Summary

Vozhegova R.A. prospects for the use of irrigation to improve productivity of the agricultural sector at global and local levels in the context of climate change // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 5-10

The progress of modern and perspective irrigated agriculture is impossible without creation of energy saving and environmental protection technologies of cultivation of agricultural cultures based on sustainable use of natural resources (climate, soil) and artificial energy in the form of chemicals, irrigation, machinery. Changed approaches to the use of irrigated land. In the structure of sown areas with the growth of the share of soya, vegetable and cereal crops by 70-90% decrease in the acreage of fodder crops. Worst of all, this was mainly due to the reduction of areas under perennial grasses. In addition, in 2-5-fold increase in the group of industrial crops, mainly sunflower. Under these conditions, agricultural science it is necessary to propose the production of a range of design research and organizational work on development and introduction of modern zonal farming systems at the local level farms. In addition, in the context of climate change, the manifestations of the crisis phenomena in the economy, scarcity of resource provision Agrosphere modern system of irrigated agriculture should be considered as the most effective means of practical application of achievements of agricultural science in the agricultural sector.

Keywords: irrigation, agricultural industry, productivity, climate change, science.

Pisarenko P.V., Kozyrev V.V., Shepel A.V. Transformation of ion-salt composition of soil solution in soybean irrigation water Ingulets irrigation system // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 10-13

The aim of research was to determine the effect of different moisture conditions, method of cultivation and the timing of phosphogypsum, the transformation of the ionic composition of water extraction and change the chemistry of salinity dark brown soil.

Methods of research are field, laboratory, analytical..

Research has established that the introduction of phosphogypsum fall and spring on the surface of the frozen-thawed soil boosted the ratio of calcium to sodium in 2 or more times, which ensured the transition process from the active secondary alkalinity in the passive form. Application meliorant under cultivation did not contribute to the formation of a high ratio of cations. The highest ratio of water soluble calcium to sodium is observed in 1.14 version moldboardless for cultivation with the introduction of phosphogypsum 3 t / ha on the surface of the frozen-thawed soil in the background keeping soil moisture at 70-70-70% NV.

Keywords: dark brown soil, irrigation, primary tillage, phosphogypsum, salt, lithium salt composition.

Gulmurodov R.A., Khasanov B.A., Khakimov A.A. Efficacy of fungicides against leaf spot diseases of winter wheat // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 13-15

Results of tests of azole fungicides (Bumper and Colosal Pro) against tan spot + Septoria leaf blotch complex of winter wheat carried out in conditions of Tashkent region of Uzbekistan in 2010-2012 are presented. It has been shown that single treatment with Bumper Super (0,6 and 1,0 lt/ha), Colosal Pro (0,2 and 0,3 lt/ha) 10 days after application provides with a biological efficacy equal to 63,3%, 62,3%, 33,6% and 48,6%, and 10 days later after first application - 1,4%, 17,1%, 24,4% and 49,3%, respectively. Efficacy of Alto Super (standard) by 10 and 20 days after application has been 58,0-77,5% and 50,2-54,3%, respectively.

Keywords: Winter wheat, tan spot, Septoria leaf blotch, spray fungicides, Bumper Super, Colosal Pro, biological efficacy.

Shatkovsky A., Zhuravlev O., Cherevychny Yu. Features of formation and parameters of wetting zones of soils under the drip irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 15-19

Purpose. To investigate the features of formation and experimentally to determine the geometrical parameters of soil's moistening zones depending on its granulometric content and duration (mode) of irrigation. **Research methodology.** Experiments were conducted in 2015 on middle-loamy, light-loamy and loamy soils on lands of Kamyans´ko-Dnieprovs´ka Research Station IWPLR NAAS ($47^0$46' of north latitude $34^0$42' of east longitude.), SE «EE «Brylivs'ke» IWPLR ($46^0$40´ of north latitude. $33^0$12´ of east longitude) and SE «EE «Velyki Klyny» SSARS ($46^0$33´ of north latitude, $33^0$59´ of east longitude.) correspondently. For irrigation's terms appointment used tensiometric method. Before the experiment determined the density of soil's compilation (by ISO 11272: 2001) and pre-irrigation humidity in the potential zone of moistening (ISO B B.2.1 - 17: 2009). Duration of irrigation was from 1 to 8 hours with a step of experiment 1 hour. After the flowing of moisture in the lower horizons (on sandy loam soils - 6-7 hrs., on lights - 10-13 hrs., on the middle - 14-17 hrs.), determined the width of the surface (d), the width at a depth of 25-40 cm (l) and the depth of soil moistening zone (h).

Results. The actual contours of the wetting areas of light-loamy soil (SE «EE« Brylivs'ke »IWPLR) geometrically described as semi ellipse, of sandy loamy soil (SE« EE «Velyki Klyny» SSARS) - as a truncated on 1/4 ellipse, middle loamy soil (KDRS IWPLR) – as a truncated on 1/3 ellipse.The results of an analytical of processing of experimental data are linear dependences of the parameters of soil's wetting zone (zone areas, depth, width and their ratio) from time

(rate) of irrigation. Reliability coefficients of approximation (R^2 = 0,87-0,96) indicate a close relationship between the determined values.

Conclusions. The shape and dimensions of wetting zones under drip irrigation depends on soil type by the granulometric composition, pre-irrigation humidity of soil and volume of supplied water. Experimentally, for light, medium loamy and sandy loamy soils established ratio of depth to width (h/d), calculated the actual areas of wetting zones depending on time (rate) of irrigation. With the using of drip irrigation for determination of geometric parameters and areas of wetting zones of soils we recommend to use prescribed linear dependencies.

Keywords: zone of wetting, geometrical parameters, type of soil, volume of water, drip irrigation.

Vozhegova R.A., Naydonova V.O., Voronyuk L.A. Productivity of soy at the different methods of basic treatment of soil and doses of fertilizers on irigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 20-22

The purpose of researches was optimization of parameters of methods and systems of basic treatment of soil and "direct sowing" with the use of the newest combined multioperational cltivating instruments and special seeder and establishment of doses of bringing of mineral fertilizers in technology of growing of soy on irrigation in the conditions of south Steppe of Ukraine.

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

The main indicators of density and water resistance of dark chestnut soils and established their influence on soybean yields when grown on irrigated land. The best conditions for the formation of a crop of soybeans created during deep tillage to 28 - 30 cm and a dose of fertilizer $N_{90}P_{40}$ provided an average yield - 3.93 t / ha.

Keywords: soil treatment, No-till technology, soil density, soil water permeability, water consumption, soy, irrigation.

Malyarchuk N.P., Vlasyuk O.S., Tomnitsky A.V., Kozyrev V.V., Bidnina I.A. Influence of the basic processing and doses of fertilizers on soil biological activity and productivity of four dipole rotation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 23-26

The goal was to investigate the quantitative composition of microorganisms which are involved in the processes of ammonification and decomposition of cellulose under the conditions of application of different methods and depth of soil cultivation, fertilization systems and optimal irrigation for crops.

Methods: Field, analytical, computational and comparative, mathematical statistics.

Results. Studies show that the main processing systems have different effects on the number of representatives of major groups of soil biota. The smallest number of them recorded during one of the deep surface of the soil cultivation, and at the highest dumping midwater loosening. Improving soil fertility, that is, an increase in dose to the N_{75} $N_{97,5}$ kg/ha creates more favorable conditions for the occurrence of ammonification and nitrification processes in the soil, in which the number of oligonitrophilous and nitrifying microorganisms, the average for the system of tillage, increased by 4,4 and 8,1%, respectively. The number of microorganisms ammonifiers are involved in the processes of decomposition of organic residues, and cellulose-that are involved in the decomposition of cellulose was also observed a slight increase in their average of 2,8 and 2,2%, respectively. Regarding the productivity of forage and grain yield units almost at the same level provided moldboard and differentiated - 1 system of the basic soil cultivation with a slotting of crop rotation. Increasing the dose of nitrogen fertilizers and processing of soya seed inoculants helped increase productivity in forage and grain units by 14,3 and 13,4%, respectively.

Conclusions. Introduction to crop rotation 50% legumes, the use of depleted midwater loosening on the background of the power system number 2 (in making $N_{97,5}$ kg/ha) provides the largest number of groups of micro-organisms per 1 ha of crop rotation for a period of harvest. A systematic one deep subsurface tillage reduces their size and leads to a decrease in productivity by 20,5% and 21,4% of feed grain units.

Keywords: tillage, ammonifiers, oligonitrophilous, nitrifying, cellulose-destructive microorganisms, food background, productivity.

Balashova G.S., Yuzyuk S.M. Growth and development of potato drip irrigation in different ways in terms of fertilizing the Southern Barrens // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 26-29

Purpose. The study of the process of growing potatoes for drip irrigation in Southern Barrens; patterns of water, soil nutrient regimes; indicators of growth, plant development and yield formation of spring planting potatoes, depending on the technology elements of irrigation and fertilization methods.

Methods. Complex use laboratory, mathematically-statistical, calculation-comparative methods and analysis of the systems. **Results.** Experimental data over are brought in relation to influence of different methods of top-dressing on a height and development of plants at different terms moistening at growing of food potato on drip irrigation in South Steppe.

