



# Stockman's Wallet

Real-time livestock valuation and asset management platform

Product architecture, data, and functional scope

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# Introduction

Stockman's Wallet is a mobile and web platform designed to help livestock producers, banks, and insurers understand the real-time financial value of livestock. By combining live market pricing with user-entered herd data, the platform treats livestock as a measurable asset, similar to a financial portfolio.

It enables users to track herd value over time, compare market performance, generate reports, and make informed decisions around selling, holding, financing, and planning. Built for practical use in the paddock and scalable for broader industry adoption, Stockman's Wallet bridges the gap between livestock operations and modern financial insight.

# Executive Summary

## The Capital Visibility Gap

Livestock represents a primary source of capital for the Australian agricultural sector, which generated over \$81.7 billion in turnover during the 2022–23 period. Despite the scale of this industry, producers and lenders have historically lacked access to the modern financial tools required for real-time asset valuation. Traditional methods rely on static pricing and generic estimates, leaving producers without the high-fidelity visibility needed for sophisticated sales timing, loan collateral assessment, and strategic risk management.

## The Solution

A Portfolio Management Standard Stockman's Wallet is a premium financial technology platform that transitions livestock management from biological inventory tracking to dynamic financial modeling. By functioning as a high-end "share trading dashboard for the paddock," the platform provides a live "Net Worth" figure that fluctuates based on physical growth and localized market volatility.

## Strategic Impact

Stockman's Wallet reduces the risk of under-collateralized lending and empowers producers to make data-driven decisions that maximize the capital performance of their herds. It is not merely a record-keeping tool but is an essential platform for the modern agricultural business strategy, scalable for rapid international deployment.

## Key Strategic Pillars

### Capital Insight & Net Worth

The platform treats the herd as a measurable financial portfolio, visualizing capital concentration and unrealized gains across diverse asset categories.

### Market Transparency & Smart Mapping

Our proprietary translation layer demystifies complex supply chain pricing by automatically mapping on-farm animal attributes to granular MLA market indicators.

### Profitability & Net Realizable Value

Moving beyond gross revenue, the engine integrates a "Cost to Carry" model that accounts for operational overheads and freight deductions to reveal true paddock-gate profitability.

### Institutional-Grade Reporting

The system generates "Bank-Ready" asset registers and pro-forma sales summaries, providing a verified source of truth for agribusiness lenders and insurers.

# Key Differentiators

## Stockman's Wallet vs. Traditional Systems

Stockman's Wallet is intentionally designed to sit alongside existing livestock management software by providing a specialized financial layer that those tools do not offer.

While traditional applications excel at operational logistics, Stockman's Wallet provides the "Translation Layer" required for strategic capital management.

### 1. Financial Portfolio vs. Operational Logbook

Traditional management tools focus primarily on day to day compliance, treatment records, and paddock movements.

Stockman's Wallet treats the herd as a financial portfolio, providing a live "Net Worth" figure that fluctuates with market volatility and biological growth.

### 2. Equity Insight vs. Compliance Tracking

Most existing agricultural software is built for traceability and regulatory audits. Stockman's Wallet focuses on "Capital Insight" by visualizing risk concentration and identifying exactly how much capital is tied up in specific asset categories.

### 3. Dynamic Valuation vs. Static Estimates

Traditional systems often rely on manual price entries or generic per head estimates.

Stockman's Wallet uses a "Smart Mapping" engine to automatically link farm data to real-time market indicators and granular price reports.

### 4. Strategic Reporting for Stakeholders

While standard tools generate operational reports for the producer, Stockman's Wallet produces "Bank Ready" asset registers specifically for lenders and insurers.

It acts as a shared source of truth between the producer and their professional financial partners.

### 5. Biological Growth as Financial Accrual

Stockman's Wallet pioneers the visualization of "Hidden Value," such as the progressive daily accrual of value in pregnant stock before they calve.

This provides a more accurate reflection of the total unrealized gains within the operation compared to traditional static inventory counts.

