality and suitable for mechanical harvesting, adapted to Steppe zone climatic conditions of Ukraine. The aim of our research – was to examine the relationships between lentils seed productivity and morphological and biological features (vegetation and interfacial periods) in conditions of northern steppe zone of Ukraine. Work was carried out in the 2013–2016 years. The test sites were placed in breeding crop rotation after winter wheat, for which precedes fallow. Seeds of lentils were sown with driller “CH-16” to the specified density – 1.8 million plants/ha. Width between rows was 15 cm. The size of plots was 25 m². For the analysis were taken on 25 plants, from middle of the plot.

Thus, when selecting the best plants during lentil selection, deserves the attention the following signs, such as the number seeds per plant (r = 0.75 ± 0.15) and the mass of seeds from one plant (0.78 ± 0.08), the mass of beans from the plant (0.74 ± 0.09), since they significantly correlated with yield. Considering also that yield is a complex feature and depends on a large number of factors in the selection of perspective lines, the following features should also be taken into account: length of the main stem, productive bushiness, number of fruitful nodules, weight of the plant with seeds, weight of 1000 seeds, the influence of which on Yield is mediated and the interaction can be judged only in connection with the signs of mass of seeds and beans from the plant. In addition, such features as the weight of 1000 seeds and the length of the main stem, to a large extent determine the technological performance of future varieties. – P. 16–21.

UDK 633.15:631.52

Fed’ko M. M., Bebeh A. V. Rating per se inbred lines of maize germplasm Lancaster.

Keywords: hybrid, plasma, source material, inbred lines, recombination, research, crop capacity, humidity, combinational ability.

The change in climatic conditions directs the modern selection of maize hybrids to increase its adaptive potential by obtaining forms that combine high productivity with resistance to unfavorable environmental conditions. Special attention should be paid to mid-ripening and mid-late hybrids with an unstable reaction to moisture deficiency and high temperatures. The solution of these issues is necessary to ensure high and stable yields, reduce the cost of production and increase the profitability of the agricultural sector. It is associated with the expansion of the genetic base of the source material, the wide involvement in the work of self-cutting lines of various genetic plasmas – Lancaster, Reid, Iodent, etc.

Objective of this research is to evaluate of inbred lines of germplasm Lancaster for the expansion and optimization of the heterotic structure of hybrids of FAO 300 to 500, tolerant to plant density with stable yield and low harvest moisture of grain.

In our researches, the source material used 20 lines of the Lancaster germplasm, which are widely used for breeding medium-to-late and mid-late hybrids in the Institute Grain Crops of the National Agrarian Academy of Sciences of Ukraine: ДК1996, ДК1950, ДК9053, ДК9054, ДК3044, ДК2953, ДК6353, ДК8143, ДК4222, ДК427/633МВ, ДК6317, ДК2199, ДК1863, ДК119-22, ДК2965, ДК3023, ДК1825, ДК4163; as standards were used lines – ДК680МВ and ДК633/325МВ.

The research was conducted in 2015–2016. At two branches of the Experimental Station "Dnepr" and to the Rozovsky Experimental Station of the Institute of Grain Crops of the NAAS of Ukraine. The original lines were planted in the selection and control nurseries, where the size of the plots was 4.9 m², the repetition was threefold, and the repetition was repeated. The density of standing was formed in the phase of 4–5 leaves and amounted to 50 and 65 thousand plants/ha.

An ecological test of the inbred lines was conducted at Rozovsky ES. The size of the plots was 10 m², the repetition was threefold. The density of standing is 40 thousand plants/ha.

According to the results of the conducted researches, it can be concluded that the yields of the lines in the Steppe of Ukraine largely depend on the moisture regime, namely, the presence of precipitation in the critical vegetation period for water consumption. The most productive under all growing conditions was the ДК2965 line with an average yield of 4.99 t/ha. On the grain yield, lines ДК2953 and ДК6353 (3.06 t/ha and 3.05 t/ha, respectively) were also identified. The lines of ДК6353 and ДК2965 are characterized by high general adaptive ability (GAA) relative to the signs of "grain yield", and the ecological stability of the line is ДК4163, ДК3023, ДК6317, ДК4222, ДК9053 and ДК3044. – P. 21–26.

UDK 633.11:631.527

Riabovol L. O., Riabovol Ya. S., The evaluation of created soft winter wheat samples on a number of economically valuable traits.

Keywords: winter wheat, source material, donor of genes, economically valuable features, economic-valuable traits, performance, adaptability.

An important issue in the management of crop breeding is the selection of the starting material for hybridization and selection of created samples for economically valuable traits.

The use of crossings of wild species of wheat, ecologically and geographically distant forms enables to
breeding material, which combines valuable features of the original parental lines to address issues such as improving yield and grain quality, resistance to biotic and abiotic factors.

In soft winter wheat breeding an important source for the creation of new forms of breeding are foreign varieties that were received in ecological and geographically remote areas. They are obtained on the basis of the samples, which were breeding for a long time with a several economically valuable traits and in their genotype they have genes that control desired traits.

The aim of our study was to compare the performance of samples which are based on hybridization foreign and domestic soft wheat varieties in the yield and different economically valuable traits for selection of high-performance, eco-plastic plants.

Research conducted during the 2014–2016 on experimental plots of Uman National University of Horticulture. There were tested four selected lines of soft winter wheat (4075, 6151, 3872, 6254), distinguished by the complex of economically valuable traits. Standard winter wheat variety was Favoritka.

Samples tested by the complex of economically valuable traits significantly exceeded the standard variety, has been proven in the research. Their average performance over the years ranged from 6,63–7,53 t/ha. The highest yield was in line 3872 (7,53 t/ha), which exceeded the rate control variant 16,7 %.

After analyzing, the main phenotypic characteristics were found the cause of the excess yield over the captured material grade standards. Number 3872 were characterized by a large mass of grain spike (3,41 g) and whole plant (12,28 g) and 1000 grain weight (55,0 g). The highest productive steam was in number 6254 (4,1 pcs. of stems per plant). Longest dense spike (14,5 cm) and the largest number of flowers (78,6 pcs.) were in plant breeding numbers 4075 and most ear contain vas in line 6151 (94,5 %).

All tested materials were relatively high winter hardiness (8,1–8,9 points), significant destruction of plants was not traced.

But the fastest development after wintering was characterized by standard variety Favoritka (7,3 points). New samples were observed significantly lower intensity biomass regrowth in the spring, as the foreign samples used in the hybridization of both parental forms were late, which caused the delay growth and development of plants seed after restoring spring vegetation.

Consequently, the hybridization of varieties with ecological and geographically remote areas created by high-performance soft winter wheat materials. It is proved that the samples 4075, 6151, 3872, 6254 can be used as gene of donors economically valuable traits and serve as parental forms to create new varieties of winter wheat. – P. 26–31.

UDK 633.174:631

Yalanskii O. V., Ostapenko S. M., Sereda V. I., Bondarenko N. S., Isaeva N. M., Baisa I. P., Tagantsso-va M. M. The breeding of sorghum bicolor hybrids under conditions of Genichesk Experimental Station.

Keywords: grain sorghum, breeding, hybrid, heterosis, sterile counterparts, fertile line.

The article is present in brief a history of the creation of sorghum bicolor hybrids at the Genichesk Experimental Station. Under conditions of dicey husbandry of southern Ukraine, where is a very strict hydrothermal mode, especially noteworthy for sorghum crops. Breeding work of removing sorghum bicolor hybrids of grain and technical directions adapted to the arid conditions of Genichesk Experimental Station started in 1961 by works of N.A. Shepel. Origination of sterile lines in Station was launched in 1963 and is linked to the works of A.G. Trotsenko.

During the existence period of Genichesk Experimental Station was examined about two thousand hybrid combinations of sorghum. At the first stage of work was prepared following sorghum bicolor hybrids like the Ranni 1 (it is a first hybrid, which in 1962 included in the state variety testing) Genicheskii 4, Genicheskii 6 and Genicheskii 8. Through coordinated work of scientists of the Institute of Corn and its Experimental Station subsequently was created two new hybrids – Stepnoi 3 and Stepnoi 5.

The selection of parental forms in sorghum breeding is not accidental and depends on the predictive parameters of hybrid plants and the inheritance of certain characteristics. Studies of M. S. Kalashnik, A. G. Trotsenko, V. V. Samoilenko and A. T. Samoilenko confirmed the opinion that the high grain yield is inherited from the maternal form with a high level of manifestation of this trait in it. The result of the purposeful work of these scientists was the creation of such high-yielding hybrids as Centaur, Genicheskii 37/200, Genicheskii 5/11, whose yields varied from 2,9 to 7,0 t/ha depending on the weather conditions of each year, and in conditions of the irrigation grain yield was reached 12 t/ha.

In general, at the present stage the studies with breeding of sorghum bicolor are aimed at creating hybrids of grain sorghum not only with high rates of grain productivity, but also with a significant content of starch in the grain. So, in 2004 at the Genichesk Experimental Station by works of V. V. Samoylenko, A. T. Samoylenko, T. A. Shev-chenko and A. G. Trotsenko was created the hybrid Kovech, which is distinguished by high yield, increased starch content in grain (70,9 %) and some other economic-valuable signs. The panicles of the hybrid plants are extensive, which contributes to a more rapid loss of moisture in the grain during maturation, the pedicle of panicles is long (15–22 cm) – thanks to this feature during harvesting it is possible to avoid cutting off the living
and moist top leaf.

The purpose of our work was to expand the assortment of hybrids with high content of starch and with a reduced content of tannins in the endosperm of grain. The variety testing studies with sorghum were conducted in the Genichesk Experimental Station of the State Institution “Institute of Grain Crops” in 2014–2016. There are given results of variety testing of new sorghum hybrids. Parents components selected for new crosses distinguished by high combi-
national resolution. Among the most productive parent forms were sterile analogues Dn-5s and Dn-37s, in which corn starch content was high. The sterile analogue Dn-37s has the white grain and characterized by the absence of tannins in the endosperm grain. Among pollinators were selected samples high in starch and different content of tan-
nins – fertile line Utlug-2f (has the white grain and does not contain tannin) varieties Color and Grand. As the standard hybrid was plated Kovcheg.

Among the samples for grain yield is stood the heterotic hybrid Utlug – 4,5 t/ha. This hybrid was characterized by a high starch content in grain (71,4 %) – almost at the level of the standard hybrid Kovcheg – 70,9 %. The grain yield of hybrid SVAT was 4,3 t/ha, it forms the seed with a light gray color with high starch content (69,9 %) and with low tannin content in the endosperm.

It was determined the direction in selection studies and has been make evaluation of promising hybrid combinations of sorghum Utlug and SVAT, which are characterized by improved morphological, grain-yield and biochemical features compared to the standard hybrid Kovcheg. These hybrids are included in the state variety testing. – P. 31–35.

UDK 633.5.631.527.5:631.529

Abelmasov O. V. Breeding assessment self-pollination lines and sister hybrids of maize genetic plaza Iodent.

Keywords: corn, plasma Iodent, testkross, sister hybrids, line, combination capacity, grain yield.

World corn breeding is mainly based on the use of related lines of different genetic plasmas. When to create used a special hybrid combinations getting crossed with the best luxury lines. A small number of lines still allows to synthesize a large number of different hybrid structure that react differently to self-pollination. This further progress in heterosis breeding ensured constant improvement of well-known basic models based on alternative group lines.

The aim of our work is related to the selection and evaluation of breeding for complex traits new precocious source material of plasma Iodent adapted to the conditions of the steppe zone of Ukraine.

The starting material for research were ripening self-pollination line plasma Iodent: MS555, DK714/195 DK744, DK237, DK216, DK234, DK213, DK1274 upon which received 55 nursing ordinary hybrids.

To determine combining ability baselines and sister hybrids created by their participation using 4 lines – testers different henoplazm: DK247 (Zmichana), DK296 (Lancaster), DK272 (BSSS x Laukon), DK951 (BSSS). Standards in the testing line has been widely used in practical breeding line DK744 and for testkrossiv: early maturing hybrid – Dniprovskii 181 SW, Middle-early – Orzhitsa 237 MW and middle-ripening – Solonyansky 298 SW.

An important indicator is the stability characteristics of the lines yield in years. The least variations in this figure marked by lines DK237 and DK1274. In the first of them it was 4,24 t/ha in 2013y. and 3,63 t/ha in 2015y., and in line DK1274 respectively 4,57 and 4,21 t/ha.

Harvesting grain moisture source material is one of the most important breeding traits, which is mainly determined by genotype lines and hybrids, as well as weather conditions during their maturation. According to our research the average for the years in all the lines it was about – from 14,0 % in line DK216 to 14,9 % in line DK714/195. Regarding some years, this figure was minimal in 2014 y. (13,2 %), and highest in 2013y. (16,4 %). More significant in 2013y. was also differentiation lines for harvest mois-ture – from 15,5 % (DK216) to 17,7 % (DK1274). The nature of the variation in line for years been close limits accounted for 1,6–5,8 %.

The maximum level of grain yield of nursing hybrids on average for three years certified in hybrid MS555?DK237 (9,43 t/ha), a minimum of DK234?DK216 (5,81 t/ha).Greatly influenced by stress conditions in 2015y. in hybrids DK1274?DK213, DK714/195?MS555, which reduced their productivity by 38,4 and 39,0 % respectively.

The average grain moisture at harvest of hybrids was within 12,9 % in 2014y. and 17,6 % in 2013 y. In average years of research the highest (16,2 %), the figure was hybrid DK237 x DK213 and the mini-mum – in hybrid DK237 x DK1274 (13,5 %).

One of the main objectives of our research was to determine the general (ZCA) and specific (CCA) combining ability lines and sister hybrids for what they interbred with the above four testers.

The results of the study grain yield testkrosiv by ZCA effects and options CCA lines and hybrids nursing. For a more systematic of their assessment in terms effects of ZCA was made their distribution conditional on the middle classes relative to experiment. Distribution nursing hybrids by class effects ZCA relative signs of “grain yield” showed that in 2013 y. the maximum number of samples (42 %) was classified as Class 2 and 29 % to 1 and Class 3, and in 2014 y., respectively 40 % were within class 2, and 30 % belonged to class 1 and 3.
The best estimates ZCA proved line MS555 (0.47 t/ha in 2013 y. and 0.52 t/ha in 2014 y.). DK213 (respectively 0.84 and 0.46 t/ha) and sister hybrids, DK216 x DK744 (0.89 t/ha and 0.46 t/ha respectively); MS555 x DK213 (0.42 t/ha and 0.60 t/ha, respectively). We determined the relationship between the estimated effects ZCP lines and of nursing hybrids derived for their participation. Correlation coefficients were 0.11 in 2013 y. and 0.62 in 2014 y. indicate not very close relationship, especially in a stressful years.

Stressful growing conditions require a qualitative assessment of new original material in the selection of corn hybrids adapted to the specific growing conditions to obtain high and stable yields, which is one of the priority tasks of agricultural producers. The highest average values of grain yield on average for 2013–2015 yy. MS555 distinguished baselines and DK744. The most stable yields of grain during the years of research characterized baselines DK237 and DK1274.

Dedicated 7 most valuable genotypes with high estimated ZCA relative grain yield. discovered the middle reliable relationship between the combining ability for grain yield line and received their based sister hybrids (r = 0,574).

Highlight sister hybrids that combine high impact ZCA and high options CCA during the years of research: DK714/195?DK237, DK237?DK714/195 et al., based on which a new cycle of works on creation of new lines of plasma Iodent quick. – P. 35–39.

UDC 577.2:633.15

Satarova T. M., Borisova V. V., Goncharov Yu. O., Jumee Zhang, Hui Jin. Variability of β-carotene content in maize grain during its storage.

Key words: maize, β-carotene, inbred, hybrid, grain storage.

The purpose of the research was to determine the content of β-carotene in the grain of maize lines and hybrids, depending on storage duration. The grain of two maize self-pollinated lines of different harvest years was the material for the study: DK239 harvested in 2011 and 2015 and DK633/325MV harvested in 2014, 2015 and 2016. Also, the grain of two maize crosses, DN Sofia and Pochaevskj 190 MV, both harvested in 2014 and 2015, was examined. The analysis of β-carotene content was carried out for all samples in November 2016. That is, the grain of the DK239 at the time of analysis was kept for 1 and 5 years, the grain of DK 633/325MV – 0.08, 1 and 2 years, the grain of crosses DN Sofia and Pochaevskj 190 MV – 1 and 2 years. Grain preservation was carried out at + 5 °C in the dark.

