

Data Driven Decisions: Electronic ID Tags and Individual Animal Management

Julie Finzel

UC Cooperative Extension

Kern, Tulare, and Kings Counties

Let's Grow Initiatives

- Response to decline in U.S. sheep numbers
 - Drop 1-2% each year
- 402 million lbs of lamb carcasses in 2021
 - Almost 50% of total sheep flock
- Focus on growing sheep flock

OPPORTUNITY!



On the Ground – Producing more Lamb

- Collect DNA (tissue) samples and tag rams & lambs – 5 ranches
- Use Superior's Flock 54 test
- Determine parentage of lambs
- Focus on market lambs
- Attribute lamb carcass qualities to rams

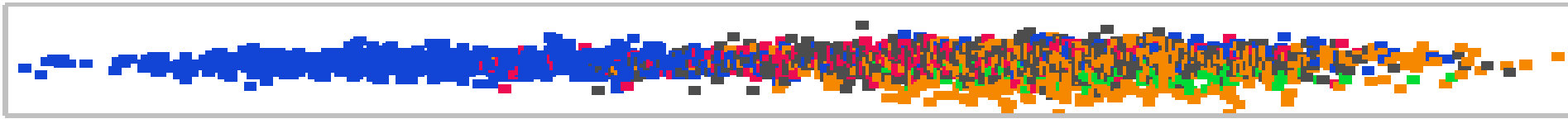


About the Producers

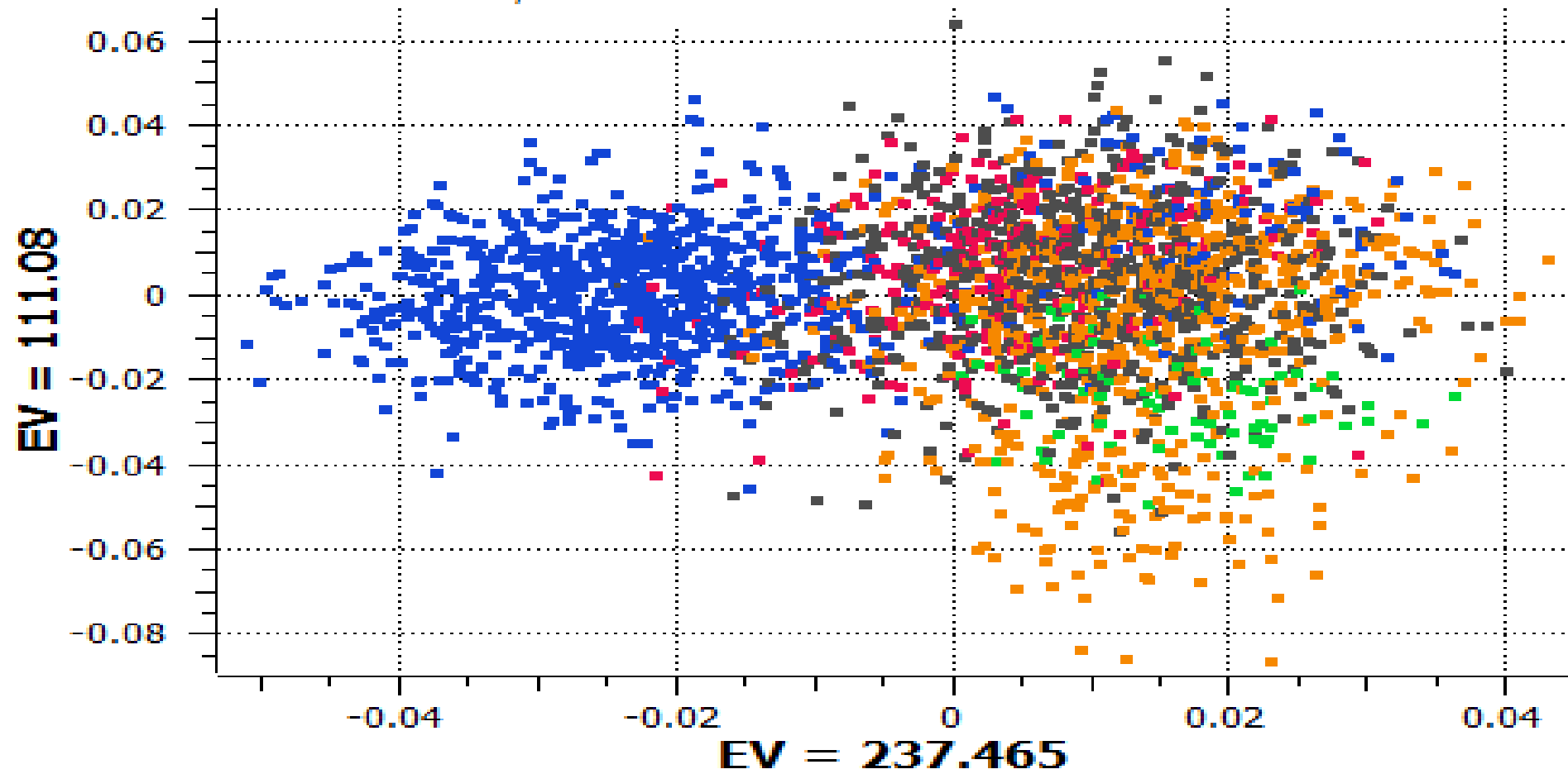
	Ranch A	Ranch B	Ranch C	Ranch D	Ranch E
Flock size	Large	Large	Small	Large	Large
Breeds of Rams	Black and White-face	White-face	Black-face	Composite	Black and White-face
Ram:Ewe Ratio	1:10	1:35	1:30-35	1:50	1:40
Average Lamb Crop	145%	130%	140-150%	145-150%	115%
Length of Breeding Season	75 days	75 days	62 days	120 days	185 days
Avg Weaning Weights	85-110 lbs	70-95 lbs	60 lbs (110-115 days; ~4 mos)	105-110 lbs (4-7 mos)	110-115 lbs
Use EID's	Yes	Yes – on maternal flock	Yes – on all animals	No	No
Traits tracked with EID's	None	Health, pregnant vs. open, twins, wool microns	Disease, BCS, vaccines, wormers, dam of lambs	n/a	n/a