# 1. Platform Overview

Stockman's Wallet is a financial technology platform designed to provide real-time valuation for livestock assets. The core premise is to transition the industry from static record-keeping to dynamic financial modelling.

### The Concept

The platform functions similarly to a share trading dashboard or cryptocurrency wallet.

Instead of tracking company stocks, it tracks cattle and sheep.

It provides a live "Net Worth" figure that fluctuates daily based on market conditions and physical growth.

### The Problem

Currently, producers rely on outdated spreadsheets or generic per-head estimates.

This leaves them without reliable financial visibility for sales timing or bank reporting.

### The Solution

By bridging the gap between paddock data and live market feeds, the platform enables users to see the exact current market value of their herd, split by "Physical Value" and "Projected Growth."

# Agricultural Asset Management

The application treats the herd as a financial portfolio rather than just a biological inventory. This distinguishes Stockman's Wallet from competitors that focus primarily on compliance and traceability.

## Capital Insight

The dashboard visualises risk concentration, showing exactly how much capital is tied up in specific categories.

### Example

60% of capital held in Breeding Cows

## Performance Tracking

Users can track the "Unrealised Gains" of their assets.

This includes tracking weight gain as value accumulation and the "hidden" accrual of value in pregnant stock before they calve.

## Profitability & Net Realizable Value

The platform moves beyond simple gross market valuation by integrating a profitability engine that tracks the "Cost to Carry."

By accounting for monthly operational overheads such as agistment, supplementary feeding, and veterinary expenses, the application reveals the true net margin per head.

This provides a realistic financial view for producers and lenders, allowing them to distinguish between mere asset value and actual business profitability

## Decision Support

The data structure supports high-level business decisions, such as loan-to-value ratio assessments for banking and "Hold vs Sell"

## Market Transparency

A key function of the platform is to demystify the complex supply chain pricing structures used by bodies like Meat & Livestock Australia (MLA).

### The Translation Layer

MLA data is "Indicator-Based" (e.g., Eastern Young Cattle Indicator), whereas farmer data is "Animal-Specific" (e.g., 400kg Angus Steer).

Stockman's Wallet acts as a transparency layer, automatically mapping on-farm attributes to the correct market category to reveal the true market price.

### Location Sensitivity

Prices are filtered by region (e.g., NSW vs WA) and specific saleyards (e.g., Wagga Wagga vs Dubbo), ensuring the valuation reflects the local market reality rather than a national average.

# Mobile & Web Access

The platform is designed for the reality of Australian rural connectivity.

## Offline Capability

The mobile application supports full offline data entry.

Farmers can input weights, pregnancy status, and movement data while in the paddock without signal.

## Auto-Sync

Once the device reconnects to the internet, the app automatically synchronises with the cloud database, updating valuations with the latest market prices downloaded during the connection window.

## Cross-Platform

While the mobile app focuses on data entry and quick checks, the web interface will provide deeper analytical reporting and export capabilities for office use.

## Paddock-Ready UX Standards

To accommodate high-glare environments and the physical reality of livestock handling, the mobile application prioritizes haptic feedback and gesture-based inputs.

Large-format touch targets and haptic sliders replace standard keyboard entry for weights and head counts to reduce entry time and minimize input errors while in the field.

## 2. Core Functionality

This section details the operational mechanics of the application, defining how data enters the system, how value is calculated, and how intelligence is extracted.

# Data Input

To bridge the gap between "Farm Data" and "Market Data," the application requires specific granular inputs. These inputs drive the "Smart Mapping" logic that auto-assigns market categories.

## Herd Count & Species

The user initiates a record by defining the biological foundation.

### Species Supported

Cattle, Sheep, Pigs.

### Grouping

Data is entered by "Group" (or Mob/Herd), enabling users to manage mixed-category paddocks (e.g., "River Paddock" containing both Cows and Calves).

## Breed & Age

### Breed Selection

Users select from a pre-defined list

### Cattle Examples

Angus, Hereford, Brahman, Charolais, Droughtmaster, Wagyu.

### Significance

Certain breeds (e.g., Angus) command market premiums. Future MLA CSV ingestions will utilise this to apply specific price loadings.

