Scholar's Digest- Journal of Multidisciplinary Studies
Volume 02, Issue 06, June, 2023
ISSN (E): 2949-8856
Scholarsdigest.org

DEPENDENCE OF FORMATION OF CORN HARVEST ON FORMS AND RATES OF PHOSPHORUS FERTILIZERS

B. Nabiev
Senior Lecturer of the Department of Breeding and
Seed Production Andijan Institute of Agriculture and Agrotechnology

Abstract:
The application of phosphorus fertilizers in the form of polyphosphates provided a better yield of corn grain, like unwashed soil. An increase in the content of nitrates was not detected in corn grain and green mass, i.e. The resulting products are environmentally friendly and can be used for food and animal feed.

Keywords: corn, plants, green mass, leaves, stem, crop, fertilizers, soil, polyphosphate.

INTRODUCTION

The world pays special attention to the development of agricultural technology for the cultivation of agricultural crops, taking into account their biological characteristics, soil and climatic conditions while meeting the needs of the population with food, industry - raw materials and animal husbandry - feed. Maize (Zea mays L.) ranks third in terms of area in the world after wheat and rice, in the group of fodder crops it ranks first.

Material and Methods

The studies found that manure, clay and trace elements used separately and together increased the yield of winter wheat on medium eroded soil by 16.4-64.2% in all years, and on average over three years - by 20.6-58%. ,8%. It is characteristic that the “clay + manure” option was quite effective in all the years of the experiments, because it provided a more balanced plant nutrition than pure manure. The increase in the yield of winter wheat on average over 3 years in this variant was 57.4%. Similar studies were carried out in Bulgaria [1; pp. 98-103, 8; pp. 65-69, 10; pp. 20-27, 11; pp. 182-186, 12; pp. 67-69].

In the studies of Stevenson C.R et al. [9;p-6-10], I.Zh.Sulaimonov et al. [5;p-234-243, 6; P.13-17] studied the effect of fertilizer and the type of crop rotation on the elements of productivity and the quality of corn grain. The yield of dry matter per 1 ha was 15.9 tons when 40 tons of manure + N100P100 was applied in a 2-year crop rotation and increased to 19.2 tons when the same fertilizers were applied in a 3-year crop rotation. In a six-field crop rotation, it most effectively responds to the application of a full mineral fertilizer.

In the experiments of V.B. Khomukov [7; p-18], fertilizers significantly influenced the increase in the yield of corn compared to the control. In all years of experience with hybrids Kamilla, RIK-300, the largest increase in yield (1.20-1.33 t/ha) was obtained in the variant of

the ZhKU dose according to N + P + K (N120P90K40). The results of the experiment allow us to conclude that in the foothill zone of Kabardino-Balkaria, as in its other zones, the use of HCS is preferable to the use of mineral fertilizers (in this case, for example, nitro-ammophos).
Field experiments were laid according to the guidelines for conducting field experiments with fertilizer on eroded soils and agrochemical mapping, as well as those developed by the NIHI Union.
The research program covered the study of the growth, development and productivity of corn when applying various forms and rates of phosphorus fertilizers.
Ammonium nitrate (N - 34.6%), urea (N - 46%), ammophos (N - 11-12%, P2O5 - 44%), liquid complex fertilizer (LCF) grade 8:24:0 were used as fertilizers. based on orthophosphoric acids, ZhKU brand 10:34:0 based on polyphosphoric acids, potassium chloride (K2O - 58-60%), PFA.
Influence of phosphate fertilizers on the productivity and grain quality of corn hybrid Korasuv-350AMV. The studies were carried out in 1998-2001. with zoned corn hybrid Korasuv-350AMV on eroded and non-washed soils. The experience was laid in 4-fold repetition, with the area of the plot: total - 112 sq.m. and accounting - 86 sq.m. The task of the study was to establish the influence of the norms and forms of phosphate fertilizers on the yield and quality of corn grain.
Phenological observations, records and biometric measurements were carried out according to the "Methodological recommendations for conducting field experiments with corn" and "Methods of field experiments for the study of agricultural practices for the cultivation of corn" [3; p-290].
Records and observations on the formation of the fruiting organ - corn cob by the method of biological control of plant development [4; C-225].
The determination of the assimilation surface of the leaves was carried out by a linear method by multiplying the maximum width of the leaf by its length and by a factor of 0.75.
Yield data in field experiments were processed by the method of dispersion and correlation analysis according to B.A. Dospekhov [2; C-416].
The calculation of the economic efficiency of the used forms and norms of fertilizers was carried out on the basis of existing standards.

