
USDA-ARS Rapid-Fire Updates on Cutting-Edge Genetic Research

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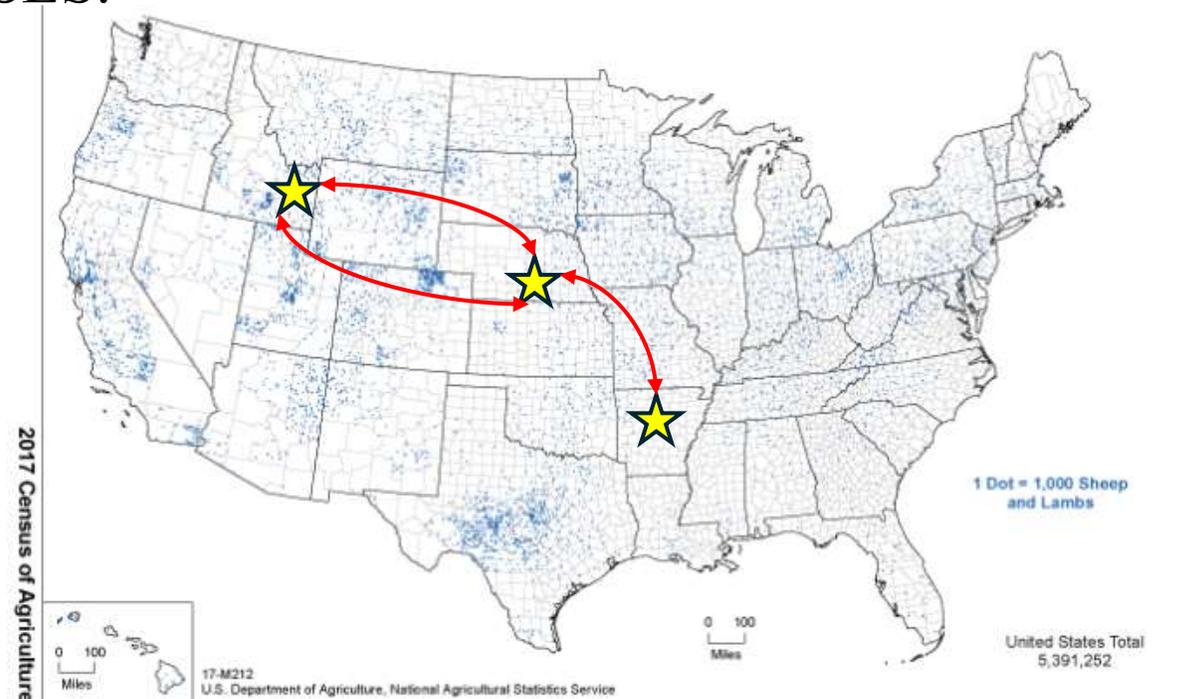


Agricultural Research Service

U.S. DEPARTMENT OF AGRICULTURE

Genetic Reference Flocks

- An ARS consortium to sample industry representative genetics.
- **Objectives:** 1.) Improve genetic connectedness among NSIP flocks. 2.) Measure standard and novel traits to expand trait EBV. 3.) Evaluate the extent of genetic-by-environment interactions.
- **Katahdin:** USMARC, DBSFRC, & USSES.
- **Polypay:** USMARC & USSES.
- **Suffolk:** USMARC & USSES.
- **Targhee:** USSES
- **Rambouillet:** USSES