Conclusions. The maximum performance of ware potatoes provided locally making fertilizer in dose while maintaining $N_{60}P_{60}K_{60}$ differentiated by periods of growth and development of plants pre-watering soil moisture 80-80-70% NV in a predetermined layer of 0-60 cm. The efficiency of fertilizer depending on how their introduction was 30,0-39,6%.

Keywords: potato, tiny irrigation, calculation layer of soil, methods of top-dressing, stemtube, height of plants, productivity.

Vozhegova R.A., Belyaeva I.M. Scientific rationale for the introduction of innovative technologies in irrigated agriculture of the south of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 29-32

The article presents the results of studies on the

scientific substantiation of innovative technologies in irrigated agriculture. It was established that innovation should be seen as a form of investment that ensures the development, dissemination and application of innovations in the system of scientific support agribusiness sector with a view to improving and updating. One of the ways to implement innovative scientific activities agrosphere is a part of scientific research institutes and a network of research farms in experimental research work, the creation of innovative structures, through which the diffusion of innovative technologies.

Keywords: innovative technologies, irrigation, agroindustrial systems, information tools, modeling**.**

Goloborodko S.P., Revtyo M.V., Poginayko O.A. Land degradation in South Steppe of Ukraine: current status and workarounds // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 32-39

Goal. Agrobiological substantiation of the theoretical foundations of the current state of agricultural land and the development in the conditions of natural moisture (without irrigation) resource saving technologies of cultivation of highly productive swards of perennial grasses at temporary and permanent conservation of arable land withdrawn from treatment.

Research Methods: field – to determine the effect of weather conditions and agro technological factors; measurement and weight – to determine the feed efficiency; Laboratory – to determine the chemical composition of herbage; settlement and comparative – for economic and energy evaluation of the cultivation of perennial grasses for feeding purposes; mathematical and statistical – to assess the reliability of the research results. **The results of research.** Productivity monorind sowing tares multiflorous with temporary short-term preservation of arable land withdrawn from treatment was: absolutely dry matter – 4.95 t/ha, respectively, feed. u – 3.22; digestible protein – 0.67 t/ha; gross energy – 87.9 GJ/ha and exchange energy – 50.8 GJ/ha. Harvest of absolutely dry matter of single-species crops sainfoin sandy and chaff- *Onobrychis arenaria* (Kit) mixtures greater than single-species crops of ryegrass multiflorous on 13,5-13,7%; feed. u – 22,4-22,7; digestible protein – 25,4-35,8; gross energy – 6,7-14,3 and metabolizable energy on 6,5-14,4%.

The yield of absolutely dry matter monospecific planting fescue east at a temporary preservation of arable land under cultivation medium duration of use does not exceed 4.16 t/ha, respectively, feed. u – 2.79; digestible protein – 0.41 t/ha; gross energy – 75.5 GJ/ha and exchange energy – 43.0 GJ/ha. The yield of absolutely dry matter of single-species crops of alfalfa and fescue-alfalfa mixtures exceeded net fescue crops east on 33,6-34,8%; respectively, to collect food. u on 47,3-56,9; digestible protein – 92,7-107,3; gross energy – 35,6-36,7 and metabolizable energy on 36,0-37,2%.

The yield of absolutely dry matter of single-species crops brome when long term conservation dark-chestnut soil (4-5 years) was 4.47 t/ha, respectively, feed. u – 3.13 t/ha, digestible protein – 0.46 t/ha, gross energy – 81.8 GJ/ha and exchange energy – 47.2 GJ/ha. The productivity of alfalfa and alfalfa-grass mixtures *Festuca orientalis* (Hack.) reached: absolutely dry matter – 5,36-5,52 t/ha, respectively, feed. u – 3,86-4,14; digestible protein – 0,90-0,97 t/ha; gross energy – 100,6-103,0 GJ/ha and exchange energy – 57,8-59,2 GJ/ha.

The yield of absolutely dry matter of single-species crops of wheat grass medium, at a constant long-lasting conservation of the soil did not exceed 3.24 t/ha, the harvest of food. u was – 2.14 t/ha, respectively, digestible protein – 0.41 t/ha, gross energy – 59.0 GJ/ha and exchange energy – 33.8 GJ/ha. The yield of digestible protein of single-species crops of alfalfa and alfalfa-grass mixtures wheatgrass reaches 0,59-0,62 t/ha and significantly depended on the participation of the species in the botanical composition of alfalfa.

Keywords: conservation, moisture content, yield, feed unit. digestible protein, the exchange energy.

Fedorenko E.N., Aldoshin A.V., Kravets S.S., Bernackiy M.M. Influence of soil herbicides on the field germination of seed of paternal forms of middle-ripening hybrids of corn // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 39-44

Results of researches, reactions of parental forms of hybrids of corn are given in article: Solonyansky 298 CB, Monica of 350 MV and DN Akvozor, on herbicides of soil action: Harnes, Proponit, Dual gold and Primekstra, at the minimum and maximum dose of their introduction. Specific reaction of seeds of parental forms of hybrids of corn, with a different genetic basis, on soil herbicides and doses of their introduction is established. Herbicides and their doses which can be applied on parental forms of the studied hybrids are defined:

- Monica of 350 MV (hybridization sites, ♀ HT 004 x ♂ TT005) - Proponit of 2,5 l/hectare or Dual gold 1,0 l/hectare;
- ♀ HT 004 (reproduction sites) - Proponit of 2,5 l/hectare or Harnes of 2,0 l/hectare or Primekstr of 3,0-4,0 l/hectare or Dual gold 1,0 l/hectare;
- ♂ TT005 (reproduction sites) - Dual gold 1,0 l/hectare or Proponit of 2,5 l/hectare;

Solonyansky 298 CB (hybridization sites, ♀ Cross-country 290 C sterile x ♂ recreation center 205/710 SV, ZM) - Proponit 2,5 l/hectare or Harnes of 2,0 l/hectare;

- ♂ a recreation center of 205/710 SV, ZM (reproduction sites) - Proponit of 2,5 l/hectare or Harnes of 2,0 l/hectare or Dual gold 1,0 l/hectare;
- A recreation center Akvozor (hybridization sites, ♀ Cross-country of 371 M sterile x ♂ DK680MVZS) - Proponit of 2,5 l/hectare or Harnes of 2,0 l/hectare;.
- ♂ DK680MVZS (reproduction sites) - Proponit of 2,5 l/hectare or Harnes of 2,0 l/hectare or Dual gold 1,0 l/hectare;

Keywords: corn, paternal form, field germination, soil herbicide, dosage of bringing.

Malyarchuk M.P., Kotelnikov D.I., Shepel A.V. Economic efficiency of growing corn at different ways of tillage and fertilization in irrigated crop rotation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. –

Issue 65. – P. 44-45

The purpose of research was to elucidate the influence of different depths and way of basic soil treatment and doses of nitrogen fertilizers on the economic performance of growing of corn grain.

Material and methods. The results of calculation of the main economic indicators in growing corn in different ways, the depth of tillage, nitrogen fertilizer standards. Used statistical and computational methods.

The results showed that the highest profits in the experiment provided plowing at 20-22 cm differentiated-1 system of cultivation where he was 14961-19567 UAH/ha, which is higher than the control average of 548 UAH/ha, at 3.15 %, the lowest income - 10636-13592 UAH/ha obtained by soil at 12-14 cm, which is lower than the reference version of the national average factor on 4745 UAH/ha or 28.2%. Increasing the dose of nitrogen fertilizer with 120 kg of active ingredient to 150 kg income increased an average of 2022 UAH/ha, or 12.7%, further increasing the dose to 180 kg of active ingredient boosted profits in 3756 UAH/ha on average by a factor or 21.2% compared to the dose of N_{120}.

Conclusions. As a result of the economic evaluation can be concluded that plowed to a depth of 20-22 cm in a differentiated system of basic soil treatment provides a profit, with the highest level of profitability of corn (141,4-170,8%).

Keywords: corn, cultivation, productivity, economic efficiency, profitability.

Maksimov M.V., Lavrenko S.O. Total water consumption and efficiency of water use by lentil depending on the technological methods of cultivation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 46-48

Aim. To define an optimum combination of technological methods of lentil cultivation with the aim of rational water use of by the plants under conditions of Southern Steppe of Ukraine.

Method. Methodological basis of scientific research includes the following methods: field, laboratory, statistical.

Findings. The total water consumption of lentil when applying different cultivation methods is determined (soil tillage, doses of mineral fertilizers, density of plants, conditions of moistening) and dynamics of changes under the influence of the investigated elements is defined. The coefficient of total water consumption of lentil and the agrotechnological complex of the crop cultivation with the least index are found .