The content of β-carotene was determined by ultra-efficient liquid chromatography (UPLC) on a Xevo TQ-S device (StepWave™, USA).

The content of β-carotene in the grain of the analyzed inbreds varied from 0.54 to 1.61 μg/g. The range of variation in the years of research for DK239 was 0.54–1.61 μg/g, but for DK633/325MV it was only 0.54–0.61 μg/g. For DK239 a significant difference in β-carotene content between the grain harvested in 2011 (preserved until the analysis for five years), and the grain harvested in 2015, was examined. The analysis of β-carotene content was carried out for all samples in November 2016. That is, the grain of the DK239 at the time of analysis was kept for 1 and 5 years, the grain of DK 633/325MV – 0.08, 1 and 2 years, the grain of crosses DN Sofia and Pochaevskj 190 MV – 1 and 2 years. Grain preservation was carried out at + 5 °C in the dark.

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The content of β-carotene in the grain of the crosses varied from 0.42 to 1.63 μg/g. According to the results of two-year observations, the β-carotene content in DN Sofia grain significantly exceeded this index in Pochaevskj 190 MV. The true difference in grain β-carotene content between years of harvesting for DN Sofia has not been established. Pochaevskj 190 MV for different storage terms has shown significant differences, with β-carotene content in grain of harvest 2014 (two years of storage) 1.43 times higher than in grain of harvest 2015 (one year of storage). Both crosses, DN Sofia and Pochaevskj 190 MV, were grown simultaneously in 2014 and 2015. The content of β-carotene in the grain of DN Sofia was higher than in Pochaevskj 190 MV almost twice as much for harvest 2014 and nearly three times for harvest 2015. This fact indicates a different rate of β-carotene loss in grain depending on genotype.

The research shows not only the effect of a genotype of lines or hybrids, but also the effect of the year of cultivation and the storage duration on the content of β-carotene in grain. Consequently, for the comparative analysis of the β-carotene accumulation in grain of different lines and hybrids, it is necessary to use the grain of the same year of plant cultivation, preferably immediately after harvesting. Separately, selection of maize hybrids should be provided to increase the ability not to lose β-carotene for at least a year, which would increase the feed value of maize grain. Since, as shown in this paper, the content of β-carotene in maize grain is dependent on the conditions of plant cultivation and storage duration, the direct determination of β-carotene in grains of various breeding samples can only indirectly testify the potential of a genotype to accumulate β-carotene. It makes more expedient to take into account not only the grain yield, but also the yield stability and the content of β-carotene in maize grain.
account the favourable alleles of key carotenogenesis genes for breeding improvement of maize grain β-carotene content. – P. 40–44.

UDK 633.15:631.562

Kyrpa M. Y., Skotar S. O., Lupitko O. I., Roslyk O. O. Specificities of aerodynamic separation of single-component seed mixtures (by way of corn example).

Key words: corn, seed mixture, fraction, aerodynamic separation, technical-technological signs.

Seed material which is harvested and has after-harvesting treatment has form of the multicomponent mixture. So, after harvesting, it is separated by mechanical way, it is divided into separate components (fractions) and received a single-component mixture with different size, weight, specific weight and quality.

Separation is carried out by different ways: bolting of mixtures and sieving on trieurs, treatment on the gravitational tables, on electromagnetic and optical separators, winnowing in the air stream. The last method is according to the aero-dynamic separation, which is recommended to use for sorting-calibration of the single-component mixture and definition the most full-blown fractions in it.

The aim of the work was to establish specificities of aerodynamic sorting – calibration process of single-component, to define its influence for output and quality of corn seeds.

The researches were carried out with single-component mixture of corn hybrid seeds, which was cleared at the corn-treatment plant. It was researched such hybrids of Institute cereal crops NAAN: Ushynskiy 167 SV, Piatyhatskiy 270 SV, Borozenskiy 277 MV, Solianianskiy 298 SV, Zbruch. The process of aerodynamic separation-calibration was modeled on the laboratorial classifier KSP-1. Due the process of separation it was chosen 3 fractions: light, heavy and medial with different output and weight of 1000 seeds. It was defined seed quality: germinability, growing power by the “cold” test, weight, specific weight, capacity, linear size by the valid methods.

In our researches a single-component seed mixture, for stabilization of process aerodynamic division, provi-sionally, was separated on the sieves with outcomes 7–9 mm, and received two fractions (triage, pass) which were separated in air stream severally. These researches shown that the efficiency of separation seed mixture depends on direction of air stream, which can be ascending and horizontal.

The quality of fractions, received in process of aerodynamic separation-calibration, was different, depending on corn hybrids. In all researched hybrids only due separation of hybrid Ushynskiy 167 SV it was received heavy fraction with higher germinability of seed in 3–6 % in comparing with light one. In other hybrids the regularity was not defined. It is defined instability of process aerodynamic separation of single-component seed mixture is explained by changing place of a seed in air stream and aerodynamic resistance of a seed. Sieve separation influenced more on quality seed fractions by sign of seed width. Seed germinability of the triage fraction from the sieve 7–9 mm was in 6–15 % higher than in the pass fraction.

Aerodynamic separation of the single-component seed mixtures is unstable process as in the ascending (ver-tical) as in the horizontal air stream. The reasons of destabilization are: considerable spontaneity of mixture distribution in air stream, changing windage indexes in it, according to its place and attitude, and also speed and density of air.

Especially it is difficult to carry out aerodynamic separation of seeds with complex shape and with significant different quality, particularly in corn. The hybrids seeds in air stream were allocated in depend on shape, size, capacity, weight of 1000 seeds. And indexes of specific surface and weight (density) had less influence. It was not defined a reliable rectilinear connection between fractions and germinability of seeds in majority of researched hybrids.

Taking noted it is not rationally to carry out aerodynamic separation of single-component mixture of seeds, for example, a corn, with aim its sorting-calibration. This method is recommended to use for clearing seeds with following its deeper sieve and gravitational separation on corresponding machines. – P. 45–50.

UDK 633.16 «321»:631.816 (251.1-17:477)

Gyrka A. D., Bokun O. I., Mamiedova E. I. Influence of the predecessors, mineral fertilizers and biological preparations on formation of the elements of barley yield field culture in the Northern Steppe of Ukraine.

Key words: spring barley, mineral fertilizers, predecessors, biological preparations, yield, grain.

The aim of research was to study the effect of different agricultural factors, such as predecessors, mineral fertilizers and biological preparations on degree of implementation the genetic productivity potential of spring barley plants.

The study was conducted at the Erastivka Experimental Station of the Institute of Grain Crops of NAAS during 2015–2016, according to generally known methods. Soil of experimental field – ordinary chernozem, low-humic, loamy. The humus content in arable soil layer (0–30 cm) – 4,0–4,5 %, total nitrogen – 0,23–0,26 %, phosphorus – 0,11–0,16 %, potassium – 2,0–2,5 %, pH of water extract – 6,5–7,0.

Field experiments were laid in six-field crop rotation. Field experiments were laid after 2 predecessors (winter wheat and maize) on 2 backgrounds of mineral nutrition (without fertilization and N$_{30}$P$_{30}$K$_{30}$). In experiments was sow spring barley of variety Sovira.

The scheme of the experiment also included options of applying the 3 biological preparations: Diazofit, Fosfoenteryn, Biopolitsyd and a microfertilizer Syzam. Seeding rate of wheat was 4,5 million of grains/ha. Soil
preparation, sowing, care of crops and harvesting were carried out according to the zonal recommendations. Variants in a field experiment designed systematically, with three replications. Accounting plots area ~ 50 m².

Arid conditions of Ukraine’s Steppe zone is quite complex. Two-thirds of land in Ukraine, according to the FAO, referred to zone of risky agriculture, but even here one can use 30–50 % and more of varieties capacity, in consideration of importance the local gene pool in creating highly adapted varieties based on local varieties, that are resistant to dry conditions. Weather conditions during the period of investigation were different, which made it possible to fully assess its impact on grain productivity potential of spring barley plant. Ukraine’s agro-climatic resources and of Steppe zone in particular, are generally favorable for growing spring barley, although quite volatile during the growing season. Uneven and sometimes abnormal expression of climatic factors, such as air temperature and precipitations, often has a negative impact on growth, development and productivity of crops.

The results of experimental studies have shown that the best conditions for spring barley plant growth and development and to obtaining the highest crop yield were in sowings after winter wheat as a predecessor. In these plots, the obtained grain yield made up 1,85–3.08 t/ha at the background without fertilizers and 2.01–3.60 t/ha where applied fertilizers (N₉₀P₉₀K₉₀). After predecessor corn, crop yield was 1.32–2.11 t/ha and 1.50–2.63 t/ha respectively.

All drugs which were studied, provided a significant increase in grain yield compared with the control, but the best option was at combination of using the microfertilizer Syzam and microbiological preparations. The highest additional crop yield was formed, regardless of its predecessor, on the mineral nutrition background (after winter wheat = 1.59 t/ha, after maize = 1.13 t/ha).

Summarizing the results of research it is should be noted the following. Application the microfertilizers together with biological products and mineral fertilizers makes it possible to obtain a significant increase in the yield of grain. It is established that with the joint treatment of seeds and spraying of plants in the tillering phase by microfertilizer Syzam and a complex of biological preparations, the crop yield of spring barley is increased by 1.23–1.59 t/ha after winter wheat and 0.79–1.13 t/ha – after maize. – P. 51–55.

UDC 633.11«324»: 631.8


**Keywords:** winter wheat, variety, mineral nutrition background, biometric indexes, above-ground vegetative mass of plants, foliage surface area.

Research on the study of the features of growth and development of winter wheat plants of varieties Blagodarka odes'ka and Zlatoglava were carried out under the conditions of the Northern Steppe during the spring vegetation, depending on the background of the mineral nutrition. As predecessor of winter wheat was barley. In accordance with experimental design we introduce background fertilizer in doses N₉₀P₉₀K₉₀, N₉₀P₉₀K₃₀, N₉₀P₆₀K₃₀ and N₉₀P₆₀K₅₀ under presowing cultivation. The technology of growing of winter wheat was common for northern Steppe of Ukraine.

On average for 2013–2015 years at the time of renewal of spring vegetation, the plant stand density of the variety Blagodarka odes'ka at the presowing application of fertilizer in the rate of P₀₀K₅₀ was 380.1 pcs./m², N₉₀P₀₀K₅₀ – 386.2, N₉₀P₆₀K₅₀ – 405.7 and N₉₀P₆₀K₃₀ – 401.0 pcs./m² respectively. The values of this indicator of the variety Zlatoglava varied from 360.0 pcs./m² at application of fertilizer in the rate of P₀₀K₅₀ to 380.2 pcs./m² when full mineral fertilizer in the rate of N₉₀P₀₀K₅₀ was applied to the presowing cultivation. In the stages of plant shooting and ear formation the plant stand density decreased, its high values were with the presowing application of fertilizer in the rate of N₉₀P₀₀K₅₀. The coefficient of total bushiness of plants of both varieties in all stages of development increased with the raising of the nitrogen dose in the composition of the complete fertilizer.

In the stage of plant shooting and especially in the stage of ear formation, the advantage of plants of the variety Zlatoglava in height was clearly evident. The highest absolutely dry overground mass of 100 plants during the spring vegetation in both varieties was formed on the background of fertilizer in the rate of N₉₀P₀₀K₅₀. Calculating on unit of area the above-ground dry vegetative mass of winter wheat plants of the variety Blagodarka odes'ka, depending on the background of the mineral nutrition, during the spring vegetation renewal varied from 117.5 (P₀₀K₅₀) to 214.5 g/m² (N₉₀P₀₀K₅₀), in the stage of plant shooting – from 325.4 (P₀₀K₅₀) to 667.6 g/m² (N₉₀P₀₀K₅₀) and in the stage of ear formation – from 680.2 (P₀₀K₅₀) to 1358.1 g/m² (N₉₀P₀₀K₅₀). At the variety Zlatoglava the values of this indicator for the time of renewal of spring vegetation, varied from 120.6 (P₀₀K₅₀) to 193.1 g/m² (N₉₀P₀₀K₅₀), in the stage of plant shooting – from 339.0 (P₀₀K₅₀) to 610.3 g/m² (N₉₀P₀₀K₅₀) and in the stage of ear formation – from 722.0 (P₀₀K₅₀) to 1171.8 g/m² (N₉₀P₀₀K₅₀) respectively.

With an increase in the nitrogen dose in the complete fertilizer composition, the area of the leaf surface of winter wheat per one plant and the dimensions of the leaf surface per unit area increased. The best results were obtained with the presowing application of fertilizer in the rate of N₉₀P₆₀K₅₀. In the stages of plant shooting and ear formation on an increased mineral background (N₉₀P₆₀K₅₀) the largest area of the leaf surface, both on average per plant and per unit area, was formed by the variety Blagodarka odes'ka.

Thus, the sampling of plants in different stages of development of winter wheat showed that the varieties Blagodarka odes'ka and Zlatoglava at presowing application P₀₀K₅₀ the values of biometric parameters of plants
were the least. With the inclusion of nitrogen in the composition of the basic mineral fertilizer, the plant stand and plant height, their total bushiness, above-ground vegetative mass and photosynthetic surface increased and reached the highest values in variants with the nitrogen rate 60–90 kg of active substance per hectare. During the spring vegetation in the crops of winter wheat of variety Blagodarka odes’ka, as a rule, such indicators as the density of plant stand, the number of stems, the above-ground vegetative mass and the area of the leaf surface were large compared to variety Zlatoglava. At the same time, the advantage of the latter variety on the plant height in the stages of plant shooting and ear formation was clearly manifested. – P. 55–59.

UDC 633.16(3)321:57.014:631.8

Gyrka A. D., Tkalich I. D., Sydorenko Yu. Ya., Bochevar O. V., Iienko O. V., Mamiedova E. I. Formation the crop yield and grain quality of spring barley depending on growth regulators and fertilization.

Keywords: spring barley, growth regulators, micro-fertilizers, mineral fertilizers, grain yield, protein content, extractivity.

It are established the peculiarities of growth, development, formation the crop yield and grain quality of malting spring barley variety Galaktyk depending on the individual and complex applying of growth regulators and micronutrients on different backgrounds of mineral nutrition in the conditions of northern Steppe of Ukraine.

Field and laboratory experiments conducted in the laboratory of agrobiological resources of spring grain and legumes at the Erastivka Research Station of SI Institute of grain crops during 2013–2015.

Soil of experimental field – ordinary chernozem, low-humic, loamy. The humus content in arable soil layer (0–30 cm) – 4.0–4.5 %, total nitrogen – 0.23–0.26 %, phosphorus – 0.11–0.16 %, potassium – 2.0–2.5 %, pH of water extract – 6.5–7.0. The level of soil provision with mobile forms of phosphorus can be described as higher than normal and potassium –as high.

Weather conditions during spring and summer in the 2013–2015 were generally favorable for the formation of crop yield and grain quality of spring barley, but some of the growing periods in 2013 (May – June) were dry, which adversely affected the development of plants.

It is determined that preplant seed treatment of spring barley with preparations Vympel and Orakul contributed raising its germination capacity for 7.2–11.1 % on a background of N30P30K30 and for 4.4–7.5 % – on N60P60K60 compared to controls.

The most effective was the complex application of preparations. On a background of fertilization with N30P30K30 and seed treatment with Vympel and Orakul, spraying plants in tillering phase with preparations Vympel and Orakul multi-complex or in phase of stem elongation with Vympela aided the gain in above-ground weight per plant compared to the control for 0.66 and 0.73 g, respectively. In these variants also observed an increase in the number of nodal roots – for 0.5 and 5.1 pcs./plant, respectively, and increasing the tillering intensity. A similar trend was observed on a background of N60P60K60.

