



Characterizing Rare Breeds

Fattening, slaughter and meat quality traits of Waldschaf and Waldschaf x Suffolk lambs in 3 different feeding regimes

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Questions to be answered

- A use for the surplus ewes of traditional breeds?
- Possible as mother line in commercial crossing programs?
- Quality and traits of crossbred lambs?
- Influence of feeding level?
- Suitable for (organic) production in less profitable areas?

Waldschaf (WS) vs Suffolk (SU)



- Vegetation management
 - Small frame, docile character
 - Ability to cope with poor pastures
 - Tolerates cold and wet climate
 - Frugal, vegetation management
 - Non-seasonal fertility
 - Very good mothering abilities
 - Vital lambs
 - Excellent meat quality, little bodyfat
- Intensive meat breed
 - Big frame
 - Early maturing, high daily gain
 - Best development of valuable parts
 - Requires intensive feeding
 - Sire for commercial cross lamb production
 - Recommended for improving fattening traits

Materials and methods 1

18 Waldschaf x Suffolk crosses [WSxSU]

18 100% Waldschaf [WS]

3 random groups to 6 lambs

3 levels of feeding

Group 1 [Hay]

Suckling and hay ad.lib.

Group 2 [Rat.]

Weaning at 90 days

0,5 kg concentrate per lamb per day, hay ad.lib.

Group 3 [Ad.lib.]

Weaning at 90 days

0,8 kg concentrate per lamb per day, hay ad.lib.

Materials and methods 2

- Fattening traits - lambs weighed 1x per week
- Fattening until 35 kg liveweight
 - Computer tomography (CT) – index evaluation
- **Slaughter** – carcass quality
 - 4 scanning and slaughter dates per group
 - Last date all lambs slaughtered regardless of liveweight
- **Meat quality traits**

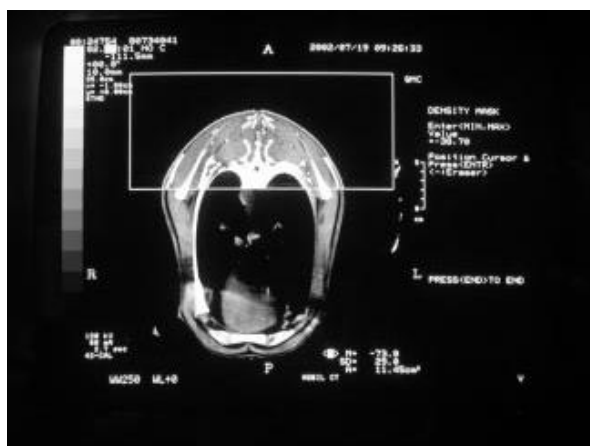


Some results carcass/meat quality

	WS			WSxSU		
	Hay	Rat.	Ad. Lib.	Hay	Rat.	Ad. Lib.
Liveweight	36,8	36,9	37,3	35,0 ^a	38,8 ^{ab}	40,3 ^b
Carcass weight cold	14,5	14,4	15,6	14,0 ^a	16,0 ^b	17,1 ^b
Drip loss	1,7	1,8	1,3	1,8	1,9	1,5
Cooking loss	30,0	32,4	31,6	32,4	32,6	30,4
Tenderness	4,0	5,4	4,4	5,0	4,1	5,1
Dry matter (g)	235,7	237,1	239,8	225,5 ^a	230,0 ^{ab}	243,1 ^b
Protein (g)	201,9	203,0	205,1	207,8	204,8	205,7
Ash (g)	10,4	10,3	10,3	10,8	11,2	10,5
IMF (%)	2,85	2,98	2,88	1,50	1,88	2,21
Rib 6 (cm²)	5,3	6,0	5,9	5,4 ^a	6,0 ^a	7,1 ^b
Fat 13 (mm)	0,52	0,55	0,41	0,57	0,40	0,73
Ω3: Ω6 (<5)	2,4 ^b	3,1 ^b	4,4 ^b	2,7 ^b	5,7 ^{ab}	7,0 ^a

Some results CT

	WS			WSxSU		
	Hay	Rat.	Ad lib.	Hay	Rat.	Ad lib.
Age	173	187	178	169 ^{ab}	179 ^a	152 ^b
Liveweight	36,8	36,9	37,3	35,0 ^a	38,8 ^{ab}	40,3 ^b
Daily gain	214,8	198,0	189,0	208,3 ^a	217,4 ^a	270,3 ^b
Gain Index	63,8	61,3	60,6	63,7 ^a	66,1 ^{ab}	73,3 ^b
Muscle Index	84,6	82,5	81,1	96,2	100,6	99,6
Fat Index	106,8	106,9	106,9	98,1 ^a	106,7	113,6
Body Index	62,8	65,9	64,6	98,8	106,6	107,9
Index	71,6	70,3	68,9	79,1	89,2	97,0



Differences between groups/breed

WS

- Daily gain
 - No differences (!)
- Area M. longissimus dorsi
 - Rib 13 no differences
 - Rib 6 no differences
- Fat Rib 6/Rib 13
 - No differences

WS x SU

- Daily gain
 - **Ad lib. group significant higher**
- Area M. longissimus dorsi
 - Rib 13 Rat. and Ad lib. group higher, but differences not significant
 - **Rib 6 Ad.lib. group significant higher**
- Fat Rib 6/Rib 13
 - **Rib 13 Ad.lib. group significant more fat**

Differences between breeds/groups

WS

- Intramuscular fat
 - **Significant higher content in all 3 groups**
- Dry matter
 - No differences
- Fat Rib 13
 - No differences
- Ω 3: Ω 6 Fatty acids
 - **Significant lower**

WS x SU

- Intramuscular fat
 - Increasing with intensive feeding (trend)
- Dry matter
 - **Intensive feeding significant increase**
- Fat Rib 13
 - **Intensive feeding significant increase**
 - No differences
- Ω 3: Ω 6 Fatty acids
 - **Increases with intensive feeding**

Conclusion

- Commercial cross WSxSU
 - Intensive feeding
 - Good daily gain, improved muscle mass, but more fat
 - Low concentrate and suckling
 - No improvement compared to pure WS
- Purebred Waldschaf
 - Carcass quality does not fit market norm
 - Intensive feeding
 - No effect, not recommended
 - Very high meat quality
 - High intramuscular fat, low surface fat
 - Recommended for human consumption ($\Omega 3:\Omega 6$)

What to tell the farmers?

- Extensive production system
 - Select ewes for fertility and high milk yield
 - Use purebred lambs, suckling and little/no concentrates
 - Direct marketing of slaughter lambs recommended to get better price for high quality meat
- Intensive fattening system
 - Use lambs of intensive breeds

Thank you!

