International Journal of
Biological Engineering and Agriculture

ISSN: 2833-5376
Volume 2 | No 5 | May -2023

Influence of Folic Fertilizing of Plants on the Quality of Winter Wheat Seeds

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Abstract: Studies have shown that the feeding of winter wheat plants with a suspension of urea and microfertilizers at the beginning of the heading phase in addition to mineral fertilizers at the rate of N180:P90:K60 kg/ha has a positive effect on its seed quality in addition to the grain yield. In all the studied varieties, in addition to the main plant nutrition, fertilization with urea and microfertilizer "Laminaria Ca + Mg" led to the formation of grain with an average germination capacity increased by 3-4%.

Keywords: Mineral fertilizers, urea, microfertilizers, plants, fertilizers, laboratory and field fertilizers.

Introduction. It is known that fertility is one of the main indicators that determine the quality of crop seeds. Because it is important to create a sufficient number of bushes per unit area to obtain a plentiful and high-quality winter wheat crop on irrigated lands.

That is why in world agriculture it is recommended to use high agricultural technologies in seed fields.

The efficiency of crop cultivation technology is determined by their productivity and product quality. The technology for growing winter wheat should be developed taking into account the biological characteristics of each specific soil-climatic state and variety. One of the key elements of such technology is science-based plant nutrition[4].

There are various data in the literature on the effect of mineral fertilizers applied to the soil on the fertility of winter wheat grain. In some of them there is information about the increase in this indicator under the influence of mineral fertilizers, in others such an influence is denied.

There is evidence that the rate of application of mineral fertilizers does not significantly affect the field fertility of seeds [3].

According to researchers, the field fertility of wheat seeds is reduced due to the wrong choice of predecessors, adverse weather conditions, wrong choice of sowing dates, errors in determining the sowing depth, lack of moisture in the soil, and poor preparation. soil for planting and other factors, and always below laboratory fertility [5; 1].

According to Professor N. Khalilov, Kh. Keldiyorova, the field fertility of seeds decreased with a delay in sowing. Field germination of winter wheat seeds varies depending on temperature, soil moisture, seed quality and other factors.

Based on the results of the studies, the dependence of the level of soil provision and the rate of fertilizers on the germination and field fertility of winter wheat Bezostay-100 in the gray soils of the Samarkand region was established [2].

For the conditions of our republic, when cultivating winter wheat, one of the topical issues is to increase the seed quality of the crop by fertilizing with mineral fertilizers, especially nitrogen and microfertilizers.

Materials and methods. Taking into account the above information, in our studies we studied the effect of top dressing with mineral fertilizers in the generally accepted norm, as well as urea and microfertilizers during the growth period in addition to the roots, on seed quality, laboratory and field fertility. with further reproduction of winter wheat varieties.

In the experiment, field and laboratory work was carried out in 2022-2023 in the Farboma Select farm, Samarkand region, Zhomboy district. The soils of the experimental plot are irrigated, the depth of water infiltration is 3-3.5 m, meadow-gray, medium-sandy in texture. Experiments on the study of laboratory seed fertility were carried out in the educational laboratory of the Department of Plant Growing and Forage Production of the Samarkand University of Veterinary Medicine, Animal Husbandry and Biotechnology.

The purpose of the research is to study the effect of top dressing with mineral fertilizers and urea during foliar growth on the quality of winter wheat seeds.

The object of the study was the varieties of winter soft wheat Jasmine, Farboma, Yaksart, included in the State Register of Uzbekistan.

In scientific research, phenological observations and biometric analyzes were carried out according to the methodology of the State Commission for the Testing of Agricultural Crops (1989), observation, calculation and analysis "Methodology for conducting field experiments" (2007).

In our studies, in addition to the generally accepted norms of mineral fertilizers, 10, 15 and 20 kg of carbamide and SEA ALGAE Ca + Mg, MICROMIX, MONBAND NPK 20:20:20 suspensions of micro-fertilizers 300 l/ha were introduced through the leaves. studied on seeds obtained from variants treated with water.

