

Reading *the* Patterns

Using AI to Improve Alpaca Breeding Decisions

Amber Gurko • Fulcrum Farms • PacaPilot



The data is there. It's just disconnected.


Genetic tests


EPDs


Histograms

Breeding Ideas:

- Place females & handle
- Density & camp
- Trait balance
- Improving uniformity
- Track bloodstock
- Track financial trends
- Select for consistency

Follow the data:

- Compare EPDs
- Review histograms
- Cross & re-test
- Keep good records

To Do:

- Check crias
- Weights
- Update breeding plans


FURCRUM

A lovely fleece to handle.

Incredible fineness and
uniformity.

Density — visible in the
highly aligned individual
staple units.

1st place — Halter (1/1)

2nd place — Walking Fleece (2/3)





Two solid parents.
A roan cria.
And last in fleece.

2nd place — Bred and Owned (2/2)

4th place — Walking Fleece (4/4)



Why now?



87 records. One connected dataset.

 Alpaca Genetics Research

87 records · 31 with genotype · 56 pending

87 of 87 records

[Browse All](#)[Genotype Clusters](#)[Pedigree Overlap](#)[Common Ancestors](#)[Pedigree Tree](#)

All patterns

All base colors

All MC1R

All roan producer flags

All roan types

All roan classes

All roan patterns

All age stages

All intensities

All records

Clear

AUTUMN WIND STORM CHASER
AOA# 36139560
Genotype missing



+ 2 more photos

Roan

Pedigree

4-Sight's Holiday
AOA# 36216083



Black Roan Grey Roan Black Roan Medium

R2 partial blanket Juvenile Body-Neck

Confirmed

EE a2a2 EE a2a2

Pedigree

SC's Captain Chaos
AOA# 35095006



Brown Silver Grey Roan Brown Roan Medium

R2 partial blanket Adult Body Only

Confirmed

EE a2a2 EE a2a2

Pedigree

SC's Carrington
AOA# 32630354



Brown Silver Grey Roan Brown Roan Medium

R2 partial blanket Adult Body Only

Confirmed

EE a1a2 EE a1a2

Pedigree

SC's Chanterella
AOA# 36257799



Black Silver Grey Roan Black Roan Medium

R2 partial blanket Ck Body Only Confirmed

EE a1a2 EE a1a2

Pedigree

SC's Charente
AOA# 36178700
Genotype missing



Black Silver Grey Roan Black Roan Medium

R2 partial blanket Adult Body-Neck

Confirmed

Pedigree

A Ray of Hope
AOA# 34336395
Genotype missing



+ 4 more photos

Roan Black Roan Medium R2 full blanket

Juvenile Full Confirmed

Pedigree

Airgead (HMAF's)
AOA# 35554838
Genotype missing



Fawn Roan Grey Roan Black Roan Medium

R2 full blanket Adult Body-Neck Confirmed

Pedigree

APP OSA Phrench Braid
AOA# 35580191
Genotype missing



+ 2 more photos

Black Roan Black Roan Light R2

partial blanket Juvenile Body Only Light

EE a2a2 EE a2a2

Pedigree

APP OSA Smoldering Phlare
AOA# 36408855
Genotype missing



+ 2 more photos

Roan Black Roan Medium R2 partial blanket

Juvenile Body-Neck Light

GENERATION 1

Sire APP OSA PHORED STEEL (36103058)

Dam APP OSA PERUVIAN PHIRST CRUSH (35162896)

GENERATION 2

Sire / Sire QUKOTIC'S MAN OF STEEL (32257724)

Sire / Dam APP OSA PHRENCH BRAID (35580591)

Dam / Sire LMFJ ICEMAN IS INDESCRIBABLE (32166890)

Dam / Dam APP OSA PERU PHELICHING MAGNEU (32591156)