Standard NSIP traits

Health

Fecal egg count

Fertility/functional

Number of lambs born/weaned
Maternal weaning weight
Scrotal circumference

Performance

Pre- and post-weaning weight
Ultrasound loin and fat depth
Fleece traits

Novel traits measured on GRF animals

Health

Mastitis
Immune function
Respiratory disease

Fertility/functional

Out-of-season lambing
Longevity
Udder conformation

Performance

Feed efficiency
Carcass traits
Eating quality

The Ideal Western Range Ewe

Lambs as a 1-year-old

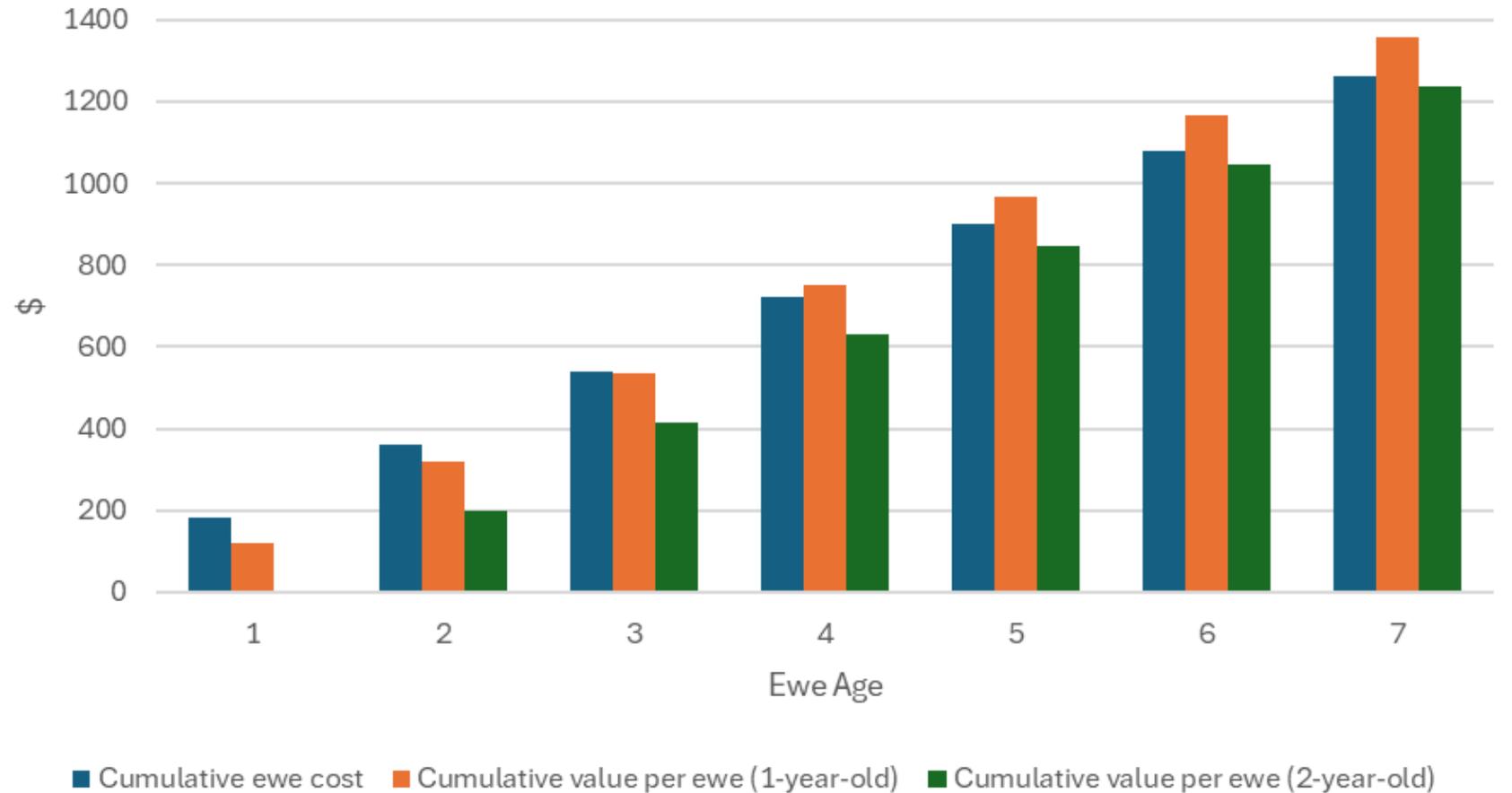
Twins every year

Weans her body weight @ 150 days

Productive for at least 8 years

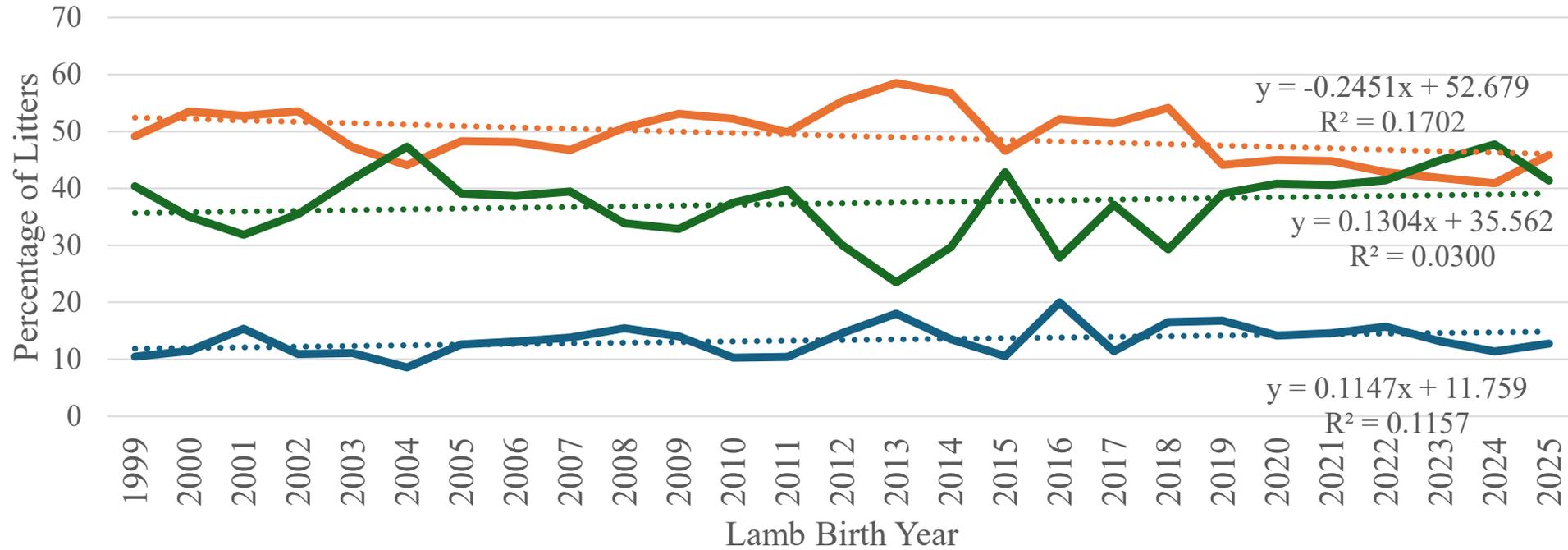
Lambs as a 1-year-old