Results

Table 4.9 The structure of the yield of corn grain depending on the forms and norms of phosphorus fertilizers on non-washed and washed-off soil (background 10-15 mg/kg P_2O_5)

№	Options	Length cob, cm	Diameter cob, cm	Number of grains in in a row, pcs.	Number of rows of grains on the cob, pcs.	Number of grains in on the cob, pcs.	Number of cobs on plants. pc.	Weight of one cob, g	Weight 1000 grains, g	Grain yield, %
1	$N_{220}K_{100}$– Back	20,3	4,3	30,0	12,7	381,0	1,0	118,8	214,0	73,3
2	Back+Amf - 60 кг/га	22,8	4,9	37,0	13,7	506,9	1,0	137,5	228,1	76,6
3	Back+Amf - 100 кг/га	24,4	5,4	42,8	13,9	594,9	1,0	145,4	237,6	78,5
4	Back+Amf - 140 кг/га	25,6	5,6	47,4	14,1	668,3	1,1	149,4	243,1	79,9
5	Back+Amf - 180 кг/га	26,1	5,8	50,0	14,4	720,0	1,1	151,0	245,3	80,7
6	Back+LCF 8:24:0 60 кг/га	23,4	5,1	40,4	13,9	561,6	1,0	139,2	231,4	76,8
7	Back+LCF 8:24:0 100 кг/га	25,5	5,6	43,1	14,1	678,2	1,0	147,5	240,9	78,9
8	Back+AmfP - 60 кг/га	24,5	5,3	42,9	14,2	609,2	1,0	140,9	234,0	77,2
9	Back+AmfP - 100 кг/га	26,4	5,9	50,7	14,4	730,1	1,1	149,5	243,5	79,3
10	Back+LCF 10:34:0 60 кг/га	24,8	5,4	43,9	14,3	627,8	1,0	141,7	235,0	77,8
11	Back+LCF 10:34:0 100 кг/га	26,7	6,0	50,7	14,8	750,4	1,1	150,0	243,5	79,7

The calculation of the economic efficiency of the used forms and norms of fertilizers was carried out on the basis of existing standards.

The total productivity of corn is made up of the mass of leaves, stems, panicles and cobs, and the productivity of the cobs is made up of the mass of the wrapper, rod, leg (side stem that carries the cob) and grain.

It can be seen from the results (Table-1) that phosphorus fertilizers had a significant impact on the formation of the structural elements of the corn grain yield grown on various elements of the slope, according to the degree of availability of P_2O_5, soils.

So, on average over the years and the studied slope options, the application of phosphorus fertilizers on the unwashed part of the slope provided an increase in the structure of the grain yield of corn grown on a background that is very low in terms of the P_2O_5 content in the soil, in comparison with the nitrogen-potassium variant - along the length of the cob by 4.7 cm, the diameter of the cob by 1.2 cm, the number of grains in the row was 11.4 more, the number of rows of grains in the cob - by 1.5, which increased the number of grains in the cob by an average of 264.1 PC. The weight of one cob and the weight of 1000 grains also increased, and were more than the control by 26.4 and 24.2 g, respectively, and the grain yield after threshing the cobs increased by 4.5%.

A similar regularity was also observed in the formation of structural elements of the crop in maize grown on a background that was not washed out and average in terms of P_2O_5 content. However, the growth rates of structural indicators against this background were somewhat smoothed compared to a very low background, which indicates an increased productive capacity of soils provided with a sufficient amount of mobile forms of P_2O_5.

