

AGTECH - BEEF CATTLE TECHNOLOGIES

COORDINATOR: MR. EGLEU MENDES

SPONSORS



Vytelle



RANCHBOT
MONITORING SOLUTIONS





The Intersection of Technology and Genetic Acceleration: Shaping a Sustainable Beef Industry

Kerryann Kocher, CEO Vytelle



Vytelle Mission and Purpose

To ensure meat and milk are **viable** and **competitive** food choices for future generations.

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Vytelle by the Numbers

- Vytelle Serves Customers in 19 Countries
- 📍 12 Global Vytelle Laboratories
- 📍 33 Vytelle ADVANCE Satellite Locations
- 📍 Headquarters and Technology Center
- 👥 111 Employees

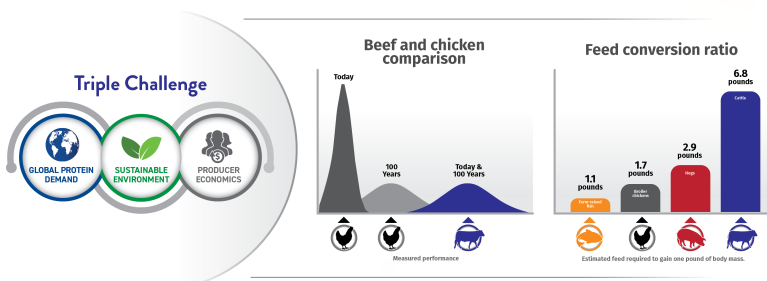


Vytelle advances the RIGHT genetics FASTER



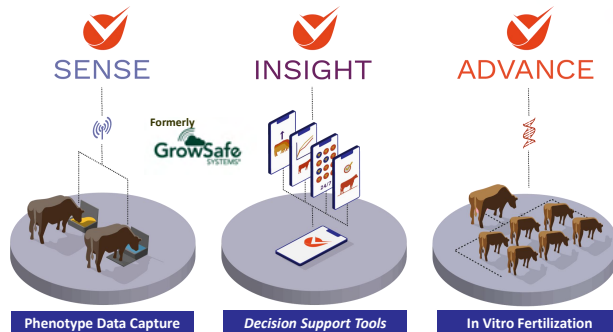
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Genetic progress is a proven solution that is permanent and compounding



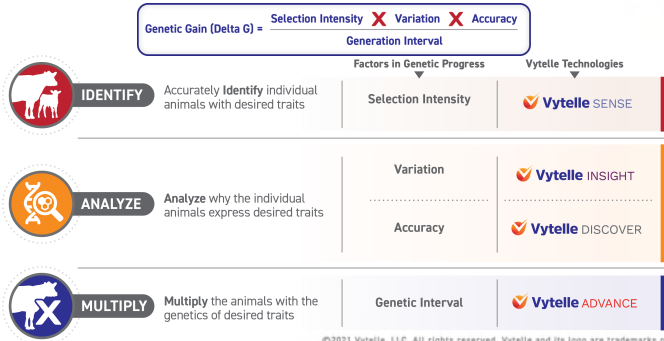
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Vytelle's integrated technology platform is unique to the beef industry

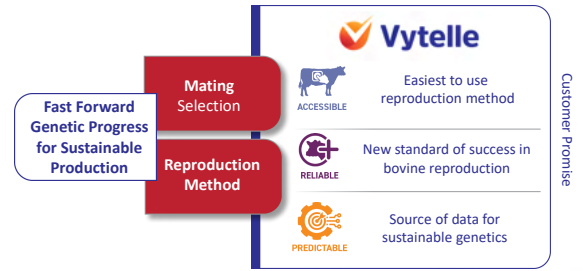


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An integrated approach maximizes genetic gain possible for progressive breeders



Vytelle's customers advance the RIGHT genetics FASTER by integrating two MAJOR decisions



Mating Selection



Selection for Feed Efficiency is one of the key drivers of Sustainable Beef Production



Feed Efficient Cattle produce less GHGs*



Selecting for Feed Efficiency is the most scalable way to reduce cost & increase profit

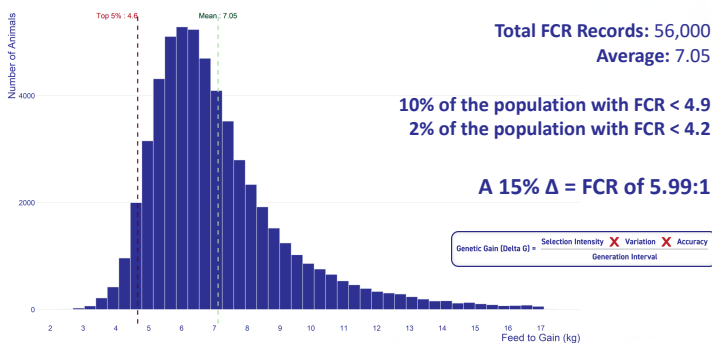


The use of Residual Feed Intake (expected feed intake vs actual feed intake) delivers cow efficiency = more animal units on the same resources

