American Journal Of Agriculture And Horticulture Innovations
(ISSN – 2771-2559)
VOLUME 03 ISSUE 02 Pages: 01-04
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 7. 471)
OCLC – 1290679216
Publisher: Oscar Publishing Services

Journal Website: https://theusajournals.com/index.php/ajahi

Research Article

INFLUENCE OF MINERAL FERTILIZERS ON THE HARVEST OF SPRING WHEAT VARIETIES

Submission Date: February 01, 2023, Accepted Date: February 05, 2023,
Published Date: February 10, 2023
Crossref doi: https://doi.org/10.37547/ajahi/Volume03Issue02-01

Bekbanov Bisenbay Arepovich
Candidate of Agricultural Sciences, Head of the Laboratory of the Karakalpak Scientific Research Institute of Agriculture, Uzbekistan

Nagimetov Orakbay
Candidate of Agricultural Sciences, Project Manager of the Karakalpak Research Institute of Agriculture, Uzbekistan

Otebaev Dauletiyar
Master of the Karakalpak Institute of Agriculture and Agrotechnology, Uzbekistan

ABSTRACT

The article presents the results of studies of various norms of mineral fertilizers, on varieties of spring wheat. Varieties adapted to the soil and climatic conditions of the cultivation zone tolerate adverse weather conditions well. The use of mineral fertilizers on such varieties at optimal rates is a promising direction for stabilizing and increasing yields without any special additional costs.

KEYWORDS

Spring wheat, seeding rate, yield, growing season, extreme conditions, climate, variety, seeds, mineral fertilizers, Karakalpakstan.

INTRODUCTION

We know that in modern conditions, agricultural production places high demands on varieties of grain crops. The new variety should be highly profitable, stable yield and high grain quality. In order to increase productivity in a sharply continental climate, as well as to increase the gross grain harvest, it is necessary to

American Journal Of Agriculture And Horticulture Innovations
(ISSN – 2771-2559)
VOLUME 03 ISSUE 02 Pages: 01-04
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 7. 471)
OCLC – 1290679216
Publisher: Oscar Publishing Services

introduce new highly productive varieties of spring soft wheat into production. In solving the tasks of the agro-industrial complex to increase the yield and quality of grain of spring soft wheat, an important role is played by the adaptability of the variety to growing conditions, as well as the correct use of mineral fertilizers.

It is known that the intensification of agricultural production is associated with a constant increase in the use of mineral fertilizers, primarily nitrogen. The introduction of large doses of nitrogen fertilizers under crops requires the study of migration and leaching, mobile nitrogen compounds in the soil. These issues are also relevant because the introduction of unreasonably high doses of nitrogen, readily soluble forms of nitrogen fertilizers in water, causes the danger of environmental pollution - water bodies, rivers, etc.

When placing field crops in zones, natural conditions and biological characteristics of plants are taken into account. But the issue of zoning varieties of spring grain crops adapted to certain soil and climatic conditions has not yet found a proper solution. This is primarily due to the lack of spring wheat varieties for different regions and their seed production. The right choice of varieties and a number of other factors, such as tillage and fertilization, sowing, care of crops, timely harvesting, occupy one of the important places for obtaining high-quality crops.

The aim of the research was to study the formation of yields of spring soft wheat varieties, when using various doses of mineral fertilizers in the extreme conditions of Karakalpakstan.

MATERIAL AND METHOD

Three varieties of spring wheat (Semurg, Saratovskaya-29 and Zhanub gavhari) were sown with three norms of mineral fertilizers. The norms of mineral fertilizers were distributed according to the development phases from 30 to 75 kg / ha (active in-va) for top dressing. The size of the plots is 20 m2, in triplicate.

The experiment was carried out on a plot of medium salinity (chloride-sulphate), medium loamy soils of the meadow type. In such areas, without prior washing, it is impossible to obtain full-fledged seedlings. Before sowing, the soil was washed 2 times. Groundwater occurs at a depth of 0.5 to 3.0 meters. The total nitrogen does not exceed 0.12 - 0.15%. Soils are less provided with humus and nitrogen. Records and observations were carried out according to the methodology of the State variety testing of agricultural crops (1989). Yield data were processed by the analysis of variance according to Dospekhov (1989).

Results. To obtain high yields, plants must be provided with the necessary living conditions in certain combinations and quantities at each stage of growth and development.

As can be seen from the data obtained, the cultivars started the booting phase with a difference of 5-6 days between cultivars. Thus, the plants of the Zhanub gavkhari variety, against the background of P70K50, where 30 kg were applied for plowing, and 60 kg of nitrogen during tillering, started the booting phase on April 27, the Saratovskaya variety on May 29, and the Semurg variety on May 4. These varieties, at a rate of mineral fertilizers of 210 kg/ha, started the booting phase on April 28, May 7 and May 4, respectively.

