РЕЗЮМЕТА

на научните публикации и трудове, представени за участие в конкурс за заемане на академичната длъжност - **"*Доцент*"** по област на висше образование
6. Аграрни науки и ветеринарна медицина, Професионално направление: 6.1 Растениевъдство, Научна специалност- "Агрохимия"
на ***гл. ас. д-р Недялка Николова Йорданова, катедра "Агрохимия и почвознание"*** при ***Аграрен Университет – Пловдив***

Обявен от Аграрен университет-Пловдив, в ДВ, брой 62 /21.07.2023 г.

I. ТРУДОВЕ ПО ПРОФЕСИОНАЛНО НАПРАВЛЕНИЕ, С КОИТО УЧАСТВА В НАСТОЯЩИЯ КОНКУРС

- **Хабилитационен труд – научни публикации (не по-малко от 10) в издания, които са реферирани и индексирани в световноизвестни бази данни с научна информация**

1. Manolov I., N.Neshev, V.Chalova, **N.Yordanova**, 2015. **Influence of potassium fertilizer source on potato yield and quality.** 50th Croatian & 10th International Symposium on Agriculture, Opatija, Croatia. Book of proceedings, pp.363-367, *ISBN:978-953-7878-30-6, ISBN:978-953-7878-27-6 (Proceedngs print)*

Abstract

The influence of potassium fertilizer source (K_2SO_4 and KCl) on potato yield and quality under pot experimental conditions was studied. Experiments included increasing rates of the potassium fertilizers providing 200, 400 and 600 mg/kg soil K_2O. Data indicated no statistical differences in potato yield as a result of potassium fertilizer source. In contrast, all studied quality parameters with the except for reducing sugars were influenced by potassium source. Increasing rates of KCl decreased most severely dry matter, starch and vitamin C contents in potato tubers which were diminished with 15%, 46% and 50% by K_{600} treatment respectively when compared to control.

Key words: ***potatoes, potassium fertilization, yield, dry matter, starch, vitamin C***.

2. **Yordanova N**., L.Kuzmanova, S.Kostadinova, 2015. **Dry mass and phosphorus translocation in barley in dependence of source-sink ratio.** The International Conference of the University of Agronomic Sciences and Veterinary Medicine of Bucharest, Scientific papers. Series A. Agronomy-Agronomy, Vol. LVIII, pp.344-348, *ISSN:2285-5785, e-ISSN:2285-5807*

Abstract

The changes in reutilization of vegetative dry mass of barley were studied in dependence of source-sink ratio as a result of the reduction of spike by half. A malting barley variety Krami was investigated in conditions of long-term fertilizer trial at the experimental field of Department of Agrochemistry and Soil Science of Agricultural University – Plovdiv on soil type Molic fluvisol. It was found that in anthesis the vegetative dry mass was higher than the dry mass of the growing spike, and its share of biomass was 31.0% for the first year of study and 31.9%, respectively for the second. The amount of phosphorus in the developing spike was 40.4% and 44.6%, respectively in 2013 and 2014. The reduction of the spike had a low influence on the accumulated straw dry mass but significantly reduced that of the grain, and therefrom the yield harvest index. As a result of the reduction of spike, the amount of phosphorus in grain was highly increased in both experimental years. As opposed to grain, the changes in the content of straw phosphorus in plants with and without reduced spikes, were less developed. Barley accumulated significant amounts of net dry mass after anthesis, and a gain of dry mass and phosphorus was established after that phase during the two years of study with high values in 2014-up to 67.3% for barley without reduced spikes. A higher efficiency of phosphorus reutilization was established in 2013-61.9%. The barley productivity decreased as a result of the spike reduction with a significant lowering of yield in 2014. A lower productivity was reported in the second year of study as a result of unfavourable weather conditions during the year.

Key words: ***barley – sourse-sink ratio***

3. Almaliev M., K.Trendafilov, V.Valcheva, **N.Yordanova**, N.Minev, 2016. **Potential of the land in Archar village for creation vines for quality wine grape varieties. Soil speciality of the terroir.** Scientific papers. Series A. Agronomy-Agronomy- University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, vol. LIX, pp. 21-26, *ISSN:2285-5785, ISSN-Online 2285-5907*

Abstract

The aim of this study was to make the soil characteristics of the land in Archar village and to assess their suitability for creation of new vineyards for growth of high-quality wine grape varieties. Successively were studied the characteristics of the terroir - soil texture and physical properties of the soil, determined was the soil reaction, the content of active calcium, humus, water-soluble salts and the content of nutrient macro elements. Based on the preliminary study results was determined harmful acidity and saturation degree of the soil with bases and has proposed a plan for amelioration of the problem areas and recommended fertilization rates. The presented work was an attempt to systematize of the complex study on the suitability of one complicated terrain in terms of its topography and erosion conditions with regard to its suitability for transformation into vine terroir.

Key words: ***soil, vines, terroir, wine grape varieties***

4. Minev N., **N.Yordanova**, M.Dimitrova, C.Dochev, I.Kostadinov, D.Doichev, 2017. **Influence of the stage of application and nitrogen forms on structural elements of maize yield.** 52. hrvatski i 12. međunarodni simpozij agronoma, 12. do 17. veljače 2017, Dubrovnik, Hrvatska. Zbornik radova, pp. 361-365, *ISSN:2459-5543*

