UNIVERSIDAD AUTÓNOMA DEL ESTADO DE MÉXICO

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WORLD SHEEP MEAT PRODUCTION: A META-ANALYSIS

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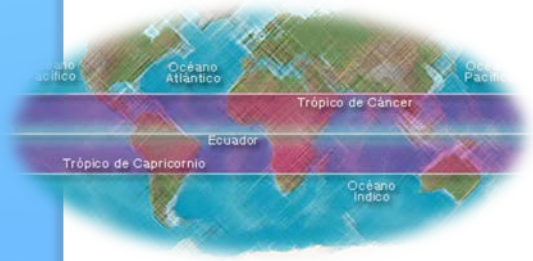
Introduction

- The free trade agreements

The aim of this study was to conduct a meta-analysis to identify differences with regard to:

The weight of sheep carcasses and their main characteristics



Production systems around the world

According to their genotype

Geographic location

Materials and Methods

- 54 studies, n = 34871 animals
- Using the data bases Scopus and Web of Science.
- The data analysis was performed using the methodology of mixed method.
- The Kruskal-Wallis and Mann-Whitney tests were applied.

Results

Descriptive analysis of the carcass characteristics of wool and hair lamb

	Wool genotypes						Hair genotypes						
Variable	N	Mean	SD	Max	Min	SE	N	Mean	SD	Max	Min	SE	P
IBW (kg)	66	19.4	9.1	39.1	3.6	1.1	44	21.9	5.9	36.6	14.6	0.9	0.54
FBW (kg)	94	32.8	12.5	62.3	8.9	1.1	55	31.6	10.3	50.2	9.2	1.4	0.48
ADG (g)	15	241	77.3	353	72	20	10	109	51.1	171	39	16.2	0.001
HCW (kg)	107	16.4	6.6	35.9	4.5	0.6	40	16.4	5.2	28.8	7.9	0.8	0.79
CCW (kg)	74	15.3	5.9	35.1	4.4	0.7	41	15.6	5.7	28.7	4.4	0.9	0.61
HCY (%)	95	48.3	5.4	65.8	39.5	0.6	40	48.8	5.2	61.3	41.9	0.8	0.65
EMA (cm^2)	61	12.5	2.7	18.7	6.5	0.3	21	11.2	3.3	15.7	4.7	0.7	0.38
SFT (mm)	64	3.9	2.8	10.9	0.7	0.3	20	2.6	1.3	5.6	1.1	0.3	0.19

N=number of animals; SD= standard deviation; SE=standard error; IBW= initial Body weight (kg); FBW= final body weight (kg); ADG= average daily weight, (g/d); HCW= hot carcass weight (kg); CCW= cold carcass weight (kg); HCY= hot carcass yield (%); EMA= eye muscle area (*L. dorsi*, cm^2); SFT= subcutaneous fat thickness (mm)

Descriptive analysis of carcass characteristics in lambs fed with and without supplement

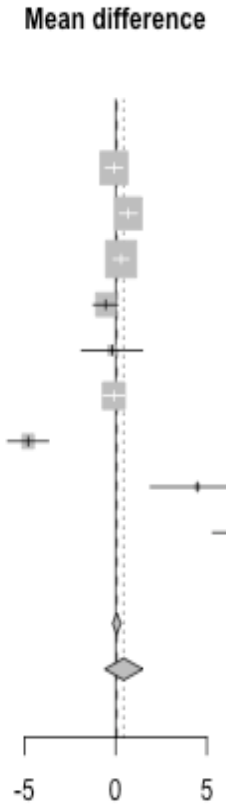
	With supplement						Without supplement						
Variable	N	Mean	SD	Max	Min	SE	N	Mean	SD	Max	Min	SE	P
IBW (kg)	92	20.5	7.7	39.1	3.6	0.8	18	18.1	9.7	36	3.6	2.3	0.827
FBW (kg)	134	33.2	12.5	62	8.9	1.1	42	30.2	9	47.1	11	1.4	0.12
ADG (g)	21	183	95.1	353	39.2	20.7	4	215.7	95.8	274	72.6	47.9	0.592
HCW(kg)	119	17.1	6.5	35.9	4.5	0.6	28	13.5	4	21.6	6.1	0.8	0.007
CCW (kg)	89	15.9	6.3	35.1	4.5	0.7	28	13.9	3.2	20.3	9.5	0.6	0.054
HCY (%)	107	48.9	5.5	65.8	39.9	0.5	26	46.3	4.7	57.8	39.5	0.9	0.007
EMA (cm^2)	68	12.3	3.1	18.7	4.7	0.4	14	11.4	1.5	15	9.1	0.4	0.130
SFT (mm)	71	3.9	2.6	10.9	1	0.31	14	2.1	1.1	3.8	0.7	0.3	0.008

N=number of animals; SD= standard deviation; SE=standard error; IBW= initial Body weight (kg); FBW= final body weight (kg); ADG= average daily weight, (g/d); HCW= hot carcass weight (kg); CCW= cold carcass weight (kg); HCY= hot carcass yield (%); EMA= eye muscle area (*L. dorsi*, cm^2); SFT= subcutaneous fat thickness (mm)

