

РЕЗЮМЕТА НА НАУЧНИ ТРУДОВЕ

на доцент д-р Антония Колева Стоянова

представени за участие в конкурс за академичната длъжност „Професор“, по област на висше образование 6. Аграрни науки и ветеринарна медицина Професионално направление 6.1. Растениевъдство съгласно чл. 26 от ЗРАСРБ и допълнителните изисквания съгласно приложение 8.1 на ПРАСТрУ

1. Научни публикации, които са реферирани и индексирани в световноизвестни бази данни с научна информация. (Показател В):

- 1) Stoyanova A., G. Kostadinov, M. Moteva. 2020. Study of the influence of controlled water deficit at different levels of fertilization greenhouse tomatoes. Bulgarian Journal of Agricultural Science, 26 (Suppl. 1) 2020, 9-18. ISSN 1310-0351 - print; ISSN 2534-983X - online Scopus SJR for 2019 – 0.191

<https://www.cabdirect.org/cabdirect/abstract/20203580816>

Abstract: The main objective of this study is to analyze the mutual influence of different irrigation regimes and fertilization rates on the greenhouse tomato yield and on the irrigation water use efficiency. Different irrigation schedulings have been studied in order to establish the impact of water deficit on the tomato productivity and quality. The study is achieved through an experiment with tomatoes in polyethylene unheated greenhouse during 2016-2018. An important role in the technology plays fertilization with different rates. The focus in this experiment is on the effect of a controlled water deficit achieved by reducing the irrigation depth at different levels of plant nutrition on the productivity of greenhouse tomatoes and water use efficiency. In studies interval of irrigation depth and fertilizer rate was found significantly stronger influence of the fertilizer rate on yield. The impact of irrigation on the yield is lower at the lower fertilizer levels. It has greater effect at the higher levels of the irrigation rate. Close to the maximum yield - over 100 Mg/ha can be obtained also by applying the maximum fertilization rate and 80% of the full irrigation depth. The greatest relative additional yield (RAdYn) can be obtained by maximum irrigation depth and maximum fertilizer rate and irrigation has greater effect at maximum and close to it fertilization rates. Maximum water use efficiency can be obtained by a minimum amount of irrigation water and maximum fertilization. Moreover, irrigation has small impact at lower fertilization rates (up to 50%), i.e. WUE is small. The analysis of the the utility function, which summarizes the conditions for obtaining maximum yield and maximum water use efficiency indicates that it maximum value can be obtained at maximum fertilizer rate and 60-70% of the full irrigation .depth

- 2) Stoyanova A., Veleva P., E. Valkova, M. Georgiev. 2020. Influence of different doses of mineral fertilizer and the controlled water deficit on the antioxidants parameters in tomatoes (*Solanum lycopersicum L.*) irrigated with a drip irrigation system. Bulgarian Journal of Agricultural Science, 26 (Suppl. 1) 2020, 19-29. ISSN 1310-0351 - print; ISSN 2534-983X – online Scopus SJR for 2019 – 0.191.

<https://www.cabdirect.org/cabdirect/abstract/20203580816>

Abstract: The main objective of this study is to analyze the mutual influence of different irrigation schemes and fertilization rates on the greenhouse tomato yield, and the irrigation water usage efficiency for a period of three years (2016-2018). Different irrigation schemes have been examined, achieved by reducing the irrigation depth at different levels. Fertilization plays an important role in the technological process with different rates. This experiment was focused on the effect of both factors (the fertilization rate and the irrigation regimen) on the main quality parameters of the greenhouse tomatoes. Multivariate data analysis was applied to process the data, including Scheffe and Dunnett's tests (depending on the Levene's test of equality of variances) were used to find the significant differences ($P < 0.05$) between the control variant and all other irrigation and fertilization schemes based on the investigated quality parameters (Dry matter, %; Ascorbic acid, mg%; Titrable organic acids, %; General dyes, mg%; Lycopene, mg% and β - carotene, mg%) in greenhouse-grown tomatoes. The analysis showed a medium to a high correlation ($R^2 = 0.988, 0.990, \text{ and } 0.062$ for the three investigated years) between Dry matter content and the two investigated factors (the fertilization rate and the irrigation depth) and a very strong correlation ($R^2 = 0.999, \text{ and } 1.000$) between Ascorbic acids and both factors of influence for the first two years and a weak correlation ($R^2 = 0.287$) for the third experimental year. A weak to moderate correlation between Titrable organic acids ($R^2 = 0.414, 0.669, \text{ and } 0.079$), β - carotene ($R^2 = 0.252, 0.673, \text{ and } 0.471$), and both influencing factors were found, and a moderate correlation between General dyes ($R^2 = 0.532, 0.815, \text{ and } 0.590$), Lycopene ($R^2 = 0.685, 0.796 \text{ and } 0.643$), and the variants of irrigation and fertilization for the three experimental years.

- 3) Mineva R., Stoyanova A., V. Kuneva. 2020. Study of the effect of organic fertilizer siapton on productivity of oil rose (*Rosa damascena Mill.*). Scientific Papers. Series A. Agronomy, Vol. LXIII, No. 2, 153-157. ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785. WOS

<http://agronomyjournal.usamv.ro/index.php/scientific-papers/current?id=1163>

Abstract: The aimed of the study is to investigate the effect of nourishment and irrigation on the productivity of oleaginous rose (*Rosa damascena Mill.*). The study was conducted with a bio-fertilizer based on natural hydrolyzed Siapton proteins. The observations were carried out under irrigated and non-irrigated conditions. The field experiment was performed in the field of experience of the Institute for roses, aromatic and medicinal plants, Kazanlak, Bulgaria in the period 2015- 2017. The treatment was done twice with in a period of 20 days, of foliage in the following variants: Siapton treated 1500 ml/ha, Siapton treated 2500 ml/ha, Siapton treated 3500 ml/ha. The biometric analysis shows an increase in mass and color diameter of the treated variants. The correlation relationships obtained indicate the degree of the influence of each indicator in the formation of yields in oleaginous rose under the irrigation conditions considered. The linear regression models are expressing the influence of the indicator of yield, enabling theoretically how to

determine and also in which direction it have to be change this indicator contributes to improved yield.

- 4) Georgiev M., A. Stoyanova, V. Kuneva, G. Delchev, C. Meluca and T.Nistor. 2020. Study On The Action Of Foliar Herbicides And Herbicide Combinations For Control Of Wheat (*Triticum Aestivum L.*) Weed. RAR, No 37. ISSN 1222 - 4227 (print) ISSN 2067 - 5720 (on line), DII 2067-5720 RAR 2020-4. IF - 0,347 (2019-2020) Q4

<http://www.inceda-fundulea.ro/rar/nr37/rar37.24.pdf>

Abstract: The action of some foliar herbicides and herbicide combinations for control of common wheat (*Triticum aestivum L.*) weeds was studied. To that end against the background of soil applied Stomp 330EK New at a dose of 5 l/ha the herbicides Axial 050EK, Granstar 75DF, Derby Super WG, Sekator OD, Lintur 70WG, and the tank mixtures of Axial with the other herbicides applied in the tillering phenophase of the crop were studied. The species composition and density of weeds was assessed using the quantitative method prior to treatment and after herbicide treatment on days 5, 15 and 30, by constant metering. The herbicide Lintur 70WG and its combination with Axial 050EK had the fastest initial effect. The highest herbicidal effect (99.5%) against annual monocotyledon and dicotyledon weeds showed the combination of Derby Super WG 33 g/ha + Axial 050EK - 900 ml/ha. Very good was the effect of the other herbicidal mixtures between anti-broadleaf herbicides and the graminaceous herbicide Axial 050. All applied herbicides and herbicide mixtures showed a very good after-action on weeds.

- 5) Gospodinova G., A. Stoyanova. 2020. Study on the productivity of irrigation water at cotton. Scientific Papers. Series A. Agronomy, Vol. LXIII, No. 1, 308-313. ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785 WOS

<http://agronomyjournal.usamv.ro/index.php/scientific-papers/past-issues?id=1078>

Abstract: The analysis of the climate change in the country shows that during the summer months there is a decrease in soil moisture, as a result of the increase in temperature and less precipitation during the period. Agriculture affects both the quantity and quality of available water resources for other uses. The purpose of this study was to investigate the effect of irrigation and productivity of irrigation water in certain varieties of cotton grown in irrigated and non-irrigated conditions. Established productivity of three varieties of cotton. The estimated climate indices and coefficients and analyzes the productivity of irrigation water and the effect of 100 m³ irrigation water to produce a kg of cotton per hectare can be used in the design and operation of irrigation systems and in determining the economic impact of drip irrigation, taking into account security of rainfall for periods of committed research. When two waterings are made, the productivity ranges from 4.99-7.40 kg/mm. Productivity of the water, after the completion of four irrigations ranges of 2.66 to 3.26 kg/mm.

- 6) Gospodinova G., A. Stoyanova, V. Kuneva. 2020. Correlation dependence between some biometric indicators and productivity of three cotton varieties. Scientific Papers. Series A.

Agronomy, Vol. LXIII, No. 2, 107-112. ISSN Online 2285-5807; ISSN-L 2285-5785. WOS

<http://agronomyjournal.usamv.ro/index.php/scientific-papers/current?id=1155>

Abstract: The analysis of the climate change in the country shows that during the summer months there is a decrease in soil moisture, as a result of the increase in temperature and less precipitation during the period. Agriculture affects both the quantity and quality of available water resources for other uses. The purpose of this study was to investigate the effect of irrigation and productivity of irrigation water in certain varieties of cotton grown in irrigated and non-irrigated conditions. Established productivity of three varieties of cotton. The estimated climate indices and coefficients and analyzes the productivity of irrigation water and the effect of 100 m³ irrigation water to produce a kg of cotton per hectare can be used in the design and operation of irrigation systems and in determining the economic impact of drip irrigation, taking into account security of rainfall for periods of committed research. When two waterings are made, the productivity ranges from 4.99-7.40 kg/mm. Productivity of the water, after the completion of four irrigations ranges of 2.66 to 3.26 kg/mm.

- 7) Stoyanova A., V. Kuneva, N. Valchev. 2019. Survey Of The Influence Of Fertilization And Irrigation In The Tomatoes, Greenhouse Production. Scientific Papers. Series B, Horticulture. Vol. LXIII, No. 1, Print ISSN 2285-5653, CD-ROM ISSN 2285-5661, Online ISSN 2286-1580, ISSN-L 2285-5653. WOS

<http://horticulturejournal.usamv.ro/index.php/scientific-papers/issues?id=679>

Abstract: The optimization of the water and fertilization regime in vegetable crops solves a number of problems related to increasing the efficiency of usable irrigation water, the water deficit and a number of environmental problems. The purpose of this paper is to model the mathematical relationship between productivity and quality of yield in tomatoes, greenhouse production and the factors that have the strongest influence on its formation - irrigation and fertilization regimes. Investigated the interaction of different levels of the humidity created by the application of controlled constant water deficit (factor A - irrigation) at three levels of fertilization (factor B - fertilization) on the productivity and quality of tomatoes, greenhouse production. As a result of cluster analysis are distinguished and separated into groups according to similarities variants with optimum irrigation rate and 75% manure, and variants with 100% rate of fertilization and reduced irrigation regime. Based on the deduced Linear Regression models it was found that the overall yield is dependent on the output of the first quality. The coefficient of determination varies in a narrow range ($R^2 = 0.925-0.989$).