Abstract

A study was carried out on the effect of nitrogen forms, applied in various stages of maize development, on growth and structural elements of the yield. Maize hybrid P0216 of Pioneer company was investigated, grown under irrigation conditions by the conventional technology for the country. The hybrid has a high productive potential and excellent drought tolerance. The experiment

was conducted by the block method, the plot size being 21 m² , and the nitrogen (240 kg N /ha) was applied in the form of NH_4NO_3 and $CO(NH_2)_2$ in the following variants: 1. Control variant (unfertilized); 2. NH_4NO_3 – the full rate applied before sowing; 3. NH_4NO_3 split application: ½ before sowing and ½ at 5th leaf stage; 4. NH_4NO_3 split application: 1/3 before sowing, 1/3 at 5th leaf and 1/3 at tasseling stage; 5. NH_4NO_3 split application: ¼ before sowing, ¼ at 5th leaf, ¼ at 12th leaf and ¼ at tasseling stage; 6. $CO(NH_2)_2$ – the full rate applied before sowing; 7. $CO(NH_2)_2$ split application: ½ before sowing and ½ at 10th leaf; 8. $CO(NH_2)_2$ ½ before sowing and NH_4NO_3 ½ at 10th leaf; 9. $CO(NH_2)_2$ ½ before sowing and NH_4NO_3 ½ at early tasseling stage. It was established that the time of nitrogen application and the scheme of fertilization are an important factor for the nitrogen nutrition of maize. Applying nitrogen fertilization (NH_4NO_3) following the scheme 1/3 before sowing, 1/3 at 5th leaf stage and 1/3 at early tasseling stage increased significantly cob weight, grain weight, the number of grains per cob and the total yield increased by about 4-8 t/ha.

Key words: ***maize, nitrogen fertilization***

5. Valcheva V., **N.Yordanova**, K.Trendafilov, 2019**. Research of terrains in Karnobat plain and assessment of their suitability for perennial plantation growth**. Scientific papers. Series A-Agronomy-Agronomy-University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, Issue 2, Vol. LXII, Issue 2, pp.40-43, *ISSN:2285-578, e-ISSN:2285-5807*

Abstract

The study was carried out on terrains located in Ginot and Vodenichane villages, on a total area of 152.2 hectares. As a result of the study in the investigated terrains, were established the following soil differences - Pelic vertisols, Peligleyic vertisols, Chromi-eutric cambisols, Eutric regosols, Rankers. The lands of Ginot village occupies a total area of 39 hectares in the high western part and 10 hectares in the lower eastern part, which borders the river Tarnavska. In the western part the terrain was well drained, including the areas of the relatively shallow gully in a direction from the northeast to the southwest. The following massifs were studied on the land of the village of Vodenichane: M 160 occupied a high and generally drained terrain, where the deep and well developed soils occupy about 24% and the rest occupied with shallow and stony soils; M 100 is a complex landscape which can be divided into drained and not drained parts. The slightly drained and not drained part of the terrain occupied an area of 9 hectares in the eastern part of the site; M 210 - the whole area was a low not drained or slightly drained area. The groundwater level was high.

Key words: ***soils, erosion, fertilization, amelioration***

6. Dimitrova M., N.Minev, **N.Yordanova**, V.Valcheva, M.Yanev, 2019. **Effect of planting density of different maize hybrids on crop growth and yield**. Scientific Papers Series A. Agronomy, University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, Vol. LXII, No. 2, pp.73-76, *ISSN:2285-5785; ISSN-Online 2285-5807*

Abstract

Three hybrids of maize of Pioneer Company (P9241, P9900 and P0023) grown at different plant densities (40000, 46000, 56000, 69000 number per ha) were studied in the experimental field of Agricultural University of Plovdiv in 2015 and 2016. The purpose of this study was to trace the influence of sowing density of maize hybrids on growth and yield. The experiments were carried out by split-plots method. The experimental areas were fertilized with a nitrogen fertilizer rate of 240 kg/ha - ½ $CO(NH_2)_2$, applied in the 5-6 leaf stage of the plant and ½ NH_4NO_3, applied into the 10th leaf stage. A hybrid P9900 has the highest plants at the end of vegetation. There was no significant difference between variants with plant densities - from 279.4 cm (40000 plants/ha) to 284.4 cm (56000 plants/ha). Height of plants of hybrid P9241 was the smallest - 260.5 cm at a sowing density

of 40000 plants/ha. The highest yield between 3 hybrids was obtained at a sowing density of 69000 plants per ha. Hybrid P9241 showed yield of 13800 kg/ha, while hybrid P9900 - 14257 kg/ha.

Key words: ***maize, planting density, growth, yield***.

7. Minev N., **N.Yordanova**, M.Dimitrova, M.Almaliev, 2019. **Agrochemical study on Maize (Zea mays L.) grown under different variants of nitrogen fertilization**. Scientific Papers Series A. Agronomy, University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, Vol. LXII, pp.99-103, *ISSN:2285-5785; ISSN-Online 2285-5807*

Abstract

Basic agrochemical characteristics were studied in maize grown under different variants of nitrogen fertilization. The maize hybrid P0216 of Pioneer Company was studied, grown under irrigation conditions, following the conventional adopted technology in our country. The hybrid is characterized by high productivity and drought resistance. The trial was set by the block-plot method with a plot size of 21 m² . Nitrogen (2.4 kg N/ha) was applied in the following variants: 1. Untreated control; 2. NH_4NO_3 - pre-sowing application of the whole rate; 3. NH_4NO_3 - split application: ½ presowing and ½ at 5th leaf; 4. NH_4NO_3 - 1/3 pre-sowing application, 1/3 - at 5th leaf and 1/3 - at tasseling stage; 5. NH_4NO_3 - ¼ pre-sowing application, ¼ - at 5th leaf, ¼ - at 12th leaf and ¼ - at tasseling stage; 6. $CO(NH_2)_2$ - presowing application of the whole rate; 7. $CO(NH_2)_2$ - ½ pre-sowing and ½ at 10th leaf; 8. $CO(NH_2)_2$ - ½ pre-sowing and NH4NO3 - ½ at 10th leaf; 9. $CO(NH_2)_2$ - ½ pre-sowing and NH_4NO^3 - ½ at tasseling stage. Export of nutrients and their use efficiency per production unit are important agrochemical indicators for maize. Their values vary according to the genotype, soil and climatic conditions, the predecessor and fertilization. Nitrogen export varies greatly depending on the fertilization rate and phosphorus and potassium export - depending on the genotype and climatic conditions during the year.

