final report

Project code: L.GEN.0001

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Date published: 20 September 2019

PUBLISHED BY
Meat and Livestock Australia Limited
Locked Bag 1961
NORTH SYDNEY NSW 2059

Sheep Genetics Database Interface Upgrade

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

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Abstract

The Sheep Genetics Database interface upgrade project aims to improve the rate of genetic gain by simplifying the tools, language and descriptions of ASBVs through the Sheep Genetics (SG) results database interface. To achieve this MLA partnered with digital services company Tigerspike to complete an Experience Definition engagement; a user led consulting process used to define the future vision of digital solutions. Tigerspike has extensive experience delivering digital solutions for Australia's leading agriculture organisations including GrainCorp and Ruralco.

Executive summary

This project report provides a comprehensive summary of Tigerspike's Experience Definition project completed for Sheep Genetics. The goal of the project was to take a consultative, user-led approach to understand how the existing Sheep Genetics Database Interface can be simplified to increase user adoption, in turn improving the rate of genetic gain amongst Australia's sheep industry.

Tigerspike's Experience Definition process is a methodology used to define the future vision for digital solutions. The methodology puts users at the centre of the process to understand how technology can improve a particular challenge or pain point. In the case of Sheep Genetics, improve industry members experience using the database interface to view, search and interpret ASBV data.

The project was delivered over a 19-week period and was executed by a multidisciplinary team of designers and technology experts. The project comprised three phases (Discovery, Ideate and Define) and included travel to multiple regional locations to conduct interviews, workshops and user testing.

Throughout the process a range of opportunities were identified and developed as concepts to test with users to validate their value to the business and end users. The concepts were continually refined before the Sheep Genetics project team prioritised the scope for inclusion in the initial release that will be delivered as Phase two of the Sheep Genetics Database Interface program.

Tigerspike's proposed solution design for the new Sheep Genetics Database Interface will provide industry members with a simplified, intuitive experience. Users will have improved flexibility to customise the interface to match goals specific to their operation. Importantly the new solution will address users priority pain point of improving the speed and performance of the current tool.

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1 Background

Genetic improvement has been highlighted as an important pathway for livestock producers to improve key profit drivers such as reproductive rate, efficiency and eating quality. Unfortunately, there are large gaps in the knowledge and use of genetic evaluations in the Australian livestock sector. There are a number of key issues and barriers to the adoption of genetic evaluations by both stud and commercial producers. These include a lack of value proposition, the difficultly and cost of recording, a lack of belief and trust in the evaluations and aligning with this project, the genetic language and systems are difficult to understand and interpret. The National Livestock Genetics Consortium (NLGC) has a goal of doubling the rate of genetic gain in the Australian Livestock Industry by 2022. A large opportunity to increase the genetic merit of the national herd and flock exists in the commercial sector. This project aims to improve the rate of genetic gain by simplifying the tools, language and descriptions offered through the Sheep Genetics (SG) results database interface.

Similarly, there is much opportunity for stud producers to increase the effectiveness of delivering and presenting information on their animals, which is limited by current processes. Difficulty in uploading sale catalogues and the limited capacity to present animals is resulting in stud producers customising their own materials, leading to inconsistent and sometimes confusing information, or sale catalogues not being available through SG at all. This limits the capacity for potential customers to prepare for sales and utilise important genetic information, and also leads to a greater level in inconsistency in reporting of genetic information.

2 Project objectives

Upgrade the MERINOSELECT, DOHNE MERINO and LAMBPLAN database front end interface so that it simplifies the process and understanding for stud (SG and non-SG) and commercial producers to:

- Search, sort and filter animals
- Increase the speed of return search results
- Customise and save search parameters through a log-in
- Present animals in a visual, easy to understand manner, particularly for producers who are not familiar with Australian Sheep Breeding Values (ASBVs)
- Present data on animals initially in a simple format, whilst still having capability to access full information
- Increase the ease of uploading sale catalogues
- Allow for customised (within SG parameters) development of pen cards and sale/semen on-line and printed catalogues
- Deliver with both online and mobile/tablet capability (off-line use desirable)

Phase one project objectives - Experience Definition process:

1. Complete a design led thinking (experience definition) to define the most simple and technically correct breeding value display that suits the users needs
2. Review how other industries and evaluations present data
3. Conduct up to 4 producer workshops with a range of end users
4. Develop a range of prototypes (>1) addressing project objectives
5. Deliver a recommendation for solution build

3 Methodology

The first objective of Phase 1 of the project is to complete a design led thinking (Experience Definition) engagement to define the most simple and technically correct breeding value display that suits the users needs. The methodology used by Tigerspike is outlined below. Included in the methodology is how phase one project objective two, three four and five were completed.

3.1 Experience Definition Methodology

Tigerspike's Experience Definition process is a user led, consulting engagement used to define the future vision for digital solutions. The process includes three dedicated phases of: Discovery, Ideate and Define. Tigerspike's team of designers and technical experts take into account business goals, user needs and technical landscape to inform decisions about product features, functionality and appropriate technology to deliver the solution.

3.1.1 Discovery Phase

Overview:

The objective of the Discovery Phase was to uncover detail around the project, particularly around areas of risk or uncertainty and achieve strategic alignment between both parties around the product goals, objectives and success factors. The phase is highly collaborative and comprised a number of workshops and research activities to understand the business challenge Sheep Genetics are setting out to solve. We then moved into rounds of user research to understand Sheep Genetics end users, their motivations and pain points. Insights were continuously reviewed throughout the phase to identify the key themes that will be explored in the Ideate Phase.

Activity Summary:

Summary of activities completed during the Discovery Phase included:

I. Strategic Alignment Workshop

Tigerspike and Sheep Genetics stakeholders completed a series of interactive exercises to align on the problem we're setting out to solve. Insights were used to inform success factors of the project and learning goals for Tigerspike's research activities that will take place during the Discovery Phase.

II. Business & Technical Workshops:

Sheep Genetics project team returned to Tigerspike to complete Business and Technical Workshops. The Business Workshop was held to discuss and document the details of the current Sheep Genetics program and tool. Priority items documented were:

- The current end-to-end process for Sheep Genetics Database Interface; and
- An optimal, future state process for Sheep Genetics Database Interface.

The goal of the Technical Workshop was to discuss and document the current Sheep Genetics tool and MLA's IT/technical environment. It's important that we identified any dependencies and influencing factors that will inform a revised Sheep Genetics experience.

III. SME Interviews and Archetype Workshops

Tigerspike travelled to Armidale to complete Subject Matter Expert (SME) interviews with business and scientific stakeholders. Conducting one-on-one interviews allowed Tigerspike to understand people's daily roles in detail and contribution towards the Sheep Genetics program. During the sessions we asked what people's current pain points are as well as their suggested ideas for how a revised Sheep Genetics Database Interface would improve their roles.

Whilst on site, we also completed an Archetype Workshop. The Archetype Workshop helps define the characteristics of the different people that will use the Sheep Genetics tool.

IV. Comparative Analysis (objective two)

Tigerspike completed comparative analysis to assess and document best practice features and User Experience (UX) principles from non-agriculture/genetics websites that should be considered for exploration in the new Sheep Genetics Database Interface. We identified four key themes from 8 competitive sites across financial services, media and retail sectors that addressed the key challenges users identified with the current Sheep Genetics Database Interface. They were:

- Search & Filtering;
- Onboarding;
- Data visualisation; and
- Personalisation and Customisation

V. Regional Trips (objective three)

Tigerspike travelled to three regional locations (Wagga Wagga, Hamilton and Narrogin) to facilitate workshops with industry members. The objective of the workshops was to meet with the different user types (Stud, Commercial and Service Providers) to understand challenges using the current Sheep Genetics Database Interface and suggested ideas for the new solution. It also allowed the team to assess if there were any regional specific requirements we should factor into the new Sheep Genetics Database Interface.

Whilst on site, we also completed contextual inquiries (On-property visits) at producer properties. Contextual inquiries are a research method we use to observe individuals completing daily tasks and interacting with colleagues and/or tools in a natural setting with little interruption from the interviewer. By observing sheep producers at their properties record sheep data and interact with the Sheep Genetics Database Interface, it allows us to identify pain points with the current process and opportunities to make the tool more intuitive to use.

Once returning to Sydney, insights from each of the regional trips were reviewed and prepared for inclusion in a Discovery report. The insights helped us to group the common challenges, which in turn informed the opportunities to explore and test during the Ideate Phase.

VI. Research Report

The consolidated findings from the Discovery Phase were presented to the extended Sheep Genetics project team. The objective of the session was to highlight the common challenges experienced across the different user types (Stud, Commercial and Service Providers) and the recommended opportunities to solve for these challenges in a new Sheep Genetics Database Interface.

The opportunities were broken into four themes:

- Enable customisation (modification) to cater to all user types;
- Simplify search, enhance filtering and sorting;
- Display results and provide help in a clear, engaging manner; and
- Empower users with intuitive (easily understood) tools to self- service

Having introduced the opportunities, we completed a prioritisation exercise with the Sheep Genetics project team to establish a consensus on what opportunities to move forward into the Ideate Phase.

3.1.2 Ideate Phase

Overview:

The objective of the Ideate Phase was to explore ways to actualise Sheep Genetics business objectives and user benefits to technically feasible core product features. Tigerspike applied design thinking and conceptual divergence techniques, before testing and validating the concepts with business and industry members. Feedback from industry members helped refine the concepts and start shaping the vision of the new Sheep Genetics Database Interface solution design.

Activity Summary:

Summary of activities completed during the Ideate Phase included:

i. Concept Design (objective four)

Opportunities identified during the Discovery Phase were explored in several rounds of sketching and whiteboarding sessions to start visualising how the opportunities could be translated into functionality in the new Sheep Genetics Database Interface. Sketches were transferred into a digital format to create low-fidelity wireframes. Wireframes are the 'blueprint' for websites and are a valuable tool to communicate the intended function of a website quickly without having to invest significant time in detailed design and coding. The wireframes demonstrated a range of different functionality for the three user groups that will use the search tool (Stud, Commercial and Service Providers), including:

- Searching the database
- Refining / customising a search
- Viewing further detail of an animal
- Comparing multiple animals
- Viewing a stud profile
- Viewing a personalised dashboard
- Viewing an account page
- Listing animals for sale / semen availability

Whilst preparing the wireframes we explored different visual treatments for how the ASBV data could be displayed in the new Sheep Genetics Database Interface. The current tool is extremely 'data heavy' so our User Interface (UI) designer spent time investigating ways to make the date more legible and easier to interpret. Furthermore, we explored an alternate 'graph' and 'group' view to provide users with alternate options to view search results. The rationale behind the 'group' view is to provide a simpler option for industry members who are new ASBVs.

ii. Art Direction: Look and Feel for the new Search Tool

We completed a visual identity workshop with Sheep Genetics to identify the visual characteristics to include in the new Sheep Genetics Database Interface. The selected characteristics informed the creation of two 'style tiles' to review with MLA's communications team. Another round of updates was completed to address feedback from the communications team to ensure the identity met MLA's brand guidelines. The final style tile informed the design of three screens during the Define Phase.

iii. User Testing: Interviews with Sheep Genetics and industry members

Tigerspike travelled to Wagga Wagga to complete two days of stakeholder interviews with industry members and members of the Sheep Genetics project team. We completed one-hour interviews with each stakeholder, introducing the wireframe and data visualisation concepts to get their feedback on the proposed functionality and designs.

3.1.3 Define Phase

Overview:

The objective of the Define Phase was to produce the artefacts necessary to visualise the new Sheep Genetics Database Interface's core features and core functionalities, articulate the business and user benefits, define the solution look and feel, outline the design and build roadmap and shape the high level technical solution.

Activity Summary:

Summary of activities completed during the Define Phase included:

I. Wireframe designs (objective four)

The wireframe concepts were updated to reflect several changes requested by Sheep Genetics and industry members during the Ideate Phase. Data visualisation concepts were incorporated into the wireframes so users could understand the use cases for the different data display options. The designs were then transferred into a 'clickable' digital prototype to demonstrate how a user would navigate through the different screens via a desktop experience.

II. User testing: Calls with industry members

A second round of user testing was completed with industry members to review the updated designs. Tigerspike completed 1-hour video calls with industry members, which included a mix of Stud, Commercial and Service Providers. Similar to the testing completed in Wagga Wagga, we guided users through the wireframes to get their feedback on the proposed functionality.

III. User Interface designs

The approved art direction was applied to three individual screen designs to demonstrate the look and feel of the new Sheep Genetics Database Interface. The high-fidelity screen designs are important as they allow Sheep Genetics to view how the different visual elements (text, colour, iconography, etc) are used to communicate the different features in the Sheep Genetics Database Interface.

IV. Feature prioritisation

Features identified during the Ideate and Define phases were documented in a product backlog. The backlog was shared with the Sheep Genetics project team to review and prioritise what features they determined as *Must have, Should have, Could have* and *Won't have*. This process helped shape the product roadmap and establish a shared understanding of what features will be included in the new Sheep Genetics Database Interface initial release.

V. Solution Design (objective five)

Insights from the Discovery and Ideate phases informed the solution design for the new Sheep Genetics Database Interface. Tigerspike's Technical Lead prepared a solution design document that detailed how the new solution would be built, taking Sheep Genetics existing technology stack into consideration. The solution design recommendation was informed by four key considerations.

- Performant. One of the main issues with the current Sheep Genetics Database Interface is the performance of searches completed by users. For this reason, recommendations are made to ensure performance is improved wherever possible.
- Maintainability. The codebases may be maintained by the Sheep Genetics or the MLA team at a future point in time and so should be written in a way to reflect industry standards and provide flexibility for future development updates.
- Scalability. The solution is being reimagined with a focus on increasing adoption amongst industry members. This will result in more traffic to the tool and downstream systems. The architecture is therefore designed to cater with this scale as well as be able to scale down during periods of low activity.
- Platform agnostic. MLA and Sheep Genetics are currently reviewing their strategy regarding hosting technologies. In order to support multiple cloud providers, technical decisions will consider if they can be deployed on MLA's chosen cloud provider's infrastructure.

4 Results

4.1 Research findings

4.1.1 Discovery phase

The main research findings from the activities completed in the Discovery Phase are included in the summary below. Further detail on the full project summary can be found in Appendix 1.

From the business workshop we defined the objective of this phase of the project to be:

> *"How might we facilitate **understanding and engagement with ASBVs**, so that both stud and commercial producers can **realise genetic gains and maximise on –farm productivity**."*

From the extensive user research completed via phone calls and stakeholder workshops, we identified four key opportunity areas to investigate further in the Ideation Phase (Table 1).

Table 1: Summary of opportunity areas to investigate in the Ideate Phase.

Challenge	**Opportunity**	**Feature opportunities**
One solution doesn't fit all users	Enable customisation to cater all user types	Login ● Single log ins to manage multiple flocks and allow customised searches to be saved ● Onboarding to provide guidance to new users ● Accounts page to allow information to be saved against accounts and to allow ease of managing custom properties ● Flock averages to provide snapshots of where the flock is currently sitting and to allow comparison and suggestions of animals effectively ● Stud profile to provide information page around the studs breeding objectives, progress and recording ● Communication allowing members to message each other and prompt feedback to sellers Onboarding ● Provide guidance to new users to help them understand the genetics program as well as the tool ● A decision tree for producers to help them set up a breeding objective, with the result saved against their profile Account page ● Allow users to input breeding objectives (BOs) that are saved against their account and then flag animals that might be of interest to them

		● Allow providers to log in and manage their contact details / availability ● Allow breeders to update their contact details and stud profile ● Make links to downloadable files available in user's account ● Link profitability to setting a breeding objective. ie: achieving this ASBV would result in X $ ● Allow users to generate multiple trend graphs so that they can view the full spectrum of their flock Flock profile ● Provide an up-to-date snapshot of where flock currently sits on selected traits/indexes, based on own data (breeder) or ram team (producer) ● Simple set up and ongoing management for CPs, utilising lists of animals sent from breeders after sales ● Highlight rams that suit their breeding objectives and alert when they become available for purchase ● Highlight studs that are similar or may be suitable for a user's current environment ● Ability to look back at previous snapshots in time to compare - for example what a ram was when you bought it, compared to now. ● Group trend lines for categories, eg growth, muscle, fat, weights etc Stud profile ● Explain breeding objective and what they are doing to meet it ● Confirm which traits are being measured and how often (and what percentage of their flock) ● Further info about flock types in stud profile - ie fine, superfine etc, region, climate information ● Display genetic trends lines ● Recognise studs who are measuring their entire flock with badges ● Show stud data quality ● Users can add a stud to 'favourites' and receive notifications when they have submitted new data / ASBVs have changed ● Compare trend lines of two studs (add to compare button) ● Stud profiles to show traits that the user is focused on, rather than what the stud wants to advertise

		Communication ● Allow members to message each other re available animals / semen ● Prompt users (buyers) to give feedback to sellers on performance of animals.
Exploring is clunky inconsistent and not intuitive	Simplify search, enhance filtering and sorting	Shortcuts ● Only show shortcut lists that are relevant to user's profile and BO ● Quick and easy search for trait leaders of a particular trait ● User generated saved-searches and lists to be easily accessible ● Quick links to 'My favourite studs', with recommendations to similar ● Change 'Top 150' to Top 1% or allow users to customise based on drop year - 150 no longer a relevant number Searching ● Simplify initial search form and allow users to filter / tweak results on display screen (combine current basic + advanced) ● Predictive text fields / smart suggestions / drop down when searching for stud names ● Allow users to choose columns prior to running search and to drag and drop traits/column order ● Make it easy to reset the search criteria ● Search by location (100 kms from me, NNSW etc) or environmental factors ● Share a saved search
ASBVs are cluttered hard to read and interpret	Display results and provide help in a clear engaging manner	Search results display ● Export functionality and easy/formatted print options for displayed lists for all users ● Smart sorting - low to high or high to low as appropriate ● Allow users to customise number of results displayed or lazy load ● Customise view of percentiles - ie, turn on/off 1%, 5%, 20% etc ● Easy access/display/print of percentile charts ● Sticky and editable column selections ● Filter to only see animals that have actually been measured themselves ● Toggle between number of days or W, PW, acronyms or plain english ● Ability to quickly flag an animal to add to a new or saved list

		● If searching on an index, automatically display appropriate traits ● Sensible and functional search filters (appropriate radio buttons, drop downs etc) ● Show top studs in a search as an alternative to specific animals (for CPs) - display stud/flock averages ● Preselect to only show available animals (for sale, semen available) for CPs ● Explore a simple view vs all the data - (ie: hiding accuracy) ● No blue boxes for traits where it isn't appropriate, ie FAT and BIRTH WEIGHT, and education around this ● Categorise/group the traits to ease cognitive load ● Show results above average as bolded, below average not bolded ● Comparison of 'where my flock sits' to average of search results ● Show high level breed average to compare an animal against Animal detail page ● Easy/formatted print option for displayed animal details ● Link to progeny as well as pedigree, and how many flocks it's across ● Show location of animal (state, region) ● Quick copy of a 16 digit id ● Ability to hide / show sections of detail depending on user's preference ● Show animal's birth type and rear type (if single, twin triplet etc, or born a twin but raised single) ● Explore alternative options to the bar graphs ● Display percentiles for selected / favourite traits and how an animal compares to current flock profile ● Show how using an animal like this could affect profit and breeding objective based on current flock profile ● Generate meanings and recommendations in plain English ● Scoring guide for structural traits Plot progeny on a graph Watch list ● Flag animals to keep an eye on (own / others) ● Include an open text field so that the user can write notes about a watched animal ● Reorder animals in list to facilitate comparison ● Customise names of lists ● Share lists - ie, sending a buyer a list of the rams they've purchased ● Print pdf / take snapshot of list at a point in time ● Get alerts when semen is available or watched rams are listed as for sale

