EFFECT OF FEEDING *Acacia saligna* (LABILL.) H.L. WENDL. ON GOATS STABLED DURING LATE PREGNANCY AND LACTATION

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Acacia saligna (Labill.) H.L. Wendl. forage is an alternative feed supply for goats during dry periods It was used as feed during pregnancy and lactation to evaluate production response and some blood parameters. Six animals in each group were fed with 0, 25, 50, 75, and 100% of acacia as alfalfa (*Medicago sativa* L.) hay replacement in a completely randomized design. Forage chemical analysis was done to calculate nutrient intake. Blood samples were analyzed for albumin, urea N, globulin, total protein, Ca, and P. Productive parameters were analyzed by ANOVA, Duncan, and regression analyses between acacia and dry matter (DM), crude protein (CP), metabolizable energy (ME), and milk production. Acacia consumption during pregnancy was 65.5% of control, affected by the consumption of CP, ME intake and body condition ($P < 0.01$). Body weight showed no change and 25.9% was the inflection point of the response curve. Birth weight was different for 100% acacia in the diet ($P < 0.05$). In lactation DM, CP, and ME intake increased ($P < 0.01$). Body weight and body conditions decreased for groups with 50% and 25% acacia. Only urea N and albumin were affected by inclusion of acacia. Milk production decreased ($P < 0.01$) with over 50% acacia. Milk production was 160.2, 163.4, 128.2, 125.9, and 66.5 L for 0, 25, 50, 75, and 100% of acacia, respectively. Goat diets should not include more than 25% acacia forage during pregnancy and lactation.

Keys word: *Acacia saligna*, pregnancy, lactation, milk production, goats, albumins.

*A*cacia saligna (Labill.) H.L. Wendl. is being studied in various aspects to rehabilitate degraded rangelands, and as a potential fodder to improve livestock feeding in the Coquimbo Region, Chile. By 2005, 10 698 ha had been planted along the coast of this region, climbing to 15 000 ha between 2005 and 2011 (Cerda, 2007). It is an adapted evergreen species with appropriate characteristics for cultivation in the dry coastal area (Squella *et al*., 1985; Mora and Meneses, 2003; 2004). Normally farmers use this resource to feed sheep and goats, especially during summer and autumn. They harvest acacia leaves and stems from young and mature trees during the dry season to provide a daily supplement to grazing.

The evaluation of the potential use of this species as supplemental forage for grazing goats during the last third of pregnancy and lactation did not find positive effects on body weight, body condition, and milk production, even though the animals under grazing supplemented with *A. saligna* consumed more nutrients than the control treatment supplemented with alfalfa (*Medicago sativa* L.) (Meneses and Flores, 1999). These results were probably influenced by grazing or the food substitution rate. However, acacia contains 28.9 g kg^{-1} of total tannins, which have anti-nutritive activity in ruminal digestion, decreasing the nutrient value and limiting acacia protein use. Additionally, organic matter and digestible energy nutritive value is affected by total phenol compounds (Ben Salem *et al*., 2002; Mahipala *et al*., 2009). Other researchers report even higher values for total acacia phenolics and condensed tannins. This component links dietary protein and make nutrients less digestible in the rumen, limiting microbial growth, amino acid microbial synthesis and reduces the absorption of amino acids in the intestine (Pritchard *et al*., 1992; Ben Salem *et al*., 2008). The addition of polyetilenglicol (PEG) to the diet with *A. saligna* increases consumption and production response in goats more than in sheep (Ben Salem *et al*., 2002; Krebs *et al*., 2007). PEG forms a compound with tannins allowing protein N to be metabolized in the rumen, improving digestibility of dry matter, organic matter, and increasing ruminal ammonia and consequently production level.

Producers in the dry zone of Coquimbo Region require low cost supplementary feed to maintain goat and sheep productivity and to avoid losses during the dry season. *Acacia saligna*, like other shrubs, offers a good alternative.