GENERATION 3

GENERATION 4

Ash (G-Tribe's Rocky's)
AOA# 36188761
Genotype missing



+ 3 more photos

Black Silver Grey Roan Black Roan Medium

R2 partial blanket Juvenile Full Confirmed

Pedigree

Baltazar (Sunnyhill's Zang's)
AOA# 36136087
Genotype missing



+ 1 more photo

Black Silver Grey Roan Black Roan Medium

R2 partial blanket Juvenile Body-Neck

Confirmed

Pedigree

Blackbeard (That'll Do Blackbeard's)
AOA# 36121856
Genotype missing



Black Silver Grey Roan Black Roan Medium

R2 partial blanket Juvenile Body Only

Confirmed

Pedigree

Bomber's Diamond Lil
AOA# 35185413
Genotype missing



Black Silver Grey Roan Brown Roan Medium

R2 partial blanket Juvenile Body-Neck

Confirmed

Pedigree



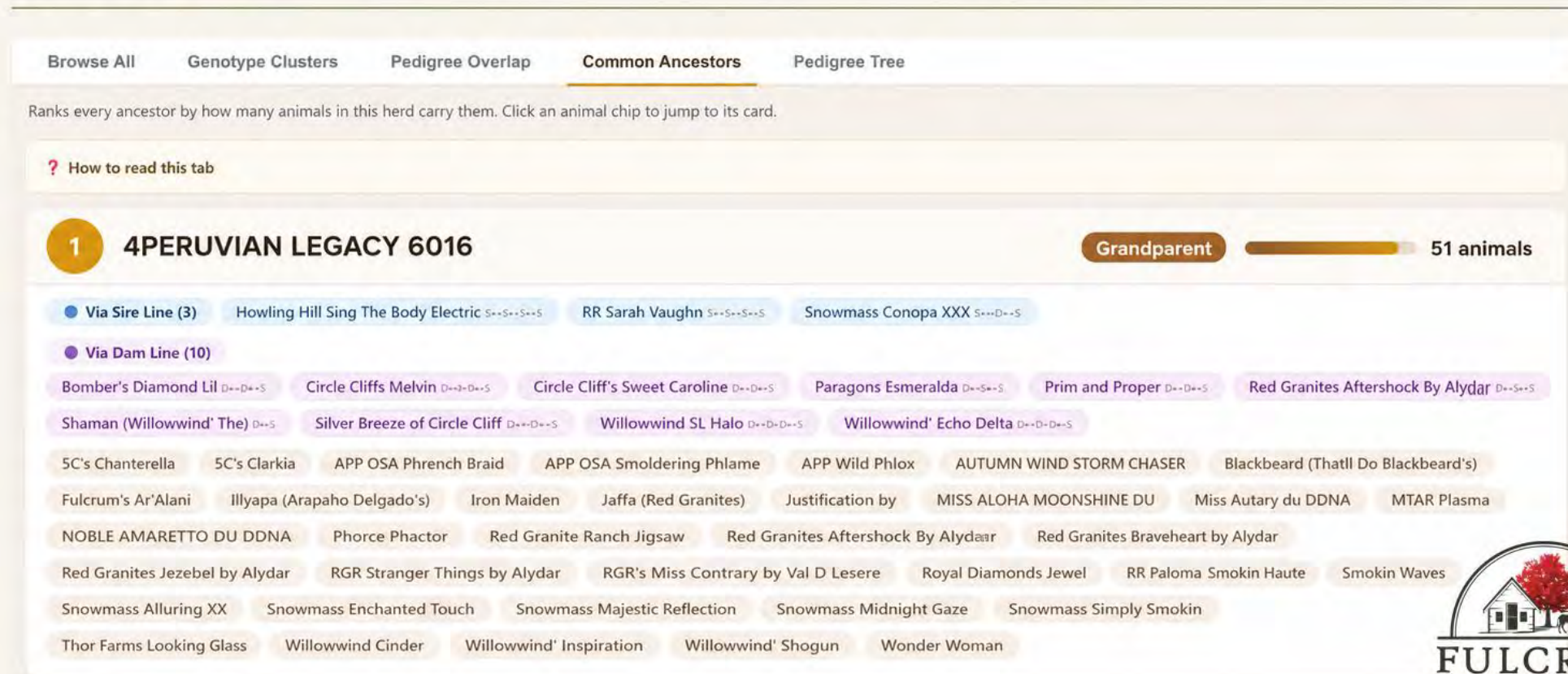
AI suggests.

I decide.



1 ancestor → 51 of 87 animals.

Well over half.



A real decision — a few weeks ago.



Female A

Program Stabilizer



Female B

Elite Project Female



All your data. One animal at the center.



Search Entry...

Change Period
August - October 2026

Demo User
Demo

FARM

Demo Meadow Alpacas

OVERVIEW

14 44 31 6
Alpacas Health Fecal Tests Crias

NAVIGATION

Alpaca & Records

Alpacas

+ Add Alpaca

Breeding

Genetics

Cria Records

Health Records

Show Performance

Fleece Records

Analytics & Business

QUICK ACTIONS

Calendar

Photo Gallery

Alpaca & Records / Alpacas

Dashboard Management

View Alpacas Add Alpacas Pedigree

Alpaca Details

Alpaca Browser

Select an alpaca from the drop-down to view their details, health records, and more.