Samples Collected

		RAMS		LAMBS			
			Males	Females	Parentage	Carcass	
TOTAL COLLECTED	2963	305	1669	989	2658		545
Ranch A		62	662	7	606 (63)		209
Ranch B		37	423	406	796 (33)		315 (21)
Ranch C		6	36	44	80 (0)		0
Ranch D		12	331	310	623 (19 F)		0
Ranch E		11	217	222	149 (74)		0
TOTAL ANALYZED		128	1452	989	2254		524

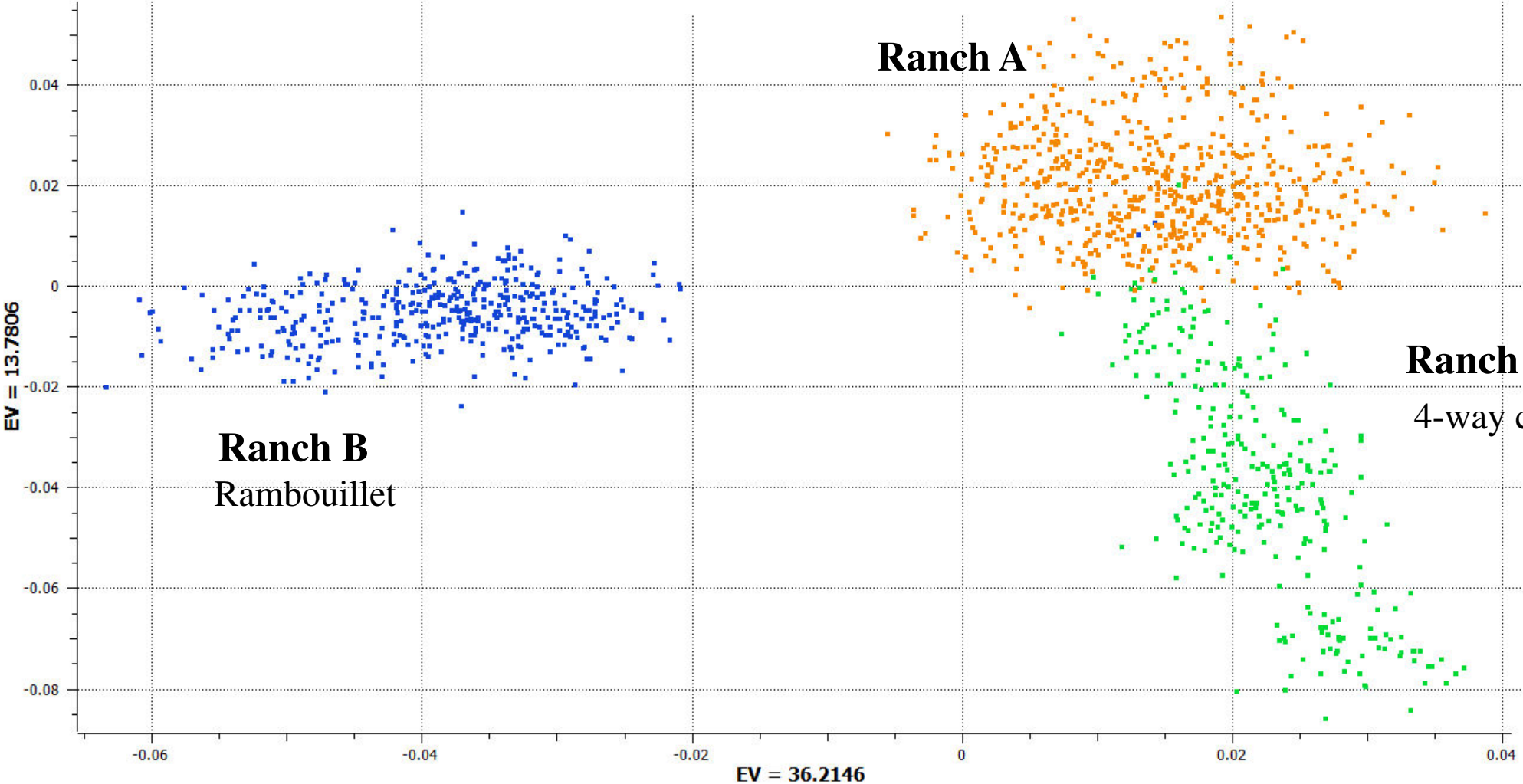


- EV = 111.08, Farm == Ranch B
- EV = 111.08, Farm == Ranch C
- EV = 111.08, Farm == Ranch D
- EV = 111.08, Farm = Ranch A
- EV = 111.08, Farm == Ranch E