		● Add animals to a graph of selected traits to plot their ASBVs for comparison ● Alerts when values of watched rams change ● Notifications when someone has flagged one of your animals Indexes ● Allow users to create custom/configure indexes ● Allow users to search full database based on their custom index requirements
Sales catalogues are time consuming to set and not used consistently	Empower users with intuitive tools to self service	Creating sales catalogues ● Easy upload of a large list of animals and pen numbers either from Excel or on farm software ● Also manage sale availability at a specific animal level ● Allow breeders to list animals for sale at any time ● Allow users to switch 'ownership' of an animal's data after it's sold ● Generate graphs of sale animals to be used as marketing tools ● Only allow SG logo to be generated on sales catalogues from the site, to show authenticity and that they aren't using raw data ● Link animals in Sales Catalogues to Auctions Plus Reviewing sales catalogues ● Only show active sales catalogues ● Export directly into excel or word or pdf ● Pre-select traits/indexes to show for export ● Allow custom sort and exclusion of data of the sales catalogue ● Customisable 'tick system' / colour coding to use at sales, allow users to enter their 'pick' numbers ● Share a modified sales catalogue

At the end of the Discovery Phase the following solution statement was developed for the new Sheep Genetics Database Interface:

*"A **reliable, professional and intuitive** tool that enables members and industry to **customise a visual display** to suit their goals, and helps user **feel more confident** understanding the benefits of genetic gain"*

4.1.2 Ideate Phase

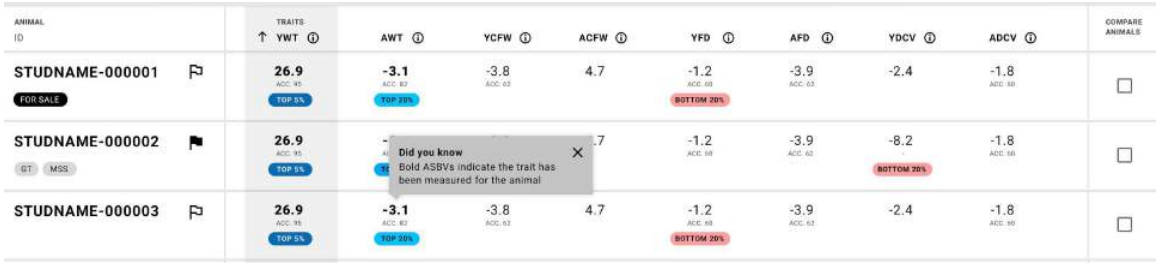
The main research findings from the activities completed during the Ideate Phase are included in the summary below. Further detail on the full project summary can be found in Appendix 1.

Low fidelity wireframes were developed and delivered to user groups for further refinement over the course of four weeks. The wireframes demonstrated the following functionality:

- Searching the database
- Refining / customising a search
- Viewing further detail of an animal
- Comparing multiple animals
- Viewing a stud profile
- Viewing a personalised dashboard
- Viewing an account page
- Listing animals for sale / semen availability

Data visualisation concepts were prepared and presented to the user groups for testing. With three different displays tested. All views had parts that appealed to members that took part in the testing session and so the decision was to develop the option to alternate between all three views (Fig 1).

I. Data view



II. Graph view

III. Grouped view

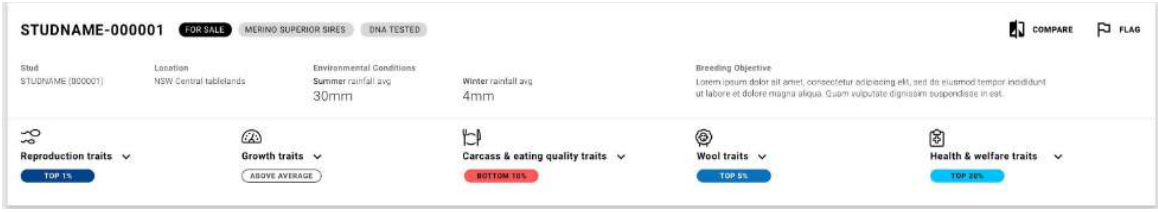


Figure 1: data visualisation concepts with three views presented i) data view, ii) graph view, iii) grouped view

The chosen art direction for the new Sheep Genetics Database Interface was a culmination of a series of workshops, presentations and feedback from the Sheep Genetics project team and MLA's communications team. The 'style tile' serves as the reference asset when preparing User Interface designs for individual screens during the Define Phase (fig 2).

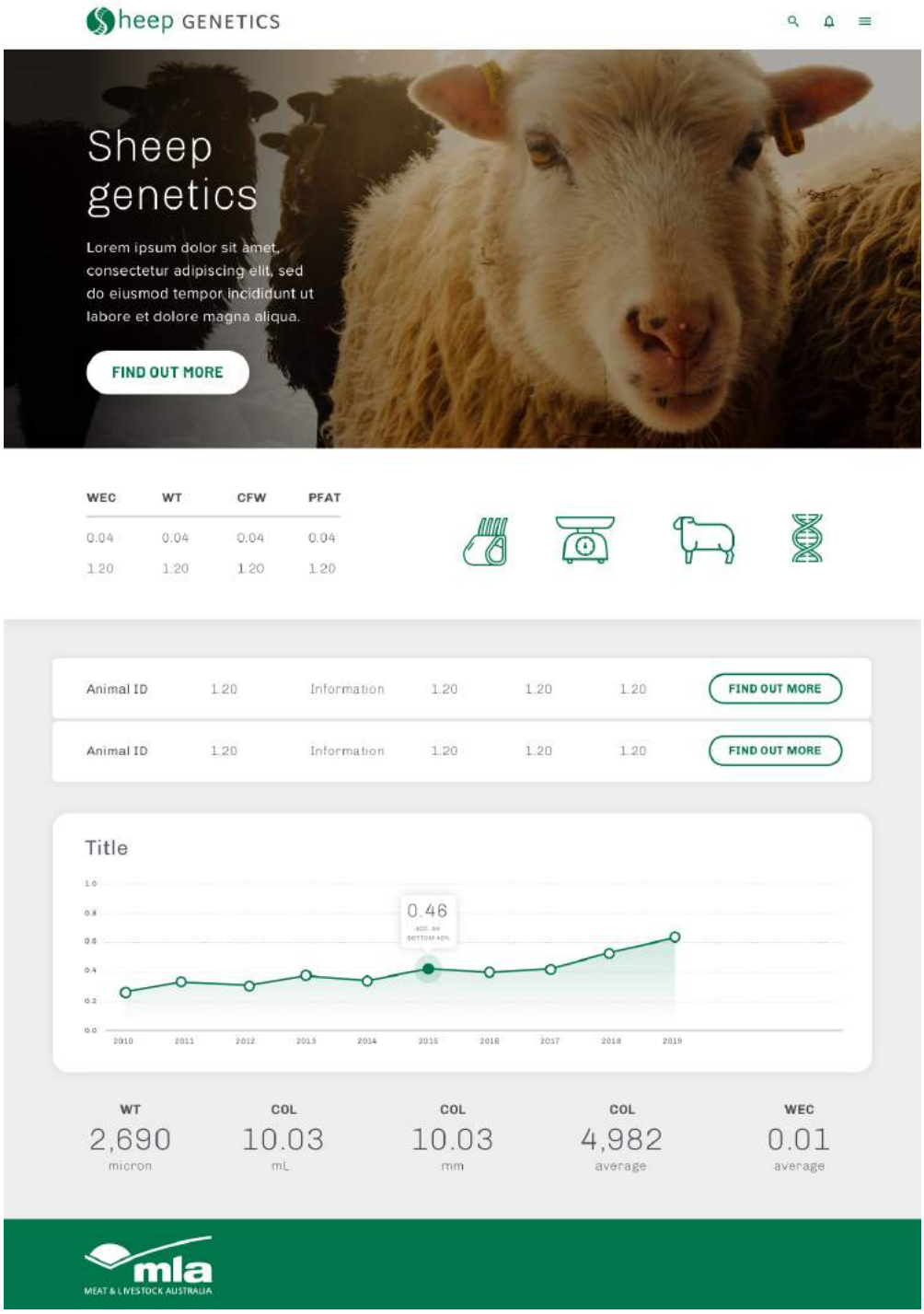


Figure 2: Style tile representing the designed art direction for the new database interface.

4.1.3 Define Phase

Tigerspike prepared a final presentation that consolidated all of the findings and assets from the Define Phase. The presentation was presented to the Sheep Genetics project team on September 10th and included the following information:

I. Findings from second round of user testing

The following findings were recorded when testing the updated wireframe concepts with industry members throughout the week of August 19th. The findings will be explored further and tested with users during the detailed design throughout phase two of this project.

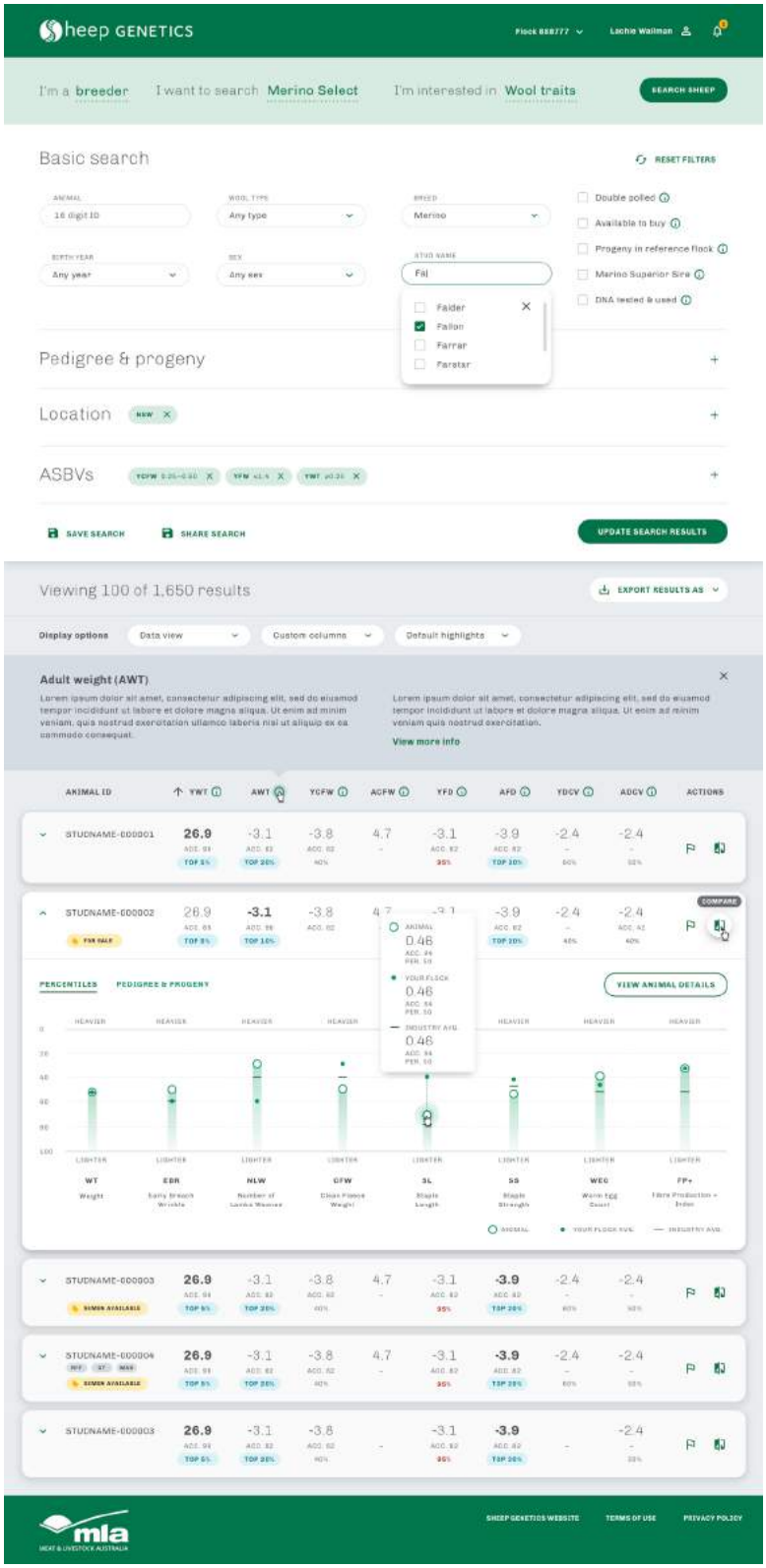
- Most users liked and understood the conversational entry and the simple language used
- Could potentially make the solution even simpler for commercial users
- All users were comfortable with the expandable layout and particularly liked the added education around search criteria
- All users suggested up to eight traits/indexes is a sufficient number to view in search results
- Most users preferred the data view as it was most familiar display
- Users like the ability to compare three different metrics on the percentile graph
- All users liked the flagged list functionality especially the notes field
- All users thought the compare feature would be extremely useful though would like to select what they see not just show all
- All users liked the stud profile page and they would nominate to participate and show information.
- All users thought the sale catalogue functionality was a great improvement, and said they would find it easier to list animals/semen for sale
- Users were happy with the new pen cards - especially the QR code feature, however still want some flexibility regarding indexes and traits displayed on pen cards
- Users liked the idea of standardising the cards and not allowing people to include raw data

In summary, the prototype was well received by the users who participated. Participants were excited by the redesign and were keen to be involved as the project moves into phase two. Users did question if the speed of the Database Interface would be improved and also mentioned that they would like the data quality feature to be reintroduced. Both of these items will be addressed as separate projects the Sheep Genetics business is undertaking throughout 2019/20.

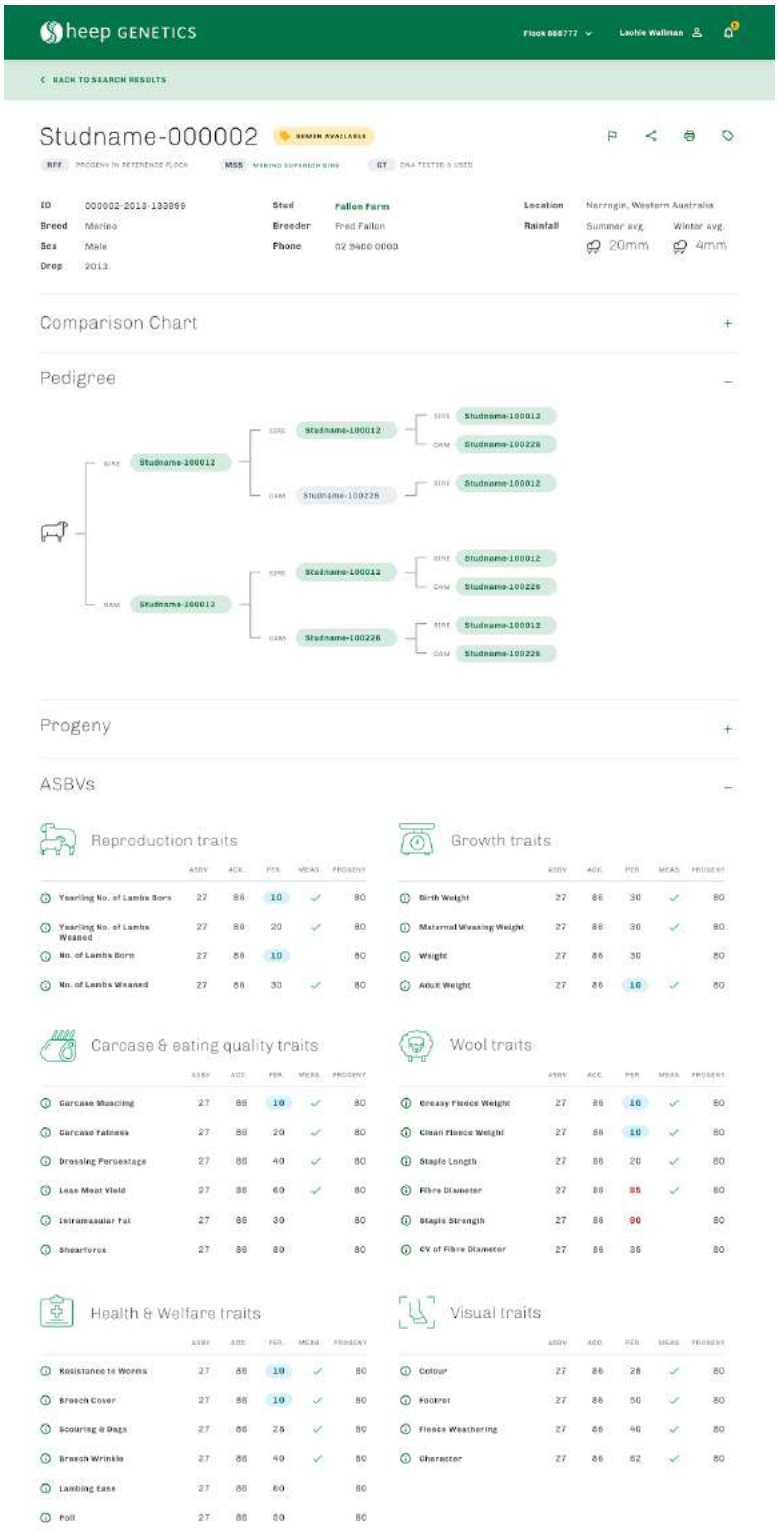
II. Key screen designs

The approved art direction was applied to *Search*, *Animal Detail* and *Dashboard* screens to visualise what the final 'look and feel' of the new Sheep Genetics Database Interface will look like. The screen designs will continue to be refined throughout Phase 2 of the project to match the validated scope that will be delivered as part of the initial release (fig 3).

