Good Morning!

Tennessee State University

Extension

SARE

USDA

SELECTION FOR ENHANCED PERFORMANCE IN SMALL RUMINANTS

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Traits that influence productivity are controlled by two general factors:

GENETICS

and

ENVIRONMENT

Genetic management comes down to two questions:

1. Which males and females to use as breeding stock?
   - ❖ SELECTION decisions
2. Which male(s) and females to match?
   - ❖ MATING decisions

Selection

We split animals into two general groups based on traits of interest:

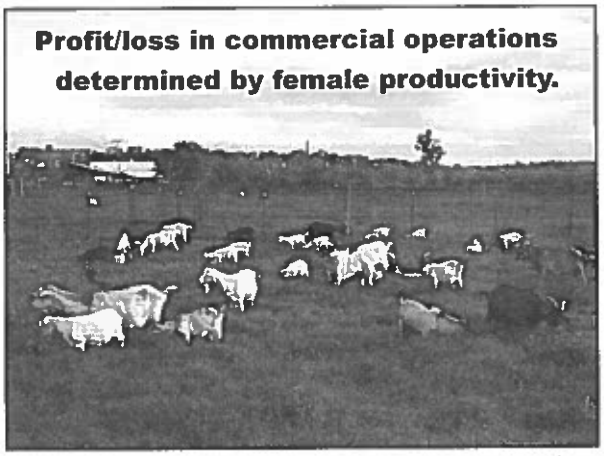
- ➢ 1. Those we like and use as breeding stock (or sell for breeding).
- ➢ 2. Those we dislike and remove from the breeding herd (sell as market animals).

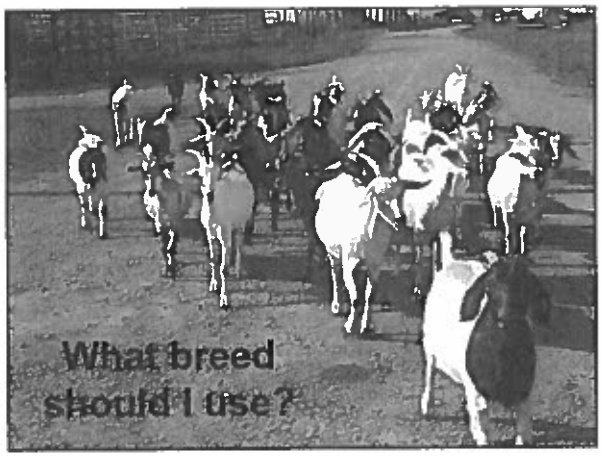
Selection

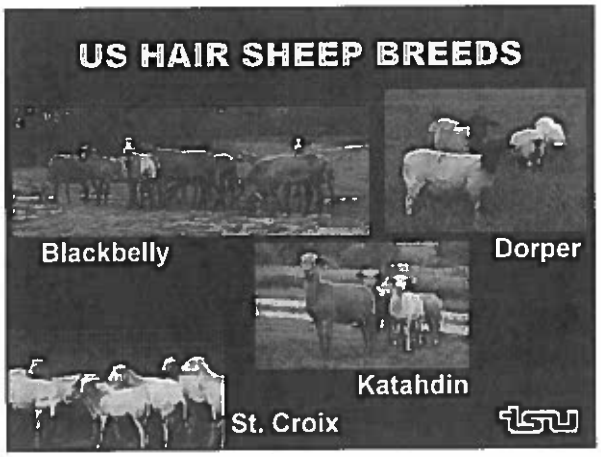
We may be choosing among individual animals within a breed.

and/or

We may be choosing among different breeds.







BREED OPTIONS

There are not many goat breed options in the US.

Outside of the hair sheep class, numerous sheep breed options are available for meat and fiber.

Consider heritage breeds.

tsu

Production Traits to Consider when Selecting a Breed

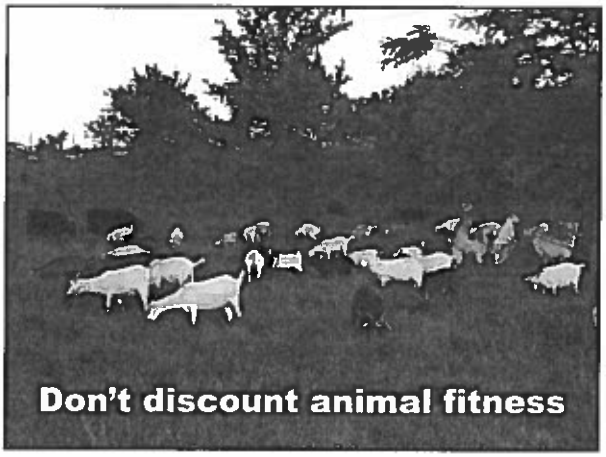
- ★ Reproduction
- Growth Rate
- Carcass Traits
- ★ *Hardiness (Convenience)*