- 8) Stoyanova A., M. Ivanova, N.Valchev. 2019. Effect of nutrition and water regime on the photosynthesis in tomato grown in plastic greenhouses. Bulgarian Journal of Agricultural Science, 25 (Suppl. 3), 19-23. ISSN 1310-0351 - print; ISSN 2534-983X - online Scopus SJR for 2019 – 0.191

<https://www.agrojournal.org/25/03s-03.html>

Abstract: Photosynthesis is the main physiological process and its speed and efficiency determines the tomato productivity. The speed of photosynthesis is strongly related to the irrigation and activity of plants. In order to trace the photosynthetic nutrition of plants under different add fertilization and fertilization regimes, add was a survey to grow tomatoes in plastic greenhouses. The polar regime has been shown to exert a greater influence on the rate of photosynthesis, intracellular CO₂ concentration and transpiration intensity compared to fertilization. The highest efficiency of the photosynthesis is observed in 100% irrigation regime without fertilization during the vegetation period. Tomato plants grown with 50% of the fertilizer rate and at irrigated regime reduced to a half water rates are distinguished for good gas exchange efficiency.

- 9) Ganchev G., Stoyanova A., V. Kuneva. 2019. Evaluation of the influence of leaf nutrition on the productivity and nutrition of wheat on the basis of mathematical-statistical analysis. Bulgarian Journal of Agricultural Science, 25 (Suppl. 3), 35-41. ISSN 1310-0351 - print; ISSN 2534-983X - online Scopus SJR for 2019 – 0.191
<https://www.agrojournal.org/25/03s-06.html>

Abstract: Object of the present study are varieties of wheat Enola and Illico, their productivity under the influence of the applied fertilization during the growing season as well as nutritional and energy value of the grain. For fertilization with macro and micro elements are used foliar fertilizers Laktofol major and Wuxal Grano. The aim of the study is by two-way analysis of variance to analyze the impact of the factors variety and variations of the treatment on the nutritional value of two wheat varieties, establishing the power of influence on them independently action, and their interaction. According to the two-factor analysis of variance, both the influence of the two factors (variety and treatment options) separately and their interaction, statistically proven at a very high degree of certainty ($p \leq 0.001$), is the influence on the grain yield indicator. The variety factor (88%) in 2015, followed by fertilization (88%) in 2016, had the strongest influence on the variation of the attribute. The greatest effect on the CP content of both varieties for both years was reported by Wuxal Grano treatment. For Enola, the increase was 15.5% in the first year and 3.9% in the second year. In Illico, the increase was higher in the second year – 9.1%, compared to the first year – 4.9%. Lactofol treatment resulted in an increase in CP content by 5.6% in the first year and by 1.8% in the second year at Enola and by 7.5% in the second and 1.9% in the first year at Illico. Fertilizer application does not affect FUM, FUG and PDI content in ruminants and DE and ME in non-ruminants.

- 10) Ganchev G., V. Kuneva, A. Stoyanova 2019. Nutritional and energy value of two wheat varieties. Bulgarian Journal of Agricultural Science, 25 (Suppl. 3), 47-52. ISSN 1310-0351 - print; ISSN 2534-983X – online Scopus SJR for 2019 – 0.191
<https://www.agrojournal.org/25/03s-08.html>

Abstract: Field experiment was conducted in the years 2014-2016 in the experimental field of Faculty of Agriculture, Trakia University, Stara Zagora. In an attempt included two varieties of common wheat – Diamond and Ingenio. Variants of the study are: 1.

Control – Fertilizing with N 140 kg.ha⁻¹; 2. Fertilizing with N 140 kg.ha⁻¹ + Laktofol base (1.0 l/ha). 3. Fertilizing with N 140 kg.ha⁻¹ + Wuxal Grano (400 ml/ha). 4. Fertilizing with N 140 kg.ha⁻¹ + Wuxal Grano (400 ml/ha) + Wuxal Grano (200 ml/ha). The applied liquid fertilizers for feeding during the growing season are enriched with micro elements. The leaf fertilizers used increase the CP content but have no effect on the PDI content of both varieties. An increase in the crude protein content of variants treated with liquid fertilizers has been reported. The calculated correlation coefficient in two varieties, which measures the strength of the relationship is $r = 0.909$ at Diamond and $r = 0.82$ ie there are a strong correlation. The applied products for fertilization the crops and the variety do not effect of the nutrition value of wheat for ruminants and non-ruminants.

2. Научни публикации, които са реферирани и индексирани в световноизвестни бази данни с научна информация. (Показател Г):

1. Stoyanova A., M. Georgiev, S. Ivanov, , F. Emurlova, D. Vasilev. 2021. Assessment Of Yield And Water Use Efficiency Of Drip-Irrigated Cotton (*Gossypium hirsutum* L.). Scientific Papers. Series A. Agronomy, Vol. LXIV, No. 1, 2021. ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785.

Abstract: T Climate change raises the question of demand for more economical ways to use irrigation water. Against the background of different levels of fertilization, cotton varieties have been tested. The experiment was performed under irrigated and non-irrigated conditions. The experiment was performed in the experimental field of the Trakia University, Stara Zagora during the period 2018-2020. Cotton productivity has been established under non-irrigated and irrigated conditions. The analysis of the results shows that the naturally colored variety Isabel, when realizing irrigations, on average for the period forms a yield 39.9% higher than the non-irrigated one. Under irrigated conditions, the Darmi variety increased productivity by 34.3%. An increase of 27.9% was registered for the Helios variety. The Isabel variety has the highest values of the irrigation water efficiency coefficient (0.88-1.11). Against the background of different levels of fertilization, the Darmi variety forms an efficiency coefficient from 0.9 to 1.03. Helios variety is responsive to irrigation, but on average for the three-year period stands out with the lowest values of efficient use of water resources (0.53 - 0.95).

2. Stoyanova A., V. Kuneva, M. Georgiev, S. Ivanov, , F. Emurlova, D. Vasilev. 2021. Study The Productivity Of Common Wheat Varieties. Scientific Papers. Series A. Agronomy, Vol. LXIV, No. 2, 2021, ISSN 2285-5785; ISSN CD-ROM 2285-5793; ISSN Online 2285-5807; ISSN-L 2285-5785.

Abstract: The main goal in the present study is to study the adaptability and productivity of common wheat varieties. The study was conducted in 2017-2019, in the Department of Plant Breeding at the Faculty of Agriculture at the Trakia University, Stara Zagora. The object of study are the productivity and structural elements of yield in several varieties of common wheat - Ingenio, Dalara, Moison, Falado, Gabrio, Pibrak (from the variety list of

Syngenta) and Factor (Bulgarian selection). According to the two-factor analysis of variance, both the influence of the two factors (conditions of the year and variety) separately and their interaction, statistically proven with a very high degree of reliability ($p \leq 0.001$) is the impact on the indicator - yield. The strongest influence on the variation of the trait is exerted by the factor year (37%), followed by the interaction between them (35%) and the factor variety (28%). In terms of the yield of wet gluten with the highest content, Dalara (30.8) stands out, on average for the period. Climate conditions have a great influence on DMG and it is expressed in the fluctuations of its values in Ingenio (from 22.9 to 32.4), in Gabrio (from 31.6 to 21.6) and in Factor (25.6- 29.0). Despite the changing environmental conditions, a small range of DMG variation was reported in Dalara (30.5 -31.0), in Moyson (27.1-28.0), in Falado (30.1-30.0), Pibrak (28.2-29.3).

3. Sevov A., V. Kuneva, A. Stoyanova. 2021. Evaluation of the effect of Reni preparations application on some essential amino acids in alfalfa (*Medicago sativa* L.) biomass by correlation and factor analysis. *Bulgarian Journal of Agricultural Science*, 27 , 130-133. ISSN 1310-0351 - print; ISSN 2534-983X – online

Abstract: The present study aims to evaluate the influence of different Reni preparations on essential amino acids in biomass of Mnogolistna 1 variety, using a mathematical approach (correlation and factor analysis). Three-year data, based on a field experiment, conducted at the Agricultural University – Plovdiv experimental field in the period 2017-2019 was analysed. The study is part of University project for establishing the influence of Reni preparation on the yield and quality as well as the relations between the researched indicators. The proposed mathematical approach allows increasing the objectivity when evaluating the complex effect of Reni preparations on the main chemical components in alfalfa Mnogolistna 1. Reni treatment improves the biological value of proteins – increases the total amount of essential amino acids and changes the ratio of essential amino acids to other proteinogenic amino acids in favour of the essential ones. As a result of the conducted analysis, correlations between the studied indicators were established. The strongest positive correlation was found between the amino acids lysine and leucine ($r = 0.960$), threonine and phenylalanine ($r = 0.980$) and valine and isoleucine ($r = 0.981$), respectively. By using Factor analysis according to the method of Principal Component Analysis, the amino acids lysine, threonine and leucine correlated themselves only were combined in two new factors that explain 73% of the total variance of the variables.

4. Stoyanova A., F. Emurlova, D. Vasilev. 2021. Evaluation of Watering Water Productivity in Three Cotton Varieties. *Journal of Mountain Agriculture on the Balkans*, 2021, 24 (2), 306-321 ISSN1311-0489 (Print), Research Institute of Mountain Stockbreeding and Agriculture, Troyan ISSN 2367-836 (Online)

Abstract: The aim of this paper was to study the effect of irrigation and the productivity of irrigation water in three varieties of cotton grown under conditions of natural moisture and irrigation. The field experiment was carried out in the region of Stara Zagora,

Bulgaria on typical meadow-cinnamon soil with nitrogen fertilization rates for cotton-0, 80, 160 and 240 kg/ha for the period 2018- 2020, characterized by uneven distribution of precipitation during the growing season of the crop, in the conditions of optimal irrigation regime and natural moisture supply. It was found the productive possibilities of cotton with optimal irrigation and natural moisture supply have been established. The productivity of the irrigation water is calculated, which is from 6.72 to 48.72 kg.ha-1 .mm, during the years with different precipitation provision. A strong positive linear relationship between the additional yield and the productivity of the irrigation rate has been established. The correlation coefficient was determined ($r=0.88$). The rate of development of irrigation water productivity is dynamic, but with smaller amplitudes than the rate of additional yield.

5. Stoyanova A., V. Kuneva, D. Dimitrov. 2021. Study of the Correlation between Important Qualitative and Quantitative Indicators in Cotton under Irrigated and Non-Irrigated Conditions. *Journal of Mountain Agriculture on the Balkans*, 2021, 24 (6),468-483 ISSN1311-0489 (Print) ISSN 2367-836 (Online)

Abstract: The aim of the present study is to use correlation analysis to establish correlations between important agronomic indicators in three varieties of cotton – Heliuss, Darmi and Izabell. Three-year data from field experience were used, including nonirrigation and irrigation regime in the period 2018-2020. Results show that in individual years, the number of realized irrigations varies from 2 to 5, and the size of the irrigation rate from 300 to 750 m³ /ha. In the Heliuss variety, strong positive correlations were found between the indicators: height of the cotton bush during phenophase flowering and biomass during phenophase budding, with correlation coefficients $r=0.999$ under non-irrigated conditions and $r=0.995$ under irrigated conditions. Under non-irrigated conditions, a high degree of correlation was found between the indicators of height of the cotton bush during phenophase maturation and biomass during phenophase budding, with coefficient $r=0.999$ in the variety Darmi. Under irrigated conditions in Isabel variety strong correlations were registered ($r=0.998$) between the indicators: the height of the cotton bush during phenophase ripening and biomass during phenophase flowering, between biomass during phenophase budding and biomass during phenophase flowering. Identical correlation was found between biomass during phenophase budding and biomass during phenophase flowering. Linear regression models that express the influence of indicators on yield and make it possible to theoretically determine how and in what direction the change of these indicators contributes to increasing yield.