A. Search


heep GENETICS
I'm a breeder
I want to search Merino Select
I'm interested in Wool traits
SEARCH SHEEP
Basic search
RESET FILTERS
Pedigree & progeny
Location
ASBVs
SAVE SEARCH
SHARE SEARCH
UPDATE SEARCH RESULTS
Viewing 100 of 1,650 results
EXPORT RESULTS AS
Adult weight (AWT)
View more info
ANIMAL ID
YWT
AWT
YCFW
ACFW
YFD
AFD
YDCV
ADGV
ACTIONS
STUDNAME-000001
STUDNAME-000002
STUDNAME-000003
STUDNAME-000004
STUDNAME-000005
COMPARE
PERCENTILES
PEDIGREE & PROGENY
VIEW ANIMAL DETAILS
SHEEP GENETICS WEBSITE
TERMS OF USE
PRIVACY POLICY

B. Animal Detail



C. Dashboard

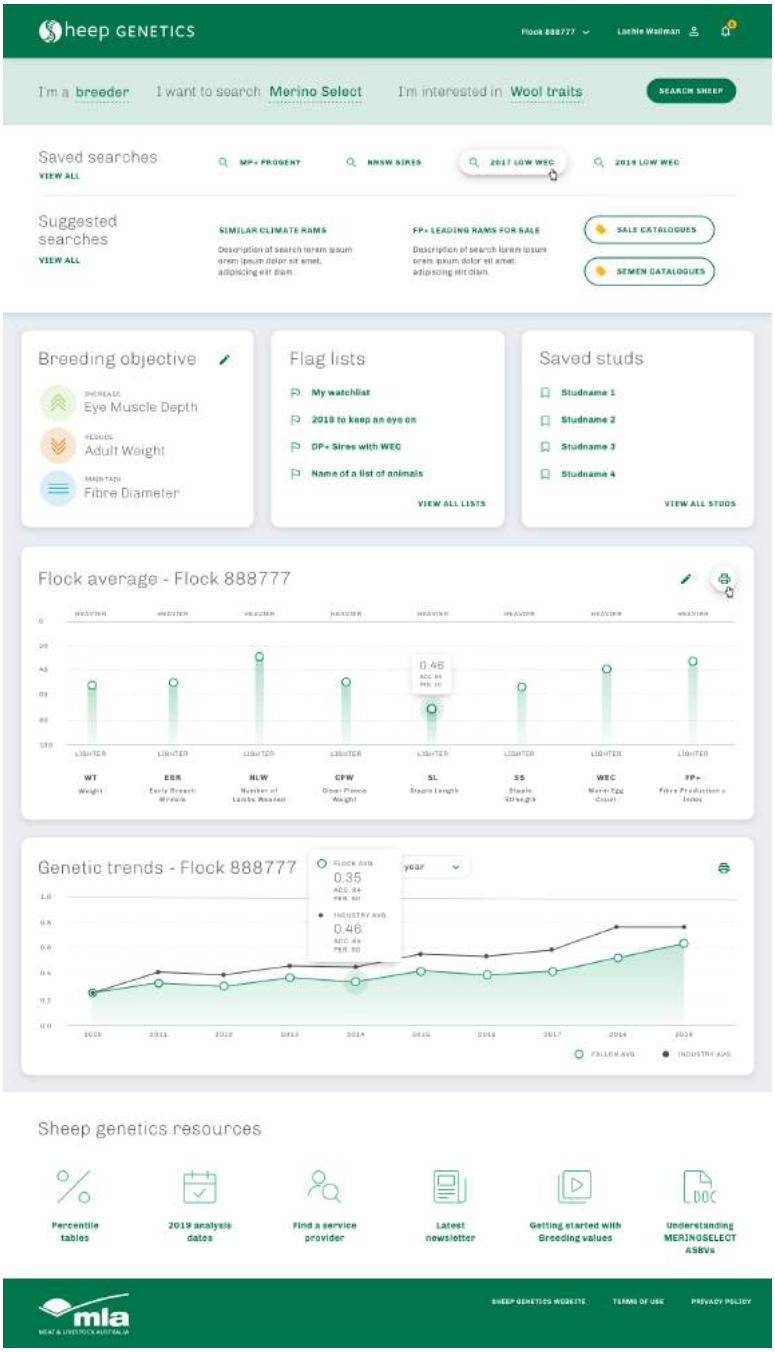


Figure 3: Art direction applied to 3 screens for visualisation, A. Search, B. Animal details, C. Dashboard

III. Solution design

Tigerspike prepared a high level solution design document that outlined how the new Sheep Genetics Database Interface will be configured and interact with different technology elements. The solution design was approved to be technically (scientifically) sound in relation to genetics and met all of MLA's IT Design & Infrastructure Standards. The document will continue to be refined during phase two of the project match the validated scope that will be delivered as part of the initial release.

IV. Feature backlog

A range of new features were identified throughout the Ideate and Define phases. To help the Sheep Genetics project team validate what features will be included in the initial product release, a backlog of 'Epics' was prepared. An Epic is a large body of work linked to a common objective or function that we want to make available for users in the new Sheep Genetics Database Interface e.g. Share, export search results. The following list is a summary of the Epics for inclusion in the initial release:

- Refine search parameters
- Display search results
- Share and export results
- Compare search results
- Animal display details
- Sale and semen catalogue
- Saved searches
- Pen cards
- Authentication and user management
- Admin tools
- View resources
- Dashboard configuration
- Account page configuration
- Stud Profile page

4.2 Project objectives

Having completed the Experience Definition process, we have summarised how Tigerspike's solution design recommendation addresses the project objectives defined by Sheep Genetics.

Table 2: Summary of the solution components relevant to ach of the project objectives

No	Objective	How this will be achieved
1	Search, sort and filter animals	A number of best practice User Experience (UX) principles will be implemented to improve the process for searching, sorting and filtering. Summary of key UX principles include: ● New entry page with improved dropdown menu taxonomy to better triage the experience for the different

		user types and databases. ● Collapsible search fields enabling users to only show criteria/inputs that's pertinent to them ● Sticky header banner applied to results table so users can always reference the column name/ASBV value ● Lazy load to better manage the number of search results. This eliminates the endless pages of search results
2	Increase the speed of return search results	Implement a caching strategy to return results at a faster rate. Caching will reduce the load on the underlying Sheep Genetics database, optimising the performance of first time searches.
3	Customise and save search parameters through a log-in	Users will be provided with increased choice to tailor parameters that are pertinent to them. Parameters will be saved for returning users, eliminating the need to setup when returning to the tool. A new login in solution will be implemented allowing commercial clients to create an account. In turn, this supports commercial clients being able to save preferred search parameters.
4	Present animals in a visual, easy to understand manner, particularly for producers who are not familiar with Australian Sheep Breeding Values (ASBVs)	Three new data visualisation options have been prepared to cater for the different users types and experience using ASBVs. Users will have the flexibility to toggle between the different options. A contemporary user interface design will make the tool more legible and easy to understand through improved fonts, spacing, colours and best practice accessibility principles.
5	Present data on animals initially in a simple format, whilst still having capability to access full information	A new data visualisation (grouped view) was developed in conjunction with Sheep Genetics. The grouped view consolidates individual traits into groups to provide a succinct view to reduce the initial amount of information presented to the user.
6	Increase the ease of uploading sale catalogues	Users can now preselect animals directly from the database interface without having to upload a list. User will still have the option to upload a list in full from their on farm software. Once catalogues are prepared, users have greater capacity to edit and change the catalogue without having to re-upload a list. The tool has been designed in such a way to reduce the dependence on farm software for sorting and ordering of animals.
7	Allow for customised (within SG parameters) development of pen cards and sale/semen on-line and printed catalogues	Introduction of QR codes on pen cards, enabling users to review animal information that's pertinent to them in real-time.
8	Deliver with both online and mobile/tablet capability (off-line use desirable)	The new interface will be optimised to work across multiple device types including: desktop, tablet and mobile.

4.3 New functionality

Throughout the Experience Definition process, we mapped the full user experience to identify new opportunities and features that could enhance and develop the functionality and scope of the current Sheep Genetics User Interface. These features were tested with industry members to understand if they were applicable or a useful function to consider.

Some of the new features proposed for future development that were well received during the experience definition are outlined in Table 3.

Table 3: detail of the new features designed an proposed for future development.

Feature	**Overview**
Stud profile page	A dedicated profile page for stud producers that providers an overview of their stud operation. The page allows stud producers to upload content with details of their operation, including: logos, images, summary of stud operation, contact details and location. This feature provides stud producers with increased visibility to market their operation and reduces the reliance on needing to link out to separate websites or social media pages for profile details. All of the content can be edited by members as they like.
Flagged lists	Include capability in the search results page for users to 'flag' individual or multiple animals that are of interest. When flagging an animal a user will be prompted to create a name for the list. The user can then continue to add more animals to the list. The list itself will be a separate page and enable users to reorder the animals, delete animals, add notes against animals, share a link of the list and export.
Notifications	A notification centre located in the top navigation bar of the interface. Similar to social media notifications, the dropdown menu will alert users when new information is released. The proposed notification categories include: ● Sheep Genetics news; ● Sale catalogue updates; ● Individual animal updates; and ● When a Service Provider shares information with clients
Breeding objectives	Providing users with the option to document the individual ASBVs that contribute to their breeding objective. Additional fields will be included to capture the corresponding goals for each ASBV, providing users with a central location to manage and track their performance to their documented breeding objective(s).

4.4 Stakeholder Consultation

Consultation with Sheep Genetics business stakeholders and industry members was a key metric for the project. The following (Table 4) quantifies the different types of activities and number of users Tigerspike met with throughout the Experience Definition process.

Table 4: outline of the activities completed with stakeholder groups including number of participants and location.

I. Business stakeholders

Activity	**Number**	**Location(s)**
Business workshops	4	Sydney, NSW
SME interviews	14	Armidale, NSW
User testing (in person)	3	Wagga Wagga, NSW
Advisory Committee presentation	1	Sydney, NSW

II. Industry members

Activity	**Number**	**Location(s)**
User interviews (phone calls)	21	Sydney, NSW
Regional workshops	3	Wagga Wagga, NSW Hamilton, VIC Narrogin, WA
On-farm visits	4	Wagga Wagga, NSW Hamilton, VIC Narrogin, WA
User testing (in person)	9	Wagga Wagga, NSW
User testing (video calls)	6	Sydney, NSW

5 Conclusions/recommendations

The experience definition completed in this project allowed thorough investigation of Sheep Genetics business and stakeholder needs. A solution design was developed that aimed to build a reliable, professional and intuitive tool meeting the project objectives. New functionality was also uncovered providing new ideas and improved features for future development.

Upon completion of the Experience Definition process, Tigerspike presented a recommendation for phase two of the Sheep Genetics Database Interface project. The objective of phase two is to progress the artefacts developed during phase one into detailed design and development. To achieve this, Tigerspike recommends a multidisciplinary Scrum team to deliver phase two as an agile, iterative program. Agile delivery affords Tigerspike and Sheep Genetics the flexibility to further refine and test features with industry stakeholders to ensure they're optimised to meet business goals and user needs. Tigerspike's Scrum team will include the following mix of disciplines:

- Project Manager
- User Experience (UX) and User Interface (UI) Designers
- Technical Lead
- Developers
- Quality Assurance (QA) engineers

The proposed timeline to complete phase two is six months and is made up of eight, three-week long Sprints. The project will be delivered out of Tigerspike's Sydney office, and where necessary will involve travel to regional locations across Australia to complete further research and user testing. Tigerspike will continue to work closely with the Sheep Genetics project team throughout phase two. A dedicated product owner will be appointed to act as lead representative for Sheep Genetics. The product owner will be responsible for interfacing with Tigerspike on a daily basis to support ongoing decisions and prioritisation of features for inclusion in the initial database interface release.

Once designed and built, the new Sheep Genetics Database Interface will better serve the needs of commercial and seedstock sheep producers and will contribute to the overarching goal of increasing the rate of genetic gain in the red meat industry.

6 Appendix

6.1 Supporting documents

1. SG-Experience Definition Document

6.2 Definitions

Agile development: An approach for software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers.

Contextual inquiry: User research method in which the interviewer analyses the user's intentions by observing the user doing their tasks and interacting with colleagues in a natural setting with little interruption from the interviewer.

Design thinking: Design thinking is a process for creative problem solving. It is a non-linear, iterative process that seeks to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test.

Onboarding: An onboarding experience is a way to introduce users to a new product, app, or feature.

Scrum: A process framework for the iterative development of complex products, particularly software. Scrum is the most widely recognized agile framework. Scrum is comprised of a series of short iterations – called Sprints – each of which ends with the delivery of an increment of working software.

Style tile: A style tile is a visual reference of fonts, colors and interface elements that communicate the essence of the overarching design language.

Product backlog: Collection of Epics Stories and tasks the Delivery team will work on at some point in the future.

Product feature: Product features are characteristics of your product that describe its appearance, components, and capabilities. A product feature is a slice of business functionality that has a corresponding benefit or set of benefits for that product's end user.

Product owner: A nominated client representative who is the key stakeholder. Part of their responsibilities is to have a vision of what he or she wishes to build and convey that vision to the Scrum team. This is key to successfully starting any agile software development project. The Product Owner does this in part through defining User Stories and prioritising the Product Backlog.

Prototype: A prototype is a visual representation of the user interface of a website or software application. Unlike static wireframes, in simulation clickable wireframes respond to user interaction.

Sprint: A period of time allocated for a particular phase of a project. Sprints are considered to be complete when the time period expires and a useful and interesting increment of running software is produced.

User interviews: A User Interview is a one-to-one conversation with users (or potential users) of a product or service.

User testing: User testing is a method used to evaluate a product’s ease of use by testing it with real users. In a typical usability test, participants try to complete tasks while the researcher observes, listens, and takes notes.

Wireframe: Wireframes are visual representations of an interface, used to communicate structure, content, information hierarchy, functionality and behavior.

Workshops: A Workshop involves a dedicated amount of time (from half a day to multiple days) for key stakeholders to meet and work together through activities.

Hello

Sheep Genetics

XD Document

Contents

01

Project overview

Sheep Genetics XD

Discovery | Weeks 1-11

Develop a deep knowledge of MLA/SG business, their users and the context of the how the solution will be used.

- **Project kick-off**
- **Business & Technical Workshops**
- **SME Interviews**
- **User Interviews**
- **Regional Trips**
- **Discovery playback & feature prioritisation**

Ideate | Weeks 12-15

Explore, validate and iterate on solution concepts for an enhanced SG experience.

- **Concept development**
- **User testing (round 1)**
- **Iterations**
- **Art direction**
- **IA, User Flow & Stories (draft)**
- **Ideation playback**

Define | Weeks 16-19

Propose the future vision of the SG Search Database Tool experience with a path to build the solution.

- **Wireframes & Prototype**
- **Technical check in (MLA IT)**
- **User testing (round 2)**
- **Iterations**
- **User Interface design**
- **Prioritisation session (SG project team)**
- **IA, User Flow & Stories (final)**
- **Solution design and feature roadmap**
- **Design & Build estimates**
- **Define playback**

02

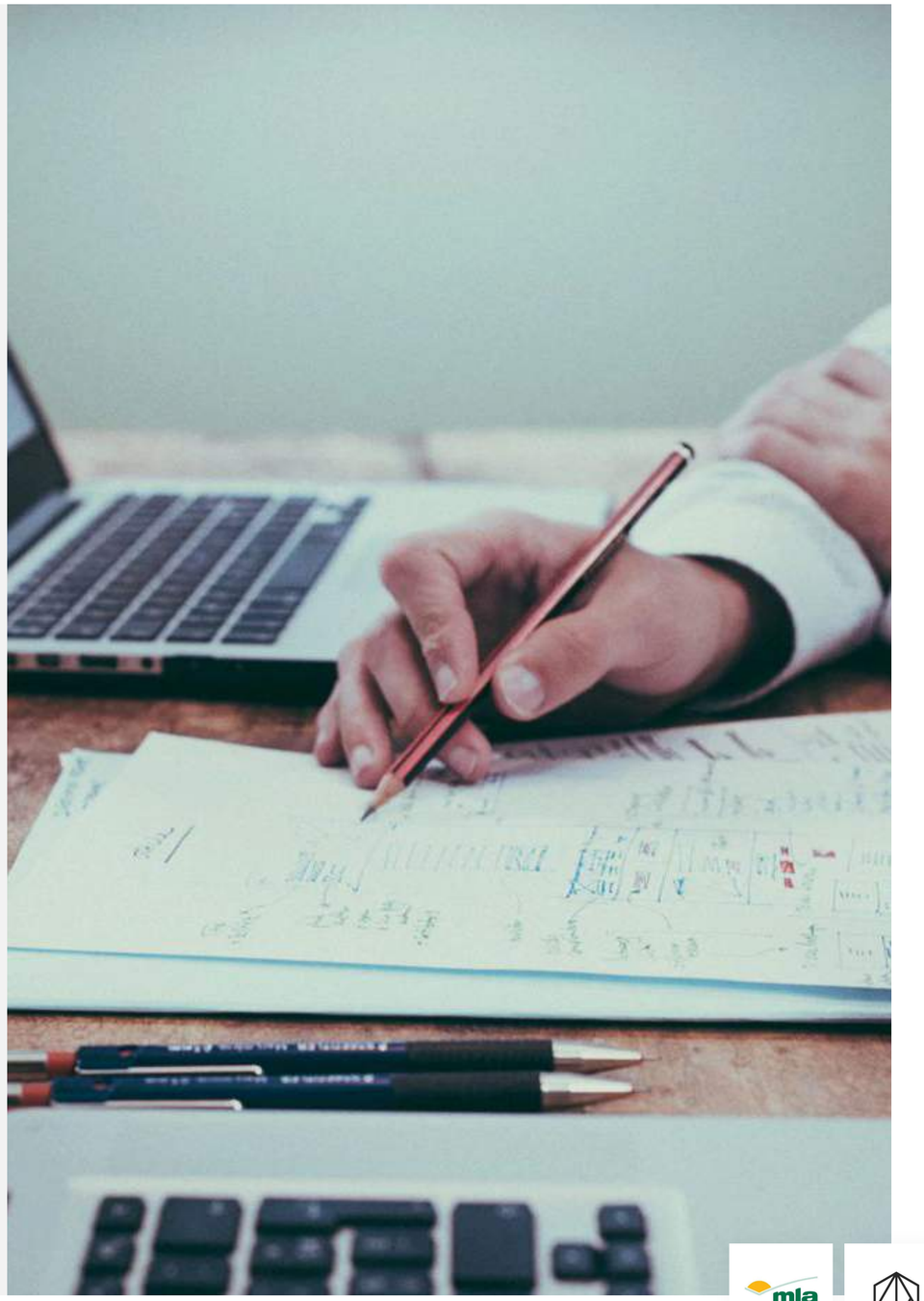
Wireframes concepts

Introduction

The following wireframe concepts incorporate feedback from the Wagga Wagga trip (w/c 22/07) and SG internal review (29/07).