The data also have shown that under the influence of seed treatment and foliar feeding of plants with growth regulator Vympeland complex micronutrient Orakul had increased a ear length for 0.4–1.6 cm; the number of grains per ear – for 1.0–3.3 pcs.; grain weight per plant – for 0.2–0.6 g; coefficient of productive tillering – for 0.2–0.6; weight of 1000 grains – for 0.6–5.0 g; compared to control. Increasing the dose of fertilizer to N60P60K60 contributed to increasing these parameters relatively to the control variant for 0.3–1.7 cm; 0.9–4.3 pcs.; 0.2–4.0 g; 0.2–0.8 and 3.1–6.1 g respectively. So, in terms of 2013–2015 higher grain yield of spring barley received at the complex using of preparations that were studied: Vympel and Orakul for seed treatment and Vympel and Orakul multi-complex for (bio-manganese) for foliar feeding of plants in the phases of tillering and stem elongation. In these variants the increase of grain yield amounted on a background of N30P30K30 – 0.35–0.38 t/ha, on N60P60K60 – 0.26–0.39 t/ha.

Increasing the doses of mineral fertilizers from N60P60K60 N60P60K60 provided increase in protein content in spring barley grain for 0.7–2.4 %. On a background of N30P30K30 the additional spraying plants in stem elongation phase with preparations Vympel (500 g/ha), Orakul multi-complex (1 l/ha), Orakul copper chelate (1 l/ha) on a background of seed treatment with Vympel K (500 g/t) and Orakul (1 l/t), and the usage in the tillering phase Vympel (500 g/ha), Orakul multi-complex (1 l/ha), Orakul-bio-manganese (1 l/ha) resulted in reduction of protein content in barley grain for 0.2–2.0 %. For protein content (11.5 %), extractivity (81.6 %), weight of 1000 grains (51.8 g) germination ability (93.3 %), humidity (14 %), color (yellow) the grain of spring barley variety Galaktyk, obtained in field experiments on a background of N30P30K30, meet the requirements of II degree of quality of the State standard of Ukraine ISO 3769-98 for brewing varieties. – P. 59–65.

UDC 633.13:631.816.12

Kulyk I. O., Bondarenko A. S., Kotchenko M. V. Formation of grain productivity of naked oats in the Northern Steppe of Ukraine.

Keywords: naked oats, fertilizer system, plant productivity, crop yield.

The results of studies on forming productivity of naked oats are presented. It is established, that the at application of N60P40K40 + N30 + reacom-SP-grain observed the increasing of number of productive stems, panicle

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TD Characteristics of growing hybrid maize and sunflower varieties in the Pochaivskyi Poltava region.

Established that the increase of the use of fertilizers on foliar feeding (PP dose of 3 l/ha) on average was 4% compared with the control. The use of foliar feeding (PP dose of 4.5 l/ha) in creased the average grain yield of 4% for hybrid plot, 6% for variety Onyx, 10% for the Cadet class, compared with the control. The use of foliar feeding (PP dose of 4.5 l/ha) in creased the average grain yield of 6% for hybrid plot, 10% for variety Onyx, and 12% for the Cadet class. Similarly to the previous version, was the effect of the use of PP dose of 6 l/ha, an increase in yield in creased by 9% for hybrid varieties Onyx plot and 14% for the Cadet class. – P. 69–74.

UDC 633.15:631.5

Tsykov V. S., Dudka M. I., Shevchenko O. M., Nosov S. S. Efficiency of application of macr elements and microfertilizers in growing of corn.

Key words: corn, mineral fertilizer, microelements, grain yield, grain moisture, efficiency.

Technological methods of application of microelement preparations in the system of nutrition of corn plants have been developed, as well as their efficiency for use in tank mixtures with urea on the background of mineral fertilizer application was ascertained.

One of the most effective means of influencing the yield and quality of corn grain is the application of fertilizers. Despite the consumption by corn plants of insignificant amounts of microelements (Fe, Mn, Zn, Cu, B, Mo, Co, Ni, etc.), they play the same important role in obtaining high yields as macroelements (N, P, K). In this case, the deficiency of any element of nutrition can be as limiting factor in increasing the productivity of corn plants.

Foliar top dressing of corn crops can be an effective agrotechnical method for the provision of plants with microelements during vegetation. In arid conditions of the steppe zone, they are particularly effective, so long as the availability of nutrients increases and their absorption by plants from the soil is stimulated. Macroelements and microelements penetrate easily into the plant organism at leaf nutrition, they are well assimilated by them, are rapidly incorporated into the synthesis of organic matter in the blades or penetrate to other plant organs and are involved in metabolic processes.

The purpose of the work is to identify the efficiency and to develop the technological methods for the application of microelements and nitrogen fertilizers in the system of soil nutrition and foliar top dressing of maize plants.

Field experiments were carried out in 2014–2016 at the State Enterprise Pilot Farm “Dnipro” in the laboratory of agrobiological resources of corn and sorghum. The seeds of the early-ripening hybrid maize Pochaiwskyi 190 MV were sown (the owner is the State Institution Institute of Grain Crops). The method of sowing is dotted with an inter-row spacing of 70 cm, pre-harvesting density was 55 thousand plants per hectare. The general

length, plant height and grain weight per plant, that provides the largest increase in grain yield of naked oats – 43% . – P. 65–68.

UDC 633.854.78:631.8:631.53.011:631.559

Shakaly S. M. Formation crop yield and quality of sunflower seeds depending on foliar-feeding.

Keywords: sunflower, hybrid, variety, bacterial agents, micronutrients, productivity, quality and yield oil.

One of the main problem of growing sunflower in Ukraine is low and unstable yields for ears. Under these conditions, the production of sunflower high lypro fitable form osthause hold soft en becomesun proﬁtable.

The list of existing fertilizers can provide thou edsof plant sin nallele ments zhyvlenyia. Vodo chasue of micronutrients canprovi de plant sin cessary micronutrients. It is believed that the use of micronutrient sand biological products reduces depe den ceharvest from en viron mental factors.

Experimental studies carried out during the 2014–2016 biennium. The fields PAL “Opportunity” Novosandzharskyi Poltava region.

In experiments studied the effect of bacterial preparations Albobakteryn, Polimikso bakteryn fertilizers and Jet sins formation of yield and quality of sunflower seeds. Experiment founded on three backgrounds food: no fertilizer (control) fon + N_{10}P_{10}K_{30}, and fon + N_{60}P_{60}K_{60}.

In our experiments, the potential and actual seed production using foliar feeding plant sin crea seed compared with the control (with out fertilizer) by in creasing the size baskets, density and flower sin their feculence of flowers that formed a full seed. The analysis found that control of the minimum number of seeds on avera ge year ranged from 517 pieces. The hybrid Cadet 559 units. and 667 units. Onyx varieties and hybrid plot re spectively. Att a time control the minimum number of flowers on average per year ranged from 747 pieces. The hybrid Cadet 816 units. and 751 units. In Onyx and plot re spectively.

The highest absol eas alters the control pro of es foliar feed in gand fertilizing dose N_{60}P_{60}K_{60}. Yield sin the Seareas was 2,06 t/hain hybrid plot, 2,20 t/hain grade Onyx, 1,97 t/hain the Cadet class.

The quality of sunflower seed sma llly determined bythe content of the oil. Changing their deoxo ic ontentin sunflower seed stooks place in hybrid plot of 46.8 % of these edduer control to 49.0 % for PP dose version 6 l/ha. Dlyasoruto Oniks this ratevaried from 43.2 % of the seed under control 45.6 % at a dose of PE 4,5 l/ha. Applying foliar feeding crops of sunflower micronutrient J et sin added to the control pro viding them orp-hological structure of plants, in crease productivity culture, which ultimately contributed to a signi ficant crease in oil yield perunit area. Thus the effect of the use of fertilizer sindoses of 4.5 and 6 l/ha was about equal.

Established that thein crease of theuse of fertilizers on foliar feeding (PP dose of 3 l/ha) on average was 4 % for hybrid plot, 6 % for grade Onyx, 10 % for the Cadet class, compared with the control. The use of foliar feeding (PP dose of 4.5 l/ha) in creased harve stan in crease of 8 % for hybrid varieties Onyx plot and 12 % for the Cadet class. Similarly to the previous version, was the effect of the use of PP dose of 6 l/ha, an in crease yield in creased by 9 % for hybrid varieties Onyx plot and 14 % for the Cadet class. – P. 69–74.

UDC 633.15:631.5

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nutrition background was P3OK30, under pre-sowing cultivation and before inter-row cultivation in the soil was applied N45 (in the form of ammonium nitrate). Corn plants were sprayed in phases 6–7 and 9–10 leaves according to the experimental scheme. Placement of variants was sequential. The area of the sowing trial plot was 42 m², the record plot area was 21 m². Replication of test was threefold. Observations and experimental investigations were carried out in accordance with the fieldplot technique of conducting field experiments with corn.

The grain content in ear was from 569 to 636 pcs. grains. This indicator increased with increasing the dose of mineral fertilizers and at foliar top dressing with microelement preparations. The highest indicators of grain content in ear were obtained for the application of ammonium nitrate in the dose N45 before interrow cultivation and foliar top dressing of plants with Quantum-maize preparation in the combination with carbamide.

Due to the contact interaction of preparations with plants, the efficiency of microfertilizers Reacom CP-maize and Quantum-maize in combination with carbamide was higher at spraying of plants in the phase of 9–10 leaves. Spraying corn plants with microfertilizer solutions in combination with carbamide in this phase of development contributed to an increase in grain yield by 0,21–0,35 t/ha. In the case of foliar top dressing of corn plants at earlier stages (phase 6–7 leaves), this indicator was equal to 0,18–0,29 t/ha.

The regulation of grain productivity of corn by microfertilizers also depended on the background nutritional regime, which was formed by the application of nitrogen fertilizer. The conducted researches showed that the role of microfertilizers increased on the background without application of N45 – an increase in the yield of corn grain from the use of the preparation Reacom-CP-maize, in combination with urea amounted to 0,35 t/ha.

The higher basic yield of grain, provided the application of N45 under presowing cultivation and before inter-row cultivation, the efficiency of microfertilizer weakened – the increase in yield from their application was 0.30 and 0.23 t/ha respectively. Thus, the complex improvement of the morphological and reproductive parameters of corn plants due to optimization of their nutrition during the period of the greatest growth rates positively affects the grain yield – its indicators increased by 1,24 t/ha. At the same time, in the total effect of the interaction of nitrogen fertilizer and microelements, the proportion of ammonium nitrate in the formation of yield was 0,71–1,02 t/ha, and tank mixtures of carbamide with microelements was significantly less – 0,23–0,35 t/ha. – P. 75–79.

UDC 631.95:631.58:631.871:631.51

Timofeev M. M., Bondareva O. B., Vinyukov A. A. Biologization of plant-growing is the basis of formation the high-productive agrobiocenoses.

Keywords: biologization of plant-growing, mulcheplast, bush bands, degradation of soils, nutrient farming system, locally-vertical tillage, parcelling of large fields.

In the study of historically long-term cropping systems it noted that the total of the quintessence is the use of various types of biogenic resources. Projected that in the future biogenic farming system the main organo renewable resource (source of carbon and NPK) will be shrubs arrays, which will take at least 34% of the entire agricultural sphere at the expense of unproductive and degraded lands. Preventing the destruction of the soil is achieved through: mulcheplast, vertical drains, bush bands, which will be formed across the slopes and on marginal lands with ecological-agrochemical point less than 30, and the slopes more than 3–5° due to continuous planting shrubs.

The purpose of research – to substantiate the optimal nutrients parceling of large fields in the conditions of formation of biogenic farming systems in the formation of stable agrobiocenoses.

The studies were conducted using a standardized and certified in Ukraine methods and methodological approaches.

When building a schemes of modern state of the fields used by card of land management and materials of ecological and agrochemical land certification by SE SF “Zabosyshch” of DSASS of Ukraine NAAS. Of the surveyed area (1557,6 ha) of arable land enterprise with nutrient farming system under mulcheplast will remain 955,5 ha (61,4 %), solid plantings of shrubs (in place hollows and ravines and areas with ecological agrochemical point less than 30) will be occupied 267,9 ha (17,2 %), strips of shrubs – 165,6 ha (10,6 %), shrubs which leaves used to feed – 168,6 ha (10,8 %).

An examination of the major fields of 300 ± 30 hectares was a question about the area of the parcels under mulcheplast. The graphical models were calculated the most promising areas under mulcheplast.

It was determined that the most appropriate area under mulcheplast to range from 9 to 16 hectares, which can provide from 3,2 to 2,4 t/ha of mulch shrub bands. In the context of large areas of gullies, low soil fertility slopes more 3–5’ ratio of the areas under mulcheplast and shrubs to 2,57: 1 is optimal.

Mulch quantity (t/ha) with shrubs with an increase in the area under mulcheplast decreases exponentially. When nutrient parceling of large fields two or three sides shrub array compatible, that is, the maximum biomass to generate mulcheplast will be less.

Yield with unit area depends not only on moisture resources that more under mulcheplast, but also on the level of soil fertility due to the continuity of the process of making bio-fertilizers in the vertical drains. Without constant positive balance of humus in the soil layer (0–40 cm) due to the introduction of organic matter will not be able to stabilize the content biophil elements.
Priority biogenic progress in maintaining high soil fertility should be the strategic direction and technical and technological changes to meet them. – P. 79–85.

UDC 633.11: 631.52: 664.236

Diordiieva I. P., Novak Zh. M. Gluten quantity and quality in grain of fourspecies triticale collection samples.

Key words: triticale, gluten, quality, grain

The aim of the research were studying of gluten quantity and his quality traits in the grain of four-species triticale (TriticosecaleWittmaack) collection samples. This forms were obtained in Uman national university of horticulture as a result of crossing between three species triticale and spelt wheat (Triticum-speltaL.).

Researches were conducted during 2015–2016 y. in scientific laboratory of genetics, plant breeding and biotechnology. Gluten content in the grain and his quality traits, such as gluten deformation index, color, expansibility, elasticity were studied by manual method according to «State plant varieties qualification testing methodology on determination of the suitability for dissemination in Ukraine». Eight best on the totality of agronomic-valuable and biological traits collection samples were selected for further analysis. Variety of four species winter triticale Alcides were used as control.

It was established that gluten content in the grain of studying samples was within 19,6–24,8 % an average of two years. The highest gluten content was contained in the grain of collection samples 455 and 471. In these samples it amounted 24,4 % in 2015 y. and 25,2 % in 2016 y. Slightly inferior to them sample 467 – 23,6 % in average of two years. Gluten content in the grain of other research samples was 19,6–22,8 %. All studied collection samples off our species triticale significant ly exceeded the standard (variety Alcides) on the gluten content in the grain in each of there search years.

On the totality of quality traits gluten of such samples as 455, 471 and 473 belong to the I group. This samples had gluten deformation index 70–75, light-gray or gray color, expansibility 21–26 cm, good elasticity. Gluten of other studied collection samples and variety-standard belong to the second group of quality. They had GDI 65–69, gray or dark-gray color, expansibility 10–17 cm and bad elasticity. Selected collection samples of fourspecies triticale 455 and 471, which were characterized by the highest in the experiment gluten content in the grain and quality indicators at the level of I group. – P. 85–89.

UDC 633.15(477-86)

Masliev S. V., Tsigankova N. A. Features of growing of food corn on suburban areas and in the personal subsidiary economies of the Steppe zone of Ukraine.

Keywords: maize, snap corn, sweet corn, seeds quality, seeds characteristics, kind, hybrid, maturity group, growth technology, crop, soil, fertilization, controlling diseases and pests, harvest.

The description is given on the kinds and hybrids of maize – snap and sweet corn, included in the state list of plant kinds allowed in the use in Ukraine in 2015. The characteristic seed qualities of snap and sweet corn are described. The demands to the seeds quality in their realizing are given.

The optimal growth technologies of maize in the country plot and the part-owner units are stated. The guidance on the optimal tillage, the use of organic and mineral fertilization, the crop terms, the depth and seeding rate, the crop maintenance and harvesting are given. The methods of controlling basic diseases and pests of snap and sweet corn promoted to decrease the loss of harvesting that enables to get ecologically clean production are described. – P. 89–94.