All Five Ranches

Flock Variation: Meat v.s. Wool breeds

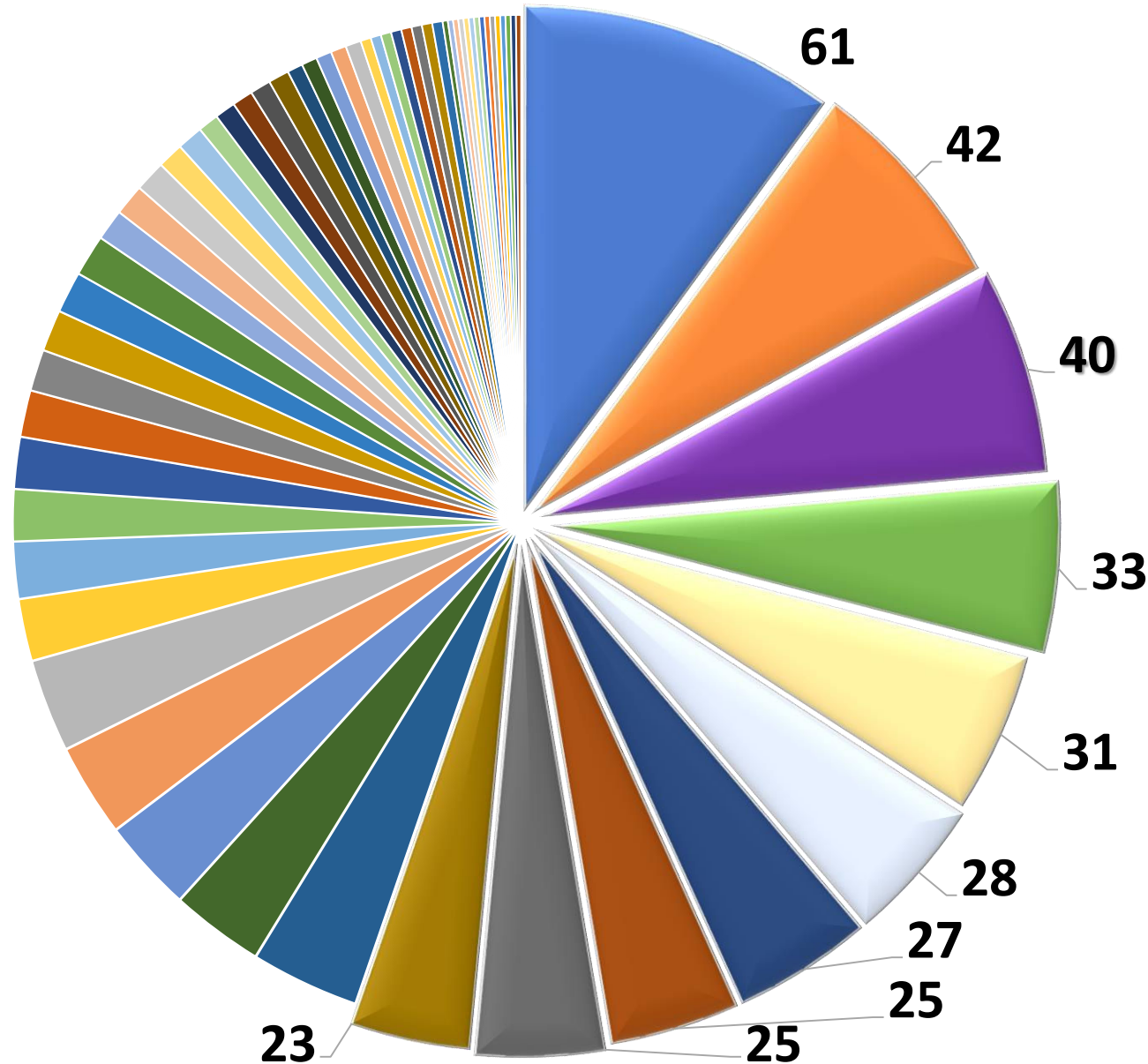


Number of Ram Lambs Per Sire – Ranch A

**669 lambs
submitted**

**606 (91%) matched
to sires**

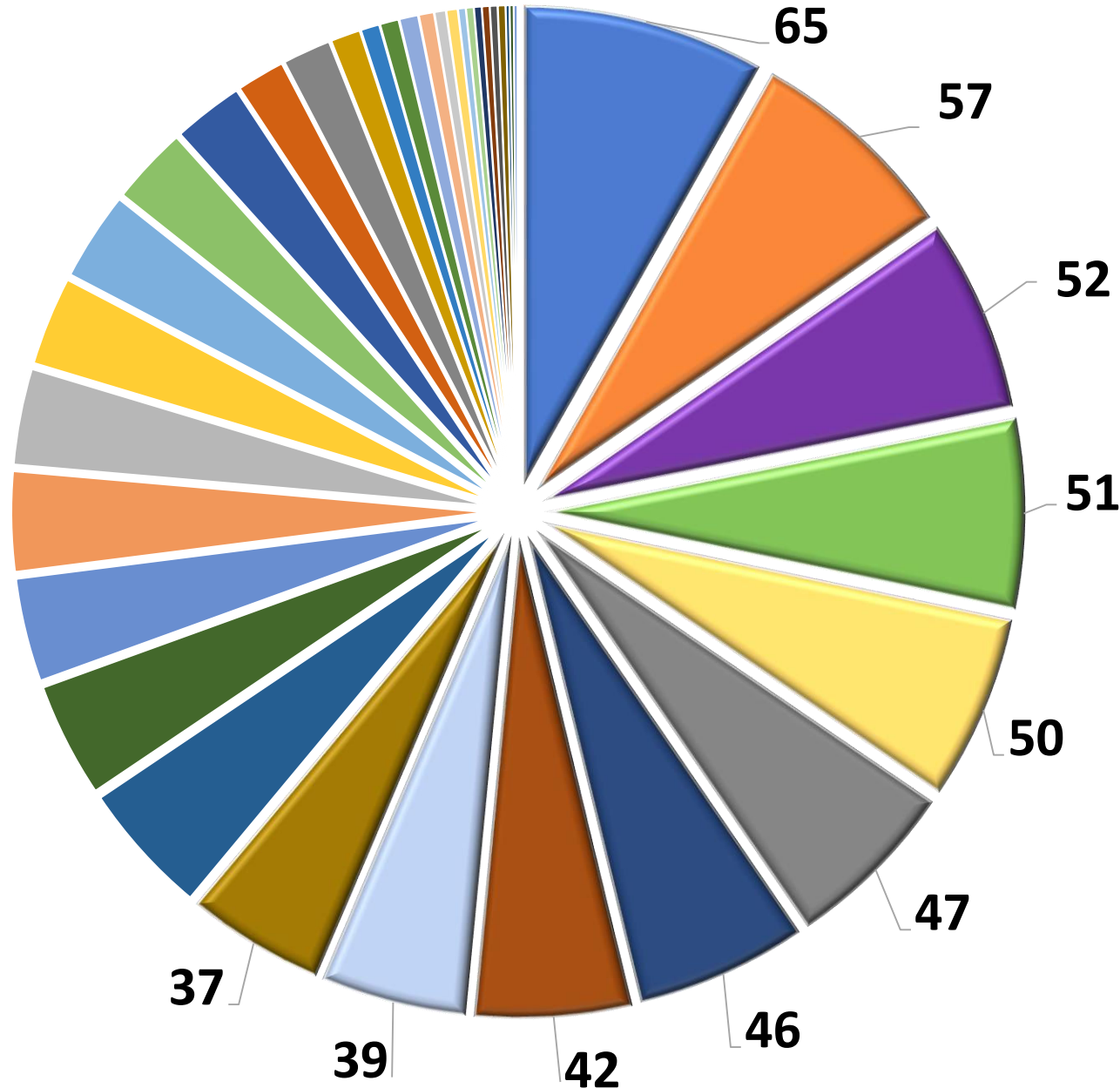
**83 Possible Sires
62 Rams with
identified progeny**