Increasing doses of phosphorus fertilizers introduced in the experiment in the form of ammophos increased the yield structure indicators, but the intensity of their increase was not the same. For example, such indicators as the length of the cob and the weight of 1000 grains

at a rate of 60 kg/ha P_2O_5 averaged 23.4 and 231.6 g, respectively, in experiments on unwashed soil. An increase in the phosphorus rate to 100 kg/ha P_2O_5 provided an increase in the indicated norms of indicators, respectively, by 6.4-8.5 and 3.3-3.0%, when applying 140 kg/ha P_2O_5 - by 10.6-12.1 and 5.4-5.2%, and when applying 180 kg/ha P_2O_5 - by 12.8-16.1 and 6.5-6.3%. Consequently, with an increase in the norms of phosphorus fertilizers, their effectiveness, at doses increased to 140-180 kg / ha, and on unwashed ones decreases. The above allows us to conclude that excessive rates of phosphorus fertilizers on unwashed soil do not lead to a corresponding increase in the indicators of the crop structure.

Various forms of phosphate fertilizers had a noticeable effect on the structure of the corn grain yield. The most effective, on average, according to experience, were polyphosphorus fertilizers. At the same application rates of P_2O_5, the efficiency of ammonium polyphosphate and liquid complex fertilizer brand 10:34:0 was higher than orthophosphate fertilizers, ammophos and liquid complex fertilizer brand 8:24:0, on average by the size of the cob on unwashed soil by 5.9-5, 7%, the number of grains in the cob - by 11.8-11.7, the weight of one cob and the weight of 1000 grains, respectively - by 1.8-1.3 and 1.5-1.6%.

The content of crude ash varied within 0.9-1.2%. Improving the conditions of phosphorus nutrition due to the introduction of PFA and ZhKU 10:34:0 contributed to an increase in the content of raw ash to 1.5-1.8%.

Thus, the application of phosphorus fertilizers in the form of polyphosphates provided a better yield of corn grain, as in unwashed soil. An increase in the content of nitrates was not detected in corn grain and green mass, i.e. The resulting products are environmentally friendly and can be used for food and animal feed.

Used Literature

1. Jamoldinovich S. I. INFLUENCE OF MINERAL FERTILIZERS ON THE YIELD OF SUGAR BEET RE-SOWING //Finland International Scientific Journal of Education, Social Science & Humanities. – 2023. – Т. 11. – №. 3. – С. 98-103.
2. Доспехов Б.А. Методика полевого опыта (с основами статистической обработки результатов исследований). Москва: Колос, 1979, -С 416.
3. Методика определения структуры урожая и качества зерна. Москва, 1989, -С 290.
4. Методы полевых и вегетационных опытов с хлопчатником в условиях орошения. Ташкент: СоюзНИХИ. 1973. Изд-4, -С 225.
5. Сулаймонов И., Одилов И., Эргашев Д. ТУПРОҚДАГИ ҲАРАКАТЧАН ФОСФОР ДИНАМИКАСИГА АЗОТЛИ ЎҒИТЛАР ШАКЛ ВА МЕЪЁРЛАРИНИНГ ТАСИРИ //Educational Research in Universal Sciences. – 2022. – Т. 1. – №. 4. – С. 234-243.
6. Sulaymanov I. J., Ergashev D. T. EFFECT OF NITROGEN FERTILISER FORM AND RATE ON SUGAR BEET GERMINATION //SCIENTIFIC ASPECTS AND TRENDS IN THE FIELD OF SCIENTIFIC RESEARCH. – 2023. – Т. 1. – №. 10. – С. 13-17.
7. Хамуков В.Б. Дозы сочетаний удобрений под гибриды кукурузы разных сроков созревания. //Агрохимический вестник. 2004. -№5. –С 18.
8. Sclama Z.A., Lazova G.N., StoimovaZh, G. Popova L. P., El-Fouly M.M. Effe of zing defiency on photosynthethic in chic pea and maize plants//2002/-55, N3-P.65-69.

9. Stevenson C.K. Maximum yield research, with corn and soybeans// Highlights of Agricultural Research in Ontario,1985.Vol.8.N2.-P.6-10.
10. Thompson L.M. Effects of changes in climate and weather variabilly on the yield of corn and soybeans//Product .Agr. 1988.Vol.1. N. 1.-P. 20-27.
11. W. Van averbeke, Maraise S.N Maize respose to plant population and soil water supply 1. Yield of grain and total above ground biomass//AfrJ.Plant and Soil 1992.9, № 4-p..186-182. (AHrji).
12. Wooley E.W. Performance of current growth regulators in cereals E.W.Wooley.-London;NatAgric Centre,1982.-P.67-69.