Shrink is stealing money from your lamb check

2016 Center of the Nation NSIP Sale

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What is Shrink?

- Shrink loss: change in body weight
- Factors affecting shrink loss
  - Animal handling practices
  - Transport
  - Weigh conditions
  - Nutrition

Sources of Shrink Loss

- Shrink loss sources
  - Body fluids
  - Excrement
  - Tissue dehydration
  - Gut fill

Pre-marketing Practices

- Common practices
  - Sort to new pen night before transport, access to free choice water and grain
  - Sort to new pen night before transport, access to free choice hay
  - Sort morning of transport to point of sale
- Initial research study in 2013 showed significant differences in lamb live weight shrink loss due to pre-management practices

Effect pre-marketing management practices of lambs in the Upper Midwest

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Objective

- To determine the effect of common pre-marketing sorting and feeding management practices on feeder and finished lamb shrink loss.

What did we do?

- 60 Polypay sired lambs
  - Feeder and finished lambs
- 3x3 Latin square design
- Treatments
  - Control (C) (n= 20)
  - Sorted on feed (SF) (n=20)
  - Sorted on hay (SH) (n=20)


Control Diet


SF Diet


SH Diet


Water

Day 1
4 PM

- Body weight recorded
- Allotted to treatment group
- Moved to respective treatment location

Day 2
8 AM

- Post-sort weight recorded
- Loaded onto livestock trailer for 50 mile round trip

Day 2
~10 AM

- Off-load lambs and record post transport weight
- Return all lambs to C pen

Experiment 1- Feeder Lambs

Control- “Home Pen”

Sorted on Feed

Sorted on Hay

Results-Experiment 1

Table 1. Least square means of sorting and feeding management on shrink loss in feeder lambs

	Control n=20	Sorted on Feed n=20	Sorted on Hay n=20	*P*-Value
Pre-trial wt., lb	88.9	88.8	88.24	0.73
Shrink from sorting, lb	-0.66^{a}	0.58^{a}	2.41^{b}	0.03
Shrink from sorting, %	-0.73^{a}	0.64^{a}	2.72^{b}	0.03
Post sort wt., lb	89.5^{x}	88.2^{x}	85.8^{y}	0.06
Transportation shrink, lb	1.43^{a}	1.48^{a}	1.02^{b}	0.02
Transportation shrink, %	1.60^{a}	1.69^{a}	1.20^{b}	0.03
Final wt., lb	88.1^{x}	86.8^{xy}	84.8^{y}	0.08
Total shrink, %	0.89^{a}	2.32^{a}	3.90^{b}	0.03
Total shrink, lb	0.77^{a}	2.06^{a}	3.43^{b}	0.04

$^{a, b, c}$ superscripts denote a significant difference at $P \leq 0.05$

$^{x, y, z}$ superscripts denote a tendency at $P \leq 0.10$

Results-Experiment 1

Table 2. Least square means of sorting and feeding management on feed and water intake in feeder lambs

	Control n=20	Sorted on Feed n=20	Sorted on Hay n=20	*P*-Value
Feed intake, lb	2.92[a]	2.52[a]	0.57[b]	< 0.01
Feed intake, %	3.28[ax]	2.83[ay]	0.65[b]	<0.01
Water intake, L	2.44[a]	3.01[b]	1.54[c]	<0.01

[a, b, c] superscripts denote a significant difference at $P \leq 0.05$
[x, y, z] superscripts denote a tendency at $P \leq 0.10$

Discussion-Experiment 1

- SH lambs had the greatest total shrink loss ($P < 0.05$)
- Lambs in C treatment resulted in shrink loss below 1%.
- SH lambs had the least amount of shrink during the transport phase, however experienced the highest shrink from sorting
- SH lambs consumed the least amount of diet as % BW
- Water intake differed significantly ($P < 0.01$)

Experiment 2- Finished Lambs

Control- “Home Pen”

Sorted on Feed

Sorted on Hay

Results-Experiment 2

Table 3. Least square means of sorting and feeding management on shrink loss in finished lambs

	Control n=20	Sorted on Feed n=20	Sorted on Hay n=20	*P*-Value
Pre-trial wt., lb	120.3	120.9	120.7	0.72
Shrink from sorting, lb	-2.25[a]	-1.23[a]	2.80[b]	0.02
Shrink from sorting, %	-1.87[a]	-1.03[a]	2.32[b]	0.02
Post sort wt., lb	122.6[x]	122.1[x]	117.9[y]	0.09
Transportation shrink, lb	1.72	1.97	1.41	0.25
Transportation shrink, %	1.40	1.61	1.20	0.32
Final wt, lb	117.7	119.9	116.5	0.43
Total shrink, %	-0.45[a]	0.60[a]	3.49[b]	0.02
Total shrink, lb	-0.54[a]	0.73[a]	4.20[b]	0.02

[a, b, c] superscripts denote a significant difference at $P \leq 0.05$

[x, y, z] superscripts denote a tendency at $P \leq 0.10$

Experiement-2

Table 4. Effect of sorting and comingling and feeding management on feed and water intake in finished lambs

	Control n=20	**Sorted on Feed n=20**	**Sorted on Hay n=20**	***P*-Value**
Feed intake, lb	4.08[a]	3.53[a]	0.65[b]	< 0.01
Feed intake, %	3.39[a]	2.92[a]	0.54[b]	< 0.01
Water intake, L	3.85	4.80	3.12	0.15

[a, b, c] superscripts denote a significant difference at $P \leq 0.05$

[x, y, z] superscripts denote a tendency at $P \leq 0.10$

Discussion-Experiment 2

- Sorting resulted in weight gain for the C and SF trt, (negative values represent positive wt change)
- Total shrink (%) was greatest for SH treatment, 4% greater than C lambs
- Transportation loss was similar between trts
- SH lambs consumed less ($P < 0.05$) feed compared to C and SF, C and SF tended to differ
- Water intake did not differ between trts

Implications

- Management practices resulted in differences in lamb shrink loss, feed and water intake for feeder and finished lambs.
- Transportation shrink loss was 1-2%
- Shrink due to sorting for lambs with ad libitum access to diet C and SF trts:
  - Feeder lambs- <±1%
  - Finished lambs- gained weight
- Total shrink % for C and SF feeder and finished lambs no difference than <2%
- SF treatment influenced water or feed intake in these experiments perhaps linked to behavioral changes due to sorting

So what does this mean for me?

- Be aware of how lambs are being sold
  - Weigh conditions
  - Time of delivery
- Adjust management practices accordingly
  - Sort immediately prior to sale
  - Give access to feed and water

Questions?