Research results and their analysis. It is known that one of the main indicators of the quality of seeds of agricultural crops is the germination of seeds. Especially in winter wheat, this indicator is of great importance for ensuring the necessary plant density per unit area before wintering. Because the optimal density of the bush is one of the main factors that ensure a good wintering of bush plants.

For research in 2020-2022 used seeds obtained from variants in which the plants, in addition to the roots, were fed with mineral fertilizers according to the generally accepted norm and urea and microfertilizers.

Studies have shown that the germination of seeds obtained from varieties grown on winter wheat with mineral fertilizers at the rate of $N_{180}:P_{90}:K_{60}$ kg/ha is higher than that of varieties grown without control fertilizers. For example, the laboratory germination of seedlings obtained from the variant without fertilizing with mineral fertilizers was 74–79% for varieties, while 66–69% of normal plants sprouted from them under field conditions. In the variants fed with mineral fertilizers, in generally accepted norms, this figure was 91-93 and 80-83%, respectively. That is, the laboratory fertility of seeds obtained as a result of fertilizing with mineral fertilizers in the norm $N_{180}:P_{90}:K_{60}$ kg/ha provides 14-17% and 13-14% higher fertility in the field. There was no significant difference in this indicator between the studied varieties (table).

Table 1. Effect of foliar feeding on seed germination of winter wheat varieties, in % (2022-2023)

learned show me little ones	Varieties	Experience options										
		Control (no fertilizer)	$N_{180}:P_{90}:K_{60}$ -background (generally accepted standard)	Background+urea (10kg)	Background+urea (15 kg)	Background+urea (20 kg)	Background +Seaweed Ca+Mg	Background +MIKRO MIX	Background +MON BAND NPK 20-20-20+TE	Background+urea +Seaweed Ca+Mg	Background+urea +MIKROMIX	Background+urea +MONBANDNPK 20-20-20+TE
Laboratory germination of	Jasmina	76	92	93	93	93	94	93	94	96	93	94
	Farboma	79	93	95	96	95	96	94	94	97	95	95
	Yaksart	74	91	92	92	92	93	92	93	95	93	94
Seeds field fertility of	Jasmina	69	83	85	85	85	85	84	84	87	85	85
	Farboma	69	83	85	85	85	85	84	84	87	85	85
	Yaksart	66	80	81	81	81	81	81	81	83	82	82

It has been established that foliar feeding of plants with a suspension of urea increases grain fertility by 1-3% during subsequent reproduction. For example, if the field germination of seeds obtained from plants fed with mineral fertilizers was 80-83% for varieties, then in the variant treated with a solution of a carbamide suspension of different concentrations, this indicator was 81-85%, and the germination of seeds in laboratory conditions was 91-93% and amounted to 92-95%. There was no significant difference between the concentrations of the urea suspension.

Studies have shown that feeding plants with micronutrient fertilizers has a greater effect on seed germination during subsequent propagation than treatment with a suspension of urea. For example, the fertility of seeds obtained from varieties, in the generally accepted norm under laboratory conditions, was 91–93%, and in organized field conditions, 80–83%.

Among the studied microfertilizers for foliar feeding of plants, SEAWEED Ca + Mg microfertilizer for seed germination stands out. For example, the laboratory fertility of seeds obtained from the traditionally fed variant of the Farboma variety was 93%, and the field fertility was 83%, and in the variant fed with additional SEAWEED Ca + Mg microfertilizer, this figure was 85 and 96%. , respectively. That is, feeding plants with this microfertilizer made it possible to increase seed fertility by 2-3% during subsequent reproduction. Similar results were obtained for other varieties. It should be noted that in all variants and varieties, the law of differences between laboratory conditions and field germination of seeds was basically preserved.

In our studies, the highest seed germination rates were obtained in the variant in which the plants were fed with mineral fertilizers in addition to urea and micronutrient fertilizers at a standard rate. That is, the fertility of seeds obtained from these options was 1-4% higher than the control option, depending on the type of crop and types of microfertilizers.

Conclusion. In all the studied varieties, in addition to the main plant nutrition, fertilization with urea and microfertilizer "Laminaria Ca + Mg" led to the formation of grain with an average germination capacity increased by 3-4%.

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