### Age

Input as months or specific birth date. Used to determine classifications like "Vealer" (<12 months) vs "Yearling" (12–24 months).

## Data Input (Cont...)

### Weight, Sex & Physical Attributes

These are the critical "levers" for valuation.

#### Weight

Current average liveweight (kg).

#### Sex

Male, Female, Mixed.

### Status Indicators

#### Castration

Crucial for distinguishing Steers (Castrated Male) from Bulls (Intact Male).

#### Pregnancy (Breeder Status)

Toggles the "Calf Accrual" valuation engine.

#### Lactation

Identifies "Wet" vs "Dry" stock.

### Operational Overheads (Cost to Carry)

Users have the option to input a monthly cost per head (\$/month) representing the expense of maintaining the animal. This data point is essential for the Stage 2 "Hold vs. Sell" scenario planner. It enables the system to calculate whether the projected value gained through weight growth outweighs the ongoing costs of holding the herd for a specific period.

### Location & Saleyard

#### Region

Users define their property location.

#### Reference Saleyard

Users select their primary market hub (e.g., Wagga Wagga, Dubbo, Roma).

#### Function

This selection filters the MLA API feed to ensure the valuation reflects local supply/demand dynamics rather than a national average.

#### Accreditation Status

Toggles for EU-Accredited, Grass-Fed Certified, or Organic. These status indicators unlock specific premium tiers within the pricing engine.

## 2.2a

# Valuation Mechanics

This engine translates the physical inputs above into financial outputs.

## Live Market Pricing

### "Smart Mapping"

The system uses a translation layer to map physical attributes to MLA Categories (NLRS).

The Smart Mapping logic includes a 'Premium Multiplier'. Verified accreditations (e.g., PCAS/Grass-fed) apply an automated 5–15% loading on top of base MLA indicators, reflecting actual saleyard premiums

### The Problem

Farmers own "400kg Angus Steers"; MLA reports "Feeder Steers".

### The Logic

If Species = Cattle + Sex = Male + Castrated = Yes + Weight > 400kg...

Then Map to "Feeder Steer" Category.

### Action

Fetch current **c/kg** price for Feeder Steer from the selected Saleyard API.

## Weight Gain Calculations

### "The Split Approach"

To handle the reality of changing pasture conditions, the app uses a Split Approach (Scenario B) for projecting future value.

### Input

Daily Weight Gain (DWG) in kg/day.

### Logic

When a user updates the DWG (e.g., from 0.8kg to 1.2kg on June 1st), the system applies the new rate forward only.

### Formula

Projected Value = (Initial Weight + (Old DWG × Days Pre-Change) + (New DWG × Days Post-Change)) × Market Price.

### Visual Output

The valuation graph displays a "kink" at the date of change, accurately reflecting management interventions.

## Contingency Logic

For 'No Quote' Scenarios.

In instances where a specific breed/category quote is unavailable for a selected saleyard (e.g., no Wagyu Yearling Steers at Dubbo this week), the engine will apply a Fallback Hierarchy.

Eg:

1. Selected Saleyard 14-day Moving Average.
2. State Indicator Average (e.g., NSW Feeder Steer Indicator).
3. National Indicator (EYCI/WYCI) with a regional variance adjustment.

## Accreditation Status & Premium Multipliers

The smart mapping logic includes a "Premium Multiplier" for verified accreditations such as EU-Accredited, Grass-Fed Certified, or Organic status.

Users can toggle these certifications for specific mobs, allowing the pricing engine to apply an automated five to fifteen percent loading on top of base market indicators to reflect actual saleyard premiums.

## 2.2b

# Valuation Mechanics

This engine translates the physical inputs above into financial outputs.

## Calving Rate Accrual

### "Progressive Valuation"

For breeding stock, value is not static. The app uses Option 2: Progressive Valuation to visualise "Unrealised Gains."

#### Inputs

Calving Rate % (e.g., 85%), Cycle Length (e.g., 283 days for cattle), Estimated Calf Value.