The effect of final body weight lambs fed with and without supplement

Study	concentrado Total	Mean	SD	sin concentrado Total	Mean	SD	MD	95%-CI	W(fixed)	W(random)
Bulent	12	31.15	0.4654031	12	31.24	0.7103520	-0.09	[-0.57; 0.39]	21.1%	12.7%
Carrasco	12	22.30	0.6123724	12	21.60	0.6123724	0.70	[0.21; 1.19]	20.3%	12.6%
Joy	19	23.30	0.6780855	19	23.00	0.6780855	0.30	[-0.13; 0.73]	26.2%	12.7%
Ekiz	11	28.63	0.8145204	12	29.18	0.8384769	-0.55	[-1.23; 0.13]	10.7%	12.3%
Hashimoto	10	30.10	1.7888544	10	30.30	2.0124612	-0.20	[-1.87; 1.47]	1.7%	9.8%
Jaques	10	46.90	0.6708204	10	47.00	0.6708204	-0.10	[-0.69; 0.49]	14.1%	12.5%
Gatechew	10	24.40	1.2745587	10	29.20	1.2745587	-4.80	[-5.92; -3.68]	3.9%	11.3%
Cividini	8	31.99	2.6342183	9	27.51	2.7782771	4.48	[1.91; 7.05]	0.7%	7.2%
Burke	10	45.70	2.7659989	30	38.40	2.7659989	7.30	[5.32; 9.28]	1.2%	8.8%
Fixed effect model	**102**			**124**			**0.06**	**[-0.16; 0.28]**	**100%**	**--**
Random effects model							**0.44**	**[-0.60; 1.48]**	**--**	**100%**

Heterogeneity: I-squared=94.6%, tau-squared=2.171, p<0.0001



Descriptive analysis of carcass characteristics of lambs in Feed -Lot or Free- Range systems

	Feed-Lot						Free-Range						P-
Variable	N	Mean	SD	Maximum	Minimum	SE	N	Mean	SD	Maximum	Minimum	SE	value
IBW (kg)	100	21.1	7.6	39.1	3.6	0.8	14	15.3	10.1	36	3.6	2.7	0.026
FBW (kg)	130	31.9	11.9	62	8.9	1	46	33.7	11.5	54	11	1.7	0.41
ADG (g)	21	183	95.1	353	39.2	20.7	4	215.6	95.8	274	72	47.9	0.592
HCW(kg)	97	15.8	6.5	35.9	4.5	0.7	50	17.6	5.7	26.6	6.1	0.8	0.04
CCW (kg)	92	15.9	6.2	35.1	4.4	0.6	23	13.4	2.9	20.3	9.3	0.6	0.019
HCY (%)	83	49.3	5.6	65.8	39.5	0.6	25	47.1	4.5	57.8	40.8	0.9	0.081
EMA (cm^2)	56	11.1	3.9	18.3	4.7	0.4	26	12.8	2.7	18.7	8.9	0.5	0.99

N=number of animals; SD= standard deviation; SE=standard error; IBW= initial Body weight (kg); FBW= final body weight (kg); ADG= average daily weight, (g/d); HCW= hot carcass weight (kg); CCW= cold carcass weight (kg); HCY= hot carcass yield (%); EMA= eye muscle area (*L. dorsi*, cm^2); SFT= subcutaneous fat thickness (mm)

Descriptive analysis of carcass characteristic of lambs in the north, intertropical and south Zones

	Intertropical Zone						North Hemisphere						Southern Hemisphere						Kruskar-Wallis P-value
Variable	N	Mean	SD	Maximum	Minimum	SE	N	Mean	SD	Maximum	Minimum	SE	N	Mean	SD	Maximum	Minimum	SE	
IBW (kg)	55	20.9	4.6	36.6	14.6	0.6	52	20	10	39.1	3.6	1.4	7	18.8	13.3	29.1	4.2	5.0	0.86
FBW (kg)	69	31.9	8.5	50.2	15	1.0	76	31.7	12.5	62.3	8.9	1.4	31	35.4	15.7	57.5	9.5	2.8	0.17
ADG (g)	7	83.2^{c}	46.9	160	39.2	17.7	15	222^{b}	79	353	119	20.3	3	263^{a}	16.5	274	253	6.1	0.003
HCW (kg)	51	16.4^{b}	5.0	28.8	7.9	0.7	53	15.1^{c}	6.7	35.9	6.1	0.9	43	18^{a}	6.7	28.1	4.5	1.2	0.010
CCW (kg)	55	15.8	4.8	28.7	7.7	0.6	56	15.3	7	35.1	4.4	0.9	4	12.5	2.4	15.9	10.5	1.2	0.278
HCY (%)	51	48.6	4.8	61.3	41.9	0.7	53	49.2	5.9	65.8	39.6	0.8	31	46.9	4.9	56.8	39.9	0.9	0.244
EMA (cm^2)	30	11.8^{b}	2.9	15.7	4.6	0.5	32	11.5^{b}	2.8	18.3	6.5	0.5	20	13.6^{a}	2.7	18.7	9.6	0.7	0.033
SFT (mm)	22	3.4	3.1	10.9	1.1	0.7	41	3.5	2.4	10.5	0.7	0.4	21	3.9	2.3	8.6	1	0.5	0.36

N=number of animals; SD= standard deviation; SE=standard error; IBW= initial Body weight (kg); FBW= final body weight (kg); ADG= average daily weight, (g/d); HCW= hot carcass weight (kg); CCW= cold carcass weight (kg); HCY= hot carcass yield (%); EMA= eye muscle area (*L. dorsi*, cm^2); SFT= subcutaneous fat thickness (mm)

Conclusion

We conclude that the world lamb production shows a homogeneous production of carcasses, which have increased in weight regardless of the production and feeding system


many
Thanks!