6. Stoyanova, A., M. Georgiev, S. Atanasova, F. Emurlova, R. Mineva. 2020. Study of Productivity and Stability of Yield of Common Wheat Varieties. *Journal of Mountain Agriculture on the Balkans*, 23 (5), 75-88. ISSN1311-0489 (Print) ISSN 2367-8364

Abstract: The creation and introduction of common wheat varieties with high genetic potential for productivity and grain quality is related to the study of the ecological plasticity of individual varieties over the years with different stress of meteorological factors. The aim of the present study is to evaluate the productivity of seven varieties of common wheat and to determine the

most technologically valuable of them in terms of yield stability. The experimental field study was conducted in the experimental field of the Department of Plant Breeding, Faculty of Agriculture at the Trakia University - Stara Zagora, in the period 2017-2019. The object of the study are the following varieties of common wheat: "Ingenio", "Dalara", "Moysen", "Falado", "Gabrio", "Pibrac" and "Factor". The relationship between the studied factors and the influence on the studied variants was established and evaluated through the analysis of variance. The variants of stability (σ_i^2 and S_i^2 according to Shukla), ecovalence (W_i according to Wricke) and stability criterion (Y_{Si} according to Kang) were calculated. The varieties 'Falado' (7104.9 kg/ha) and 'Gabrio' (7014.3 kg/ha) have the highest productivity. The ecological plasticity and the genotype of the varieties provide an excess of the indicator by 44.7 and 42.9%, respectively, compared to the "Factor" variety. Kang's generalized stability criterion Y_{Si} , taking into account both stability and yield value, gives negative ratings for the varieties: "Factor" (-10), "Pibrac" (-9) and "Moysen" (-1). The varieties Dalara (8+), Falado (2+) and Gabrio (1+) receive a high complex assessment of technological stability of yields.

7. Stoyanova A., R. Basitov, M. Ivanova, N.Valchev. 2020. Effect of irrigation regime and level of fertilization on morphological indicators and precocity of tomato greenhouse production. Bulgarian Journal of Agricultural Science, 26 (No 6) 2020, 1247–1253. ISSN 1310-0351 - print; ISSN 2534-983X – online

Abstract: The main aims of this study is to analyze the effects of different irrigation regimes and norms of fertilization on morphological indicators and precocity of tomatoes, greenhouse production. The study of the influence of the irrigation regime was carried out against the background of different levels of fertilization. The experiment is derived by the block method on a flat surface according to scheme 110 + 50 + 35 with the size of the plot of 10 m². The irrigation water was realized using a drip irrigation system with built-in droplets of 0.10 cm. In the first experimental year, 33 irrigations with an irrigation rate of 4950 m³/ha were delivered. The irrigation rate in the second year is 4050 m³/ha, realized through 27 irrigations. The size is dependent on the length of the growing season and on the need to irrigate in the optimum variant. The power of influence of the interaction of the factors irrigation and fertilization is established on the indicator plant height – it was 77.9%, average for the study period. Factors in relation to other morphological indicators are with less force of impact. It was found that a strong influence on the variation of the trait has a factor fertilization, the force of impact by 81% for the 1st harvest. Established role of the factor irrigation average for the period, with a high degree of reliability, is 91.8% on the 2nd harvest. The high degree of influence of the irrigation factor on the 3rd harvest indicator is established, which is 86.9%, average for the period. According to the one-factor dispersion analysis, the influence of both factors (irrigation and fertilization) separately, as well as their interaction, statistically proved with a very high degree of significance ($p \leq 0.001$) is the impact on the “total yield” indicator. The fertilization has the strongest influence on the variation of the trait, with the force of impact 99% for the indicator “total yield”.

8. Bazitov R., S. Enchev, A. Stoyanova. 2020. Economic assessment of the application of different irrigation regimes in a sudan grass as a second culture irrigation by gravity mode. *Bulgarian Journal of Agricultural Science*, 26 (No 6) 2020, 1179–1182. ISSN 1310-0351 - print; ISSN 2534-983X – online

Abstract: The experiment was conducted during the period 2014-2016 with sudan grass as second culture in the experimental field of the Agricultural Institute, Stara Zagora. In the field experience, the following options were studied: Variant 1 – no irrigation (control); Variant 2 – optimal irrigation, 70-75% of FC (100% irrigation rate); Variant 3 – irrigation as Variant 2 but with removal of first watering; Variant 4 – irrigation as Variant 2 but with removal of second watering; Variant 5 – irrigation as Variant 2 but with removal of third watering in order to establish the most effective irrigation regime for sudan grass. It has been found that the efficiency of irrigation water use in the different irrigation regimes is best expressed in optimal irrigation with three irrigations where each cubic meter of water provides 0.00402 t/ha of extra green biomass yield with near water efficiency for irrigation is the irrigation regime with a second watering system, where each cubic meter of water provides an additional extra of 0.00392 t/ha of green biomass.

9. Kuneva V., E. Valchinova, A. Stoyanova. 2018. Evaluation of rye specimens in maturity stage on the basis of mathematical – statistical analysis. *Agricultural Science And Technology*, Vol. 10, No 1, pp 21 - 24, DOI: 10.15547/ast.2018.01.005. P-ISSN: 1313-8820 E-ISSN: 1314-412X.

Abstract: The aim of the study is to evaluate comprehensively the rye collection and the possibilities for the specimen usage in selection on the basis of mathematical approaches. The study was carried out during 2009-2012 in the experimental field of the Institute of Plant Genetic Resources (IPGR) – town of Sadovo on cinnamon-forest soils with 54 specimens collected (16 samples from expeditions in Bulgaria and 38 samples from abroad). As standard, the Bulgarian variety "Millennium" (current standard in IASAS) was used. The Danae variety has been used as a former 30-year standard for the country. Evaluation of the impact of the examined specimens was made on the basis of the following biometrical indicators: spike length (cm); tillering – productive and non-productive tillering; plant weight (g); ears weight (g); weight of the main spike(g); weight of the main ear`s grain (g); number of the spikelets in the spike; grain weight of the main spike (g); crop index (%). The correlation analysis made allows determination of the dependence of the complexity impact on the rye performance indicators. The established correlations show the degree of impact of each indicator in yield formation. Based on the correlation coefficients derived, the established dependencies between plant seed yield and maturation yield elements, a mathematical model of the plant with high productive potential was obtained. Rye specimens of the highest yield are characterized by high value of the crop index.

10. Stoyanova, A., N. Valchev, R Petrova. 2018. Parameters of the relation "Yield - Irrigation depth" in tomatoes, greenhouse production . *Journal of Mountain Agriculture on the Balkans*, 2018, 21 (1), 296-305. ISSN1311-0489 (Print) ISSN 2367-8364

Abstract: The experimental field experience was brought out during the period 2016-2017 in an unheated polyethylene greenhouse. The subject of the study is tomato, variety "Vitelio". To

determine the parameters of the "Yield – Irrigation depth" dependence, were used the following options: 1. Irrigation with 50% of the optimal irrigation rate, 2. Irrigation with 75% of the optimal irrigation rate, 3. Irrigation with 100% of the optimal irrigation rate (optimal option). The relation "Yield – Irrigation depth" in tomatoes, greenhouse production can be expressed by square equation ($Y = ax^2 + bx$) as the average for the experimental period is the following: $Y = 2,786x - 1,780x^2$. From a biological point of view, the step formula reflects more accurately the change in yield when applying a different irrigation regime ($R^2 = 0.995$). Average for the period under consideration, the dependence is represented by the equation of the type: $Y = 1 - (1 - x)^{2,9}$. The deviation of the experimentally determined from the calculated yields is from -3.4% to + 2.1%, i.e. in the range -2453 to + 212 kg/da.

11. Stoyanova A., G. Ganchev, V. Kuneva. 2018. Influence of foliar feeding of common wheat varieties on the nutritional value of the grain. *Agricultural Science And Technology*, Vol. 10, No 4, 333-337. P-ISSN: 1313-8820 E-ISSN: 1314-412X

Abstract: Two years of polls from the field trials of the Faculty of Agriculture, Trakia University, Stara Zagora, Bulgaria were used for the purpose of the survey. In the period 2015-2016, two varieties of common wheat (Apolon and Bolonga), treated by leaf liquid fertilizers, imported alone and in combinations were tested under field conditions. Main fertilization with ammonium nitrate was done. The variants of the experiments were as follows: 1) Without fertilization (Control); 2) Ammonium nitrate (N140); 3) Lactifrost – 10.0 L/ha; 4) Lactifros + Lactofol base – 10.0 L/ha + 5.0 L/ha; 5) Lactofol base – 5.0 L/ha; 6) Wuxal Grano – 4.0 L/ha; 7) Wuxal Grano – 4.0 L/ha + 2.0 L/ha. It was found that crude protein content ranged from 136.90 to 144.63g/kg DM in the Apolon variety and from 129.98 to 145.12 g/kg DM in the Bologna variety. An increase in CP content was seen as a result of feeding with Lactifrost and Lactofol base, respectively, by 5.6% and 11.7% relative to the control. Treatment of common wheat with liquid leaf fertilizers, however, does not lead to improvements in energy (metabolizable energy, digestible energy, feed unit for milk, feed unit for growth) and protein digestible in (small) intestine nutrition. In both varieties there were many positive and negative correlations between the investigated parameters: CP, CFAT, CF, DEE, FUM, FUG, PDI, Dep, MEp, DEpg and MEpg; in ruminants the same positive correlations for both varieties are between CP and PDI ($p < 0.01$) and negative – between CP and FUM ($p < 0.05$), and between CFAT and PDI ($p < 0.05$); in nonruminants negative correlations exist between CF and the energy values (DEp, MEp, DEpg and MEpg) only in Apolon variety

12. Popova R., G. Dobrevska, H. Djugalov, A. Matev, L. Dospatliev, A. Stoyanova. 2014. Influence of the wooden filings on some soil indicators of the apple plant in a stoolbed. *Agricultural Science And Technology*, Vol. 6, No 3, pp. 304 – 306. P-ISSN: 1313-8820 E-ISSN: 1314-412X

Abstract: Wooden filings divided into two fractions were used as an intermixture for the covering soil layer which served as an additional rooting of shoots of different origin in an apple stoolbed. The purpose was to evaluate whether some soil indicators change. In this respect, the levels of humus, carbonates, pH and soil moisture were measured. The quantity of soil carbonates was low (under 1%), pH fluctuates from weakly acidic to weakly alkaline, and the amount of the organic substance as well as the current moisture in the soil with small fraction of wooden filings showed higher values in comparison with the large fraction one.