Key words: ***maize, nitrogen fertilization, climatic conditions***

8. **Yordanova N.,** T.Moskova, M.Almaliev, V.Delibaltova, V.Valcheva, M.Tityanov, 2022. Effects of some products for foliar application on the productivity and essential oil content in lavender (Lavandula angustifolia Mill.). Bulgarian Journal of Agricultural Science, Vol. 28 No.1, pp. 96-102, *ISSN:2534-983X*, **SJR: 0.22; Q3**

Abstract

The experiment was conducted in the period 2018-2020 in the region of Razgrad, the land of Osenets village, Northeastern Bulgaria on soil type Chernozem and an experimental area of 500 m² in four replications with lavender variety Sevtopolis.

The following foliar fertilizers and biostimulators were included in the study at the respective rates: Variant 1 – Fertigrain foliar – 1.5 l/ha, Variant 2 – Amalgerol – 3.5 l/ha, Variant 3 – Fertileader vital – 3 l/ha, Variant 4 – Siapton – 3 l/ ha. They were applied at the end of buttoning and the beginning of flowering stage. In order to follow out the effect of those products on the elements of productivity, essential oil content, inflorescences and essential oil yield, the variants were compared to an untreated control (Variant 5). The experiment was carried out following the adopted cultivation technology. The following characteristics were reported: number of tuft inflorescences, length of flowering stem, number of flower nodes, weight of tuff inflorescences, yield of fresh inflorescences – kg/ha, essential oil content – % and yield of essential oil – kg/ha. Data obtained for the values of the structural elements, the yield and the essential oil content were statistically processed by the method of dispersion and correlation analyses.

The results showed: the structural elements of the yield – number of tuft inflorescences, length of flowering stem, number of flower nodes and weight of tuff inflorescences in the treated variants exceed the untreated control up to 8.9%, 11.3%, 19.34% and 13.6% respectively.

The increase in flower yield in the products used for foliar application was in the range from 69 to 580 kg/ha compared to the control variant. The highest yield was reported in the variant treated with the preparation Siapton 3 l/ha – 6280 kg/ha. Compared to the untreated control in foliar fertilization with the tested products was reported an increase in the content of essential oil, and the highest values were when used the product Fertilider vital 3 l/ha – 1.69% to 1.51% for the control variant. The yield of essential oil was with the highest values when used the products Fertileader vital 3 l/ha and Siapton 3 l/ha and exceed the control variant by 18.2%.

Key words: ***biostimulants; essential oil %; essential oil yield; foliar fertilizer; inflorescences yield; lavander***

9. Minev N., A.Matev, **N.Yordanova**, I.Milanov, M.Sabeva, M.Almaliev, 2022. **Effect of foliar products on the inflorescence yeld of lavender and essential oil.** Agronomy Research 20(3), pp. 660-671, *ISSN:1406-894X*, **SJR: 0.29; Q3**, http://agronomy.emu.ee/, https://www.scopus.com/sourceid/21100201050

Abstract

The topic of the effect of foliar fertilization on the productivity and oil content of lavender is relevant, but not sufficiently studied. The present study aims to establish the effect of foliar products on the growth, development and productivity of lavender. The field experiment was carried out at the Agricultural University - Plovdiv with lavender of 'Jubileina' variety during 2019–2020. The following variants were included in the study: 1. Untreated control; 2. Treatment with Fertileader Gold (FG) - 3 L ha-1; 3. Treatment with Fertiactyl Trium + Fertileader Vital (FT + FVital) - 1.5 + 1.5 L ha-1; 4. Treatment with Fertileader Viti (FViti) - 3 L ha-1; 5. Treatment with Fertileader Vital (FV) - 3 L ha-1; 6. Treatment with Fertileader Alpha (FA) - 3 L ha-1. Those preparations are bio stimulants for foliar application. The treatments were made in two consecutive lavender vegetation seasons. The first application was carried out in the second growing season (2019) and the second in the next, third growing season (2020). The foliar application of all tested products increased the photosynthetic activity, but it was better expressed when using the plant nutrition products FV, FViti and FT + FVital. A positive effect was also observed in the height and diameter of the bush, but during the third vegetation period. The number of flowering stems increased by 62.9%; 59.4%; 53.3% and 8.4%, respectively, when applying the fertilizers FG, FT + FVital, FViti and FV. The application of FG and FT + FVital increased the yield of fresh inflorescences by 6.1% and 3.7%. The application of the different products affected the oil yield in different ways; the application of FG, FT + FVital and FViti increased it, while FV and FA decreased it by 27 kg ha-1 and 16 kg ha-1, respectively, for the first vegetation and by 43.4 kg ha-1and 33.1 kg ha-1 for the second vegetation. The boron containing products FG, FT + FVital and FViti led to a significant increase in the essential oil yield, while the application of the foliar fertilizers FV and FA reduced it. Based on those results, the first three products are recommended.

Key words: ***medicinal crops, Lavandula angustifolia, foliar fertilization, flower yield, oil yield, oil content***

10. Harizanova A., V.Delibaltova, M.Shishkova, N.Neshev, M.Yanev, A.Mitkov, **N.Yordanova**, S.Manhart, M.Nesheva, P.Chavdarov, 2022. **Effect of the Predecessor and the Nitrogen Rate on Productivity and Essential Oil Content of Coriander (Coriandrum sativum L.) in Southeast Bulgaria.** Agronomy Research 20(3), pp. 562–574, *ISSN:1406-894X*, **SJR:0.29; Q3,** https://doi.org/10.15159/AR.22.0632