**Top ten most
prolific
breeders sired
55% of lambs
submitted**

**Ram to Ewe
Ratio
1:10**

Number of Lambs per Sire – Ranch B



829 lambs submitted
796 (96%) w/ identified sires

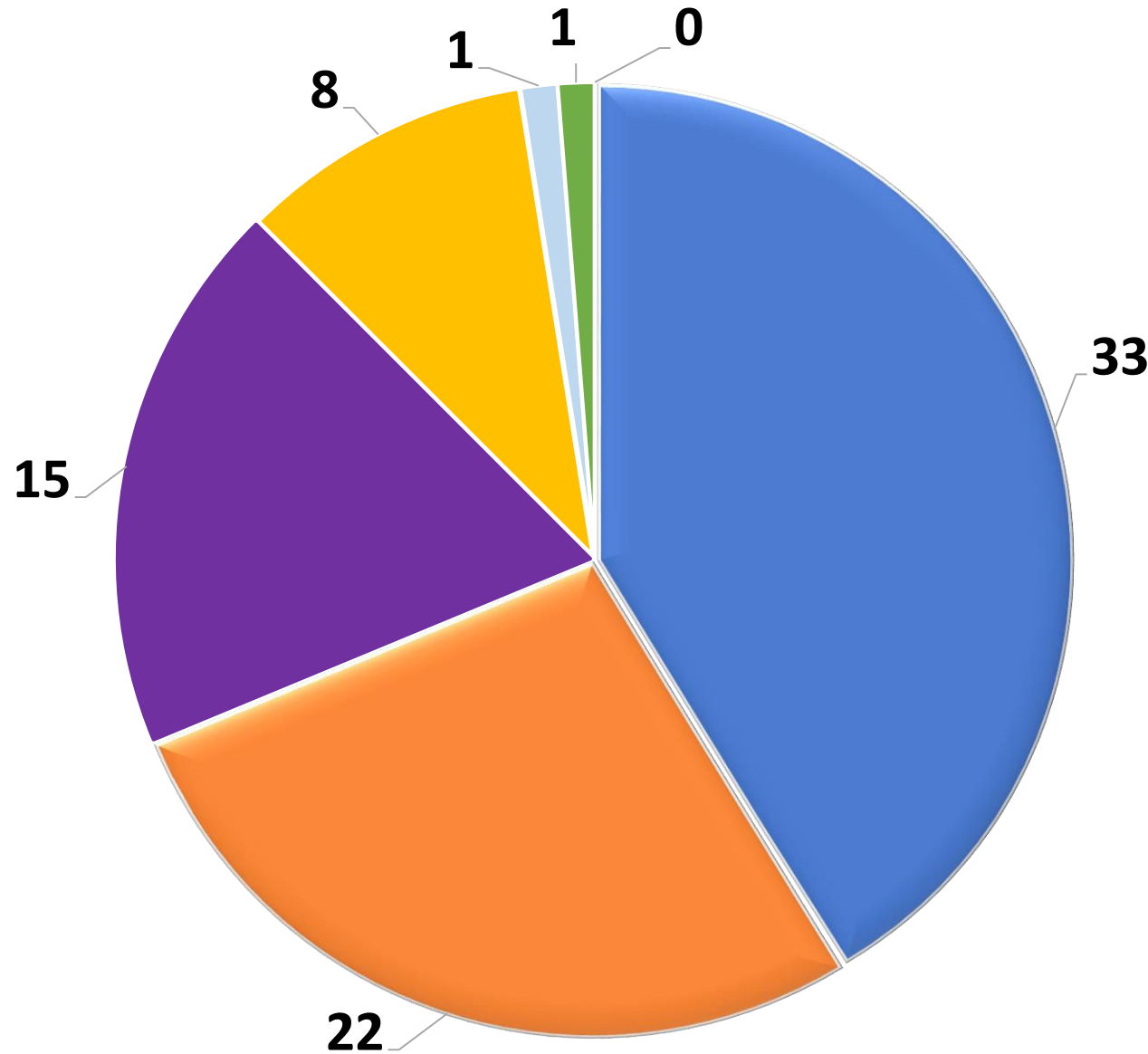
Top ten most prolific breeders sired 61% of lambs submitted

