

компонентом фитонимом в английском и русском языках [Текст] : дис. ... канд. филол. наук : 10.02.20 : защищена 29.03.12 / Крепкогорская Евгения Всеволодовна. - Казань, 2012. - 233 с.

4. Фомина, Т. Н. Английский язык в области производства и переработки лекарственных и эфиромасличных культур [Текст] / Т. Н. Фомина // *Medicinal plants & Their Importance*. - М., 2014

5. Фомина Т. Н., Попченко М. И. Англо-русский терминологический словарь-справочник по производству и переработке лекарственных и эфиромасличных культур Фомина, Т. Н. - М., 2014

6. Alipichev A. Y., Khalevina S. N., Trubcheninova A. A., Fedulova A. N. Practical solutions to foreign language training courses implemented using distance learning tools // *IEJME: Mathematics Education*. - 2017. - Т. 12. № 1. - Pp. 59-68.

7. Eremeeva E.N., Fomina T.N., Malankina E.L. Comparative efficiency *Hyssopus officinalis* L. populations of different origin // *Материалы 67 международной студенческой научно-практической конференции*. - 2014. - Pp. 92-93.

УДК 631.674.6

INFLUENCE OF DRIP IRRIGATION ON THE FORMATION OF SEEDLINGS RASPBERRIES IN THE NON-BLACK EARTH ZONE

Ilchenko Kirill Yurievich, Post-graduate student of the Department of Agricultural Melioration, Forestry and Land Development of Federal State Budgetary Educational Institution of Higher Education "Russian Timiryazev State Agrarian University", il4encko.kir@yandex.ru

Scientific advisor: *Dubenok Nikolay Nikolaevich*, Doctor of Agricultural Sciences, Professor of the Department of Agricultural Melioration, Forestry and Land Development of Federal State Budgetary Educational Institution of Higher Education "Russian Timiryazev State Agrarian University", ndubenok@mail.ru

Abstract: *Due to the lack of scientifically grounded technologies for the cultivation of common raspberries in the gardens and nurseries of the Non-Chernozem zone of the Russian Federation, aimed at the minimum use of resources and funds, it is relevant research to establish the effect of different moisture availability on the growth, development and productivity of raspberries, as well as the development of an optimal soil moisture regime in the Non-Chernozem region. Field research is carried out on the territory of the training and experimental farm, the fruit-growing laboratory "Michurinsky Garden" of Russian Timiryazev State Agrarian University. The experiment is two-factor, aimed at studying different pre-irrigation moisture thresholds for the development of two varieties of raspberries, was laid in the fall of 2018.*

Key word: *red raspberries, drip irrigation, cultivation, factors.*

Normal growth and development of red raspberry is provided by five main factors: light, air temperature, water regime and nutrition. It should be noted that various factors

necessary for plant life are subject to varying degrees of regulation, some elements (water resources, nutrients, air) are subject to regulation, temperature and light can only be partially regulated.

The factors subject to full regulation are of the greatest interest. One of the most important is the water resources that plants require throughout the growing season. An optimal moisture reserve is one of the main components of the water-air regime of soils, which is necessary for the normal development of plants. Plants have an optimal moisture regime, with upper and lower limits.

As a result, the issues of improving the technology of drip irrigation of common raspberries, aimed at obtaining high quality planting material, as well as high yields in a temperate continental climate are of both theoretical and practical interest.

The research is carried out in the open ground in the Central region of the Non-Chernozem zone of the Russian Federation on the basis of the educational and experimental farm of the laboratory "Michurinsky Garden" of the RSAU-Moscow Agricultural Academy named after K.A. Timiryazev. Natural and climatic conditions are characterized by approximate values to the average indicators of the Non-Chernozem zone. The experiment carried out is two-factor and consists of two varieties of common raspberry and four modes of soil moisture, was laid down in the fall of 2018. The experiment scheme includes the following humidification modes:

- I. control (without watering)
- II. 80% of the lowest moisture capacity
- III. 70% of the lowest moisture capacity
- IV. 60% of the lowest moisture capacity.