#### Logic

Value accumulates daily as the pregnancy progresses.

#### Formula

Accrued Value = Head Count × Calving Rate % × (Days Pregnant / Total Gestation) × Calf Value.

#### Visual Output

Represented as a dotted line on charts, showing "Hidden Value" growing separate from the mother's meat value.

## Mortality Rate Deductions

### "Progressive Valuation"

To provide a bank-ready "Net Worth," the system discounts value based on risk.

#### Input

Mortality Rate % (e.g., 2% per annum).

#### Logic

The total valuation is reduced progressively by the mortality percentage over time.

#### Formula

Risk Adjusted Value = Gross Value - (Gross Value × (Mortality % × Time Fraction)).

## 2.3

# Reporting & Alerts

The output layer designed for strategic decision-making.

## Bank & Reports

### Format

Exportable PDF and CSV.

### Content

A comprehensive asset register detailing Head Count, Average Weights, Breed Breakdown, and Total Liquid Value.

### Use Case

Replaces user-generated spreadsheets for loan collateral assessments.

### Sales Summary & Pro-forma Generation

Every "Mark as Sold" event triggers the automated generation of a Pro-forma Sales Summary PDF.

This document includes the Gross Realized Price less the freight deductions calculated via the TruckIt API to provide an accurate "Net Paddock Gate" figure.

These reports are designed for immediate export to accounting systems like Xero or MYOB to simplify end-of-month reconciliation.

## Price Threshold Alerts

### Function

Users set "Watch" triggers on specific categories.

### Example

Notify me if Restocker Steers at Dubbo rise above 450c/kg.

### Benefit

Allows producers to time their sales for market peaks.

## Offline Data Sync

### In-Paddock

Full functionality for adding stock, updating weights, and marking deaths (stored locally).

### On-Connection

Auto-synchronisation with the cloud database.

### Pricing

Market prices update only when a connection is established, caching the last known price for offline valuation.

## Value per Hectare Analysis

A time-based line graph tracking the financial yield of specific paddocks (Total Herd Value / Paddock Area), allowing users to compare paddock efficiency.

## 3. Data Sources

This section defines the external data ecosystem required to power the valuation engine. It addresses the hybrid architecture of Live APIs for general indicators and CSV Ingestion for granular breed data.

### 3.1a

## MLA Indicators

### The Primary Price Feed

The Meat & Livestock Australia (MLA) database is the single source of truth for market pricing. The application utilises specific MLA reports to drive the "Smart Mapping" logic.

#### API Feeds

*"Real-Time Indicators"*

##### Report 3

*"Slaughter & Production"*

##### Function

Provides volume data to show supply trends.

##### Data Points

Slaughter counts for cattle, sheep, and pigs, filtered by state.

##### Use Case

Used in the "Market Pulse" dashboard to show if supply is tightening (which generally drives price up).

##### Report 4

*"Saleyard Yardings"*

##### Function

Tracks the number of head passing through specific saleyards (e.g., Wagga Wagga, Roma).

##### Use Case

Validates the liquidity of a specific market.

##### Report 5 & 6

*"Australian Livestock Indicators"*

##### Function

These provide the baseline **c/kg** market price.

##### Data Points

*indicator\_id* (e.g., EYCI, WYCI),  
*indicator\_value* (Price)  
*head\_count* (Volume)

##### Limitations

These APIs provide high-level category data (e.g., "Trade Lamb" or "Feeder Steer") but do not contain specific breed data.

## MLA Indicators (Cont...)

### CSV Data Ingestion ('The Granularity Layer')

To solve the "Data Gap" where APIs lack breed specificity, the system ingests downloadable MLA CSV exports (Physical & Store Reports).

#### Why this is critical

The API might say "*Steer = 300c/kg*" , but the CSV data reveals that "Angus Steers" are trading at a premium compared to "Cross Breeds".

#### Data Points Extracted

##### Breed

e.g., Angus, Hereford, Brahman).

##### Weight Ranges

Granular brackets (e.g., 200–280kg vs 280–330kg).