The objective of this study was to evaluate *Acacia saligna* as an alfalfa hay replacement forage for goats in confinement during pregnancy and lactation and to analyze blood parameters.

MATERIALS AND METHODS

The experiment was conducted from April to October at Los Vilos Experimental Station (31°52' S, 7°28' W) of the Instituto de Investigaciones Agropecuarias (INIA). Thirty 2-to-5-yr-old creole goats in individual pens were assigned to five treatments with six replicates. The animals received 0, 25, 50, 75, and 100% acacia as an alfalfa hay replacement. The acacia was harvested three times a week from a plantation established in 1977. Samples from this material were collected to determinate leaf, and small (< 4 mm) and large steam (> 4 mm) proportions. The proportion of the acacia component and chemical analyses are shown in Tables 1 and 2. Alfalfa hay and *A. saligna* forage were offered in pieces and mixed according to the different treatment proportions in an individual feeder at 09:00 and 17:00 h, in amounts resulting in 10% forage rejection to avoid feed selection. Twice a day, in the morning and afternoon, animals were allowed to walk in a community pen with water. The proportions of forages offered were determined on an intake control basis. Every 3 d forage samples were obtained from each treatment and every 3 wk these were mixed and dried in an oven at 60 °C for 62 h (AOAC, 1990). Dry matter content was determined by drying the sample in the forced-air oven at 105 °C for 24 h. Crude protein (CP) was obtained as N by micro-Kjeldahl analysis and then calculated as 6.25 × N content (AOAC, 1990). Neutral detergent fiber (NDF) and acid detergent fiber (ADF) were measured using a fiber digester (Labconco, USA), and lignin by the 72% sulfuric acid method (ADL). Hemicellulose was determined from the differences between NDF and ADF and cellulose from the difference between ADF and ADL (van Soest, 1963). Ash was determined by ashing at 550 for 4 h (AOAC, 1990), and metabolizable energy (ME) was determined by estimating OM digestibility (Tilley and Terry, 1963). Individual intake was calculated as the differences between provided and rejected nutrients.

Table 1. Proportions of *Acacia saligna* component used during the last third of pregnancy and lactation.

	Leaf	Buds	Thin stems	Thick stems
			%	
Last third of pregnancy	64.4	5.4	13.8	16.3
Lactation	57.0	7.1	14.0	21.9

Table 2. Chemical composition of *Acacia saligna* and alfalfa hay.

Treatments	DM	CP	DMD	NDF	ADF	Lig	Cel	Ash	ME
									Mcal kg^{-1}
				%					
Alfalfa hay	91.2	18.4	69.6	41.4	32.0	8.3	30.6	10.9	2.2
Acacia saligna leaf	91.9	16.8	46.4	40.1	28.6	8.7	19.4	9.0	1.5
Thin stems	91.6	10.3	38.0	49.3	42.8	14.0	30.6	7.4	1.3
Thick stems	92.5	6.7	25.9	61.8	50.5	15.2	34.8	5.0	1.0
Buds	90.2	19.9	60.7	33.3	23.5	6.6	18.0	9.2	2.0
Weighted	91.6	13.4	42.7	46.1	36.8	11.1	25.7	7.7	1.4

DM: dry matter, CP: crude protein, DMD: dry matter digestibility, NDF: neutral detergent fiber, ADF: acid detergent fiber, Lig: lignin; Cel: cellulose, ME: metabolizable energy.

Blood samples were taken by vacutainer from the jugular vein at 40, 70, and 100 d after kidding. Blood samples were centrifuged for 15 min to separate serum and then refrigerated. Urea was determined by the by colorimetric method (Fawcett and Scott, 1960). The bromocresol green methodology described by Doumas *et al*. (1971) was used to determine albumin and blood protein was evaluated by refractometer (Benjamin, 1991). Globulin was obtained from the difference between protein and albumin.