UDC 633.17:631.53.04(477.72)

Kovalenko A. M., Sergeeva Yu. A., Kizub P. S. Temperature condition of soil in a time of sowing of sorghum and reaction on him of different sorts and hybrids.

Keywords: sorghum, hybrid, seed, temperature, germination, likeness

Over the past 40 years aridity of the climate in the Southern Barrens significantly increased. Due to changes in weather conditions, it was necessary to find out what crops spring crops more resistant to drought conditions. One of them may be sorghum, which is better than other crops tolerate lack of moisture.

Especially important in the area of southern steppe with its hot and dry spring is to get timely and valuable stairs. These difficult conditions at sowing sorghum should be taken into consideration and conduct a search operation on adaptation. First, you need to set – hybrid seeds are less responsive to the low temperature of the soil at an earlier sowing or fair brings Alternating heating and cooling the soil during germination.

To this end we have made in 2013. Laboratory experiments testing different sorghum hybrids seed breeding institutions to determine its exposure to changes in temperature conditions during germination. Provedene testing we found that seeds of different varieties and hybrids of sorghum marked uneven reaction to the low temperature at the time of sowing.

For 18 days the temperature 8 °С number of germinated seeds in all varieties and hybrids increased by 1–10 pc.. But the relationship between its originators remained the same as 8 days. This seed selection "Alta Seeds", Crimean Agro-Technological University and VNDISIS "Slavic field" even after 18 days was noted very low germination – 78–83 %. Note relatively high seed germination hybrids Dash-E, Sprint-W, Swift and Aztec selection.
"Richardson Seed" and grade Eritrea – Henichesk research station Institute crops – 92–96 %. Worst respond to low temperature hybrids 726 Alta Seeds, 752 Alta Seeds and W20 Alta Seeds – 18 days proklyunulosya only 78–80 % of seeds. Besides similarities, we should note the speed as the formation of roots and shoots, and their growth in different varieties and hybrids. For 18 days, the longest roots were mainly varieties and hybrids, created Henichesk research station. "Euralis semens" and "RAGT simens", – 0,31–0,47 cm. Low temperatures inhibit growth of roots especially in seed breeding hybrids " alfa Seeds "and VNDISiS" Slavic field "– for 18 days were long, 0,19–0,33 cm.

Increased ambient temperature after 8 days to 14 °C impetus to a significant increase in the number of germinated seeds – at 3,10 percent absolute. The seeds, which had a low germination temperature 8 °C, the rate increased by 7–13 percent absolute temperature increases to 14 °C. This is especially true breeding hybrids "Alta Seeds", VNDISiS "Slavic field" and the Institute of maize and sorghum Moldova. However, even under these conditions germination of seeds of these hybrids was low – 87–90 %, the acen others it reached 92–94 %.

When germination temperature of 8 °C for 8 days over 75–88 % of seeds sprouted, but it was only naklyunulosya and root length of 1–2 mm. This reaction is observed varies hybrid seeds of various origins at low temperatures.

Most were cold-resistant varieties and hybrids of Ukrainian selection. Thus, 8 days proklyunulosya 79-88 % of seeds of varieties and hybrids breeding Breeding and Genetics Institute and 84–89 % – RC Institute crops. Also very high similarity was in selection of seed hybrids "Richardson Seed", "Ahropalzma" and "RAGT simens" – 81– 85 %, although its figures were slightly lower than the varieties and hybrids of Ukrainian selection. Poor at 8 ° C prorostaloslo seed breeding hybrids "Alta Seeds" and Crimian Agro-Technological University – 75–81 %.

In general, the production needs for sowing conditions for soil heating to 10 ° C using better seed varieties and hybrids breeding and research station Henichesk firm "Richardson Seed" and "RAGT simens". – P. 94–101.

UDK 633.11,«324»:631.5

Pryadko Y. N. Water consumption of winter wheat, depending on the seeding dates and the level of mineral nutrition during cultivation after sideral crops.

Key words: winter wheat, total water consumption, water consumption coefficient, seeding dates, predecessors, siderates, mineral nutrition level.

Increasing the yield and stabilizing the production of grain of winter wheat by the years of cultivation is a priority task of science and the agricultural complex of Ukraine. Since moisture is the main limiting factor in the northern Steppe, the issue of determining the indicator of water consumption of winter wheat crops over a certain period of development, which indicates the conditions of moisturizing during the growing season of winter crops, becomes topical.

The purpose of the work is to investigate the water consumption of winter wheat crops, depending on seeding dates and the level of mineral nutrition during cultivation after winter rape, winter mustard and winter wiki used for siderates.

Field experiments were conducted on the basis of the experimental farm «Dnepr» GU Institute of grain crops of the National Academy of Sciences of Ukraine. Precursors of winter wheat: winter rape, winter mustard and winter wiki for siderates, black steam. In the experiments we sowed a sort of winter wheat Litanovka.

The studies were carried out in a three-factor field experiment, where predecessors (factor A) were sites of the 1 order: black steam, winter rape for siderat; winter mustard on siderat; winter wiki for siderat. II order – seeding dates (factor B): 15 September, 25 September and 5 October. III order – mineral fertilizers (factor C): without fertilizers; N_60P_60K_60; N_80P_80K_80; N_100P_100K_100.

On average, over the years of research, according to the predecessor of the winter wiki for siderat depending on norm of fertilizer at crops on 15 September the indicator of total water consumption was within the range of 4987–5000 m³/ha; 25 September – 4654–4667 m³/ha; 5 October – 4721–4735 m³/ha; after winter mustard on siderat – 4979–4992; 4646–4659; 4709–4722 m³/ha; on a black steam – 5073–5087; 4747–4762; 4796–4811 m³/ha respectively.

Comparison of the water consumption coefficient in crops of different seeding dates allowed to establish that its maximum values were noted in the experimental areas where winter wheat was sown at a late date – 5–7 October. Depending on mineral fertilizers, according to the predecessor, the winter mustard on siderat varied between 1054–1171 m³/ha, after rape of winter crop on siderat – 1051–1139 m³/ha, after winter wiki for siderat – 1034–1119 m³/ha, in black steam – 1021–1052 m³/ha.

The coefficient of water consumption was the lowest for winter wheat sowing, sown on 25–28 September, which convincingly demonstrates the most rational use of water by these crops. On average, over the years of research on the black steam of low (739 m³/ha) it was on sites with the rate of application of fertilizer N_60P_60K_60. When winter wheat was placed after sideral crops, water was used more economically after winter wiki for siderat, with application of fertilizer N_80P_80K_80 – 378 m³/ha. When sowing winter crops in this period, after winter rape and winter mustard for siderat, the minimum values of the water consumption coefficient were noted in the areas, where contributed N_80P_80K_80 – 744 and 767 m³/ha respectively.

Thus, according to the results of the conducted studies, water consumption characteristics of winter wheat sowing are determined depending on seeding dates and the level of mineral nutrition during cultivation after sideral crops in comparison with black steam. More economically, the formation of a unit of grain production was used for
watering the crops in the areas where winter crops were sown on 25–28 September, and when grown on a black steam in areas with the addition of $N_{90}P_{30}K_{60}$. When winter wheat was placed after sidereal crops, water was used more economically after the wedge was winterized for siderat, with application of $N_{30}P_{30}K_{90}$ and sowing in the middle of the third decade of September. – P. 101–105.

UDK 633.14 «С324о»: 633.15: 633. 257

Dudka M. I. Efficiency of application of mineral fertilizers at intensive use of fodder areas and growing of three crops per year in the conditions of the northern steppe of Ukraine.

Key words: annual fodder crops, post-hay cutting crops, mineral fertilizers, green matter yield, crop productivity, three crops per year.

In the steppe zone of Ukraine, in connection with the insufficient provision of region with fodder lands and their small productivity due to arid conditions, in farms with developed animal husbandry, revival of field fodder production is necessary. One of the ways to increase fodder production in such farms may be the intensive use of areas in fodder crop rotations, grain and fodder crop rotations and by-farm crop rotations at the growing of post-hay cutting crops, which allows to obtain from the same area additional amount of green fodder for vegetation.

At the Erastivska Research Station of the State Institution Institute of Grain Crops of the National Academy of Agrarian Sciences (Dnipropetrovsk Region, Pyatykhatskyi District), for 25 years we conducted the research on the development of scientifically justified systems for increasing of fodder productivity of both traditional and new and not widespread annual crops, creating of high-productive combined agrophytocenoses, as well as on the resolution of the issues of intensive use of fodder areas in the nonirrigated conditions of the northern part of the Steppe.

In a field experiment on optimization of the ground nutrition conditions for intensive use of fodder hectare and on determination of the optimal doses and timing of mineral fertilizers application in winter rye crops (Secale cereale) on green fodder as a predecessor of post-hay cutting crops of maize (Zea mays) with Sudan grass (Sorghum sudanensis) was provided for the one-time application of fertilizers (without fertilizers and application of fertilizers in doses from $N_{90}P_{30}K_{60}$ to $N_{120}P_{30}K_{60}$ under winter and post-hay cutting crops) in the autumn in the system of basic soil tillage, as well as separate – under the basic soil tillage and with the application of a portion of nitrogen and phosphorus ($N_{90}$, $N_{30}P_{30}$, $N_{60}P_{30}$) under post-hay cutting combined crops. The highest yield of green mass ($30,39$ t/ha), dry matter yield ($6,05$ t/ha), output of fodder units ($5,52$ t/ha) and digesting protein ($0,519$ t/ha) of winter rye crops were formed at application of the total dose of fertilizers $N_{120}P_{30}K_{60}$ under basic soil tillage. The highest total yield of green mass ($45,52$ t/ha) and the collection of absolutely dry matter ($8,18$ t/ha), fodder units ($6,35$ t/ha) and digesting protein ($0,69$ t/ha) for the period of the vegetation of post-hay cutting two-component agrophytocenosis of corn with Sudan grass and fog of Sudan grass was obtained on average for three years of research using the fertilizer dose $N_{120}P_{30}K_{60}$ provided that they are divided in two applications $N_{90}P_{30}K_{60}$ – under basic soil tillage and $N_{60}P_{30}$ – under posthay cutting mixture). The share of green mass of the fog grass stand of the Sudan grass averaged over the years of research was $10,09–19,69$ t/ha or $40,0–44,3$ % of the total yield of the post-hay cutting mixture.

The highest total yield of green mass ($71,98$ t/ha) and the collection of absolutely dry matter ($13,56$ t/ha), fodder units ($11,33$ t/ha) and digesting protein ($1,14$ t/ha) for the whole period of vegetation of the winter rye and post-hay cutting combined corn sowing with Sudan grass and fog Sudan grass, on average for three years, was obtained at a single application of mineral fertilizers in the dose of $N_{130}P_{30}K_{60}$ under basic soil tillage.

On the ground of the results of experimental research, it can be argued that in nonirrigated conditions of the northern part of the Ukrainian Steppe on the common low in humus heavy clayey loam chernozems for obtaining of the highest total productivity during the vegetation period, the winter rye and post-hay cutting mixture of corn with Sudan grass in nonirrigated conditions, as a rule, of the second half of the summer is more expedient one-time application of mineral fertilizers in the dose $N_{130}P_{30}K_{60}$ under the basic soil tillage. – P. 105–110.

UDK 633.11 «С324о»: 631.5:632.51(251.1-17:477)

Gyrka A. D., Gyrka T. V., Kulyk I. O., Viniukov O. O., Ischenko V. A. Phytosanitary status of winter wheat crops depending on tillage and sowing systems.

Keywords: winter wheat, soil tillage, seeding, weeds, pests, diseases.

Based on the results of production testing and introduction the soil tillage and sowing systems of winter wheat are presented the features of developing and propagating the hazardous organisms in wheat plantings under the influence of studied factors are determined. – P. 111–115.

UDK 633.15:632.78 (251.1-17:477)


Keywords: hybrids, corn, European corn borer, Bollworm, pest-resistance.

Corn – is a unique crop as a raw material for feed, food and processing industry. Unfortunately, the productive potential of corn hybrids, apart from process flow disruption and abiotic stress factors is limits by hazardous organisms, which caused annual crop losses more than 30 %.
The goal of our research was to investigate the resistance of corn hybrids to Bollworm (Helicoverpa armigeraHb.) and European corn borer (Ostrinia nubilalis Hb.) in conditions of the Northern Steppe of Ukraine.

Researchers on adaptive detection for resistance to lepidopterous pests of corn samples were performed in the SE Experimental Farm “Dnipro” of SI the Institute of Grain Crops (Dnipropetrovsk’s region) on a natural infectious background for the 2011–2015. During the investigations were carried out comparative resistance assessment to pests of 56 corn hybrids of different maturity groups (about 23–35 samples yearly).

Corn, in experimental plots, grows according to traditional technology. Entomological surveillance carried out by the conventional methods. Weather conditions, during the years of researches, were quite varied, allowing to make a full assess of their impact on the resistance of hybrids to damage by pests. The obtained results shows that the largest damage of corn by the Bollworm for years of research was in 2012 and amounted to 22.0–85.6 %; in 2014, exactly the opposite, was the smallest – 0–7.9 %, in other years – 1.1–51.3 % depending on the hybrid.

In 2011, distinguished with partial resistance to pest damage the hybrids COB 329 CB, Krasyliv 327 MB, Chemerovets’kyi 260 CB and Monica350 MB; in 2012 – Baturyn 287 MB and Orzhysia237 MB; in 2013 – Anshlag, Whitecorn, Krasyliv 327 MB and Baturyn 287 MB. In 2014 ten maize hybrids had no damage scoops. In 2015 ten corn hybrids were not damaged by Bollworm. The samples, which had the least damages were – DN Svityaz’, Garant, Orzhysia 237 MB, Podil’s’kyi 274 CB and DN Julia. Unlike the previous years, level of development the European corn borerfor years of researches was not significant, negligible damage by pest (up to 1.1 %) was observed in 2011 on hybrids Pochaivskyi 190 MB, Nemyriv and Sokolov 407 MB; in 2012 (up to 0.5 %) – Bystrycia 400 MB, Novyi, Chemerovets’kyi 260 CB, Solonians’kyi 298 CBand Zbruch; in 2013 (up to 0.8 %) – Kvitnevyi 187 MB and DN Argo. It may be assumed, that in conditions of Northern Steppe of Ukraine observed the depressive position of evolution the lepidopterous pest. But the danger of spread the phytophaganremains real and requires annual monitoring.

As can be seen from the above, the minimal damage of corn plants by the European corn borer in the Northern Steppe zone of Ukraine made it impossible to assess the resistance of hybrids to the pest. At the same time due to significant damage by the Bollworm it has been able to identify the hybrids, which have shown partial resistance for several years – Orzhysia 237 MB, Baturyn 287 MB, Podil’s’kyi 274 CB, COB 329 CB, Krasyliv 327 MB and Garant. – P. 115–118.

UDK 631.5:581.526


Key words: moisture, crop rotation, tillage, fertilizers, weeds, crops, moisture reserves, moisture consumption, crop capacity.

Over the last 20 years the climate has changed radically with open implications for development of agricultural crops, the structure of acreage undergone significant restructuring, the level of regulation of soil fertility reduced dramatically due to fertilizers, the yield potential of new varieties increased, resistant forms of weeds and pests, equipment with unique characteristics regarding the basic cultivation of the soil were picked out.

According to long-term meteorological data, activation of the processes of climate warming can be traced back to the early 90-ies of the last century, but with particular intensity it is shown in the last five years. So, in the Steppe zone the average annual air temperature for 2011–2016 was 9.8 °C, that was 1.6 °C above the climatic norm (8.2 °C).

The main limiting factor of agriculture of the Steppe zone of Ukraine which limits the level of effectiveness of agronomic measures and crop yield is the aridity of climate.

The use of crop rotation has a positive effect on water regime regulation due to more economical use of productive moisture and allows to use bioclimatic potential of the region more efficient.

The yield level of winter wheat is largely determined by the reserves of productive moisture that accumulate in the soil layer of 0–20 cm to time of sowing, after all, to receive full and simul-taneous shoots it should contain here not less than 20 mm accessible to plants moisture. During the years of researches it is established that the content of productive moisture in soil of black fallow field in this layer was of 20,0–25,2 mm, after occupy fallow and green manure fallow – 17,6–21,4, lucerna and pea – 14,8–20,9, maize for silage – 12,2–18,7 mm.