Conclusions. According to the experimental data the maximum total water consumption of lentil under non-irrigation conditions of 2565 $м^3$/hectare and of 3903 $м^3$/hectare under irrigation conditions are defined at turn soil tillage at the depth of 28-30 cm, mineral fertilizers in the dose of $N_{90}P_{90}$ and density of plants of 3.0 mln/hectare. Moisture used by the crop most rationally due to the coefficient of total water consumption under non-irrigation conditions of - 1653 $м^3$/t when ploughing at the depth of 20-22 cm, the dose of mineral fertilizers of $N_{45}P_{45}$ and density of plants of 2.0 mln/hectare. Under irrigation conditions the least coefficient of total water consumption amounts to 1454 $м^3$/t applying turn soil tillage at the depth of 20-22 cm, mineral fertilizers in the dose of $N_{45}P_{45}$ and density of plants of 2.5 mln/hectare.

Keywords: lentil, soil tillage, fertilizers, density of plants, conditions of moistening, total water consumption, coefficient.

Vozhegova R.A., Kniazev O.V., Reznichenko N.D. Influence of basic technological measures on forming of elements of structure of harvest and productivity of barley winter in a crop rotation on irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 48-51

The purpose of researches was to work out a method and set the optimal depth of basic treatment of soil, educe possibility and efficiency of sowing in preliminary untilled soil, experimentally to set their influence, on a background the different doses of bringing of mineral fertilizers, on forming of elements of structure of harvest and productivity of the districted sorts of barley winter at growing of them in a crop rotation on irrigation.

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

The results of experimental researches of influence of methods of basic soil cultivation and "direct sowing" on the basic elements of the structure of productivity and the yield of winter barley sorts cultivated on the irrigated lands of the South of Ukraine using different doses of mineral fertilizers are brought in the article.

Keywords: treatment of soil, technology of No - till, disk treatment, chizel treatment, barley winter, irrigation, elements of structure of harvest, productivity.

Zayets' S.A., Romanenko A.L. Productivity of winter wheat depending on the types of mineral fertilizers and additional fertilizing at growing after a stubble predecessor // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 51-54

Purpose. To determine the efficiency of different kinds of nitric fertilizers and signup on sowing of winter wheat after a stubbly predecessor (stubbles of wheat are for a pair), sent to the increase of the productivity of high-quality grain. **Methods.** Researches were conducted on the irrigated lands of Institute of Irrigated Agriculture NAAS after methodical recommendations on carrying out the field tests in the conditions of irrigation. Soil of the experimental field is a durk-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 preseed bringing of ammoniac saltpetre, carbamide and carbamide-ammoniac mixture (CAM) in doses N_{30} and biologic of Trichoderma lignorum (5 l/ha) in mixture with 20 kg/ha of carbamide provided the near productivity laid down 3,58 accordingly, 3,59, 3,52 and 3,59 т/ha. At variants without realization of the additional fertilizing the productivity made 3,57 т/ha, and with the additional fertilizing by ammoniac saltpetre - 4,46 and to car-

bamide-ammoniac mixture (CAM) is 4,07 т/ha, or on 0,89 and 0,50 т/ha is higher. It specifies on that for feed up winter wheat it is better to use ammoniac saltpetre. In addition, the got grain on variants with the additional fertilizing conformed to the requirements 2-3 classes by SSDU 3768-2010. **Conclusions.** It is set that high quality food grain with the productivity of 4,03-4,38 т/ha a winter wheat after a stubble predecessor (stubble of wheat on steam) provides at the sowing bringing mixtures of biological preparation of Trichoderma lignorum (5 l/ha) with a carbamide 20 kg/ha and additional fertilizing early in spring by ammoniac saltpetre or carbamide-ammoniac mixture (CAM) in the dose of N_{30}. A most economic effect - conditional income is thus got a 5787-6081 UAH/ha and level of profitability of 112%.

Keywords: winter wheat, ammoniac saltpetre, CAM, productivity, quality of grain, economic efficiency.

Vozhegov S.G., Kokovikhin S.V., Zorina G.G., Drobitko A.V. Scientific and practical aspects of modeling crop irrigation regimes rice crop rotation using CROP-WAT software package // Irrigated agriculture: inter-departmental thematic scientific collection. – 2016. – Issue 65. – P. 54-58

The article presents the results of studies on the scientific substantiation of irrigation regimes and the use of special software for modeling water consumption by analyzing the local climatic and economic-economic factors.

Goal. The aim was to scientifically and practically prove the possibility of the use of information technologies (for calculation of evapotranspiration and the formation of crop irrigation regimes rice crop rotation.

Methods. In a study of methodological approaches used for modeling of production processes of individual crops in crop rotations, the dynamics of the meteorological factors evapotranspiration processes, differentiation of water demand and scheduling of irrigation on crop rotation level. To calculate the culture water requirements in CROPWAT program indicators used evapotranspiration using Penman-Monteith formula for modeling the input temperature and humidity, wind speed, sunshine duration.

Results Using climate data and biological needs of plants is possible with the help of modern computer programs to calculate such important indicators for irrigated agriculture as evapotranspiration and intensity of solar radiation. Modeling these parameters to ensure the optimum ratio crops in the irrigated crop rotations, to coordinate accommodation crops on the farm, generate graphs vegetation irrigation and irrigation water supply schemes for individual phases of plant growth and development.

Conclusions. Using CROPWAT software system at the production level is of great agronomic and environmental reclamation, as it will contribute to the rational use of resources, improve the return on resources per unit of crop production, will provide the high quality and yields high profits and minimizes the negative pressure on the environment.

Keywords: irrigation, CROPWAT program weather, weather indicators, information tools, modeling, water consumption.

Homina V.Ya., Pastukh O.D. Agroecological aspects of buckwheat and millet cultivation in compatible crops in the terms of western forest steppes // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 58-60

The task of the research was to establish the feasibility of buckwheat and millet cultivation in compatible crops in order to increase productivity of crops by improving the microclimate in phytocenoses. The aim was also to identify more productive varieties of compatible crops and to compare them with single-species crops.

Plants that are chosen for compatible cultivation - millet and buckwheat, differ in morphological structure (structure of the root and ground parts of plants), the type of pollination, biological characteristics, so the priority was for the potential disadvantage to one culture, to gain economic benefit of another, but research has established a stable yield of both crops in compatible crops under different weather conditions.

The results of studies on the plant stand density and productivity of cereal crops (buckwheat and millet) in single-species and compatible crops are shown in the article. It has been selected more productive buckwheat and millet varieties for compatible crops that contribute to higher productivity per hectare of arable land and productivity of each crop, in particular.

Research has established that in terms of western forest steppes when growing double-species crops the highest survival of buckwheat plants 98% and millet plants 95% was in the variant of compatible sowing Syn 3/02 + Omriyane, with a maximum yield of buckwheat – 22,7 c / ha, millet – 44,3 kg / ha, which exceeds the data of single-species crops of buckwheat and millet varieties respectively at 19,4 and 13,0%.

Keywords: buckwheat, millet, survival, productivity, single-species crops, compatible crops.

Kovalenko A.M., Kuc G.M. Nourishing mode and microbiological activity of soil under sunflower in dependence on systems of his till in crop rotation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 61-64

Purpose - to Ground optimal parameters and economic expedient system of basic till of soil in a crop rotation under a sunflower.

Methods. Researches were conducted on unwatering livery soils of Institute of the irrigated agriculture after confessedly in agriculture methods. Labtests were executed in the laboratory of IIA, which attested in Херсонстандартметрологія in 2015 (certificate № of РЧ 096/20-15 from October, 28 in 2015) of Research conducted in stationary двофакторном experience which is stopped up in 2012.

Results. Determination of quantity of амонифицирующих microorganisms in soil under sowing of sunflower showed that she rose during the first half of vegetation, and then goes down. If in the first half of vegetation an amount of амонифицирующих microorganisms was on a 1,61-1,80 million/g higher on conditions of realization of deep tills regardless of methods comparatively with shallow безотвальным, then in the second, vice versa they were more on a 1,72-3,53 million/g at shallow till.

Watching the dynamics of nitrates in a top-soil showed that during all period of vegetation of sunflower their most content was observed on conditions of realization of the deep ploughing. The least content of nitrates was in soil in the variant of systematic безотвального shallow till of soil. Analogical dependence on the systems of till of soil is observed and at determination of нитрификационной ability of soil.

Conclusions. Content of nitrates and нитрификационной ability of soil in an arable layer during all period of vegetation of sunflower on conditions of ploughing were on 7,2 - 42,7% higher than other systems of till of soil.

The productivity of sunflower was higher in crop rotations with black steam and for realization of ploughing. Part of influence of predecessor on his productivity presented 43%, and to till of soil - 35%.

Keywords: microorganisms, nitrates, till of soil, sunflower, ploughing.

Morozov O.V., Kornberger V.G., Dudchenko K.V. Increasing of irrigation water use efficiency in rice growing // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 64-68

The purpose of research work was increasing of irrigation water use efficiency by drainage-discharge water of rice irrigation systems.

Field, laboratory, statistical, mathematical modeling method were used in the research.

Drainage-discharge water volume from 1 hectare of regulated rice irrigation systems is 1938 m^3 per hectare, or 13% of water supplying. Regulated using of drainage-discharge water decreases rice irrigation norm to 7-8%, outflow volume to 20-80% and increases water usage efficiency in average to 575 m^3per ton of corn. Watering of rice by drained-discharge waters with regular usage increases rice yield in average to 0,9-1,0 ton per hectare, due to the higher number of nutrients in drained-discharge water.