During pregnancy, body weight and conditions were evaluated each 14 d. At kidding, birth type and individual kid body weight was considered, after which body weight conditions were evaluated every 7 d until day 35. After that, evaluations were performed every 14 d until day 101 of lactation. Body conditions were assessed by adapting the methodology described by Russell *et al*. (1969), which used five levels divided every 0.25 unit, 5 being the maximum value. At birth, kid body weight was evaluated and after that every 7 d. Milk production, and milk samples were taken for total solids (TS) (Pinto and Houbsaken, 1976) and fat matter (FM) PC and lactose were analyzed with MilkoScan 4000 (Foss Analytical, Hillerod, Denmark).

All data were statistically analyzed by an ANOVA and the Duncan test in a complete randomized design (Steel and Torrie, 1980) with the SAS statistic program (SAS Institute, 1989). Regression analyses were performed between *Acacia* proportions and DM, PC, ME and milk production and to derive the optimal proportion of acacia in the diet. The statistical model used was:

$$y_{ij} = \mu + \delta_{i1} + \varepsilon_{ij}$$

where: y_{ij} is the observed value of the dependent variable of the replication; μ is the overall mean of the sample; δ_{i1} the treatment effect, and ε_{ij} the statistical or random error.

RESULTS AND DISCUSSION

Last third of pregnancy evaluation

The *A. saligna* components and chemical analysis are shown in Tables 1 and 2. *Acacia saligna* shows lower CP, DMD, ADF, cellulose and ME. The acacia chemical composition was similar to that reported by Meneses Flores (1999), who used acacia from the same sources. The values reported by Ben Salem *et al*. (2002) and Krebs *et al*. (2007) are also similar to those obtained in the present evaluation. Alfalfa composition was equivalent to the values of the flowering (NRC, 1996).

DM intake was lower (P < 0.001) in diet with 75 and 100% acacia, and acacia intake, as the only single, represented 65.53% of alfalfa intake. PC and ME intake decreased (P < 0.001) inversely to the proportion of acacia in the diet. The cell wall component presented a similar response (Table 3) and reached an intake between 41.06 to 50.53% and 37.19 to 43.58% for NDF and ADF, respectively.

Table 3. Daily nutrient intake of goats fed with different proportions of *Acacia saligna* during late pregnancy.

Acacia saligna	DM	CP	NDF	ADF	Cel	Lig	ME
%				g d⁻¹			Mcal d⁻¹
0	1872.33a	411.19a	718.93c	533.67c	397.70c	134.38c	4.76a
25	1849.39a	366.52b	759.38bc	598.42b	436.97b	158.44b	4.19b
50	1901.72a	336.75c	845.58a	687.88a	496.03a	187.27a	3.62c
75	1718.26b	270.10d	814.04ab	683.66a	488.28a	190.34a	2.74d
100	1226.98c	167.98e	619.95d	534.73c	378.04c	151.49c	1.58e
CV, %	5.70	4.51	6.59	6.94	6.66	7.48	5.80
Pr > F	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means in column with same letters are not different, according to Duncan test (P > 0.001). DM: dry matter, CP: crude protein, NDF: neutral detergent fiber, ADF: acid detergent fiber, Cel: cellulose, Lig: lignin; ME: metabolizable energy, CV: coefficient of variation.

The regression equations are derived from DM intake and acacia percentage in the diet. Equation [1] establishes a maximum inclusion of 28.78%. Although this value does not represent a statistical difference, it is a mathematical limit for the use of acacia. The derivate of the other equations were undetermined.

$$y = -0.134x^2 + 7.71234x + 1830.6 \qquad r^2 = 0.9510 \quad [1]$$

Body weight evaluation (not included in this report) was not different (P > 0.05) among treatments for each date, with a coefficient variation (CV) in the range of 14.49% to 16.77%. However, CP and ME intake did change. During the treatments, this intake was probably not sufficient to establish significant responses during pregnancy. The body condition (Table 4) presented significant differences (P < 0.05) more consistently from 3 June (day 42 of the evaluation of the last third of pregnancy) due to the inclusion of more than 50% of acacia. This variable is more sensitive than body weight (Meneses and Flores, 1999), which allows assessing the treatment effect more precisely.