$$$ ADAPTEDNESS $$$

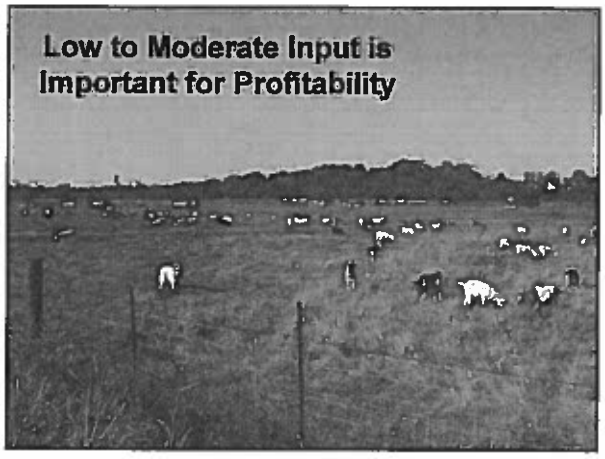
SHOULD BE A COMPONENT OF BREED EVALUATION

WITH FOCUS ON BOTH SURVIVAL AND REPRODUCTION.

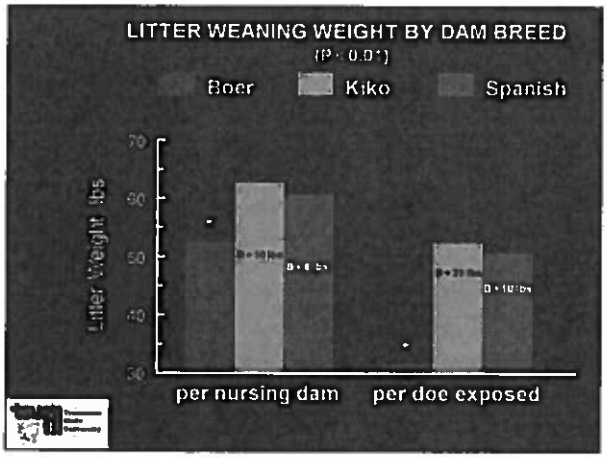
Barker, 2002



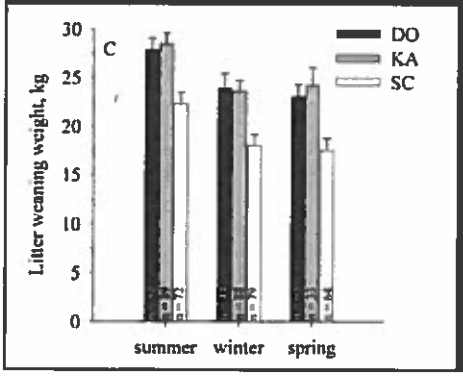
Don't discount animal fitness



Low to Moderate Input is Important for Profitability

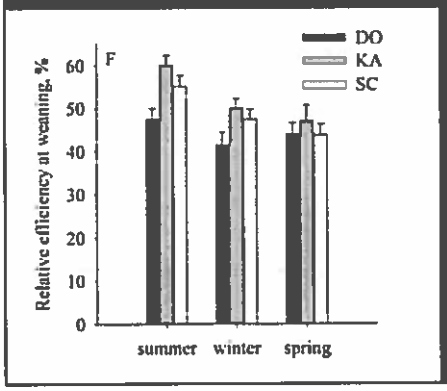


Litter wt weaned/ewe lambing by breed



Burke, 2005

Weaning efficiency by ewe breed



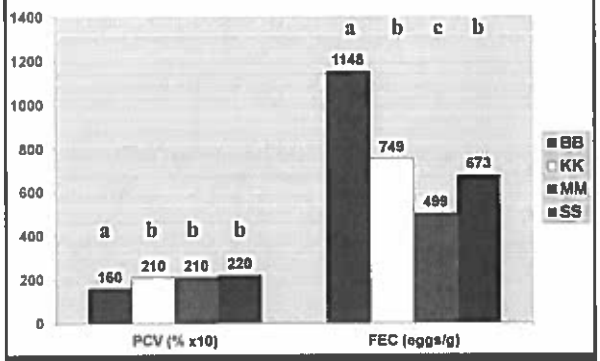
Burke, 2005

Table 1. Breed differences in indicators of gastro-intestinal parasitism (summary of five experiments at Louisiana State University)

Breed	Fecal egg count (eggs per gram)	Packed cell volume	No. of dewormings	% animals dewormed
Suffolk	3,577	22.9	113	90.3
Gulf Coast Native	1,639	29.0	20	25.5
Katahdin	1,435	26.0	41	52.8
St. Croix	866	27.0	12	16.8