Lambs as a
1-year-old vs
2-year-old



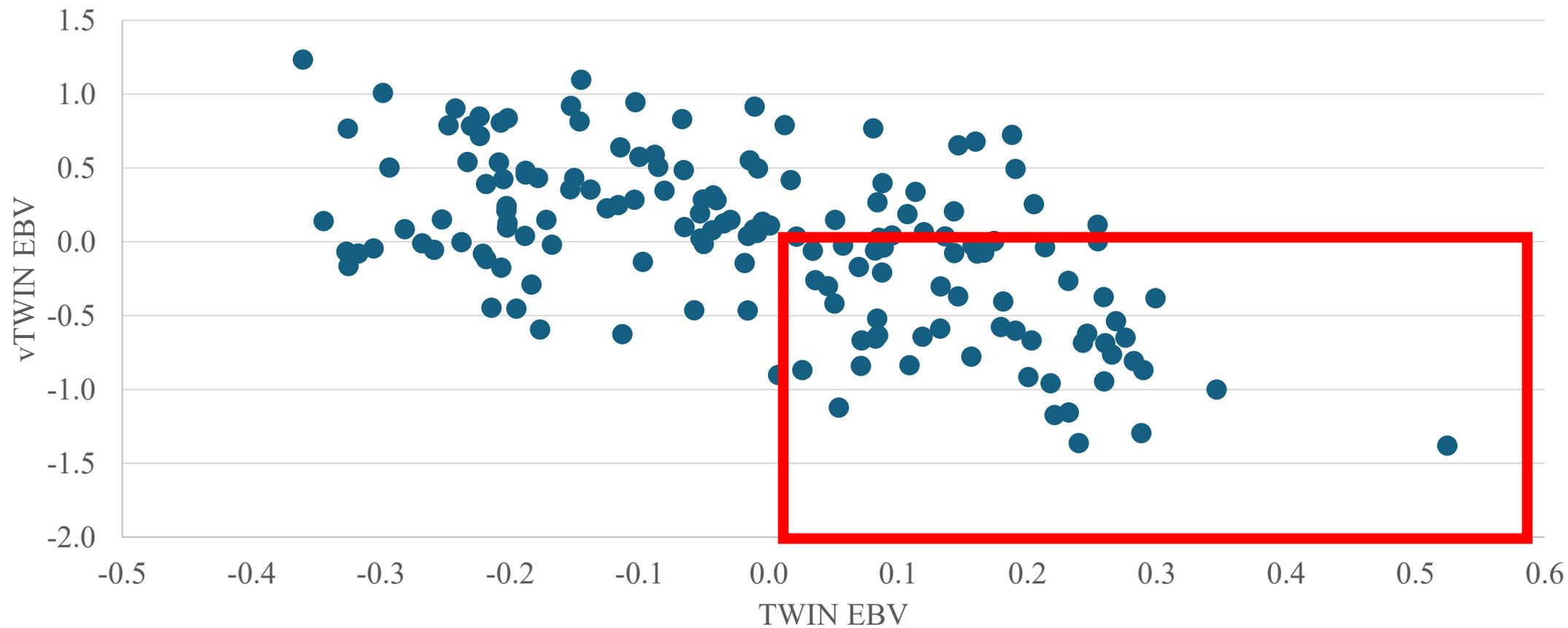
Twins every year

USSES Mature Polypay Litter Size Trend



- % Singles
- % Twins
- % Triplets+
- Linear (% Singles)
- Linear (% Twins)
- Linear (% Triplets+)

Twins every year

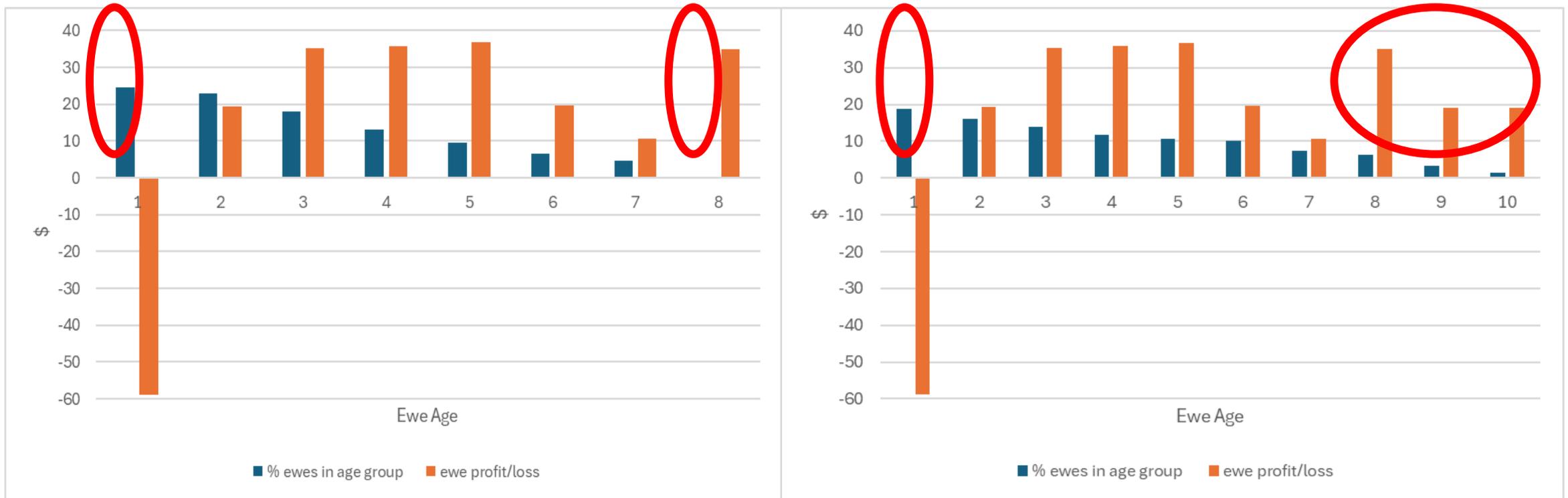


Weans her body weight @ 150 days

- Improve lamb survivability
 - Comprehensive evaluation of 5 USSES breeds using 40 years of data
 - Estimated heritability and developed EBV for the USSES flock
- Number of lambs weaned EBV (NSIP)
- Direct and maternal weaning weight EBV (NSIP)

Productive for at least 8 years

Flock Age Structure: from 3 to 4 years



The Ideal Western Range Ewe

Lambs as a 1-year-old

- Ewe lamb pregnancy EBV

Twins every year

- Twinning rate EBV

Weans her body weight @ 150 days

- Lamb survivability EBV
- Number of lambs weaned EBV
- Direct and maternal weaning weight EBV

Productive for at least 8 years

- Ewe longevity EBV

Katahdin Crossbred Project

- Objective: To compare the productivity of Rambouillet and Katahdin ewes in an extensive rangeland environment for traits of the ewe and traits of their terminal cross (Suffolk) offspring.
- Flockability assessed via GPS collars
 - Dispersion from the centroid of the flock
 - Total daily distance traveled
- Standard production measures for 4 years
- 2026: carcass evaluation and taste panel

