Summary

Vozhegova R.A., Kokovikhin S.V., Bilyaeva I.M. Drobitko A.V. Prospects for the use of information systems for agrometeorological ensure irrigated agriculture in Southern Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 5-8.

The results of studies on the scientific substantiation of agrometeorological ensure irrigated agriculture south of Ukraine. It is established that the cultivation of crops on irrigated land is closely linked to the influence of meteorological factors that directly affect the productivity of agricultural crop yields and product quality grower, economic and energy performance of irrigated farming. With considering the peculiarities of weather conditions at a particular farm, crop rotation and the field can significantly increase the efficiency of irrigated farming.

Keywords: irrigation, weather conditions, meteorological parameters, information tools, modeling, water demand.

Kruzhilin I.P., Doubenok N.N., Ganiev M.A., Abdou N.M., Melikhov V.V., Bolotin A.G., Rodin K.A. The rice irrigated by drop system // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 8-12.

With growing demand for increasing rice production and a severe shortage of water, it is necessary to reduce water consumption and increase rice productivity. Drip irrigation it is supposed to be a new water-saving rice cultivation technology, to assess its effect on rice productivity and water-saving capacity field experiment was conducted at Agricultural Research Station, of all Russian scientific research institute of irrigated lands (Volgograd, Russian) over two years (2013, 2014).The effect of three water regimes and three levels of mineral fertilizers (NPK) on yield and water use efficiency of rice under drip irrigation were studied. Results concluded that, irrigation water use of rice crop under drip irrigation was 513mm/ha (as an average of two years) which considered by 2-5 times less than those consumed under flooded conditions. Therefore It can be concluded that, Drip irrigation has greater water saving capacity compared with the flooded irrigation, and would therefore be a better water-saving technology in areas of water scarcity.

Keywords: rice, drip irrigation,water regime, water consumption, mineral fertilizers, yield.

Pietrzak Stefan The sulphur content in grassland soils in Poland in 2009-2011 // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 12-14.

According to other authors a sulphur deficiency is becoming more and more common in grassland soils in the world, especially in terms of their fertilization with high doses of nitrogen. The scarcity of sulphur in grassland soils limits grass growth, protein production and reduces the efficiency of nitrogen use, which increases risk of nitrate leaching. This indicates the need of testing the sulphur content in grassland soils, in the aspect of fertilisation with this component adjusted to nutritional needs of grasses. In the years 2009-2011 a study aiming at recognizing the state of sulphur content in the surface (0-30 cm) layer of grassland soils in Poland was conducted. It was found that: /i/ in the years 2009-2011 the average content of total and sulphate sulphur in mineral grassland soils, depending on the season is within the range: 391.4-395.0 $mgS_{tot.}$ kg^{-1} and 13.6-18.1 $mgS\text{-}SO_4$ kg^{-1} respectively, while in the organic-mineral and organic soils: 1522.4-1607.7 $mgS_{tot.}$ kg^{-1} and 43.3-45.6 $mgS\text{-}SO_4$ kg^{-1} respectively; total and sulphate sulphur content in majority of grassland soils is on natural level; approximately 58-62% of mineral soils of grasslands are characterized by very low and low sulphate sulphur content due to the nutritional needs of grasslands vegetation.

Keywords: monitoring, grassland soils, sulphur content.

Lavrinenko Yu.O., Hozh O.A. The effectiveness of growth stimulants and microfertilizers to the crops of corn hybrids of different maturity groups under irrigation in the South of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 14-20.

The purpose of research consists scientific basis in the effect of growth stimulants and microfertilizers, taking into account the biological characteristics of new maize hybrids of different FAO groups on yield and quality parameters of grain under irrigation in the South of Ukraine.

The results of the research. The paper defines the impact of microfertilizers and growth stimulants on the yield and grain quality of the corn hybrids of different maturity groups and on the economic efficiency of growing them. **The conclusions of the research.** Under irrigation of the Southern Steppe of Ukraine it is recommended that the following hybrids be grown in dark-chestnut soils: early maturity DN Pyvykha, medium-early Skadovskyi, medium maturity Kakhovskyi and medium-late Arbat using the growth stimulants – treating the seeds with Sezam-Nano and fertilizing with Grainactive at the stage of 7–8 leaves.

Keywords: corn hybrids, groups FAO, microfertilizers and growth stimulants, irrigation, yield and grain quality, economic efficiency.

Benda R.V. Formation of the quality indicators of winter barley depending on the sowing time and mineral nutrition // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 20-22.

Aim: studying of influence of sowing time and level of a mineral delivery on formation of the quality indicators of winter barley. **Methods:** when carrying out researches used the conventional methods and methodical recommendations of Institute of agriculture of a Steppe zone. **Results.** The conducted researches showed that at shift of sowing time from early towards the late the tendency to increase in a protein content of grain of barley winter was traced. At crops grain with the greatest protein content of 11,3–11,4% was formed on October 15–18 and 25–29. The content of starch in the grain on the contrary, has decreased, and the difference

in indicators between the early and late sowing was 7,3%. Nature of grain of the greatest (660 g/l) was at crops on September 25–28. And at crops on September 15–17 and on October 5–8 was slightly less and made 637–641 g/l. Crops of winter barley in late terms (on October 15–18 and 25–29) promoted formation of the least nature of grain – 623 and 618 g/l respectively. Also found that holding nitric root feeding of plants in late tillering locally at a dose of N30 to an increase in grain protein content of 0.5% compared to the background. With increasing doses of nitrogen from 60 to 90 kg/ha a.i. grain protein content increased to 9,4–9,8%. Thus, the increase of the protein when compared with the background was 0,9–1,3%. As for the full-scale weight of grain, it has also changed under the influence of nitrogen application. According to the content of starch in the grain of winter barley, it showed a tendency to decrease its amount of nitrogen during feedings. **Conclusion.** It was found that in the northern part of the Steppe of Ukraine at sowing of stubble predecessor in later periods (15–18 and 25–29 October) was formed with the highest grain protein content (11,3–11,4%) and starch (54,7%) in the early stages (15-17 September). Adding nitrogen fertilizers in the form of spring fertilizing as different doses and methods is an effective technique in technology of cultivation of winter barley to increase the protein content in the grain.

Keywords: winter barley, dates of sowing, mineral nutrition, nitrogen fertilization, quality.

Khodyakov E.A., Rusakov A.V. Features of technology of receiving the planned pepper crops using sprinkling in the south of Russia // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 22-26.

The main objective of our scientific researches in 2003-2005 and field farm check in 2013 was consisted in cultivation and justification of the water preserving pepper irrigation technologies by sprinkling allowing to receive together with introduction of mineral fertilizers the planned crops 50, 60 and 70 t/hectare with preservation of fertility of the light brown soils at the territory between Russian rivers Volga and Don and ecological safety.

Three irrigation regimes were investigated for this purpose: 75-65, 85-75, 85% MWC (Maximum Water Capacity) and 3 doses of the mineral fertilizers $N_{165}P_{100}K_{90}$, $N_{200}P_{120}K_{110}$, $N_{235}P_{140}K_{130}$ kpn/ hectare (kilogram of primary nutrient in hectare).

The conducted researches showed that the plan pepper crops at the level of 50 t/hectare is possible to receive at maintenance of the ecologically safe modes of an irrigation 75-65 or 85-75% MWC in combination with introduction of the fertilizers by the dose N165P100K90; 60 t/hectare - at maintenance of the modes of an irrigation 75-65 and 85-75%MWC along with introduction of a dose of the mineral fertilizers $N_{200}P_{120}K_{110}$ or 85% MWC together with the lowered dose $N_{165}P_{100}K_{90}$; 70t/hectare – at introduction of a dose of the mineral fertilizers N_{235} P_{140} K_{130} kpn/ hectare and maintenance of the irrigation regimes 85-75 or 85% MWC.

Our scientific researches in 2003-2005 shown when the plan pepper crops increased from 50 to 70t/hectare on average for 3 years of the irrigating norms extended to 5130 … 5480 m^3/hectare, the total water consumption – to 6121 … 6457 m^3/hectare, the average daily water consumption – to 36,9 … 38,7 m^3/hectare, the period of pepper vegetation - to 140 … 144 days; the maximum area of leaves - to 36,6 … 37110 m^2/hectare; the photosynthetic potential – to 3,37 … 3,48 million m^2*day/hectare; the coefficient of power efficiency - to 2,01 … 2,03 at the same time with decrease in the coefficient of water consumption to 79,8 … 83,5 m^3/t and the power consumption of 1 t of products to 12,0 … 12,2 GJ (Gigabyte Joule) at the same time with receiving the high quality of the pepper production and preservation of the soil fertility.

Keywords: pepper, crop, irrigation regimes, sprinkling, fertilizers, photosynthesis, biopower, fertility of the soil.

Markovska O.E., Lavrenko S.O., Kaminska M.O. New plant growth stimulant in the technology of cultivating spiked cereals in Southern steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 26-29.

Objective. Studying the suitability of application of tank mixtures of the pesticides and plant growth regulators in the technology of cultivating spiked cereals.

Methods. The records and observations of growth and development of plants were conducted according to the procedures of field experiments and ISO of Ukraine 4138-2002 [7, 8]. The efficiency of herbicide application was defined using the method developed by the Institute of Plant Protection NAAS of Ukraine [9, 10].