Abstract

Coriander (Coriandrum sativum L.) is one of the most important essential oil crops on a global scale. Coriander productivity is determined by the genotype, the environmental factors, as well the agronomic practices. A field experiment was conducted in Southeast Bulgaria during three vegetation

seasons (2015, 2016, and 2017). The present study aimed at analysing the influence of two crop predecessors (winter wheat and sunflower) and four nitrogen (N) levels (0, 40, 80, and 120 kg ha-1). Productivity elements, seed yield, and seed essential oil content of coriander (cv. Mesten drebnoploden) were under evaluation. The results obtained showed that winter wheat was a more suitable predecessor of coriander in comparison to sunflower. The highest results regarding the number of umbels per plant, the umbel's diameter, the number of umbellets per umbel, the number of seeds per umbel, the seed weight per plant, the 1,000 seed mass, as well as the seed yield for the rate of 80 kg ha-1 of N were recorded. The highest essential oil content after applying 120 kg ha-1 of N was established. Increasing the N level from 0 to 120 kg ha-1 led to a positive and significant effect on essential oil yield. No significant differences between the N rates of 80 and 120 kg ha-1 were recorded. The received results contributed for the evaluatation of the optimum nitrogen level, as well as for the determination of a more suitable predecessor of coriander in order to obtain the highest yield of better quality in the region of Southeast Bulgaria.

Key words: ***Coriandrum sativum, crop rotation, fertilization, precursor, seed yield***

- **Публикувана книга на базата на защитен дисертационен труд за присъждане на образователна и научна степен "доктор"**

1. Йорданова Н., 2020, **Сравнително изследване на нови сортове пшеница, отглеждани самостоятелно и в лентов посев със слънчоглед**, Издателство „Интел Ентранс" София, 218 с., *ISBN:978-619-7554-31-1*

УВОД

Съвременните сортове пшеница са с високи продуктивни възможности, но съществува генотипна специфика в изискванията им към хранителните вещества. Ето защо е необходимо агротехниката на културата да бъде съобразена със сортовите особености. Продуктивността на пшеницата зависи от генетичните заложби на сорта, но за да разкрие потенциалните си възможности от значение са хранителния режим на почвата и торенето. Съвременното зърнопроизводство се основава на използване на нови сортове пшеница с по-големи продуктивни възможности. Системата на торене на пшеницата, отглеждана при конкретни почвено-климатични условия е един от най-ефективните фактори за регулиране храненето на растенията и обезпечаването на възможности за пълна реализация на генетичния им добивен и качествен потенциал. Това налага проучване на новите пшенични сортове с оглед оптимизиране на тяхното хранене съобразно биологичните им изисквания и нивото на запасеност на почвата с хранителни вещества. Сортовете пшеница се различават не само по продуктивност и качество на зърното, но и по изисквания към хранителни елементи и факторите на средата. Тези различия са естествени, както нееднаквата устойчивост към полягане, ниски и високи температури, воден стрес и болести. Проведените в България проучвания с различни пшенични сортове при конкретни почвено-климатични условия показват редица специфични особености, които могат да се разглеждат като сортов признак. Това се отнася както по отношение на количествените изисквания на пшеницата към хранителните вещества за формиране на добива, така и по отношение на реализираната продуктивност и качество на зърното. Конкретността на тези изследвания се определя от сорта, условията на отглеждане и прилаганата технология. Редица изследователи определят тази специфичност като сортова или генотипна реакция, която в повечето случаи се свързва с минералното хранене на сорта. Разлики в отзивчивостта на сортовете към минерално хранене могат да бъдат дори по-големи, отколкото между видовете. На първо място в тази верига се поставя азотното хранене като лимитиращ фактор за

количеството и качеството на пшеничното зърно. 5 При пшеницата и другите видове култури се проявяват специфично и редица ограничаващи фактори, свързани с хидротермичните условия, които имат различно отрицателно влияние върху растежа, развитието и продуктивността им. В последния доклад на Междуправителствената експертна група по изменение на климата Intergovernmental Panel on Climate Change (IPCC, 2007) се изтъква, че е налице тенденция за затопляне на климата на планетата, като повишаването на температурата за стогодишен период (1906– 2005) е оценено на 0,74oC. От редица изследвания у нас е установено, че изменението на климата на територията на Южна България се изразява в тенденции към затопляне и засушаване, поради което състоянието на посевите през някои години се влошава, добивите от земеделските култури рязко се понижават. За условията на Централна Южна България по-високите температури и засушаването са често явление, съвпадащо с фазите изкласяване и наливане на зърното. Пшеницата е чувствителна към повишаването на температурата и засушаването, което се отразява на скъсяване на периода на наливане на зърното и в крайна сметка на редуциране на добива. Променящата се климатична характеристика налага избора на генотипи за конкретен агроекологичен район и избор на практиките за тяхното отглеждане като важен фактор за получаване на стабилни добиви при променящите се условия. В тази връзка са необходими познания за влиянието на тези промени върху културните растения за успешното им адаптиране към тях. В условията на съвременното земеделие се търсят технологични решения, които да ограничат неблагоприятното влияние на климатичните фактори. Търсят се нови методи и средства свързани с изграждане на структурата на посевите, както и технологични решения относно начина на редуване, сроковете и нормите на внасяне на минералните торове.

- **Статии и доклади, публикувани в научни издания, реферирани и индексирани в световноизвестни бази данни с научна информация**

1. Томов Т., **Н.Йорданова**, 2008. **Ефект на системи на торене върху продуктивността, износа и разхода на азот, фосфор и калий от пшеничния сорт – Прелом *(Effect of different productivity on N, P & K taken up from wheat variety Prelom).*** Аграрен Университет - Пловдив, Научни трудове, т. LIII, с. 125-128, *ISSN:1312-6318*

Abstract

The effect of different fertilizing systems on productivity and nutritional uptake from wheat variety Prelom, grown on medaw soil Plovdiv region was studed. The studded fertilizing systems were: 1. unfertilized; 2. $N_6P_{7,5}K_5$; 3. $N_{12}P_{7,5}K_5$; 4. $N_{18}P_{7,5}K_5$; 5. 6 t/dka manure + NP; 6. $N_{12}P_0K_5$; 7. $N_{12}P_{7,5}K_0$. The different fertilizing systems led to different yield increasing from 69.2 to 214.7 % in comparison with unfertilized variant. The nitrogen fertilization had crucial effect on the yield. The exclusion of phosphorus from mineral fertilizing system decreased wheat productivity with 121.8 % in comparison with analogy system but phosphorus ensured. The exclusion of potassium had not effect on wheat productivity. The fertilized plants were taken up from 5.5 to 12.9 kg N/dka, from 1.4 to 4.0 kg P_2O_5/dka, from 4.4 to 11.8 kg K_2O/dka. The wheat variety Prelom up take from 1.73 to 2.97 kg N, from 0.51 to 10.94 kg P_2O_5, from 1.86 to 2.60 kg K_2O for formation of 100 kg main production.