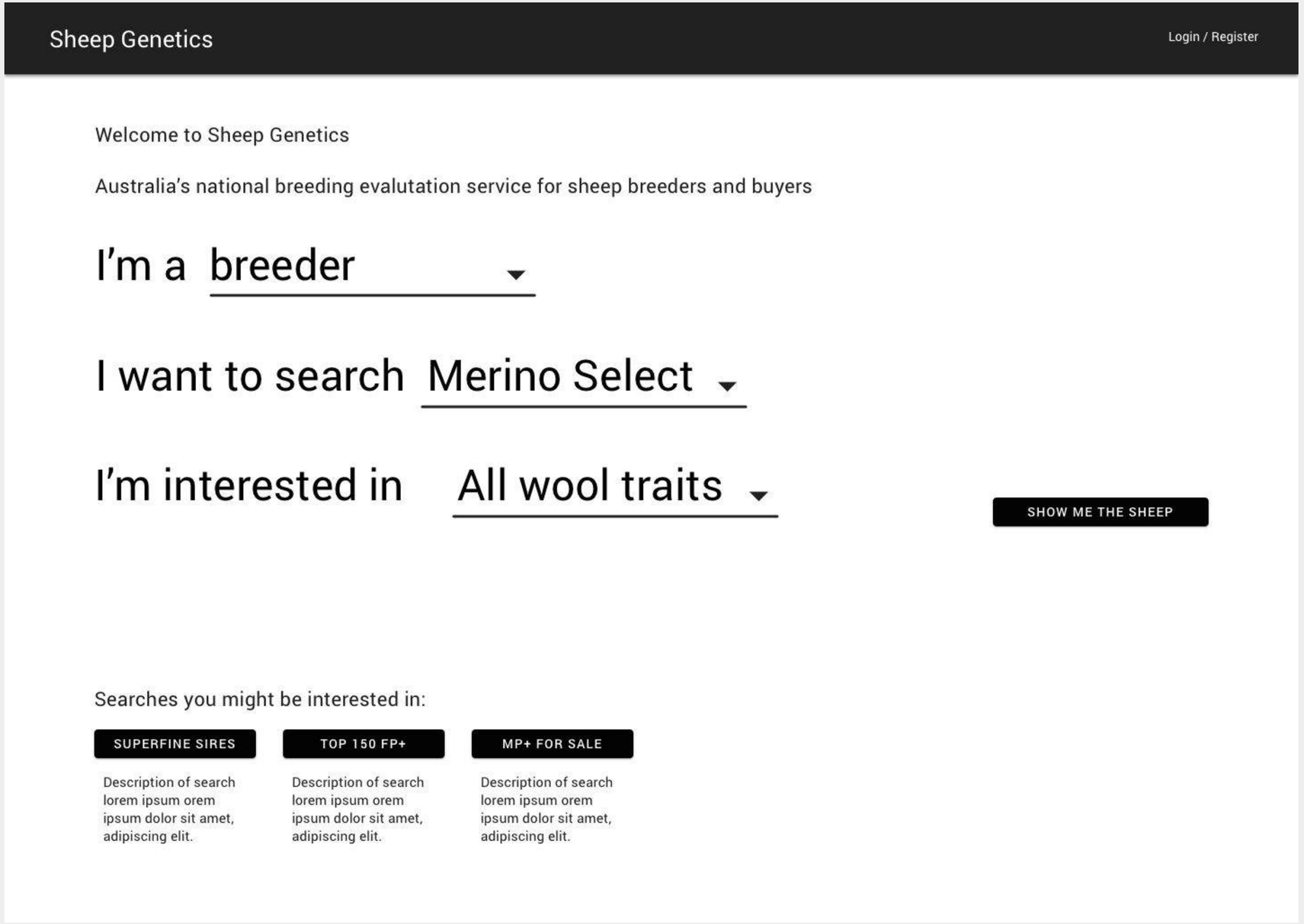
The wireframes demonstrate the following functionality:

- Searching the database
- Refining / customising a search
- Viewing further detail of an animal
- Comparing multiple animals
- Viewing a stud profile
- Viewing a personalised dashboard
- Viewing an account page
- Listing animals for sale / semen availability



Simplified, plain english search entry

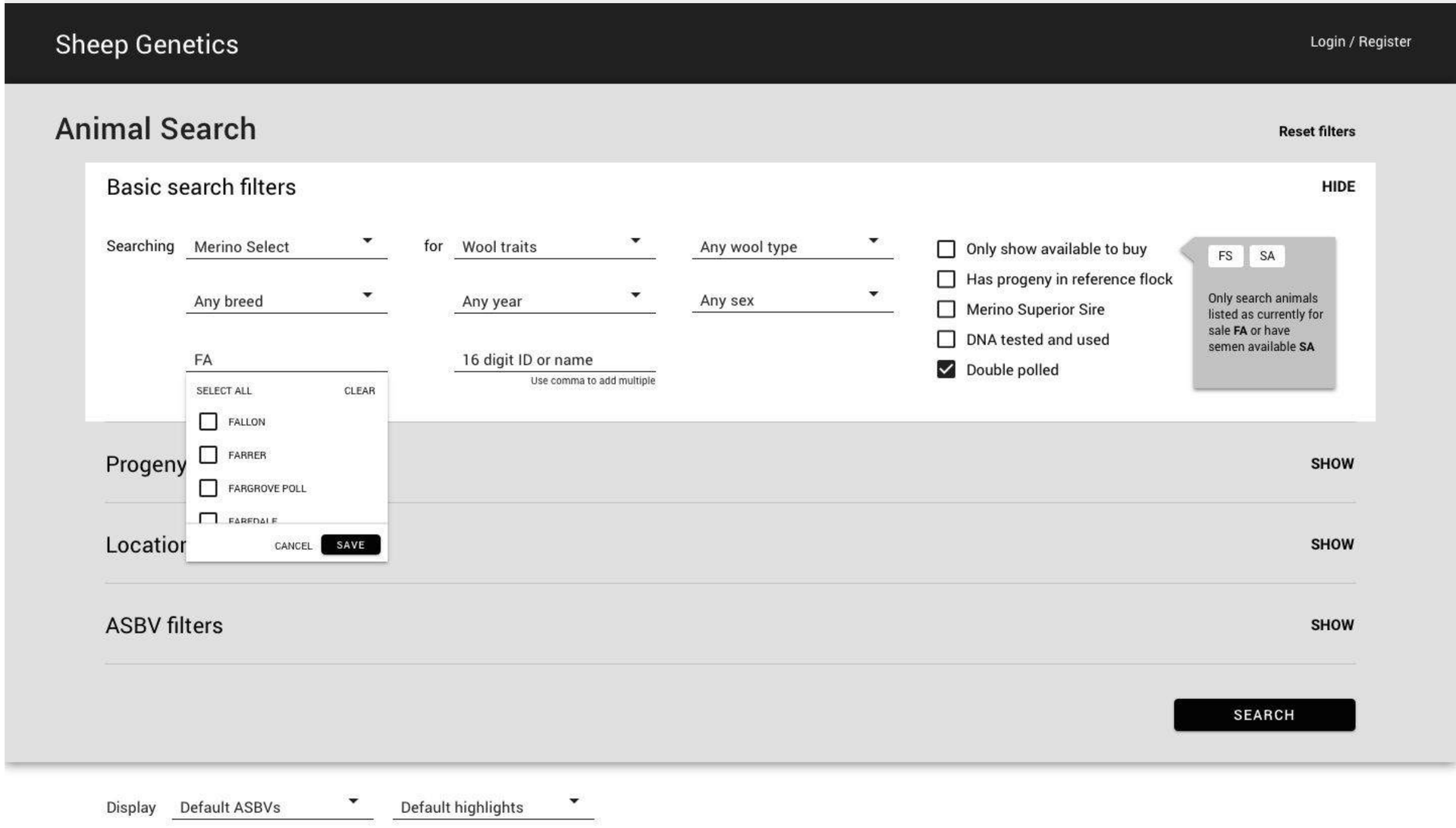
Suggested searches relevant to a user's preferences