13. Kuneva V., A. Stoyanova, N. Valchev, G. Pevicharova. 2017. Mathematical approaches for impact evaluation of the irrigation regime and fertilization on the greenhouse tomato quality. AGRICULTURAL SCIENCES Volume IX Issue 22, 83-88. ISSN 1313-6577 (Print) ISSN 2367-5772 (Online)

Abstract: The aim of the present research work is to evaluate, using mathematical approaches /cluster analysis and factor analysis/, the similarity and remoteness of the impact of different irrigation regimes in tomatoes /Vitelio variety/ and their grouping on the base of main biochemical indicators. Two-year data from field experiment was used including a non-irrigation and an optimum option, as well as options with irrigation cancellation and low irrigation norms /total – 12 options/. The experiment was conducted in Plovdiv in the period 2016-2017. Cluster analysis results are in line with the conclusions from the irrigation and fertilization regime analyses and their impact on tomato quality indicators. A strongest positive correlation exists between the indicators common dyes and lycopene for both experimental years. There is a strong negative correlation between the indicators lycopene and beta-carotene. The basic indicators that lead to the division of irrigation and fertilization options into clusters are the quality indicators: titruem organic acids, ascorbic acid, common dyes, lycopene nad beta-carotene in the first factor, explaining 78,621 % of the total variables` dispersion.

14. Dinev T., I. Gospodinov, A. Stoyanova, G. Beev, D. Dermendzhieva, D. Pavlov. 2016. Effects of irrigation and fertilization on soil microorganisms. Agricultural Science And Technology, Vol. 8, No 1, pp. 58-61. P-ISSN: 1313-8820 E-ISSN: 1314-412X

Abstract: The purpose of this study is to determine the influence of nitrogen fertilization and irrigation on the total count of aerobic mesophilic microorganisms, moulds and yeasts in the soil. The experiment was conducted in three variants and samples were taken as follows: from irrigated and fertilized furrow; from irrigated non-fertilized furrow and from furrow without irrigation and fertilization. For determination of total number of mesophilic aerobic microorganisms, moulds and yeasts the samples were diluted and cultivated on medium sheets coated with culture medium according to the requirements of the microorganisms. Data analysis shows that fertilization has the strongest multiplication effect on the number of aerobic mesophilic microorganisms in soil (their number increases from 10.522×10^6 to 12.8×10^6 cfu/g), whereas the irrigation does not have any statistically significant impact. The multiplication of moulds and yeasts in this trial is stimulated mainly by the increased humidity. When irrigation is applied the number of moulds and yeasts increases from 1.158×10^5 to 1.407×10^5 cfu/g, while fertilization does not affect their quantity in a statistically significant way.

15. Kuneva V., R. Bazitov, A. Stoyanova. 2016. Influence of the year characteristics and the different fertilization levels on the structural elements of wheat yield. Agricultural Science and Technology, Vol. 8, No3, pp 217-220, P-ISSN: 1313-8820 E-ISSN: 1314-412X

Abstract: The aim of the development is (through two-way dispersion analysis – ANOVA) to study the impact of the factors “year characteristics” and “fertilization

levels” on the separate biometric indicators for wheat: ear length (cm), ear-bearing stems (cm), number of grains per ear (num.), grain weight per ear (g) and mass of 1000 grains (g). Data for the yield and its structural elements were used. They were obtained through a field experiment conducted in the period 2009 – 2011, on a meadow-cinnamon soil in the experimental field at Agricultural Institute – Stara Zagora. With high degree of reliability the impact of the examined factors and their interaction on the following indicators was statistically proven: length of wheat-ear (cm), ear-bearing stems (cm), number of grains per ear (N), grain weight per ear (g), mass of 1000 grains (g). The strongest impact on the given factors has the factor “fertilization levels” for the indicator “ear- bearing stems” (96%).

16. Stoyanova, A., V. Kuneva, G. Delchev. 2015. Influence of some herbicide and herbicide mixtures on productivity of two varieties of common wheat. *Journal of Mountain Agriculture on the Balkans*, V.18, number 3, 478-487. ISSN1311-0489 (Print) ISSN 2367-8364 (Online)

Abstract: The purpose of this paper is to study the effect of treatment with certain herbicides and herbicide mixtures on the productivity of two varieties of common wheat, and determine the most technologically valuable options regarding the stability of yields. Field experience is displayed in the experimental field of Agricultural Faculty, Trakia University, Stara Zagora in 2012-2014. The following factors are examined: factor A – two varieties of common wheat: Enola and Illico; factor B – Herbicide: Axial one (pinoxaden + florasulam) – 1000; Axial 050 EC (pinoxaden) – 900 ml/ha; Traksos 045 EC (pinoxaden + clodinafop) – 1200 ml/ha; Logran 20 WG (triasulfuron) – 37.5 g/ha; Lintur 70 WG (triasulfuron + dicamba) – 150 g/ha. Set the parameters of the stability of the applied herbicide combinations of grain yield varieties in Enola and Illico. Summary criterion for stability, taking into account both the stability and the value of production in Enola, praised the treatment tank mixture Lintur+Axial (3+) and Logran+Traksos 1+). In variety Illico most technologically valuable is a variant involving herbicides Lintur + Traksos (tank mix) (21+).

17. Stoyanova, A., G. Ganchev, V. Kuneva, T. Dinev. 2015. Effect of herbicide treatment on energy and protein nutritive values of two varieties of common wheat grain. *Journal of Mountain Agriculture on the Balkans*, V.18, number 4, 679-690. ISSN1311-0489 (Print) ISSN 2367-8364 (Online)

Abstract: The main aim of the present study was to analyze the influence of herbicides and a mixture of herbicides treatment on the nutritive values of two varieties of common wheat grain (Enola and Iliko). The trial was conducted in the experimental farm of the Agricultural Faculty of Trakia University, Stara Zagora, during years 2012-2014. The qualitative indices of the grain were assessed and on their basis the energy and protein nutritive values of the common wheat (*Triticum aestivum* L.) were calculated for ruminants and non-ruminants. For Enola variety the average content of raw protein is 13.8% higher than the same for Iliko variety. The results for intestinal digestible protein (PDI) content showed that the products for crops treatment did not affect the PDI, fodder units for milk (FUM) and fodder units for growth (FUG) levels for both common wheat varieties. The values of the digestible and metabolizable energy varied in narrow range, which indicates that the products for crops treatment did not affect energy nutritive value of common wheat for swine and birds.

3. Статии и доклади, публикувани в нереферирани списания с научно рецензиране или публикувани в редактирани колективни толове. (Показател Г):

- 1) Stoyanova A. 2020. Study the environmental performance of two technologies of fertilization and irrigation on grain maize - Research Journal of Agricultural Science. 52 (2), 133-140.

Abstract: The synergistic effect of irrigating and fertilizing corn for grain has been the subject of years of research. Grain maize shows its biological potential by properly combining irrigation, nutrient fertilization and other factors of the agro-technical complex of activities. In order to achieve the objectives of the study, the following variants are laid: In some furrows are fertilized and in the adjacent watering; In the same furrows are fertilized and irrigated; Non-irrigation option. The size of the test plots is 70 m² (length of 10 m, 5 irrigation and 5 non-irrigation furrows) and soil type meadow cinnamon soil (Gleyic Hromic Luvisols). Nitrogen fertilizer is fed three times at 1/3 - before sowing, before sowing and after the first watering with a total of 120 kg/ha in the 1st year and 180 kg/ha of active substance in the 2nd year of the field experiment. The aim of this study is a comparative analysis of two technology solutions for fertilization and irrigation of maize grain. Studied the distribution of nitrogen in the soil profile and the level of contamination of the effluent. The analysis of both technologies for irrigation and nutrition with nitrogen grain maize in irrigation fertilization (traditional technology) and without fertilization furrows (new technology) seeks to establish the ecological relevance of each of them. Assays were performed in method for simultaneous determination of ammoniacal and nitrate nitrogen in the soil. Water samples of irrigation water were analyzed for nitrogen, the samples were taken at the beginning of irrigations; of effluent irrigation for both variants are taking an average sample of irrigation furrows in the beginning in the middle and at the end of the flow in them. It was found that only the first watering and irrigation fertilized furrows has substantial exports of both mineral and nitrate nitrogen in the effluent. Most nitrate nitrogen is exported in irrigation furrows and fertilized at a higher fertilization rates.

- 2) Mineva R., Stoyanova A. 2020. Research of the effect of organic fertilizer siapton on productivity of oil (Rosa damascena Mill). Research Journal of Agricultural Science. 52 (2), 80-86.

Abstract. In Bulgaria there are centuries-old traditions in the cultivation of oil rose (Rosa damascena Mill). Bulgarian rose oil and other products made from the colors of rose oil are well known and sought after in international markets. Since the beginning of the 19th century are exported to countries in Europe, USA, Australia, Japan, the Middle East, etc. Oil rose (Rosa damascena Mill) is grown for their flowers, which contain essential oils, producing rose oil. Rose-growing is a traditional industry in the economy of Bulgaria and the products produced by the pink color, are widely used in medicine, cosmetics, food. The aim of this study was to determine the influence of fertilizer "Siapton" on the productivity of oil rose (Rosa damascena Mill) and qualitative indicators of the received rose oil. The experiment was carried out in an experimental field at IREMK, Kazanlak in the period 2015-2017. The object of the study is the pink plantation of the "Svezhen" variety grown on leached forest soils. The bio fertilizer Siapton is a versatile

organic fertilizer and biostimulant for leaf and soil applications containing amino acids and peptides. Ingredients: Total nitrogen 9.1%; organic nitrogen 8.7%; Ammonium nitrogen 0.4%; Organic carbon 25%; Total amino acids (of animal origin) 54.4%; Free amino acids 10.0%; Dry matter content 63%. For implementation of the objective study of the impact of liquid fertilizer on the productivity of the culture and quality of essential oil have been conducted biometric measurements and phenological observations during the growing season. And in the three years of the study pink color is retracted manually in phenophase blooms. The yield of rose oil is accounted for by micro distillation apparatus - Clevinger. For the purpose of the study, experiments were conducted under irrigation and irrigation conditions. Applying fertilizer Siapton leads to an increase in the mass and diameter of the color of oil rose. After treatment with the organic fertilizer Siapton yield of the pink color of the oil rose (*Rosa damascena* Mill) increases. Treatment at a dose of 350 ml/da under irrigated conditions ensures an increase to 21.57%, while under irrigation - 21.20%. With natural moisture supply, the highest yields of rose oil were obtained by treatment with biotor at a dose of 250-350 ml/da. At irrigation, the yields were 28.7% higher after treatment with 350 ml/da.

- 3) Gospodinova G, A. Stoyanova, V. Kuneva. 2020. The Efficiency Of Irrigation And Variety On The Harvest Ratio Of Three Cotton Types (*Gossypium hirsutum* L.). CBU International Conference On Innovations In Science And Education 2020 (NATURAL SCIENCES AND ICT) MARCH 18-20, 2020, PRAGUE, CZECH REPUBLIC, 1-6.

Abstract: The purpose of this research is to investigate the impact of variety and irrigation on three cotton types, and to study the effectiveness of irrigation on the productivity of these cotton types which were fed by different norms of mineral nutrition. To assess the impact of soil humidity and fertilizer amount, we set up a field trial with three varieties of cotton. The field experiment was carried out within the Faculty of Agriculture, Trakia University, Stara Zagora, Bulgaria between 2018- 2019. A two way factorial ANOVA (with variety and irrigation as factors) suggested a significant main effect of irrigation ($p < .001$). Variety showed the strongest impact on the differences in "flowering" of cotton which were 64% in 2018 and 41% for 2019 respectively. We established an efficiency coefficient (KEF) representing the ratio of the additional harvest and the actual irrigation rate. The KEF of irrigation water varied depending on the cotton varieties and the levels of fertilization. The highest values of KEF were recorded after fertilization by N8 as given by units of cultivar Helius (EF = 0.67). The effect of irrigation, expressed as a harvest per unit of irrigation water considerably varied over years. It was established as a ratio between the irrigation rate and the additional cotton produce. At zero fertilization Helius, each cubic meter of water carried an average 2.24 kilograms of cotton harvest over two years. Optimizing the water supply and fertilizing with N16 provided 2.83 kilograms. On average, the Darmi variety irrigation effect ranged from 0.63 kilograms (N24) to 2.43 kilograms per cubic meter (N16) during the given period.