*.83 correlation DMI and Methane

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Our own data tells us change is possible



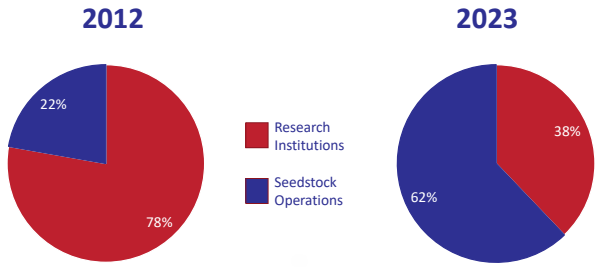
We take individual feed intake measurements at 160+ global locations



No one has more experience collecting feed intake phenotypes

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Phenotypic feed intake data capture is rapidly moving from research to commercial application



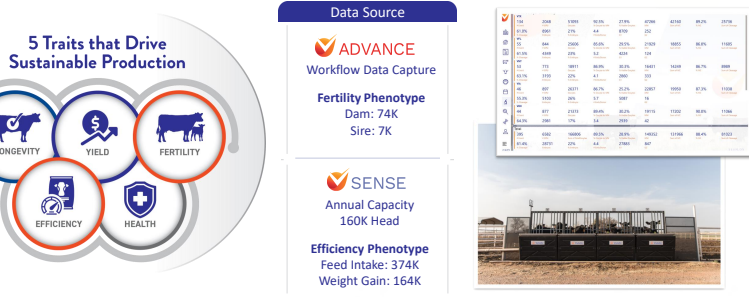
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Vytelle's Network Database is the Largest Beef Efficiency Database Globally



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Vytelle is building the largest bovine sustainability database to inform our customers' mating selection decisions



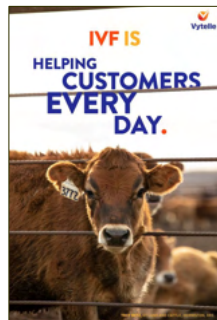
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Reproduction Method



In vitro fertilization is the best way to accelerate genetic progress

- Shortening generational interval
- Increase genetic selection intensity
- Maximize the use of rare or valuable semen
- Capture genetic gains from younger and pregnant animals



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More beef embryos are now produced by IVF than conventional flushing



2022 Annual Report of the AETA Statistical Information Committee

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Comparing reproductive technologies

Becoming a necessary part of an operation's genetic progress, IVF technology is the leading tool for fast forwarding generations

	Artificial insemination	ET (Superovulation)	In vitro (IVF)
Frequency	21 d	35 – 50 d	7 d
Conception rates	55%	55%	50%
Genetics contribution	Male	Female + Male	Female + Male

Take away points

- Genetic improvement is a compounding and permanent solution to a sustainable beef industry.
- Selection for feed efficiency is one of the key drivers of beef sustainability and is a significant trend among progressive breeders.
- IVF is the fastest way to accelerate genetic progress. When coupled with data-driven mating decisions, the improvement can be rapid.
- Vytelle is the fastest growing IVF company globally and the only with a fully integrated solution set for customers seeking to maximize genetic gains in sustainability.



Delivering the digital future of agriculture

Cattlemen's College:
Optimizing ranch profitability by
managing everything in one place



Coby Buck
Wray Cattle Co.
AgriWebb



The AgriWebb Mission



To empower the livestock industry with the best tools..



..to feed the world profitably, and efficiently.

3

What is AgriWebb?

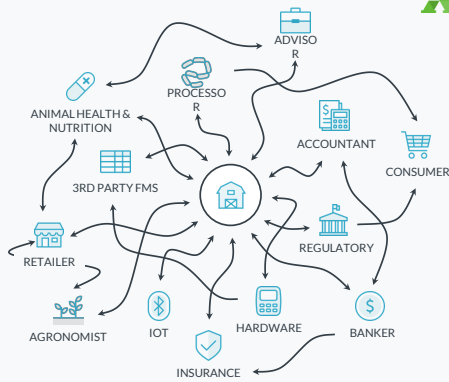


Video



6

Old World



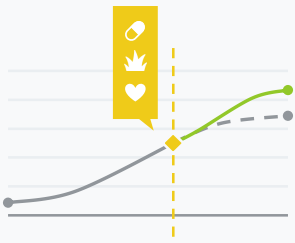
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Digital Agriculture



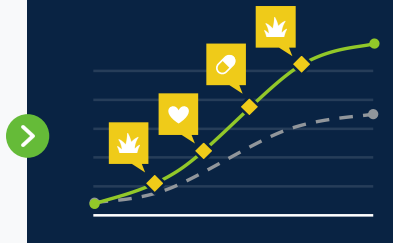
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Old World



Limited visibility means producers can't meet market demands

Digital Agriculture



Real-time insights means producers can cut costs and take advantage of market opportunities

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16,000+ Users

5,100+ Ranches

22m+ Animals

99% Customer retention Rate

250+ Ranchers / month

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AgriWebb Introduction

Livestock, land and legacy management...at your fingertips.