When determining the level of moisture reserves of winter wheat crops after pea and green manure fallow proved that they have quite similar indexes (in average 20–22 % less than on the black fallow). The yield after these predecessors were 4,82–5,46 tonn per hectare. The obtained results shows that regardless of precipitations, the accumulation of productive moisture in a 1,5 m layer of soil is determined primarily by structure of sowing areas in crop rota-tion. The higher the percentage of grain crops, the more moisture was accumulated (crop rotation 1 and 2). This pattern was observed irrespective of soil fertilization in crop rotation. To take in account advantage of mold board plowing above shallow cultivation regarding the accu-mulation of moisture the level of moisture supplies of maize agroecosynthesis by rotation of the layer was higher and made 384–386 mm. Deteriorating of conditions of water infiltration on the background of shallow cultivation and direct sowing of maize reduced somewhat the moisture reserves to 374–379 mm.

In the absence of biological competition from weeds all moisture supplies were used by the maize plants to form own biomass, that provided the minimum moisture depletions to production 1 tonn of grain. Thus, the ratio of...
moisture consumption of maize was depending on the methods of basic treatment of soil in the range 62.5–66.9 mm of moisture per tonne of grain.

The circulation of moisture in the agroecosystems is a complex mechanism which involves all techno-logical elements. On the one hand, it is the reserves of moisture in the soil and, on the other hand, it is the ability of crops of crop rotation productively to use them or activate them in the process of transpiration. A systematic analysis of moisture consumption showed that due to the predecessors it is also possible to acti-vate 40–55 mm moisture, and effective weed control 55–80 mm, primary tillage 10–25 mm, selection of drought-resistant varieties of 25–35 mm, optimization of the nutrient regime of 10–15 mm. – P. 119–123.

UDK 631.1: 631.582:633.15:633.34

Artemenko S. F., Rybyka V. S., Kortun O. V Agroeconomic grounding of production corn and soybean in short-rotation crop rotations.

**Keywords:** plowing, chisel plowing, fertilizer system, costs of production, cost, profit, profitability, soybeans, corn, short rotation.

The main task of agriculture is to ensure human needs in food products and animal feed in high quality. The important, real and the most effective way to solve this problem is to expand production of high-energy cereals and grain legumes crops by increasing the of cultivated areas and improvement of the basic elements of technology of cultivation of these crops. One of the main reserves to increase the grain productivity of these crops is the introduction of scientifically based crop rotation, adaptive technologies of cultivation that combines innovative perspective achievements in tillage system, fertilization and plant protection. The successful combination of these basic elements allows to receive high yields of grain with appropriate resource savings.

In the Erastivska research station of the Institute of Agriculture of the Steppe zone of NAAS of Ukraine in 2008–2011 researches have been conducted to ground not only agricultural but also economic aspects of expediency of application of different ways of basic tillage, systems of fertilising at growing the soybean and corn in short-rotation crop rotation in the concrete soil and climatic conditions of Northern Steppe.

The experiment was laid on the background of two ways basic tillage: mould board ploughing and chiseling. We have studied the saturation of crop rotations by soybean: in two-field crop rotation it was 50 %, in three-field crop rotation it was 33 %, in four-field crop rotation it was 25 % and 50 %; and by corn in two-field crop rotation it was 50 %, in three-field crop rotation it was 33 %, in four-field crop rotation it was 25 % and 50 % respectively. In the three- and four-field crop rotations in order to decrease herbicide loading an interrupt rotation of corn and soybeans by one field of barley is envisaged. The systems of fertilization in crop rotation were studied by the scheme: control – no fertilizer; fertilizer use under planned yield according to the results of soil diagnostic for corn – N66P60K30 for barley – N90P90K90, for soybeans – N90P60K30, and use of fertilizers in recommended doses: for corn – N66P60K30 for barley – N90P90K90, for soybeans – N90P60. Fertilizers used in autumn under the basic tillage. They were used into soil into soil by heavy disk harrows before basic tillage.

For weed control the complex of agrotechnical measures (crop rotation, system of basic tillage, afterplanting weed control methods) and chemical (use of herbicide harness 2 l per ha under soybeans and corn, and if necessary insurance herbicides for these crops)

The soil place research – ordinary little humus chernozem heavy loamy. Characterizing the weather conditions during the period of the research should be noted that 2008 and 2011 were quite favorable in respect moisture, and 2009, 2010, 2013, 2014, 2015 were drought in different degrees, uttery drought appeared 2012.

The complex local nature of the weather conditions definitely allowed to more fully explore the impact of designed measures designed and features of formation of grain crops productivity in short-rotation crop rotations.

Economic evaluation of the results of experiments carried out according to generally accepted methods. Basic economic indicators: cost price and profitability of grain production were determined to evaluate the effectiveness of corn and soybeans growing in short-rotation crop rotation.

In all short-rotations crop rotations more competitive crop rotation system was recommended fertilizer. It was noted increase in grain yield with less fertilizer, while expenditure growth was lower than in options where they are used for the diagnosis of soil. Chisel plowing in all variants was economically more advantageous compared to plowing, due to lower fuel costs during the execution of the main cultivation.

The biggest cost of products grown in the three-field crop rotation received when entering the field of spring barley, which significantly reduced the grain yield of 1 hectare of crop rotation area. In four-field crop rotation at saturation by corn and soybeans up to 50 % for the use of recommended doses of fertilizer provided somewhat better grain production costs.

The highest indicators of profitability of grain production (123,4 and 121,6 %) it were received at saturation of short-rotation by corn up to 50% two-field (soybean – corn) and four-field crop rotations (soybean – corn – corn – barley) by growing of cultures without chemical fertilizers application.

Experimental data in the study of efficiency of methods primary tillage and the use of fertilizer in short-rotation crop rotations of corn with soybeans show that in low moisture Northern Steppe implementation of the recommended and balanced system of fertilization is promising, which involves the use in moderate doses of fertilizers on background chisel plowing deep tillage system with effective protection from weeds with the
introduction of short-rotation crop rotation of at least 50% area of rotation under corn which increases grain productivity and economic efficiency of crop rotation at a whole. – P. 124–129.

UDK 633.358:631.816:632.981

Hangur V. V. The yield and grain quality of peas depend on predecessors and saturation of different sowing rotations under conditions of left-bank forest-steppe region of Ukraine.

Key words: peas, predecessors, crop rotation, saturation, fertilizer, yield, grain quality.

Field researches were conducted at the Poltava State Agricultural Experimental Station named after. M. I. Vavilov of Institute of Pig Breeding and AIP NAAS during the 1999–2015. They were directed to study the effect of different of predecessors and different concentration of pea crops on its yield and quality of grain in sowing rotations with different duration of the rotation.

Average for 17 years the results of studies show that on the typical small humus and hard loamy black soil of left-bank forest-steppe region maize, spring barley, sunflowers, sugar beets are almost equal predecessors for peas. Grain yield of peas for sowing after these predecessors is accordingly 1,81–1,83, 1,94, 1,74, 1,82 t/ha. It should be noted the tendency to formation of higher yield of peas by placing in sowing rotation after cereals – spring barley. At sowing peas after corn and sugar beets the yield of it was on 0,11–0,13 t/ha lower compared to placing after spring barley. The experimental data showed that predecessor, which formed the lowest productivity of peas is sunflower. Among the possible reasons that contribute this productivity of peas after sunflower are increased weediness of crops, lower rates of content of available basic elements of nourishment for plants in the soil.

The analysis of the yield of peas depending on predecessors, in average for the groups of years shows that the six-year period 2005–2010 was the least favorable for the realization of the genetic potential of productivity of culture. The yield of peas on variations of the experiment was 1,60–1,82 t/ha, which is 0,08–0,14 and 0,27–0,39 t/ha less than in the previous six year and subsequent five-year periods respectively. This is because during two months of April and May, where it is observed the most intensive growth and development of pea plants, there was deficit of rainfall. Their amount was 65,5 mm, that on 25,5 mm and 26,8 mm less compared to the average long-term rate and the previous six-year period (1999–2004), respectively. The average for the past five years, the yield of peas by placing after various predecessors was the highest (after corn 2,02–2,21, spring barley 2,15, sunflower 1,95, sugar beets 2,01 t/ha). The positive impact on these indexes had and weather conditions. Thus, the average temperature for April–May was 14,4 C or was above the norm by 2,2 degrees, the sum of precipitation was equal 83,6 mm. In average for 2010–2015, for June it was fell to 98,6 mm of rain, which is on 38,6 mm or 64,3 % more than the average long-term rate.

It is well known that peas belongs to a group of crops that have high negative reaction to reducing of term of the return to previous locations. According to the researches it has been found out no significant, a clear difference in yield of pea in crop rotations with different saturation of this culture. However, expe-rimental data of 17-year stationary experiment show that there is a pattern on a stable grain yield in years peas with less its share in the rotation.

Results of indexes of pea grain quality show that the content of protein for average annual indexes depended more on predecessors than on the amount of fertilizers. Maximum indexes of the protein content in pea grain were obtained by placing in sowing rotation after spring barley and corn (var. 4 and 2,6), respectively, 20,5 and 19,8 %, whereas after sowing beet sugar and sunflower seeds (var. 5 and 2), the protein content was respectively 19,1 and 19,4 %, which is on 0,7–1,4 and 0,4–1,1 % less than after the best predecessors. The content of fiber in the average for years of research (2009–2015) practically did not depend on the dose of fertilizer and predecessors and varied within 5,76–5,99 %. – P. 129–133.

UDK 633.16:631.81.095.337

Chaban V. I., Klyavzo S. P., Podobed O. U. Accumulation of microelements spring barley plants in the Steppe zone of Ukraine.

Key words: spring barley, microelements, accumulation, variabiliti, gradation of content.

The barley is one of the world's most common crops. In Ukraine, he also holds a significant share of the grain balance. The barley grain has a high technological qualities and is widely used in the food processing industry and is a valuable component in the manufacture of animal feed. Important biological role of the microelements and the limitations of their content in the main and side products of spring barley was the basis for the synthesis of many years of experimental material. The aim of the study was to determine the parameters of the accumulation of the micro-elements by barley plants in the conditions of northern Steppe of Ukraine.

Processing of analytical data in space (steppe zone), and time (sample size 25) of content micro-elements in grain and straw of barley furius set basic statistical descriptions. The mean values of concen-tration presented: Zn – 25,4; Mn – 9,92; Cu – 4,14; Co – 0,35; Ni – 0,87; Pb – 0,46; Cd – 0,029 mg/kg. By quantitative recommendation microelement composition of grain can be presented as a row: Zn > Mn > Cu > Ni > Pb > Co > Cd. On the whole, values are characteristic for this culture and are base-line for the zone of Steppe of Ukraine. Varying of content of Zn, Cu, Co, Pb in grain of barley furius was within the limits of (22–30 %), that is characterized as middle changeability, Mn and Ni – high (37 and 31 %). The considerable varying of content of Cd (63 %) is marked. The analysis of variation rows eved the presence of three laws of distribution of content of microelements: normal
distribution of Gauss for Co; asymmetric (positive) distribution of Maxwell for Zn, Ni, Cd; presence of a few peaks on a curve with a negative excess for Mn, Cu, Pb. The presence of considerable positive asymmetry testifies to displacement of content of Zn, Ni, Cd toward less values, that are the sign of influence of objective factors that limit their receipt to grain.

The microelements composition of straw has certain differences from grain, namely: considerably less (almost in 5 times) content of Zn; the amount of Mn and Cu remains at the level of grain; Co, Ni, Pb, Cd is largely accumulated by side products. Large changeability of indexes of content of elements is confirmed by the coefficients of variation (40–64 %). Microelement composition of straw of barley in a greater degree, than grain, depends on the factors of environment.

Intensity of receipt microelements in plants from soil estimated by means of biological uptake factor, that presents a betweeness by content of element in the ash of plant to his content in soil. Calculations tes-tify that a culture most intensively took in zinc and the copper biological uptake factor (> 3) from soil. Some less than a cobalt, nickel and lead (> 1), was accumulated and least (< 1) is a manganese. The biological uptake factor confirm the high requirement of culture in Zn and Cu.

On the basis of methods of statistical analysis and spatial interpretation of the got results the built scale of gradation of content of microelements is in grain of barley taking into account regional features.

The statistical treatment not only shows as results on the zone of Steppe levels statistically reliable differences between content microelements in grain under act of totality of factors, but also demonstrates character of changes in space and time of content of every investigated element. – P. 134–137.

UDC 636.4.082.43

Khalak V. I. The productivity and the degree of discretion polygenic traits, genetic breeding sows of different duration of use.

Keywords: pigs, productivity, level of discretion, polygenic-hereditary characteristics, duration of use breeding, reproductive ability sows.

Purpose – to investigate the performance of sows reproductive ability of large white breed, calculate the degree of discrete-polygenic hereditary traits of animal breeding using different duration and level of correlation between signs.

Experimental studies conducted in conditions loudspeaker pedigree breeding pigs of large white breed of "Druzhba – Kaznachievka" Dnipropetrovsk region during 2014–2016 years.

Assessment sows of large white breed on grounds of reproductive ability was performed with the following absolute and integrated indicators, obtained farrowing, received all the pigs in the period of operation of the uterus in the herd, (fertility, head, [5]) received live pigs goal weight jacks on the date of separation, kg, the amount of non-productive days per one litter duration between farrow period, days.

The index "level of adaptation" calculated by the method of V. S. Smirnov (2003), the level-discrete polygenic hereditary traits – the method Seromolot V. V. etc. (1984). Biometric processing of the results of research conducted by the method of G. F. Lakin (1990).

Established that the life expectancy of the herd of sows 44,1 ± 1,97 months, the duration of the use of the breeding – 32,8 ± 1,95 months, the index adaptation – 11,87 ± 0,709. During breeding sows use of large white breed obtained 6,1 ± 0,36 farrowing, piglets received all the period of operation of the uterus in the herd – 65,8 ± 4,41 score, live pigs – 62,5 ± 4,17 head.

Number of sows class elite on the basis of " Multiple fetus, head" is 25,80 %, and grade – 32,25 %, second grade – 27,42 %, extracurricular – 14,53 % weight jacks on the date of weaning at 28 days – 77,0 ± 1,02 kg, the number of unproductive days per one litter – 26,0 ± 2,89, duration between farrow period – 175,3 ± 3,97 days. The results showed that the animals class M* (life expectancy of 63,7 ± 2,34, months) prevailed peers opposite class M (life expectancy – 27,9 ± 1,02 months) in terms of "duration of use breeding, month" 36,4 months. (td = 16,62; P<0,001), the index "level adaptation points" – by 9,2 points (td = 6,05; P<0,001). The ratio of 'tribal duration of use, Miss "to" life expectancy months' varied in the range of 59,85 (M) to 83,35 % (M*). During breeding the use of (53,1 ± 1,99 months) of sows class M* obtained 9,7 ± 0,36 farrowing, piglets received all the period of operation of the uterus in the herd – 109,0 ± 4,99 goal received living pigs - 103,0 ± 4,56 goal weight jacks on the date of separation – 76,1 ± 1,95 kg (Cv = 10,60 %). The minimum values of "the number of unproductive days per one litter" and "duration between farrow period, days" found in sows class M0 – 19,9 ± 2,90 and 168,5 ± 3,53 days, respectively.

Probable difference in performance between animals reproductive ability class M* and M0 is set in terms of "received Farrowings(« (td = 16,5; P<0,001), "all the pigs received during the period of operation of the uterus in the herd, Ch*> (td = 13,9, P<0,001), "received live pigs goal" (td = 14,2; P<0,001). Found that in terms of "received farrowings" "received all pigs in the period of operation of the uterus in the herd, head," "received live pigs, head" and “supply socket on the date of weaning, kg” observed decrease in the standard deviation animal class M*. The opposite pattern is found in the degree discrete set of four indicators of reproductive ability sows experimental group (D). Calculations degree of discretion polygenic traits, genetic breeding sows of different duration of use indicate that this figure (D) in view of the complex of two, three and four indicators is the maximum duration of animal breeding using from 9,6 to 22,3 months (M*) .