The regression equation derivate for the body condition at kidding (Equation [2]) was 25.97%, limiting this variable at this point, but higher percentages still present statistical equality.

$$y = -0.0021x^2 + 0.1273x + 52.809, \quad r^2 = 0.9632 \quad [2]$$

A comparison of nutrient intake and nutrient requirement according to the average body weight and NRC (1981) evidenced an increase in ME deficiency when the acacia percentage increases. The values were 12.36, 25.36, 42.83, and 64.10% for the incorporation of 25, 50, 75 and 100%, respectively, of acacia in the diet.

Table 4. Average body condition of goats fed with different proportions of *Acacia saligna* in the diet during late pregnancy.

Acacia saligna	Pregnancy evaluation days					
	22 April	6 May	20 May	3 June	17 July	Kidding
%				kg		
0	2.88a	2.58a	2.88a	2.79a	2.83a	2.67a
25	2.79a	2.54a	2.58ab	2.67a	2.63ab	2.50abc
50	2.71a	2.54a	2.67a	2.58a	2.67ab	2.58ab
75	2.70a	2.50a	2.54a	2.54ab	2.46b	2.38ab
100	2.83a	2.58a	2.58a	2.38b	2.42b	2.33c
CV, %	6.68	8.84	9.31	8.59	8.67	7.80
Pr > F	0.4426	0.9642	0.1678	0.0434	0.0254	0.0170

Means with the same letters on line are not different, Duncan test (P > 0.05). CV: coefficient of variation.

By adjusting CP intake with the apparent digestibility established by Olivares (51.77% evaluated in a parallel work in 2001) the diet deficiency was produced only with the incorporation of 75 and 100% of acacia in the diet.

Birth weight varied with acacia as the only forage (P < 0.05) (Table 5). The sex variable was not significant (P > 0.05). The weights obtained were 2.89 and 3.29 kg for females and males, respectively. The type of kidding also did not vary (P > 0.05). The values were 3.4, 3.18, and 2.7 kg for single, twin, and triplet births, respectively.

Although the partial inclusion of acacia produced only a tendency toward lower birth weights, it is necessary to consider nutrient intake reduction; the ME deficit, and the effect on body condition, particularly at birth, which may affect birth weight; and because the type of kidding and sex did not show conclusive results. On the other hand, the phenolic and tannin composition content of acacia (Degen *et al*., 1995) may reduce nutrient absorption due to fixing, especially of proteins. This led us to conclude that the use of acacia in goat diets during the last third of pregnancy has limitations and that as a consequence of the body condition response, acacia should not be included in percentages higher than 26% to avoid negative effects on production.

Lactation evaluation
DM intake during lactation increased (P < 0.01) 97% over the control with a high percentage of acacia in the diet (Table 6), which differed from the results during pregnancy. In the latter period, the lower acacia intake can be attributed to the fetus, which reduced abdominal

Table 5. Birth type and average kid birth body weight (kg).

Acacia saligna	Type of kidding			Goat kid	
	Triplets	Twins	Single	Total N°	Weight
%					kg
0	1	3	2	11	3.4a
25	1	4	1	12	3.2a
50	0	4	2	10	3.3a
75	0	4	2	10	3.3a
100	1	4	1	12	2.4b
CV, %					17.29
Pr > F					0.011

Means with same letters on column are not different, according to Duncan test (P > 0.05). CV: coefficient of variation.

Table 6. Lactation nutrient intake of goats offered different proportions of *Acacia saligna*.