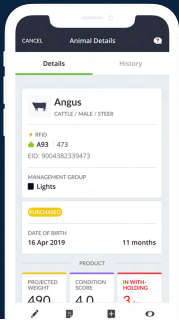


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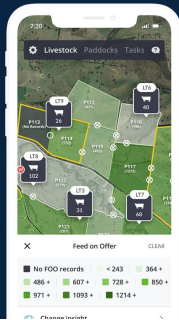
Everything that matters to your success, all in one place.



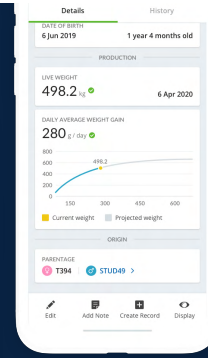
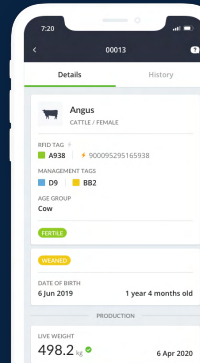
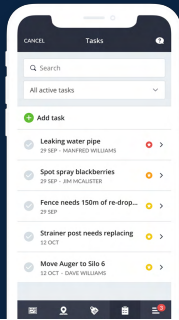
Livestock Management



Grazing Management



Team Management



Value to the rancher

- Track and access data, instantly
- Better insights for better profits
- Improve team productivity
- Connect tools, tech and data points



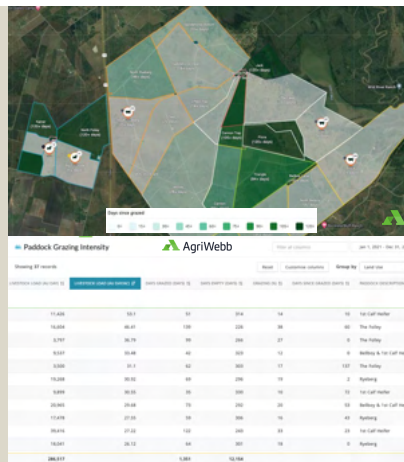
McFADDIN ENTERPRISES



McFADDIN ENTERPRISES

Operational Design:

- Ecosystem:** Gulf Coast Prairies near Victoria, Texas
 - All native grasses
 - Year long growing season
 - Approximately 20% cool season & 80% warm season
 - 3-4 water systems in each paddock
- Grazing History**
 - Grassland was consistently average-good condition in early 1990s
 - Big Bluestem a rarity
 - Started building rotation in 1992
 - By 1999, entire ranch subdivided with 3 wire electric fence
- Ideal Animal for Operation**
 - Victoria Braford: ¾ Hereford, ¼ Brahma
 - Red hide and ¼ Brahma for hotter climate
 - Mature weight: 1,175 lbs



McFADDIN ENTERPRISES

Don't Wait for the Drought - Proactively Manage

- Always Deploying Low-Mid Density, Moderate Duration Grazing**
 - 3 cow-calf herds on property
 - Pasture rotation of 5-8 cells for each herd
 - Duration of ~ 3 weeks (pending rainfall)
 - Average recovery between 90-120 days
- Cull Animals that are not performing**
 - Dry cows are sorted off and palpated during calf branding
- Stockers Utilized according to Forage Availability**
 - Never run cow-calf enterprise at maximum carrying capacity
 - Utilize stockers as a flexible business line to increase forage utilization and retain flexibility
- Analyze Grazing Performance during normal and wet years**
 - AgriWebb allows us to benchmark grazing for any given year