Results. Application of tank mixture of the herbicide Granstar Gold 75 (w-s g) and the immune plant growth regulator “MIR” " at the end of the third stage of winter wheat organogenesis contributed to the increase of grain yield by 24,3-25,0 % in 2011, and by 20,8-21,6 % in 2012. As to different periods of applying the immune plant growth regulator “MIR” in the technology of cultivating winter wheat in the SHEE “KSAU”, the greatest yielding capacity of winter wheat was provided in the case of treating the seeds before sowing - 3,83 t/ha, exceeding the control (without treating) by13,3 %. Treating crops in the phase of spring tillering (version 2) and application of the immune plant growth regulator “MIR” for treating seeds before sowing + treating crops in the phase of spring tillering (version 6) led to the yielding capacity of 3,69; 3,78 t/ha, that was below the maximal parameter by 3,8; 1,3%, respectively. The yield increase in the above-mentioned versions of the experiment arose from the formation of a greater amount of productive stalks and an ear length.

Conclusions. Application of the immune plant growth regulator “MIR”in tank mixture with the herbicides recommended by the ""List of pesticides and agrochemicals permitted for use in Ukraine” at the end of the third stage of organogenesis of winter wheat and barley is a reasonable and economically profitable element of the modern technology of cultivating cereals. The increase of grain yield of wheat equals to 7,1-12,6%, weediness decreases by 91,6-95,8%.

Keywords: immune plant growth regulator, cereals , spiked cereals, photosynthesis, herbicide.

Goloborodko S., Poginayko A. Agrobiological bases of formation of the drought-resistant species crop of perennial grasses in the conditions of regional climate changes in the South Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 29-35.

Goal. The selection of drought-resistant species of legumes and cereals perennial grasses and legume-

grass of binary and polyspecific mixtures, that in a regional climate change provide a maximum fee of feed units and digestible protein.

Research Methods: Field - to determine the effect of weather conditions and agro technological factors; Measurement and Weight – to account for the performance of the feed; Morphology – for the analysis of the vertical structure of above-ground mass of perennial grasses in establishing their agronomic characteristics; Laboratory – for certain kinds of botanical and chemical composition of herbage; Settlement and Comparative – for economic and energy evaluation of cultivation of perennial grasses for feeding purposes; Mathematical and Statistical – to assess the reliability of the research results. **The Results of Research**. The yield of absolutely dry matter of single-species crops wheatgrass medium significantly dependent on the botanical composition agrophytocenosis species that have been studied and the year of their use and for the first year was 3.24 t / ha, the second – and third 1.86 2.70 t / ha, respectively, Alfalfa – 3.30; 2.48 and 1.67 t / ha and sandy sainfoin – 3.39; 2.73 and 1.65 t / ha. Collecting fodder units with single-species crops couch grass medium, regardless of the use, the grass stands, reached 1,18-2,14 t / ha, digestible protein – 0,18-0,41 t / ha, gross energy - 33,8-59, 0 GJ / ha and exchange energy – 19,0-33,8 GJ / ha. The maximum collection of digestible protein during all the years of use of perennial grasses obtained from single-species crops of alfalfa – 0,30-0,62 t / ha and sandy sainfoin – 0,24-0,58 and alfalfa-grass – 0,30-0,59 sainfoin and-grass mixtures - 0,25-0,55 t / ha, which is significantly dependent on the participation in the species composition of the botanical ingredients legumes – alfalfa and sainfoin sandy. The content of alfalfa in single-species crops the first year was 79.7%; the second – and third 13.50 87.35%, respectively, sainfoin sandy – 91.15%; 82,00 and 8,30%. The cost price of 1 ton of fodder units of single-species crops wheatgrass average first year amounted to UAH 1346.1, respectively, alfalfa - 542.1; sainfoin sandy – 638.2; binary mixtures wheat grass + alfalfa - 1084.8 UAH wheatgrass and sainfoin sandy + – 965.1 UAH polyspecific and alfalfa mixtures wheatgrass + + sainfoin sandy – 851.5 UAH. **Conclusions**. High productivity of perennial grasses – 1,67-2,70 t / ha of fodder units and 0,30-0,64 t / ha of digestible protein under rainfed farming areas of Southern Steppe is achieved by using drought-resistant grass species that are best adapted to the climatic conditions of the zone: wheatgrass Intermediate (Class Vitas), alfalfa (cv Unitro) and sandy sainfoin (Ingul grade) and their binary and polyspecific mixtures.

Keywords: moisture content, alfalfa, wheat grass median, sainfoin, productivity, feed units, the exchange energy.

Vozhehova R.A., Muntian L.V. Influence of elements of cultivation technology on tillering intensity of different sorts of winter wheat under conditions of rice crop rotation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 35-37.

Our research was aimed for improving existing technology of winter wheat cultivation by optimizing agrotechnical elements for improving the conditions of plants growth and development and the formation of high grain productivity of the culture under conditions of rice crop rotation. The focus of the research was to refine norms of seeding for winter wheat cultivation with the use of elements of biologization to obtain big and stable harvest. A biological characteristic of cereals is tillering. There is general and productive tillering. By the general tillering it is meant the number of stems per one plant, by the productive it is meant the amount of stems which provide grain harvest. The research was carried out during years 2010-2014 at Rice Research Institute at Ukrainian Academy of Agrarian Sciences (UAAS). Subjects of research were winter wheat sorts Rosynka, Odeska 267 and Khersonska bezosta. Fertilizers under conditions of rice crop rotation are powerful factors influencing the development of individual elements of productivity and crop capacity of winter wheat seeds if other elements of the technological cycle of crops cultivation are being followed. Under the influence of mineral fertilizers the intensity of tillering, the number of productive stems per unit area are increased, which ultimately increases seeding productivity. For more efficient use of mineral fertilizers it is advisable to take the specific and varietal characteristics of culture into account. Regarding the seeding norms, they should be optimal.

Keywords: winter wheat, variety, rice crop rotation, seeding rate.

Ilyinsky I.N. Water use efficiency in irrigated agriculture using modern irrigation techniques // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 38-42.

The article is devoted to the development of ways to improve the efficiency of irrigated agriculture through the use of new technologies for water conservation, including the principle purpose of the water regime, irrigation methods and technique. During the studies used conventional techniques: BA Dospehov (1985); Goryansky M. (1970); Institute of forages (1971), AN Kostyakov (1957).

It was analyzed performance indicators of irrigation water and return it received an additional crop for a number of cereals, legumes, vegetables and forage crops in the conditions of ordinary chernozems of the Rostov region.

It was found that the water-saving technologies is most effective for crops such as winter wheat, corn, peas, potatoes. Where water consumption does not exceed 330 m3 per 1 ton of yield increase, providing a return 3,04-4,81 kg from each cubic meter of water consumed.

Keywords: technology, irrigation, water resources, water use efficiency, agricultural crops.

Zayets' S.A. Productivity of modern varieties of winter wheat in the conditions of irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 42-46.

Purpose. To define the most productive and adapted varieties of winter wheat to the terms of irrigation of south of Ukraine. **Methods.** Researches were conducted on the irrigated lands of Institute of the Irrigated Agriculture of NAAS on the methods of Dospyehov B.A. and methodical recommendations on carrying out the field tests in the conditions of irrigation of Institute of the Irrigated Agriculture. Soil of the experiemtnt field is a dark-chestnut, heavily loamy, salt-marsh with content of humus - 2,3%, by a closeness - 1,3 g/cm², by fading humidity - 9,8%, by the least moisture-capacity - 22,4%. **Results.** It is set that on the irrigated lands of South of Ukraine after soy the greatest productivity 7,73 and 7,72 т/ha formed the new varieties

of winter wheat Mariia and Vatazhok, which are accordingly created in Institute of the Irrigated Agriculture of NAAS and Plant-breeding-genetic institute - National center of seed-conduct and sort–study. Practically the same productivity was created by a sort Khersons'rka 99. All other sorts (Blaho, Ovidii, Kokhana, Konka, Antonovka, Misiia odes'ka, Zorepad, Zhaivir and Poi'ovyk) provided the productivity at the level of 6,82-7,33 т/ha, that close to the productivity got on a standard by the Khersons'rka bezosta is 7,04 т/ha. On maintenance an albumen (12,6 %) and gluten (38%) grain of sort Ovidii answered the requirements of the second, and most sorts - to the third class of SSTU 3768:2010. Only at sorts Misiia and Poi'ovyk maintenance of albumen in grain was 10,4-10,8 %, that transferred him in a fifth class.

Conclusions. The greatest productivity of 7,73 т/ha and most conditional income 11834 UAH|ha and level of profitability of 156% at a prime price - 951,90 hrn/т provide the sort of wheat winter-annual Mariia. Also the high productivity 7,72 and 7,54 т/ha and net income 11817 and 11447 UAH/ha at the level of profitability of 154% had sorts of Vatazhok and Khersons'rka 99, Byblyogr.:7 names.

Keywords: irrigation, winter wheat, varieties, productivity, quality, economic efficiency

Shatkovsky A., Zhuravlev A., Cherevychny Yu. Productivity of the ripe onion, depending on the modes of drip irrigation in conditions of the dry Steppe zone of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 46-49.

Purpose. Determination of the influence of levels of pre-irrigation soil moisture (LPSM) on production processes of early onion.

