

INFLUENCE OF THE RATE OF PELLING WITH BENTONITE CLAYS ON THE DYNAMICS OF FIELD GERMINATION OF SOYBEAN SEEDS

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ABSTRACT

In the work, the influence of soybean seed treatment with bentonite clays on the dynamics of germination in the field conditions of light gray soils in the Kashkadarya region was determined. As a result of the analyzes, the acceleration of germination of soybean seeds relative to the control variant was established.

KEYWORDS: *Bentonite, Clay, Bark, Shade, Variety, Seed, Dynamics, Germination, Fertilizer, Irrigation.*

INTRODUCTION

Every day the role and importance of the agricultural sector in ensuring the food security of the population of our republic is increasing. One of the most important tasks is to ensure the guaranteed provision of the population with agricultural products, further increase in productivity

and interest, as well as the processing of agricultural products through the effective use of resources and opportunities available in our country [1].

The leading countries of the world have developed and scientifically substantiated the norms for the use of non-traditional agricultural ores in various conditions as additional nutrition to mineral fertilizers. As a resource-saving technology for introducing non-traditional agro-ores into the soil, there is an improvement in the agrophysical and agrochemical properties of the soil, acceleration of biological processes in the soil, an increase in the absorption coefficient of mineral fertilizers by plants and, as a result, an improvement in the quality of products along with an increase in productivity [2].

World experience in the use of non-traditional agricultural ores shows that their use provides an increase in crop yields by 10-15%, improves product quality, agro-ores cleanse the soil of heavy metals, toxic substances and radioactive elements. In this regard, bentonite clay serves to improve the ameliorative state of the soil, filling the soil's need for microelements. Although bentonite clay retains moisture in the soil, it collects sand particles around it and increases soil viscosity. Bentonite clay is considered a source of nutrition for plants, it contains 0.3-4.7% carbon, 0.4-3.0% potassium, 0.3-1.5% phosphorus, as well as trace elements copper, zinc, boron, cobalt, molybdenum, manganese, sulfur [3].

Based on the foregoing, within the framework of the practical project PZ 202102154 "Development of a science-based agricultural technology for saving irrigation water using bentonite clay in the cultivation of crops", the coating of soybean seeds of Arleta and Nafis varieties with bentonite clay, sown at a sowing rate of 400 thousand hectares, was studied pcs / ha to a depth of 3-4 cm, as well as the influence on the dynamics of field germination in the conditions of light gray soils of the Kashkadarya region was studied.

In the results of the experiment, the dynamics of field germination of soybean seeds was not affected by the application rates of mineral fertilizers and irrigation regimes. However, depending on the coverage of soybean seeds with bentonite clay, the effect on the dynamics of germination was clearly observed.

In the experiments, variants of the irrigation regimes PPV-75-75-60 and PPV-75-80-75% were used at fertilizer rates; no fertilizer (control), N150P100K60 + 30% bentonite (seed pelleting), N180P100K60 + 40% bentonite (seed pelleting), and N210P100K60 + 50% bentonite (seed pelleting).

From the data in the table it can be seen that the germination of seeds of the Arleta soybean variety conducted on April 15 shows that under the irrigation regime PPV-75-75-60% in the control variant was 22.3%, and in the variants N210P100K60 + 50% bentonite 40, 3%, and under the irrigation regime PPV-75-80-70%, respectively, 24.5-41.0%, counts on April 17, respectively, 46.3-75.5% and 48.3-76.3%, and counts 19 April was 71.8-93.0% and 74.3-91.5%, the same trend of field germination was observed in seeds of soybean varieties "Nafis", respectively 24.0-41.8%, 24.5-43.0 %, 41.3-74.5%, 46.0-76.5% and 74.5-94.5%, 77.0-97.3%.

TABLE 1 INFLUENCE OF THE RATE OF DRAGEEING WITH BENTONITE CLAYS ON THE DYNAMICS OF FIELD GERMINATION OF SOYBEAN SEEDS.

№ Var	Variety name	Irrigation modes, %	Norm of mineral fertilizers, kg/ha (NPK)	Germination dynamics					
				15.aprel		17.aprel		19.aprel	
				piece	%	piece	%	piece	%
1	«Arleta»	PPV (75-75-60 %)	Control (no fertilizer)	89	22,3	185	46,3	287	71,8
2			N ₁₅₀ P ₁₀₀ K ₆₀ + 30% Bentonite (seed coating)	124	31,0	243	60,8	321	80,3
3			N ₁₈₀ P ₁₀₀ K ₆₀ + 40% Bentonite (seed coating)	146	36,5	297	74,3	353	88,3
4			N ₂₁₀ P ₁₀₀ K ₆₀ + 50% Bentonite (seed coating)	161	40,3	302	75,5	372	93,0
5		PPV (75-80-70 %)	Control (no fertilizer)	98	24,5	193	48,3	297	74,3
6			N ₁₅₀ P ₁₀₀ K ₆₀ + 30% Bentonite (seed coating)	137	34,3	263	65,8	328	82,0
7			N ₁₈₀ P ₁₀₀ K ₆₀ + 40% Bentonite (seed coating)	150	37,5	302	75,5	359	89,8
8			N ₂₁₀ P ₁₀₀ K ₆₀ + 50% Bentonite (seed coating)	164	41,0	305	76,3	366	91,5
9	«Nafis»	PPV (75-75-60 %)	Control (no fertilizer)	96	24,0	165	41,3	298	74,5
10			N ₁₅₀ P ₁₀₀ K ₆₀ + 30% Bentonite (seed coating)	122	30,5	213	53,3	336	84,0
11			N ₁₈₀ P ₁₀₀ K ₆₀ + 40% Bentonite (seed coating)	154	38,5	276	69,0	365	91,3
12			N ₂₁₀ P ₁₀₀ K ₆₀ + 50% Bentonite (seed coating)	167	41,8	298	74,5	378	94,5
13		PPV (75-80-70 %)	Control (no fertilizer)	98	24,5	184	46,0	308	77,0
14			N ₁₅₀ P ₁₀₀ K ₆₀ + 30% Control (no fertilizer)	129	32,3	228	57,0	345	86,3
15			N ₁₈₀ P ₁₀₀ K ₆₀ + 40% Control (no fertilizer)	157	39,3	286	71,5	378	94,5
16			N ₂₁₀ P ₁₀₀ K ₆₀ + 50% Control (no fertilizer)	172	43,0	306	76,5	389	97,3

In the experiments it was found that the dynamics of field germination of seeds of soybean varieties with options for drageeing with bentonite clays is 30; 40 and 50% were above 8.5-9.3; 16.5-17.5 and 19.8-20.3% than the control variant.

The complete germination of seeds of soybean varieties in pelleted variants ranged from 6 to 10 days, and in the control variants this indicator ranged from 6 to 12 days. This is explained by the fact that when seeds are coated with bentonite, more moisture is absorbed from the soil.

Based on the data presented above, it can be concluded that as a result of coating soybean seeds with bentonite clay, the absorption of moisture by the seeds increases and seed germination is accelerated.

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