Cow-Calf Design



~850 pairs



10,000 Acres



~1,900 lb DM/ac

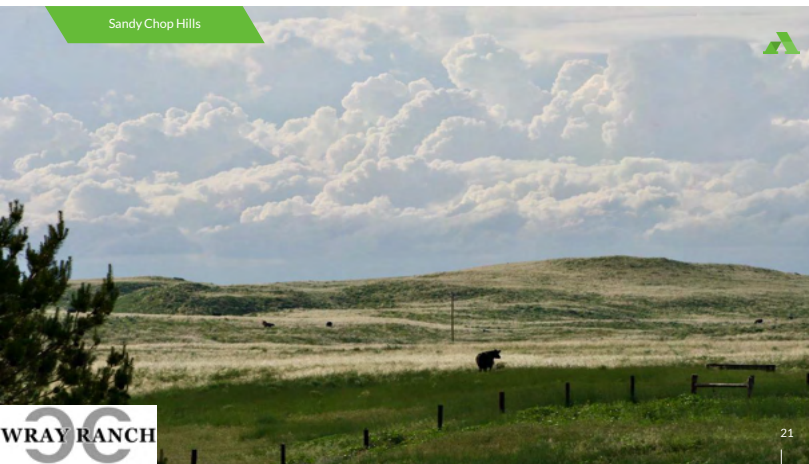


~7 Day rotations

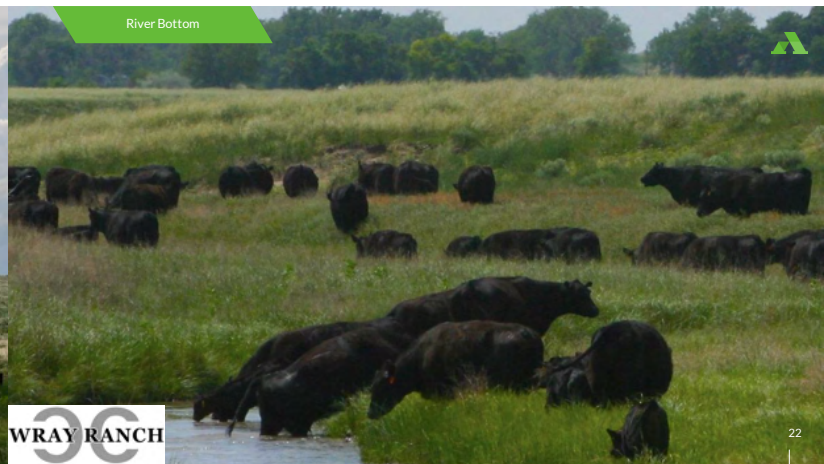


Family Design:

- ◆ Owner/Operator: Parents
 - Age: approx. 60 years old
- ◆ 4 kids (3 married)
 - Age: 32 & younger
 - 1 kid (full-time)
- ◆ 2.5 Employees



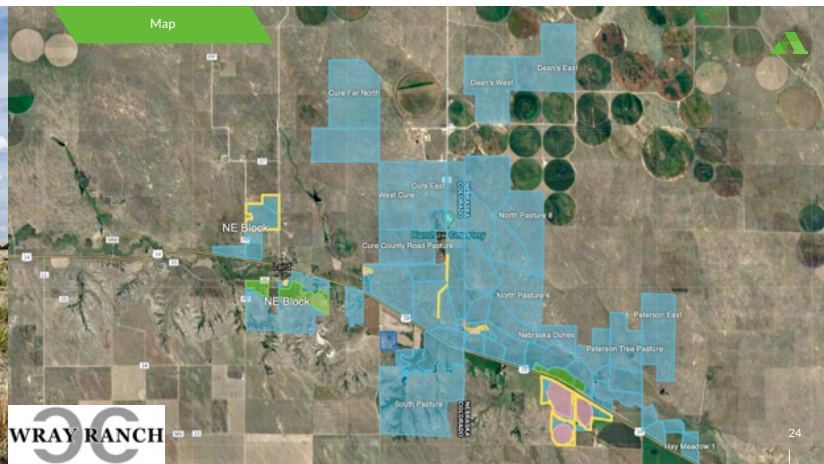
Sandy Chop Hills



River Bottom



Canyons



Map



Succession at Wray Ranch

Ideal end result: Continuation of ranching as a family livelihood and legacy

1. Maintain strong, happy, & loving family relationships
1. Ensure longevity of operational economic viability
1. Prioritize the previous generation's need above the upcoming generation



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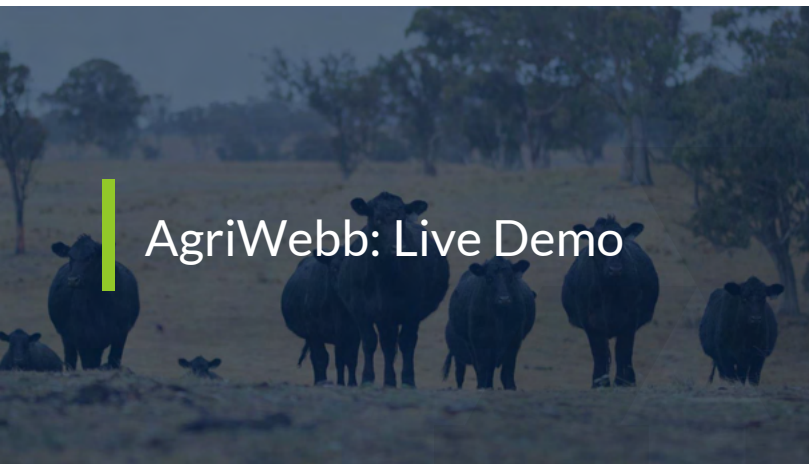
Succession: Wray Ranch

"Download the brain of previous generation"

Ranching is not just *physically intensive*, but it is also *knowledge intensive*.

