Antibody absorption by Santa Ines lambs using bovine colostrum from Holstein cows or sheep colostrum from Santa Ines ewes

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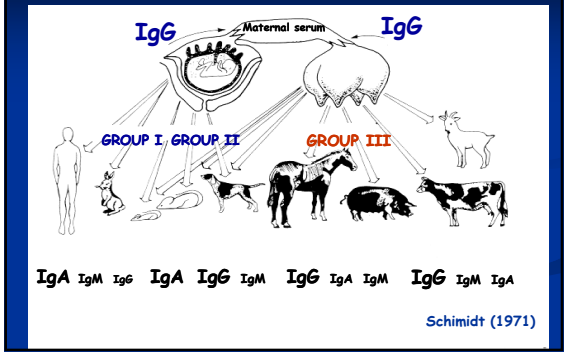
Passive Immunity in Species

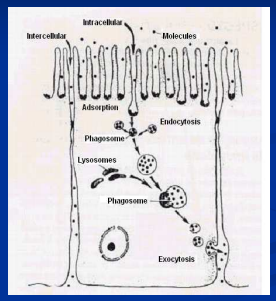


Schimidt (1971)

Colostrum:

- Protection components: cytokines, leukocyte, lysozyme, ANTIBODIES
- Nutricional components: proteins, fats, carbohydrates, minerals, vitamins
- Hormones and growth factors

Mechanism of Ig Absorption:



Factors influencing the efficiency of IgG absorption:

- Time of first colostrum ingestion
- Colostrum IgG concentration
- Volume of fed colostrum

Colostrum substitute:

- Mother's low production
- Large number of offspring
- Vehicle for pathogens

Objective

Managements - bovine and ovine colostrum

X

Antibody acquisition by the newborn Santa Ines lambs

Materials & Methods

Colostrum harvest:

- Santa Ines ovine first milking colostrum: Intensive System of Sheep and Goats Production (ESALQ/USP)
- Holstein bovine first milking colostrum: Center for Animal Husbandry Practice (ESALQ/USP)

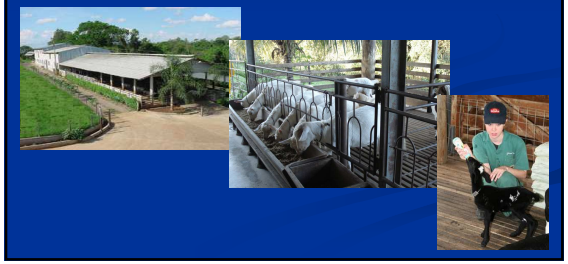
Materials & Methods

Colostrum harvest:

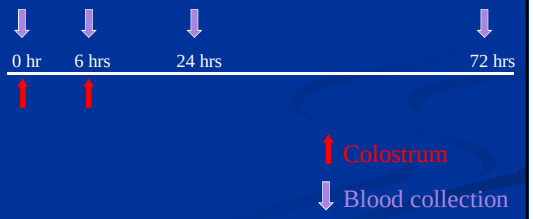
- Vials - 250 ml, identified and stored at -20 ° C
- Samples collected and stored for later analysis of IgG concentration

Materials & Methods

Intensive System of Sheep and Goats Production (ESALQ/USP)



Materials & Methods



Materials & Methods

Colostrum Analyses:

- IgG quantification: RID

Serum Analyses:

- IgG quantification: RID
- TP quantification: biuret reaction

Materials & Methods

Statistical Analyses:

- Completely randomized design
- Repeated measure-over-time scheme
- Body weight - covariable
- ANOVA – F test (PROCMIXED – SAS, 1999)
- Means comparison – Tukey's test (PROCMIXED – SAS, 1999)

Results and Discussion

- Colostrum

Table 1 Immunoglobulin G concentration in bovine and ovine pools of colostrum

Pools of Bovine Colostrum	IgG Concentration (mg/ml)
1	75.43
2	142.50
3	129.12
means ± s.d.	115.69 ± 35.40[a]
Pools of Ovine Colostrum	**IgG Concentration (mg/ml)**
1	32.66
2	42.86
3	68.59
4	53.71
5	60.69
6	37.01
7	41.37
means ± s.d.	48.12 ± 13.19[b]

[ab] Means within a column having different superscripts are different by the F test (P<0.05)

Results and Discussion

- Serum TP

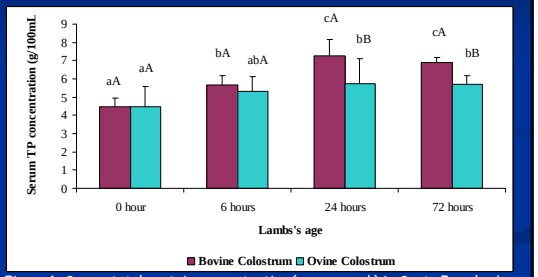


Figure 1 Serum total protein concentration (means ± s.d.) in Santa Ines lambs fed bovine or ovine colostrum. [ab]Means having different superscripts in the same treatment are different by Tukey's test (P<0.05). [AB]Means having different superscripts in the same period are different by Tukey's test (P<0.05).

Results and Discussion

- Serum IgG

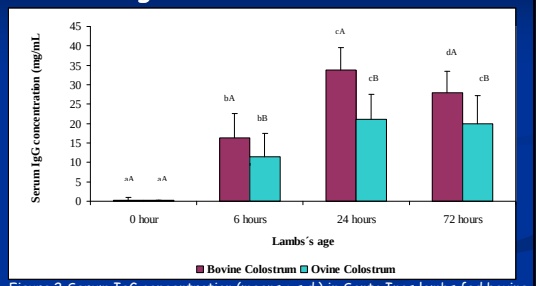
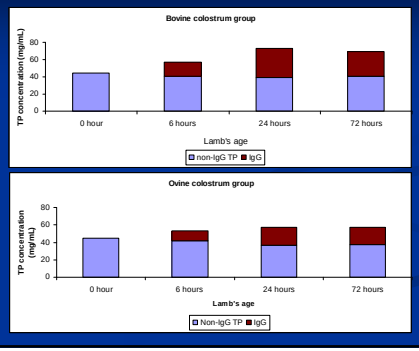


Figure 2 Serum IgG concentration (means ± s.d.) in Santa Ines lambs fed bovine or ovine colostrum. [ab]Means having different superscripts in the same treatment are different by Tukey's test (P<0.05). [AB]Means having different superscripts in the same period are different by Tukey's test (P<0.05).

Results and Discussion



Conclusion

- Holstein bovine colostrum can be an alternative source of IgG for newborn Santa Ines lambs, with advantage, since bovine colostrum is naturally richer in immunoglobulins than colostrum from ovine