Atlas Valley - ATLAS OF CEDAR RIDGE

Nickname: Atlas Valley (click for previous reports)

Edit AlpacaExport PDFDuplicateFavoriteOffspring

Delete Alpaca

Location Status

Alpaca Record

Nickname: Atlas Valley - previous reports & most reports

Genetics

MC1R (Extension)Ee

ASIP (Agouti)aa

Grey StatusNon-grey

Edit Genetic Data

EPDs (Fiber Quality)

AFD (Average Fiber Diameter)-1.6 - acc 0.58 - pct 8

SF (Spin Fineness)-1.2 - acc 0.54 - pct 10

MC (Mean Curvature)1.8 - acc 0.49 - pct 14

FW (Fleece Weight)0.55 - acc 0.46 - pct 13

Field Mode

Sort: Name

Filter: Show all

Atlas Valley



Sex: Male

Color: True Black

Breed: Huacaya

DOB: 2014-11-03

Reg #: AOA-35100001

Demo foundation sire. Produces dense, bright fleece with low micron and strong staple length.

Search & Filter Alpacas

Filter alpacas in the search bar.

Typical alpaca search

Status: All

Sex: All

Search

14 FIVE

FULCRUM FARM

ESTD 2020

Search here...

Change Period
August - October 2026

🔔

💬

Demo User
Demo

➕

👤

🔗

«

FARM

• Demo Meadow Alpacas >

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Alpaca & Records / Breeding

Breeding Management

Track breeding, pregnancy tests, and due dates

0 Overdue

0 Due This Week

0 Due This Month

7 Active Breedings

🔔 🧑‍🌾 Track your breeding program here. Tease females for receptivity, record live breedings, track spit-off tests and ultrasound confirmations, and get alerts when crare due. Due dates are automatically calculated (345 days).

Active Breedings + New Breeding 🕒 History

Active Breeding Records

Unknown × BEAR VALLEY SILVER MARK — Bred 01/17/2026

BREEDING INFO

Dam: Unknown

Sire: BEAR VALLEY SILVER MARK

Tease: 01/17/2026 — Receptive

Breeding Date: 01/17/2026

Due Date: 12/28/2026

📅 320 days until due

SPIT-OFF TESTS

✓ Test 1: 01/17/2026 — Pregnant

✓ Test 2: 01/17/2026 — Pregnant

✓ Test 3: 01/17/2026 — Pregnant

ULTRASOUND CONFIRMATIONS

✓ US #1 (~30d): 01/17/2026 — Pregnant

✓ US #2 (~60-90d): 01/17/2026 — Pregnant

✓ PREGNANCY CONFIRMED

Update Tests & Status

TEASE

Tease Date

01/15/2026

Tease Result

Receptive

SPIT-OFF TEST 1

Date

01/24/2026

Result

Pregnant

SPIT-OFF TEST 2

Date

01/24/2026

Result

Pregnant

Breeding timelines and outcomes.

Search here...

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Demo

Alpaca & Records / Genetics

Breeding Recommendations & Genetics

Smart breeding suggestions based on genetic compatibility

Best Matches

Compatibility Checker

Genotype Predictor

EPD Combiner

Outside Sires

Pedigree

Edit Genotype

Genotype Predictor

Predicts cria color outcomes from MC1R + ASIP and weight pattern probabilities (Roan, Appaloosa, Harlequin, Classic Grey) based on whether one or both parents express the pattern.

Dam
CLOVER HILL IVORY SONG

Sire (Incl. Outside Sires)
BEAR VALLEY SILVER MARK

Base Color Probabilities

Light Fawn	50.0%
Medium/Dark Fawn	25.0%
White or Beige	12.5%
Light/Medium Brown	12.5%

Pattern Probabilities

Roan – Low	5.0%
Neither parent shows roan phenotype.	
Appaloosa – Low	5.0%
Neither parent shows appaloosa phenotype.	
Harlequin – Low	2.0%
Neither parent expresses harlequin.	
Classic Grey – Moderate to High	60.0%
One parent produces classic grey (heterozygous or cross with non-grey).	