- 4) Stoyanova, A., D. Stoyanova. 2020. Comparative testing of common wheat varieties. Congress on Scientific Researches and Recent Trends-VII, December 7-8, 2020, Baku, Azerbaijan, ISBN: 978-625-7898-26-3

Abstract: In today's market conditions, increasing the yield and improving the quality of wheat grain is becoming increasingly important. This requires the introduction of varieties with high productivity and adaptability to environmental conditions. In this regard, in recent years have been created varieties with high genetic potential for grain productivity and quality. The aim of the

present study is to establish the productive possibilities of the studied varieties in the conditions of Bulgaria and to determine the suitable ones for the region. The experiment was conducted in the experimental field of the Faculty of Agriculture at the Trakia University, Bulgaria. The productivity of nine varieties of common wheat was studied. Biometric measurements were performed and the following indicators were established: plant height, class length and number of grains in it, weight per 1000 seeds. The yield per decare for the individual varieties has been established. The results of the study allow us to draw the following conclusions the tallest plants (90.63 cm) were formed in the Factor variety during the three years of the field experiment; the Falado variety by grain weight in the class exceeds the standard Factor variety (1.18 g) by 22.9%; the Falado and Gabrio varieties are characterized by the highest productivity. The ecological plasticity and the genotype of the varieties provide an excess of 44.7 and 42.9% compared to Factor. The yields of the Falado variety are 7104.89 kg/ha and 7014.28 kg/ha, respectively.

- 5) Stoyanova A., D. Stoyanova. 2019. Study on the Productivity of Irrigation Water at Maize (*Zea Mays*). *Acta Scientific Agriculture* (ISSN: 2581-365X). Vol. 3, Issue 1, 51-55.

Abstract: The aim of this study is to investigate the irrigation effect and irrigation performance of grain maize grown under natural moisture and optimum irrigation on the basis of a long series of data obtained under field conditions. To investigate the nature of the dependence between grain maize productivity and irrigation rate, irrigation water productivity and extra yield over years of rainfall provision. The study covers a range of data for the period 1972 to 2013, characterized by uneven distribution of precipitation during the growing season, in the conditions of an optimal irrigation regime and natural water supply. The data is a result of field conditions in the area of Stara Zagora, Bulgaria. As a result of this study, grain maize production capacities have been established for optimal irrigation and natural water supply. Calculate the irrigation water productivity, which ranges from 6,72 to 48,72 kg.ha⁻¹.mm, over the years with different rainfall provision. There is a strong positive linkage between the extra yield and the productivity of the irrigation rate. The correlation coefficient was determined ($r = 0,88$). The rate of rainwater productivity development is dynamic but with smaller deviations from the rate of extra yield.

- 6) Stoyanova A., D. Stoyanova. 2019. Effectiveness of the European subsidies for support of protein crops in Bulgaria. *Research Journal of Agricultural Science*, 51 (1), 202-209.

Abstract: The report briefly analyzed the effectiveness of tied support for protein crops. The objective of state aid policy in the field of Agriculture is to improve the economic efficiency of farms and the standard of living of the employed in the sector. State aids to Agriculture are provided in accordance with EU legislation in this field and according to the capabilities of the state budget. The support scheme for farmers for protein crops is only part of the State payments for the European Union's Common Agricultural Policy for the 2015-2020 programming period. Entitlements under the scheme are producers in the whole country who cultivate at least 0.5 hectares of eligible crops (together or separately) of protein crops. The analysis reveals a tendency for beneficiaries to increase as opposed to the funds allocated under the scheme. The support rate for protein crops

shall be determined for each year, as fixed in the budget plan are divided into eligible for support decars with protein crops for a particular year. The purpose of this article is to determine the extent to which protein crop production has been influenced and what types of protein crops in Bulgaria have been introduced since the introduction of the EU's new scheme of tied protein support. Before the introduction of direct support for protein crops from the CAP, the area under pulses in Bulgaria decreased ten times for the period 2001-2011, the analysis shows increased interest in farmers, due to European subsidies. Protein crops are characterized by high biological and nutritional value. They have a high biological potential in optimizing growing conditions. As a result of irrigation, productivity gains in soybeans and field peas have been found to be over 56% and 27% relative to the yields obtained from natural moisture. In the conditions of limited water resource it is important to how effective the irrigation rate is used to form additional yield.

- 7) Moteva, M., G. Kostadinov, A. Stoyanova. 2018. Optimizing the irrigation of corn in water deficit conditions. *Годишник на УАСГ, София, том 51, бр. 6, 129-145.*

Abstract: Experiments with wide-spaced furrow irrigation of corn on vertisols and chromic luvisols are carried out in Sofia and Stara Zagora regions. The effect of different irrigation depths, number of irrigations and distances between irrigated furrows at full and deficit irrigation on the grain yield and the irrigation water use efficiency is tested. The data obtained is used in a planned B3 type experiment. The combined effect of the factors is analyzed. After optimization of the obtained regression models, optimal values of the irrigation elements in water deficit conditions are established. The proposed graphical interpretation of the lines at the same level allows selection of irrigation scheduling according to the specific conditions. It is found that the maximum yield with maximum efficiency of irrigation water is obtained by distributing 91% Mopt in every other fixed furrow with a maximum number of irrigations.

- 8) Stoyanova A., V. Kuneva, G. Ganchev, M. Georgiev. 2018. Evaluation of energy and protein nutrition of common wheat varieties treated with leaf fertilizers. 2nd International Conference on Food and Agricultural Economics 27-28th April 2018, Alanya, Turkey pp. 298-304.

Abstract: The research was conducted during 2015 - 2016 in the experimental field of the Department of Plant Production in Agriculture Faculty at Trakia University, Stara Zagora, Bulgaria. The aim of this study is to investigate the effect of leaf fertilizer on the productivity of common wheat. In this study has examined the nutritional value of two common wheat: Diamond (by the varietal list of Bulgaria) and Ingenio (Syngenta). A comparative analysis of the results obtained from the treatment of varieties of common wheat with leaf fertilizers was made. Energetic and protein nutrition of ruminant wheat was evaluated in 1 kg of dry matter. Protein value of feed is extremely important for their nutritional value. The protein value of the feed is related to the bioavailability of the protein contained therein. The boundaries in which the protein values of the various feeding variants with different leaf fertilizers. The crude protein content ranges from 160.3 to 167.0 g/kg of dry matter (DM) for the Diamond variety and from 144.4 to 151.8 g/kg of dry matter Ingenio variety. On average, the content of raw protein in Diamond variety is higher by 10.7% of the found content of Ingenio variety.

- 9) Stoyanova A., P. Veleva, E. Valkova, G. Pevicharova, M. Georgiev, N. Valchev. 2018. Dry matter content and organic acids in tomatoes, greenhouse grown under different manuring and irrigation. 2nd International Conference on Food and Agricultural Economics 27-28th April 2018, Alanya, Turkey pp. 257-260.

Abstract: The experimental work was carried out during the period 2016-2017 in Bulgaria. Subject of research are tomato Vitelio cultivar, greenhouse grown at three levels of manuring and different irrigation regimes. The purpose of this study is to research the effect of applying three manuring schemes on irrigation with an optimal irrigation regime (M) and a controlled water deficit, with 75% and 50% of the irrigation rate being applied to dry matter and organic acids. From the presented distributions of the tested quality parameters of greenhouse tomatoes, it can be seen that the dry matter and titrimetric organic acids ratios are close to normal, and for the ascorbic acid indicator there are larger variations in the base values. The data is eligible for the sampling representatively requirements. Significant levels of $p < 0.05$ were obtained for the three researched indicators, i. E. the results of multi-variate dispersion analysis could be used in order to develop strategies for irrigation and manuring of tomatoes to reduce environmental risk. Considering the quality indicator: ascorbic acid a decrease in the quantities has been registered with an increase in the manuring norms.

- 10) Stoyanova A. 2018. Relationships between the irrigation norm and production of maize (*Zea mays*). *Lucrări Științifice, Volumul 52 (1), Agronomie și Agroecologie, Universitatea Agrară de Stat din Moldova*, 88-93.

Abstract: An analysis of the nature of the relationships between the productivity of maize grain and irrigation rate, the productivity of irrigation water and the additional yield, based on data from field trials, appeared in the experimental field of Agricultural Institute, Stara Zagora, Bulgaria. The data are for the period from 1998 to 2013. The field surveys were conducted with optimal water culture and under irrigated conditions. The extra yield obtained as a result of the irrigation rate has been calculated. The yields obtained from natural moisture loss range from 3360 to 7830 kg/ha. As a result of an optimal irrigation rate, yields increased almost twice. The corn grain yield limits for optimal irrigation are in the range 4570 to 13606 kg/ha. The extra yield ranges from 3360 to 7395 kg/ha. The regression analysis establishes a strong positive linear relationship between the extra yield and productivity of the irrigation rate. When analyzing the relationship between extra yield and precipitation during the vegetation period and between extra yield and precipitation in the July-August period, a low degree of correlation was established. The irrigation water productivity, which ranges from 6,72 to 37,73 kg.ha⁻¹ .mm, has been calculated over the years with different rainfall provision. The character of the dependence "extra yield-yield of irrigated water" and the coefficient of determination ($R^2 = 0,81$) are established

- 11) Panayotova G., L.Plescuta, A.Stoyanova. 2017. Accumulation and use of nitrogen in durum wheat cultivar predel as influence by fertilization. "XXII Savetovanje O Biotehnologiji", *Zbornik radova, Knjiga 2*, 635-640

Abstract: A field study was conducted during 2012-2014 to assess the effect of nitrogen fertilization on the N concentration and uptake of durum wheat cultivar Predel. N in rates 0; 80; 120 and 160 kg ha⁻¹ was applied. The results showed that N fertilization increased grain yield with 33.7-60.9 %. The average total dry biomass in maturity was 9.7 t ha⁻¹. At N160P80 the dry biomass was 12.44 t ha⁻¹. The N concentration increased with went up of N rates. At the three rates the N concentration of grain increased with 8; 27 and 45 % to the unfertilized. NP fertilization improved the N concentration. N uptake with grain was in range 52.7 - 116.8 kg ha⁻¹, and upake with straw - 22 to 59 kg ha⁻¹.

- 12) Stoyanova A., V. Kuneva, L. Dospatliev, G. Panajotova. 2017. Foliar feeding impact on the productivity of common wheat. "XXII SAVETOVANJE O BIOTEHNOLOGIJI", Zbornik radova, Knjiga 2, 767-773.