##### Min/Max/Avg Prices

Allows the app to show a "Price Range" rather than just a single static number.

#### Data Governance & Refresh Protocol

To maintain the integrity of the live valuation, the system implements a mandatory recency check.

If a local saleyard quote is older than seven days, the user interface will display a "Historical Estimate" badge to notify the user.

The backend is configured to attempt an automated refresh of the granularity layer every twenty-four hours to align with the latest MLA CSV publications.

### 3.2

## External Integration

Beyond market prices, the application connects with logistics and financial services to provide a "Net Realisable Value" (Profit minus Costs).

### Saleyard APIs

#### *Location Filtering*

##### **Function**

Filters global MLA data down to the user's specific region.

##### **Logic**

A farmer in Western Australia should see prices from Muchea Livestock Centre, while a NSW farmer sees Dubbo or Wagga Wagga. This prevents pricing distortions caused by interstate transport costs.

### Freight Calculation

#### *TruckIt API*

##### **Function**

Estimates the cost of transport from Paddock to Saleyard.

##### **Source**

TruckIt API.

##### **Calculation**

$\text{Net Value} = (\text{Animal Value}) - (\text{Estimated Freight Cost})$ .

##### **Status**

Identified as a core integration to ensure the "Wallet" shows the actual money the farmer would bank, not just the gross value.

### Financial Integration

#### *Future Scope*

##### **Targets**

Xero and MYOB.

##### **Vision**

Closing the loop by automatically updating the farm's "Inventory Asset" line item in their accounting software whenever a valuation is locked or a sale is recorded.

##### **Current Status**

Marked for Stage 2 development.

## 4. Target Stakeholders

This section defines the primary and secondary user bases for the platform. It outlines the specific "Job to be Done" for each group, transitioning the app from a simple farm tool to an industry-wide financial standard.

# Farmers & Graziers

Primary Users

The core user base consists of livestock producers seeking capital insight. The platform addresses their need to move away from guesswork and static spreadsheets.

## The "Established Producer"

*Persona: Tom from Longreach*

### Profile

Runs a large operation (e.g., 5,000 head of Brahman-cross).

### Pain Point

Needs to refinance land or expand operations but struggles to provide the bank with an accurate, up-to-the-minute asset valuation.

### Platform Utility

Uses Stockman's Wallet to generate an instant "Balance Sheet" of his herd. He uses the Export Report function to validate his borrowing power (Loan-to-Value Ratio) with his lender.

## The "Emerging Producer"

*Persona: Jack & Ellie from Victoria*

### Profile

New entrants running a smaller, intensive operation (e.g., Weaner steers).

### Pain Point

Needing to understand the exact moment to sell to maximise profit vs. feed costs.

### Platform Utility

They use the Projected Growth (Split Approach) graphs to track daily weight gains. The app helps them decide: *"Do we sell now at 380kg, or hold for 40 days to hit the Feeder Steer weight bracket?"*

# Banks & Insurers

Secondary Users

Financial institutions are a critical secondary market. For these stakeholders, Stockman's Wallet acts as a risk mitigation tool.

## The "Agribusiness Loan Manager"

*Persona: Maria*

### Profile

Manages a portfolio of livestock-backed loans.

### Pain Point

Relies on client estimates or annual stocktakes, leaving the bank exposed to market volatility between reporting periods.

### Platform Utility

Maria uses the platform to view a standardised, data-backed valuation of her client's collateral.

### Strategic Value

The app replaces the "Client Estimate" with a "Market Verified" figure, reducing the risk of under-collateralised loans.

## 4.3

# Livestock Agents

Stock and Station agents act as the intermediaries between the paddock and the market.

### The Problem

Disagreements often arise between agents and clients regarding the expected price of stock.

### Platform Utility

The app provides a shared "Source of Truth." Agents can use the app to demonstrate to clients that Market A (e.g., Wagga) is currently paying a premium for Angus Steers compared to Market B, using the location-filtered data.

### Transparency

It builds trust by aligning the producer's expectations with real-time saleyard indicators before the truck is even booked.