Research methodology. Research conducted as part of a stationary experiment on the base of Brylivskyi point station of IWPAR NAAS (subzone of Dry Steppe) in 2011-2013. By one-factor scheme of field experiment was provided study of 6 LPSM, which, in turn, substantiated the formation of a drop irrigation modes and respectively - production processes. The used method of timing of irrigation's appointment - tensiometric. **Results**. In average by the years of researches in the variant with LPSM 90% of MMHC leaf's surface area (LSA) was 55.3 thousand. m^2/ha., which is on 10.4 thousand. m^2/ha. (19%) and 21.2 thousand. m^2/ha. (38%), respectively, more than on variants with 80 and 70% of MMHC. In control variant LSA was 3.8 times less than the figure in the version with LPSM 90% of MMHC. Size of photosynthetic potential (PP) also increased from higher LPSM. The maximum its value is fixed in variant with LPSM 90% of MMHC and, depending on the year of studies ranged from 1.941 to 2.151 × mln.m^2 days / ha. The minimum value of PP obtained at the test version - 0,131-1,084 mln.m^2 × days / ha. According to the results of research followed the trend rate of productivity increasing and decreasing of the water consumption coefficient of onion plants due to rise of pre-irrigation-threshold. **Conclusions.** It was established that with increasing of LPSM LSA and PP also increase. Maximum values were typical for variant of LPSM 90% of MMHC, minimal - for control variant without irrigation. Were obtained the mathematical dependence between PP and LSA of onion: $Y = 0{,}0404x^{0{,}9748}$, where Y- PP mln.m^2 × days / ha; x - LSA, thousand m^2. Approximation coefficient $R^2 = 0{,}92$. The highest yield - 57.3 t / ha of early onions on a background of minimal water consumption coefficient (74.7 m^3/t) obtained in the variant with LPSM 90% of MMHC. Maintaining of such a threshold is reached by holding of 5 pre-emergence watering's in irrigation rate of 150 m^3/ha and 37 vegetation watering in rate of 70 m^3/ha.

Keywords: onion, mode of drip irrigation, leaf's surface area, photosynthetic potential, productivity.

Kulygin V.A. Effect of cell technologies on productivity and water carrot under irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 49-53.

The aim of research carried out in the Federal State Unitary Enterprise "Semikrakorskoe" in 2012-2013, was to determine the optimum combination of modes of irrigation, the main method of treatment of soil and mineral nutrition level in the cultivation of carrots in terms of resource conservation. When conducting field trials used conventional techniques Dospehova BA, MM Goryansky

Intensive irrigation contributed to higher-yield carrot in 2.9-3.3 times in comparison with the embodiment where the glaze conducted before the full emergence. Option of intensive irrigation on background of the full rate of mineral nutrition to provide the highest power efficiency productivity of carrots. Productivity of root crops at the same time was: after the main processing moldboard 21.58 t / ha, subsurface - 19.04 t / ha.

Water-saving irrigation option at an estimated rate of fertilizers and moldboard main processing decreased yields. This reduction was 36.1% as compared with vigorous reflux, with the water-saving irrigation - 1260 m3 / ha. Water-saving option helped more rational consumption of water per 1 ton of gain (139 m3) and the highest yield additional production of 100 m3 of irrigation water.

The highest yield increase of fertilizer obtained by making full rate (NPK). Against the background of different variants of irrigation and ways of the basic processing of this increase was 34,0-40,9% compared to plots without fertilizer. However, the efficiency of fertilizer use in the versions with full (NPK) and a half (0,5 NPK) was approximately equivalent to the norm. In these cases it was received respectively 23.2 and 22.6 kg of additional production of 1 kg of fertilizers.

Given the shortage of water resources, along with in-intensity version of water-saving irrigation is possible to use the option that says the most efficient use of irrigation water.

Keywords: carrots, irrigation regime, fertilizer, the main methods of tillage, crop yields, increase, saving irrigation water, the ratio of water consumption, resource conservation.

Granovska L.M., Podmazka A.V. Forecasting of hydrogeological and ameliorative state of the territory, Chaplinsky district, Kherson region // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 54-58.

Aim. Forecasting main indicators of hydrogeological and ameliorative state of irrigated lands and adjacent areas for the until 2017. **Methods.** Methodological basis of the research is a comprehensive and systematic approach to the assessment of hydrogeological and ameliorative condition of irrigated lands and adjacent territories, as well as the combination of modern scientific methods of research, namely: analysis and compar-

ison (for the study and analysis of dynamics of indicators of hydrogeological and ameliorative condition of irrigated and adjacent agricultural lands); monitoring (to create a database of indicators of hydrogeological and ameliorative condition of irrigated agricultural land); the comparison (comparison and analysis of indicators of hydrogeological and ameliorative condition of irrigated lands by years); modelling and prediction (to predict indicators of hydrogeological and ameliorative condition of irrigated agricultural land in time). **The results.** Are shown graphically ameliorative condition of irrigated agricultural land and conducted a forecast of the further development of hydrogeological and ameliorative condition of the territory, Chaplinsky district, Kherson region until 2017. **Conclusions.** A necessary condition for highly efficient, environmentally safe use of irrigated land, Chaplinsky district is the development and implementation of complex measures on management of meliorative regime, increase of fertility of irrigated soils, improving their agro-ecological conditions and rational use.

Keywords: alkalinity, irrigation, hydrogeological and ameliorative condition.

Doroshenko O., Homina V. Formation of photosynthetic capacity of crops of buckwheat // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 58-61.

It is considered the influence of microelements on the formation of photosynthetic parameters of buckwheat crops. Field studies were conducted at the experimental field of the Institute of cereal crops PDATA, which is located in the southern part of Khmelnitsky region. Studied varieties Victoria and Roxolana, Zelenovich 90. The results of research showed that the use of microelements contributed to the variability of photosynthetic parameters of buckwheat crops, these parameters were affected by microelements, method of use and weather conditions of the growing season. Based on the obtained experimental data have high correlation coefficient between chlorophyll content in leaves of buckwheat and utilization of photosynthetically active radiation: in the variety Victoria – r = 0,69, grade Roksolana – r = 0.85 and for the variety Zelenovich 90 – r = 0,62.

Keywords: buckwheat, microelements, leaf surface area, chlorophyll content in leaves, utilization coefficient of photosynthetically-active radiation - PAR, productivity.

Kiriyak Y.P., Trikoz L.V., Kovalenko A.M. Aquatic mode of soil in sowing of wheat winter-annual at the terms of the different placing her in a crop rotation and till of soil // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 61-64.

In the article the brought results over of researches in stationary experience from the study of crop rotations and till of soil on the experienced field of Institute of the irrigated agriculture of HAAH. The processes of forming of supplies of productive moisture in soil and her expense are investigational. It is set that in a time of sowing of wheat winter-annual supplies of productive moisture in the meter layer of soil on black pair were on the average for three years on a 37,9-67,8 mm higher, than after other predecessors.

For fall-winter period supplies of moisture are on black pair increased on a 26,6 -41,9 mm, while після сидерального pair on 56,6-61,6 and after flax oily - on a 33,9-51,8 mm Dependence on predecessors remained like an autumn

After thundershower rains at the end of May for ten days, sowing of wheat winter-annual for a pair from the meter layer of soil lost a 105 mm of moisture, and on black the pair of loss was presented only by a 22 mm

Keywords: crop rotation, till of soil, productive moisture, field transpiration coefficient, soil.

Maliarchuk M.P., Tomnitskiy A.V., Maliarchuk A.S. Productivity of grain row croprotation on irrigation at the different systems of basic treatment of soil // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 64-67.

In the article results over of experimental researches of influence of different methods and depth are brought basic treatments of soil in a croprotation on aquatic-physical properties and productivity of agricultural cultures of crop rotation.

By the purpose of the article was scientific to ground the optimal parameters of correlation of competitive cultures and minimized treatment soils, which will provide maintenance of fertility of soil, economy of resources and increase of the productivity

For realization of researches used the field, laboratory, statistical and calculation-comparative methods.

Authors came to the conclusion that, in the link of grain row croprotation on livery soils of south region at irrigation the most favorable terms for a height, development and forming of harvest of agricultural cultures are created at the different depth system of dump treatment.

Keywords: croprotation, method and depth of treatment of soil, agrophysics properties, productivity.

Pysarenko P., Pilyarskyi V., Shkoda E., Pilyarskaya E. Efficiency of separate elements of technology of cultivation of hybrid corn Cross 221 M in the southern steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 67-72.

The aim of the research was the study and improvement of elements of technology of cultivation of maize hybrids Cross 221 M on a plot of hybridization in conditions of irrigation of South of Ukraine. Observations, surveys and statistical processing of research results was carried out by conventional methods of field experiments under irrigation. Results. The most economically feasible for production of seeds of hybrid Cross 221 M in dark chestnut soil – irrigation mode 70-80-70% of the HB in the soil layer of 0-50 cm, the dose of mineral fertilizers for the planned yield level and plant population hybrid Cross 221 M – 80 thousand/ ha, which provide 6,7 seed yield t/ha gross output value 60300 UAH/ha costs of 1 t of corn seed 2451 UAH net profit – 43881 UAH./ha and the profitability of 267%. Thus, the cultivation of hybrid corn seed hybrid Cross 221 M in the South zone of the Steppe of Ukraine the most economically profitable on the irrigated lands.

Keywords: corn, hybridization area, mode of irrigation, fertilization, plant density, economic efficiency.

Zakharova M.A. Sustainable development of irrigation in Ukraine: scientific approaches to the irrigational soil degradation assessment and the management of irrigated lands fertility // Irrigated

agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 72-75.

Aim. The aim of research is comprehensively characterized of scientific approaches to the irrigation soil degradation assessment and the management of irrigated lands fertility, which are created with the author. **Methods.** Methodological basis of scientific investigation is made up of the modern methods of research: historical; systematic; statistical analysis. **Results.** On the basis of observations, generalization and systematization the criteria of evaluation of the development of degradation processes are worked out. The levels of their ecological danger are determined, which fully comply with current legislation, based on the achievements of modern science and take account of international experience. The most common forms of the irrigational degradation of the soil are characterized; they are developed after using for the irrigation waters of the not proper quality and/or because of the low level of agriculture and insufficient resource investments. Integral estimation of the irrigated soils according to the degree of irrigational degradation is presented. The preventive and straight anti-degradation methods of using the ameliorated soils are proposed, which provide the preservation of resources, protection of soils, the balance of natural processes. **Conclusions.** Obtained results will serve as a State-owned tool which would subsequently facilitate the use and protection of soil resources all over the country for securing the sustainable development of agriculture in Ukraine.

Keywords: irrigation, irrigated soil, irrigation water, degradation processes, integral estimation, complex of measures, agriculture.