For a set of four indicators sow class M* differ from animals in the whole sample 82,4 %, M0 class – by 88,3
% class M – by 96.2 %.

Reliable correlation coefficients found the following pairs of characteristics (n = 62): life expectancy × obtained Farroving (r = 0.951, P<0.001), × received all pigs in the period of operation of the uterus in the herd (r = 0.938, P<0.001), × received live pigs (r = 0.940, P<0.001), the duration of the breeding use × obtained Farroving (r = 0.969, P<0.001) × received all pigs in the period of operation of the uterus in the herd (r = 0.954, P<0.001) × received live pigs (r = 0.957, P<0.001), the index "level of adaptation» × Farroving obtained (r = -0.713, P<0.001) × all pigs received during the period of operation of the uterus in the herd (r = -0.678, P<0.001), × received live pigs (r = -0.688, P<0.001).

The authors would like to thank the official General Director of "Druzhba-Kaznacheyivka" Dnipropetrovsk region, candidate of agricultural science Savelyev V. I. and chief technologist N. A. Shepel, who helped organize and conduct research. – P. 138–142.

UDC 636.2.064

Kozyr V. S., Chegorka P. T. Age changes in morphological and grade composition of the carcasses of young bulls Aberdeen-Angus and Ukrainian meat breed in the conditions of steppe of Ukraine.

Keywords: breed, bulls, age, slaughter indicators, morphological composition, long cut carcasses, physico-technological quality of beef.

In Ukraine the main source of supply of beef animals are dairy breeds. Agricultural enterprises interested in development of beef cattle, imported cattle of meat breeds, introducing industrial crossbreeding. Comparative capabilities of these species in Ukraine is unclear, therefore, our studies are relevant. They provide an opportunity for beef producers to determine the direction of its activities.

In the experimental farm "Polyvanivka" was formed two groups of analogues by age steers (15 head) early maturing Aberdeen-Angus and longgrowingth Ukrainian meat breed of cattle. Animals were kept under the same conditions, up to 8 months of suckling, from 8 to 24 months – in terms of range-fodder matanikau, and up to 30 months – on a leash. The slaughter of animals (5 animals) were performed in 18-, 24- and 30-month age.

Animal carcasses meat breeds are more full and rounded hips, well-developed muscles of the lumbar-dorsal side, broad and deep breast, by the presence of layers of fat. Bulls the Aberdeen-Angus were smaller than their counterparts of the Ukrainian meat breed, but they yield a slaughter weight of at 58–61 % exceeds standards dairy breeds. Bull-calfs Ukrainian meat breed superior to their Aberdeen-Angus peers on this indicator to 2–3 %. Bone mass in longgrowing calves with age increased and was 13–14 % more than the ripening, but the amount of pulp in them was dominated by 15–16 % (at 18 months of age by 107 kg, of 24-month – 87 kg, 30-month – 70 kg each head). The output of Prime beef in Aberdeen-Angus was 9 % and in animals of the Ukrainian meat breed – more than 16 %, first grade, respectively, and 64–65, 53–55 %. With age in steers of both breeds increased all morphological components of the ink, but the yield of pulp per 1 day of life decreases.

It was found that the Aberdeen-Angus mass cuts three varieties and their share in the carcass with the age of the animals increased, but they significantly lagged behind for the same indicators from peers of the Ukrainian meat breed by the first grade, and third grade, by contrast, was ahead. Meat yield of first grade Aberdeen-Angus amounted to 83–85 %.

Research data the longest back muscles indicate that in all age periods of water and meat extract had a slightly acidic environment. With age decreases the amount of moisture and thus increasing the dry matter content (particularly fat and calorie content) and, consequently, decreasing the ratio of fat:protein. Beef steers specialized longgrowingth and precocious meat breeds in the conditions of steppe of Ukraine has a high nutritional and culinary properties that meet the requirements of consumers. Boiling down and meat tenderness of both breeds within the normal range, although with age of animals there is some tendency to deterioration of these indicators. Optimal morphological and varietal composition of the carcasses of steers of Aberdeen-Angus breed is noted in 18-month age, and Ukrainian meat – until 30 months of age. – P. 143–147.

UDC 636.2.620.9

Cherniavs'kii S. E. Power supply small dairy farm by biogas.

Key words: energy, biogas, manure, had a farm, cow.

Shortage of energy and limited fuel resources are increasingly pointing to the need to move to so-called non-traditional, alternative or renewable sources. Among the alternative energy sources that can be used on livestock farms for energy independence, promising and affordable energy is methane fermentation of organic residues (biogas).

Another equally important element that contributes to the energy autonomy of the farm is the use of energy-efficient technologies of production and use of economical equipment that provides for the process.

To determine the feasibility of alternative energy processes in the field of animal examine this on the example of a small dairy farm with 40 cows. Animals are kept on such a farm Loose indoors hangar-type litter, which partially changed. To reduce the cost of manure and providing comfort for the cows, the floor in the room is tilted toward 8 % manure tray. When the animal moves dirty litter shifted down the slope and taken out of the tray, from where the drive is removed bulldozer manure is outdoors. Fresh bedding manually, if necessary, paid on top of the floor and provides a clean and dry place for animals. One wall of the room formed by curtains that move, which
regulate inflow of fresh air and natural ventilation of the room. Banner space translucent cover that provides full daylight. The food animals feed table.

To ensure the process at the farm used tractor MTZ-82 with a loader and bulldozer shovel, tow feeders chopper, mixer, tractor trailer dump 2PTS-5 truck GAZ 3302 "Gazelle" car "Tavria" – pickup diesel generator power 10 kilowatts. Manufacturing and processing of milk at the farm this involves the use of electricity, heat and light oil. In terms of technological operations by traditional energy sources annual demand for electricity, which provides electric power milking machines, water systems, milk cooling, heating potable water, process and emergency lighting on the farm is 7698 kW. For convenience of further calculations translate the figure in units of fuel. The annual demand of heat for heating technology involves a farm, living rooms and thermal energy and installation of milking – 4850 kW.

The share of oil in the energy balance of the farm is 96 %. However, they are the most precious energy, so consider the possibility of replacement by alternative energy. The annual demand for petroleum products on the farm provides for their electric, tractors and cars and is – 26645 kg. The total energy demand (not taken into account the cost of energy to manufacture and deliver feed to storage) in the conventional farm is 41,262 kilogrammes of fuel, including electricity – 1080 kg, heat – 596 kg of oil – 39586 kg.

The dairy farm calves from the train uses electricity, thermal energy and motor fuels. As an alternative energy source to consider this farm biogas, which can be obtained from the manure of animals. Thus, 40 cows and 60 heads of young plume produced 1,387 tons of manure per year or 38 tons per day.

When leaving 55 m³ of biogas from manure of one ton of its annual production of 76,285 cubic meters, equivalent to 66,5 tonnes of fuel. Given that 25 % of biogas (22,1 kg of fuel) will be spent to maintain the temperature in the biogas reactors.

Biogas cogeneration unit uses the product to produce process heat and electricity consumed by farm equipment (respectively 0,6 and 1,1 tons of fuel) and diesel fuel, which replaced the purified biogas (39,6 kg of fuel).

Thus, process small dairy farm completely energy independent of external energy sources when using biohazardvoiyi installations for biogas production from manure of animals. Produced from manure 40 cows and 60 head of young biogas can get 44,4 tons of energy in conventional fuels, the technological needs of farm 41,3 tons. – P. 147–150.

UDC 636.22/28.082

Picshan S. G., Litvichenko L. O., Honchar A. O. Realization of the genetic potential of milk productivity of holstein cattle at intensive technology use.

Key words: lactation, adaptation, index insemination, service period, dry period.

Researches show that the level of the suckling productivity of pure breed of Holstein cows at industrial technology of exploitation is high enough, as during a 305 twenty-four hours of lactation exceeds the 10 thousand kg of the milk in 4 % adiposeness. Thus, such level of the productivity is description both for the animals of the second lactation, and already the well adapted cows of the third lactation. A description quality composition of milk of Holstein cows it is different age necessary to mark, that he answers pedigree features and level and quality of feeding in a complete measure. Yes, mass part of fat and squirrel in milk of high-performance of Holstein of the second and third lactation presented according to 4,0 and 3.2 %.

However, in the same tribal herd of Holstein animals of industrial complex duration of lactation function can exceed a norm (305 days) practically in two times. In spite of the protracted lactation function experimental animals of both III and IV (control) of group, after productive internals, translated to the common denominator of comparison, almost exactly answered indexes with normal duration of lactation function. Nevertheless, for all lactation period these experience groups of Holstein were description by the far higher level of yield of milk. Yes, animal III groups for all

second lactation period produced 17213,0 kg physical, or 16986,0 kg of 4 % milk. These indexes of level of the suckling productivity were higher value of the same animals of the second lactation and group accordingly on 36,9 and 36,5 % at a high-reliable difference at the level of P<0,001. Animals of IV (control) of group for all third lactation period description by near synthetic activity of milk in the udder of animals of III of group, that is why produced 17382,7 kg physical, or 16903,5 kg of 4 % milk. This level of the suckling productivity exceeded the index of the same cows of II (control) of group of the third lactation but with a normal productive period accordingly on 36,4 and 34,6 % (P<0,001).

Very subzero efficiency of artificial insemination animals of the second and third lactation defined for them pathologically the protracted period of rest. In experimental of Holstein cows III of group in a second lactation period this index exceeded a norm (75–80 twenty-four hours) in 4,72 times, and for the cows of IV (control) of group – 5,24 times. At industrial technology of production of milk cows had subzero indexes of the reproduced function. Duration period of rest for these cows in the third lactation presented a 419 twenty-four hours, that at a more protractedly normal index. Not by chance the period birth of calf these of Holstein cows in 1,93 times is more protracted one year, but the coefficient of the reproduced ability does not exceed a 0,5 unit. The protracted period of sterility entailed the substantial losses of products. From the cows of III groups are received less 7567,2 kg of milk.
and one head of calves. Yet severe losses of pro ducts for the animals of IV (control) of group. For third lactation period 8202,2 kg of milk and 1.2 head of calves are lost. – P. 150–156.

UDC 636.4.082.11/12

Loban N. A. Loban E. N. Polymorphism of marker genes for reproductive and fattening traits of pigs associated with performance.

Key words: breeding, maternal breeds of pigs, reproductive traits, genetic testing, polymorphism, marker genes RYR1, ESR, EPOR and ECR F18.

The aim of the research was to study the polymorphism of genes-markers of reproductive productivity in association with the selectable characteristics of pigs of mother breeds.

Research work was carried out in the agricultural branch of the "ZHDC" Zadneprovsky LTD "Orsha Bread Products Plant", CSUE "Plemzavod "Lenino", LTD SHC "Zapadny". The object of research is purebred animals of breeds: the Belarusian large white, Belarusian black-motley and Belarusian factory type of Yorkshire pigs.

It has been established that the priority features of reproductive qualities, which have the greatest impact on the product mass of the nest, are: multiplicity (heads), milk – nest weight in 21 days (kg); Number of piglets at weaning (heads), mass of the nest during weaning (kg). Indicators of reproductive signs of pigs of the parent breeds (depending on their breed membership) vary within the following limits: multiplicity – 10.0 – 12.5 piglets, milk – 55–65 kg, weight of the nest at weaning – 91–100 kg.

As a result of the studies, it was found that the average frequency of occurrence of the ESR genotypes in the Belarusian large white breed was (%): AA – 33.5; BB – 23.5. The concentration of the desired allele B is 0.45, which indicates further possibilities for increasing the multiplicity by genetic methods. The study of animals of the Belarusian black-motley breed on the polymorphism of the estrogen receptor gene (ESR) allowed us to establish that the preferred genotype of BB is found in 7.1–5.9 % of animals. Among the poultry females, 46.4% of the tested populations are homo- and heterozygote for the B allele. Yorkshire pigs have been shown to have a significant range of frequency fluctuations in the frequency of occurrence of the desired ESR allele B from 0.540 to 0.658. It was revealed that on average in the genome of the livestock of the Belarusian large white breed the incidence of the genotype QQ of the IGF-2 gene was 15.6%, Qq – 36.3 %, qq – 48.1 %.

Based on the analysis of the results of Table 1, it can be concluded that the frequency of occurrence of the desired allele Q in animals of the White-Russian large white breed at the beginning of the studies was low and was 0.210 fractions of the unit, and the QQ genotype was absent. However, in connection with the selection work (over 10 years or three stages) aimed at increasing the fattening and meat qualities of pigs, the frequency of occurrence of the IGF-2 gene in the factory population with the preferred genotype of QQ increased from 0 to 37, 5 %.

It was revealed that the animals carrying the preferred genotypes AB and BB of the ESR gene in their genome are superior to their analogues with the AA genotype for reproductive qualities (multiply 10.70, 11.48 and 10.12 heads, respectively), but lag behind Fattening (the average daily gain of live weight – 749, 745 and 752 g, respectively).

Analysis of the reproductive and fattening qualities of pigs of the Belarusian large white breed for the IGF-2 gene revealed the opposite result. Thus, animals with the preferential genotypes QQ and Qq, in comparison with their counterparts with the recessive genotype qq, show higher fattening qualities (the average daily gain of live weight is 742, 756 and 731 g, respectively), but tend to lag behind in reproduction (multicomponent – 10.8, 10.9 and 11.0 heads, respectively).

Thus, for the animals of the Belarusian large white breed, the following dependence is characteristic: they have a decrease in reproductive qualities with an increase in the feed-productivity indicators, which is confirmed by genetic testing for the ESR and IGF-2 genes. It has been established that the following genes-markers of productivity are promising for use in practical breeding for the mother breed of pigs: according to reproductive qualities, the estrogen receptor gene (ESR); on fattening qualities - the gene of insulin-like growth factor (IGF-2). It was revealed that in the genome of the livestock of the Belarusian large white breed, the incidence of genotype QQ was 15.6 %, Qq – 36.3 %, qq – 48.1 %. For this breed, the following trend is typical: with an increase in the index of fattening productivity, there is a decline in reproductive quality. The individuals carrying the preferred genotypes BB and AB of the ESR gene in their genome exceed their analogues with the AA genotype by reproductive qualities by 11.8–0.8 %, but they are inferior in fattening by 26.6–0.4 %. – P. 156–160.

UDC 636.4.085.5

Maystrenko A. N., Dimchya G. G. Influence of various feed additives on the productivity of repair sows.

Key words: ration, feed additive, pigs, daily gain, live weight, productivity.

Due to the fact that the range of feed in the form of natural biotic does not meet the standards can not meet the needs of animals in the whole complex of necessary elements of feeding. To replenish the most important dietary nutrients using feed additives. But the practice proved that the proposed standard recipes feed additives both domestic and foreign production are not always sufficiently effective for only one reason that they are developed without biochemical characteristics of the region and the actual composition of local feed. Therefore, the issue of full feeding animals is possible only with systematic chemical analysis of feed and improving the existing standard formulations balancing feed additives that will satisfy their physiological needs in a particular region.
The experiment was conducted in agricultural farm “Scientific” Dnipropetrovsk region. For the animals of control and experimental groups (36 goals in each) were created by the same conditions and feeding regime of compliance, technology, distribution of feed and feeding front. On the basis of the actual chemical composition of the feed ration developed using appropriate standards approved by feeding animals scheduled daily increments. To eliminate the deficiency of biologically active substances in the diet was administered standard and advanced balancing feed additives that are significantly different in composition.

The premises for maintaining the content of young animals corresponded to zoohygienic require-ments – it was bright, dry and moderately warm, the air temperatures in the premises meet the set require-ments. Special attention was paid to maintain the relative humidity within 65–75 % and dry floors, walls and ceilings. Summer Heifer pigs were transferred to a specially equipped summer camps.

The obtained results indicate that pigs control and experimental groups that were grown on the same set of feed during the whole growing period, had a different growth rate, and daily live weight gain. Thus, the sows of the experimental group reached a larger live weight (114,03 kg) in the six months of life than their control group even at seven months (111,57 kg), which indicates a greater efficiency in the use of improved balancing feed additives.