2. Томов Т., Г.Рачовски, **Н.Йорданова**, 2008. **Ефект на системи на торене върху продуктивността, износа и разхода на азот, фосфор и калий от пивоварния ечемик Каменица *(Effect of different productivity on N, P & K taken up from brewing barley***

variety Kamenica). Аграрен Университет - Пловдив, Научни трудове, т. LIII, с. 129-132, *ISSN:1312-6318*

Abstract

The effect of different fertilizing systems on productivity and nutritional uptake from brewing barley variety Kamenica, grown on medaw soil Plovdiv region was studed. The studded fertilizing systems were: 1. unfertilized; 2. $N_4P_{7,5}K_5$; 3. $N_8P_{7,5}K_5$; 4. $N_{12}P_{7,5}K_5$; 5. 6 t/dka manure + NP; 6. $N_8P_0K_5$; 7. $N_8P_{7,5}K_0$. The different fertilizing systems led to different yield increasing from 56.6 to 171.7 % in comparison with unfertilized variant. The nitrogen fertilization had crucial effect on the yield. The exclusion of phosphorus from mineral fertilizing system decreased barley productivity average with 78.3 % in comparison with analogy system but phosphorus ensured. The exclusion of potassium had not effect on barley productivity. The fertilized plants were taken up from 6.8 to 13.9 kg N/dka, from 1.2 to 4.7 kg P_2O_5/dka, from 4.8 to 13.1 kg K_2O/dka. The brewing barley variety Kamenica up take from 2.25 to 3.30 kg N, from 0.6 to 1.2 kg P_2O_5, from 1.85 to 3.28 kg K_2O for formation of 100 kg main production.

3. **Yordanova N**., S.Kostadinova, 2015. **Effect of source–sink ratio on the dry mass and nitrogen accumulation and translocation in wheat and barley**. 50th Croatian & 10th International Symposium on Agriculture, Opatija, Croatia. Book of proceedings, pp. 344-348, *ISBN:978-953-7878-30-6, ISBN:978-953-7878-27-6 (Proceednqs print)*

Abstract

The reutilization of vegetative dry mass and nitrogen in dependence of source-sink ratio was studied in wheat and barley plants. It was established thatthe sink reduction strongly reduced grain yield and harvest index and weakly affected the straw. Spikes trimming greatly decreased the grain nitrogen in both crops and had a weak effect on the nitrogen content of straw. Wheat and barley accumulated significant amounts of dry mass after anthesis. Both crops demonstrated a gain of dry mass and nitrogen after anthesis– up to79.7% for barley with normal spikes. The plants with trimmed spikes showed the highest nitrogen translocation efficiency - 62.0%. The sink reduction caused stronger decrease in the wheat productivity than in barley.

Key words: ***wheat, barley, source-sink ratio***

4. **Yordanova N**., 2020. **Influence of the fertilization on the productivity and some agrochemical indicators of barley varieties** *(Влияние на торенето върху продуктивността и някои агрохимични показатели на сортове ечемик)*. Journal of Mountain Agriculture on the Balkans, Vol.23, No 6, Research Institute of Mountain Stockbreeding and Agriculture, Troyan, pp.187-201, *ISSN:1311-0489 (Print); ISSN:2367-8364 (Online)*

Abstract

During the period 2017-2019 in the conditions of field fertilization experiment in the region of Pleven was studied the influence of fertilization on important agrochemical indicators and the yields of three varieties of winter barley: Emon, Ahil and Kuber. The influence of the nitrogen fertilization factor in the following variants was studied: 1. Control (non-fertilized variant); 2. $N_6P_{10}K_6$; 3. $N_9P_{10}K_6$ and 4. $N_{12}P_{10}K_6$ kg/da active substance. The nitrogen fertilizer rates were applied once (early spring feeding) on the background of autumn fertilization with $P_{10}K_6$. Barley was grown after its predecessor maize according to the technology adopted for the country. It was found that in the flowering stage the dry biomass of the vegetative parts was with higher values compared to that of the developing class. On average for the experimental period, the Ahil variety formed the largest amount of total biomass at a fertilizer rate of N_{12} – 522.5 kg/da. The inclusion of fertilization in the cultivation of barley had a positive effect on the accumulation of total biomass in the range of 7-15 kg/da. Increasing the

nitrogen fertilizer rate to N_9 and N_{12} significantly increased the values of the indicator by 30-50 kg/da, respectively. The concentration of the main macronutrients in the plant mass increased with increasing fertilizer rate. Comparing the studied varieties with each other, it was found that with higher concentrations of nitrogen, phosphorus and potassium in the grain and straw were distinguished varieties Ahil and Kuber, compared to the variety Emon. The increase in the nitrogen fertilizer rate leads to an increase in the uptake of nitrogen, phosphorus and potassium with the barley grain and had a significantly smaller effect on the uptake of nutrients with the barley straw. The differences in the nitrogen uptake at fertilizer rates N_9 and N_{12} were insignificant. The productivity of barley varieties has been proven to increase with increasing nitrogen fertilizer rate. The realized higher yield at fertilizer rate N6, compared to the non-fertilized variant, was in the range of 130-140 kg/da and 220-250 kg/da at fertilization rates N_9 and N_{12}. During the study period, the Ahil and Kuber varieties formed higher grain and straw yields compared to the Emon variety at all levels of nitrogen fertilization.