Bilyaeva I.M. Scientific and methodological support of productive models of irrigation for Southern Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 75-78.

In the article the results of studies on the scientific and methodological basis models of efficiency irrigation conditions of the South Ukraine. It is proved that to increase the productivity of irrigation necessary to consider a group of interrelated factors and analysis of natural, economic and agronomic and economic factors to determine the extent of their relationship. Conduct a comprehensive analysis of the impact indicators of hydrothermal regime and efficiency of irrigation for growing different crops highlights the need to improve growing techniques to increase the productivity of irrigation in conditions of South Steppe of Ukraine.

Keywords: irrigation, irrigation efficiency, culture, yield, photosynthetically-active radiation, mathematical analysis.

Granovska L., Zhuzha P. Theoretical substantiation of the engineering measures to control harmful water effect on the territory of the urban-type settlement of Nova Maiachka, Tsiurupynsk Raion, Kherson oblast // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 79-82.

Aim. Development and theoretical substantiation of engineering measures to control harmful effect of water on the territory of the settlement. **Methods.** Methodological basis of the scientific research includes modern methods of analysis, induction and deduction, historical method, and methods of systemic approach and analysis as well. The research methodology includes the analysis of hydrogeological conditions of the territory in terms of ground water levels and their dynamics under the influence of a long-term operation of artificial water facilities; the analysis of the area's geological conditions and their change under the influence of hydro-engineering reclamation; the analysis of vertical drainage wells for a long-term period. **Results.** To reduce harmful water effect on the territory of the settlement the following possible engineering measures with the corresponding theoretical substantiation are developed: withdrawal of surface runoff from the territory, construction of vertical drainage, horizontal drainage, horizontal drainage with vertical self-flowing wells-boosters, horizontal drainage with pumps-absorbers. **Conclusions.** To protect the settlement's territory from harmful water effect it is necessary to maintain sanitary standards of drainage by applying permanent horizontal drainage with pumps-absorbers.

Keywords: engineering measures, harmful effect of water, hydro-geological conditions, wells-boosters, horizontal drainage, pumps-absorbers.

Malyarchuk N.P., Kotelnikov D.I., Nosenko Y.M The productivity of maize and the main content of the soil mineral nutrients, depending on the basic processing and fertilizers // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 83-84.

The aim of research was to determine the effect of different patterns of depth, the primary method of tillage and nitrogen fertilizer application rates on the performance of content in the soil mineral nutrients and maize yields.

Material and methods. Use the results of three years of research, depending on the different ways of operating depth and norms of nitrogen fertilizers on the content of nutrients in the soil and corn yield. Used field, biometrics, laboratory and statistical methods.

Results corn crop accounting for variations experiment with ways of the basic soil and doses of nitrogen fertilizers show that on average three years the highest yield in variants riznohlybynnyh formed and differentiated systems of basic soil tillage to a depth of 20-22 cm and 28-30. significant difference in the level of productivity is not revealed he was within 13,73-14,10 t/ha, that difference does not exceed 2,6% 2,8.

Lower yields over years of research and different doses of nitrogen fertilizer formed by shallow cultivation chisel 12-14 cm long on the background of its use in crop rotation. In this embodiment, the highest yield an average of three years (11,31 t/ha) was at doses of nitrogen fertilizer N_{180}, which is lower than the control by the same dose of fertilizer by 17,8% compared with plowing to 20-22 cm differentiated-1 system of cultivation - by 19,8%.

Increasing doses of nitrogen fertilizers from N_{120} to N_{150} on average by a factor ensures an increase in yield at 1,12 t/ha, and from N_{150} to N_{180} - to 0,97 t/ha.

Conclusions. According to the research we can conclude that plowing at 20-22 cm in the system of differential-1 primary tillage system with one to a depth of 38-40 cm and for the rotation of nitrogen fertilizer dose N_{180} best satisfy the biological requirements of maize and contributes to the fullest implementation genetically determined levels of productivity.

Keywords: corn, tillage, yield, mobile compounds of nitrogen, phosphorus moving.

Vozhegov S.G. Effect of flooding on soil density and fields weediness in rice rotation in Southern Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 85-88.

Purpose. The aim was to study the effect of the methods and depth of primary tillage in rice and other agricultural crops crop rotation on the soil density.

Methods. In conducting research using accepted methods of experimental work.

Results. It was found that the density of the soil layer 0-20 cm at sowing and harvesting crops of rice crop rotation predecessor figure depending on basic soil cultivation varied slightly, but there was a tendency for growth of this indicator during cleaning. Regarding the study of cultures there is a large range of variation of soil density in the range of 1.18 g/cm^3 (at sowing spring barley on plowing) to 1.35 g/cm^3 (post-harvest of spring rape after disking). During growing rice in the flooding were recorded completely different trends shaping the densities of soil in the experimental plots, depending on the basic soil cultivation and predecessors. Analysis of variations set a low level of volatility of soil density, depending on the depth of the main methods and tillage - the coefficient of variation ranged from 1,3-3,8%. With agro-biological point of view, provided the minimum weed cultivation of winter wheat and spring barley with stubble planting millet. Statistical modeling shows superiority over plowing disking in terms of reducing contamination of rice crops in addition to use as a precursor of winter wheat.

Conclusions. The density of the soil increases insignificantly from planting to harvesting crops of rice crop rotation predecessor rice and weakly depends on the depth and method of cultivation of the soil. A contamination crop of rice crop rotation predecessor figure depends essentially on the method and the depth of tillage. Application plowing compared with disk tillage helps reduce contamination of crops. According to the obtained regression equation it is possible to model the contamination of rice crops depending on predecessors, depth and method of primary tillage.

Keywords: rice, precursors, flooding, soil density, contamination, analysis of variance.

Kozyrev V.V., Bidnina I.A., Tomnichikia A.V., Vlashik O.S. The productivity of soybean, depending on the extent of secondary alkalinity of the soil under irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 88-91.

The aim of research was to determine the basic physical and chemical properties of dark brown soil under different moisture conditions, soil tillage and timing of phosphogypsum and study the effect of the measures for the improvement of soil fertility in resource-saving technology of growing soybeans.

Methods of research are field, analytical, computational and comparative, mathematical statistics.

The use of phosphogypsum dose of 3 ton/ha in the autumn and in the spring on frozen-thawed soil regardless of the method of cultivation with the support of preirrigated soil moisture threshold at 70-70-70% and lowest moisture provide formation of soybean yield at the same level as in the generally accepted technology of its cultivation. That is on condition that the threshold preirrigation at least 70-80-70% moisture capacity holding plowing without making meliorant yield is 2,8 ton/ha against 2,81-2,91 ton/ha. It was found that the use of phosphogypsum dose of 3 t / ha of frozen-thawed in the spring when the soil preirrigation maintaining soil moisture threshold at 70-70-70% HB provides a degree of alkalinity of the secondary low-level that allows you to create soybean yields at the level of a recognized technology of its cultivation.

The conclusion is the following. In irrigated conditions of the South of Ukraine for the dark brown soil for sustainable harvests of soybeans, while maintaining soil fertility is an effective application of phosphogypsum in the spring on the surface of the frozen-thawed soil, maintaining pre-irrigation threshold soil moisture during the critical period of development of plants at the level of the lowest water capacity 70-70-70 % and carrying out plowing.

Keywords: dark-chestnut soil, irrigation, salt, ionic-salt composition, the content of exchangeable cations.

Semyashkina A. Productivity of oat varieties depending on application of biologically-active preparations at different weather terms // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 91-95.

Purpose. To study of oats varieties reaction on the application of biologically-active preparations of nitrogen-fixing and phosphate-mobilizing bacteria as a method of biologization of zonal technology of growing of culture in terms of zone of insufficient moisturizing of the Steppe of Ukraine. **Methods.** For research were used field, laboratory, statistical and synthesis method. **The results.** It is determined that high efficiency in different terms of growing of oats characterized preparations phosphoenteryn and stamme КЛ 9, which significantly increased the level of yield of varieties Synel'nykivs'ky 1321 and Skakun, especially in drought. Thus, for Synel'nykivs'ky 1321 phosphoenteryn increased yields in conditions of drought (2012-2013) on 10,5 and 9,3% against 6,6% in 2011, and stamme КЛ 9 – on 15,1 and 13,1% against 10,4% respectively to years. For Skakun the relative yields also increased with higher intensity in terms 2012-2013 years – on 10,2 and 10,5% against 7,9% in 2011. Under action of phosphoenteryn and stamme КЛ on 13,4 and 12,4% vs. 8.0%, respectively. Increased stimulating effect of preparations stipulated improve drought resistance of varieties Synel'nykivs'ky 1321 and Skakun. For oat variety Kubansky the action of preparations was almost equivalent in all terms of growing, relative indexes in realization of this variety yield potential were stable but compared to other lower grades. **Conclusions.** The application of biologically-active preparations can be an alternative to chemical fertilizers ensuring receiping of oats environmentally friendly products while reducing anthropogenic impact on the environment. Therefore, biologization of yield by bioactive preparations are effective agrotechnical method by growing of oats and can be recommended for use in zonal resources-saving technologies for farms in zone ot insufficient and unstable moisturizing of northern Steppe of Ukraine.

Keywords: microbiological preparations, diazofit, phosphoenteryn, stamme КЛ 9, oat, yield.

Drozd O. Conceptual approach to the management of solonetzic soils fertility in Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 96-99.

The purpose is - to develop a reasonable and

adapted to modern socio-economic conditions to the management of solonetzic soils fertility in Ukraine

Methods. Field, modeling, analysis, statistics, synthesis.

Results. It is proposed systemic comprehensive management challenges fertility of solonetzic soils. Necessity of taking into account the landscape and geochemical formation conditions and dissemination of solonetzic soils and adaptive use of traditional and new types of energy-saving reclamation to improve their fertility.

