

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.



Performance Testing

A comparative evaluation of goats for objectively measured traits, primarily those of economic importance.


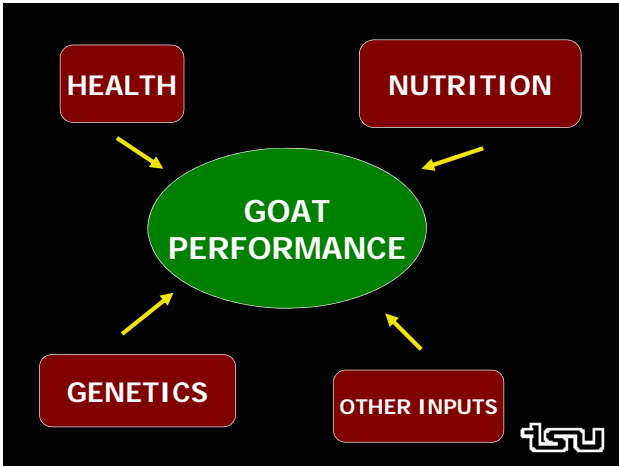


On-Farm Performance Testing and Genetic Evaluation

Beef Cattle: 205-day Calf Weight

Dairy Goats: 305-day Milk Yield

Meat Goats: ???





Why Performance Test ?

Identify goats that perform under specific conditions at levels that suggest selection or culling.


Assess the management program.

Improve herd productivity and(or) lower production costs.



How to Performance Test ?

- Identify (tag) each animal.
- Maintain defined contemporary groups (doe-kid cohorts).
- Record data (weights, fecal counts, litter size, lameness, etc).
- Adjust as needed.



Doeling Weaning Records

KID ID	DAM	SIRE	Litter Type	BWT	WWT	AGE	ADG	Dam ADJ	Litter ADJ	90-d WWT	WWT Ratio
5011	607	447	2-2	7.1	36.2	109	0.27	1	1.18	36.7	92
5018	427	251	1-1	10.4	52.3	107	0.39	1	1	45.6	114
5022	256	250	2-2	6.6	39.0	107	0.30	1	1.18	40.0	100
5044	261	251	3-2	6.0	48.5	105	0.41	1.09	1.23	56.9	142
5107	622	456	2-2	5.4	33.8	103	0.28	1	1.18	35.7	89
5112	640	251	3-3	5.0	39.2	103	0.33	1	1.27	44.3	111
5173	411	251	2-2	6.5	34.7	82	0.34	1	1.18	44.1	110



TSU Sire Evaluation (4 Years)

Sire	Kids	90-d Wt	Ratio
249	53	43.1	101
286	20	39.9	102
307	11	37.5	99
456	29	43.3	103
470	24	44.4	108
471	26	34.1	89
601	80	39.1	93
614	54	42.3	103
657	16	45.2	112



One year's sire selection equal 50% of genetics after one generation.

Sire choices equal 87.5% of herd genetics after three generations.