Key words: ***barley, dry biomass, fertilization, productivity***

5. **Yordanova N.,** 2021. **Reutilization of the stem reserves of common wheat during the change of the source-sink ratio** *(Преизползване на стъбления резерви от обикновена пшеница при промяна на съотношението донор-акцептор).* Journal of Mountain Agriculture on the Balkans, Vol.24, No 4, Research Institute of Mountain Stockbreeding and Agriculture, Troyan, pp.168-185, *ISSN:1311-0489 (Print); ISSN:2367-8364 (Online)*

Abstract

The changes in the reutilization of the stem reserves of common wheat during the change of the source-sink ratio as a result of the reduction of the spike by half were studied. The experiment was conducted in the period 2017-2019 in the conditions of field experiment in the region of Pleven. Two varieties of common wheat were studied - Sadovo 772 and Stoyana, grown on Mollic Fluvisols. It was found that after the flowering stage wheat varieties Sadovo 772 and Stoyana continued to accumulate dry mass. The reutilized pre-flowering biomass varies from 1.8 kg/da to 43.0 kg/da, with higher values were reported for the variant with spike reduction. The participation of pre-flowering assimilates in the grain increased due to the change of the acceptor, by 3.3 - 5.5% in the variety Sadovo 772 and by 5.9 - 7.3% in the variety Stoyana. In the plants with reduced spike, the efficiency of nitrogen reutilization and the share of pre-flowering nitrogen in the grain were increased, as it reached approximately 35% in both studied genotypes. The efficiency of reuse of phosphorus from the variety Stoyana was 47 - 61%, and from the variety Sadovo 772 was 49 - 53%. On average for the studied period, the share of pre-flowering phosphorus in the grain was also high – 46% in the variety Stoyana and 41% in the variety Sadovo 772. In the plants with reduced spike, phosphorus loss was found after flowering. The studied varieties were characterized by approximately the same productivity, which for the experimental period varies from 499 kg/da to 633 kg/da. Grain yields from reduced- spike plants were significantly lower – by 25 - 35%.

Key words: ***dry mass, nitrogen, wheat, reutilization, phosphorus, productivity***

6. Valcheva V., **N.Yordanova**, 2022. **Methodology for complex meliortive effect on the acid-alkaline balances in the soils.** Scientific papers. Series A. Agronomy-Agronomy-University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, Vol. LXV, No. 2, 2022, pp. 142-148*, ISSN:2285-5785, ISSN:Online 2285-5907*

Abstract

For several years have developed and tested specific methods for soil sampling and interpretation of the results regarding the assessment of soil heterogeneity in the vineyard terroir. The heterogeneity of the soil in terms of the indicators characterizing the harmful acidity in the soil must be taken into

account not only in the area horizontally, but also in the vertical direction - i.e. the change in the depth of the soil profile. The role of acid-alkaline balance due to the structure of soil acidity is a complex soil component of the terroir. In terms of its relative influence, it is comparable to the importance of the chemical composition of the soil as it determines the dynamics of its components in the soil-plant system.

Key words: ***acid-alkaline balance, liming model, soil sampling model***

7. Trendafilov K., **N.Yordanova**, 2022. **Research the meliorative effect of precipitate on pH values according to the profile of genetically acid soils**. Scientific papers. Series A. Agronomy-Agronomy- University of Agronomic Science and Veterinary Medicine of Bucharest Faculty of Agriculture, pp. 177-182, ISSN:2285-5785, *ISSN:CD-ROM 2285-5793, ISSN:Online 2285-5907*

Abstract

In the present study, the effect of the precipitate as a chemical ameliorant on the changes of the values of the pH indicator along the depth of the soil profile was studied. Its interaction with the soil was also associated with the release of Ca2+, which was due to its prophylactic chemical-ameliorative effect in acidic soils. The movement of the precipitate along the depth of the soil profile and in general the migration of this compound into the soil volume was very limited, both with respect to the phosphate and the calcium component. Better penetration into the deep soil horizons was observed at constant humidity close to utmost field moisture content and at soils with a high rate of natural water filtration.

Key words: ***acid soils, pH, precipitate, soil profile***

- **Статии в нереферирани списания с научно рецензиране или в редактирани колективни томове**

1. Костадинова, С., **Н.Йорданова**, И.Янчев, 2013. **Генотипна реакция към фосфорното торене при млади пшенични растения** *(Genotipic Reaction of Yang Wheat Plants to Phosphorus Fertilization)***.** Растениевъдни науки - Международна научна конференция „130 години земеделска наука в Садово", т. L, кн. 4-5, с. 15-19, *ISSN:2534-9848*

Abstract

The reaction of 11 varieties common wheat to the phosphorus fertilization was studied under pot experiment with three P levels – 0, 200 and 400 mg P_2O_5 /kg soil and N background N300.

It was established that P fertilization increased by 39% dry mass of plants at tillering. In dependence of genotype three groups were distinguished: varieties Svilen and Factor increased dry mass at tillering parallel with increasing P levels up to P400; 2) varieties Aneta, Viara, Laska and Sadovo 1, that decreased dry mass under P level higher than P200; and 3) Varieties Neven, Prelom, Pobeda, Katya and Bononia that slightly changed dry mass when grown under level higher than P200.

The genotype specific in total P concentrations at tillering was shown in plants grown without P and under level P200. The K concentrations in studied varieties soft wheat decreased when plants were grown at P level higher than P200.