Conclusions. Application of the proposed reclamation activities, differentiated according to the peculiarities of the different types and kinds of solonetzic soils, to reduce the area of chemical amelioration of solonetzic soils up to 1.0-1.1 million hectares compared to 2.0 million hectares in the previous years and economic benefits at the expense to improve crop yields and improve product quality.

Keywords: alkaline soils, area, properties, land reclamation, fertility.

Bulygin D.A., Cuzdal O.S. The optimization of technology of growing new varieties of soy in the south steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 99-103.

On the basis of experimental research works on the medium loamy darkly-chestnut soils of south steppe of Ukraine scientifically-methodical principles of optimization of technology of growing of new varieties of soy Danaya and Aratta are developed. Optimization of the system of moistening of soil and density of standing of plants came true by means of supervisions on the indexes of total water consumption, average daily water consumption, indexes of accumulation of dry and raw substance, integrated indexes of efficiency of photosynthesis. The parameters of the optimal mode of irrigation, that provides the receipt of the assured harvests of soy, are set.

The offered technology provides: harvest of midseason sorts of soy of 3,1-3,5 t/ha, content of albumen is a 34-35%, content of fat - 21-22 %, production costs 1 tones of grain of soy are folded by 1762-1794 hrv, at an irrigatory norm a 2700-3000 m³/ha, amount of watering 6-8.

Keywords: soy, humidity of soil, mode of irrigation, standing density, harvest.

Vasylenko R.M., Fundyrat K.S., Getman N.Y. Forage productivity in winter mixtures of triticale in the conditions of Sonth Steppe // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 103-105.

The authors of the article the importance of providing fodder as their share in livestock production reaches 55-60%. When forage crops grown in the south of Ukraine paid attention to crops that use fall-winter stocks of productive moisture.

The aim was to identify the dependence washed by the formation of forage productivity winter mixtures based triticale with annual winter cabbage and bean components.

It is established that the creation of winter fodder mixtures involving triticale, canola and vetch provides not only obtain high yields of forage mass, and complete feeds, including the release of feed units and digestible protein per 1 hectare.

The average for the years 2014-2015, the collection of absolutely dry matter in winter triticale mixtures exceeded its sowing publishes one components crops on 11-38%. The highest yield of feed units 11,1-11,9 t / ha obtained by mixtures ratio of 50/75% with normal fertilizer N90P60. The highest yield of digestible protein provided mixtures triticale with vetch - 1,12 t / ha.

Keywords: feed, winter mixtures, winter triticale, feed unit, productivity.

Vasyuta V.V. Optimization of irrigation norm of tomato based on the model "crop yield - moisture provision" at various ways of irrigation in the southern region of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 105-109.

Purpose. Optimizing magnitude of irrigation norm of tomato under different irrigation methods in the southern region of Ukraine based on the model: "crop yield-moisture provision" with the spline - functions. **Methods.** Research spline - functions of the model: "crop yield - moisture provision" of tomato based on a mathematical, logical-abstract method and system analysis processes tomato cultivation under irrigation in the southern region of Ukraine. **Results.** Modeling of the net profit, taking into account magnitude of irrigation norm in the area of optimal decision-making shows that sprinkling irrigation norm 2900-3570 m^3 / ha is losing money at the rate of water 0,82-0,85 UAH / m^3. Transformation of the net profit under drip irrigation at the levels studied irrigation rates revealed that the maximum irrigation rate 2090 m3 / ha provides a profit even when the water tariff of 1,2 UAH / m^3. **Conclusions.** Identification of the model: "yield-moisture content" for tomato-based spline functions for drip irrigation and sprinkling revealed that drip irrigation on water use efficiency exceeds irrigation at all studied levels of moisture. The area of optimal solutions for the determination of rules of irrigated under drip irrigation at a rate corresponding to the water moisture factor k = 0,84-0,86, that depending on the availability of the growing season precipitation corresponds to the irrigation rate of 1300-2090 m^3 / ha.

Keywords: optimization, irrigated norm, irrigation methods, spline functions, the net profit.

Verdysh M.V., Bulayenko L.M., Dymov O.M. Analysis of water distribution in the Kakhovka irrigation system // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 109-113.

Purpose. Analysis of water distribution in the area of the Kakhovka irrigation system, to determine the effect on it of weather and other factors. **Methods of research.** Statistical, computational and comparative. **Results.** Article show the results of the analysis of water distribution in the area of the Kakhovka irrigation system for the period 2010-2014. The studies found that coefficients of water availability and uniformity of water distribution in the majority of water management in the period under review remained fragile and prone to fluctuations. Determined correlation between indicators of water distribution and the amount of precipitation in the region. Analysis of correlation showed an inverse relation between the implementation of the plan of water supply and the annual rainfall in the area of Kakhovka irrigation system. On the implementation of the plan of irrigation affects the state farm irrigation network and water users' ability to pay for services of water supply for irrigation. **Conclusions.** The water plants where the actual per-

formance of water supply exceed the planned values, there is a uniform distribution of water among water users. Low rates of water availability in some DWM`s indicate poor water use planning in them. Byblyogr.: 9 names.

Keywords: irrigation, irrigation system, water enterprises, indicators, water utilities, the correlation coefficient.

Tymoshenko G.Z., Kovalenko A.M., Novohzhiy N.V. Influence different methods basic till soil is on the productivity barley furious // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 114-116.

Researches are conducted in Institute the irrigated agriculture on darkly-chestnut soils during 2011-2013 years.

Purpose. Search ways increase the productivity barley furious during мінімалізації the systems till soil.

Task. Determination efficiency application microbal preparations is in the droughty terms South Steppe Ukraine at the different systems basic till soil.

Method. Field method - for determination features height and productivity, and laboratory - determination supplies productive moisture and amount microorganisms in soil .

Result. In the article results over researches are brought on application of the systems basic till soil under a barley furious. On the average for three years supplies productive moisture in a meter layer in a time sowing in sowing barley furious were higher at without a dump tills soil. About that for period vegetation expense moisture for ploughings were on a 21,1-21,4 mm less than, than at without a dump tills. The field transpiration coefficient in sowing of barley grew from 823 m^3/t on a variant with ploughing of to 999 m^3/t on a variant with shallow without a dump till and vice versa, diminished with the increase the productivity barley furious. A general quantity microorganisms in soil on the control variant sowing barley furious was higher in the first half of vegetation, and then went down gradually. Thus, both at the beginning and at the end of their a quantity was on 2,1-17,3% more subzero at the terms realization chizeljnogo deep till soil comparatively with other variants the system till soil. The greatest productivity 1,87 t/ha was in a variant where ploughing was used a plough (18-20 cm), and the least - 1,42 t/ha in a variant from without by a dump by shallow till soil (12-14 cm).

Conclusion. In the droughty terms South Steppe Ukraine it is necessary to apply for the improvement the aquatic and nourishing mode soil and increase the productivity barley furious, during basic till soil, dump ploughing on depth 18-20 cm.

Keywords: dump till of soil (ploughing), without a dump till (chizelyvannj), without dump till (diskovannie), ground microorganisms, productivity.

Tishchenko A. Nitrogen fixation of different varieties of alfalfa in the year of sowing depending on agrotechnological receptions in South Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 116-118.

Purpose. The aim of the study is to develop a scientific basis and technological methods to increase root mass accumulation in the soil, nitrogen fixation of alfalfa in the year of sowing.

Methods. The studies were conducted at the Institute of Irrigated Agriculture NAAS (2011-2013 years) in three-factor experiment with varieties of alfalfa Unitro and Zoriana under different moisture conditions and the use of growth regulator Plantafol 30.10.10.

Results. The results of studies on the effect of growth conditions on root mass and accumulation of biological nitrogen varieties of alfalfa Unitro and Zoriana in the first year of life. It was found that the largest number of air-dry root weight at variety Unitro 2.42-2.53 t/ha and variety Zoriana 2.45-2.52 t/ha, and the highest nitrogen fixation in variety Unitro 151.2-158.0 kg/ha and variety Zoriana 153.2-159.5 kg/ha were variants with growth regulator Plantafol 30.10.10 under drip irrigation.

Conclusions. The accumulation of organic matter in the form of root residues and intensive process of nitrogen fixation occurs with the use of drip irrigation and Plantafol 30.10.10.

Keywords: alfalfa, varieties, root mass, nitrogen fixation, drip irrigation, natural moisturizing, growth regulator.

Limar V.A. Differentiation zones moisture for growing vegetable and melon crops in Southern Ukraine, depending on irrigation methods // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 119-122.

Goal. The purpose of research - to define an optimal humidification of vegetable and melon crops using different irrigation methods.

Methods. In field experiments using conventional techniques of experimental work for the industry irrigated agriculture and agricultural land reclamation.

Results. When growing tomatoes found that the root system of plants in the period of ripening is concentrated in the soil layer of 0-30 cm, and the main root - to a depth of 1 meter. Following the observations of the development and spread of the root system of onion proved that under drip irrigation bulk of the roots in the area of the tape is under irrigation piping in 4-30 cm soil layer, and between the strips, where there was irrigation pipeline in soil 8-24 cm, some single roots extend to a depth of 55 cm.

With drip irrigation depth of root penetration similar to their penetration and at sprinkling microirrigation. In the 0-10 cm soil layer was located 49.7% of roots, 10-20 cm - 32.8 20-30 - 16.5, 30 cm deep - 1.0%, but the width of the arrangement of lateral roots was determined by the width of the zone soil moisture.

In experiments with watermelon shown that mulching film leads to a significant increase in the moisture content of the soil, due to a significant reduction of unproductive losses on physical evaporation of water from the soil. Sprinkling and microirrigation almost equally irrigate the soil depth of wetting and distribution of water on the surface.