Tooltips to help users understand the database

Predictive text

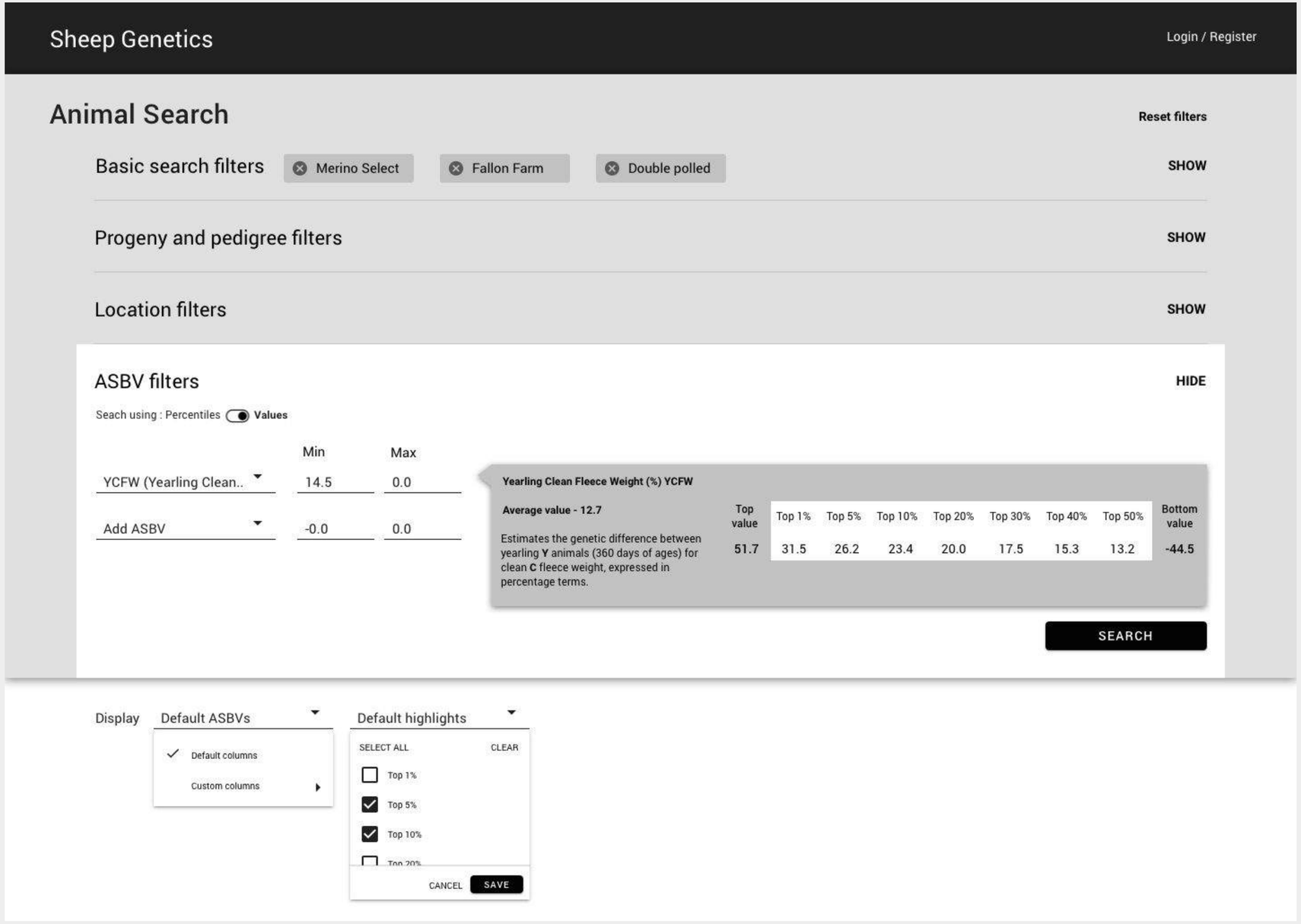
Expandable search categories



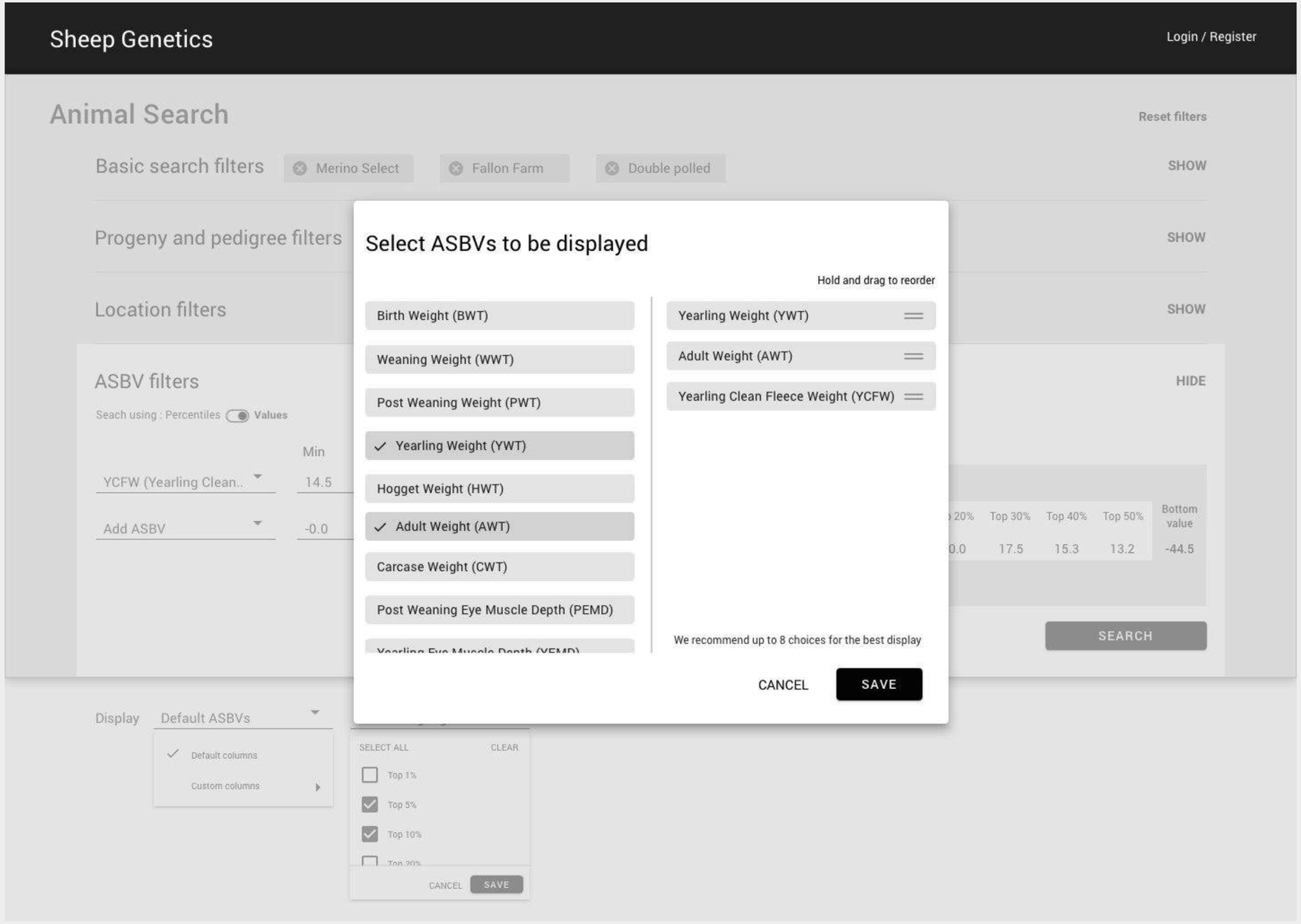
Search tags

Percentile band display to help users make informed searches

Customised view of highlighted results

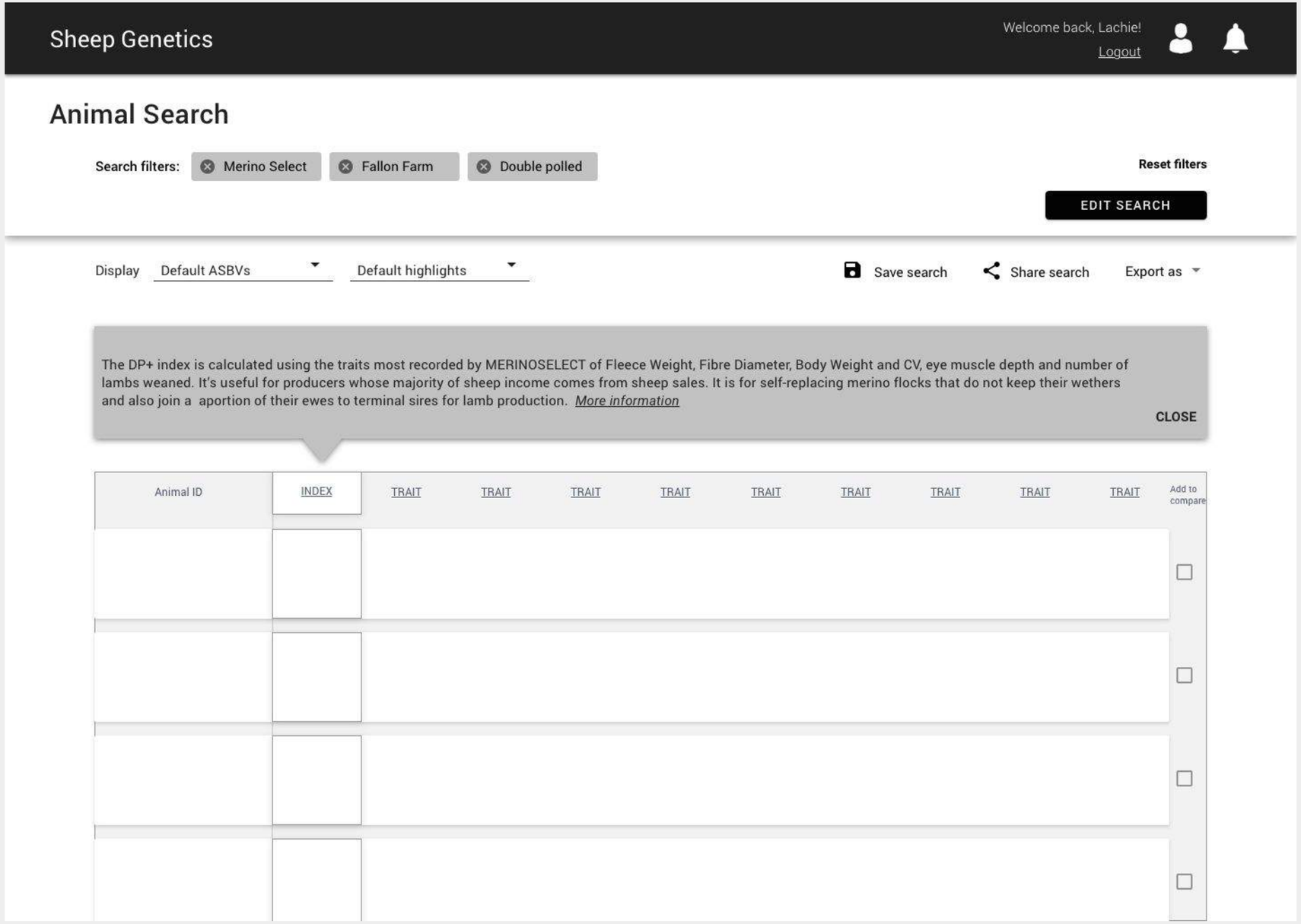


Custom column selection with drag and drop to reorder



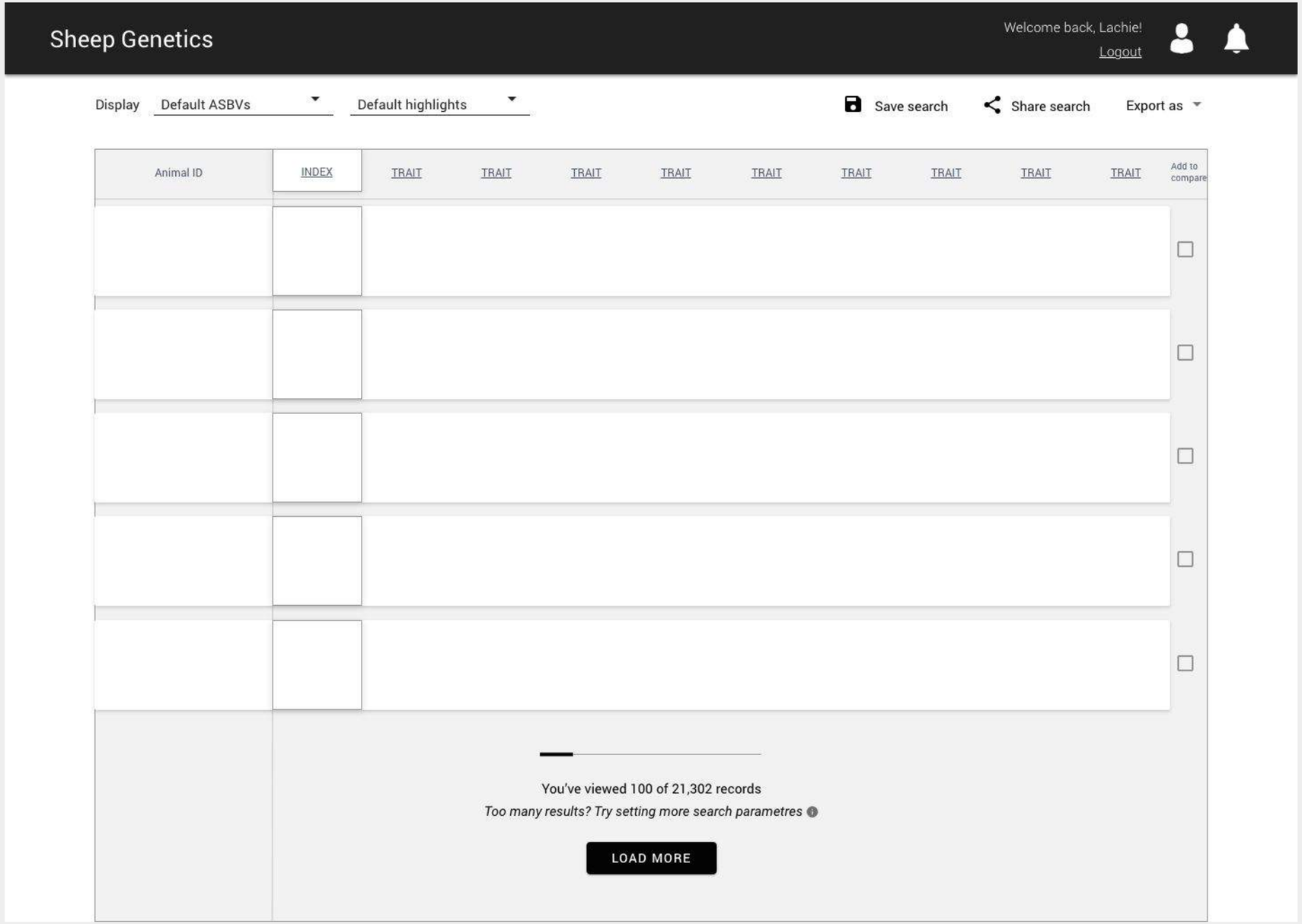
Save, share and export

Hover over columns to learn more about indexes / traits



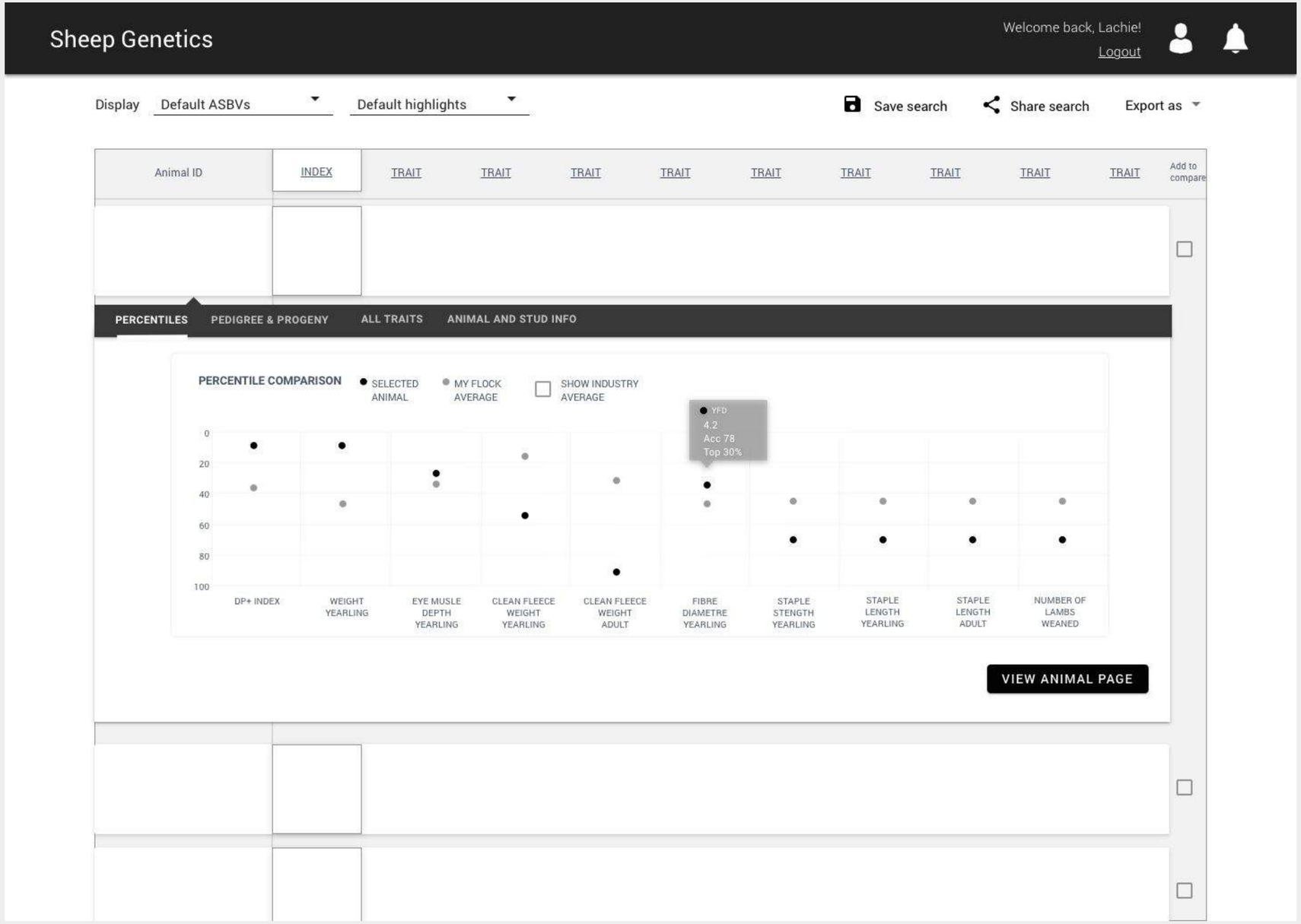
Lazy load

Contextual search assistance



More animal info displayed in search

Percentile comparison to flock average

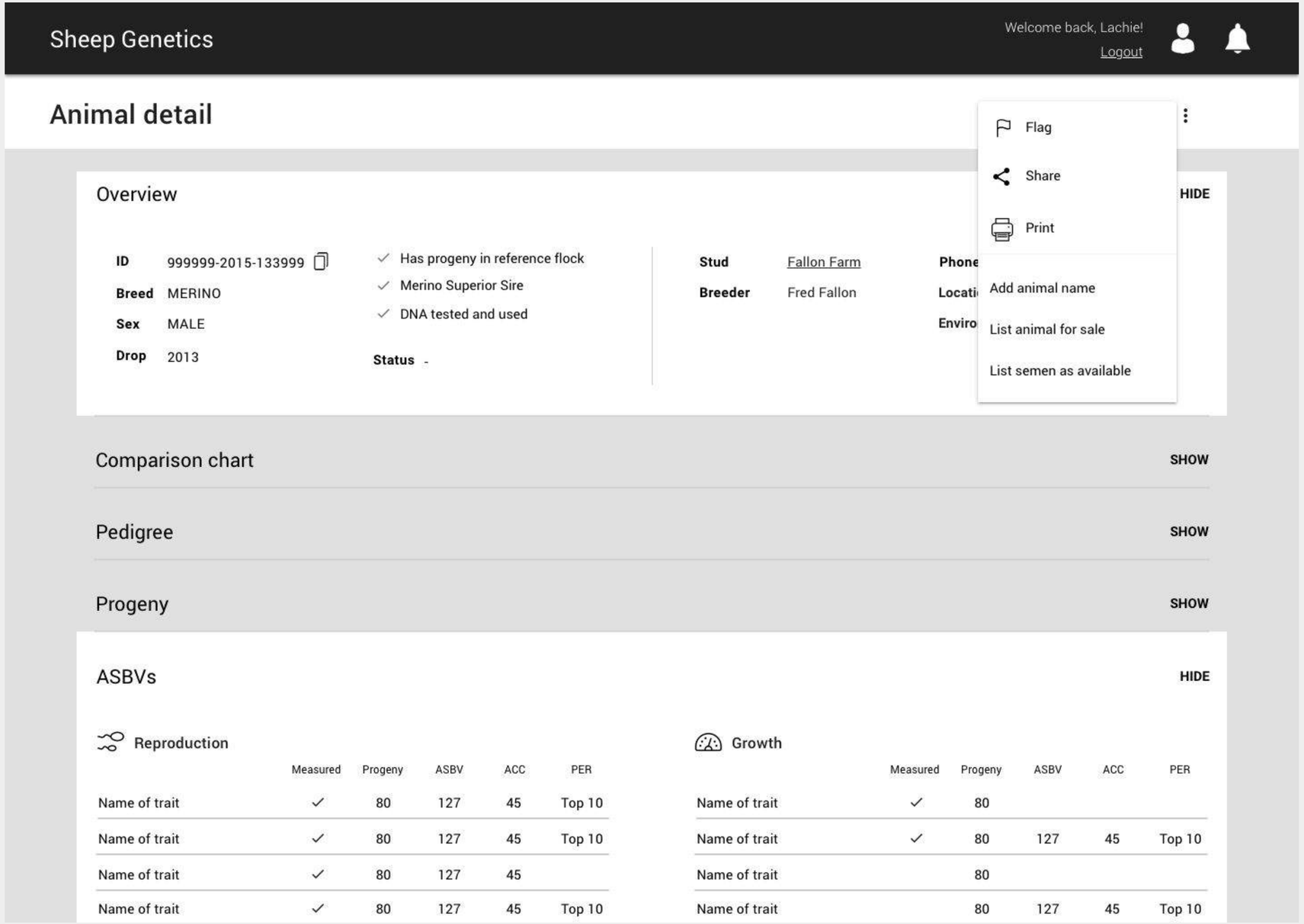


Collapsible / expandable display

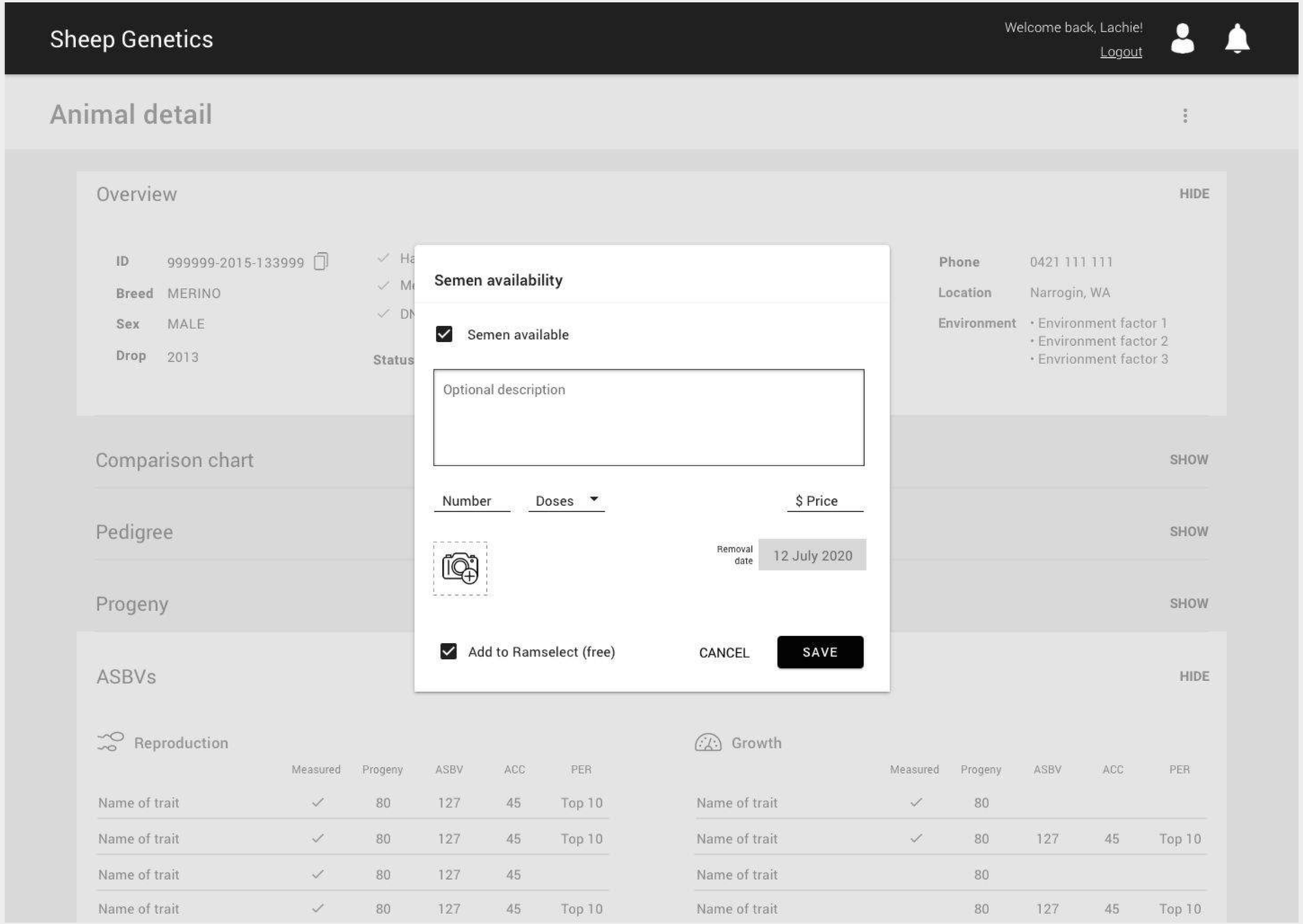
Flag animals to keep an eye on

Management options for animal owners

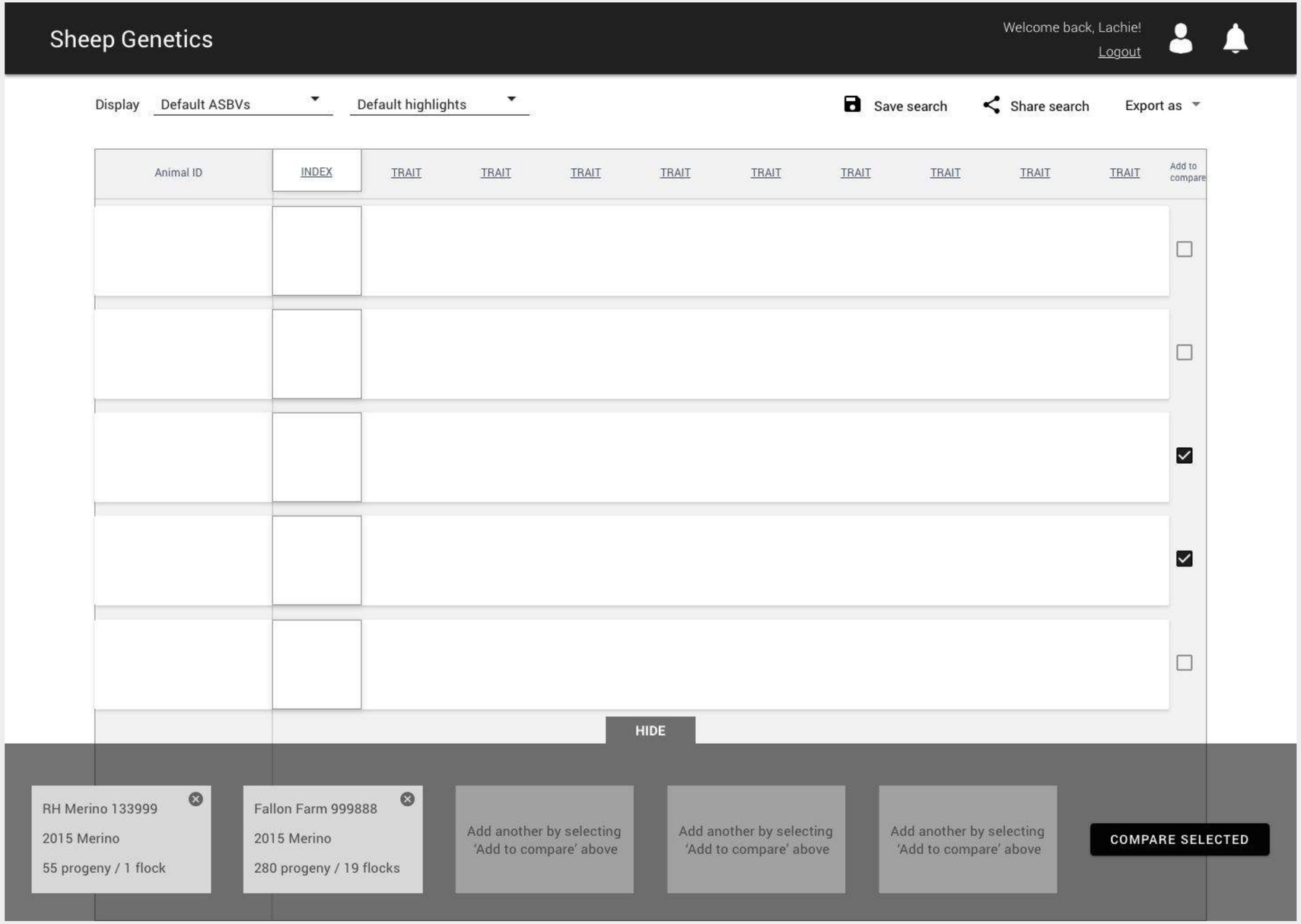
Grouped traits



Create/update semen or sale catalogue at an animal level



Add animals to compare from the search results



Compare multiple animals on a percentile chart and line-by-line tables

Sheep Genetics

Welcome back, Lachie!
Logout

Animal Comparison

Save search Share search Export as

Animal	ANIMAL 1			ANIMAL 2			ANIMAL 3			ANIMAL 4			ANIMAL 5		
Drop	2016			2016			2016			2016			2016		
Progeny / Flocks	346 / 12			346 / 12			346 / 12			346 / 12			346 / 12		
Indexes		ACC	PER		ACC	PER		ACC	PER		ACC	PER		ACC	PER
DP	118	78	Top 10	118	78	Top 10	118	78	Top 10	118	78	Top 10	118	78	Top 10
DP+	227	78	Top 10	227	78	Top 10	227	78	Top 10	227	78	Top 10	227	78	Top 10
MP	215	78	Top 10	215	78	Top 10	215	78	Top 10	215	78	Top 10	215	78	Top 10
MP+	229	78	Top 10	229	78	Top 10	229	78	Top 10	229	78	Top 10	229	78	Top 10
Traits															
WT	215	78	Top 10	215	78	Top 10	215	78	Top 10	215	78	Top 10	215	78	Top 10

Quick links to search stud's flocks or sale / semen catalogues

Save a stud

View a stud's trend lines and flock averages

Sheep Genetics

Welcome back, Lachie!
Logout

Stud Profile

Save this stud

Fallon Farm

Member since 2005

Breeder: Fred Fallon
Phone: 0421 111 111

Stud profile blurb submitted by breeder, capped at 50 words. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse id mauris nec magna congue consequat vel ut lacus. Proin dictum mauris vel porttitor gravida. Pellentesque lacinia vestibulum fringilla. Pellentesque posuere tempus eros, a auctor purus dictum elementum. Duis ultrices ut diam sed hendrerit. Fusce dapibus ante at turpis lacinia, sed.

