

BEAN FERTILIZATION I - ALTERNATIVE SOURCES OF FERTILIZERS

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There are many sources of fertilizers and amendments used to improve and/or maintain soil fertility, reflected in better crop production. Therefore three field experiments were conducted to verify responses to simple superphosphate (80 kg P₂O₅/ha), apatite phosphate (80 kg P₂O₅/ha), bovine biofertilizer (20 t/ha), gypsum (50 kg/ha) and dry residue of *Leucena leucocephala* (5 t/ha) tested in isolation and in combination.

The experiments were conducted at the National Rice and Bean Research Center, Capivar farm using 'CNF 178' cultivar. The soil type in the experimental fields was a Dark Red Latossol (Haplustox). Chemical analysis showed this soil contained 1.1 ppm phosphorus, 54 ppm potassium, 1.1 meq/100 g calcium plus magnesium, 1.8% organic matter, 0.7 meq/100 aluminium and pH 5.6.

Before planting for the first experiment, 40 and 30 kg/ha of P₂O₅ and K₂O were applied respectively.

The fertilizers were applied to soil at time of planting. Nitrogen (20 kg N/ha) was applied 35 days after planting.

In general, good results were obtained by applying different sources of fertilizer in comparison to check treatment (without fertilizers). The grain yield obtained in plots fertilized with apatite phosphate were not good in the first experiment, but in the second experiment the results obtained can be considered satisfactory. The choice of one or another source of fertilizer will depend on the resources of the farmer.

Table 1. Effects of different sources of fertilizer and/or amendments on bean yield (kg/ha) on two planting dates.

Treatment	1981		1982
	Dry season	Rainy season	Rainy season
(1) Check	140	500	720
(2) Simple superphosphate	500	1200	1200
(3) Apatite phosphate	160	810	1000
(4) Bovine biofertilizer	380	1100	1100
(3) + (4)	340	1000	1180
(3) + (4) + (5)	360	1000	1190
(5) Gypsum	200	1020	1100
(3) + (5)	150	930	920
(4) + (5)	340	1060	1150
Apatite Phosphate		1050	1000
Acidified (H ₂ SO ₄ 25%)			
(3) + (6)	280	830	980
Apatite phosphate			
(H ₂ SO ₄ 25 + NaOH N)	250	880	1020
(6) Leucena	300	1000	950
Apatite phosphate			
(H ₂ SO ₄ 25) + (4)	560	970	1150
Apatite phosphate			
(H ₂ SO ₄ 25% + NaOH N) + (4)	550	1000	1200
(3) + (5) + (6)	480	900	1010
Mean yield	430	950	1050
C.V. %	43.11	16.40	12.35