Conclusions. The width of the zone of soil moisture under drip irrigation depends on its mechanical structure and on sandy soils is 40 cm, depth of soil soaking depends on irrigation norm. When soaking the sandy soil to 75-80% FC at a depth of 40-45 cm water application rate is 57 m^3/ha. For the majority of vegetable and melon crops to plant flowering phase is crucial hydration layer of soil to a depth of 20 cm, in the future - to a depth of 40 cm.

Keywords: vegetables, melons, methods of irrigation, irrigation mode, the root system, the depth distribution of water consumption

Naydenova O.E. Transformation of biological properties of southern chernozem under the influence of long-term irrigation with saline water // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 122-125.

The purpose of the work was to identify changes in the composition and functioning of microbial cenosis of southern chernozem under long-term irrigation with saline water. Research carried out by conventional **methods** in soil microbiology. We identified the number of microorganisms belonging to main ecological and functional groups, according to their ratio also we identified calculated indices, which characterizing the state of microbial cenoses, the direction and intensity of the occurrence of microbiological processes in the soil. We conduct a comparative assessment of biological indicators of long-term irrigated and non-irrigated southern chernozems. **Results.** Assessment the level of biological degradation of irrigated chernozem southern carried out using a complex biological indicators allowed to establish a strong degree of degradation of the southern chernozem as a result of the irrigation during more than 30 years with saline water. **Conclusions.** The biological indicators, which we used, adequately reflect the negative changes in the long-term irrigated with saline water soil. It is recommended to include in the system of indicators for ecological and reclamation monitoring of irrigated soil, as well as use in eco-agromeliorative survey of irrigated soils and adjacent non-irrigated soils following biological indices: the number of microorganisms belonging to basic ecological and trophic groups; oligotrophicity and mineralization indices; the summary biological index and biological degradation index. For a more complete and accurate assessment to the listed indices can be added the biochemical indicators, such as activity of soil enzymes (dehydrogenase, invertase, polyphenol oxidase), cellulolytic capacity of soil and phytotoxic activity of soil.

Keywords: biological indicators of soil, soil microbial community, irrigation, southern chernozem, saline water.

Nesterechuk V.V. Efficiency of hybrids of sunflower depending on plant population and fertilizer for growing in Southern Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 125-127.

Goal. The aim of research was to determine the effect on the yield of sunflower hybrid composition, plant density and complex fertilizers.

Methods. The study used the conventional methods of experimental work in plant breeding and agriculture. To determine the least significant difference and the power of influence of the factors used analysis of variance.

Results. Plant productivity depended on hydrothermal conditions in the years of research, the role of dressings grew with a decrease in rainfall, air temperature rise, reduction of relative humidity. The meteorological factors favorable for the 2013 positive action dressings compared with control plots was 7,3-19,6%. In 2014-2015, this figure increased to 17,2-24,6%. On average, during the years of research noted the advantage of growing hybrid Megasan that generated an average seed yield of 24.1 c/ha with a maximum increase to 28,1-29,9 kg/ha in the plant population of 40-50 thousand/ha and processing Wuxal planting drugs and Master. Plant density has caused significant fluctuations in plant productivity. On average, a factor in growing hybrids Megasan and Jason was the optimum density of 50 thousand/ha, in which the yield was respectively 26.9 and 23.2 t/ha. The use of complex fertilizers Ristconcentrate, Wuxal and Master in feeding positively displayed on the productivity of all hybrids.

Conclusions. For the results of field studies found that when growing sunflower on dark chestnut soils in rainfed conditions of southern Ukraine the greatest yield at the level of 25-30 kg / ha seed produces hybrid Megasan. When growing culture study plant density should be adjusted depending on the genetic potential of hybrids. Thus, for hybrids Megasan and Jason optimal plant density is 50 thousand/ha, and for hybrid Darius – 40 thousand/ha. Processing of sunflower complex fertilizers ensure increase in productivity by 10-19%, improves the quality of seeds, and the greatest efficiency is characterized by complex fertilizer Master.

Keywords: sunflower, hybrid, plant population, fertilizer, productivity, yield, power of influence factors.

Novokhizhniy N.V. Use of microfertilizer of «Ekolist – U» on sowing to the wheat of a hard spring in the conditions of the natural moistening Sonth Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 128-129-.

In the article the resulted results of production verification of the completed experimental experience are from the study of action and co-operation of doses of fertilizers, microfertilizers and systems of chemical defence of sowing which most substantially influence on the productivity of wheat hard furious in the conditions of the natural moistening of Sonth Steppe of Ukraine. By the results of production tests during 2013-2014 the well-proven efficiency of application of microfertilizer of Ekolist Universal (mikro) on the wheat of spring.

Keywords: Wheat hard springs, fertilizers, microfertilizers, productivity, net income, profitability.

Kovalenko V.P. Justification of agrobiological technologies of growing alfalfa in Ukrainian Right-Bank Steppe // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 130-132.

Purpose. The aim of research was agrobiological justification and develops modern technology of cultivation of alfalfa sown under steppes of Ukraine with the establishment of optimal parameters for seeding without cover.

Methods. In conducting research use methods of research works that accepted in fodder crop and crop production.

Results. The questions of preparation of seeds for sowing, terms and methods of sowing and the effect of different seeding alfalfa crop performance in Right-bank Forest-steppe of Ukraine.

Conclusions. In the area of Right-Bank Forest-Steppe Ukraine optimum seeding rate is 8-10 million alfalfa seeds like 1 ha or 16-20 kg/ha at 100% economic life. When sowing alfalfa under cover crop seeding rate should be reduced by 20%: early spring cover crops should be sown with the normal sowing (million/ha viable seed): barley, oats - 2.0, corn for green feed – 0.15-0.25; Sudan grass - 1.0 million/ha seed.

According to the research proved that in any way necessary to create herbage sowing, the density of which in the first year of use was in the forest-steppe

200 plants/m^2. Small-seeded crops, which include alfalfa, have low field germination, most of the plants die in winter period and cover period. Thus, to determine seeding rate should be taken into consideration similarities field performance and liquefaction in cover period. That is, in order to obtain 200 plants/m^2, need to sow: the forest-steppe 15-16 in barley, corn at 14 kg/ha seed alfalfa.

Seeding without covering and sowing seeds quality preparation and soil within 10-12 kg/ha.

In pure spring sowing, alfalfa field's agrophytocenoses first year are fragile ecosystems with low competitiveness towards weeds that requires constant monitoring and regulating their relationships farming techniques, which involved the destruction of weeds.

Keywords: alfalfa, agrobiological justification, preparation of seeds, sowing, methods of sowing.

Ptashnik O.P. Processing methods growing peas on the basis of adaptive potential of variety in the south steppes of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 132-135.

The paper summarizes and presents the main results of the final studies of adaptive traits in pea varieties conditions of southern steppe of Ukraine - Crimea and steppe elements agrotechnics Sweet varieties. The studies give grounds to recommend to grow in the area of the southern steppe of Ukraine - steppe Crimea following varieties of peas: Chekbek, Otaman, Oplot, Carevich, Odorus and Deviz, which provide the level of grain yield 1,26-1,34 t / ha.

Research has established the effectiveness of the use of biological agents for pre-treatment of seeds. Productivity pea plants with increased from 10,5 to 42,1%. Over the years, the study revealed a most effective biological product based on autotrophic cyanobacteria Nostoclinckia - TSRK3 that provided yields of pea varieties Sweet 1,39 t / ha. Seeding rates had an impact on the safety of pea plants, plant structure and productivity. The highest productivity of pea plants in the conditions of steppe Crimea provided the seed rate 1,4mln.sht.ga.

Keywords: peas, variety, yield,technological measures, mustache morphotypes

Morozov A.V., Kozyrev V.V., Bidnina I.A. Current state of irrigation in the steppes of Ukraine (on the example of the Kherson region) // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 135-138.

The purpose of research - to determine the current state and prospects of development of irrigation in the Kherson region. Research methods – statistical, systemic and economic analysis. The results of research. A comparison of the dynamics of the common areas and irrigation areas drip irrigation through an array of Kherson region gives grounds to assert that there is a constant tendency to increase the area of land under drip irrigation, increase of the land (a percentage) under drip irrigation for watering areas. Significantly broadens the scope of application of drip irrigation in the Kherson region, not only for vegetable crops, orchards and vineyards, and to irrigate corn, soybean, sunflower, rice. Using drip irrigation, especially in irrigation water is not satisfactory, require the use of a set of special measures aimed at minimizing the negative impact on soil degradation processes and development. Conclusions. Sprinkling in the Kherson region, in the short term will maintain the position of the most common method of irrigation. Part of the land that is watered by this method reaches 75-80% (non-drip irrigation and surface irrigation methods (flooding rice). At the same time will increase the area of drip irrigation, which is determined by the presence of a sustained trend to the continued expansion of irrigation areas, while expanding the list of agricultural cultures.

Keywords: irrigation, irrigation techniques, sprinklers, drip irrigation.

Usik L.A., Bazaliy G.G., Kolesnikova N.D. Innovative soft winter wheat variety selection NAAS Institute of irrigated agriculture irrigation conditions for South Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 139-142.

The Aim. In tasks breeders remains relevant problem solving create innovative adaptive varieties with high potential for irrigation in southern steppe. Establishing a system of seed of new varieties of intensive type, replacement of imported seeds for Ukrainian domestic market seed varieties adapted to natural soil and climatic conditions of southern Ukraine. **Methods.** The methodological basis of scientific research is research methods, field, laboratory and statistical. **The Results.** Farms of all forms of property that grain farmers will receive theoretical foundation and the practical implementation of the new program of breeding winter soft wheat universal type for sustainable and sufficiently high yields of quality products. This will greatly assist in the reform and development of agriculture in the southern regions of Ukraine, as well as the introduction of new, particularly high-quality, technology of cultivation and seed crops in production. **Conclusions.** The main result of innovative design and its implementation is to solve a number of complex problems of universal seed varieties for winter wheat irrigation in southern steppe. In particular, establishing new competitive system of seed varieties of intensive type, replacement of imported seeds for Ukrainian domestic market seed varieties adapted to natural soil and climatic conditions of southern Ukraine. This will increase the yield of crops and steadily increase gross grain harvest and material facilities to ensure food and energy security of Ukraine and promote recovery position domestic producers to seed the market.