SEMEN CATALOGUE

ANIMALS FOR SALE

Location and environment

Narrogin, WA, 6312

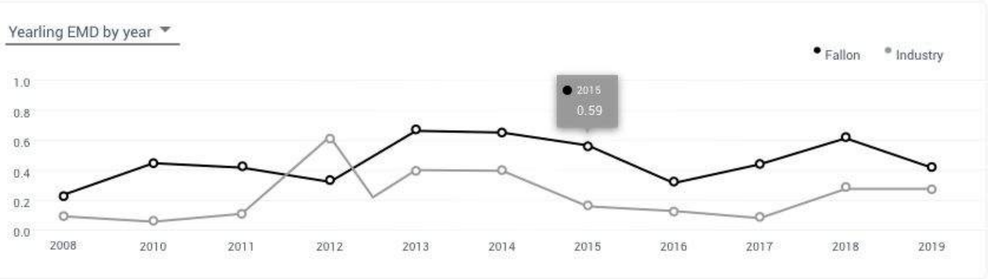
- Environment factor 1
- Environment factor 2
- Envrionment factor 3

View flocks in database

POLL MERINO 123456

MERINO 654321

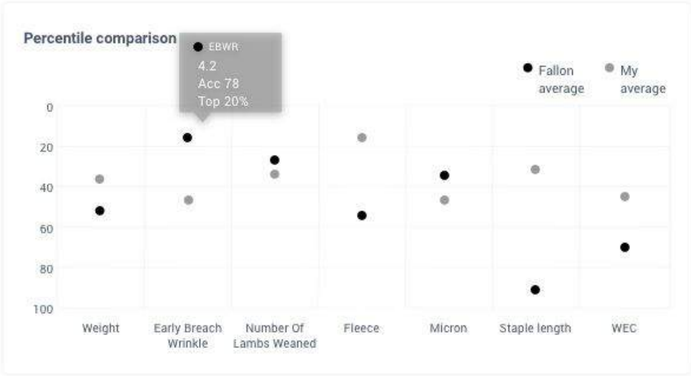
VIEW ALL



Traits being measured

last submission April 2019

Weights - B, W, PW, A
Eye Muscle Depth
Fat
Fleece
Micron
Staple Length
Staple Strength
WEC

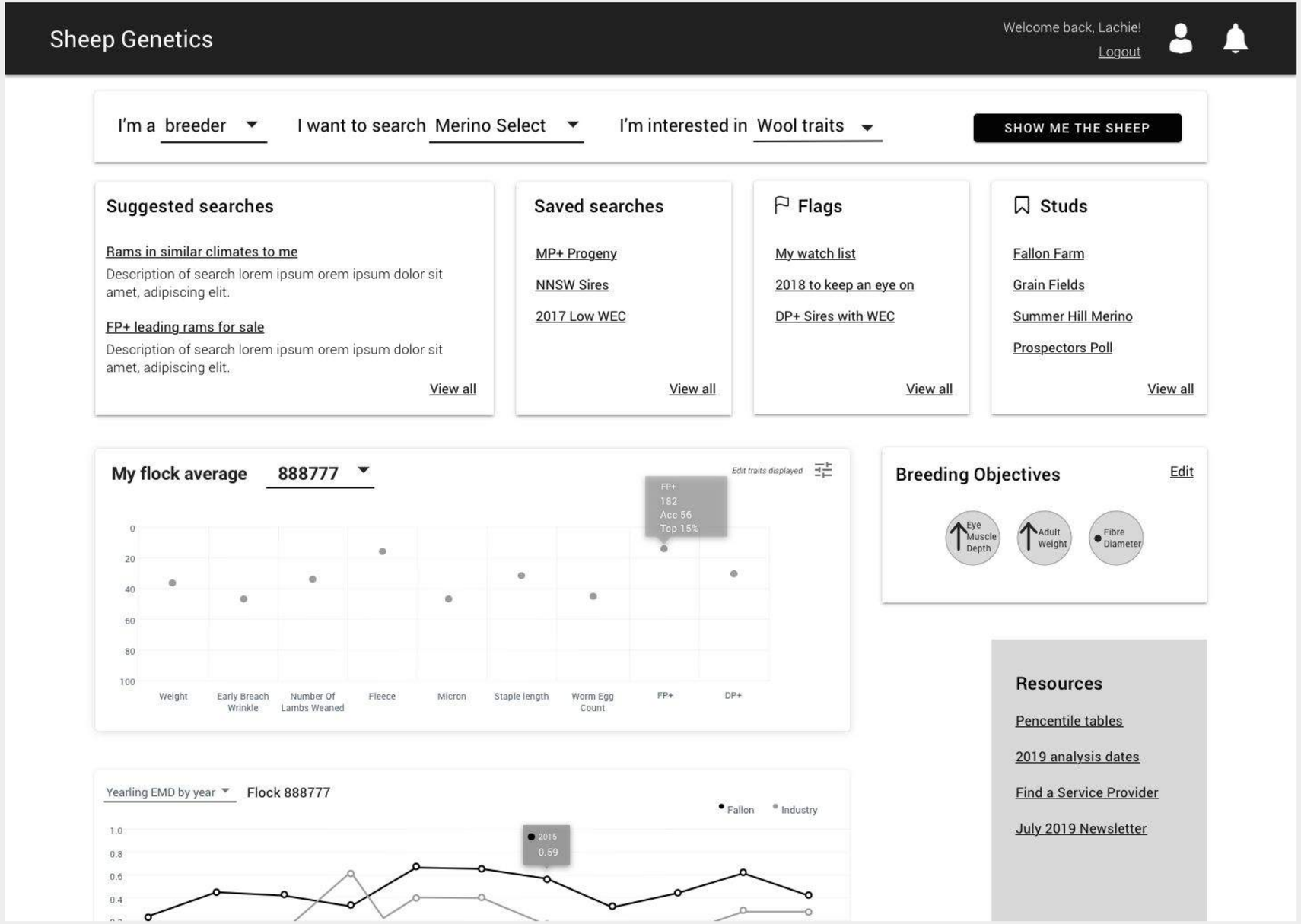


Personalised dashboard

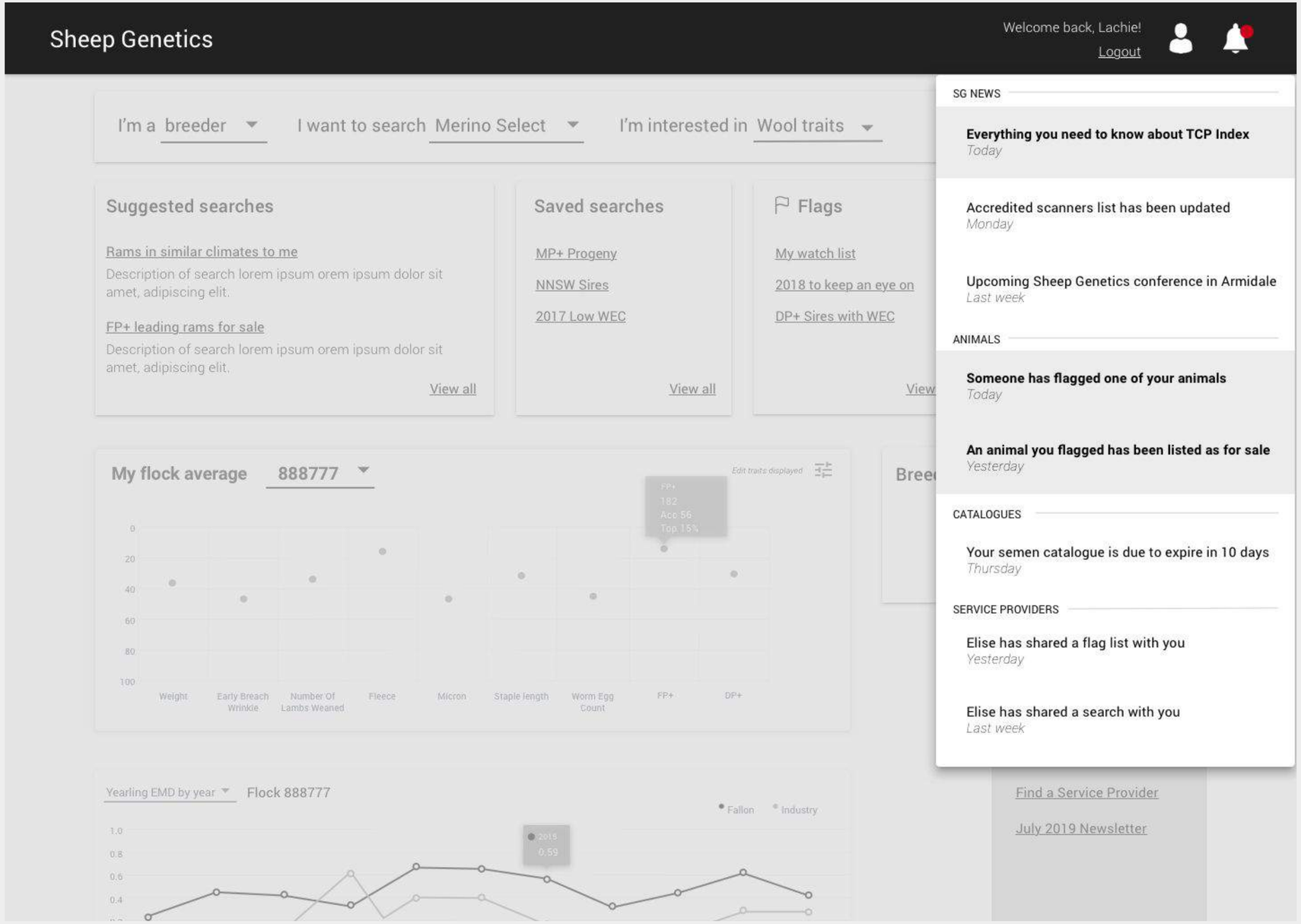
Quick access to saved and recent searches, flagged animals, saved studs and commonly used resources