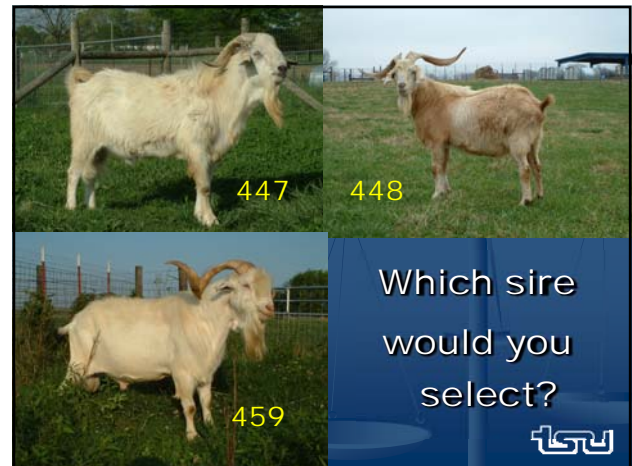
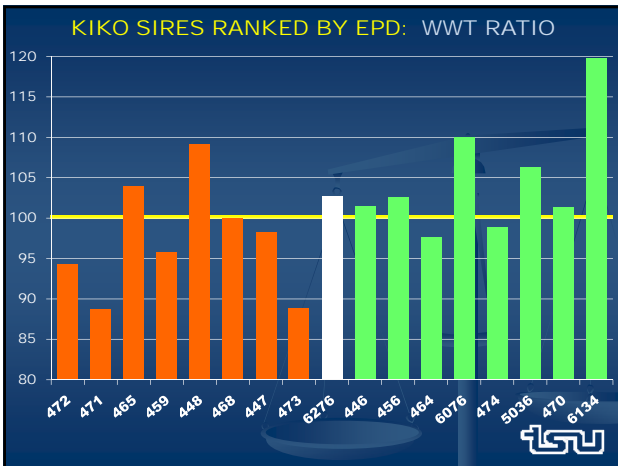
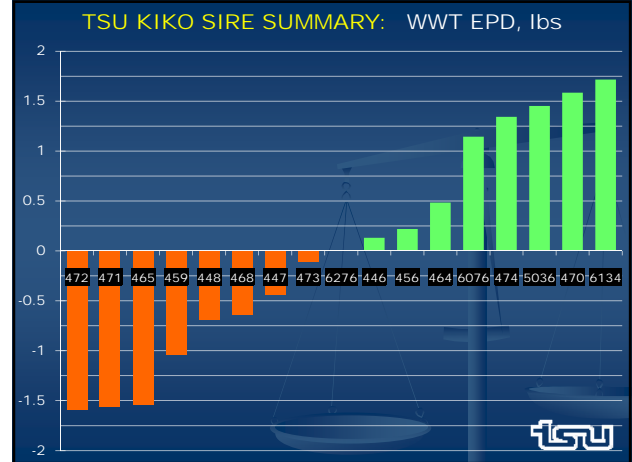


Genetic Improvement Goals

- ▶ Where have we been?
- ▶ Where are we now?
- ▶ Where are we going?
- ▶ How do we get there?

Buck Selection – What is the Production or Market Target?

- ▶ Commercial bucks?
- ▶ Replacement doelings?
- ▶ Market kids?




- ### Buck Performance Test
- ☑ Evaluation of Sire Prospects
 - ☑ Central Location
 - ☑ Common Environment
 - ☑ Growth and Carcass Traits

- ### Buck Performance Test
- ✚ Useful genetic and marketing tool for small breeders.
 - May not reflect on-farm conditions.
 - May not reflect maternal traits.

Performance recording is key to adequate selection.

Whatever system of recording or testing is used must be:

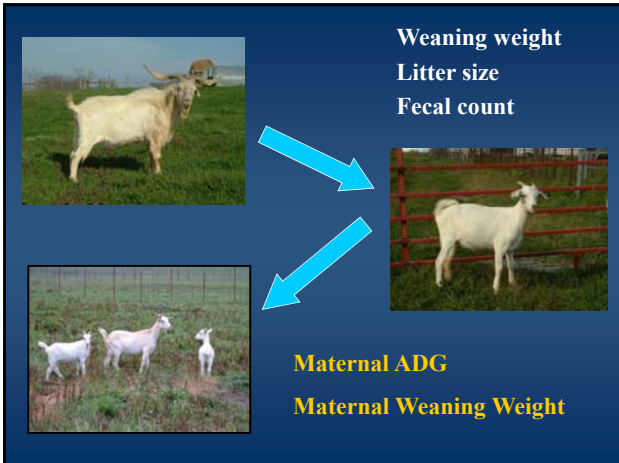
- ✓ Consistent
- ✓ Easy to collect
- ✓ Unbiased
- ✓ Useful



Kid growth is important in sire evaluation.



However, an even more important aspect of sire evaluation may be daughter productivity.

Weaning weight
Litter size
Fecal count

Maternal ADG
Maternal Weaning Weight




Select bucks from select dams!

SELECTION

Visual Appraisal:

- ❖ Bucks and does still need to be assessed for conformation.




Conformation: Legs – Head – Body Condition – Repro Tract – Health – Muscling - etc.