Abstract: The survey was conducted during the period 2013-2016 at Plant Breeding Department of the Agricultural Faculty, Trakia University, Stara Zagora, Bulgaria. Two varieties of common wheat Apolon and Bologna were examined: 1. Kontrola - without feeding; 2. Fertilizing with N14; 3. Fertilizing with N14+Laktifrost; 4. Fertilizing with N14+Laktifrost+Laktofol major; 5. Fertilizing with N14+Laktofol major. According to an two-factor analysis of variance, conducted to establish the impact of the two factors (variety and options of treatment) separately and their interaction, it was statistically proven at a very high level of confidence ($p \leq 0.001$) the impact factor (A) variety on indicator "yield" for the entire period (2014-2016).

- 13) Bazitov R., A. Stoyanova, V. Kuneva. 2017. Mathematical-statistical analysis for evaluation of factors treatment of the soil and Fertilization on the yield of wheat. "XXII SAVETOVANJE O BIOTEHNOLOGIJI", Zbornik radova, Knjiga 2, 775-779.

Abstract: The aim of the conducted study, based on two-factor analysis of variance, is to assess the significance and power of influence of factors – treatment of the soil and fertilization and their interaction on the productivity of wheat. Data for the 1 yield of irrigated corn were used, which were derived from field trial to study the effect of the treatment of the soil and fertilization on the yield of irrigated grain maize. The experiment was carried out in the experimental field of Agricultural Institute - Stara Zagora during 2009 - 2011 period. The result, by ANOVA method were proven statistically with significant variance of the factor "system of fertilization" (B) on "yield irrigated corn for grain" .

- 14) Stoyanova A., V. Kuneva. 2017. Study of the influence of leaf fertilizers on the biometric indicators of two varieties of common wheat. Book of proceedings. VIII International Scietific agriculture Symposium, Jahorina, Oktober 05-08, pages 948-954.

Abstract: The purpose of the present research is to study the significance and impact of factors: variety and treatment options, and their interaction on the structural elements of Enola and Illico common wheat varieties. For this purpose, an experiment was conducted in the period 2014- 2016 in the training experimental field of Trakia University, Faculty of Agriculture, Stara Zagora, Bulgaria. The experiment was performed by the method of fraction plots, with a crop plot size of 10 m² . It included two varieties of common wheat: Enola and Illico. The applied liquid fertilizer Lactifrost and Lactofol are special leaf fertilizers rich in macro and trace elements. The following test options were: 1. Control - zero fertilization; 2. Fertilization with N14; 3. Fertilization with N14 + Lacticfrost; 4. Fertilization with N14 + Lacticfrost + Lactofol base; 5. Fertilization with

N14 + Lactofol base. Foliar treatment was conducted in the morning hours at doses of Lactifrost - 1/da and Lactofol base - 0.5 l/da. Results of a two-factor dispersion analysis proved that A factor - variety had a dominant impact on ear grains weight indicator in 2014. It was statistically proven at $p \leq 0.001$. The lowest and mathematically unproven was B factor - treatment options and the interaction of both factors. The individual effect of the studied factors is much more expressed at the formation of the structural indicator for the examined wheat varieties.

- 15) Stoyanova A., Georgiev M. 2017. Hydrothermic coefficients of common wheat. Materialele Conferinței științifice internaționale „Genetica, Fiziologia Și Ameliorarea Plantelor”, CHISINAU 9-10 octomber, MOLDOVA. 87-90.

Abstract: : The main objective is to determine the hydrothermal coefficients and to study the influence of agroclimatic factors of common wheat. The experience is taken in the field of study of the Faculty of Agriculture, Trakia University, Bulgaria. The analysis of the data shows that the hydrothermal coefficients calculated by Selianinov range from 2.06-4.80 for over-humidification and from 0.00 to 0.47 at drought. The hydrothermal coefficients determined by Ivanov are in the range of 2.22-3.37 in case of over-wetting and with drought of 0.04 to 0.27. Common wheat variety Diamant is characterized by coefficient of variation 9 %.

- 16) Stoyanova A.K. 2017. Economic analysis of two varieties of common wheat treated with herbicides. Сборник научных докладов XX Международной научно-практической конференции (г. Новосибирск, 4-6 октября 2017 г.), 10-13.

Abstract: The field experience is brought to the experimental field of the Department of Plant Breeding, which is located in the region of Stara Zagora. The climate in the area is temperate continental. The soil type of the field is characterized as suitable for growing wheat. Two varieties of common wheat Diamant (variety from the official varieties list of Bulgaria) and Ingenio (introduced Syngenta variety) were studied. Variants of field experience are: 1. Control - without treatment with herbicides; 2. Axial one-1000 ml/ha; 3. Lintour+Axial-150g/ha+900ml/ha-tank mix; 4. Lintour+Axial-150 g/ha+600ml/ha-separate treatment. Sowing was done by spraying with tank mixes separately. Insertion of a tank mix means that the solution of the plant protection preparations is prepared together. The herbicides are dissolved in one vessel and the treatment is done simultaneously. The analysis of economic indicators in the assessment of the impact of herbicides shows the advantage of separating treatment with Lintour and Axial. The profitability ratio for Diamant is 11.9% and for Ingenio 51.8%. With Axial one treatment, a profitability rate of 7.9% for Diamant and 44.8% for Ingenio was formed. The cost of grain for the introduced variety ranges from 0.20-0.22 evro/kg, averaged over the experiment period.

- 17) Stoyanova, A., V. Kuneva. 2016. Impact assessment of the some herbicide formulations on the productivity of 6 common wheat varieties by cluster analysis, 2nd International Symposium for Agriculture and Food, Ohrid, vol. II, 2016, 1015-1022.

Abstract: The purpose of this development is to examine the effect of the treatment with several herbicides and herbicide mixtures upon main biometrical indicators and the productiveness of six common wheat varieties. The seed treatment is displayed with the following preparations for weed control: Axial one (pinoxaden + florasulam) - 100 ml/da; Axial 050 EC (pinoxaden) - 90 ml/da; Traksos 045 EC (pinoxaden + clodinafop) - 120 ml/da; Logran 20 WG (triasulfuron) - 3.75 g/da; Lintur 70 WG (triasulfuron + dicamba) - 15 g/da. The field experiment was conducted

between 2012 – 2014, in the conditions of meadowcinnamon soil. It was made a comparison with the control option and the treatment options through a cluster analysis. It was determined that the control option, in relation to all indicators, was most distant from: 1) option 7, with a coefficient of 28.180 for Illico variety, followed by Ingenio variety with a coefficient of 19.984; 2) option 4 for Enola variety with a coefficient of 17.769, followed by Apolon and Diamond varieties with coefficients 10,345 and 9,640 respectively; 3) option 2 was most strongly expressed for Bologna variety with a coefficient of 18.503, followed by diamond and Apolon varieties with an equal coefficient of 17.153. The classification and grouping of the options through a hierarchical cluster analysis allow a higher objectivity in the evaluation of the complex impact of the treatment options upon the structural elements for the examined wheat varieties.

- 18) Kuneva V. N., B. H. Petrova, A. K. Stoyanova. 2016. Assessment of the impact of different irrigation regimes on several biometric indicators for celery through mathematical-statistical analysis. *Евразийский Союз Ученых (ЕСУ) # 1 (22), 2016 | Сельскохозяйственные Науки*, 149-152.

Abstract: The aim of the development is to analyse, with the help of a two-factor dispersive analysis, the impact of the factors “year’s character” and “irrigation regime” on the separate biometric indicators for celery. Data for the yield and its structural elements was received and used by a field experiment for examining the irrigation regime that was conducted during the period 2010 – 2012 at the Training Experimental Field of Agricultural University, Plovdiv. Five options were examined: irrigation with 130 % from m norm; irrigation with 100 % from m; with 70 % from m; with 50 % from m; with 30 % from m and without irrigation. It was statistically proved, at a high degree of reliability, the impact of the examined factors and their interaction upon the three observed indicators: mass of the root crop, leaf mass and yield. Strongest impact had the factor “irrigation regime” (94 %).

- 19) Stoyanova A.K., Kuneva V. 2016. Efficiency of varieties of common wheat. „Actual problems of globalization“. Collection of scientific articles, Midas S.A., Thessaloniki, Greece. 49-53.

Abstract: The structure of varieties, especially in the ordinary wheat is changing rapidly in recent years. Increasingly becomes important introduction of varieties with high productivity and adaptability to environmental conditions (Ilieva, 2011). The high ecological plasticity of varieties is one of the prerequisites for obtaining high yields. Crucial to the productivity of common wheat there and weed infestation and the high level of agricultural equipment. It was found that cereals tolerate treatment with herbicides in tillering phase, while in other phenophases of their development are more sensitive to the imported products. As a result, the plants are inhibited by the impact of the appended herbicides (Murgazliev, 2007; Baghestani et al., 2008; Georgiev, 2014; Delchev G., M. Georgiev, I. Petrova. 2014; G Delchev, M Georgiev. 2015). The herbicide axilla (pinoxaden) has high Efficacy against grass weeds and good selectivity to common wheat, durum wheat and barley (Campagna and Rueegg, 2006). The increase in the profit in the cultivation of cereals is possible through cost optimization. To effectively manage grain production must take into account the peculiarities of agriculture, using different economic and statistical methods to optimize their production costs (Hristova, 2011; Todorov and others. 2011). The purpose of this paper to analyze the economic indicators - namely, to show the degree of

influence of each indicator in the formation of the yields of two varieties of common wheat treated with some herbicides.

- 20) Stoyanova A.K.. 2016. Economic analysis of production of common wheat variety Enola and Illico. Материалы Международной Научно-технической конференции (Минск, 19–21 октября 2016 г.). Том 1, 206-208.

Abstract: The study was conducted at an educational-experimental field of Department of Crop, Faculty of Agriculture at Trakia University Str., Stara Zagora. The field experience is displayed during the period 2012–2014, studies the following factors: varieties and herbicides. The object of study are two varieties of common wheat: Enola – Bulgarian variety and buttonhole –introducsiran variety. Herbicides and herbicide combinations: Variants of experience are: 1. Kontrol – without treatment with herbicides; 2. Axial one-1000 ml/ha; 3. Lintur + Axial-150 g/ha+90 ml/ha – a tank mix; 4. Lintur + Axial-150 g/ha + 60 ml/ha – separate treatment. The introduction of a tank mix means that the solution of plant health products is prepared together, ie herbicides are dissolved in one container and the treatment was performed simultaneously. As a result of the economic evaluation of the results obtained are the following conclusions: In the variety common Enola combined treatment with herbicide Axial one provides an output whit the highest rate of return (13.89 %) on average for the three years of field study. □ Analysis of economic indicators found that treatment with variety Illico with pistils Axial one and a separate of the herbicides and Axial + Lintur imported axilla and Lintur contribute to the production of products with a high rate of profitability (56 % higher than the control version).

- 21) Стоянова, А., Д. Дочев, П. Желязков, С. Петров, Л. Доспатлиев. 2015. Резултати от третиране с хербицидни смеси при български и интродуцирани сортове обикновена пшеница. Science and Technology, Plant studies, Vol. V, N. 6, 44-49.

Abstract: The fight against weed infestation is one of the main elements of agrotechnics of common wheat. As a result, a three-year field experiment set up in the period 2011-2014 was established productivity of six common wheat: Bulgarian varieties - Enola, Apolon and Diamond and introduced three new varieties - Enola, Illico and Ingenio. In embodiments of the treatment at high yields are established by treatment with an Axial one. Introduced new varieties with the highest productivity emerged Ingenio. Average for the period of study is established yield of 6207.6 kg/ha. Factor analysis shows that the performance year and variety affect the greatest extent on the productivity of culture, the highest indicator is calculated on a year (nearly 55%) ad then in the variety (nearly 25%).

