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REGULATION OF MOBILIZATION AND IMMOBILIZATION PROCESSES IN SOIL TO IN ORDER TO IMPROVE SOIL FERTILITY AND THE OPTIMIZATION OF PLANT NUTRITION

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I. Introduction

By controlling the mobilization or immobilization of soil processes can increase the activity of humification or enhance the mineralization of soil organic matter. Therefore, the study of these processes, depending on the natural and anthropogenic factors, applied cropping technologies is of great importance.

II. Data and method

The studies were conducted in soil conditions of the Zarafshan valley, in the methods of the organization of the expedition of the soil and productions of the field, vegetation and laboratory experiments. Performances and studies were carried out with generally accepted methods.

III. Main results and conclusions

The study of the formation of ammonium and nitrate nitrogen on one side and humus on the other side, showed that very strongly to proceed mobilization processes in soils of the Zarafshan valley of Uzbekistan.

Herewith strenuously goes the decomposition of soil organic matter, including humus, and the formation of ammonium and nitrate nitrogen. As a result, reduced soil fertility and humus content, deteriorating its properties and regime. It also increases the content of mineral nitrogen in 30-40 days because mineral nitrogen was not fixed in the soil more than usual, of which the soil itself is defined. At the same time significantly reduced the ratio of carbon to nitrogen increases the mobilization processes of the soil and reduces the content of humus and total nitrogen.

Experiments show that the application of high doses of nitrogen fertilizers through strengthening the mobilization processes not only reduces the humus content, but the content of total nitrogen. The increase in mineral nitrogen in the soil when nitrogen fertilizer is temporary. At introduction of high doses of nitrogen fertilizers under cotton and fodder beets on serozem and meadow-serozem soil reduces the coefficient of humification of the alfalfa mass.

In the soils of Uzbekistan the speed of the mobilization processes is very high, the cultivation of row crops and the use of high doses of nitrogen fertilizer, its activity has increased. Therefore, it is necessary to introduce crop rotation of alfalfa, nitrogen fertilizer to apply low doses of a few techniques only at sowing and during the growing season on moist root layer, and use a compost with a wide ratio of carbon to nitrogen. For preparation of compost is very suitable cereal straw and stalk of the cotton plant. Only in these conditions you can maintain a stable agriculture, producing competitive products with high qualities and have advantageous conditions in the world market.

The humus content in the different genetic horizons of Sierozem soils in foothill areas of Urgut district, %

No of incision	Plant species	Predecessors plants	Genetic horizon	Depth sm	Mechanical composition	The average content of humus
1.	Wheat	1.5-6 years tobacco 2. 3 years lucerne	A _{01n}	0-27	medium loam	1.12
			A _{02n}	27-44	heavy loam	0.83
			B1	44-83	medium loam	0.67
			B2	83-137	light loam	0.61
			B3	137-217	light loam	0.36
2.	Ploughland	1. 6 years tobacco 2. 1 year wheat	A _{01n}	0-40	heavy loam	0.86
			A _{02n}	40-56	heavy loam	0.84
			B1	56-106	medium loam	0.64
			B2	106-156	light loam	0.35
			B3	156-196	heavy loam	0.54
3.	Lucerne 2 years	1. 4-5 years tobacco 2. 1 year lucerne	A _{01n}	0-37	heavy loam	1.08
			A _{02n}	37-58	light clayey	1.07
			B1	58-99	light loam	0.76
			B2	99-126	heavy loam	0.72
			B3	126-148	Sand	0.35
4.	Apple tree	20-30 years Appleorchard	A _{01n}	0-26	light clayey	1.34
			A _{02n}	26-39	light clayey	1.10
			B1	39-52	light clayey	0.83
			B2	52-72	heavy loam	0.81
			B3	72-94	light clayey	0.87
5.	Tobacco	4-5 years tobacco	A _{01n}	0-33	medium loam	1.27
			A _{02n}	33-44	sandy loam	0.76
			B1	44-89	sandy loam	0.55
			B2	89-124	Sand	0.57
			B3	124-191	medium loam	0.43

The coefficient of humification of plant mass on light Sierozem soils in the cultivation of Cotton Plant

№	Variants	Horizons, sm	Humification coefficient			Average	With respect to the control, %
			Fulvic acids	Humic acid	Total		
1.	PK-Fon	0-15	10,50	6,75	17,25	16,32	-
		15-30	12,30	6,70	19,00		
		30-45	8,37	4,35	12,72		
2.	Fon+N ₂₂₀	0-15	6,23	14,73	20,96	14,19	-2,13
		15-30	7,07	3,74	10,82		
		30-45	6,68	4,10	10,78		
3.	Fon+N ₁₆₅	0-15	6,90	23,70	30,60	19,29	18,20
		15-30	12,58	4,68	17,26		
		30-45	3,93	6,09	10,02		
4.	Fon+N ₁₆₅ +KMP	0-15	12,90	25,67	38,57	24,39	49,45
		15-30	11,41	6,19	17,60		
		30-45	8,15	8,84	16,99		
5.	Fon+N ₁₆₅ +DSDA	0-15	17,77	39,56	57,33	28,48	74,51
		15-30	6,55	5,93	12,48		
		30-45	9,84	5,80	15,64		
6.	Fon+N ₁₆₅ +ATG	0-15	8,38	15,87	24,25	20,34	24,63
		15-30	7,83	8,61	16,44		
		30-45	7,82	12,51	20,33		
7.	Фон+N ₁₆₅ +CaC ₂	0-15	45,59	42,36	87,95	47,76	192,65
		15-30	9,03	31,23	40,26		
		30-45	8,35	6,73	15,08		