Due to the provision of an increased conversion of the ration of the sow, the experimental group for the entire growing period spent 1 kg of growth in feed units and digestible protein, respectively, by 18,79 % and 12,47 % less than in the control group.

According to the results of the experiment, pigs experimental group during mating, had a higher live weight, satisfactory growth and development that played a significant role in fertility and milk production of sows, survival and development of piglets sucking period means that the factor feeding affects the formation of the reproductive capacity of pigs even during their growing.

The obtained results of the conducted experiment testify to the advantage of sow feeding with the use of balancing feed additives according to the improved formula over the standard one: the stillborn piglets are less in the experimental group by 5,6 %; births weighing less than 1 kg – less by 7,05 %; born with a mass of 1 kg and above – more by 16,54 %; In each nest, extra viable piglets were obtained per sow 1,45 goals and the nest weight at birth in the sows of the experimental group exceeds the control sow by 37,19 %.

A similar advantage of improved recipes is also confirmed by the milk productivity of the sow. Thus, the milk productivity of sows in the experimental group is 21 days higher than in the control group by 31,26 %. Throughout the period, research group piglet used mother's milk for 11,37 % more than in the control group. The average daily milk distribution in one sow in the control group was 6,01 kg for the entire lactation period, and in the experimental sow – 7,77 kg, which is 1,76 kg more or 29,26 %. – P. 161–165.

UDC 636.4:636.4:082.2

Zeldin V. F. Influence of technological factors on reproductive performance and performance of pigs.

Key words: pigs, selection, technology, reproduction, productivity, features.

The purpose of research – to investigate the degree of influence of technological factors on the efficiency of pig production.


Metod – feeding and was accepted in accordance with requirements herd reproduction organized according to the requirements of the method of artificial insemination. Statistical analysis of experimental data was performed M.O. Plohynskyi.

Results – proved that only a close relationship and stipulation of factors such as forage – feed and feeding – keeping and veterinary support – breeding work – implementation livestock contribute to the intensification of pig and increase its profitability.

Us in 2016 was held scientific and practical research on pig LTD "Expert AGROTRADE" of Dnipropetrovsk region, which studied the effectiveness of the above methods, for the first replanting pigs under the nipples sow. Control served as the first group of sows, piglets nipple where the choice was free. In the second group of sows strong piglets to sit alongside the rear nipple slightly – to the front, and the third group – on the contrary.

Installed, significant difference in favor of group II animals on the basis of "percentage of weaned piglets” in comparison with the first group and the third: td 2,1 = 6,13 for \( \gamma = 38 \); td 2,3 = 6,34 for \( \gamma = 38 \). Difference between animal groups I and III statistically improbable td 3,1 = 0,69 for \( \gamma = 38 \). On the basis of "weight at weaning nest" probably the best indicator in comparative perspective was inherent animals of the second group: td 2,1 = 6,70 for \( \gamma = 38 \); td 2,3 = 6,74 for \( \gamma = 38 \). The difference between the results of animal groups I and III statistically improbable. Analysis of data from the second series of experiments confirming the pattern of probable benefits II results of animal research group of sows performance of the control group.

Thus, the reliability of the final evaluation of breeding value of pigs caused by many factors. Genetics prefer continuity. Breeders – combination of genotypes, experts in animal nutrition – balans of diets technologies – the orga-nization maintenance and use of livestock. Every thought has a right to exist is that these factors are really important. Violation of any technological element reduces output pigs; Performance seed of good videlektciosionovanych parents, in consequence of which animals will score wrong. But we perekonen that greater objectivity animal breeding evaluation is possible with the integrated use of the work – permit indexes.
Technological factors significantly affect the reproductive ability and performance of pigs, as well as a violation of one of them reduces the objective evaluation of breeding animals and their use in breeding. – P. 165–168.

UDC 619:636.2.087.7
Milostiviv R. V., Milostiva D. F., Kalinichenko O. O., Vaslenko T. O. The natural resistance of the organism of calves of holstein breed depending on the season of birth.
Key words: calves, Holstein, resistance, season of birth, industrial technology.

The results of studies of the influence of the birth season on the state of natural resistance of the organism of heifers of Holstein breed are presented. They were kept in conditions of industrial milk production technology. It was found that calves that were born in the winter-spring period of the year had a better state of nonspecific resistance of the organism compared to peers who were born in the summer-autumn and autumn-winter period of the year. Animals were more sensitive to weather and climatic conditions in the early periods of ontogeny. They had more significant shifts in hematological parameters. This should be taken into account when “cold” calves are grown, compensating for their excessive energy costs to maintain homeostasis, by increasing the energy of the daily diet. – P. 168–171.

UDC 636.2:636.082
Stadnytska O. I. Dependence on their performance animal genetic potential.
Key words: breed, live weight, growth, dynamics, cultivation.

Formation of the market in livestock leads vidnosina Need significant increase in profitability of efektivnosti dairy livestock konkurentospromozhoе creation, when something intensive production run is possible with vikoristanni, primarily visokoproduktivniy in specific environmental conditions of livestock breeds and tipiv.

Over the past decade made cattle purposeful selection process in order to increase the productivity of existing dairy breeds and create new breeds and types. A Ukrainian black Ryaba dairy, red-Ryaba milk, brown and red milk dairy breed. In black and grizzled Ukrainian dairy cattle waste internally developed five types: central-east Polissya, eastern, southern and Sunni, which differ parent base; conditional share inheritance improving the breed and regardless of that – different selection of features.

An important reserve in livestock production is the intensification of cattle and enhance the genetic potential productivity of cattle of all breeds that are bred in Ukraine. Ukrainian black ripple dairy breed, like all others, is in dynamic development and the question of improving and consolidating on-konstytutsiyymy exterior features that will increase productivity genetic potential to develop its genetic base and create interbreed structure [4, 7]. The aim of research was to study – the duration of dry, service period and mizhotechnichnoho period and their influence on the performance of dairy cows.

As a result of studies found that subjects milk yield of cows varied with age – the third lactation increased, and since the fourth – gradually fell. The dependence on milk production indicators reproductive ability.

Basic description of cattle of sucklings breeds is the suckling productivity. The aim of plant-breeding work is a receipt from the cows of suckling direction of the productivity of most of milk of high quality. The level of milkness is determined by adaptive genetic potential of the productivity of breeds that is used for creation of breed, efficiency of their combination – by comparative correlations of parts of heredity in a conditional genotype, by the tribal value of бугай-плідників, factors of environment the inherited potential of created will be realized in that.

The sucking cattle breeding is leading industry in the most world countries. Advantage gives oneself up to breeding of the most productive breeds, including чорно-рибкої. Researches were conducted in ЧОП of "Іванівське" Теребовлянського to the district of the Ternopil area on 535 cows of the Ukrainian чорно-рибкої suckling breed. – P. 171–176

А Н Н О Т А Ц И И

УДК 633.15:631.527
Черчель В. Ю., Гайдаш А. Л. Селекция скороспелых гибридов кукурузы (Zea mays L.) на базе смешанной зародышевой плазмы.
Ключевые слова: кукуруза, самоопылённые линии, зародышевая плазма, тесткроссы, гибриды, скороспелость, урожайность зерна.

Приведены результаты экспериментальных исследований гетерозисной селекции скороспелых гиб-ридов кукурузы. Систематизация изучаемых тесткроссов по комплексу хозяйственно-ценных признаков в контрастных условиях выращивания позволила идентифицировать группу новых ценных скороспелых линий. При участии выделенных линий получены высокопродуктивные гибриды с высокими адаптивными показателями. По уровню производительности лучшими были 15 гибридных комбинаций. – С. 10–16.
Исследовано семь линий чечевицы. Изучено их продуктивность, генетическую разнонаправленность и установлено связь между различными элемен
tями продуктивности. Среди этих линий наименьшим количеством дней до цветения (67) отличался сортобразец Стелла, а максимальным (75) – генотип К. 1212. Наибо-лее высокая урожайность зерна была в генотипах К. 1212 (2,5 т/га) и К. 1212 х Стана 2 (2,46 т/га). Высокая корреляционная связь установлена между урожайностью и такими признаками, как масса бобов с растения (0,74), количество семян с растения (0,75) и масса семян с растения (0,78). – С. 16–21.

УДК 633.15:631.52 Федько Н. Н., Бебех А. В. Оценка per se инбредных линий кукурузы зародышевой плазмы Lancaster.

Ключевые слова: гибрид, плазма, исходный материал, инбредная линия, рекомбинация, испытания, урожайность, взаимосвязь, комбинаторная способность.

По результатам проведенных исследований можно сделать вывод, что урожайность линий в условиях Степи Украины во многом зависит от режима увлажнения, а именно от наличия осадков в критический по водопотреблению период вегетации. Наиболее продуктивной при всех условиях выращивания оказалась линия ДК2965 со средней урожайностью 4,99 т/га. По урожайности зерна были выделены также линии ДК2953 и ДК6353 (3,06 и 3,05 т/га соответственно). Высокой общей адаптивной способностью относительно признака «урожайность зерна» характеризуются линии ДК6353 и ДК2965, а также линии ДК4163, ДК3023, ДК6317, ДК4222, ДК9053 и ДК3044. – С. 21–26.

УДК 633.11:631.527 Рябовол Л. О., Рябовол Я. С. Оценка созданных образцов пшеницы мягкой озимой по ряду хозяйственно-ценных признаков.

Ключевые слова: пшеница, мягкая озимая, исходный материал, донор генов, хозяйственно-ценные признаки, производительность, адаптивность.


Ключевые слова: сорго зерновое, селекция, гибрид, генетическая плазма, фертильные линии.

Отражена история создания гибридных сорго зернового на Генической опытной станции. Приведены результаты сортоиспытания новых гибридных сорго. Установлено направление селекционных разработок и проведена оценка перспективных гибридных сорго зернового Утюг и СВАТ, которые характеризуются улучшенными морфологическими, урожайными и биохимическими свойствами по сравнению со стандартом Ковчег. Эти гибриды находятся в Государственном сортоиспытании. – С. 31–35.

УДК 633.5:631.527.5:631.529 Абельмасов А. В. Селекционная оценка самоопыленных линий и сестринских гибридных кукурузы генетической плазмы Айодент.

Ключевые слова: кукуруза, линия, сестринские гибриды, плазма Айодент, тесткроссы, урожайность зерна, комбинационная способность.

Отражены результаты отбора и оценки по комплексу селекционных признаков самоопыленных линий и сестринских гибридных линий и сестринских гибридных кукурузы генетической плазмы Айодент. Наиболее высокую среднюю урожайность (4,24 т/га) линии и сестринские гибриды (7,97 т/га) сформировали в условия 2013 г. и на 14,4 и 20,7 % соответственно ниже в 2015 г. Средняя уборочная влажность зерна гибридов колебалась в пределах от 12,9 % (2014 г.) до 17,6 % (2013 г.). Объеме 7 наиболее ценных генотипов с высокими оценками ЗКЗ по урожайности зерна. – С. 35–39.
УДК 577.2:633.15

Саттарова Т. Н., Борисова В. В., Гончаров Ю. А., Цюймей Чжан, Хуй Цзинь. Варьирование содержания β-каротина в зерне кукурузы в процессе его хранения.

Ключевые слова: кукуруза, β-каротин, линия, гибрид, хранение зерна.

Приведены результаты определения β-каротина в зерне линий и гибридов кукурузы при хранении. В ходе исследований установлена особенность влияния на содержание β-каротина в зерне в зависимости от генотипа, условий года выращивания урожая и продолжительности его хранения. Определено, что количество β-каротина в зерне линий кукурузы ДК239 и ДК633/325 МВ уменьшалось при увеличении срока его хранения. – С. 40–44.

УДК 633.15:631.562

Кирпа Н. Я., Скотар С. А., Лупатько О. И., Рослик А. А. Особенности аэродинамического сепарирования однокомпонентных смесей семян на примере кукурузы.

Ключевые слова: кукуруза, смесь семян, фракция, аэродинамическое сепарирование, технокультурно-логические признаки.

Установлены особенности аэродинамического сепарирования однокомпонентных семенных смесей в режимах их очищения – сортирования – калибрования. Не выявлено достоверной прямолинейной связи между фракциями и всхожестью семян гибридов кукурузы. Поэтому данный семенной материал сепарировать не рекомендуется, только в режиме очищения и удаления легких примесей. – С. 45–50.

УДК 633.16 «321»:631.816 (251.1-17:477)

Гирька А. Д., Бокун А. И., Мамедова Э. И. Влияние предшественников, минеральных удобрений и биопрепаратов на формирование элементов структуры урожайности ячменя ярового в северной Степи Украины.

Ключевые слова: ячмень яровой, минеральные удобрения, предшественники, биопрепараты, урожайность, зерно.

Исследованиями установлено, что использование микроудобрений вместе с биопрепаратами и минеральными удобрениями позволяет получить существенный прирост урожайности зерна. Доказано, что при совмещении обработки севооборота и опрыскивания растений в фазе кущения микроудобрением и комплексом биопрепаратов, урожайность ярового ячменя увеличивается после предшественников пшеница зимняя и кукуруза на 1,23–1,59 и 0,79–1,13 т/га соответственно. – С. 51–55.

УДК 633.11 «324»:631.8

Гасанова И. И., Веклич А. С., Прядко Ю. Н. Влияние предпосевной переделки на формирование зерновой продуктивности овса голозерного.

Ключевые слова: овес голозерный, сорт, фон минерального питания, биометрические показатели, надземная и вегетативная масса растений, площадь листовой поверхности.

Исследованы особенности роста и развития растений сортов пшеницы озимой. Установлено, что варианты сортовых семян и опрыскивания микроудобрением в фазе кущения микроудобрением сизам и рекомендовано только в режиме очищения и удаления легких примесей. – С. 55–59.

УДК 633.16 «321»:631.816 (50-17:477)

Гирька А. Д., Ткалич И. Д., Сидоренко Ю. Я., Бочевар О. В., Ильенко А. В., Мамедова Е. И. Формирование зерновой продуктивности ячменя ярового в зависимости от регуляторов роста и удобрений.

Ключевые слова: ячмень яровой, регуляторы роста, микроудобрения, минеральные удобрения, урожайность зерна, содержание β-каротина, линия, гибрид, хранение зерна.

Установлено, что при внесении N0P0K0 т/га и N+P+K, урожайность зерна ячменя ярового пивоваренного сорта Галактик в зависимости от регуляторов роста и удобренний увеличивается. Установлено, что при внесении N0P0K0 + N6 + P + K, β-каротин, линия, гибрид, хранение зерна.

Изложены результаты исследований формирования зерновой продуктивности овса голозерного. Установлено, что при внесении N0P0K0 + N6 + P + K, регуляторы роста и удобрения, количество продуктивных стеблей, длина метелки, высота растений и масса зерна с одной метелки, что обеспечивает увеличение прироста урожай зерна голозерного сорта – 43 %. – С. 65–68.

УДК 633.13: 631.816.12

Кулик И. А., Бондаренко А. С., Копченко М. В. Формирование зерновой продуктивности овса голозерного в северной Степи Украины.

Ключевые слова: овес голозерный, система удобрения, продуктивность растений, урожайность.

Изложены результаты исследований формирования зерновой продуктивности овса голозерного. Установлено, что при внесении N0P0K0 + N6 + P + K, регуляторы роста и удобрения, количество продуктивных стеблей, длина метелки, высота растений и масса зерна с одной метелки, что обеспечивает увеличение прироста урожай зерна голозерного овса – 43 %. – С. 65–68.
Шакалий С. М. Формирование урожайности и качества семян подсолнечника в зависимости от внекорневой подкормки.

Ключевые слова: подсолнечник, гибрид, сорт, бактериальные препараты, микроудобрение, урожайность, качество, выход масла.

Приведены результаты изучения влияния микроудобрения реаком и бактериальных препаратов (алюбо-бактерии и полимиксобактерии) на формирование урожайности и качества семян подсолнечника в 2014–2016 гг. Внекорневая подкормка подсолнечника микроудобрением реаком способствовала улучшению морфо-физической структуры растений, повышению урожайности семян и, в конечном итоге – значительному увеличению выхода масла с единицы площади. При этом эффект от применения микроудобрения в дозе 4,5 и 6,0 л/га был приблизительно одинаковым. – С. 69–74.