AgCenter

INTERNAL WORM INDICATOR TRAITS

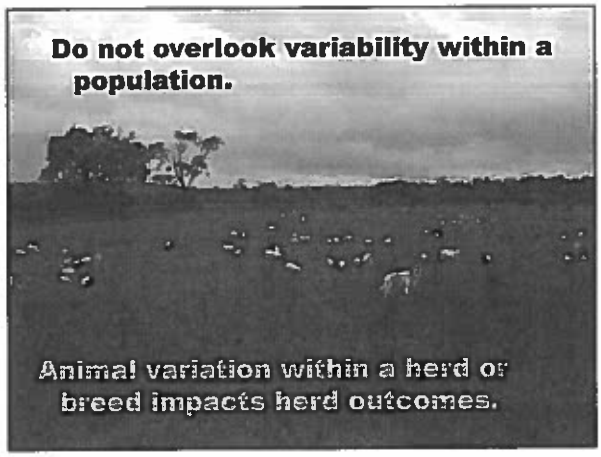


Browning and co-workers

Annual Net Returns per Doe Exposed

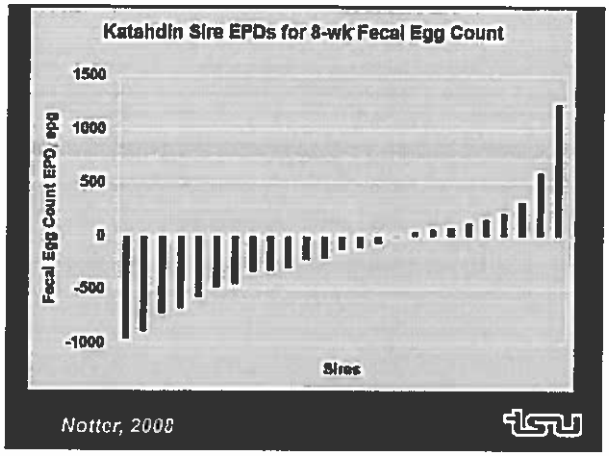
Trait \ Doe Breed	BOER $	KIKO $	SPAN. $
Variable costs	105	92	94
Total costs	111	98	100
Total income	53	107	103
Return / Variable	- 52	+15	+ 9
Return / Total	- 58	+ 9	+ 3

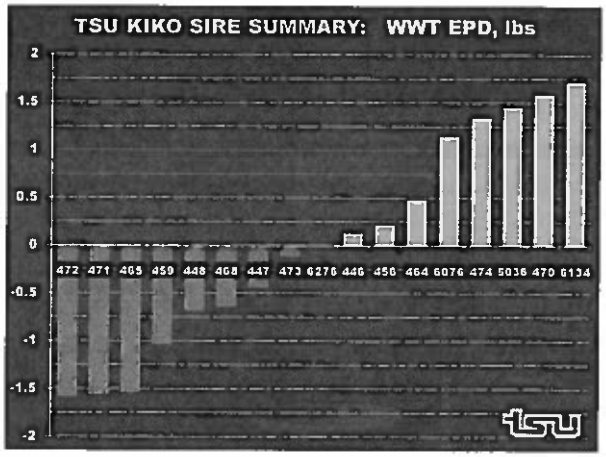
Market kids @ $2.00/lb

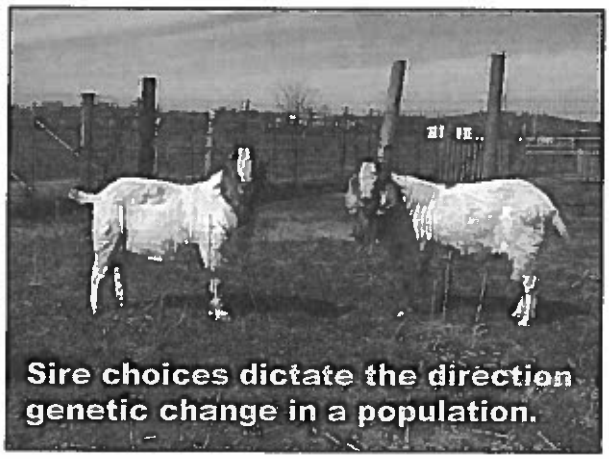


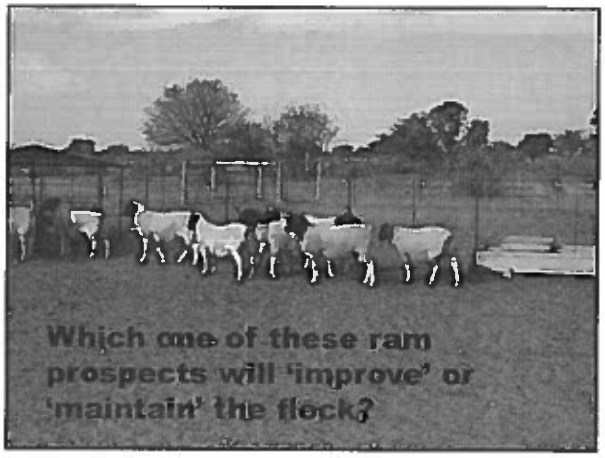
Weaning: TSU Spanish Does (4 Matings)