The overall economic effect of two steps irrigation regime on production is 4876 UAH. per hectare.

Keywords: rice, rice irrigation system, water supplying – water diversion, drained-discharge waters, regulation, yield, effect.

Maliarchuk N.P., Lopata N.P. Influence of basic treatment, sowing in untilled soil and doses of fertilizers on the impurit of sowing and productivity of corn in a crop rotation on irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 68-70

The purpose of researches was to work out an optimal method and set the depth of basic treatment of soil, educe possibility and efficiency of sowing in preliminary untilled soil, experimentally to investigate their influence on agrophysics properties and aquatic mode of livery soil at the different doses of bringing of mineral fertilizers under a corn at growing in a crop rotation on irrigation.

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

It is set as a result of experimental researches, that the best terms for forming of harvest of corn are created during realization of ploughing on a depth a 28-30 cm in the systems of the differentiated till and bringing of mineral fertilizers the dose of N180P40, that in the conditions of 2014-2015 provided forming of harvest within the limits of 10,77-10,73 т/ha

Realization of the shallow chisel loosening in the system of one depth till and sowing of corn in preliminary untilled soil result in the decline of the productivity of grain on 1,18-3,0 or on 10,9-27,8 %.

Keywords: till of soil, technology of No-till, impurit, productivity, hybrid of corn SOV 389SV, irrigation.

Kovalenko A.M., Tymoshenko G.Z., Novokhizhniy M.V., Serheeva Y.O., Черevko R.V. Application microbal preparations on sowing wheat winter-annual at the different methods basic till soil under predecessor // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 70-72

Researches are conducted by the laboratory unwatering agriculture in Institute the irrigated agriculture NAAS on darkly-chestnut soils during 2013-2015 years.

Purpose. A search ways activation naturally-biological potential soil is during minimization his till for the increase the productivity cultures. **Task.** Determination efficiency application microbal preparations is in the droughty terms South Steppe Ukraine at the different methods basic till soil. **Method.** Field method - for determination features height and productivity wheat winter-annual. **Result.** The calculation efficiency application microbal preparations showed for preseed till seed wheat winter-annual, that an income from application preparation Diazofit folded 1068,62-1278,62 hrn/ha, that allows to recommend him for the use in a production. By virtue that an increase harvest at application preparation Polimiksobakterin was not high, an income was insignificant - 288,62-348,62 hrn/ha. At such terms his application it is possible on soils which have subzero content mobile phosphorus.

Conclusion. In the droughty terms South Steppe for the improvement the nourishing mode soil and increase the productivity wheat winter-annual it is necessary to apply microbal preparation Diazofit for the inoculation of seed both for deep and shallow till of soil under predecessor. It is necessary to process preparation фосфатмобілізувальних bacteria Polimiksobakterin seed wheat only at the terms realization shallow безполицевого till of soil under predecessor.

Keywords: Діазофіт, Поліміксобактерин, dump till of soil (ploughing), without a dump till (chizelyvannja), without a dump till (disk loosening), productivity, efficiency.

Tsylinko N.I., Vozhegov S.G., Dovbush O.S., Izdebskyi O.O. Influence of fineness of seeds on field viability and productivity of rice // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 73-75

Goal. Soil-climatic conditions in the south of Ukraine are favorable for rice cultivation. But, its productivity is not high enough. Use of low-quality seeds is the main reason. Low field viability is the main reason owing to what it isn't provided a desirable

harvest. Estimating importance of the solution of this problem, we have set the object of studying of influence of fineness of seeds on field viability and fruitful properties.

Methods. For achievement of an objective during 2011-2014 field experiments on fields of Institute of the NAAN rice are made. Mid-season grades of rice were studied: Ontario, Premium, Viscount. In research work studied such fractions: large (> 2,2x20 for grades> 2,5x20) average (2,2x20 - 2,0x20 and 2,5x20 - 2,2x20) small (<2,0x20 and <2,2x20) it is also not broken into fractions of seeds – control

Results. For receiving high and stable grain yields of rice it is necessary to carry out crops by high-quality seeds. As practice of agriculture shows small, puny seeds it isn't capable to create a plant with high viability and efficiency. Characterizing the results received by us it should be noted that the high level of an increase of a harvest provides rice sowing by large fraction so at a grade the Premium she made 0,78 t/hectare or 13%, at a grade the Viscount - 0,50 t/hectare or 7,0%, in grades of Ontario - 0,51 t/hectare or 7,5%. Respectively at crops of seeds by average fraction, all grades of rice provide the low level of an increase of a harvest from 0,04 to 0,38 t/hectare. Sowing of seeds by small fraction provides uneven shoots that led further to liquefaction of crops of rice. On the basis of these supervision and results of our researches on skilled sites with small fraction the harvest much below control has been received.

Conclusions. By results of our researches it has been established that for receiving stable harvests of rice with high sowing qualities it is necessary to use high-quality seeds, namely seeds of large and average fraction. Crops by small seeds lead to irrational use of seed material and as result decrease in productivity that in turn leads to receiving low-quality seed material.

Keywords: Rice, weight of 1000 grains, field viability, laboratory viability, seeds, fractions, harvest.

Lavrinenko Y.A., Vlasuk A.N., Prišepo N.N., Shapar L.V. Formation of photosynthetic capacity of canola varieties of winter influence of various factors // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 75-80

Aim. The objective is to establish the photosynthetic capacity of the studied varieties of canola winter depending on the length of planting and seeding rate in irrigated conditions of the southern steppes of Ukraine. Research methods-study conducted according to the requirements of generally accepted research methods.

The Results. For research results 2013-2015 timeframe. found that the most favorable weather and climatic conditions for the formation of photosynthetic productivity of rapeseed plants of winter were received in the first 10 days of September, with regard to the studied varieties, it should be noted that conditions in irrigated southern steppes of Ukraine the most adaptive and productive turned grade Antariya. Among the studied of sowing rates for the period of the carried out researches only sowing norm 1.1 million pcs./ha is guaranteed provided good development of canola plants throughout the growing season.

Keywords: winter rape, sowing time, seeding rate, variety, photosynthetic potential.

Galchenko N. N. Productivity of perennial grasses, depending on the composition of agrophytocenosis and method of use of herbage in the southern steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 80-83

The main indicators of the formation of the species Botanical composition, the collection of absolutely dry matter, productivity, density of grass stands of perennial grasses at different ages ispolzovaniya for green mass, haylage and hay. The maximum yield was obtained with monolithic of alfalfa crops cultivar Hope and sowing of grass mixtures with alfalfa pyram average grade of horse and alfalfa with stockroom awnless varieties Mars using the green mass, haylage and hay.

Keywords: green mass, haylage, hay, alfalfa, Wheatgrass average, stokolos brome-grass, Botanical composition, density and productivity.

Maliarchuk A.S., Suzdal O.S., Mishukova L.S. Aquatic-physical properties of soil under sowing of rape winter at the different systems of treatment of soil and early spring additional fertilizing on the irrigated earths // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 83-86

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

The purpose of the article was establishment of the most effective methods of basic treatment of soil and doses of application of nitric fertilizers in the early spring additional fertilizing at growing of rape winter in a crop rotation on irrigation south of Ukraine.

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

An author came to the conclusion that at irrigation the most favorable terms for a height, development and forming of harvest of rape winter created at the different depth systems by a dump and differentiated with ploughing on a 25-27 cm or chisel loosening on a 14-16 cm on a background one deep subsoiling for the rotary press of crop rotation.

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

Vlashuk A. N., Konashuk E. P., Zheltova, A. G., Kolpakova A. S. Formation of a crop of new corn hybrids of different ripeness groups depending on the elements of technology in the steppe zone of Ukraine for irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 86-89

Purpose. To identify the evolution of productivity of new hybrids of corn maturity of different groups depending on the sowing date and plant density under irrigation of southern steppe zone of Ukraine.

Material and methods. The results of two studies of the effect of sowing time and density on yield of new hybrids of corn maturity of different groups in the irrigated conditions of South Steppe of Ukraine. The experimental plot soil dark chestnut medium loam subsolonetzic soil, typical for the zone of Southern Steppes of Ukraine. During the studies used General scientific (analysis, synthesis, observation, comparison, measurement), special (field and laboratory), mathematical statistics and computational and comparative methods.

Results. In the article the results of studies regarding the response of new hybrids of corn maturity of different groups on different sowing time and density when grown on irrigated lands of steppe zone of southern Ukraine. Experience maximum grain yield of maize in average for 2014-2015 was 13,5 t/ha formed the mid-ripening hybrid of Kakhovsky on the second sowing time at the density of 70 thousand PCs/ha. the hybrid Tendra the best indicator of productivity – 10,9 t/ha was established at the second time of sowing and density of 90 thousand PCs/ha. An early hybrid Skadovsky higher yield of 11,9 t/ha formed on the second sowing time and density of 90 thousand PCs/ha.