- 22) Стоянова А., В. Кунева, Д. Павлов. 2015. Хидротермични коефициенти и регресионни зависимости при обикновената пшеница. Science and Technology, Plant studies, Volume V, Number 6, 37-43.

Abstract: The study was conducted at an educational-experimental field of Department "Crop", Faculty of Agriculture at the University of Thrace, Stara Zagora field experience was displayed in the period 2012 - 2014 г. The purpose of this study was to establish the hydrothermal coefficients

during the growing season of common wheat and the nature of the relationship between moisture provisioning and productivity of the culture. The analysis calculated hydrothermal factors common wheat. HTK in Selyaninov ranged from 0.00 to 0.37 in drought and waterlogging in from 2.06 to 4.80. Factor, characterized moisturizing Ivanov moves within 0:00 to 12:16 - in drought and the parameters of 2:41 to 3:37 in waterlogging. Rainfall during the months of April and June have a significant impact on the yield of wheat. Only they have unidirectional positive impact on yields. Year and the growth rainfall affect yields, but to a lesser degree. The regression equations allow the grain yield of wheat to be determined in advance by tentatively developed based on the amount of rainfall during the months of April and June as independent variables.

- 23) Найденова, М., А. Стоянова, Г. Беев. 2015. Практическо приложение на биодинамичните препарати и изследване влиянието им върху растенията. Science and Technology, Plant studies, Volume V, Number 6, 206-212.

Abstract: In this study, discuss production and practical application of biodynamic preparations. Discuss experiments conducted in real production conditions, to demonstrate the quality and impact of biodynamic preparations on plants. Researched and described are biodynamic preparations own production company Intermed 1 Ltd

- 24) Делчев Г., А. Стоянова. 2015. Влияние на някои листни торове и растежни регулатори върху добива и качеството на зърното от твърда пшеница. Science and Technology, Plant studies, Volume V, Number 6, 213-219.

Abstract: In 2010-2012 was studied the reflection of some foliar fertilizers and growth regulators on the grain yield and grain quality of durum wheat cultivar Victoria (*Triticum durum* var. *valenciae*). It was investigated 5 foliar fertilizers - Vertex high-H34 - 300 ml/da, High-phos - 500 ml/da, Potassium thiosulfate (PTS) - 500 ml/da, Foliar extra - 250 ml/da and Trace elements for cereals (TEC) - 100 ml/da, a growth stimulator Amalgerol premium - 300 ml/da, an antitranspirant Pureshade - 2 l/da and tank mixture Amalgerol premium - 300 ml/da + TEC - 100 ml/da. Foliar fertilizers and growth stimulator were treated during tillering stage of the durum wheat and antitranspirant was treated during ear emergence and grain development stages of the durum wheat. It was found that the grain yields are increase by foliar fertilizers Vertex high-H34, Highphos, Potassium thiosulfate (PTS), Foliar extra and Trace elements for cereals (TEC), the growth stimulator Amalgerol premium and the antitranspirant Pureshade. The grain yield increase by these foliar fertilizers and growth regulators is due to the increase in the grain number per spike and the grain weight spike. The 1000 grain weight, test weight, vitreousness, the protein quantity, wet and dry gluten quantities are increased by influence of the investigated foliar fertilizers and growth regulators. Biochemical properties of the durum wheat grain are the highest by the tank mixtures of stimulator Amalgerol premium with foliar fertilizer TEC. Using of these foliar fertilizers and growth regulators is being proposed as an element of the technology for growing of durum wheat.

- 25) Делчев Г., А. Стоянова, И. Петрова. 2015. Влияние на някои стимулатори върху посевните свойства на семена от два сорта твърда пшеница. Science and Technology, Plant studies, Volume V, Number 6, 220-225.

Abstract: The research was conducted during 2010 - 2012 on pellic vertisol soil type. Factor A – cultivars, include 2 Bulgarian durum wheat cultivars: Deyana and Zvezdica (*Triticum durum* var. *valenciae*). Factor B – stimulators, include 9 variants: untreated check and 5 growth stimulators – H - 40 in doses of 300 and 500 ml/ha, XH - 100 in doses of 1 and 1.2 l/ha, TH - 140 in doses of 2.5 and 2.8 l/ha, X – 80 in dose of 800 ml/ha and T – 100 in dose of 2.5 l/ha. All stimulators were treated during the tillering stage of durum wheat. Growth stimulators XH - 100, TH - 140 and H - 40 increase germination energy, seed germination as well as the lengths of the primary roots and coleoptile at the two durum wheat cultivars Deyana and Zvezdica. Treatment with growth regulators X - 80 and T - 100 decreases germination energy at cultivar Deyana. Lengths of the primary roots and coleoptile decrease by use of X - 80 and T – 100 at cultivar Deyana and by use of T - 100 at cultivar Zvezdica. Stimulators TH - 140 and XH – 100 decrease the waste grain quantity at the two durum wheat cultivars. The highest grain yield at durum wheat cultivars Deyana and Zvezdica is obtained by influence of growth stimulators XH - 100 and TH - 140. Increase the dose of stimulator H - 40 depresses durum wheat. The lowest yields are obtained by use of stimulators X - 80 and T - 100 at the both durum wheat cultivars. The use of stimulators XH - 100 and TH – 140 is suggested as an element on the technology of growing of durum wheat sowing-seeds.

- 26) Stoyanova A.K., Ganchev G.G., Stoyanova. S.S. 2015. Energy and protein nutrition of grain of two common wheat for pigs and poultry. XVIII Международную научно-практическую конференцию: «Аграрная наука – сельскохозяйственному производству Сибири, Казахстана, Монголии и Болгарии», г. Петропавловске, Республика Казахстан, pp 11-14.

Abstract: The main purpose of this study was to analyze the effect of treatment with some herbicides and herbicide mixtures of two varieties of common wheat Apolon and Ingenio on the nutritional value of the grain. The experiment was carried out in the experimental field of the Faculty of Agriculture, Trakia University, Stara Zagora in the period 2012-2014. It was found that application of herbicides tested in two varieties of common wheat, no significant influence on the content of qualitative traits. The values of digestible and metabolizable energy vary in a range, which indicates that the products for the treatment of crops and varieties not influence energy nutrition of wheat for pigs and poultry

- 27) Stoyanova, A.K., Ganchev G.G., Stoyanova. S.S. 2015. Energy and protein nutrition of grain of two common wheat for ruminants. XVIII Международную научно-практическую конференцию: «Аграрная наука – сельскохозяйственному производству Сибири, Казахстана, Монголии и Болгарии», г. Петропавловске, Республика Казахстан. Pp. 14-16.

Abstract: The main purpose of this study was to analyze the effect of treatment with some herbicides and herbicide mixtures of two varieties of common wheat Apolon and Ingenio on the nutritional value of the grain. The experiment was carried out in the experimental field of the Faculty of Agriculture, Trakia University, Stara Zagora in the period 2012-2014. The results for the content of digestible protein in the gut (PSC) show that the applied products for crop treatment

do not affect the levels of PSC, milk feeding units (CU) and fodder growth units (CU) in both wheat varieties. The values of digestible and exchange energy vary within narrow limits, which shows that the products for the treatment of crops and varieties do not affect the energy nutrition of wheat.

- 28) Кунева В., А. Стоянова. 2015. Изследване корелационата зависимост между структурните елементи при обикновена пшеница. Растениевъдни науки, год. LII, № 5, 84-88.

Abstract: The aim of the study is using a correlation analysis to assess the relationship between the basic biometric parameters and the effect of treatment with some herbicide and herbicide formulation of six common wheat variety. The study was conducted at an educational-experimental field of the Department of Crop and Agricultural Faculty at the Thracian University – Stara Zagora during 2012 – 2014 in a Meadow Cinnamon Soil. A very high statistical proven correlation is established ($r > 0.8$) between the length of the class and weight of the grains in the class (Ingenio), number of grains and grain weight class (Ingenio) length of the class and number of spikes (variety Illico and Enola), and number of spikes in the number of grains class (variety Apolon). Statistically, correlation between plant height and other biometric indicators, and weight class of grain and weight of 1000 grains is not proven.

- 29) Стоянова, А., М. Георгиев. 2014. Влияние на някои хербициди и хербицидни комбинации върху продуктивните възможности на шест сорта обикновена пшеница. Science and Technology, Plant studies, Volume IV, Number 6, 77-87.

Abstract: Proper varietal structure, depending on the specific agro-ecological conditions of the region can significantly increase yields and quality. The purpose of this paper is to make a comparative study of the ecological plasticity of some senior Bulgarian wheat varieties with promising new foreign varieties in terms of changes in modern climate, and their reaction upon treatment with some new herbicide formulations. Enclosed in vegetation leaf herbicides and herbicide formulations provide the high and stable yields. Variants of the experiment are as follows: 1.Control - no treatment with herbicides; 2.Axial - 1 - 100 ml/da; 3.Lintur+Traksos 15g/da + 120ml/da - tank mixture; 4.Logran+Traksos 3.75g/da + 120ml/da - tank mixture; 5.Axial+Lintur15g/da + 90ml/da - tank mixture; 6.Axial+Logran3.75g/da + 90ml/da - tank mixture;7.Lintur+Traksos15g/da+120ml/da-separate treatment; 8.Logran +Traksos 3.75g/da+120ml/da - separate treatment; 9.Axial+Lintur15g/da+60ml/daseparate treatment; 10.Logran + Axial 3.75 g/da + 60 ml/da - separate treatment. The conditions of the region of Stara Zagora highest yield was obtained from variety buttonhole - 6057.8 kg/ha, the average for the two experimental years. In Bulgarian varieties is highest productivity in common wheat variety Enola - 4655.7 kg / ha. The analysis of the structural elements shows that the greatest length of the class (9.0 cm) and number klascheta (17.3) features variety buttonhole, most of the grains in weight class was measured Inzhenio varieties (1.34 g) followed by Apolon (1.29 g). Comparative analysis of the structure elements of the extraction indicates that the mass of 1000 grains at Apollo

Diamond and Inzhenio is higher, ranging from 39.25 to 40.79 for an average period of the study.

- 30) Delchev, G.D., A. K. Stoyanova. 2014. Stability of vegetation-applied herbicides and their mixtures with complex foliar fertilizer Lactofol b at oil-bearing sunflower by influence of different meteorological conditions. Journal of International Scientific Publications: Agriculture and Food, Voume 2, Published at: <http://www.scientific-publications.net>, 36-43.