Acacia saligna	DM	CP	NDF	ADF	Cel	Lig	ME
%				g			Mcal kg⁻¹
0	1231.5e	204.3d	610.8d	464.2e	305.7e	138.5e	2.37c
25	1981.4d	276.7a	1048.6c	847.5d	585.3d	243.0d	3.34a
50	2171.8c	226.7b	1204.2b	999.3c	657.0c	302.2c	2.91b
75	2267.5b	201.8d	1278.2a	1087.1b	741.8b	320.8b	2.59c
100	2434.6a	213.8c	1295.5a	1161.6a	766.8a	365.2a	2.45d
CV, %	8.107	12.49	8.65	8.76	10.01	9.02	9.45
Pr > F	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

Means in column with same letters are not different, Duncan test (P < 0.001). DM: dry matter, CP: crude protein, NDF: neutral detergent fiber, ADF: acid detergent fiber, Cel: cellulose, Lig: lignin; ME: metabolizable energy, CV: coefficient of variation.

space, and to the low digestibility of this diet due to N fixation and ruminal ammonia by tannins, reducing rumen bacterial amino acid synthesis (Ben Salem et al., 2002; 2005; Krebs et al., 2007).

As a consequence of the increased proportion of acacia in the diet, CP and ME intake had the same tendency with 25% acacia in the diet. However, a higher percentage of acacia, show a decrease in these level which reflects its relative acceptability, evaluated during pregnancy and low digestibility.

The cell wall component had a similar tendency as the percentage of acacia increased. The percentage of NDF and ADF intake in relation to DM intake were in the range of 49.6 and 56.4% and 37.7 and 48.0% respectively.

The regression equations for diet intake and treatments were:

Dry matter $\quad y = -0.144x^2 + 25.128x + 128.9 \quad r^2 = 0.9532$
Crude protein $\quad y = 0.0008x^3 - 0.1384x^2 + \quad\quad r^2 = 0.9302$
$\quad\quad\quad\quad\quad 5.4367x + 206.24$
Metabolizable $\quad y = 8E\text{-}0.6x^3 + 0.067x + 2.3906 \quad r^2 = 0.9531$
energy

According to the derivates of these equations, the limiting values were 87.4 and 25.1% for DM and CP. The values of ME were not useful in practical terms.

There was a statistically significant (P > 0.01) in urea and albumins content in the blood. Urea decreased with the increase of acacia to 50% at 40 d after kidding and in higher percentages at 70 and 100 d after kidding (Table 7). Albumin showed an inconsistent response. At 40 d there was an effect with 75 and 100% of acacia. However, at 70 and 100 d, this effect decreased, while the 75% treatment presented the lowest albumin level (Table 5). Total protein did not present statistically significant differences (P > 0.05). The levels were between 62.33 and 69.67 g L^{-1}.

Globulin levels were also not altered (P > 0.05), the level being between 21.32 and 27.88 g L^{-1}. Ca and P were not affected (P > 0.05) by acacia percentage in the diet. These values were between 2.14 and 2.63 mmol L^{-1} and 1.79 to 2.7 mmol L^{-1}, respectively. Blood urea N, total protein, and albumin levels were similar to those reported by Fernández et al. (2009) and Ríos et al. (2006).

The partial body weight control did not show a particular response-to any treatment. However the analyses of total daily average weight indicate that body weight increased with 25 and 50% of acacia, but with the incorporation of 75% acacia weight decreased (Table 8). Similar results were obtained with the partial body condition, although decreasing as the percentage of acacia in the diet increased. In addition, the average total body condition decreased with 25% of acacia in the diet (Table 9).

The effect of acacia on nutrient intakes, weight, body condition, urea and albumins blood content was reflected in milk production values, which are shown on Table 10.

Table 7. Urea and albumin blood content of goats fed on different *Acacia saligna* proportions.

	Post partum days					
	Urea			Albumin		
Acacia saligna	40	70	100	40	70	100
%	mmol L^{-1}					
0	7.74a	6.98b	6.71a	43.93a	43.62ab	44.23a
25	7.49ab	8.00a	6.91a	43.88a	45.12a	42.63a
50	6.20bc	5.99bc	5.36b	42.35ab	44.05ab	43.33a
75	4.92cd	4.98cd	4.93bc	41.22b	41.62b	37.87b
100	3.89d	4.07d	4.30c	40.40b	43.38ab	42.80a
CV, %	19.09	21.26	13.74	5.09	5.28	5.70
Pr > F	0.0001	0.0001	0.0001	0.029	0.0154	0.0011

Means in column with different letters are different, Duncan test (P < 0.001). CV: coefficient of variation.