Conclusions. For all hybrids studied in the experiment, the optimum is the second period of sowing – III decade of April. As for the density, at all sowing dates for hybrid Tendra optimum seeding rate of 90 thousand PCs/ha, for hybrid Skadovsky – 90 thousand PCs/ha, for hybrid Kakhovsky – 70 thousand PCs /ha.

Keywords: corn, hybrids, sowing time, density, irrigation regime, yield.

Vasylenko R.M., Zayetc S.O., Stepanova I.M. The efficiency cultivation of sugar sorghum in Southern Barrens // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 89-91

The authors considered important to ensure foods as their share in livestock production reaches 55-60%. When grown forage crops in the Southern Barrens Ukraine focuses on drought-resistant crops that would be under constant shortage of water could provide stable income from their production.

The aim was washed on to identify the dependence forming sugar sorghum silage, depending on moisture conditions and terms of feeding on vegetation UAN liquid fertilizer.

Established that sugar sorghum provides not only obtain high yields of forage mass, but also full of food, including the release of feed units and digestible protein per 1 hectare.

As a result of studies found that the culture of sugar sorghum promising for conditions without irrigation and for irrigation. The highest performance green fodder silage hybrid Dovista was observed in both the irrigation of feed output. units. 13,2 t/ha, and for conditions without irrigation under 9.8 t/ha dose of recharge CAS N_{40} in the phase of 4-5 leaves.

Keywords: drought-resistant crops, forage, sugar sorghum, forage unit performance.

Vasyuta V.V. Growth and production processes red beet under drip irrigation in South Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 91-94

Purpose. Explore the intensity of growth and production processes dining varieties of beet Bordeaux Kharkov under drip irrigation, to establish the degree of connection absolute (AGR), relative (GRG) growth rate, net assimilation rate (NAR), the productivity of the sheet device (LAR) to yield a dry weight of plants, based on statistical modeling. **Methods**. The study of plant growth and productivity, based on mathematical and statistical methods, system analysis of changes in growth and production processes, the test elements red beets technology under drip irrigation. **Results.** Differentiation factors of influence on the processes of growth and productivity of plants found that the least relative growth rate (RGR) depends on the method of fertilizer application. The increase in plant dry weight (W), the absolute growth rate (AGR), net assimilation rate (NAR), the productivity of the sheet device (LAR) with fertigation on 6,1-14,1% is reliable and supported by the results of analysis of variance. Evaluation of variability of growth rates and performance standards at different fertilizer showed that except they LAR significantly grow with the introduction of $N_{90}P_{60}K_{40}$ and $N_{90}P_{60}K_{135}$. The use of phosphate fertilizers norm P_{60}, in comparison with a variant without fertilization (control), and increasing the dose of potassium fertilizer from K_{40} to K_{135} on $N_{90}P_{60}$ the background did not significantly affect the growth and production processes. **Conclusions.** Studies of growth of indicators and productivity of red beets plants under drip irrigation found that the optimum conditions for obtaining the maximum value AGR, GRG, NAR formed by the fertilization norm $N_{90}P_{60}K_{135}$. With an area of 250 cm^2 power plant foliage productivity (LAR) provably higher than the 175 cm^2. The most informative indicators of the performance of plants during the growing season has an absolute value of the growth rate and net assimilation (R^2 = 0,94-0,98).

Keywords: red beet, drip irrigation, fertilizer norm, AGR, RGR, NAR, LAR.

Maliarchuk V.M. Productivity of sunflower at the different ways of basic treatment of soil in a crop rotation on irrigation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 94-98

On the basis of application in a crop rotation on irrigation of different methods of basic treatment of soil his influence is educed on aggregate composition of soil, closeness of addition, porosity and permeability to water

A research purpose was development of new and perfection of existent methods and establishment of optimal depth of basic till of soil under sowing of sunflower on the irrigated and unwatering earths of south of Ukraine.

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

It is set that application by a different depth dump and differentiated systems of basic treatment assists growth of amount of waterproof asms layer of soil a 0-40 cm as compared to the shallow onedeep system of nonmoldboard treatment.

Due to alternation of the deep ploughing and subsoiling with shallow and superficial treatment, and also sowing in preliminary untilled soil during the rotary press of crop rotation terms get better for the accumulation of large supplies of productive moisture and nutritives for forming of harvest

Keywords: sunflower, method of treatment of soil, depth of loosening, soil moisture, nutritives.

Dudchenko T.V., Shevchuk O.M., Falkovskiy I.V. Topshot 113 OD Herbicide – effective weed control in rice // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 98-101

Objective of the studies was to evaluate the efficacy of Topshot* 113 OD as a new herbicide to control range of specific species of grass, broadleaf and sedge weeds in rice crop.

Number of small and big plot filed research trials carried out during 2012-2014 under conditions of Khersons'ka oblast by Institute of Rice NAAS of Ukraine. Trials were carried put in accordance with the approved official guidelines for evaluation and use of pesticides in Ukraine. In these trials herbicide Topshot 113 OD provided high biological efficacy – 100% against grass weeds and 99.4% against broadleaves weeds and sedges. Recommended for use in rice at 1-leaf and up to the end of the tillering stage of the crop. Optimal weed stage: up to 6-7 leaves of sedges and broadleaf weeds; 2-4 leaves and up to mid tillering of the grass weeds *(Echinochloa spp.)***.**

Keywords: herbicide, biological efficacy, yield, rice, weeds.

* Registered trademark of Dow AgroSciences**.**

Martynenko T.A., Shkoda O.A., Petrychuk L.I. The yield and quality of onion under drip irrigation of south of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 101-104

Purpose. To study the effect of the use of phosphogypsum, a variety of forms and doses of mineral fertilizers on the yield and quality of onion under drip irrigation.

Methods. Field method – for the study of influence of chemical phosphogypsum on properties of soil and productivity of onion; laboratory – for determination of physical and chemical and agrochemical properties of soil and quality of harvest; mathematically-statistical **–** for the ground of authenticity of the got results of researches.Investigations were carried out at the experimental field of the Institute of irrigated agriculture NAAS. Culture – onion varieties of Chalcedony. Sowing was carried out vegetable planter CO-4,2 at a depth of 2-3 cm. The seeding rate of 6,0-6,5 kg/ha. The vegetable samples were determined: the content of ascorbic acid – a method of Missouri; sugar – by Bertrand, heavy metals – atomic absorption spectrophotometer.

Results. It was established that under drip irrigation without fertilizers and ameliorants yield of onion was 35,0 t/ha, or 3,3 times more than in the absence of irrigation. Adding fertilizer to the background drip irrigation increases productivity of onion at 33-43%. During all the years of study yields increased with the introduction of the calculated doses of mineral fertilizers (nitrogen in the form of calcium nitrate) against phosphogypsum 1,9 t/ha in band sowing.

The use of fertilizers has caused an increase in the bulbs of sugar content in the 0,03-0,06 percentage points, the content of vitamin C - at 0,25-0,27 mg/% and reduced dry matter content of at 0,53-0,61 percentage points . The use of different forms of nitrogen fertilizers and phosphogypsum caused an increase in the content of chemical elements in the grown bulbs, but their value does not exceed the MPC, which indicates the receipt of products that meet regulatory requirements.

Conclusions. Applications of phosphogypsum and fertilizers increases the yield of onion on 5,0-17,2 t/ha compared to the option of making on without irrigation. The highest yield of bulbs (52,2 t/ha) obtained by introducing the estimated doses of mineral fertilizers (nitrogen in the form of calcium nitrate) against phosphogypsum 1,9 t/ha in band sowing. Joint application of mineral fertilizers and phosphogypsum promotes trend of increasing content in the bulbs of sugar and vitamin C. The use of these land improvement activities not significantly affect the content of heavy metals in the products.

Keywords: onion, drip irrigation, mineral fertilizers, phosphogypsum, productivity and quality.

Petkevich Z.Z., Melnichenko A.V., Chickpeas, lentils - promising legumes for cultivation in southern Ukrainian // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 104-107

Goal. To set expediency of increase of areas of sowing of valuable leguminous plants of lentil and нута in the conditions of Southern Ukrainian steppe.

Results and discussions. Among the crops legumes of the highest protein content. A comparative analysis of amino acid composition of grain legumes shows that chickpeas and lentils are valuable crops food and feed purposes. In addition, their seeds do not contain harmful ingredients for food. The size of the unsaturated fatty acids, macro-and micronutrients higher only in soybeans. Chickpeas and lentils dominated by several indicators beans and peas, and therefore can be considered as a source of biological components and complex physiologically active substances and essential, and unsaturated fatty acids, macro- and micronutrients. As a result of the use of the main features of products (grain) lentils typically refers to food that is marked high taste and culinary qualities and is used to make delicious and nutritious meals, but it is not only food, but also to some extent fodder crops. Grain fodder chickpeas are a valuable component in the production of animal feed, but it is also a food crop and is used as a food and industrial crop.

Legumes play an important role in improving soil fertility and soil structure able to improve, enrich arable layer on phosphorus, potassium, calcium, improve its chemical properties.

Conclusions. The climatic terms of Southern Ukrainian are receptive for growing of нуту and lentil and can provide the assured stable harvests.