Keywords: variety, soft winter wheat, innovation, seed yield, quality, irrigation, breeding, seed production.

Lavrinenko Yu.O., Marchenko T.Yu., Hozh O.A., Sova R.S., Nuzhna M.V. Morpho-physiological model of corn hybrids of different maturity groups under irrigated conditions // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 143-147.

The purpose of research. Develop a morpho-physiological model and create on its basis corn hybrids FAO 190-500 for the under irrigation conditions of the south of Ukraine with grain yield 11-14 t / ha.

Material and methods. The results of many years of research the creation of morpho-physiological models corn hybrids of different maturity groups under irrigation Institute, which is in the southern steppe of Ukraine, the soil is dark chestnut weakly solonetsous medium loamy.

We used general scientific, special and cash-comparative research methods. **The results of the research.** The main parameters of models of maize hybrids of different FAO groups. According to the research developed corn hybrids of different maturity groups for irrigation conditions grain yield 11,0-14,0 t / ha. The parameters of heterosis models and set up lines with high combining ability, who are attracted to the pedigree to create a hybrid early-ripening, early ripe medium group, mid-ripening, middle-late and late maturity groups. The characteristic of the new promising hybrids for irrigation conditions. **The conclusions of the research.** On the basis of the developed morphological and physiological models of hybrid maize variety Transferred to the State Variety testing 6 innovative new hybrids of different maturity groups that have complex agronomic characters that can generate high yields under irrigation (10,5-15,5 t / ha of grain), while efficient use of irrigation water, mineral macro- and microfertilizers, have a quick water yielding grain when ripe, have a high resistance to major diseases and pests, it is in their genetic potential.

Keywords: corn, morpho-physiological model, hybrid, irrigation, group maturity, yield.

Luta Y., Kobilina N. The results of the study different genetic origin of tomato samples in the South of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 147-150.

Purpose. Study collection samples of tomato, to carry out targeted selection of the starting material with high adaptive and productive potential, fruit quality for further breeding work. **Methods.** Used methods a field experiment type variety trials and laboratory tests. **The results.** According to the results of the study tomato samples of different geographical and genetic origin selected the best with high adaptive and productive potential: grades: Aleks (4,25 kg), Supergol (3,28), Chizhik (3,15 kg), Anakonda (3,45 kg), Lotos (3,60 kg) and hybrids: Semalus F1 (3,42 kg), Semaprim F1 (3,64 kg), Red Skai` F1 (3,94 kg), Classik F1 (3,63 kg), Briksol F1 (3,45 kg), Sandra F1 (3,82 kg), Stella Red F1 (4,36 kg), LS 2730 F1 (4,47 kg), Littano F1(3,59 kg), Torros F1 (4,14 kg), H 1281 F1 (4,19 kg), Sredneranniі` 4102 F2 (4,00 kg), NPT F1 (3,76 kg), 00191 F1 (4,10 kg), Delfo F1 (3,77 kg) at the friendliness maturation of 78-98 % and marketability of the fruits of 87-100 %. Biochemical parameters of the fruit the best among the varieties were: Transnovinka (5,8 % soluble dry matter, 3,39 % sugar, 23,16 mg% ascorbic acid); Chizhik (5.9% of dry matter, 3,15 % of sugar, 20,87 mg% ascorbic acid); among F1 hybrids stood out: 123 (5.8% of dry matter, 3,38 % of sugar, 19,92 mg% ascorbic acid); 125 (6.1% of dry matter, 3,45 % of sugar, 22,44 mg% ascorbic acid); Sandra F1 (5.8% of dry matter, 3,15 % sugar, 19,78 mg% ascorbic acid); Littano F1 (5.8% of dry matter, 3.17 per cent of sugar, to 19.52 mg% ascorbic acid); Torros F1 (5.9% of dry matter, 3.26 per cent, of sugar, 21,62 mg% ascorbic acid). **Conclusions.** According to the results of research to selections work can be recommended tomato varieties: Aleks, Supergol, Chizhik, Anakonda, Lotos i gibridy` F1: Semalus F1 ,Semaprim F1 ,Red Skai` F1, Classik F1 , Briksol F1 ,Sandra F1 ,Stella Red F1, LS 2730 F1, Littano F1, Torros F1, H 1281 F1, Sredneranniі` 4102 F2, NPT F1, 00191 F1, Delfo F1.

Keywords: tomato, cultivar, hybrid, productivity, vegetation period, quality.

Nosenko Y.M. Monitoring of breeding innovations: soybean // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 150-155.

The analysis of the dynamics of soybean varieties and their entry in the State Register of varieties suitable for dissemination in Ukraine for the period 2001-2014 years. The changes in the structure of the Register during the period (the share of domestic and foreign varieties breeding in general and individual institutions / firms in general Register structure). Analysis of varieties of soybean maturity groups and their value for the applicants.

Designated agencies applicants whose grades share the largest in the Register. Established relationship between different varieties of foreign firms by the number of varieties suitable for dissemination in Ukraine and between varieties of different maturity groups institutions applicants.

Keywords: soybean, Register, local varieties, foreign varieties, the dynamics.

Lyuta Yu.O., Kosenko N.P. Economic efficiency of growing of beet seeds depending on the conditions of a drip irrigation of South of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 155-157.

Economic efficiency of cultivation of beet seeds depending on the planting schemes, estimated doses of fertilizers and density of standing of seeds plants in the conditions of a drip irrigation of South of Ukraine is defined.

It is established that the maximum conditional net profit of 99,47 thous.UAH./ha, the profitability level of 137,1 % and a low cost of seed 33,7 thous.UAH./t obtained at planting scheme 50+90 cm, making the estimated doses of fertilizers and plant density of 42,6 thous./ha. The application of estimated doses of fertilizers increases the net profit by 61,6% in comparison with a variant without fertilizers. The level of profitability of production increased by 42,7 %, while reducing the cost of 1 ton of seeds by 24,6%. The increase of plant density testes from 28 to 42 thous./ha increases the net profit per hectare to 12,97 thous.UAH. (21,5 %), the level of profitability - by 14,2 %.

Keywords: beet, planting scheme, doses of fertilizers, density of standing of plants, profitability level, net profit, the cost of seeds.

Borovik V.A., Klubuk V.V., Osiniy M.L., Luzhanskiy I.J., Kuzmich V.I. The classification of new samples of soy on the morpho-biological and economic characteristics // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 158-161.

The purpose: the study of new models and their classification on the morpho-biological and economic characteristics, the selection of donors and the sources of genetic basic biological and agronomic characters for use in the selection process, the formation of feature, genetic, education and other. collections.

Methods: the laboratory, field, statistical

Results. The results of scientific research on the new 57 samples of soy produced by the Institute for the study of irrigated agriculture on irrigation with scientific institutions in other regions.

The testing results of 2011-2015. 8 sources allocated on six criteria: the length of the growing season, the height of the attachment of the lower bean above ground level, productivity, krupnosemyannosti and complex traits - suitability for mechanized harvesting, high yield and earliness.

Thus, during the reporting period has been extended the genetic diversity of soy sources of high yield, early maturity and suitability for mechanized harvesting.

Conclusions. It is necessary to continue to explore new models in order to identify sources and donors of valuable traits for use in breeding process to create high soybean varieties with good grain quality indicators adapted to irrigated conditions of South Steppe of Ukraine and forming oznakovyh, genetic, education and other. Collections.

Keywords: soybeans, collection, the growing season, earliness, sources of valuable traits, the gene pool.

Tselinko N. The effectiveness of the use of the factorial sign "Masa main panicles" of high-yield rice varieties // Irrigated agriculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 161-165.

The purpose of research - to determine the effectiveness of using the selection of factorial sign "main panicle weight" at different intensity of selection, genetic origin of the raw material of various sizes and power plants.

Methods of research. The hybrid populations F2 and F3 grown in two schemes the area of plant nutrition: 15x15 cm and 2x15 cm. The area of the power formed manually after germination. Seeding drill held CCK-6 in the third decade of April, seeding rate 4.0 and 8.0 mln. Germinating seeds per hectare. In the future, the plants were grown on conventional technology developed at the Institute of rice NAAS of Ukraine [7]. For the analysis was used on the 100-120 plants of each population. Elite factorial plant-specific basis (marker) traveled with varying intensity in the three gradations of 5, 10 and 15%. For each gradation selection using respectively separate subset of hybrid. Efficiency of selection was determined by the number of offspring that a manifestation of signs exceeds the standard in this case, 96-grade Ukraine, or have the same level of onset as in the standard. Such progeny selection (family lines) were identified as promising.

The results of research. Studies have shown that individual selections by weight panicles with different intensity lead to significant positive selection and genetic shifts. As can be seen from the results, the largest share of the promising numbers among the progeny of selections found in the first embodiment, the intensity of selection: by weight of grain per panicle, it amounted to 56,7-64,0% on productivity - 33,3-40,0%. Reducing the intensity of selection led to a general decrease in the proportion of the best lines - both prduktivnosti panicles, and the yield. In most cases a large area of the power plant output has contributed to improve the efficiency of selection.

Conclusion. To summarize, it should be noted that, the greatest number of the best selection of rooms that productivity exceeded the standard or were on the level with him, identified on the basis of the weight of the main panicle at the intensity of sampling of 5% and feeding area of 15×15 cm up to 50% decrease in the area power fraction looking numbers decreased by 10%.