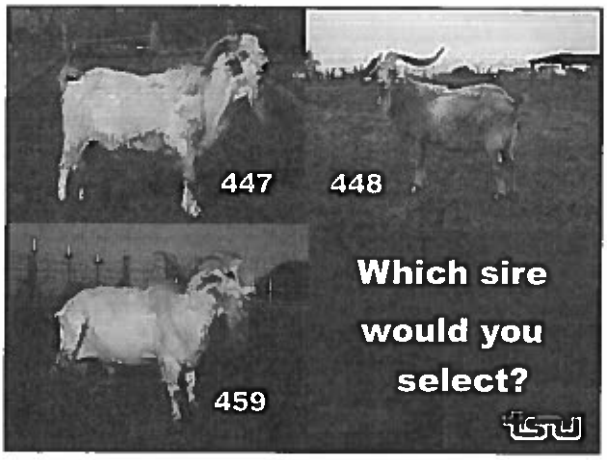
Doe	Litter Size	Litter Wt
640	2.25	87.1
650	2.00	87.7
622	2.25	79.1
Span Avg	*1.55*	*54.7*
Herd Avg	*1.32*	*49.7*
636	1.00	37.7
606	1.00	33.7











Performance recording is key to adequate selection.

Whatever system of recording or testing is used must be:

- **Consistent**
- **Unbiased**
- **Useful**

TSU 8114

90-d WWT 55.7

WWR 120

WW EPD 1.76

SELECTION

Visual Appraisal:

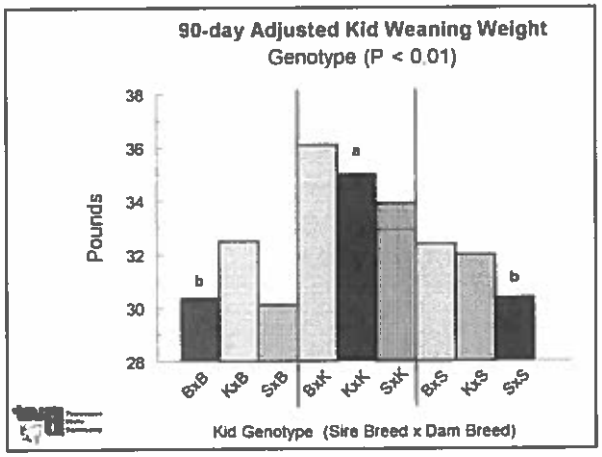
- **Animals still need to be assessed for conformation and structural soundness.**

SELECTION

Determine what set of traits are important to achieving herd or flock objectives, then select animals that will best meet those objectives.

Mating and Mating Systems

- **After selection, mating is designed to match up particular sires and dams to achieve the desired change in the next generation.**
- **Mating systems vary.**



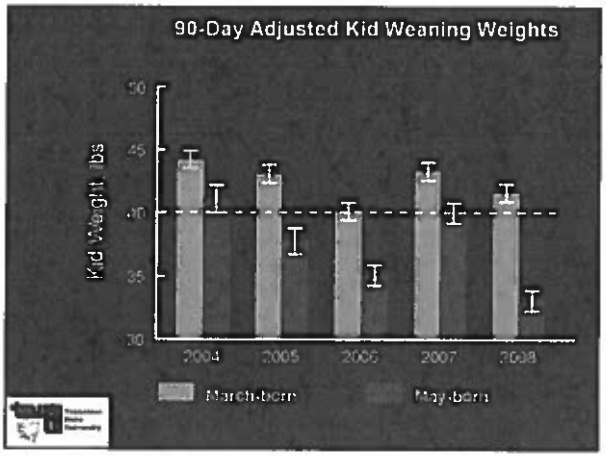
How does a breed best fit within a production system.

- ❑ **Maternal Breed?**
- ❑ **Terminal Sire Breed?**
- ❑ **General or Multi-Purpose Breed?**
- ❑ **Novelty or Specialty Breed?**

Change through genetic management depends on:

- Variability within and between breeds
- Adequate selection techniques
- Production environment

Do not forget that a trait is influenced by genetics AND the environment.



Maintain good female genetics that fit the environment.

It is hard to profitably manage around poor maternal genetics!

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Internet search terms:
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