Tactical Management


- ❖ Track & Monitor with AgriWebb
 - Forage
 - Movements
 - Animal Performance
 - Precipitation
 - Treatments
 - Gross Margin



AgriWebb: Live Demo

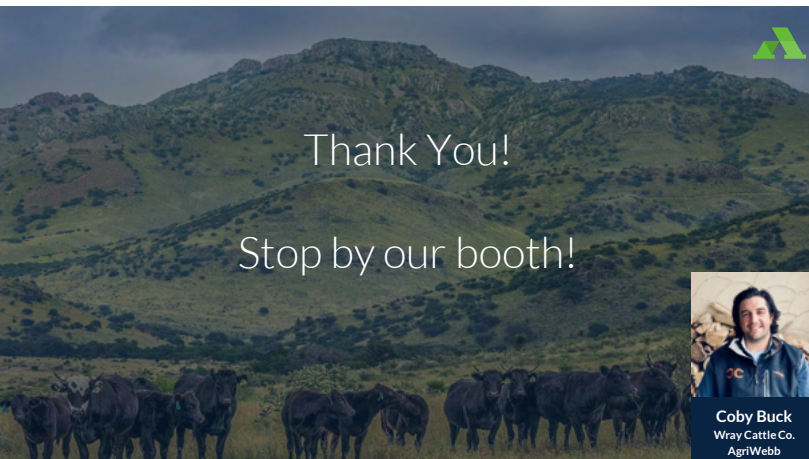
 Holistic Management Platform

 Intuitive Visual Interface

 Mobile, Offline And Cloud Based

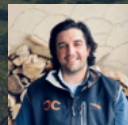


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Thank You!

Stop by our booth!



Coby Buck
Wray Cattle Co.
AgriWebb



Leveraging Drones for Cattle Management: How, What, and Why?

August 8, 2023

Meir Ginsburg
CEO, CattleQuants

Drones for Cattle Management

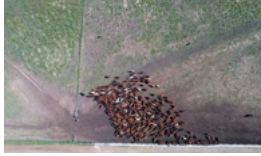
- Locate your herd prior to gathering
- Check on water, feed, or fences
- Measure commodities for inventory and forecasting purposes
- Count your cattle



Count Cattle In Individual Feedlot Pens



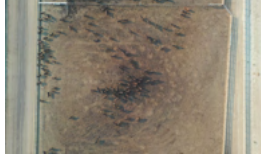
Count Cattle In Individual Pastures



Count Cattle Prior to Shipping



Check On Your Custom-Fed Cattle

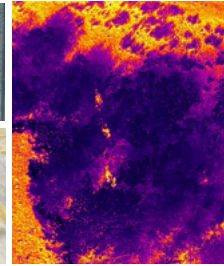


Common Drone Cameras/Sensors

Optical Sensors to Image What is Visible to the Naked Eye



Thermal Sensors to "See" Through Trees



Radiometric Thermal Sensors to Measure Temperatures



Common Drones



DJI Air 2S (\$1000)



DJI Mavic 3 (\$3600)



DJI Matrice 350 (\$9000)



Autel Evo II (\$2500)



DJI Mavic 3 Thermal (\$6000)

3 Ways to Fly a Drone

Manually



Semi-Manually



Autonomously





Fly Automated Flight Missions To:

- Capture video along all feed bunks
- Capture video along all fence lines
- Capture images of all/some feedlot pens for counting purposes
 - May benefit from automated cattle counting software
- Capture imagery for measuring silage piles or commodities
 - Requires photogrammetry software to compute volumes

OneCup AI
LIVESTOCK ID

Manage your Ranch over a Cup of Coffee
Mokah Shmigelsky, CEO - mokah@onecup.ai
Geoffrey Shmigelsky, CTO - geoff@onecup.ai

Texas A&M

BETSY
Bovine Expert Tracking and Surveillance

Bounding Box

Limb Tracking

Face - ID
82.9%
Cow
Face ID: 4096, 97.2%
Face ID: 2120

Key Points

Key Angles

OneCup AI
LIVESTOCK ID

Cattle Fatalities

Cattle USA
112 million head
34 million calves
3.9 million early fatalities

Economics
\$3.87 billion / year
\$10 million / day

10,000 cattle prematurely die every day

USDA: Death Loss in U.S. Cattle and Calves Due to Predator and Nonpredator Causes

Not Enough People

Canadian Agriculture Labour Gap: 60,000 workers
Forecasted 2025: 114,000 workers

www.canadiancattlemen.ca/markets/worker-shortage-looms

The Solution - BETSY
Computer Vision for Animal Care

Hi, Belle!