150 Possible Sires
37 Rams with identified progeny

Ram to Ewe Ratio 1:35

Number of Lambs Called Per Sire – Ranch C

**80 Lambs
submitted
80 (100%)
w/identified sires**

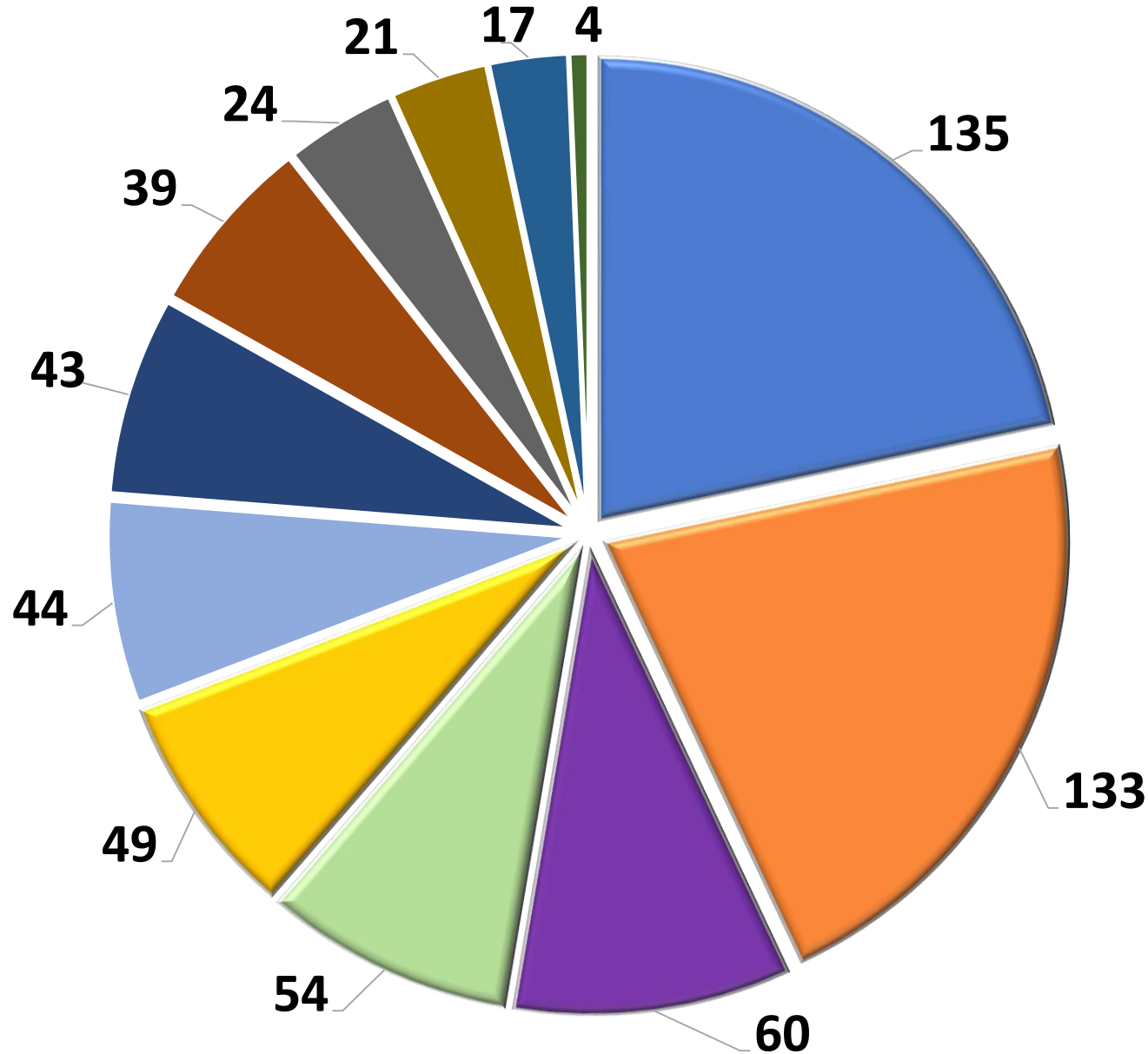


**Top two most
prolific breeders
sired 69% of
lambs submitted**

**7 Possible Sires
6 Rams with
identified progeny**

**Ram to Ewe
Ratio
1:30-35**

Number of Lambs Called Per Sire – Ranch D



**642 lambs
submitted
623 (97%)
w/identified sires**

**Top five most
prolific breeders
sired 69% of
lambs analyzed**

**40 Potential Sires
12 Rams with
identified progeny**

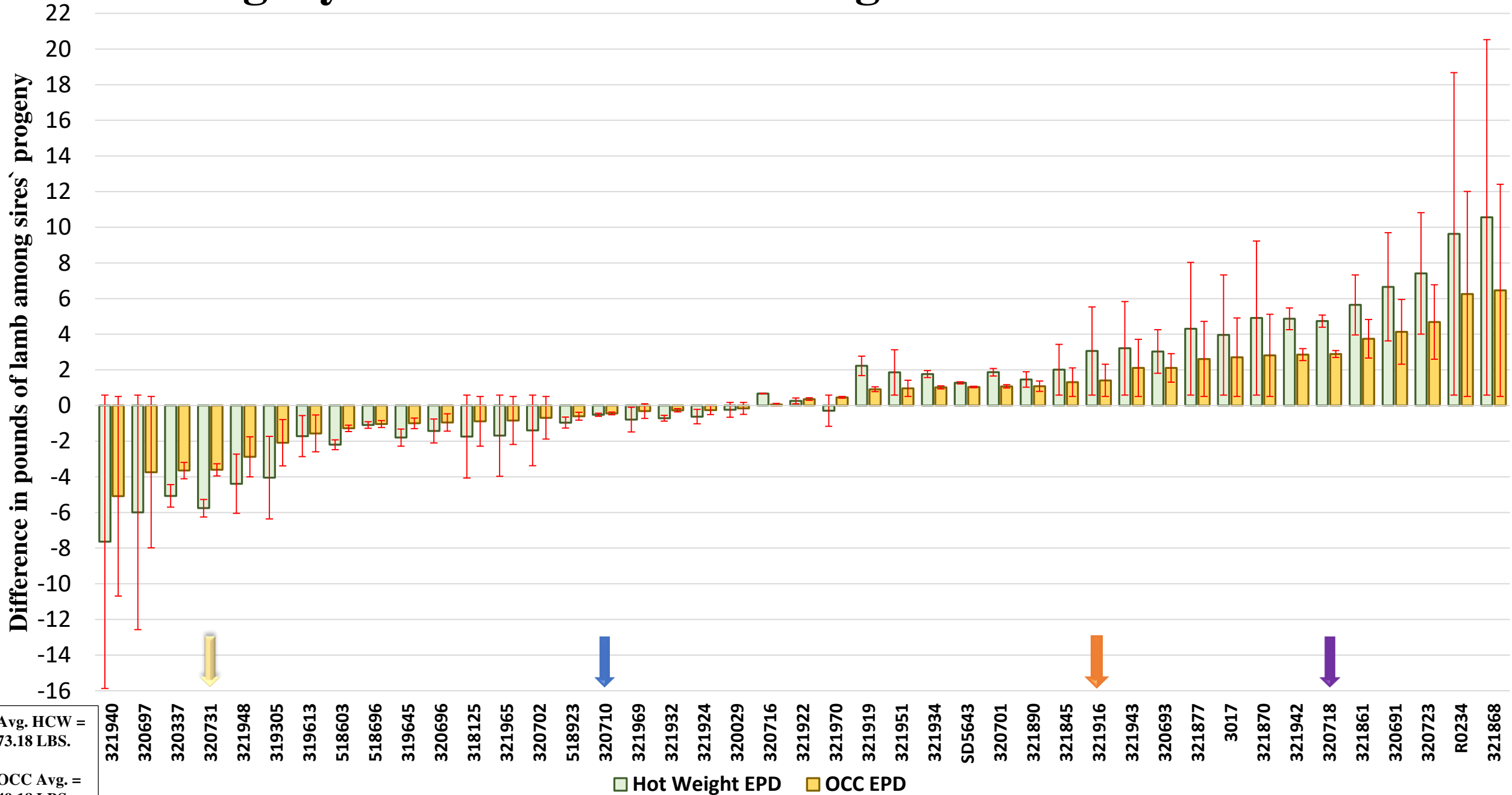
**Ram to Ewe
Ratio
1:50**

Results...

Ranch B	Hot Weight	Yield Grade	Quality Grade	Breast	Rack	Shoulder Square Cut	Legs	OCC	OCC Yield
n=315									
AVERAGE	76.1	2.7		9.5	8.7	19.0	24.6	50.7	67.3
STD	11.6	0.5		2.0	1.4	2.5	3.6	7.4	1.1
MIN	41.1	1.4	Good	3.4	4.3	11.5	14.1	28.0	64.3
MAX	106.9	4.6	Prime	14.6	12.5	25.9	34.3	69.7	71.4

Ranch A	Hot Weight	Yield Grade	Quality Grade	Breast	Rack	Shoulder Square Cut	Legs	OCC	OCC Yield
n=209									
AVERAGE	73.5	2.7		8.9	8.2	18.4	24.2	49.3	67.8
STD	10.2	0.5		1.8	1.2	2.2	3.1	6.5	1.1
MIN	50.4	1.4	Good	4.4	5.1	13.4	17.1	34.7	63.9
MAX	102.4	4.2	Choice	14.2	12	24.2	32.6	67.7	72.6

Progeny Differences in Hot Weight & OCC – Ranch A



Managing Individuals vs. Managing the Flock

- More Effective Culling
- Increase lbs weaned per ewe
- Reduce lamb grafting
- Reduce \$\$ spent on animal health