Taking into account the food value of chickpeas and lentil, excellent agrotechnical indexes, the high degree of drought-resistingness can be marked, that

they are perspective leguminous plants for growing in the conditions of South of Ukraine. By the basic element of success at growing of chickpeas and lentil, there is a sort that in a certain measure is adjusted to ground - climatic terms of Ukraine, suitable to intensive technology of growing and has a sufficient level of tolerance to basic illnesses.

Keywords: chickpeas, lentils, variety, technology, herbicid, drought-resistingness, collection.

Poginayko E.A. Agrobiological bases of formation of a yield of wheat grass medium seeds (*Elytrigia intermedia* (Host) Nevski) depending on the way of sowing and systems fertilization the Southern Steppe // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 107-*112

Goal. Agrobiological substantiation of the theoretical foundations of the modern state and seed production of perennial grasses and development in the conditions of natural moisture (without irrigation) in the southern part of the zone Steppe energy-saving technologies of cultivation of wheat grass seeds average based on the optimization of agro-technical measures, adapted to regional climate changes.

Research Methods: The yield of conditioned seeds wheatgrass medium in the first year of use in conventional drill seeding method for 2010-2012, on average, amounted to 209-448 kg/ha and in wide – 235-483 kg/ha, the second (2011-2013) – 151-319 and 173-349 and the third year of use (2012-2014) – 147-206 and 184-284 kg/ha. Significant increase seed yield in making various doses of nitrogen fertilizers, in comparison with the control (no fertilizer) obtained in middle-dry (75%) and dry (95%) on security rainfall years that the usual method of planting was: $N_{30}P_{60}$ – 129 kg/ha (61,7%), $N_{60}P_{60}$ – 214 (102,4%) and $N_{90}P_{60}$ – 239 kg/ha (114,3%), respectively, in wide sowing – $N_{30}P_{60}$ – 194 kg/ha (82,5%); $N_{60}P_{60}$ – 229 (97,4%) and $N_{90}P_{60}$ – 248 (105,5%). Compared with phosphorus fertilizers increase yields seed wheatgrass middle of the first year of use in the application of nitrogen fertilizers in conventional drill seeding method it was also significant and was: $N_{30}P_{60}$ – 119 kg/ha (54,3%); $N_{60}P_{60}$ –204 (93,1%) and $N_{90}P_{60}$ – 229 kg/ha (104,5%).

Increase productivity certified seeds wheatgrass middle of the second year of use with the introduction of nitrogen and phosphate fertilizers, as compared with the control (without fertilizer), with the usual drill seeding method was: P_{60} – 12 kg/ha, $N_{30}P_{60}$ – 102 (67,5%), $N_{60}P_{60}$ – 140 (92,7%) and $N_{90}P_{60}$ – 168 kg/ha (111,3%) and wide-rowed P_{60} – 16 kg/ha (9,2%), $N_{30}P_{60}$ – 120 (69,4%), $N_{60}P_{60}$ – 148 (85,5%) and $N_{90}P_{60}$ – 176 kg/ha (101,7%).

Conclusions. The greatest influence on the formation of a crop of wheat grass medium seeds conditioned, on average over the 2010-2014, provided the mineral is primarily nitrogen fertilizer and sowing methods (ordinary and wide-rowed), the proportion of the influence of which, respectively, accounted for 52,1% and 42,7%.

Keywords: wheatgrass medium, productivity, seeds, fertilizers, moisture content, yield, the exchange energy.

Pryvedeniuk N.V. Valeriana officinalis water consumption by drip irrigation in Left-Bank Forest-Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 113-116

Object: to determine water consumption of Valeriana officinalis at various levels under the conditions of drip irrigation.

Methods: field, analytical, calculative and comparative. The amount of water consumption of Valeriana was calculated by the method of water balance. The control of the moisture reserve was done by the tensiometric and thermostat-gravimetric methods.

Results. It is established that when the soil moisture was kept of about 70 % 13 irrigations were done, total water consumption was 5494 m^3/ha, exceeding the control for 2625 m^3/ha, or 91 %. When the level of before irrigation soil moisture was 80 % 23 irrigations were done, the total water consumption exceeded the control for 106%, or 3032 m3/ha. The maximum total consumption was 6202 m^3/ha in the variant, where there was the highest soil moisture during the growing season – 90 %. To maintain this moisture 52 irrigations were done. The highest daily water consumption of Valeriana officinalis was 56 m^3/ha under conditions of drip irrigation. It was fixed on 170 – 190 day of the growing season in the variant when the soil moisture was 90%, this period is from July to August.

Conclusions. It is proved that in Left-Bank Forest-steppe of Ukraine the best conditions for the intensive growth and development of Valeriana officinalis were achieved when the soil moisture was 90 %. It was shown by the least coefficient of water consumption of the culture, which was 1214,0 m^3/t. The results of the research show that the minimum factor, the deficit of soil moisture, is fully compensated by the use of drip irrigation.

Keywords: Valeriana officinalis, drip irrigation, water consumption, soil moisture, irrigation rate.

Shevel V.I. Weed infestation millet sowing in unirrigation conditions Southern Steppe of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 116-119

On the lands NPA "Zemlerobec" Zhovtnevy district Nikolaevskaya region conducted studies on determination of particularities quantitative and aspectual composition weeds in millet sowing depending on elements of growing technologies in conditions southern Steppe of Ukraine.

Relief of the field flat. Topsoil of experimental plot is presented by chernozem southern. Climate - continental, is characterized sharp and frequent fluctuations annual and month air temperatures, greater spare of heat and aridity. Area of sowing plot is 75 $м^2$, record – 50 $м^2$, repeated is fourfold. Agrotechnics in experiment was generally accepted for southern Steppe of Ukraine. Predecessor - a wheat winter. Checking weeds in millet sowing realized one chemical and one manual weeding. Chemical weeding presented itself perfusion millet sowing in tillering stage preparation Agritoks, 50% w.s. + Lontrel, 300 w.s. with rate of contributing accordingly 0,3 and 0,5 l/ha.

It noted fluctuations to number weeds in millet sowing on years of researches. Average amount

weeds for 2008-2010 in tillering stage millet formed 31,4 pieces/m^2, less whole it was in 2010 (23,2 pieces/m^2), but more whole - in 2008 (38,6 pieces/m^2).

More weeds in tillering stage millet numbered at sowing in the first, early date - on 6-16 % relatively with second and third dates (average for nutrient status and sorts) that is connected with best water status. At the end vegetation in consequence of high competitive ability first date sowings were littered less on 11-42 % relatively with second and third date sowing. It exist trend to greater amount weeds on fertilized variants. One-year cereal weeds such as *Echinochloa crus-galli* and *Setaria glauca*, had a high share to number and remained to be undamaged before the end millet vegetation.

Keywords: millet, weeds, sowing date, nutrient status, weather conditions.

Sergeeva Y.A. Prospects of growing of sorghum are in the steppe area of Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 119-122

Purpose. Analysis of these literary sources in relation to the modern state and prospects of growing of sorghum in Ukraine. **Results.** It is set that the issue of the day is an increase of the productivity a sorghum and to his competitiveness at the gradual increase of sowing areas in a region. In this connection, it is necessary to conduct the search of drought-resisting sorts and hybrids of sorghums biological properties of which allow to form a high and permanent harvest on conditions of deficit of moisture in soil. For these sorts and hybrids development of modern technology of growing of sorghum, adapted to всевозрастающей droughtyness of climate in a south region, is needed. Plants of sorghum grain-growing at growing of them in the conditions of deficit of moisture at high temperatures are more plastic comparatively with other grain-crops, in particular by a corn. Use of new high-performance hybrids a sorghum, and also application of less energyexpense technologies of growing is one of the most cost-justifiable methods of increase of the productivity, level of her stability and improvement of quality of grain. A sorghum is grain-growing on the signs am the least whimsical and most adjusted to the terms of environment, that puts him at the first place on growing in the droughty districts of country. Growing of sorghum grain-growing in the conditions of south of Ukraine, as biopower culture, for today is perspective and requires the detailed study.

Keywords: sorghum, hybrids, drought, sowing area, production.

Vorotyntseva L.I. Monitoring of ecological - agroamelorative land state of Ingulets irrigation system // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 122-126

The purpose - the monitoring and assessment of ecological- agroamelorative state of the irrigated lands in the zone of the Ingulets irrigation system. **Methods**. Field soil-agroameliorative investiganion of irrigated and no-irrigated lands was carried out using the method of keys- analogs, analytical studies – with standardized methods.

Results. It was presented the estimation of ecological and agro-reclamation state of lands of Ingulets irrigation systems (for example, the key objects in Belozersky district) by the irrigation water quality, the level of groundwater, soil bulk density and salinity. **Conclusions.** The chemical composition of irrigation is characterized by variability in the content of salts and heavy metals, and the quality is assessed as suitable for a limited danger of salinity, alkalinity of the soil; suitable by environmental criteria. Prolonged irrigation by saline water affected the structure of the profile and morphological features of dark-chestnut alkaline soils. In most of the areas of irrigation ground water level is 3-5 m and 5 m. The top 0-50 cm layer of irrigated soils is characterized as a non-saline, and in the subsurface salinity increases to a slight degree. The research results indicate the need for further monitoring and control of ecological and agroameliorative state of lands in the context of rehabilitation and expansion of irrigation areas in the south of Ukraine.

