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NUTRITIONAL CHARACTERISTICS OF TWO PIGEON PEA HYBRIDS – LIMING AND PHOSPHATED FERTILIZATION

CARACTERÍSTICAS NUTRICIONAIS DE DOIS HIBRIDOS DE GUANDU – CALAGEM E FERTILIZAÇÃO FOSFATADA

MARCIA A. C. LUCENA[1], VALDINEI T. PAULINO[1], KAREN M. SANTOS[2], ALLINE M. SCHUMANN[2], ROSANA A. POSSENTI[1]

[1]Instituto de Zootecnia (IZ), APTA/SAA, Rua Heitor Penteado, 56, Centro, CEP 13460-000, Nova Odessa, SP, Brazil.E-mail: lucena@iz.sp.gov.br; paulino@iz.sp.gov.br; possenti@iz.sp.gov.br
[2]Postgraduated student, in Sustainable Animal Production, Instituto de Zootecnia (IZ), APTA/SAA.

The use of legumes in animal production systems can be a sustainable alternative as a protein source in rotational grazing system and/or as a protein bank. Pigeon pea (*Cajanus cajan* (L.) Millsp.) figure as an example of success of this use on animal nutrition. The development of this species can be limited by the high acidity and low soil phosphorus content. There is a lack of scientific information on the effects of liming and phosphorus fertilization on some nutritional variables of two pigeon pea new hybrids. This study was conducted in pots containing 5 kg of soil in a greenhouse at the Instituto de Zootecnia, Nova Odessa, São Paulo State. There were studied two pigeon pea hybrids, H1 and H2, and the treatments involved agronomic practices: 1) No liming and without phosphorus (control), 2) Liming (L), 3) Phosphorus fertilization (P) and 4) Liming plus phosphorus. Liming was proposed to increase soil base saturation to 50%, it was used dolomite lime PRNT = 90%, in an amount corresponding to 4.5 t/ha. Phosphorus fertilization (as superphosphate) rate was 60 kg/ha of P_2O_5. The experimental units were allocated according to a complete randomised block design, with five replications. We analyzed the levels of crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), in pigeon pea shoot at 45 days of age. Statistical analyzes were performed using the software SISVAR, averages were compared using test for multiple comparisons Student Newman-Keuls - SNK test ($P < 0.05$). The H1 hybrid had the highest content of CP, by applying P, lime plus P and the control treatment compared to H2 hybrid. The association lime plus P resulted in higher content of CP mainly due to the increased availability of P for plants. Smaller values were observed for NDF in H2 with P application. Lower values of ADF were observed in H1 in both control treatment and P application. The ADF values were lower for the hybrid H2 only for the treatment lime plus P. The two hybrids of pigeon pea with phosphate fertilization and liming showed excellent nutritional characteristics and low fiber content.

Table 1. Effects of liming (L), phosphorus (P), L plus P and control on crude protein (CP), neutral detergent fiber (NDF) and acid detergent fiber (ADF) content (%) of shoots in two pigeon pea hybrids, in Nova Odessa (Sao Paulo state, Brazil).

Variable	Hybrids	Treatments			
		Control	Liming (L)	Phosphorus (P)	L plus P
CP	H1	22.0 a	15.7 a	17.5 a	24.6 a
	H2	10.8 b	16.7 a	10.7 b	20.3 b
NDF	H1	28.7 a	32.1 a	32.3 a	29.1 a
	H2	29.1 a	31.7 a	28.5 b	29.8 a
ADF	H1	47.8 b	52.7 a	51.7 b	51.4 a
	H2	56.3 a	50.5 a	56.9 a	46.4 b

Means with different letters in column differ significantly on SNK test ($p < 0.05$).

Key words: acid detergent fiber, crude protein, neutral detergent fiber, pigeon pea.