Editable flock average chart

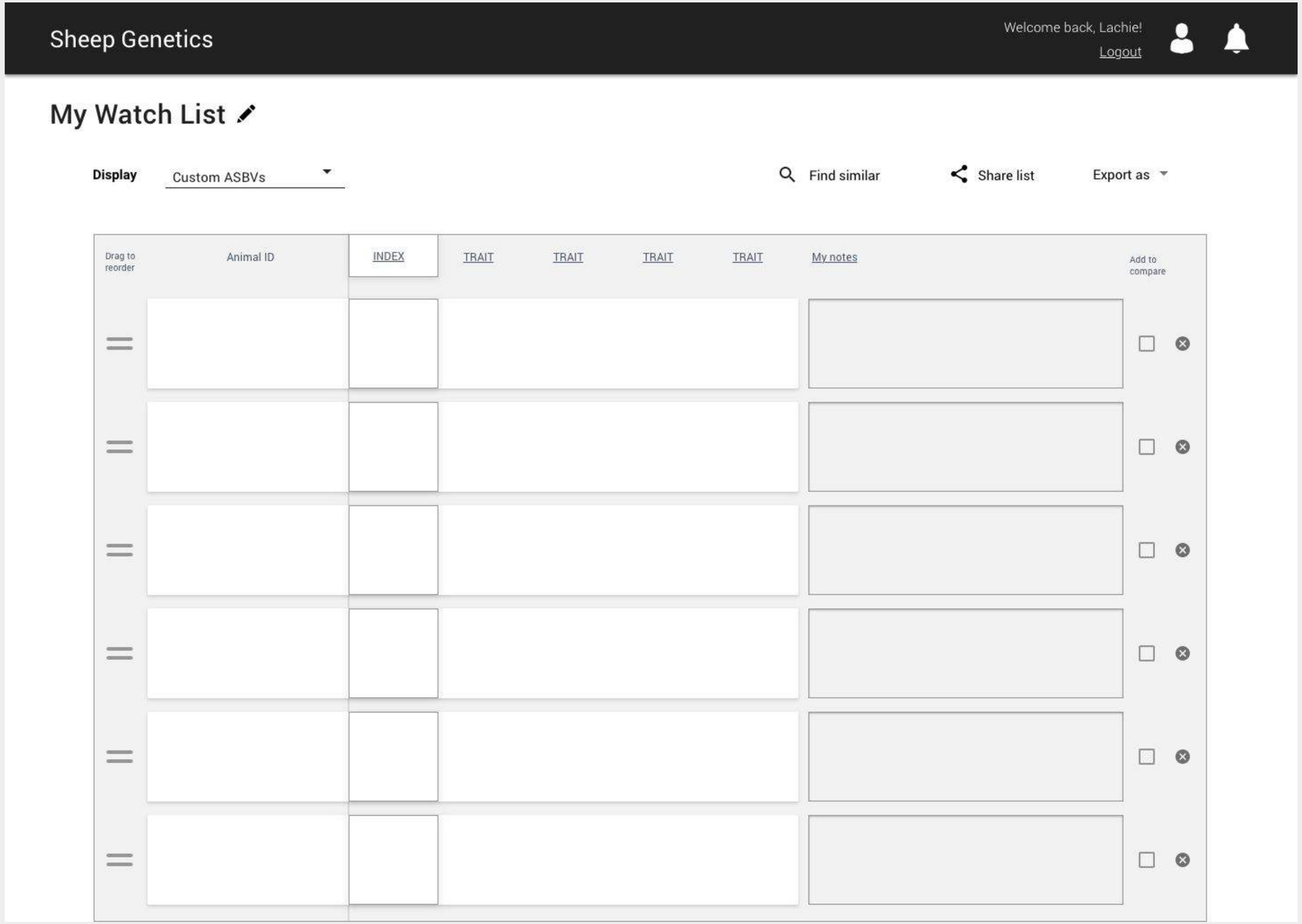
Trend graphs



Notifications alert users to news and search tool updates



Reorder and add notes to flagged animals / sales catalogues



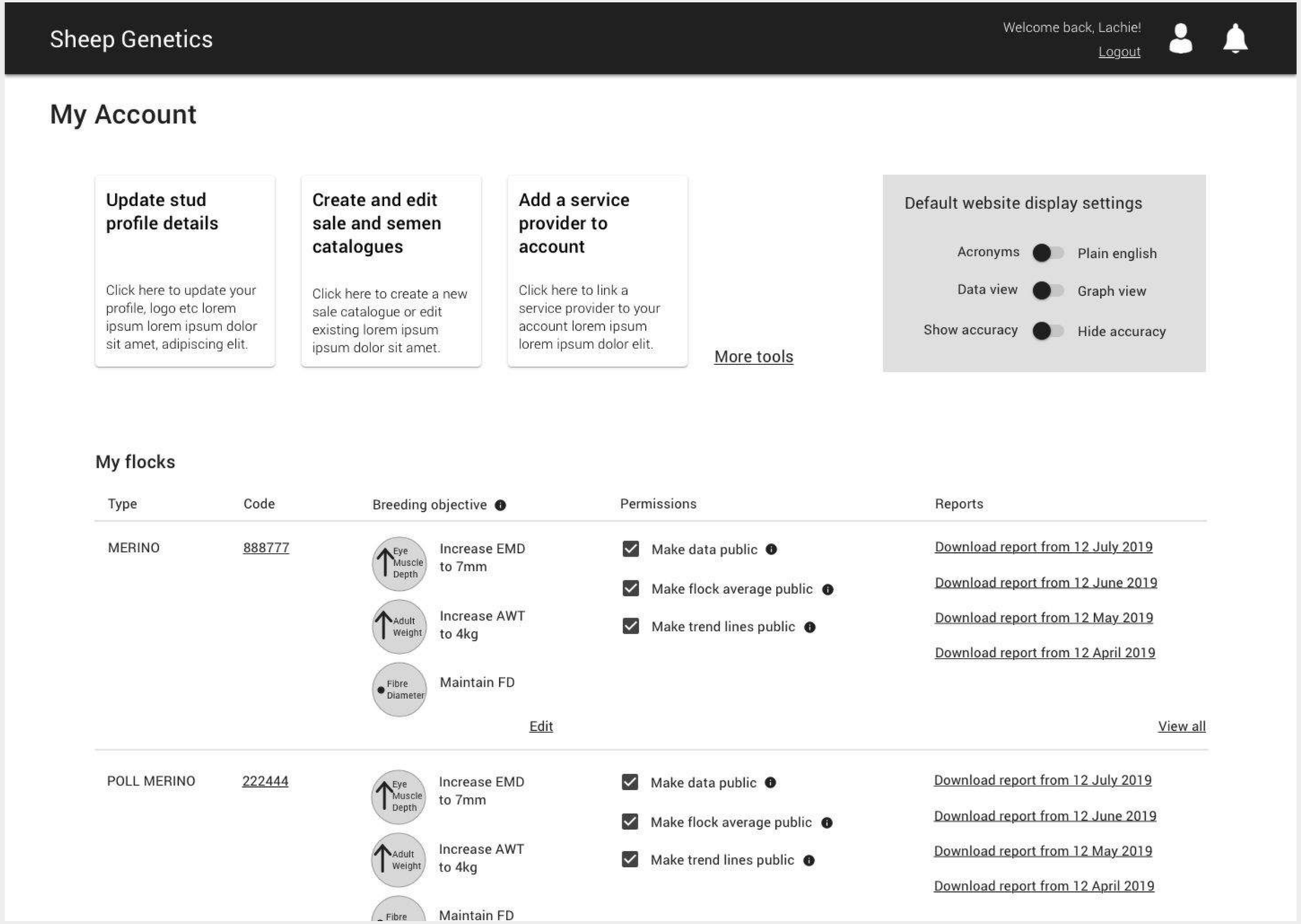
Account management tools

Default display settings

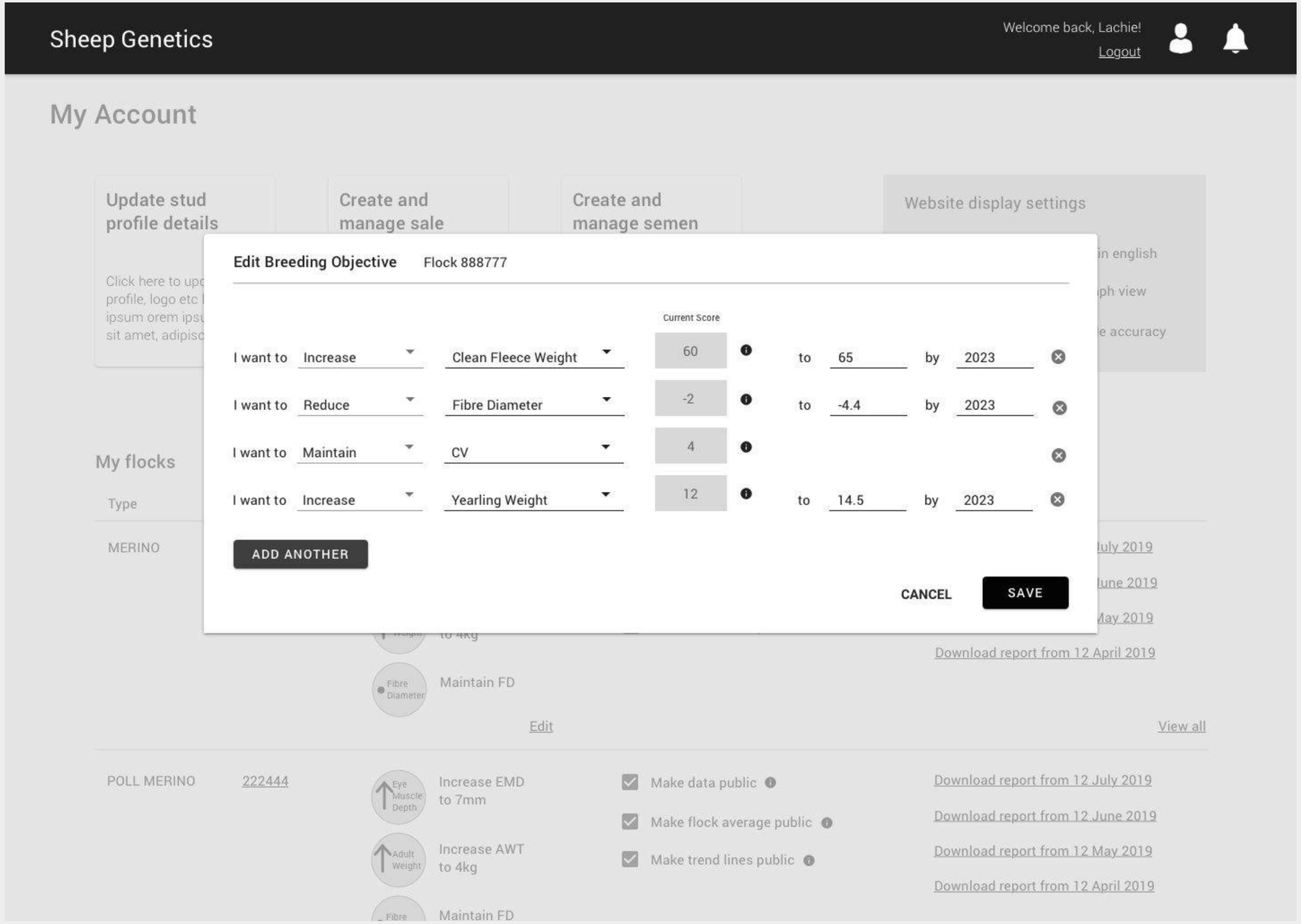
Documenting breeding objectives

Permissions management

Report downloads



Set up, edit or remove a breeding objective

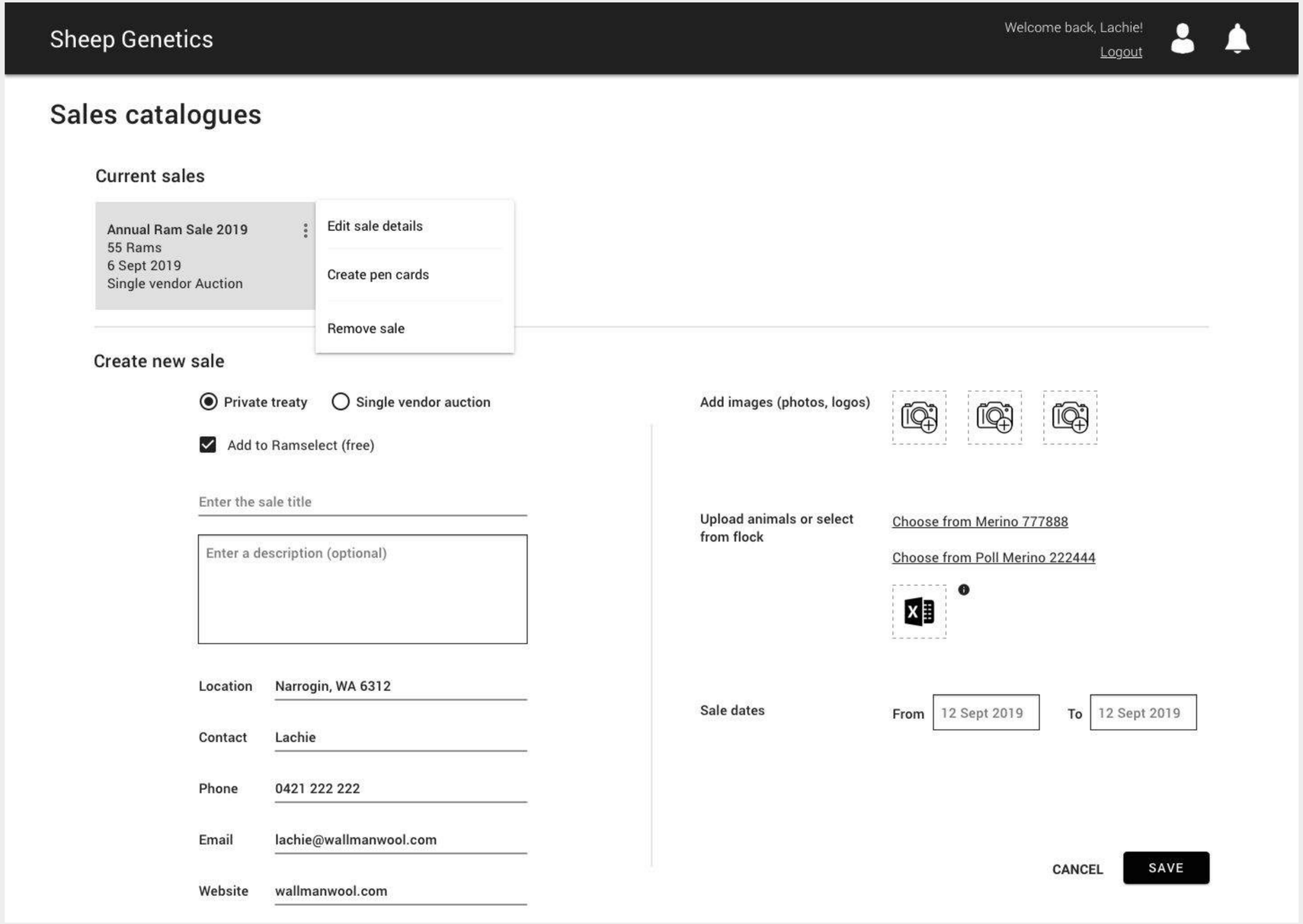


Pre-filled sale catalogues

Easy upload or chose from flocks

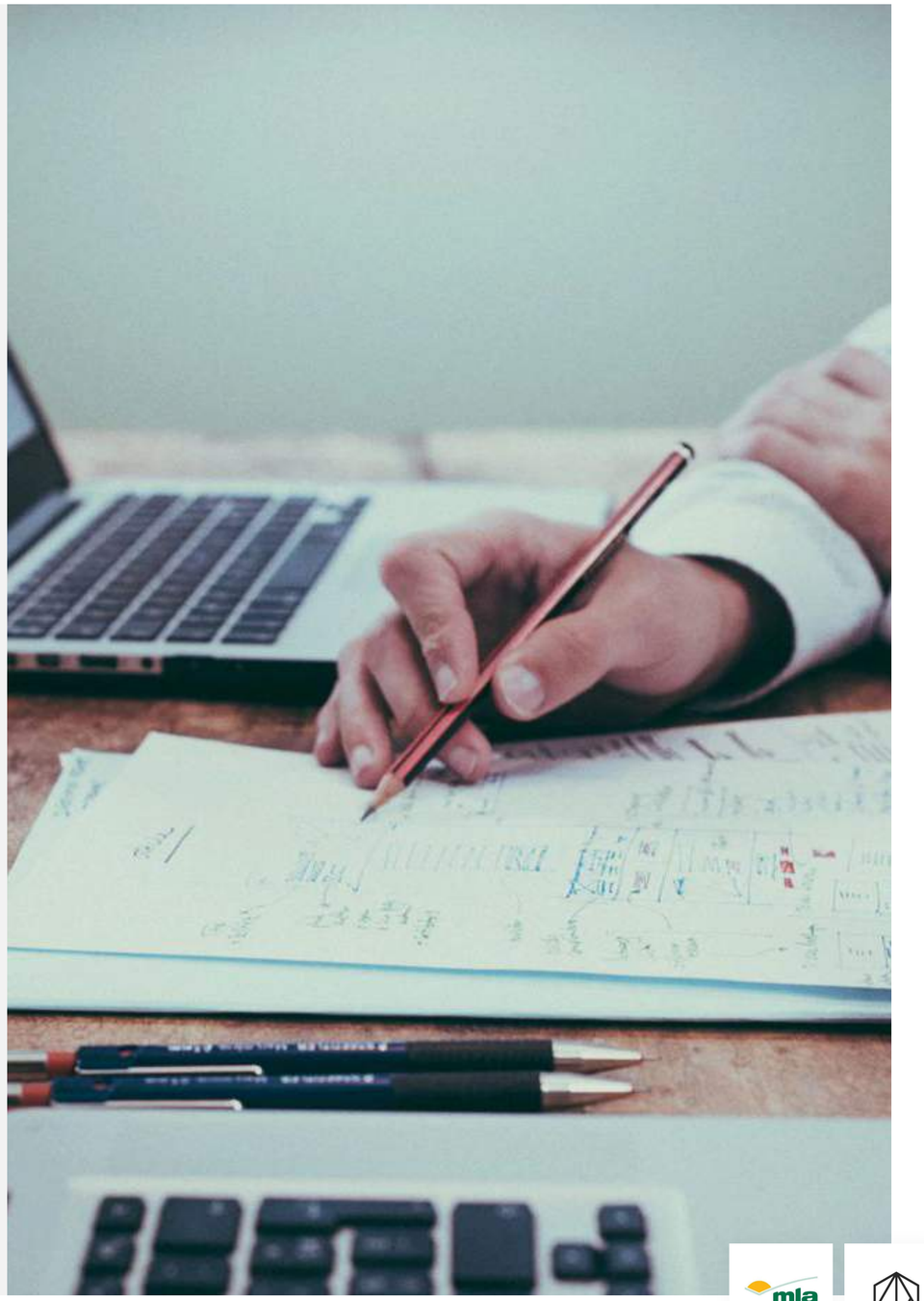
Edit or remove sales

Easy creation of pen cards

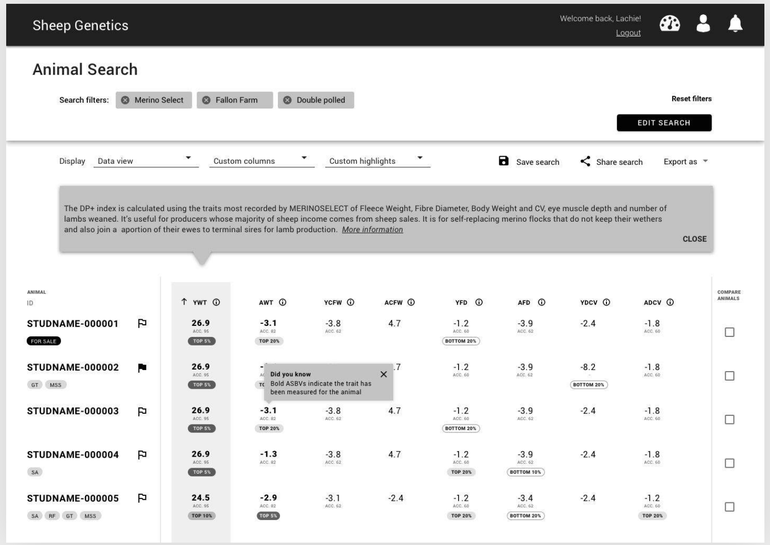


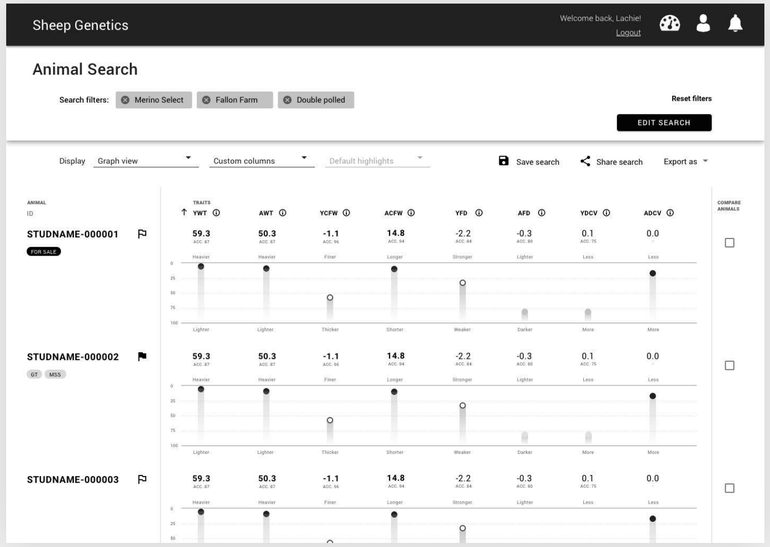
Updated wireframes

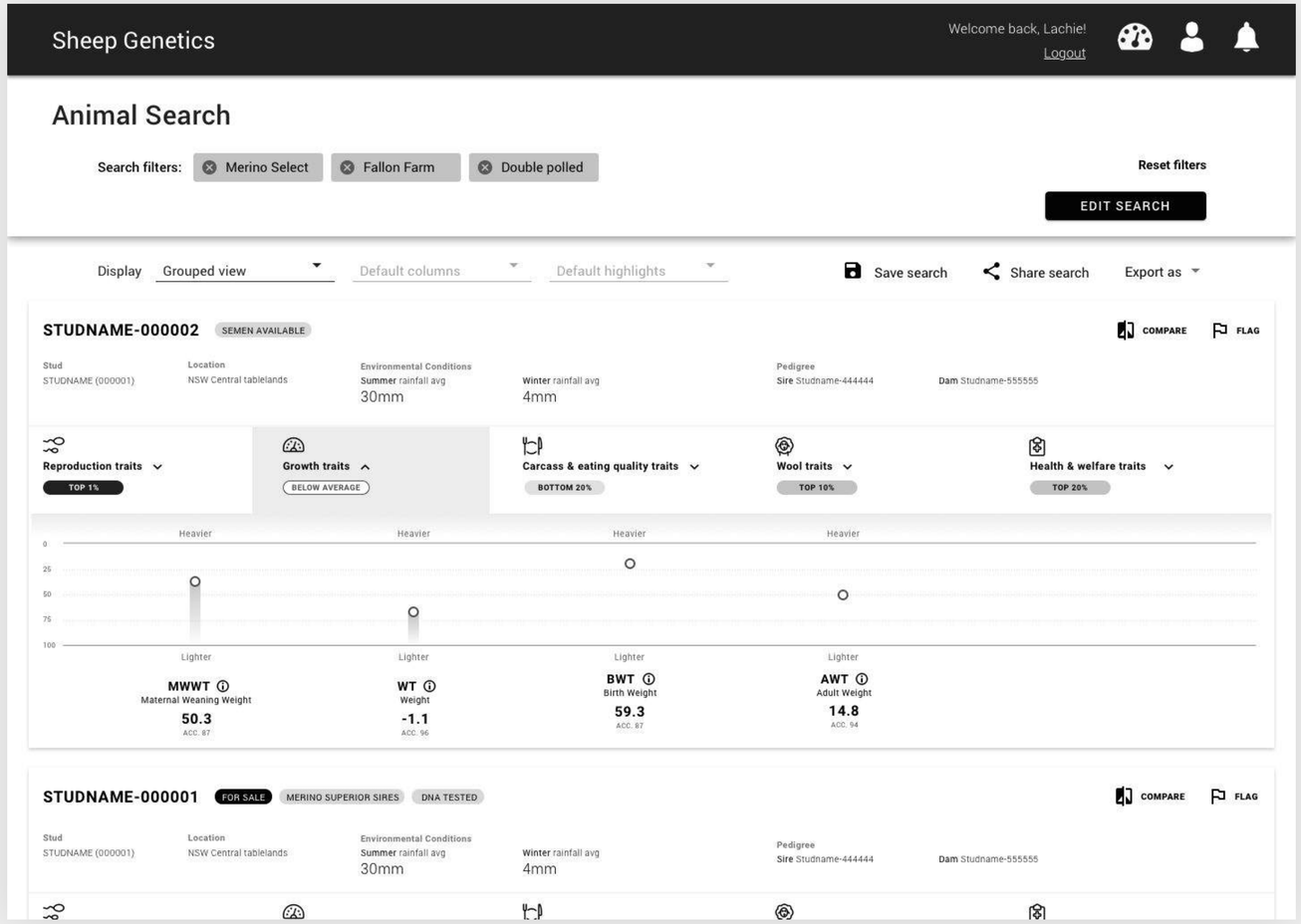
The wireframe concepts were updated to reflect small changes requested at the Ideation playback and AC meetings on 12/08/19.