The second factor is the varieties of raspberries "Solnyshko" and "Nagrada".

Planting of seedlings was carried out according to the scheme 1×0.6 m, the distance between rows of one variant was 100 cm, and the distance between plants in a row was 60 cm, the distance between rows of different variants was 1.2 m.

Each variant was repeated three times. In each, 39 seedlings of each variety were planted. The total area of the site was 624 m^2 . The total number of planted seedlings is 936 pcs. For observation of biometric indicators, 6 protective plants and 33 registration plants were allocated. In order to establish the optimal soil moisture regime, the following indicators were measured, which characterize the strength of growth (diameter and height of the shoot and total growth, leaf area of one seedling).

Based on the results of observations for the growing season of 2020, data were obtained on such biometric indicators that determine the sufficient growth force of seedlings, namely: the diameter of the plants, their height, leaf area (table 1).

On the basis of the above data, it can be concluded that the greatest responsiveness of common raspberries to irrigation belongs to the "Nagrada" variety, from which it can be assumed that this variety is more demanding on soil moisture supply.

Biometric indicators characterizing the growth force of raspberry seedlings indicate the most favorable irrigation regime with a pre-irrigation moisture threshold of 80% HB. Plants suffering from a moisture deficit periodically occurring during the growing season as a result of uneven moisture lag behind in all growth and development indicators.

Growth and development of red raspberry

Modes of soil moisture	Varieties	Average diameter, mm	Average height cm / sprig	The total value of the growth of shoots m / bush	Average leaf area, m ²
I control	Nagrada	9	131	10,48	2,36
	Solnyshko	7,1	118	9,44	1,83
II 60% of the lowest moisture capacity	Nagrada	10,2	158	12,64	4,03
	Solnyshko	8,1	137	10,96	2,86
III 70% of the lowest moisture capacity	Nagrada	11,1	171	13,68	5,04
	Solnyshko	9,4	161	12,88	4,05
IV 80% of the lowest moisture capacity	Nagrada	12,3	192	15,36	5,83
	Solnyshko	10,3	179	14,32	5,23

The data obtained from the conducted studies show that plants growing under conditions of insufficient and uneven moisture stand out with the least biological indicators. Based on these indicators of the strength of growth, it can be concluded that the optimal mode of drip irrigation of common raspberries is a variant of the experiment, with the maintenance of the lowest moisture capacity in the range of 80-100%.

References

1. Балакай, Г. Т. Безопасные системы и технологии капельного орошения: научный обзор ФГНУ «РосНИИПМ» [Текст] / Г. Т. Балакай [и др.]. - М.: ФГНУ ЦНТИ «Мелиоводинформ», 2010. - 52 с.
2. Сучкова, С. А. Размножение ягодных культур : учебно-методическое пособие / С. А. Сучкова [и др.]. - Томск: Томский государственный университет, 2014. - 68 с.
3. Dubenok, N. N. Formation of plum seedlings under drip irrigation in Central Non-Black Soil region of Russia / N. N. Dubenok, A. V. Gemonov, A. V. Lebedev, E. V. Glushenkova // RUDN Journal of Agronomy and Animal Industries. - 2019. - Vol. 14, № 1. - Pp. 40-48.

УДК 633.162

CATALASE ACTIVITY IN GRAIN OF BREWING BARLEY VARIETIES

Islamgulova Regina Rafikovna, Post-graduate student of the Department of Agronomic, Biological Chemistry and Radiology of Federal State Budgetary Educational Institution of Higher Education "Russian Timiryazev State Agrarian University", 17regin@mail.ru

English adviser: Fomina Tatiana Nikolaevna, Senior Teacher of the Department of Foreign and Russian Languages of Federal State Budgetary Educational Institution of Higher