Depending on external conditions, the duration of the ripening phases differs in different varieties in different ways.

American Journal Of Agriculture And Horticulture Innovations
(ISSN – 2771-2559)
VOLUME 03 ISSUE 02 Pages: 01-04
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 7. 471)
OCLC – 1290679216
Publisher: Oscar Publishing Services

As the data show, against the background of P70K50, where 30 kg were applied for plowing, and 60 kg of nitrogen were applied for tillering and ploughing, the plants of the Zhanub gavhari variety reached maturity on June 20, the Saratovskaya variety - 29 June 28, and the Semurg variety 24- June. Excessive standing density can also cause a decrease in grains per ear and a grain weight of one ear and a weight of 1000 grains. On the other hand, grain crops are able to some extent to compensate for the low density of standing, the increased number of grains and the mass of grain of one ear.

Variety Saratovskaya - 29, with the introduction of 150 kg of nitrogen against the background of P70K50, a crop of 27.5 was obtained; Zhanub gavhari 22.6; Semurg 25.3c/ha. With an increase in the doses of fertilizers up to 210 kg/ha, a crop was obtained from Saratovskaya-29 - 38.4; Zhanub gavhari - 32.5; Semurg - 35.0 q/ha.

DISCUSSION

As a rule, in the field, depending on the weather and agricultural practices, there are significant differences in the yield of wheat over the years. Comparative assessment of the development of spike productivity elements in varieties of spring soft wheat will make it possible to identify varieties or groups of varieties that compare favorably with others in terms of the balance of development of productivity elements. The number of spikelets of an ear, as is known, depends on the length of the ear, as well as on the distance between them on the stem. According to the number of non-grained spikelets, significant varietal differences were observed, which was a consequence of unfavorable conditions during the period of flowering and the formation of grains.

Wheat requires a longer day to enter the generative phase. Plants in this phase react significantly to the lack of water, nutrients, especially nitrogen. In solving the problems of increasing the yield and grain quality of spring soft wheat, an important role is played by the adaptability of the variety to growing conditions [1].

The largest reserve for increasing grain production, which ensures the sustainable development of the grain economy, is the use of mineral fertilizers. Calculations show that in the future, about 40% of the increase in the gross grain harvest will be provided due to this reserve [2].

Fertilizers applied to the soil cannot be fully used by plants, since some of them are assimilated by microorganisms, washed out, or transferred into a form that is inaccessible or difficult to access for plants [3].

Nitrogen fertilizers promote the development of vegetative organs, increase tillering energy and protein content in grain. When compiling a fertilizer system, special attention is paid not only to the total amount of nutrients, but also to the distribution of fertilizers according to the timing and methods of application [4].

The average yield of a variety under stressful conditions characterizes the genetic flexibility of the variety [5]. The higher this indicator, the higher the degree of correspondence between the variety genotype and various environmental factors.

CONCLUSION

Proper feeding of plants in the phases of development is of great importance. Also, the choice of placement and density of plants on the field, on which normal growth and development, as well as productivity, depends. And so, the targeted selection of varieties

American Journal Of Agriculture And Horticulture Innovations
(ISSN – 2771-2559)
VOLUME 03 ISSUE 02 Pages: 01-04
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 7. 471)
OCLC – 1290679216
Publisher: Oscar Publishing Services

that are well adapted to the soil and climatic conditions of the cultivation zone, as well as the use of mineral fertilizers in optimal norms, is a promising direction for stabilizing and increasing yields without any special additional costs.

In conditions of insufficient and unstable moisture, local varieties, as more adapted to the conditions of the zone, form a high yield, and in drought conditions, they are distinguished by large, leveled grains with good performance.

One of these areas is a variety adapted to the conditions of its cultivation.

REFERENCES

1. Дворникова, Е. И. Урожайность сортов яровой мягкой пшеницы в зависимости от агрометеорологических условий возделывания / Е. И. Дворникова, С. В. Жаркова, А. В. Нечаева. – Текст: непосредственный // Вестник Алтайского государственно-го аграрного университета. – 2019. – № 6 (176). – С. 5-10.
2. Степанов Н.С. Действие и последействие мочевины на урожай и качества зерна пшеницы. //Агробиология, № 3.
3. Смирнова–Иконникова М.И., Веселова Е.П. Влияние биологических стимуляторов роста на урожай растений. Тр. по прикладной ботанике, генетике и селекции, 29,вып.3
4. Райт Х. Влияние условий питания в ранний период формирования урожая. В сб. «Биологические основы повышения качества семян сельскохозяйственных растений» М.: «Наука» 1964, 185 с.
5. Пакудин В.З., Лопатина Л.М. Оценка экологической пластичности и стабильности сортов сельскохозяйственных культур. // Сельскохозяйственная биология,- 1984.- № 4.- С. 103–113.