Table 8. Partial and total body weight average of goats feeding *Acacia saligna* on lactation.

Acacia saligna	Body weight control on lactation day												Total average
	1	3	10	17	24	31	38	52	66	80	94	101	
%	kg												
0	53.2	52.0a	49.8	49.5a	50.1ab	49.9	50.2	50.1	47.8ab	48.2ab	47.2	46.42	49.5 b
25	53.6	52.7a	50.6	49.4a	50.2ab	49.9	49.7	49.9	49.5a	49.2ab	48.6	46.67	50.0ab
50	55.0	54.4a	50.5	50.1b	51.5a	50.9	50.5	51.8	50.3a	50.7a	50.1	49.17	51.2a
75	51.0	51.8a	47.2	46.8b	47.6ab	46.9	47.9	48.7	48.8ab	46.1ab	46.9	45.58	47.8c
100	49.0	46.0b	42.5	41.1c	40.7c	43.3	42.7	47.2	41.3b	42.2b	42.9	42.00	42.9d
CV, %	15.21	15.37	15.13	13.67	16.01	14.23	13.62	14.28	12.85	13.57	13.85	13.36	13.81
Pr > F	0.215	0.264	0.167	0.129	0.141	0.314	0.242	0.840	0.116	0.210	0.424	0.394	0.0001

Means in column with different letters are different, Duncan test (P < 0.001). CV: coefficient of variation.

Table 9. Partial and total body condition of goats feeding *Acacia saligna* on lactation.

Acacia saligna	Body weight control on lactation day												Total average
	1	3	10	17	24	31	38	52	66	80	94	101	
%	kg												
0	2.7a	2.6	2.6	2.7a	2.7a	2.8a	2.9a	2.8a	2.9a	2.8a	2.8a	2.75	2.74a
25	2.5abc	2.5	2.5	2.5ab	2.6a	2.7a	2.7ab	2.7ab	2.6ab	2.7ab	2.7ab	2.63	2.61b
50	2.6ab	2.5	2.5	2.5ab	2.6a	2.7a	2.7ab	2.5b	2.7ab	2.6ab	2.7ab	2.75	2.62b
75	2.4bc	2.4	2.5	2.5ab	2.5ab	2.5ab	2.5bc	2.5b	2.4b	2.4b	2.4b	2.42	2.44c
100	2.3c	2.4	2.4	2.3b	2.3b	2.3b	2.4c	2.4b	2.4b	2.4b	2.4b	2.42	2.37c
CV, %	7.72	8.87	8.33	7.52	7.36	8.86	8.10	9.00	10.05	9.15	9.35	9.87	2.54
Pr > F	0.023	0.433	0.320	0.076	0.012	0.023	0.003	0.031	0.018	0.043	0.068	0.062	0.0001

Means in column with different letters are different, Duncan test (P < 0.001). CV: coefficient of variation.

Table 10. Milk production of goats feeding different proportions of *Acacia saligna*.

	Acacia saligna Diet, %					Pr > F	CV %
	0	25	50	75	100		
Milk production, L	160.2a	163.4a	128.2b	125.9b	66.5c	0.0001	15.4

The milk production for 0 and 25% treatments were the same but different from those for the other treatments, which were 160.24, 163.35, 128.18, 125.92, and 66.48 L respectively for the 0, 25, 50, 75 and 100% treatments. The 50 and 75% treatments were the same different from the 100% treatment. The variation coefficient was 15.35% and the significance level was lower than 5%.

The regression made for the treatments and milk production was polynomial (P < 0.05) and the equation resulted in:

$$y = -0.0105x^2 + 0.1538x + 160.65 \qquad r^2 = 0.9329$$

The derived calculation establishes a maximum value of 7.32% of acacia in the diet. Milk component TS, FM, CP, and lactose were not statistically affected by the inclusion of acacia in the diet.