Key words: ***soft wheat, phosphorus fertilization, NPK concentrations***

2. **Йорданова Н.,** И.Янчев, 2013. **Ефект на азотното торене върху продуктивността и качеството на сортове обикновена пшеница, отглеждани самостоятелно и в лентов**

посев със слънчоглед *(Effect of Nitrogen Fertilization on Productivity and Quality of Winter Wheat Varieties Grown Alone and As Broad-Strip Intercrop with Sunflower)*. Растениевъдни науки-Международна научна конференция „130 години земеделска наука в Садово", т. L, кн. 4-5, с. 20-24, *ISSN:2534-9848*

Abstract

The influence of nitrogen fertilization on productivity and quality of winter wheat varieties: Sadovo 1 (standard), Plovdiv, Gaia 1 and Sadovo 772, grown alone and as broad-strip intercrop with sunflower. Four wheat varieties were grown on Alluvialmeadow soil of experimental field in the region of Plovdiv. Tested the following variants of nitrogen fertilization: N_0 , N_8 , N_{16} and N_{24} background $P_{15}K_{10}$. It was found with increasing nitrogen fertilization rate to 16 kg N/da, productivity and quality of grain is increased at all tested varieties. Importation of 24 kg N/da is economically justified as it leads at a significant increase in the quality.

The attached tape growing varieties tested positive influence maturation and productivity of winter wheat varieties, but no significant effect on grain quality.

Key words: ***winter wheat, nitrogen nutrition, productivity, quality of grain***

3. Neshev N., I.Manolov, V.Chalova, **N.Yordanova**, 2014. **Effect of nitrogen fertilization on yield and quality parameters of potatoes *(Влияние на азотното торене върху продуктивността и качеството на картофите)*** Research Institute of Mountain Stockbreeding and Agriculture, Troyan. Journal of Mountain Agriculture on the Balkans, Vol. 17, No.3, pp.615-627, *ISSN:1311-0489 (Print) ISSN:2367-8364 (Online)*

Abstract

The effect of increasing nitrogen fertilization rates (0, 200, 400, 600, 800 and 1000 mg/kg soil) on the background of equal phosphorus and potassium fertilization rates (150 mg/kg soil) on potato yield and selected quality parameters was studied under pot experimental conditions. Increasing N rates led to a reduction of potato yield.

The highest yield of potato tubers (288 g/plant) was a result of the treatment with the lowest nitrogen level (200 mg N/kg soil).

The highest nitrogen rate (1000 mg N/kg soil) fully suppressed tuber formation (0 g/plant yield). The nitrogen fertilization increased the content of chlorophyll and carotenoids in leaves.

The increase of N rate up to 800 mg N/кg soil decreased the dry matter of potatoes from 19.4% (control) to 12.9%.

The same tendency was observed for starch content in tubers: 13.4% at control and 8.4% for the treatment with 800 mg N/кg.

The nitrogen fertilization did not influence the content of reducing sugars in tubers.

It remained almost (0.40%) under conditions of all treatments. The content of vitamin C was the lowest at control (11.4 mg/100 g).

The highest content of the vitamin (15 mg/100 g) was found at the treatment with 400 mg N/kg. The higher N rates decreased the content of vitamin C in tubers. A positive correlation between nitrogen rate and the crude protein content in potatoes was observed.

Key words: ***potatoes, yield, nitrogen fertilization, starch, vitamin C***

4. Manolov I, N.Neshev, **N.Yordanova**, 2014. **Effect of nitrogen fertilization on nutrient content in plant biomass and productivity of potatoes**. 3rd Conference with International Participation Conference VIVUS „Transmission of Innovations, Knowledge and Practical

Experience into Everyday Practice “, Slovenia. Collection of Papers, pp. 216-222, *ISBN:978-961-93564-4-9*

Abstract

The effect of nitrogen fertilization (0, 200, 400, 600, 800 and 1000 mg/kg soil) on the content of nitrogen (N), phosphorus (P) and potassium (K) in potato plant parts and the uptake of the elements from the soil under pot experimental conditions was studied. Equal P and K fertilizing rates (150 mg/kg soil) were applied to all variants. The increase of N rate increased the nitrogen level from 1.17 % (N0) to 2.06 % (N1000) in roots, from 0.43 % to 2.31% (N1000) in tubers and from 2.08 (N0) to 3.29 % (N1000) in above ground biomass. Approximately 74 % of absorbed nitrogen from the soil was alocated in the above ground biomass. The rest of the nitrogen was distributed between roots (14 %) and tubers (12 %). Slight differences in plant P and K uptake at all treatments were observed. The highest yield of potato tubers per plant (288 g) was achieved after treatment with the lowest nitrogen rate (N200). The enhancement of N rate decreased potato yields. Due to rather high nitrogen rate at the last variant (N1000), the formation of tubers was completely suppressed.

Key words: ***Solanum tuberosum L., nitrogen fertilization, uptake of N, P, K, yield***

5. Янчев И., **Н.Йорданова**, Х.Кирчев, А.Матев, 2014. **Ефект на азотното торене върху продуктивността и качеството на сортове обикновена пшеница, отглеждани самостоятелно и в лентов посев със слънчоглед**. Management & Sustainable Development (Управление и устойчиво развитие): общество, човек, природа (Лесотехнически Университет, Фак. Стопанско управление), Vol. 46, (3), с. 56-60, *ISSN:1311-4506*

Abstract

Проучено е влиянието на азотното торене върху продуктивността и качеството на сортове обикновена пшеница: Садово 1 (стандарт); Пловдив; Гея 1 и Садово 772, отглеждани самостоятелно и в лентов посев със слънчоглед. Четирите сорта пшеница са отглеждани върху алувиално-ливадна почва на опитното поле на катедра „Растениевъдство” в района на Пловдив. Изпитвани са следните варианти на азотно торене: N_0, N_8, N_{16} и N_{24} на фон $P_{15}K_{10}$. Установено е, че с нарастване на азотната торова норма до 16 kg N/da, продуктивността и качеството на зърното се увеличават при всички изпитвани сортове. Внасянето на 24 kg N/da е икономически неоправдано, тъй като не води до съществено увеличаване на количеството и качеството на продукцията. Приложеното лентово отглеждане на изследваните сортове повлиява положително узряването и продуктивността на сортовете обикновена пшеница, но не оказва съществено влияние върху качеството на зърното.