Keywords: ecological - agroamelorative state, salinization, monitoring, irrigation, irrigation water, soil.

Vozhehova R.A., Kovalenko A.M., Chekamova O.L. Millet yields depending on microbial preparations and micronutrients // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 126-128

Goal. The purpose of the research is scientific substantiation of the formation of millet grain yield and its quality indicators for different agro-climatic conditions of southern Ukraine, and application of microbial drugs and micronutrients for different varieties.

Methods. Bookmark and experiments and for the research carried out by generally accepted methods in agriculture. The use of microbial preparations and micronutrients conducted in accordance with the rules of their application.

Results. Varieties studied differently react to moisture conditions. Thus, in a dry sort of Jubilee 2014 more suffered from a lack of moisture. Its yield was 0,4 t / ha less than in the whole factor for grade A Denvikske. However, in wet conditions in 2015 yield of both varieties was on the same level – 3,57 and 3,51 t / ha, respectively.

Microbial preparations were used for seed treatment, not always had an impact on productivity. Thus, the drug Mycoriza virtually no impact on the level of yields of both millet varieties. Moisture conditions also changed the effectiveness of this drug. It was on par with a control option in both years and both varieties.

Conclusions. Denvikske millet varieties more drought-resistant than grade Jubilee.

The use of microbial drug azotofiksuvalnyh bacteria Diazofit helped increase yields of millet at 0,13 t / ha, while other drugs had no effect on the level.

Treatment of drug crops of millet and micronutrients Nanovit Super multi Ekolyst increased its yield by 0,35 t / ha.

Keywords: millet, microbial preparations, varieties, yield, drought, rain.

Lavrynenko Yu.O., Hozh O.A. Growth and development of corn hybrid plants FAO 180-430 under the influence of growth regulators and microfertilizers under irrigation conditions in the South of

Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 128-131

The purpose of the research is to substantiate scientifically the influence of growth regulators and microfertilizers considering biological features of new corn hybrids FAO 180-430 on the growth and development of the plants under irrigation conditions in the South of Ukraine. **Material and methods.** The paper represents the results of the three-year research on the influence of growth regulators and microfertilizers on the growth and development of corn hybrid plants under irrigation conditions of the Southern Steppe, the soil is dark chestnut medium loamy, slightly saline. General scientific, special, calculation and comparative research methods were used. **Results.** The research defines the influence of hybrid composition, microfertilizers and growth regulators on the length of a growing season, plant height, and yield formation of corn grain. **Conclusions.** In order to obtain grain yields of 13,80 t/ha in dark chestnut soils under irrigation conditions of the Southern Steppe of Ukraine it is necessary to grow the medium-late hybrid "Arabat" with the growing season of 121 days and the plant height of 281 cm applying growth regulators – the seed treatment with "Syzam-Nano" and feeding them with "Grainactive-C" during the phase of 7–8 leaves.

Keywords: corn hybrids, FAO groups, microfertilizers and growth regulators, irrigation, length of growing season, plant height, grain yield.

Bulygin V.I., Bulygin D.A. Reclamation of soil water-salt regime in Krasnoznamenskoi irrigation system // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 132-135

The article presents the results of research into the formation of salt and water regime in the area of the Krasnoznamenskaya irrigation system at the background of vertical drainage. The study determines optimal soil humidity, the soil humidification layer and ameliorative regime for winter wheat. It also identifies the regularities of changes in the water regime and physical and chemical properties of dark chestnut soils caused by changes in the performance of the «irrigation-vertical drainage» system from the design conditions (1989-1992) to the present state of scarce resources under unstable economic conditions (2003-2005), and makes a prediction of their further development. The article specifies principles of optimization of salt and water regime in the area of the Krasnoznamenskaya irrigation system the ameliorative

Keywords: The Krasnoznamenskaya irrigation system, salt and water regime, dark chestnut soils, winter wheat, vertical drainage, the soil humidification layer, the management of the ameliorative regime.

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. – 2016. – Issue 65. – P. 135-137

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 to obtain big and stable 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 Odeska 267 Khersonska bezosta and Rosynka.

To obtain a high yield of winter wheat especially important to create the maximum weight of grain from the ear and their numbers in the ear.

On the average for 2011-2014 the maximal indexes of structure of harvest were provided by a sort the Kherson awnless on conditions of application of doses of fertilizers of $N_{90}P_{60}$ and sowing a norm 5 million things/and, forming 42,4 things of grains/ear and a 2,5 g mass of grain from an ear.

Keywords: winter wheat, sort, norm of sowing, fertilizer, rice crop rotation.

Dziubetsky B., Fedko N., Il'chenko L., Chaban V. The role of germ plasmas and heterotic model during creation of maize hybrids of special designation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 138-141

Purpose. To identify potentiality of maize test-cross combinations yielded as starch raw materials subject to parent germ plasma and to determine the best heterotic models for starch content. **Methods.** Experimental, laboratory, statistical. **Results.** The results of three-year tests proved that task-specific breeding resulted in gradual increase of average starch content in grain for 1.37-2.32 % in hybrids subject to their genetic origin. The best growth dynamics for this indicator is shown by Mix plasm, the worst-case – BSSS. The leader in medium population gross collection is Lancaster plasm. Genetic content evaluation of the best samples for starch content shows that the majority of them (66.7%) belongs to heterotic models Lancaster x Iodent and Iodent x Lancaster. Hybrid combinations, which even with the same starch content in grain ensured its different gross collection, indicate the peculiarities of impact of heterotic model on yield of starch raw materials. An important part therefor is played by the variety of lines of a single germ plasma and efficient combination of parent forms in a pair. **Conclusions.** Breeding research for the nature of inheritance of starch content in hybrids yielded involving five germ plasmas allows to evaluate the potential of each of them and to define the best for subsequent work as follows: Lancaster, Mix and Iodent. It is ascertained that heterotic model hybrids Lancaster x Iodent are the most favourable as starch raw materials for samples FAO>300. Starch gross collection dependence on the conditions of vegetation period, lines genotype and heterotic contents of maize hybrids is proved. The conclusions of other researchers that starch content is a principal but not a single factor for successful breeding in spirits-distillate sector is confirmed. Bibliogr. 9 titles

Keywords: starch, heterotic model, germ plasma**,** hybrid, maize.

Palamarchuk DP, Kozachenko MR Features of general and specific combining ability for quantitative traits of rice samples collection // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 141-143

The aim is to determine the characteristics of the experience of the effects of general combining ability and specific combining ability of the constants of modern rice varieties.

Experiments were carried out in 2013-2014 y.y., in rice breeding department of the Institute of NAAS in the fields of scientific and rotation of the Institute.

Selection value on a range of symptoms studied in 10 samples of rice, which stood out high levels of productivity and quality of grain (Comandor, Ukraine-96, Uganyn, the Lotto, Vicont, Admiral, Magic, Fukushikiri, Giza-177, Sakha-101).

As a result of analysis of the F_1 plants are crossed in dialell set high effects GCA grades. This indicates that these varieties have a large number of genes that determine the level of positive signs and are a promising source material.

According to the research found that the majority of characteristics of the variety had an average level of SCA, as well as varieties and hybrids, which have a high level of SCA on several grounds.

Keywords: Rice, variety, trait, crossing, were burning genes general combining ability, specific combining ability, F1, and additive function non-aditive effects genes.

Lavrynenko Y.A, Kuzmych V.I., Borovyk V.A., Myhalenko I.V. State and dynamics of production of grain legumes in the World and Ukraine // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 143-148

Legume crops play a major role in ensuring food security of the world, they are a valuable source of protein. The leader among them on key indicators of production and dynamic pace of growth is a soybean, the amount of generated gross production in the world in 2014 amounted to 308.44 million tons. Global crop area reached 117.72 million hectares, yield, in turn, in 2014 was 2.62 t/ha. The lion's share of soybean production is concentrated in the Americas – 87.9%, Asia accounted for 8.4%, Europe – 2.9%, Africa – 0.8%. Among the world leaders in terms of gross production are the US (108.01 mln. tons), Brazil (86.76 mln. tons), Argentina (53.40 mln. tons), China (12.20 mln. tons) and India (10.53 mln. tons).

Global volumes of exported and imported soybean seeds for the period from 2009 to 2013 increased by 1.3 times. The main countries exporting soybeans in 2013 were Brazil (42.8 mln. tons), USA (39.2 mln. tons), Argentina (6.2 mln. tons), Paraguay (5.1 mln. tons), Canada (3, 3 mln. tons). The largest soybean importing countries in 2013 were China (58.4 mln. tons), Germany (3.6 mln. tons), Spain (3.4 mln. tons), Japan (2.8 mln. tons), Netherlands (2.5 mln. tons), Mexico (1.5 mln. tons). Exports of soybean seeds in Ukraine in 2013 amounted to 53% of its total production (2774.3 ths. tons) this year. The volume of imported soybean seeds for the accounting period changed not significantly.