BETSY - "Eyes of the Rancher when the Rancher is Away"

Value Proposition

Skills of a Rancher, embedded into a Vision based Artificial Intelligence

- Visual ID
- Calving Cam
- Lameness Detection
- Suckling/Colostrum
- Shipping Manifests
- Feed Efficiency
- Estrus and Mating
- Growth Tracking

BETSY Setup



Beef & Dairy Cattle

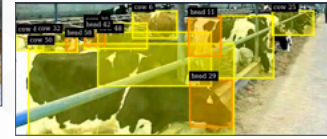
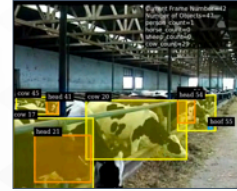
CALVING CAM



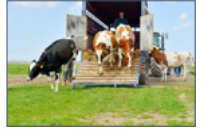
FEED TRACKING



USE CASES



SHIPPING & TRACKING



BREEDING CAM



Calving

60-90 DAYS



PRE-CALVING

Determining when an animal will calve.
BETSY tracks contractions over time.

BIRTH

The first six hours are critical with bonding and colostrum.
BETSY measures birth duration and direction.

CALF

Calfs can easily suffer from dehydration, starving and freezing.
BETSY is most helpful.

Feed Lots

USE CASES

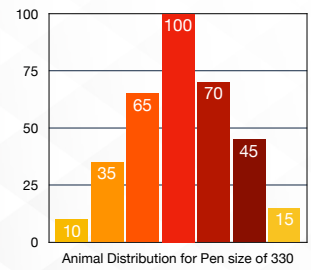
BRD DETECTION



GROWTH TRACKING



Drink Duration

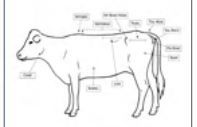


Animal Distribution for Pen size of 330

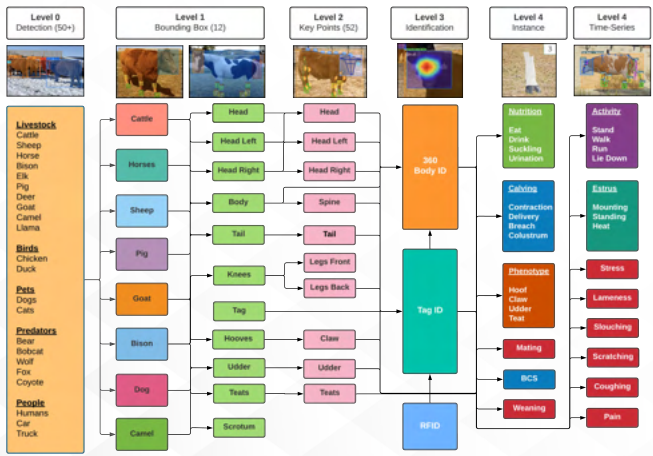
LAMENESS



BCS SCORE / GRADING



Source: Gov of Alberta, BCS Guide



Level 1

Bounding Box Detector



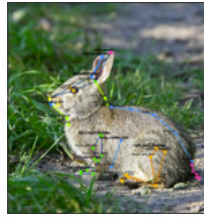
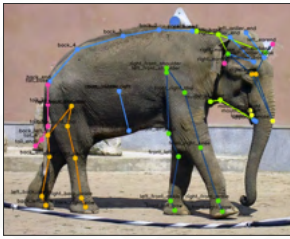
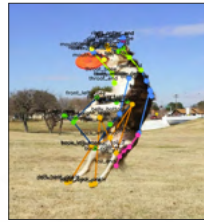
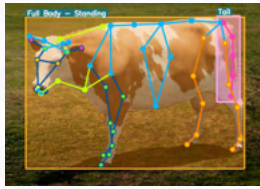
Cattle