6. Trendafilov K., V.Valcheva, M.Almaliev, **N.Yordanova**, N.Minev, S.Todorova, 2015. **Adjustment of Low Productive Terrains for Establishment of Vineyard Terroir in Bulgaria**. International Journal of Research in Agriculture and Forestry, vol. 2, Issue 4, pp. 40-49, *ISSN:2394-5907, ISSN:2394-5915 (Online)*

Abstract

The aim of this study was to propose principles technological decisionsfor adjustment of low productive terrains located in Chernogorovo village and their conversioninto specific terroir for growthof wine varieties vineyards. Successively were studied the morphological characteristics of the terrain -mechanical composition and physical properties of the soil, determines were soil reaction, the content oftotal and alkaline earth carbonates, the content of active calcium, humus content, water-

soluble salts, the content of easily absorbable iron, index of chlorineforce and the content of nutrient macro elements. Based on the results was found, that within the studied terrain in the part occupied by Chromi-eutriccambisols and Eutric regosols, the terrain was suitable for the establishment and cultivation of vineyards in the direction of high quality red wines. The content of total carbonates and active calcium in Chromi-eutriccambisols did not limit the choice of pad. Can be used seedlings, grafted of pad Berlandieri x Riparia selection Openhaim 4 (SO_4) or other suitable. The area, occupied by Eutric regosols, had higher content of total and active carbonates and it is recommended the use of sustainable pad - Chasla x Berlandieri 41B.The presented study was an attempt to systematize the complex research on the suitability of one complicatedterrain in terms of erosive conditions with regard to its suitability for transformation into vineyard terroir.

Key words:***soilproperties, vineyard, terroir, wine varieties***

7. **Yordanova N**., N.Minev, M.Almaliev, K.Trendafilov, V.Valcheva, S.Todorova, 2015. **Research the suitability of the land for growth of berries and medical plants: recommendable fertilization rates.** Sixth International Scientific Agricultural Symposium "Agrosym 2015", Jahorina, Bosnia and Herzegovina, pp. 148-155, *ISBN:978-999-766-322-1*

Abstract

The normal growth of most crops ensures in an average annual rainfall 600-800mm. The average annual rainfall in the studied area was 830 mm (with a confidence interval 804-856 mm), and was sufficient to provide the necessary moisture for vegetation for the crops with deep root system. For other crops was necessary to provide irrigation. The terrain is located in the area of Elena town and was in erosive danger. Crop irrigation by gravity way can lead to the intensity of the erosion process and disinterment of the topsoil humus-elluvial layer of the rows. The established values of the indicator pH in the studied plots were significant restriction for the growth of the proposed crops for cultivation. For creation of better conditions for crops growth needs liming on the plots with identified soil acidity. The exceedances of the established concentrations of the easily-mobile exchangeable aluminium and hydrogen, toward conventional limit for toxicity were minor and determine low level of acid toxicity of the soil for the plants. The average content of exchangeable manganese, found in the subsoil horizon exceeds the registered content for the cultivated layer. There is not a tendency of biological accumulation of manganese in the topsoil horizons.

***Key words**:* soil, fertilization rates, berries, medical plants

8. **Йорданова Н.,** 2020. **Ефект на азотното торене върху продуктивността и качеството на сортове обикновена пшеница (**. KNOWLEDGE International Journal Scientific papers, Vol. 41, No. 4, pp. 751-757, *ISSN:2545-4439, ISSN:1857-923X*

Abstract

The influence of nitrogen fertilization on the productivity and quality of wheat varieties was studied: Sadovo 1 (standard), Avenue, Anapurna and Airbus. The four wheat varieties were grown on Eutric Fluvisols on an experimental field in the region of Plovdiv. The following variants of nitrogen fertilization were studied: N_0, N_8, N_{16} u and N_{24} on a background of $P_{15}K_{10}$. It was found that with increasing nitrogen fertilizer rate to 160 kg N/ha, the productivity and grain quality of all studied varieties increased in proportion to fertilization. The applied of 240 kg N /ha was economically unjustified, as it did not lead to a significant increase of the quantity and quality of the production, compared to fertilization with 160 kg N/ha, and in some indicators lower values were reported compared to the specified fertilizer rate.

Key words: ***grain quality, nitrogen nutrition, productivity, wheat***.

9. Йорданова Н., 2020. **Модел на торене при трайни насаждения**. KNOWLEDGE International Journal Scientific papers, Vol. 41, No. 4, pp. 779-782, *ISSN:2545-4439, ISSN:1857-923X*

Abstract

Определянето на оптимални торови норми е важен фактор за ефективността на храненето на селскостопанските култури и реализирането на продуктивния потенциал на растенията. Торовите норми трябва да се базират на основата на запасеността на почвата с хранителни елементи, на износа на хранителни вещества от единица продукция и плановия добив. Не на последно място е важно да се отчете и прогнозирания баланс на съответния елемент за дълъг период от време и в зависимост от хетерогенността на почвата още в периода преди засаждането на трайните насаждения. Основното почвеното различие върху които е основана настоящата работа е алувиално-ливадна почва и по международната класификация на ФАО се причислява към Mollic Fluvisols. Отбелязаните особености характеризират важна особеност на почвата, представляваща обект на настоящото изследване и трябва да се имат предвид при интерпретацията на процесите, протичащи в почвата при условията на минерално хранене на растенията. Посочените в изследването норми на торене могат да се приложат и за други овощни видове по описаната в това проучване почва. Използването на по-бързодействащи торове, не се препоръчва, тъй като те по-лесно могат да бъдат отмити в по-долните почвени слоеве.

Key words: ***минерално торене, азот, фосфор, калций, норми на торене, овощни насаждения***

ПОДПИС: .....

(Н. Йорданова)