## 4.4

# Industry Bodies

Organisations such as Meat & Livestock Australia (MLA) and government departments.

## Data Aggregation

While individual farm data is private, the platform has the potential to aggregate anonymous, high-level data (e.g., "Total regional herd counts").

## Biosecurity & Supply Chain

Future iterations can assist in tracking regional supply levels, helping industry bodies forecast processing demands and potential supply gluts.

## **5. Future Roadmap & Scalability**

This section outlines the strategic evolution of the platform beyond the Minimum Viable Product (MVP). It focuses on Artificial Intelligence (AI) capabilities, functional expansion into cropping, and deep financial integrations.

## 5.1

# AI & Predictive Intelligence

The transition from "Real-Time Valuation" (What is it worth now?) to "Predictive Forecasting" (What will it be worth later?) is the primary AI objective.

## Predictive Pricing Models

### The Concept

Similar to stock market sentiment analysis, the app will forecast future c/kg prices based on historical trends, seasonal data, and supply volume.

### Scenario Planning

"Hold vs. Sell" calculators.

### User Query

"Should I sell my 380kg steers now, or feed them for another 40 days?"

### AI Logic

Compares [Current Value] vs. [Projected Weight x Forecasted Price] - [Feed Cost].

### Data Sources

Integrates historical MLA trends with regional rainfall and slaughter volume data to predict supply gluts or shortages.

## Visual Analysis

### Computer Vision

### Breed Identification

Users upload a photo of an animal; the AI analyses physical characteristics (colour, coat, structure) to auto-suggest the breed (e.g., distinguishing Angus from Hereford).

### Weight Estimation

#### Function

Optical weight estimation via smartphone camera.

#### Status

Identified as a high-complexity feature requiring significant training data.

#### Goal

To allow rapid data entry in the paddock without requiring the animal to be physically weighed on scales every time.

## Sales Learning Loop & Document Generation

### The "Mark as Sold" Workflow

When a user marks an animal or mob as "Sold," the platform transitions from an asset tracker to a sales ledger. The user manually enters the final realized price, which serves two critical functions:

### AI Feedback Loop

The system compares the predicted value against the actual sale price to refine its regional and breed-specific valuation algorithms, making future forecasts more accurate.

### Instant Document Generation

The action immediately triggers the creation of a Pro-forma Sales Summary PDF. This document serves as a "Net Paddock Gate" record, detailing the Gross Realized Price, less the estimated TruckIt freight cost. This provides a clean financial record ready for instant upload to accounting systems like Xero or MYOB..

# Functional Expansion

Expanding the "Wallet" concept to cover the entire farm balance sheet.

## Cropping Management

### The Need

Most livestock producers run mixed enterprises (Grazing + Cropping). To provide a true "Net Worth," the app must value grain in the silo and crops in the ground.

### Implementation

#### Input

Hectares sown, Crop Type (Wheat, Barley, Canola), Yield Estimate.

#### Valuation

Linked to ASX Grain Futures or local port prices.

#### Status

Designated for Stage 2 development.

## Accounting Software Integration

### *Closing the Loop*

#### Targets

Xero and MYOB.

#### The Workflow

User marks 50 steers as "Sold" in Stockman's Wallet.

Stockman's Wallet pushes a "Sales Invoice" or "Inventory Adjustment" directly to Xero.

#### Value

Removes double-handling of data. The "Live Inventory Asset" figure in the user's balance sheet is automatically updated, satisfying bank reporting requirements without manual accountant intervention.

## 5.3

# Geographic Scalability

The valuation engine is built to be agnostic of currency and unit of measure, allowing for rapid international deployment.

## Global Markets

### New Zealand

Similar market structure to Australia (pasture-based, export-heavy).

### South America (Brazil/Argentina)

The world's largest beef exporters.

### USA

Feedlot-centric market.

### Adaptation Layer

The core "Smart Mapping" logic (Physical Attribute  $\rightarrow$  Market Category) remains the same; only the Price Feed Source (replacing MLA with USDA or equivalent) and Category Definitions need to be swapped.