Цыков В. С., Дудка Н. И., Шевченко А. М., Носов С. С. Эффективность применения макро- и микроудобрений при выращивании кукурузы.

Ключевые слова: кукуруза, минеральное удобрение, микроэлементы, влажность зерна, эффективность.

Разработаны технологические приёмы применения микроэлементных препаратов в системе питания растений кукурузы, а также установлена их эффективность при использовании в баковых смесях с карбамидом на фоне внесения минерального удобрения. – С. 75–79.

Тимофеев М. М., Бондарева О. Б., Винюков А. А. Биологизация растениеводства – основа формирования устойчивых агробиоценозов.

Ключевые слова: биологизация растениеводства, мульчепласт, кустарниковое полосы, деградация почв, локально-вертикальная обработка почвы, парцелляция больших полей.

Выведено, что устранение деградации черноземных почв связано с формированием мульчепласта, восстановлении органогенных ресурсов и биогенной парцелляции больших полей. Переход на биологическую систему земледелия предполагает максимальное использование агробиоценозом агроорганических ресурсов благодаря мульчепласту, кустарниковым полосам и локально-вертикальной обработке почвы.

Определено, что наиболее целесообразные площади под мульчепластом в парцелях составляют от 9 до 16 га, которые могут дать от 3,2 до 2,4 т/га мулыни из кустарниковых полос. В условиях больших площадей оврагов, низкого плодородия почв склонов более 3–5° соотношение площадей под мульчепластом к кустарникам 2.57:1 является оптимальным. – С. 79–85.

Дворицкая И. П., Новак Ж. М. Количество и качество клейковины в зерне коллекционных образцов четырёхвидовых тритикале.

Ключевые слова: четырёхвидовые тритикале, содержание клейковины, качество зерна, образец.

Изложены результаты изучения содержания клейковины и показателей её качества в зерне коллекционных образцов четырёхвидового тритикале (Triticosecale Wittmack), полученного путем скрещивания четырёхвидового тритикале и пшеницы спelta (Triticum spelta L.). Установлено, что содержание клейковины в зерне исследуемых образцов, в среднем за два года, колебалось в пределах 19,6–24,8 %. Все исследуемые коллекционные образцы четырёхвидовых тритикале существенно превышали сорт-стандарт Алхайд по количеству клейковины в каждый год исследований. По совокупности показателей качества клейковина образцов 455, 471 и 473 принадлежит к первой группе, а остальных образцов и сортов – ко второй. Образцы 455 и 471 характеризовались наиболее высоким содержанием клейковины и показателями её качества на уровне первой группы. – С. 85–89.

Маслиёв С. В., Цыганкова Н. А. Особенности выращивания пищевой кукурузы на дачных участках в личных подсобных хозяйствах зоны Степи Украины.

Ключевые слова: пищевая кукуруза, лопающаяся кукуруза, сахарная кукуруза, качество зерна, характеристики, сорт, гибрид, группа спелости, технологии выращивания, посев, почва, удобрения, борьба с вредителями и болезнями, урожай.

Дана характеристика сортов и гибридов пищевой кукурузы – лопающейся и сахарной, выведенных в Государственный реестр сортов растений, допущенных к использованию в Украине на 2015 г. Описаны характеристики качества семян сахарной и лопающейся кукурузы. Приведены требования, предъявляемые к качеству семян при их реализации. Изложены оптимальные технологии выращивания пищевой кукурузы на дачных участках и в личных подсобных хозяйствах. Даны рекомендации по оптимальной обработке почвы, применению органических и минеральных удобрений, срокам посева, глубине и норме высева семян, уходу за посевами и уборке урожая. Освещены методы борьбы с основными болезнями и вредителями сахарной и лопающейся кукурузы, способствующие снижению потерь урожая и позволяющие получать экологически чистую продукцию. – С. 89–94.

УДК 633.15:632.78 (251.1-17:477)

Пичук Н. И., Грицко Т. В., Горщар Е. А., Педаш Т. Н. Устойчивость гибридов кукурузы к чешуекрылым вредителям в условиях северной Степи Украины.

Ключевые слова: кукуруза, стеблевой мотылек, хлопковая совка, стойкость.

Описаны результаты исследований определения устойчивости гибридов кукурузы (Zea mays) к повреждению чешуекрылыми вредителями (H leuconotis и Ostrinia nubilalis). В целом проведен анализ 56 образцов. Определены относительно устойчивые гибриды к повреждению хлопковой совкой. В связи с незначительным распространением кукурузного стеблевого мотылька выделить устойчивые к вредителю формы не удалось. – С. 115–118.

УДК 631.5: 581.526

Шевченко М. С., Десятник Л. М., Лярницкф Ф. В., Шевченко С. М. Агросистемные методы регулирования водопотребления в агроценозах.

Ключевые слова: влага, севооборот, обработка, удобрение, сорняки, зерновые культуры, запасы влаги, водопотребление, урожайность.

На основе стационарных полевых опытов установлены особенности накопления и использования влаги в севооборотах в зависимости от обработки почвы и удобрения. Установлено, что наиболее...
рационально ресурсы влаги используются при внесении органических и минеральных удобрений. Доказано, что внедрение эффективной системы борьбы с сорняками обеспечивает сохранение влаги от непродуктивной потери на уровне 800–1200 м³/га. Для степной зоны актуальным влагорегулирующим способом является включение в севооборот черного пара. – С. 119–123.

УДК 631.1: 631.582:633.15:633.34

Артеменко С. Ф., Рыбка В. С., Коятун Е. В. Агроэкономическое обоснование производства кукурузы и сои в севооборотах короткой ротации.

Ключевые слова: вспашка, чизельная обработка, система удобрений, производственные затраты, себестоимость, прибыль, рентабельность, соя, кукуруза, короткие ротации.

Приведены результаты комплексных исследований с позиций агроэкономической эффективности выращивания кукурузы и сои в севооборотах короткой ротации. В условиях недостаточного увлажнения северной Степи Украины целесообразно внедрение уравновешенной системы удобрения, которая предусматривает применение умеренных рекомендованных доз минеральных удобрений на фоне чизельной глубокой обработки почвы с эффективной системой защиты посевов от сорняков. – С. 124–129.

УДК 633.358:631.816:632.981

Ганкур В. В. Урожайность и качество зерна гороха в зависимости от предшественников и насыщенности разноротационных севооборотов в условиях левобережной Лесостепи Украины.

Ключевые слова: горох, предшественники, севооборот, насыщенность, удобрение, урожайность, качество зерна.

На основании результатов исследований, полученных на протяжении 1999–2015 гг., установлено, что на типичном малозлупном тяжелосуглинистом черноземе левобережной Лесостепи, кукуруза на зерно, ячмень яровой, подсолнечник, сахарная свекла являются практически равноценными предшественниками для гороха. Урожайность зерна гороха при посеве после этих предшественников составляет 1,81–1,83; 1,94; 1,74; 1,82 т/га соответственно. В результате высокой концентрации посевов гороха в севооборотах из разной продолжительностью ротации (от 14,3 до 33,3 %) не обнаружено существенного различия в уровне урожайности этой культуры. Однако установлено более стабильную по годам урожайность зерна гороха при меньшей его доле в севообороте. – С. 129–133.

УДК 633.16:631.81.095.337

Чабан В. И., Клязю С. П., Подобед О. Ю. Аккумуляция микроэлементов растениями ячменя ярового в зоне Степи Украины.

Ключевые слова: ячмень яровой, микроколементы, аккумуляция, варизабельность, градация содержания.

Обобщены многолетние данные микроколементного состава основной и побочной продукции ячменя ярового в зоне Степи Украины. Установлена высокая варизабельность содержания Mn, Cd (V = 37–63 %). Содержание Co характеризуется относительной стабильностью (V = 22 %). Выявлено, что действие объективных факторов ограничивает аккумуляцию растениями отдельных элементов. Выявленная значительная варизабельность содержания микроколементов в зерне ограничивается фактором окружающей среды в сравнении с зерном. Коэффициенты биологического использования (КБИ) подтверждают высокую потребность культуры в Zn и Cu. Предложена градация содержания микроколементов в зерне ячменя с учетом региональных особенностей. – С. 134–137.

УДК 636.4.082.43

Халак В. И. Производительность и степень дискретности полегенно-наследственных признаков свиноматок различайной продолжительности племенного использования.

Ключевые слова: свины, производительность, степень дискретности, полегенно-наследственные признаки, продолжительность племенного использования, воспроизводящая способность свиноматок.

Исследованы показатели воспроизводительной способности свиноматок крупной белой породы и степень дискретности полегенно-наследственных признаков животных различной продолжительности племенного использования. Установлено, что максимальное значение доли показателя «продолжительность племенного использования, мес.» к показателю «продолжительность жизни, мес.» (83,35 %) выявлено у животных, продолжительность племенного использования которых колеблется в пределах от 45,3 до 71,9 мес. От свиноматок указанной группы получено 6,1 опороса, получено всех поросят за период эксплуатации матки в стаде 109,0 ± 4,99 головы, в том числе живых поросят – 103,0 ± 4,56 головы. Масса гнезда на дату отъема в возрасте 28 дней равна 77,0 кг, количество непродуктивных дней в расчете на один опорос – 26,0 дней, продолжительность межпоросного периода – 175,3 дней.

Степень дискретности полегенно-наследственных признаков (n = 4) свиноматок различайной продолжительности племенного использования является максимальной (D = 0,962) у животных с продолжительностью племенного использования от 9,6 до 22,3 мес. Связь между показателем
«продолжительность племенного ис-пользования, мес.» и признаками воспроизводительной способности является высокодостоверной (Р <0,001) – в пределах от 0,954 (тр = 83,53) до 0,969 (тр = 124,94). – С. 138–142.

УДК 636.2.064

Козырь В. С., Чегорка П. Т. Возрастные изменения морфологического и сортового состава туш бычков абердино-ангусской и украинской мясной пород в условиях Степи Украины.

Ключевые слова: порода, бычка, возраст, показатели убоя, морфологический состав, сортовая разрубка туш, физико-технологические качества говядины.

Установлены существенные отличия убойных показателей морфологического состава и сортовой разрубки туш бычков абердино-ангусской и украинской мясной пород в межпородном и возрастном аспекте, выращенных в условиях Степи. – С. 143–147.

УДК 636.2:620.9

Чернявский С. Е. Энергообеспечение малой молочной фермы за счет биогаза.

Ключевые слова: энергообеспечение, биогаз, навоз, молочная ферма, корова.

Изложены результаты исследования возможности энергообеспечения технологического процесса малой молочной фермы за счёт биогаза. Определено, что технологический процесс молочной фермы, рассчитанной на 40 коров и 60 голов молодняка, полностью энергетически независим от внешних источников энергии при использовании биогазовой установки для производства биогаза из навоза животных с дальнейшим его преобразованием в электрическую энергию, тепловую и нефтепродукты. – С. 147–150.

УДК 636.22/28.082

Пищан С. Г., Литвищенко Л. О., Гончар А. О. Реализация генетического потенциала молочной продуктивности голштинского скота по интенсивной технологии эксплуатации.

Ключевые слова: лактация, адаптация, индекс осеменения, сервис-период, межотельный период.

Освещены результаты исследования влияния продолжительности лактационного периода голштинских коров разного возраста на их продуктивность, воспроизводительные качества и проявления адаптивной пластичности организма в условиях промышленной технологии эксплуатации.

Установлено, что голштинские коровы во второй и третий продуктивные периоды при продолжительности лактации 305 дней характеризуются почти одним и тем же показателем молочности, который в среднем составляет 10884,0 та 10890,7 кг 4 %-ного молока. Причем, чистопородные голштинские коровы, но с достаточно продолжительным периодом лактации продуктивируют, в пересчете на 305 дней, почти такое же количество 4 %-ного молока – в среднем 11097,0 и 10930,4 кг соответственно. Естественно, что за весь период лактации молочная продуктивность животных второй и третей лактации была выше на 34,6–36,5 % сравнительно с нормальным периодом лактации. Доказано, что продолжительная лактация приводит к потере молока от 7567,2 до 8202,2 кг и приплода от 1 до 1,2 головы. Не случайно, что индекс адаптации таких животных составляет в среднем 12,3–14,2 единицы. – С. 150–156.

УДК 636.4.082.11/.12

Лобан Н. А., Лобан Е. И. Полиморфизм генов-маркеров воспроизводительных и откормочных качеств свиней в ассоциации с продуктивностью.

Ключевые слова: белорусская крупная белая и белорусская черно-пестрая породы свиней, белорус-ской заводской тип породы йоркшир, воспроизводительная и откормочная продуктивность, селекция, генетические маркеры, ESR, IGF-2.

Установлено, что перспективными для применения в практической селекции для материнских пород свиней являются следующие гены-маркеры продуктивности: по воспроизводительным качествам – ген эстрогенового рецептора (ESR); по откормочным качествам – ген инсулиноподобного фактора роста (IGF-2).

Выведено, что при выращивании свиней белорусской крупной белой породы прослеживается следующая тенденция: с ростом показателей откормочной продуктивности имеет место снижение воспроизводительных качеств. Особи, несущие в своем геноме предпочтительные генотипы BB и AB гена ESR, превосходят своих аналогов с генотипом AA по воспроизводительным качествам на 11,8–0,8 %, но уступают по откормочным – на 26,6–0,4 %. – С. 156–160.

УДК 636.4.085.5

Майстренко А. И., Димчя Г. Г. Влияние различных кормовых добавок на рост и продуктивность ремонтных свинок.
**Ключевые слова**: рацион, кормовая добавка, свинки, среднесуточный прирост, живая масса, продуктивность.

Установлено преимущество использования усовершенствованных балансирующих кормовых добавок по сравнению со стандартом при выращивании ремонтного молодняка свиней. В опытной группе свинки имели более высокие суточные приросты, живую массу, интенсивность роста и лучшие воспроизводительные качества. – С. 161–165.

УДК 636.4:636.4.082.2

**Зельдин В. Ф. Влияние технологических факторов на репродуктивную способность и продуктивность свиней.**

**Ключевые слова**: свиньи, селекция, технология, воспроизводство, продуктивность, признаки.

Обобщены исследования отечественных и зарубежных ученых о влиянии технологических элементов при выращивании ремонтного молодняка и использовании основного стада свиней на их репродуктивную способность и продуктивность. Многолетним производственным опытом доказано, что племенная ценность поголовья зависит от наследования признаков, скрещивания генотипов, кормления и содержания животных. Объективность оценки свиноматок и хряков возможна только при оптимальном комплексном соблюдении всех технологических условий. – С. 165–168.

УДК 619:636.2.087.7

**Милостивый Р. В., Милостивая Д. Ф., Калинченко А. А., Василенко Т. А. Естественная резистентность организма телят голштинской породы в зависимости от сезона рождения.**

**Ключевые слова**: теленок, голштинская порода, естественная резистентность, сезон рождения, промышленная технология.

Приведены результаты исследований влияния сезона рождения на состояние естественной резистентности организма телок голштинской породы в условиях промышленной технологии производства молока. Установлено, что телята, рожденные в зимне-весенний период под влиянием регионально-климатических и погодных условий, имели лучшее состояние неспецифической резистентности организма по сравнению со сверстниками, рожденными в летне-осенний и осенне-зимний периоды. В период раннего онтогенеза, животные оказались более чувствительными к погодно-климатическим условиям, имел более существенные соотношения гематологических показателей. Это следует учитывать при «холодном» выращивании телят, компенсируя их чрезмерные энергетические затраты на поддержание гомеостаза за счет увеличения энергии суточного рациона. – С. 168–171.

УДК 636.2:636.082

**Стадницкая О. И. Генетический потенциал – не исчерпан.**

**Ключевые слова**: порода, живая масса, рост, динамика, выращивание.

В результате проведенных исследований установлено, что надои подопытных коров с возрастом менялись – к третьей лактации увеличивались, а начиная с четвертой – постепенно уменьшались. Выведена зависимость между молочной продуктивностью и показателями воспроизводительной способности. – С. 171–176.