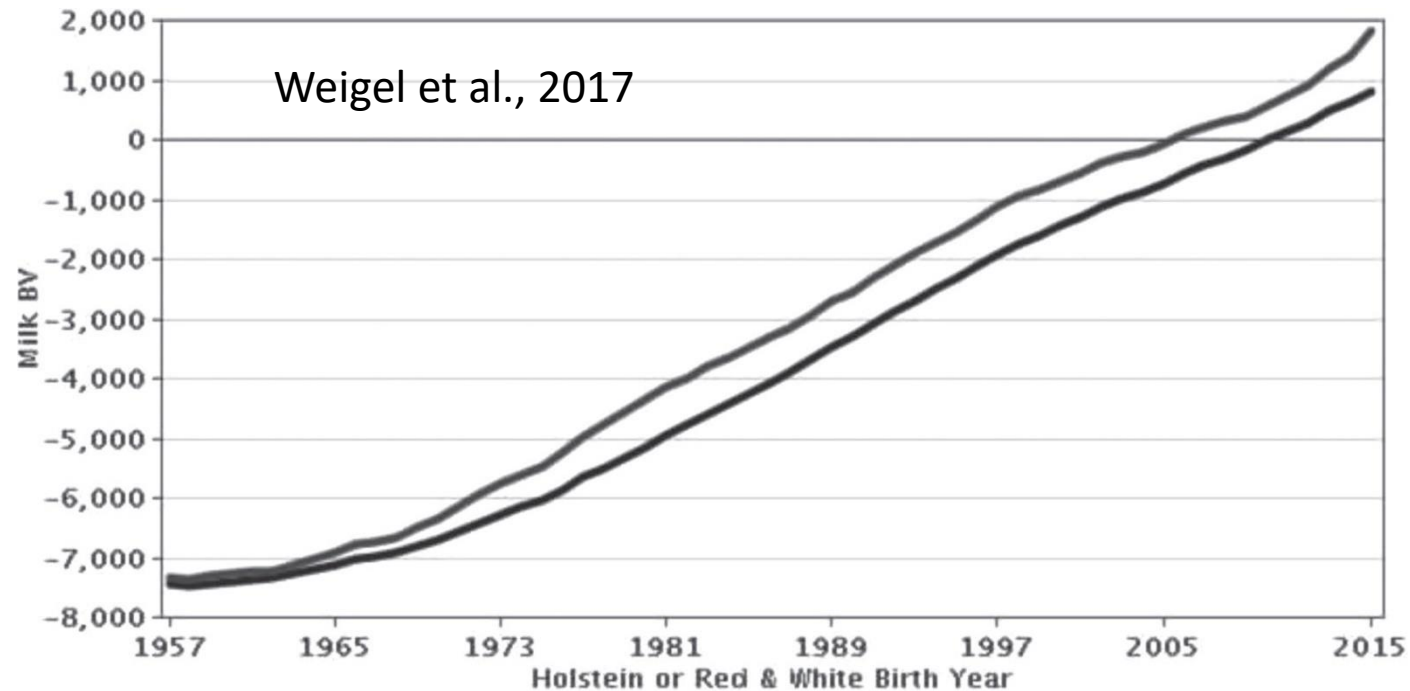


Tools for Genetic Selection

- Visual Assessment
- Individual Animal ID (no EID)
- Paper Records
- Electronic Records
- Paint Brands
- Ear Notches/Marks
- Ultrasound (preg testing)
- Electronic ID Tags



EID's and Individual Animal Records



- Managing individuals creates genetic change
- Improves reliability of data
- Facilitates animal disease traceability



These make genetic selection easier

Producer Viewpoint

- “When you’re tending to 5,000 to 8,000 sheep (or 5 to 8 “bands”) every year, having every ram, ewe and lamb microchipped **saves** ranch hands both **time and labor** while increasing information accuracy.” Evan Helle (AG Daily, 11/5/20)



Using EID's to Eliminate OPP in a Flock

- 2 Western Range Flocks
- Tested Ewes for OPP
- Positive band kept separate
- No replacements kept from OPP positive flock
- Reduction in death loss and \$\$ on animal health
- Estimated \$12/ewe saved total



When Considering EID's...

- Recommend thorough analysis
- Discuss with all affected parties
- Requires some experience with Excel
- Consider costs vs. returns



Using Data to Make Decisions

Tag	Breeding Group	Age	EZ Care Score	Average 100-day Wt	2021 Deworm	Age Score	Weight Score	Total Index	Keep or Sell
2201	Term/Shrop	2	3	108	0	1	2	6	Keep
2236	Term/Shrop	3	3	114	0	1	2	6	Keep
2221	Term/Shrop	3	2	110	0	1	2	5	Keep
2104	Term/Shrop	5	3	121	0	-1	2	4	Keep
2229	BFL/WF	2	3	76	0	1	0	4	Keep
2290	BFL/WF	4	3	124	1	0	2	4	Keep
2300	BFL/WF	4	3	91	1	0	1	3	Keep
2206	BFL/WF	2	3	28	0	1	-2	2	Sell
163	Term/Shrop	8	3	73	0	-1	-1	1	Sell
2101	Term/Shrop	5	2	50	0	-1	-2	0	Sell

Partial Budget Analysis

- Four Questions:

- What new or additional costs will be incurred?
- What current income will be lost or reduced?
- What new or additional income will be received?
- What current costs will be reduced or eliminated?

- <https://uwyoextension.org/ranchtools/wp-content/uploads/2018/01/B1304-partial-budget.pdf>

Mock Partial Budget Analysis

Objectives:

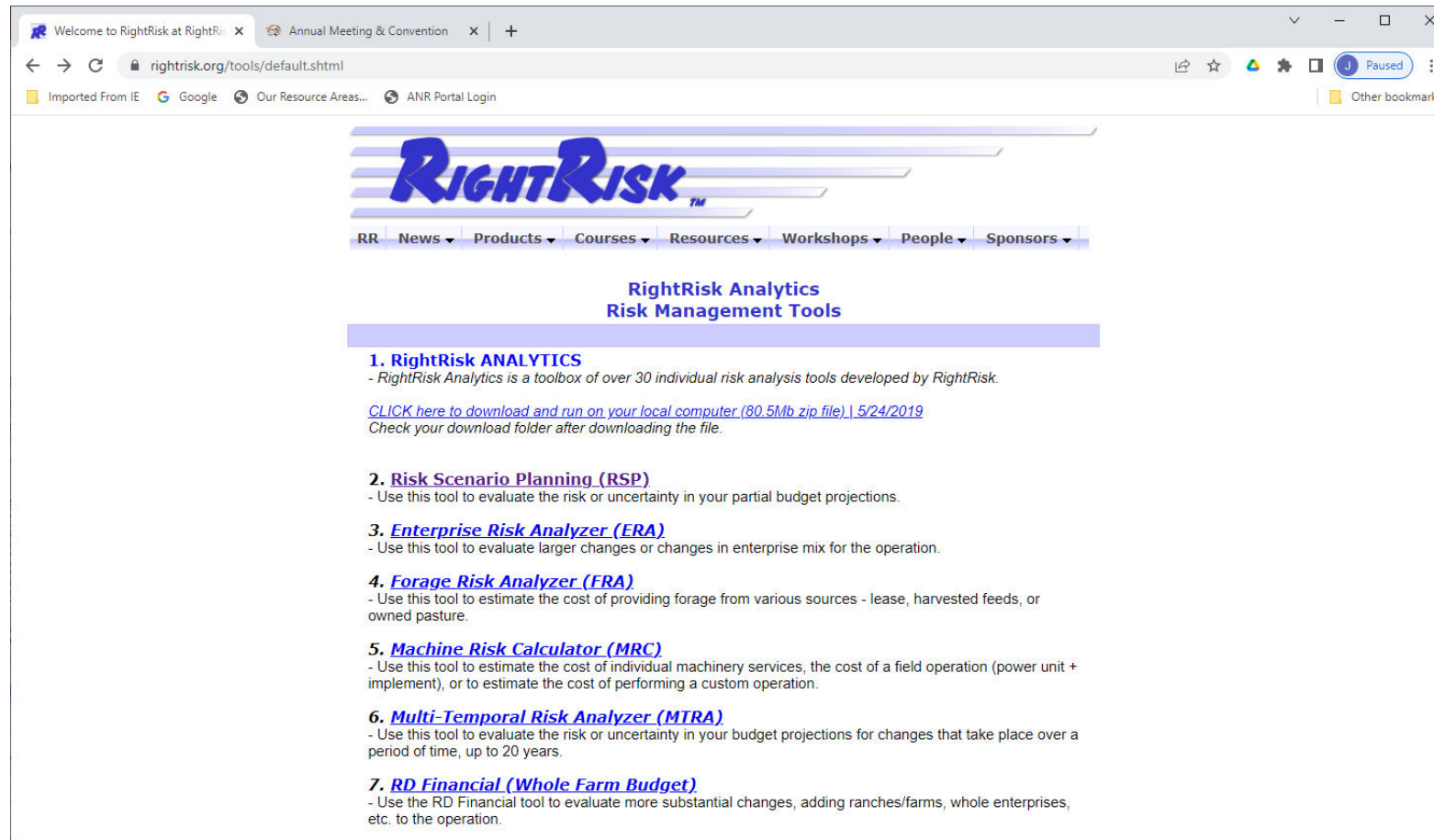
- 1) Increase lbs weaned/ewe by 10%
- 2) Increase mothering ability of ewes