## **Appendix A: Mathematical Formulas & Logic**

This section defines the specific algorithms used for the "Black Box" valuation engine.

A.1

# Weight Gain Calculation

The "Split Approach"

**Context:** Used when a user changes the Daily Weight Gain (DWG) input on a specific date. The system must preserve the history of the old growth rate while applying the new rate forward.

Source Logic: Scenario B: Split Calculation.

## Variables

The starting weight entered by the user

`$Weight_Initial`

The date the animal was added/weighed

`$Date_Start`

The date the user updated the DWG.

`$Date_Change`

Today's date (or future projection date)

`$Date_Current`

The growth rate (kg/day) before the change

`$DWG_Old`

The growth rate (kg/day) after the change

`$DWG_New`

## The Formula

Calculate Days in Phase 1

`$Days_Phase1 = MAX(0, $Date_Change - $Date_Start)`

Calculate Days in Phase 2

`$Days_Phase2 = MAX(0, $Date_Current - $Date_Change)`

Calculate Total Projected Weight

`$Projected_Weight = $Weight_Initial + ($DWG_Old * $Days_Phase1) + ($DWG_New * $Days_Phase2)`

A.2

## Breeding Value Accrual

Progressive Valuation

**Context:** Calculates the increasing value of a pregnant animal as it approaches calving/lambing.

Source Logic: Option 2: Progressive Valuation (Pro-Rata Accrual).

### Variables

Number of female breeders

`$Head_Count`

User input % (e.g., 0.85)

`$Calving_Rate`

Standard gestation period (Cattle: 283 days, Sheep: 150 days)

`$Cycle_Length`

Days since conception (calculated from user's "Joined Date")

`$Days_Elapsed`

Estimated market value of a dropped calf/lamb

`$Value_Calf`

### The Formula

Calculate Accrual Percentage (Capped at 100%)

$$\$Accrued_Pct = \text{MIN}(100\%, \$Days_Elapsed / \$Cycle_Length)$$

Calculate Expected Head

$$\$Expected_Progeny = \$Head_Count \times \$Calving_Rate$$

Calculate Total Accrued Value

$$\$Total_Accrued_Value = \$Expected_Progeny \times \$Accrued_Pct \times \$Value_Calf$$

*Note: This value is displayed as a separate "Layer" (Dotted Line) on the graph, distinct from the mother's physical meat value.*

## A.3

# Mortality Risk Deduction

**Context:** Reduces the herd value to reflect the statistical probability of death.

Source Logic: Pro-rata deduction based on time held.

## Variables

The total calculated value of the herd (Weight Value + Accrued Value)

`$Gross_Value`

User input % (e.g., 0.05 for 5%)

`$Mortality_Rate_Annual`

Number of days the animal has been in the system for the current year..

`$Days_Held`

## The Formula

Calculate Effective Rate

`$Effective_Rate = $Mortality_Rate_Annual × ($Days_Held / 365)`

Calculate Net Value

`$Net_Value = $Gross_Value - ($Gross_Value × $Effective_Rate)`

# Market Pricing & Fallback Hierarchy

**Context:** This section defines the contingency logic for the "Market Price" variable used in sections A.1, A.2, and A.3. It ensures that the dashboard always displays a valuation even when a direct saleyard quote is unavailable for a specific breed or category

## The Global Valuation Formula

The total calculated value of the herd (Weight Value + Accrued Value)

```
 $$Valuation_{Net} = \text{Head Count} \times \text{Weight}_{Projected} \times P_{Fallback} $$
```

## The \$P\_{Fallback}\$ Hierarchy

### Direct Saleyard Quote

This is the latest price fetched from the user's selected reference saleyard for the specific animal category.

### State Indicator

If a direct quote is unavailable, the system will use the 7-day state average for that specific category, such as the NSW Feeder Steer Indicator.

### National Benchmark

If a state indicator is unavailable, the system will apply the National EYCI/WYCI with a regional variance adjustment to maintain portfolio stability.