Abstract: During the period 2010 - 2012, on the experimental field of the Field Crops Institute - Chirpan was carried out a field experiment with oil-bearing sunflower (*Helianthus annuus* L.). It was investigated 18 variants from the three technologies for oil-bearing sunflower growing - conventional (hybrid Arena), ClearField (hybrid Alego) and ExpressSun (hybrid P64LE20). Treatment of complex foliar fertilizer Lactofol B with herbicides Stomp, Raft, Wing and Modown as tank mixtures after soil-applied herbicide Pelican increases the selectivity of these herbicides. The effect of foliar fertilizer Lactofol B is the poorest by combination with herbicides Goal and Pledge. From the viewpoint of conventional technology for growing of oil-bearing sunflower, high rating have tank mixtures of herbicides Wing, Raft, Stomp and Modown with complex foliar fertilizer Lactofol B, followed by tank mixtures of Goal and Pledge with Lactofol B. Technologically the most valuable are herbicide tank mixtures Express + Stratos ultra and Pulsar + Stomp by respectively ExpressSun and ClearField technologies. Herbicides Goal, Stomp, Raft, Wing, Pledge and Modown by self-use without foliar fertilizer Lactofol B is more appropriate to be used as soil-applied herbicides

- 31) Stoyanova, A. K.. 2014. Efficiency and selectivity of some herbicides and herbicide combinations in three wheat variety. Трудь XI Международная Научно-Практическая Конференция «Пища. Экология. Качество, Г. Екатеринбург, 14-16 мая, УДК 640.2 +39.3+, ББК 65.011.151+65.431-80+65.42-803.4+, ISBN 978-5-904424-61-9, 192-196.

Abstract: Field study was conducted in 2011-2013 years, in the experimental field of the Department of Plant Agriculture Faculty at Trakia University, Stara Zagora. The Polish experience is known with three varieties of common wheat: Enola, Iliko and Inzhenio. The seed treatment is displayed with the following preparations for weed control: Axial one (pinoxaden + florasulam) - 100 ml/da; Axial 050 EC (pinoxaden) - 90 ml/da; Traksos 045 EC (pinoxaden + clodinafop) - 120 ml/da; Logran 20 WG (triasulfuron) - 3.75 g/da; Lintur 70 WG (triasulfuron + dicamba) - 15 g/da. Variants of the experiment are as follows: 1. Control - no treatment with herbicides 2. Axial - 1 - 100 ml/da 3. Lintur+Traksos 15g/da + 120ml/da - tank mixture 4. Logran+Traksos 3.75g/da + 120ml/da - tank mixture 5. Axial+Lintur15g/da + 90ml/da - tank mixture 6. Axial+Logran3.75g/da + 90ml/da - tank mixture 7. Lintur+Traksos15g/da+120ml/da - separate treatment 8. Logran+Traksos3.75g/da+120ml/da - separate treatment 9. Axial+Lintur15g/da+60ml/da-separate treatment 10. Logran + Axial 3.75 g/da + 60 ml/da - separate treatment. Applied herbicides have high efficacy against annual grasses and perennial broadleaf weeds. Axial herbicide 1 has high efficiency (100 %), 100 % mark visual scale EWRS, in the majority of weeds only in Polish brome efficiency is 15% and bindweed - 10%. - Implementation of separate treatment increases the efficacy of herbicide mixtures in the fight against annual grasses and perennial broadleaf weeds. - Herbicide Axial 1 shows extremely high efficiency (100%) in the control of annual broadleaf weeds 100 % built visual scale EWRS, as

only larkspur reported relatively little influence of the preparation - 98%. When the herbicidal effect was evaluated combinations of 38 to 45% on the same scale. - Herbicides Axial 1, Axial, Lintur, Logran Traksos exhibit very high selectivity for the 3 Wheat Varieties - note 1 on the scale of EWRS.

- 32) Делчев, Г., А. Стоянова, И. Петрова, М. Радевска, 2014. Отражение на съвместната употреба на стимулатори и широколистни хербициди при твърдата пшеница върху посевните свойства на семената. Science and Technology, Plant studies, Volume IV, Number 6, 93-99.

Abstract: The research was conducted during 2010 - 2012 on pellic vertisol soil type. Factor A included no treated check and 2 stimulators – Napsil (derived chlorofenoxyacetic acid, naftilactic acid, phtalamine acid, chlorochlorine chloride, folic acid, trace elements) – 500 ml/ha, Cemofol (derived methylphtalamine acid, chlorochlorine chloride, folic acid, salicylic acid, trace elements, surface active substance) – 700 ml/ha. Factor B included weeded no treated check and 4 antibroadleaved herbicides – Derby super WG (florasulam + aminopirialid) – 33 g/ha, Secator OD (amidosulfuron + iodiosulfuron) – 100 ml/ha, Sunsac (metosulam + 2.4-D) – 100 ml/ha, Lintur 70 WG (dicamba + triasulfuron) – 150 g/ha. All of stimulators, antibroadleaved herbicides and their tank mixtures were treated in tillering stage of the durum wheat. Under investigation was Bulgarian durum wheat cultivar Victoria, which belongs to var. valenciae. Tank mixtures of stimulator Napsil with herbicide Sansak and of stimulator Cemofol with herbicide Lintur not increase germination energy of the durum wheat seeds and the waste grain quantity. Tank mixtures of stimulator Napsil with herbicides Derby super, Secator and Lintur and of stimulator Cemofol with herbicides Derby super, Secator and Sansak increase seed germination. The lengths of the primary roots and coleoptile are increased the most by tank mixtures Napsil Derby super and Cemofol + Derby super. The grain yield was the highest by combined use of stimulators Napsil and Cemofol with herbicides Derby super and Secator. Stimulator Cemofol cannot be mixed with herbicide Lintur. There is antagonism at mixtures of stimulator Napsil with herbicides Lintur and Sansak. The lowest durum wheat grain yields are obtained by these tank mixtures.

- 33) Базитов, Р., И. Господинов, А. Стоянова. 2014. Евапотранспирация на зимен фуражен ечемик, напояван чрез дъждуване. Science and Technology, Plant studies, Volume IV, Number 6, 212-216.

Abstract: During the period of 2009–2012 in the experimental field of the Agricultural Institute, Stara Zagora on soil type meadow cinnamon soil was conducted experiment wit winter barley, sprinkler irrigation. Barley was grown after predecessor corn silage first culture. . It was found that while maintaining 75% of the PP , evapotranspiration of barley average three-year study period is 443,35 mm With growing winter feed barley, sprinkler irrigation , evapotranspiration established during the test period in the irrigation option reaches its maximum in period of stem - ear formation - 4,4 mm per day. Its average daily value of pulses within a certain range from 0,3 mm to 4,4 mm and depends on the amount of precipitation .

- 34) Stojanova, A., Gospodinov, I., Kostadinova, S., Petrovska, N. 2014. Effect of two technologies of irrigation and fertilization on maize yield and proteine concentration. Eco-Conference On Safe Food, Novi Sad, Serbia, 24-27, September, 71-80.

Abstract: The two technologies of irrigation of maize were studied in the period 2011-2013. It was established that the technology of irrigation of every other furrow and nitrogen fertilization in no irrigated furrow increased by 20 % on average grain yield of maize, in comparison with traditional technology. The irrigation of every other furrow and fertilization in no irrigated furrow significantly increased the mass of 1000 seeds by 24.6 % and positively affected the plant height, length of cob, tour of cob, number of rows in the cob, and weight of the grain in a cob. The method of irrigation and fertilization had no significant impact on the crude protein concentrations of maize plants, but hydrothermal conditions of the vegetation period determined the concentration of protein of leaves and stems. Strong positive correlation (0.826**) was established between the concentration of crude protein in the leaves and stems.

- 35) Delchev, G., T. Zhelyazkova, A. Stoyanova. 2014. Stability Valuation of Some Mixtures between Foliar Fertilizers and Combined Herbicides for the Grain Yield of Durum Wheat. TJANS-97, Special Issue: 1, 1128-1133.

Abstract: The research was conducted during 2010 - 2012 on pellic vertisol soil type. Under investigation was Bulgarian durum wheat cultivar Predel, which belongs to *Triticum durum* var. *valenciae* Desf. Factor A included years of investigation. Factor B included no treated check and 3 foliar fertilizers - Lactofol O - 8 l ha⁻¹, Terra-sorb - 3 l ha⁻¹, Humustim - 1 l ha⁻¹. Factor C included weeded no treated check and 3 combined herbicides – Axial one - 1 l ha⁻¹, Hussar max OD – 1 l ha⁻¹, Palace 75 WG - 250 g ha⁻¹. All of foliar fertilizers, herbicides and their tank-mixtures were treated in tillering stage of the durum wheat. There is antagonism of combined use by herbicide Hussar max with foliar fertilizers Lactofol and Humustim and by herbicide Palace with foliar fertilizer Lactofol. There is synergism by tank mixtures of herbicide Axial one with the three foliar fertilizers, by tank mixtures of herbicide Palace with foliar fertilizers Lactofol and Humustim, by tank mixtures of herbicide Hussar max with foliar fertilizer Terrasorb. The highest grain yield is obtained by tank mixture Terra-sorb + Axial one. Tank mixtures of complex fertilizer Lactofol with herbicides Palace and Hussar max and tank mixture of organic fertilizer Humustim with herbicide Hussar max are the most unstable for grain yield. Tank mixtures of foliar fertilizer Terra-sorb with the three herbicides, of foliar fertilizer Humustim with herbicides Axial one and Palace and of foliar fertilizer Lactofol with herbicide Axial one are technological the most valuable. They combine high grain yield with high stability with relation to different years. Self-use of foliar fertilizers Lactofol, Terra-sorb and Humustim without herbicides have low estimate and do not be used in the durum wheat crops.

- 36) Stoyanova, A. K. 2014. Comparative characteristics of two common wheats. Сборник научных докладов XVII международной научно-практической конференции, г. Новосибирск, 13 ноября, 119-122.

Abstract: Field study was conducted in 2012-2014 years, in the experimental field of the Department of Plant Agriculture Faculty at Trakia University, Stara Zagora. The field experience is known with two varieties of common wheat: Apolon and Inzhenio. The seed treatment is displayed with the following preparations for weed control: Axial one (pinoxaden + florasulam) - 1000 ml/ha; Axial 050 EC (pinoxaden) - 900 ml/ha; Traksos 045 EC (pinoxaden + clodinafop) - 1200 ml/ha; Logran 20 WG (triasulfuron) – 37.5 g/ha; Lintur 70 WG (triasulfuron + dicamba) - 150 g/ha. The summary criterion for stability of YSi Kang, taking into account both the stability and value of production praised the variants treated with systemic herbicide Axial one.

Technological valuable options appear with imported as a tank mix Logran + Traksos and separately imported Logran + Axial.

- 37) Stoyanova, A. K., Delchev G. D. 2014. Effect of some herbicides on the productivity of two common wheats. Сборник научных докладов XVII международной научно-практической конференции, г. Новосибирск, 13 ноября, 122-126.

Abstract: The experimental study was conducted in the experimental field of Agricultural Faculty at Trakia University, Stara Zagora in the period 2012-2014. The field experience is known with two varieties of common wheat: Diamant and Bolonia. Variants of the experiment are as follows: 1. Control - no treatment with herbicides, 2. Axial - 1 - 1000 ml/ha, 3. Lintur+Traksos 150g/ha + 1200ml/ha - tank mixture, 4. Logran+Traksos 37.5g/ha + 1200ml/ha - tank mixture, 5. Axial+Lintur 150g/ha + 900ml/ha - tank mixture, 6. Axial+Logran 37.5g/ha + 900ml/ha - tank mixture, 7. Lintur+Traksos 150g/ha+1200ml/ha - separate treatment and 8. Logran+Traksos 37.5g/ha+1200ml/ha - separate treatment. The attached leaf herbicide preparation provide high and stable yields. The conditions of the region of Stara Zagora in common wheat Diamond - 4245kg/ha, while in Bolonia - 5807kg/ha. According Synthesis stability criterion yields the most technologically valuable options appear involving herbicide Axial and separate enclosed preparations Logran + Axial.