Dogs

Horses

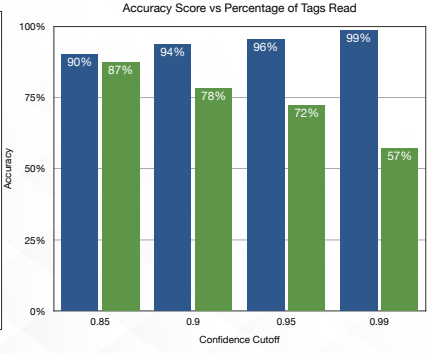
Level 2

52 Key Point Model



Level 3

OCR ID



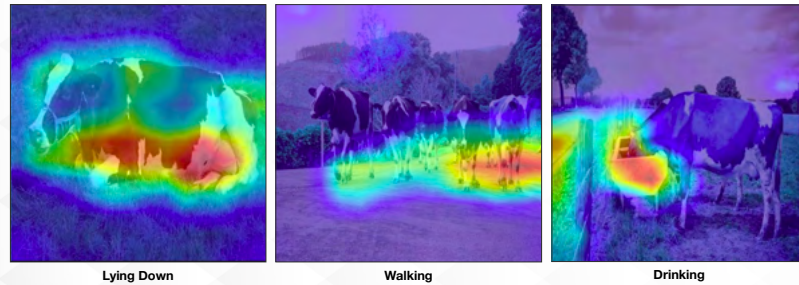
Level 3

360 Body ID



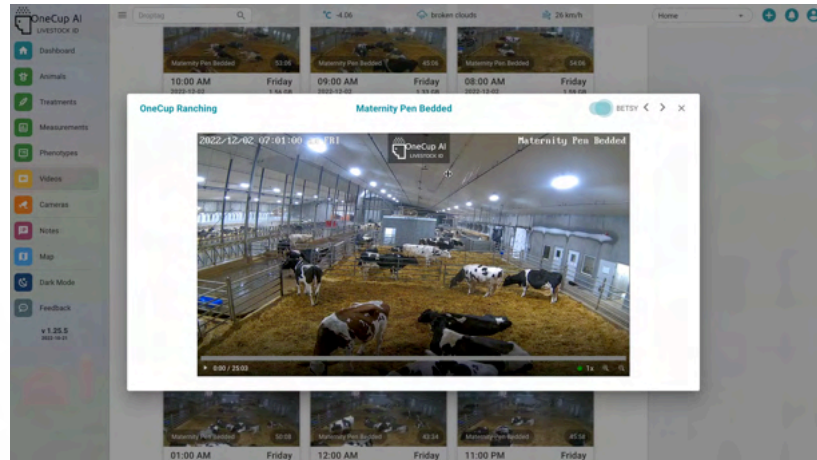
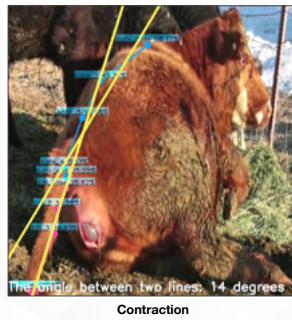
Level 4

Activity Classifier



Level 4

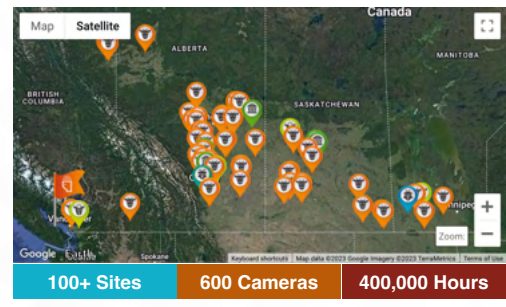
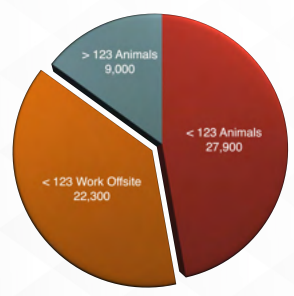
Contraction Detection



User Interface



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Monthly Recurring Revenue (MRR) for a Ranch:
\$39 a month per camera
 TurnKey Solution: \$995 Hardware (optional)



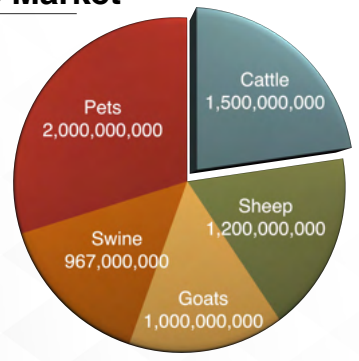
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<https://www150.statcan.gc.ca/n1/daily-quotidien/170510/dq170510a-eng.htm>

Worldwide Market



=



BETSY is Starlink's Killer App

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The Team



Mokah Shmigelsky, CEO



Geoffrey Shmigelsky, CTO



Keith & Connie Day



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Advisory Board

Randy Goebel AI Expert, co-founder	Hanif Dattoo Vice President	John McDougall President
Steve Sefcik Accounting & SRED	Christy Griffin Veterinarian	Stan Day Cattle Breeding
Aldo Pippo Director, IT Risk	Gordie Cameron Cattle Auctions	Brent Moen Swine Production
Jesse Simon Media Production	Harold Day Cattle Calving	Andrew Richardson Executive Chef