## **Appendix B: Livestock Taxonomy (Data Dictionary)**

This section defines the specific species hierarchies supported by the application. Developers must use these exact strings for the "Category Derivation" logic.

## B.1

### Cattle Hierarchy

#### Male (Castrated)

Weaner Steer (6–9 months)  
Yearling Steer (12–24 months)  
Grown Steer (>24 months)

#### Male (Intact)

Weaner Bull (6–9 months)  
Yearling Bull (12–24 months)  
Grown Bull (>24 months)  
Herd Bull (Breeding stock)

#### Female

Heifer (Unjoined / Joined / First-Calf)  
Breeding Cow (Mature, calved >1 time)  
Dry Cow (Not lactating/pregnant)  
Cull Cow (Destined for slaughter)

### Sheep Hierarchy

#### Male

Ram Lamb (Intact, <12 months)  
Wether Lamb (Castrated, <12 months)  
Hogget Wether (12–24 months)  
Breeding Ram (Mature)

#### Female

Ewe Lamb (<12 months)  
Maiden Ewe (Joined / Unjoined)  
Breeding Ewe (Mature)  
Cull Ewe (Destined for slaughter)

### Pig Hierarchy

#### Male

Weaner Barrow (<10 weeks, Castrated)  
Grower Barrow (10–16 weeks)  
Finisher Barrow (16+ weeks)  
Boar (Breeding)

#### Female

Weaner Gilt (<10 weeks)  
Grower Gilt (10–16 weeks)  
Breeder Sow (Mature)

## **Appendix C: Master Reference Lists**

## C.1

### Breed List

Angus  
Angus X Friesian  
Belgium Blues  
Black Baldy  
Bos Indicus Cross  
Bradford  
Brahman  
British Cross  
Charbray  
Charolais  
Charolais X Angus  
Charolais X Friesian  
Cross Breed  
Droughtmaster  
European  
European Cross  
Friesian  
Friesian Cross  
Hereford  
Speckle Park  
Limousin Cross  
Limousin  
Herford X Angus  
Herford X Friesian  
Jersey  
Murray Grey  
Murray Grey X Friesian  
Murray Grey Friesian  
Red Angus  
Santa Gertrudis  
Shorthorn  
Shorthorn X Friesian  
Simmental  
Wagyu

### Saleyard List

Wagga Wagga Livestock Marketing Centre  
Dubbo Regional Livestock Market  
Forbes Central West Livestock Exchange  
Tamworth Regional Livestock Exchange  
Carcoar Central Tablelands Livestock Exchange  
Yass South Eastern Livestock Exchange  
Inverell Regional Livestock Exchange  
Roma Saleyards  
Dalby Regional Saleyards  
Gracemere Central Queensland Livestock Exchange  
Charters Towers Dalrymple Saleyards  
Emerald Saleyards  
Blackall Saleyards  
Warwick Saleyards  
Wodonga (Barnawartha) Northern Victoria Livestock Exchange  
Leongatha Saleyards  
Pakenham Victorian Livestock Exchange  
Mortlake Western Victorian Livestock Exchange  
Ballarat Central Victoria Livestock Exchange  
Shepparton Regional Saleyards  
Warrnambool Livestock Exchange  
Mount Gambier Saleyards  
Naracoorte Saleyards  
Mount Compass Southern Livestock Exchange  
Dublin South Australian Livestock Exchange  
Muchea Livestock Centre  
Boyanup Saleyards  
Mount Barker Great Southern Regional Cattle Saleyards  
Powranna Saleyards  
Quoiba Saleyards  
Killafaddy Saleyards

### Weight Cat's

200–330  
330–400  
200–600  
400–750  
400+  
200–400  
200–400

## **Appendix D: Technical Assumptions & Risks**

# Technical Assumptions & Risks

## Assumption 1

We assume MLA CSV exports will consistently provide breed-specific premiums which are missing from the live API.

## Assumption 2

We assume the TruckIt API can provide live quotes based on Paddock/Saleyard lat-long coordinates.

## Assumption 3

Weight estimation via AI will require a user-generated training dataset before it is viable