Detailed Genotype x Color Breakdown

MC1R	ASIP	Probability	Color
Ee	Aa	25.0%	Medium Brown to Dark Fawn
ee	Aa	25.0%	Very Light Fawn / Cream
Ee	AA	12.5%	Light to Medium Fawn/Brown
Ee	aa	12.5%	Bay Black / Dark Brown
ee	AA	12.5%	White or Very Light Beige
ee	aa	12.5%	Light Fawn (Hidden Black)

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+ Demo Meadow Alpacas

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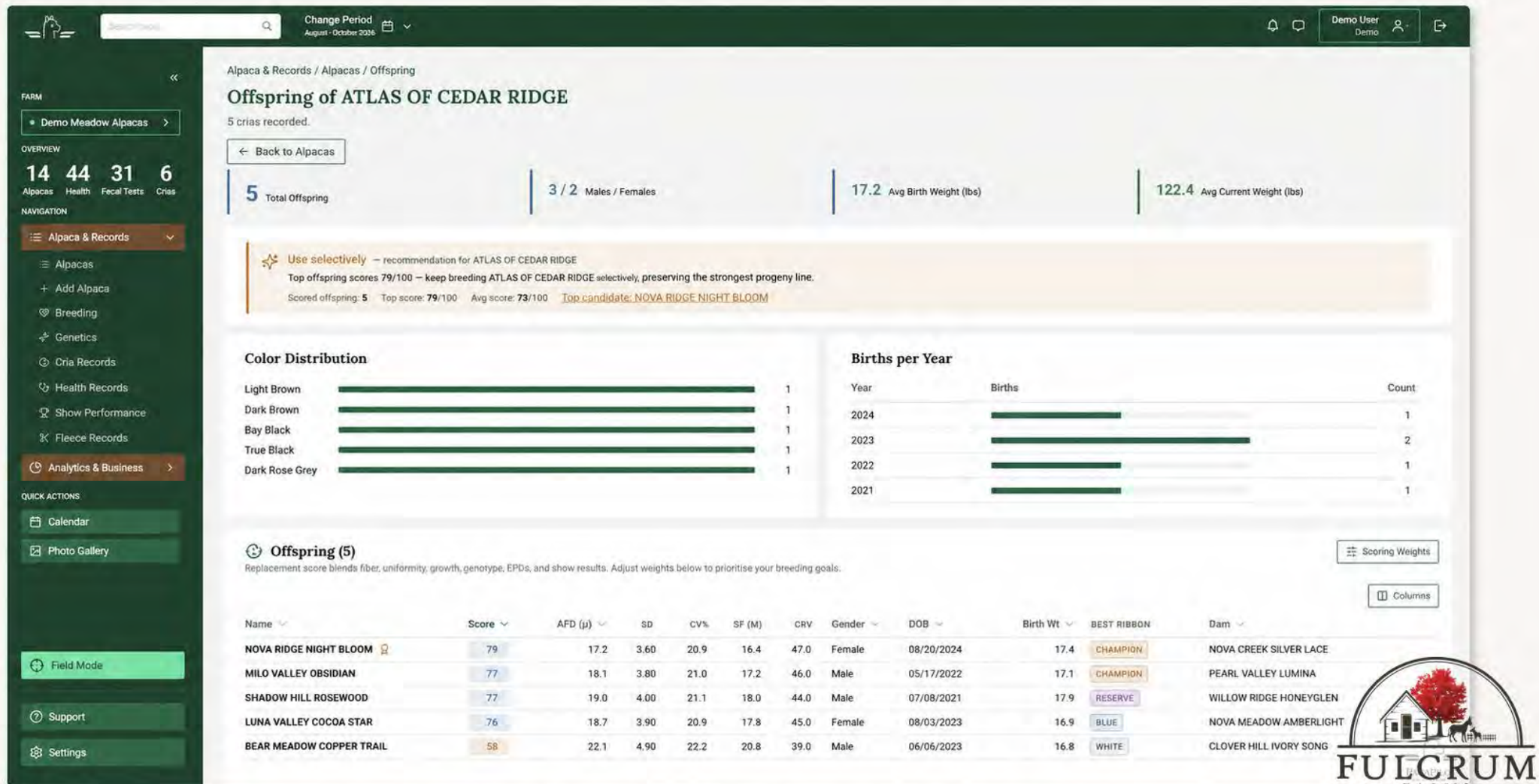
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Field Mode

Support

Compatibility. EPD Combiner. Color genotype.



Patterns across a sire's offspring, not one cria at a time.

I've never written code.



Build the picture together.

The more breeders contribute -
the clearer the picture becomes.



The animals don't
always read *the* data.

But we can read the
patterns behind it.



Three ways to connect.

Talk about AI on your farm
Join the Roan Research Project
PacaPilot early access list



amber@fulcrumfarms.com