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Partners

50% of investors are ranchers

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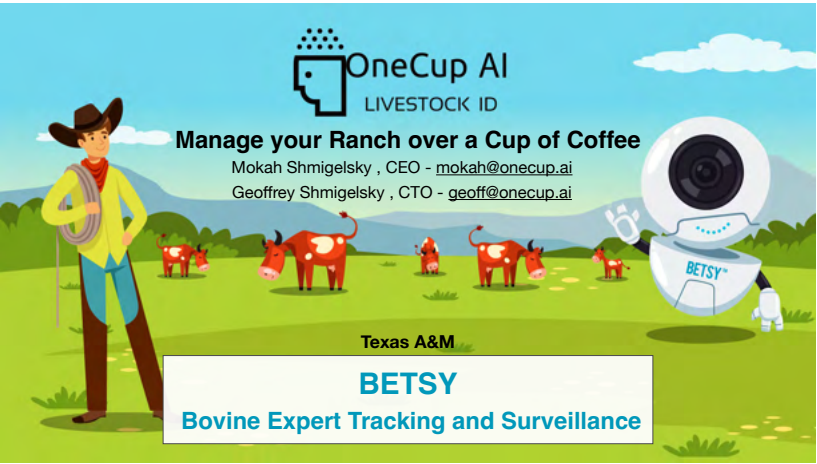
Manage your Ranch over a Cup of Coffee

Mokah Shmigelsky , CEO - mokah@onecup.ai
Geoffrey Shmigelsky , CTO - geoff@onecup.ai



Texas A&M

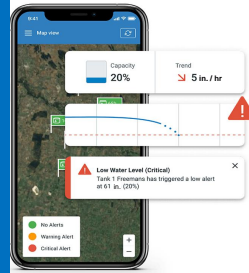
BETSY
Bovine Expert Tracking and Surveillance



Ranch Tech

and the role of remote monitoring

Andrew Coppin
Co-Founder & CEO, Ranchbot
Chairman, Australian AgriTech Association

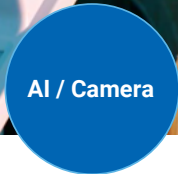
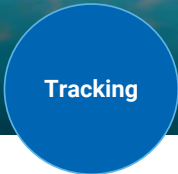


Ranch Tech Today



Hot new developments

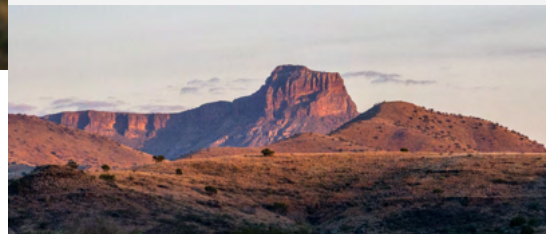
Emerging Tech



Climate, Economic & Social Pressures

Ranchers need technology to control and define their sustainable and resilient future.

Starting with **water** and **natural capital**.



The role of remote monitoring



Who is out there **checking your water, pumps, rainfall and soil** today?

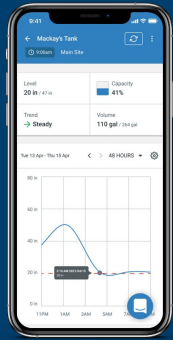
Pipes leak and burst, and pumps stop.

How do you know without constant monitoring?



The Ranchbot way to "check" MyRanchbot

- Real-time alerts to your cell and email
- Know when water is low, high, or rapidly dropping
- Historical data can prevent future issues
- Tracks trends – monitors when and how much water your cattle are drinking



Plan more efficiently The value of actionable insights



Segment 1: 4,226 GL / day (5-day period)
Segment 2: 9,900 GL / day (2-day period)

The daily trend shows pumping is not matching daily demand. At this rate the tank will be empty by October 27.

Collecting, analyzing and reporting

Complete remote management system

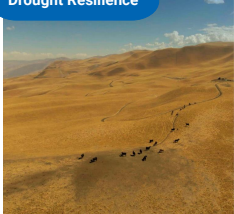


Where we are going - the ranch of the future

Regulations are here to stay

We need to be ahead of it

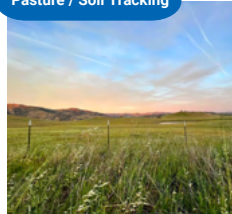
Drought Resilience



Water Management



Pasture / Soil Tracking



Valuing and accounting for Natural Capital



Thank You

Andrew Coppin

Co-Founder & CEO, Ranchbot
Chairman, Australian AgriTech Association

andrew@ranch-bot.com