Due to the irrigated land Kherson region has attractive prospects for soybean and efficient use of irrigation provides tend to attract high-quality resources adapted to specific soil and climatic conditions for growing and processing.

The only research institution in Ukraine that specializes in the creation of crop varieties for the conditions of irrigation irrigated agriculture is the Institute of NAAS. Over the years the Institute independently and jointly with other institutions created 28 soybean varieties, 9 of them are listed in the State Register of Plant Varieties of Ukraine.

Keywords: legume crops, soybean, production, export, import, variety.

Lyuta, Yu. A., Kobilina N. A. The main inheritance of quantitative traits of tomato hybrids of the first generation // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 148-151

The Aim. The goal of breeding work with tomatoes in the Institute of irrigated agriculture is based on permanent search and selection of highly productive genotypes of donors of economically valuable traits and incorporating them in hybridization for production of new hybrid combinations. **Methods**. Bookmark kennels breeding the first generation hybrids, phenological observations, field and laboratory testing was performed in accordance with generally accepted methodological recommendations and instructions of VIR, agricultural Sciences. Morphobiological description of plants was carried out according to the technique of Hearthospital. Agricultural machinery – common area for the. Determined the degree of dominance (R) by B. Griffing and the heterosis effect (X) on X. Daskalovo. **The Results.** In the article the questions of combining in one seed of useful features and properties of the parents in the hybridization. During 2011-2015 studied 228 hybrids of tomatoes of the first generation with the purpose of targeted selection of the starting material with high performance adaptive and productive potential, fruit quality for further breeding work. On the basis of precocity positive heterosis was evident in 62 % of the combinations of F1, the dominance of positive – 23 %, intermediate type of inheritance in 15% of the combinations. On the basis of productivity in 78% of F1 combinations manifested positive heterosis, 16 % - positive dominance at 6% - an intermediate type of inheritance. On the basis of "number of fruits per plant" positive heterosis was manifested in 65% of F1 combinations, positive dominance 24%, intermediate expression of presnica had 11 % of the combinations. On the basis of "weight of one fruit is" positive heterosis was manifested in 12% of combinations for F1, positive dominance – in 9%, intermediate expression of the trait had 68 % of the combinations, and 11% negative dominance. F1, Conclusions. Thus, F1 hybrids of tomato in mejdunarodnoi hybridization in the dragnet over the study years (2011-2015), high positive heterosis was manifested on precocity, productivity and number of fruits per plant: 62, 78, and 65 %, respectively. Masa one fetus inherited predominantly via an intermediate type (68 %).

Keywords: tomato, hybridization, heterosis, signs, fruit quality, precocity, adaptive capacity, productive potential.

Shpak D., Marushchak H., Petkevich Z., Palamarchuk D. Formation of economic and biological traits in rice breeding material with different amylose and starch content in the grain // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 151-155

The purpose of researches is identify the main patterns of realization of the potential of economically useful traits in rice breeding material with different levels of starch and amylose content in the grain and to explore the correlation relationship last performances in quantitative trait system.

Experiments were laid using conventional techniques in the application of standard techniques of rice cultivation. The calculation of the statistical characteristics of variability was conducted by B. Dospekhov.

The research results indicate respectively low and average variability of starch and amylose content in the grain of the studied rice samples and high stability display traits for years. Obtained rice samples with high levels of the studied traits (Jefferson, Magic, RS-28, Австрал, УИР-3472, Южанин, TR-654-12-2-1, IR-13-B-59, Volano, Labelle, TR-424 -12-1-1, Sakha 103, УИР-1717, TR-661-65-52-5-3-3, B82-761, IR-13-B-59), suitable for use in breeding programs. The study of correlations of biochemical properties of a rice grain showed that there is a multidirectional substantial connection with traits of growth duration, plant height, length, density, and productivity of panicle, l/b, translucency and head rice yield, which should be considered in the breeding work.

Keywords: rice, trait, amylose, starch, productivity, quality, correlation.

Bondarenko K.V. Variety evaluation and lines of rice of average group of ripeness behind qualitative characters // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 155-157

Goal. The purpose to Carry out an assessment and to define perspective grades and lines of rice of average group of ripeness.

Methods: a field assessment, a laboratory assessment, laboratory – field researches.

Results. Article results of researches which were conducted in 2014 – 2015 are covered in a competitive varietal field trial mid-season plant variety and lines. 57 samples of rice in comparison with mid-season grades – Ukraine -96 and Premium were generally studied. From them behind a complex of economic and biological signs of the best 21 is allocated. Average productivity in research has made 9,73 t/h. It is studied structure of efficiency and indicators of quality of grain. Characteristics of duration of the vegetative period are submitted.

Conclusions: It is defined the best samples of rice on researches of two years, п productivity among samples with short type of grain: (11,26 t/h) and U_R-8458 (11,6 t/h), and among samples with the extended type of grain Marshall (10,73 t/h) is Antei (12,1 t/h).

Keywords: rice, varietal field trial, average ripe grade, productivity, quality of grain.

Tkalich YU. V. The adaptive potential of the inbred lines of the cutting lettuce // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 157-160

Purpose. To analyze the adaptive properties of inbred lines of leaf variety seed lettuce and allocate valuable sources for varietal selection.

Methods. Field, laboratory, analytical and statistical ones. Results. The results of scientific research on the study of source material adaptive capacity for varietal selection of leaf variety seed lettuce were highlighted. Samples VDB 8/858 (K-7079) – 1.95 and Columbus (K-7072) – 2.03 also had high specific adaptive capacity. Sample Arktika (K-7050) had the lowest specific capacity – 0.25, in breed-standard Snizhynka this parameter was equal to 0.91. In fact Rgs is analogous to the coefficient of variation in the study of genotypes in different environments. Samples Arktika (K-7050); Ried kredo (K-7070); Malgpachavatua (K-7077) had the lowest value (<10%) of Rgs. Sample Columbus (K-7072) had the greatest value of Rgs – 17.47%. According to the obtained results with the value of coefficient *bi* > 1 samples VDB 8/858 (K-7079) – 1.79; Columbus (K-7072) – 2.02; Mistsevyi-12 (K-7067) – 1.09, Dalas (K-7075) – 1.15 and breed-standard Snizhynka (K-7035) – 1.09 distinguished. In terms of GBV, which is the criterion of adaptability of a certain trait, the studied sample of inbred lines ranged from 3.75-5.43%. All selected inbred lines prevailed breed-standard Snizhynka (K-7035) by this indicator. The largest it was in sample Arktika (K-7050) – 5.43, the lowest in sample Columbus (K-7072).

Conclusions. As a result of 3-year research (2013-2015) seven promising inbred lines of leaf variety seed lettuce were selected that exceeded breed-standard Snizhynka by productivity, distinguished by high levels of adaptability by productivity and are promising source material for use in selection programs.

Keywords: lettuce, selection, inbred lines, adaptive potential.

Krivenko A.I. The productivity of winter wheat in short-crop crop rotation with green manure steam depending on the main tillage systems and predecessors // Irrigated agriculture: interdepartmental thematic scientific collection. – 2016. – Issue 65. – P. 161-164.

Purpose. Investigate the patterns of formation of grain yield of winter wheat in short-crop rotation depending on the various predecessors and tillage systems.

Methods: field, analytical.

Results. On average, over three years, there has been a tendency to a decrease in yields when using bottomless processing. In 2012, winter wheat produced a high yield against the background of shallow processing, and in 2013, on the contrary, less. On average, alignment of results occurred, which are not significantly different. The second wheat on the background of the aftereffect after the various predecessors formed almost the same yield, if you make a comparison based on the arithmetic mean values of the yield. When comparing yields with control (black steam), there is a tendency to decrease yields in areas with the predecessor of green manure steam with winter vetch and peas for grain 0.32 and 0.35 t/ha, and against green manure steam with a mixture - 0.49 t/ha, which is significantly lower. In dry years, before sowing of winter crops in the topsoil (0–20 cm), the reserves of productive moisture are insufficient (less than 16–20 mm) for all non-steam predecessors,

and on black pairs during this period they are usually satisfactory (30–35 mm). For example, even in the severely arid 2012, 2.45 t/ha of winter wheat grain was obtained for black steam.

Findings. It has been proven that the precursors of black steam and green steam with a vetch of winter have a positive effect on the grain yield of winter wheat. The yield of grain after these predecessors was at the level of 2-3 t/ha. The lowest yield was obtained after peas for grain, which amounted to 1.9 t/ha. Methods of primary tillage influenced crop formation without significant fluctuations. The most efficient method of treatment turned out to be treatment, since this scheme yielded the highest yield (2.3 t/ha) compared to other tillage schemes. It is important to emphasize that the small tillage in the crop rotation did not lead to a decrease in yield, but on the contrary, here the yield was higher than with the differentiated-2 processing scheme and almost the same for differentiated-1. Similar data for various predecessors indicate that the average grain harvest by rotation after a pair of black and a sidereal with a pair of winter vetch was the highest. By 6.0% for this indicator, the variant with a mixture of peas with white mustard was lagging behind and by 10.8% - with the variant peas for grain.

Key words: crop rotation, basic tillage systems, precursor, yield, winter wheat.