Keywords: authentication, rice, efficiency, selection, selection, productivity, sign

Brytik O.A. Breeding value of collection samples of watermelon table // Irrigated agrculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 166-168.

The aim. The study of genetic diversity of watermelon on morfo- biological and economic characteristics. Bold sources of selection for adaptive traits in southern Ukraine.

Methods. Selection - intsuht, individual selection. Field - morphological and biological evaluation of collection samples of watermelon. Measurement and weight - to determine fetal weight, performance. Laboratory - determination of soluble dry matter content, heat resistance, holodostiykosti. Mathematical and statistical - for anolizu cluster.

The results. Presented three-year study of 52 samples of watermelon collection table on the basis of: productivity, average fruit weight, soluble dry matter content, the number of days from germination to the early ripening of fruits, cold resistance and heat resistance.

Samples were distributed into three groups of maturity: early (58-70 days) - 19 medium (71-80 days) - 29 pcs., middle - (81-90 days) - 4.

High in soluble dry matter (10,1-10,3 %) samples were distinguished: Crimson sweet, Tselnolystny Alliance, Producer.

As the degree of heat resistance samples were distributed into groups: resistant (> 61 %) - 6 samples (Crimson sweet, carmine, Kakhovsky, the sun a present, a present cold, Sicheslav), medium-resistant (31-60 %) - 21 samples with low heat resistance (<30 %) - 25 standard. With high cold resistance (81-100 %) identified - 2 samples (Tauride, Sicheslav.) Above-average (61-80 %) - 2 samples (Spassky, Sunrise), samples serednostiyki to cold (41-60 %) - 4 design, cold below average (21-40 %) - 16 samples, not cold-resistant (0-20 %) - 28.

A comprehensive assessment of these samples watermelon for six signs and three rozprydileno cluster.

Conclusions. As a result of 52 research collection samples watermelon table is divided into groups of ripeness, received the starting material with elevated holodostiykosti and heat resistance, selected genotypes with high productivity and quality of fruit. This strategy is part of the breeding necessary for creating high-performance varieties of watermelon table with regard to the adaptability of the southern zone of cultivation.

Keywords: collection samples, watermelon, features, performance, cold resistance, heat resistance, maturity group.

Nargan T.P. The dynamics of growth of internodes and agronomy-valuable features at different on earliness varieties of bread winter wheat // Irrigated agrculture: interdepartmental thematic scientific collection. – 2015. – Issue 64. – P 168-172.

Aim. To establish the regularities in the height of the straw and the formation of valuable agronomic traits under the sorter structure. To analyze the dynamics of growth and development at the internodes of varieties with different of vegetation period.The connection between the formation of above-ground mass, yield and quality of grain is establish.

Methods of research. The investigations during 2009-2013 were carried out on experimental fields Plant Breeding and Genetics Institute, which is located in South Black Sea steppe zone of Ukraine in Odesa. The varieties with differentces by heights of the stem and the crop earhiness are included in the investigations. Seeding rate of 4.5 mils germinating seeds per hectare. Optimum planting dates for the zone. **The results of research**. It was found that each stage of breeding was accompanied by an increasing of productivity and reducing of the length of the vegetative period and the height of straw. Reducing the overall height of the varieties was due to the reduction of value of all intersnodes. The first and second internodes significantly changed length has decreased by 50%. Prior earing (fifth) internode changed slightly - 12%. Some genotypes demonstraitid the simultaneous rapid growth of the third, fourth and fifth internodes. Stems from these genotypes were aligned. The difference between the weight of 1,000 grains formed by different stems was small (main spike - 32,4, second spike - 32,3 third spike - 32,0g. The tendency of formation of dependence between the aboveground mass and sedimentation of the grain of the main stem (r = 0,42). The genotypes that were more intensively accumulate biomass, at the initial stages of growth, were more stable grain quality indicators at from the of different stems (V = 15-18%). Correlation between the accumulation of biomass and grain quality has been positive and high. Do not depend on the time of formation of the stalk and increase the varieties with more intensive accumulation of aboveground biomass (r = 0,57). **Conclusions.** In the process wheat breed- ing dynamics and formation of stems are change; the intensity of the thet is courses of forming of above-ground mass and agromic and economic properties of varieties. Genotypes with intensity spring formation of stem form the yield wint high quality independently of ranking of stems. Reducing of height of straw is oc- curs to the reduction of all inters. The prior-earling internode sustains of the least changes. The drought environments of the south of Ukraine it is advisable to select genotypes in which intensive development and the rapid growth in the spring will be accompanied by a high rate of accumulation of dry substances.

Keywords: wheat, internode, growth, develop-ment, cultivar, shaping to productivity

Podust Yu.I., Lyfenko S.Ph. Winter wheat: influ-ence of seed receiving conditions on the charac- ter of germination // Irrigated agrculture: interdepartmental thematic scientific collection. – 2015.

– Issue 64. – P 172-175.

Goal. To investigate the nature of the intensity of the seed germination of winter wheat genotypes under different soil moisture, depending on growing conditions (receipt) of seeds. **Methods of research.** Field and laboratory experiments were conducted during 2007-2010 for the Plant Breeding and Genetics Institute – National center of seed and cultivar investigation. The experiments included varieties that have different ability to germinate when soil moisture deficit: Nikoniy, Poshana - high, Selyanka, Kuyalnik - intermediate, Suputnitsa - low capacity. Germination was carried out at a moisture deficiency (13-14%) and under optimum conditions of soil moisture (22%). To determine the effect of a period of rest at the rate of germination at different background soil moisture, the seeds were treated with 1% hydrogen peroxide solu- tion. Cleaning is carried out in 3 phases of ripeness. **Research results.** Seed dormancy of main part of varieties can be saved till autumn sowing, as was demonstrated. Seed dormancy retains germination under moisture deficit in soil and partly retains it under optimal moisture conditions; seed treatment by 1% hydrogen peroxide solution makes the period shorter and stimulates seed germination under moisture defi- cit in soil. Seed harvest on early maturation phases doesn't improve intensity of its germination independ- ent of soil moistening conditions and variety genotype. Conditions of plants growth responsible for protein storage in the seed don't influence on the character of following germination under moisture deficit in soil. Protein content in seed increase on 3% had de- creased germination intensity under soil moisture (22%) caused powerful development of spouts and roods. **Conclusions.** Conditions for obtaining wheat seeds can affect germination of the character, but the reaction of varieties to soil moisture during the germi- nation of seeds always saved, regardless of the im- pact of premature germination of his standing, the protein content and timing of harvesting. Genetically determined sign of the intensity of seed germination is related to the duration of the period of dormancy, but the degree of its manifestation is influenced by other physiological factors.

Keywords: winter bread wheat, seed, germina-tion intensity, moisture deficit.

Balashova H.S., Boiarkina L.V. Seed productivity of a medium-ripening grade of Yavir at reproduction of elite of a potato in the conditions of irrigation in the South of Ukraine.

Field studies were performed on irrigated lands of the Institute of Irrigated Agriculture of NAAS in the area of the Ingulets irrigation system. Freshly harvested tubers from spring planting the elite of the mid-season Yavir variety were treated with a solution of stimulants to interrupt the dormancy period and planted in the soil in the third decade of June. The scheme of the experiment provided for moistening of 0.3 m and 0.6 m of soil layer during the entire growing season; moistening of the differential layer of soil 0.2 m before emergence, 0.4 m before budding and 0.6 m before harvesting. The moisture content of the calculated soil layer was maintained at least 80% HB. Against the background of irrigation regimes used disinfectants Fundazol, Tirana and Maxim 025 FS. Agricultural techniques in the experiment, in addition to the studied factors, are generally accepted for irrigated lands of southern Ukraine. Repeat three times. Research results. The average indicator of the multiplication factor (in terms of number) of the elite of the mid-season variety Yavir, according to experience, was 4.8, which is 1.1 less than the indicator of the number of conditioned seed tubers from one bush. The experiment average value of the multiplication factor by mass differed and was greater than the previous one by 0.1. Different moisture conditions provoke differences in the response of freshly harvested seed tubers to the action of drugs when they are additionally processed before planting and, as a result, different seed productivity. Conclusions. The highest value of the reproduction coefficient (by quantity) (6.0) the elite of the mid-season Yavir variety was recorded while maintaining soil moisture of 80% HB in a layer of 0.6 m throughout the growing season and treatment of freshly harvested seed tubers with Tirana, which exceeded the control by 1.4 (23%). The maximum value of the reproduction coefficient (by weight) (5.4) was determined on the variant with the use of moisture of the differentiated soil layer of 0.2–0.4–0.6 m and treatment of seed material with the drug Maxim 025 FS, which is 0.7 (18 , 5%) is higher compared to the untreated option for these humidification conditions.

Key words: reproduction coefficient, calculated soil layer, conditioned seed potatoes, seed treatment, yield.

Vozhehova R. A., Maliarchuk A. S., Kotelnikov D. I. Influence of different methods and depth of soil basic tillage and systems of fertilizer on the productivity of corn in the conditions of irrigation of south of Ukraine

In the article the results of researches are represented for the studies of influence of different methods and depth of soil basic tillage in a crop rotation and fertilizer on the indexes of impurit and further influence of variable factors on the productivity of corn in a grain-row crop rotation on irrigation of south of Ukraine. Researches were conducted during 2009-2014 on the experienced fields of Ascanian state agricultural research station of the Institute of irrigated agriculture of NAAS of Ukraine which is located in the area of action of the Kahovska irrigatory system in a 4-field of grain-row crop rotation with next alternation of cultures: corn on grain, barley winter, soybean, wheat winter.

Key words: winter wheat, productivity, tillage of soil, system of fertilizer, impurit.