Assumptions:

- 3,000 ewe base flock
- Labor is \$172.25/man/day

				Annual Costs/ Returns
New costs	Cost/Price	Quantity	Initial Cost	
EID Tag Reader	\$2,500	1	(\$2,500)	\$0
EID Tags (Ewes)	\$1	750	(\$750)	\$0
EID Tags (Lambs)	\$1	900	(\$900)	(\$900)
Labor - hired	\$172.25	3	(\$517)	\$0
Labor - producer?				
			(\$4,150)	(\$3600)
Income Lost/Reduced	\$0		\$0	\$0
New/Additional Income				
10% Increase lbs Lamb	\$3	31,500		\$94,500
Costs Reduced				
Less Hrs Grafting Lambs	\$172.25	3		\$517
		Net Total:	(\$4,150)	\$87,267

Analyzing Risk



The screenshot shows a web browser window with the URL `rightrisk.org/tools/default.shtml`. The page features the RightRisk logo at the top, followed by a navigation menu with items: RR, News, Products, Courses, Resources, Workshops, People, and Sponsors. Below the menu is a section titled "RightRisk Analytics Risk Management Tools". A list of seven tools is provided, each with a brief description and a link to download the tool.

1. RightRisk ANALYTICS
- RightRisk Analytics is a toolbox of over 30 individual risk analysis tools developed by RightRisk.
[CLICK here to download and run on your local computer \(80.5Mb zip file\) | 5/24/2019](#)
Check your download folder after downloading the file.

2. Risk Scenario Planning (RSP)
- Use this tool to evaluate the risk or uncertainty in your partial budget projections.

3. Enterprise Risk Analyzer (ERA)
- Use this tool to evaluate larger changes or changes in enterprise mix for the operation.

4. Forage Risk Analyzer (FRA)
- Use this tool to estimate the cost of providing forage from various sources - lease, harvested feeds, or owned pasture.

5. Machine Risk Calculator (MRC)
- Use this tool to estimate the cost of individual machinery services, the cost of a field operation (power unit + implement), or to estimate the cost of performing a custom operation.

6. Multi-Temporal Risk Analyzer (MTRA)
- Use this tool to evaluate the risk or uncertainty in your budget projections for changes that take place over a period of time, up to 20 years.

7. RD Financial (Whole Farm Budget)
- Use the RD Financial tool to evaluate more substantial changes, adding ranches/farms, whole enterprises, etc. to the operation.

Individual Animal Management

- Wanting to make change in your flock
- Know your starting point
 - Identify key production traits
 - Measure those traits
- Clearly define where you want to go
 - Track progress towards goals
 - Adapt as needed



Proprietary

How to start using RFID tags as your Scrapie Tag

- First, you must obtain a Flock ID and a National Premise Number (PIN) or Location Identification Number (LID). Get PIN/LID from your State Animal Health office, then call call 866-USDA-Tag (866-873-2824) to get your Flock ID and to have PIN/LID linked to your Flock ID.
- The USDA 840 official numbers will be linked to your Flock and Premise number for traceability.
- Then you purchase the 840 Scrapie tags from an approved provider.



National Scrapie Eradication Program

- USDA Scrapie Eradication Program
 - <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/sheep-and-goat-health/national-scrapie-eradication-program>
- How to get a Premise ID or Scrapie ID
 - Call 866-USDA-Tag (873-2825) or contact your state veterinarian's office
- How to get 840 EID's
 - <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/sheep-and-goat-health/scrapie-tags/id>

References

- USDA, ERS. 2022. Lamb and Mutton Imports, Monthly.
- USDA, NASS. 2022. Lamb and Mutton Slaughter in Pounds
- Weigel, K.A., P.M. VanRaden, H.D. Norman, and H. Grosu. 2017. A 100-year review: Methods and Impact of Genetic Selection in Dairy Cattle – From daughter-dam comparisons to deep learning algorithms. Journal of Dairy Science 100:10234-10250. <https://doi.org/10.3168/jds.2017-12954>
- Macon, D. 2018. Electronic Identification Systems for Small-scale Livestock Producers: A Case Study. Publication #31-1009. November 2018
- <https://www.agdaily.com/livestock/montana-helle-rambouillet-wool-family-heritage-modern-brand/#:~:text=The%20extreme%20Montana%20temperatures%20help,to%20it%20than%20other%20wools.>

THANK EWE!

