

RESPONSE OF BEAN (*Phaseolus vulgaris* L.) TO BOVINE
BIOFERTILIZATION ON CERRADO SOIL

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Use of organic manure in the Brazilian agriculture was increased in the last four years. One of the reasons for this increase was the higher cost of inorganic fertilizers. However, results are limited in this respect with special reference to bean crops.

Therefore, two field experiments were conducted at the National Research Center for Rice and Bean, Experimental Station Capivara, Goiânia, using the 'Carioca' cultivar and five levels of bovine biofertilizer (0, 6, 12, 18 and 24 t/ha).

The experimental soil was Dark Red Latossol. Chemical analysis of this soil showed 3.2 ppm phosphorus, 34 ppm potassium, 4.0 meq/100g calcium plus magnesium, 0.5 meq/100g aluminum, 1.4% organic matter and pH 5.9.

Before planting of the first experiment, 40 and 30 kg/ha of P_2O_5 and K_2O were applied respectively.

The biofertilizer was applied and incorporated at the time of ploughing. Nitrogen (20 kg N/ha) was applied 35 days after planting.

In the second experiment, the levels of biofertilizer used were 0, 6, 12, 18 e 24 t/ha, in half of each plot to determine accumulative and residual effects of biofertilizer.

It was used a randomized block design with four replications, and the treatments were combined in a factorial arrangement. Sowing was done in rows 50cm apart.

Results obtained in the present investigation are presented in Tables 1 and 2 respectively.

TABLE 1. Effects of bovine biofertilizer on soil chemical and physical properties after crop harvest.

TREATMENTS t/ha	Chemical properties				PH	Physical properties	
	P	K	Ca+Mg	Al		Bulk density g/cm ³	Moisture cm ³ .cm ³
	--- ppm ---		meq/100cc-----				
0	3.2	85	4.0	0.5	5.9	1.33	0.197
6	6.4	85	4.1	0.2	6.0	1.32	-
12	7.8	93	4.2	0	6.0	1.31	0.199
18	8.2	95	4.6	0	6.1	1.30	-
24	9.0	105	5.0	0	6.2	1.28	0.201

TABLE 2. Effects of bovine biofertilizer on grain yield (kg/ha)

TREATMENTS t/ha	1 st year		2 nd year			
			Accumulative	Residual		
0	821	c	1.222	c	196	b
6	961	b	2.640	a	1.181	ab
12	1.052	b	2.482	a	1.055	ab
18	1.185	b	2.481	a	1.588	a
24	1.448	a	2.142	ab	1.319	ab
Mean	1.089		2.173		1.187	
C.V.	10,88%		23.11%		22.19%	

Chemical and physical characteristics of soil were changed with application of bovine biofertilizer. There was an increase in the content of P, K, Ca+Mg, soil moisture and pH, and decrease in bulk density and the content of Al (Table 1).

Grain yield was linearly increased with the application of bovine biofertilizer in the first year. The results obtained in the second year (Table 2) suggest that low level of bovine biofertilizer is enough to obtain high grain yields.

SOUTHERN COOPERATIVE SNAP BEAN VARIETY TRIALS - 1984

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The Southern Cooperative Snap Bean Variety Trial program has been conducted in the southeastern states for several years. The 1984 trials were conducted at 8 locations.

The replicated trial had 7 entries. Line FM 103 received the highest score. Other entries that scored well were FM 1555, H496-4 and G 2868. Lines that scored lowest were Eagle (check), AVX 185 and AVX 9342.

The observational trial included 20 entries. Most of these were new numbered selections. The most outstanding entry was MOX 8037, and it along with H491B-1-1-3-1 and H532-2-1 will be advanced to the replicated trials. Those which will be repeated in the 1985 observational trial are H630-4-4, GP 82-160, AVX 117, FM 128, H493-1-41 and GP 82-6414. Low scoring entries which will be dropped are MOX 8033, AVX 9398, H492-3-1, 83BP-5597, 83BP-5601, 83BP-1275, GP81-206, GP 81-WM-1731 and Labrador.

Breeders with new snap bean lines to test are encouraged to enter them in the observational trial. This will require a 10 pound sample of seed per entry. Reports of 1984 and previous year's trials are available upon request.