TSU KINKO TIGER KK 8094

Born: 3/9/2008
Sex: Male

Sire: TSU Duke KK 6134 NZ
SSire: Sunboy Brazos 138
SDam: BHF RR49

Dam: BJB #13R
DSire: 0P010BBM1
DDam: 9K074WSU7



Comments: Purebred (98%) Kiko buckling.
90d Adj. WT = 56.3 lbs (Ratio 122; 52 cohorts)
180d Adj. WT = 79.3 lbs; 90d-180d ADG = .26 lbs
Sire: Progeny average WWT of 50 lbs and Ratio of 122 on 4 kids.
Dam: Averaged 2.2 kids weaned per year and progeny WWT ratio of 110 on 11 kids.

8/21/2018 Posted 10 minutes

Good purebred boar billy for sale - \$55 (Springfield Tennessee)



Hello I have a good purebred boar billy for sale he is \$55.00. He has been medicated with all the shots and worming he needs. If interested call or text [\(show contact info\)](#)

SELECTION

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

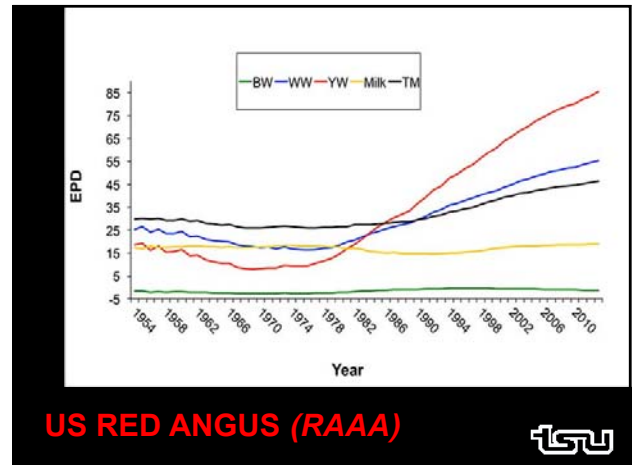
Trait Groups to Select on

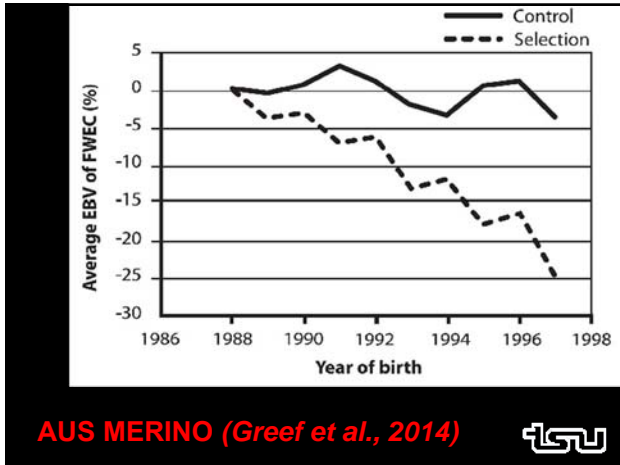
- Growth/Weight Traits
- Health/Survival Traits
- Reproductive/Fertility Traits
- others of interest

Choose a set, not only one trait.

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.

The left photograph shows a large group of sheep in a dry, dusty, and somewhat barren field. The right photograph shows a smaller group of sheep in a lush, green, grassy field with trees in the background.

Post-weaning Buck Gains

From a data comparison a few years ago.

LU Bucklings = .60 lbs ADG
 TSU Bucklings = .15 lbs ADG

LU Buckings = 4 lbs daily feed
 TSU Bucklings = 1 lbs daily feed

Take sire selection seriously, because over time

Poor sire selection will either advance your herd

OR

set your herd back for important performance parameters.

For more information:

E-mail: rbrowning@tnstate.edu

Internet address: <http://www.tnstate.edu/faculty/rbrowning/>

Internet search terms: **RICHARD BROWNING TSU**

The image shows a sunset over a field with sheep grazing. The sun is low on the horizon, creating a bright glow and long shadows.

Thanks for your attendance and attention.