The evaluation of the last third of pregnancy showed that acacia could not be included in percentages higher than 26% to avoid limiting production. As our results from the last third of pregnancy ¦suggest and as reported by Meneses and Flores (1999), body conditions appear to be more sensitive than body weight according to statistical analyses. In this case, body condition is the variable that most limits the inclusion of acacia, to a proportion of 25% during the milking period, although the derivative of the equation for lactation is even lower.

The higher nutrient intake evaluated during lactation did not necessarily result in higher production, which could be attributed to the effect of incorporating *A. saligna* on the digestibility of the diet. According to Ben Salem *et al*. (2002; 2008), acacia has tannin components that decrease the digestibility of protein due to nitrogen fixation. Moreover, acacia in goat diets decreases urea and albumin levels in the blood, indicating their excretion. Ruminal ammonia is in equilibrium with ammonia and associated with blood urea synthesis in the liver. As well, protein availability decreases for rumen microorganisms and absorption of protein by the animal. Although there are no precise values, it is possible that feeding with only acacia over an extended period would produce a negative nitrogen balance. The results obtained indicate there is an effect on all of the evaluated variables but at different levels of inclusion of acacia in the dietand there is a maximum level without any effect on productive variables, as shown in the present document.

CONCLUSION

Acacia saligna fodder has limitations as feed for goats. In pregnancy its acceptability as the only forage, represented 65% of that of alfalfa hay, but during lactation the intake was higher than alfalfa hay. Blood urea is affected with 50% of acacia inclusion. The response of albumin is inconsistent and the other blood components did not present effects from consuming acacia. However, acacia should not represent more than 26% of diet during the last third of pregnancy, according to body weight, conditions and birth weight. During lactation, acacia should not represent more than 25% to avoid affecting milk production, although the regression equation determined that it should not represent more than 7.3%. A higher percentage in the diet would affect animal productivity and more than 50% would affect body weight. Maximum DM intake is obtained with 24.8% of acacia in the diet.

Efecto de la alimentación con *Acacia saligna* (Labill.) H.L. Wendl. en caprinos estabulados en el último tercio de preñez y lactancia. La *Acacia saligna* es una alternativa de alimentación para caprinos, por lo que se ofreció a hembras en preñez y lactancia para evaluar su respuesta y algunos parámetros sanguíneos. Los animales fueron asignados a grupos que recibieron 0, 25, 50, 75 y 100% de acacia en reemplazo de heno de alfalfa (*Medicago sativa* L.), en un diseño completamente al azar. Análisis químico de forraje fue realizado para calcular consumo de nutrientes. Albumina, N úrico, globulinas, proteína total, Ca, y P fueron analizados en sangre. Se controló peso, condición corporal, y peso de nacimiento. Se realizó ANDEVA, Duncan, y regresión para acacia y las variables evaluadas. El consumo de acacia en la preñez fue 65,5% del control, afectó el consumo de proteína cruda (PC), energía metabolizable (EM) y condición corporal (P < 0,01). El peso corporal no fue afectado (P < 0,01), siendo 25,9% el nivel límite de inclusión de acacia. El peso de nacimiento fue diferente con 100% de acacia (P < 0,05). En lactancia, el consumo de MS, PC, y EM aumentó (P < 0,01). Niveles de 50 y 25% acacia disminuyeron el peso y la condición corporal. El N úrico y albumina fueron afectados por la acacia. La producción de leche disminuyó (P < 0,01) con niveles superiores a 50%, obteniéndose 160,2; 163,4; 128,2; 125,9; y 66,5 L con 0, 25, 50, 75 y 100% de acacia, respectivamente. La acacia no debe incorporarse en niveles mayores a 25% en dietas de caprinos en preñez y lactancia.

Palabras clave: *Acacia saligna*, preñez, lactancia, producción de leche, caprinos, albumina.

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