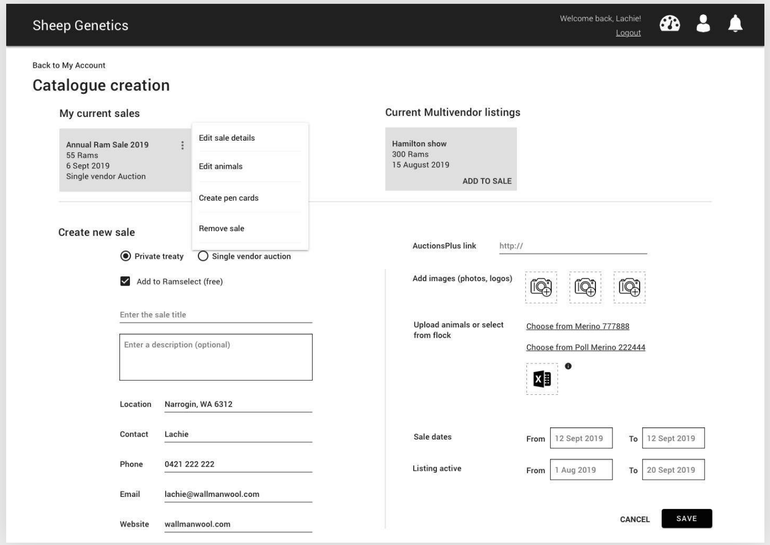
Alternating display results

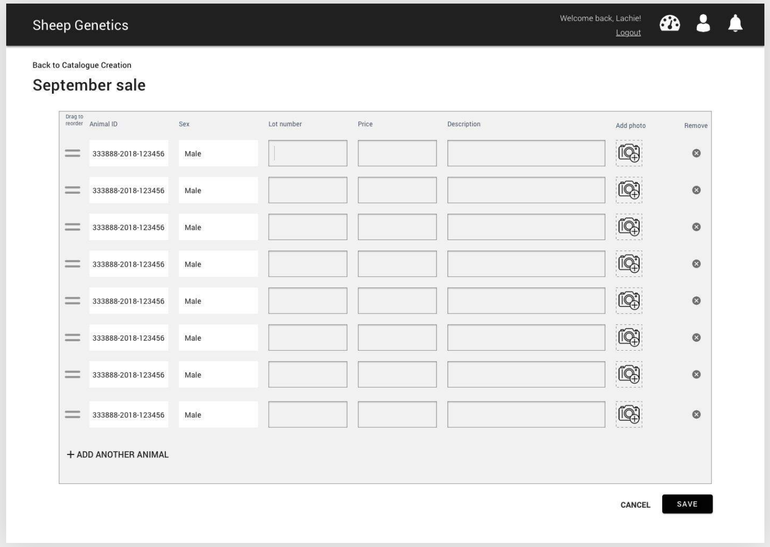


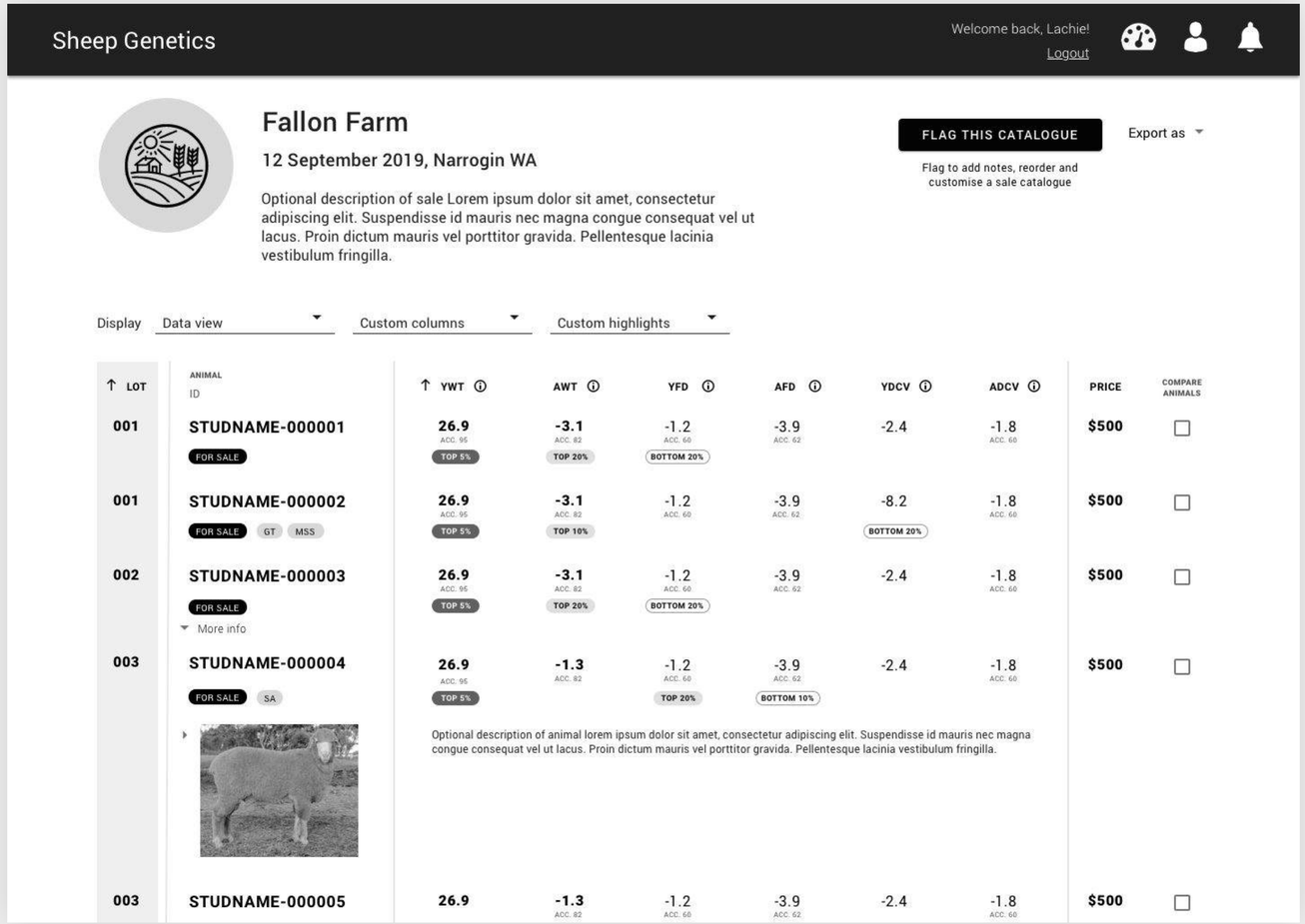




Sale catalogue creation and viewing







Pen cards and mobile view

Wallaloo Park 180350

Wallaloo Park
MERINO & POLL MERINO STUDS

Lot no. 5
Analysis date 01/08/2019
Birth date 01/08/2019

FP	DP+	YFD	YCFW	ACFW	YWT	YSL
152	176	-0.5	15.6	15.1	-0.4	2.0
ACC. 35	ACC. 42	ACC. 81	ACC. 67	ACC. 60	ACC. 74	–
		TOP 30%	TOP 10%		TOP 20%	

MERINOSELECT ASBV

Sheep Genetics ASBVs are calculated from raw data collected by breeders and accredited Sheep Genetics operators. Sheep Genetics (a program of Meat & Livestock Australia) does not oversee or audit the collection of this data therefore Sheep Genetics does not accept any responsibility for the accuracy of the information in this document.

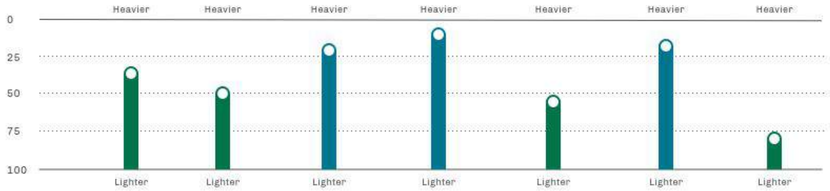
Wallaloo Park 180350

Wallaloo Park
MERINO & POLL MERINO STUDS

Lot no. 5
Analysis date 01/08/2019
Birth date 01/08/2019

MERINOSELECT ASBV

FP	DP+	YFD	YCFW	ACFW	YWT	YSL
152	176	-0.5	15.6	15.1	-0.4	2.0
ACC. 35	ACC. 42	ACC. 81	ACC. 67	ACC. 60	ACC. 74	–
		TOP 30%	TOP 10%		TOP 20%	



Sheep Genetics ASBVs are calculated from raw data collected by breeders and accredited Sheep Genetics operators. Sheep Genetics (a program of Meat & Livestock Australia) does not oversee or audit the collection of this data therefore Sheep Genetics does not accept any responsibility for the accuracy of the information in this document.

Sketch 9:41 AM 100%

Sheep Genetics

STUDNAME-ANIMAL ID

FOR SALE

BREED MERINO SEX MALE DROP 2017

	ASBV	Acc.
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67
Yearling Clean Fleece Weight (YCFW)	30.8 TOP 20%	67

PEDIGREE

SIRE STUDNAME-ANIMAL ID — SIRE STUDN / DAM STUDN

DAM STUDNAME-ANIMAL ID — SIRE STUDN / DAM STUDN

PROGENY

STUD DETAILS

Sketch 9:41 AM 100%

Sheep Genetics

STUDNAME-ANIMAL ID

FOR SALE

BREED MERINO SEX MALE DROP 2017

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

Yearling Clean Fleece Weight (YCFW) TOP 20%
Lighter — Heavier
59.3 ACC. 87

PEDIGREE

SIRE STUDNAME-ANIMAL ID — SIRE STUDN / DAM STUDN

DAM STUDNAME-ANIMAL ID — SIRE STUDN / DAM STUDN

PROGENY

STUD DETAILS

03

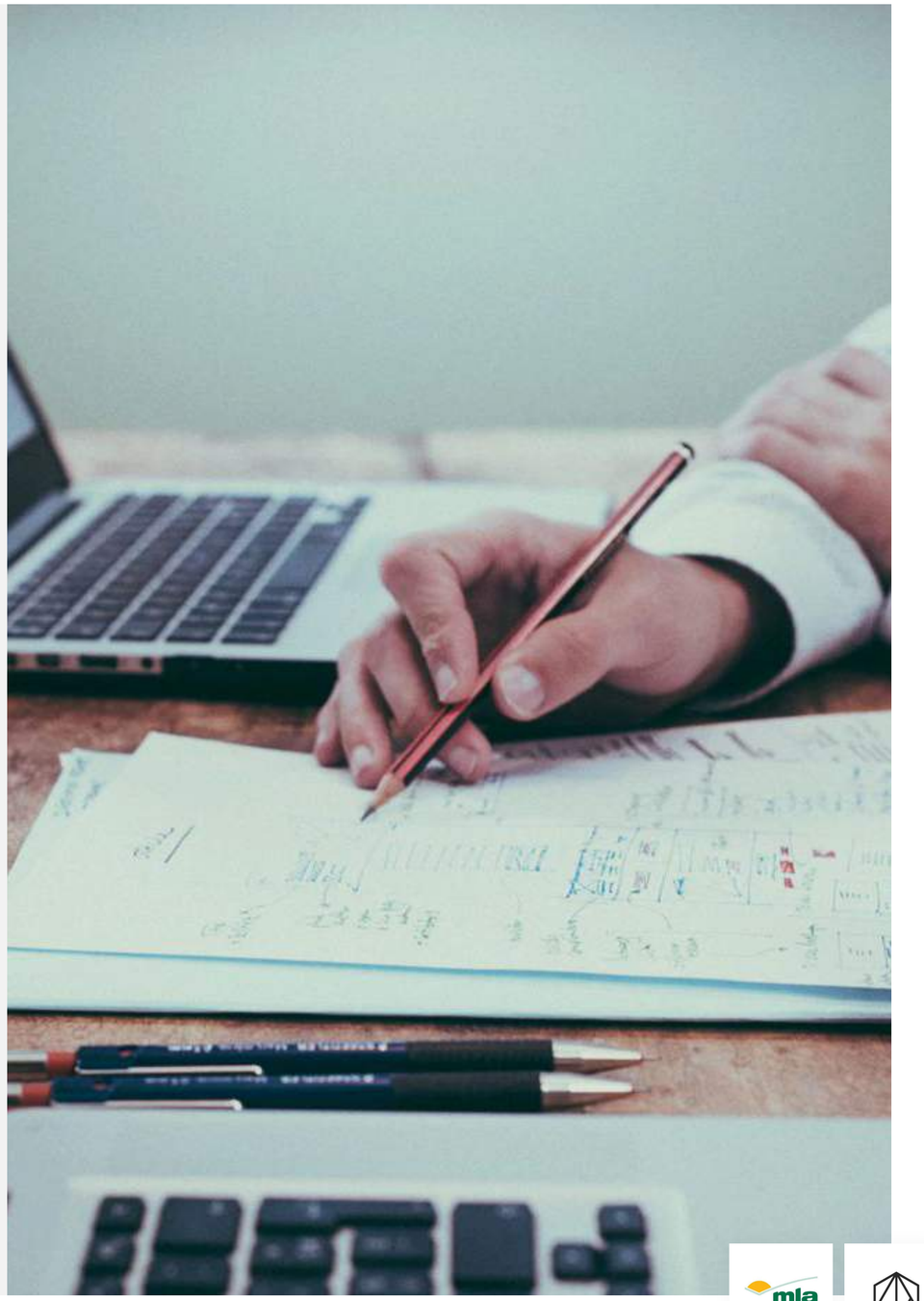
Key screen designs

Key screen designs

Introduction

The following 3 screen designs have been created to demonstrate how the approved art direction will be applied to the design of the new search tool.

The art direction is a culmination of a series of workshops, presentations and feedback from the Sheep Genetics project team and MLA's communications team.



Agreed Art DIrection

Style tile

FONT

Chivo Light
aAbBcCdDeEfFgGhHiIj
JkKlLmMnNoOpPqQrR
sStTuUvVwWxXyYzZ0
123456789

Chivo Regular
aAbBcCdDeEfFgGhHi
IjJkKlLmMnNoOpPq
QrRsStTuUvVwWxXy
YzZ0123456789

Chivo Bold
aAbBcCdDeEfFgGhHi
IjJkKlLmMnNoOpPq
QrRsStTuUvVwWxXy
YzZ0123456789

PRIMARY COLOURS

ICONS - UTILITY

QUALITIES

Precise

Minimal

Contemporary

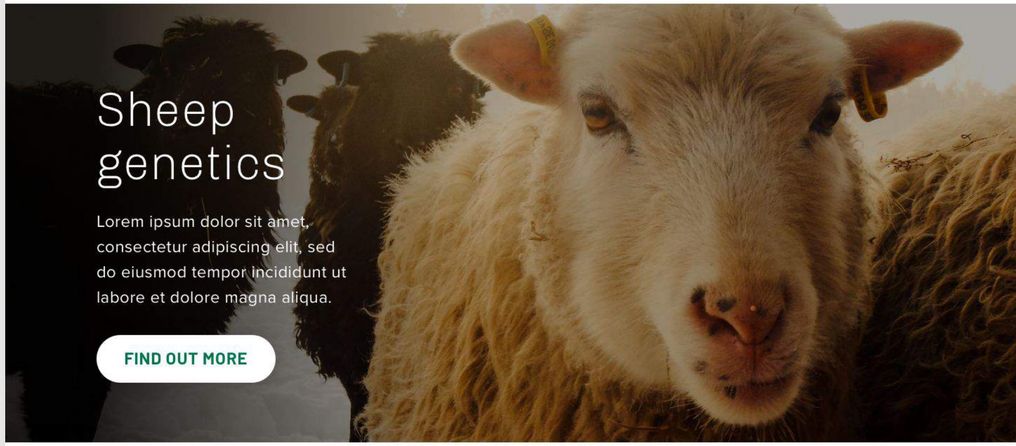
Refined

ICONS - BRANDED

ROUNDED SHAPES

Title

heep GENETICS



WEC	WT	CFW	PFAT
0.04	0.04	0.04	0.04
1.20	1.20	1.20	1.20

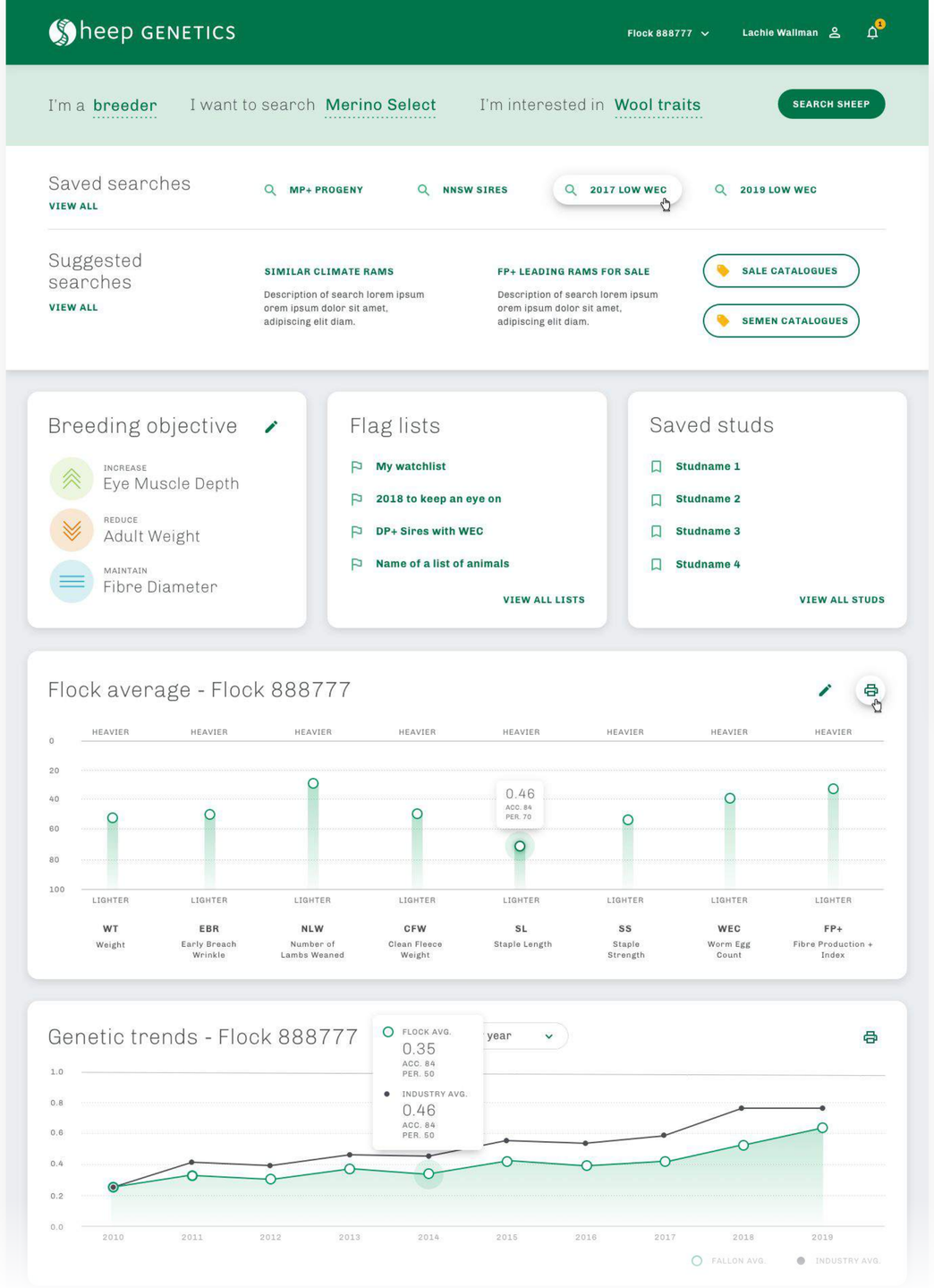
Animal ID	1.20	Information	1.20	1.20	1.20	FIND OUT MORE
Animal ID	1.20	Information	1.20	1.20	1.20	FIND OUT MORE

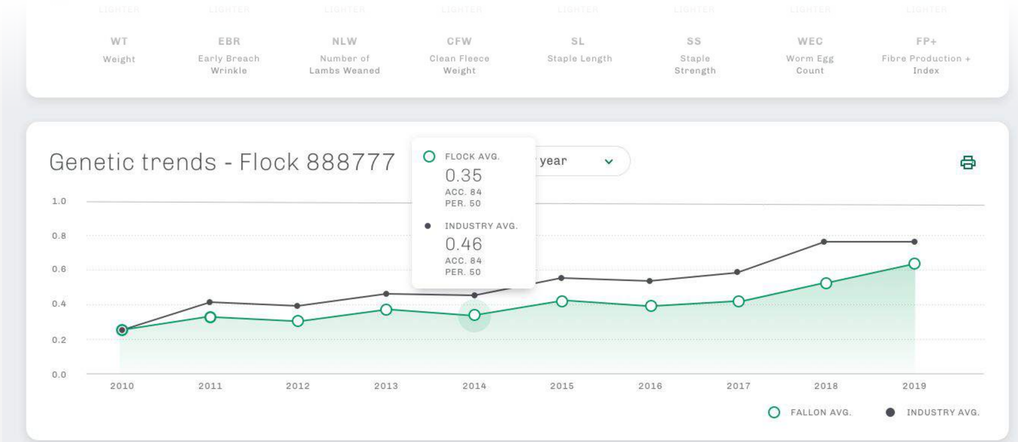
WT	COL	COL	COL	WEC
2,690	10.03	10.03	4,982	0.01
micron	mL	mm	average	average

MEAT & LIVESTOCK AUSTRALIA

Key screen designs

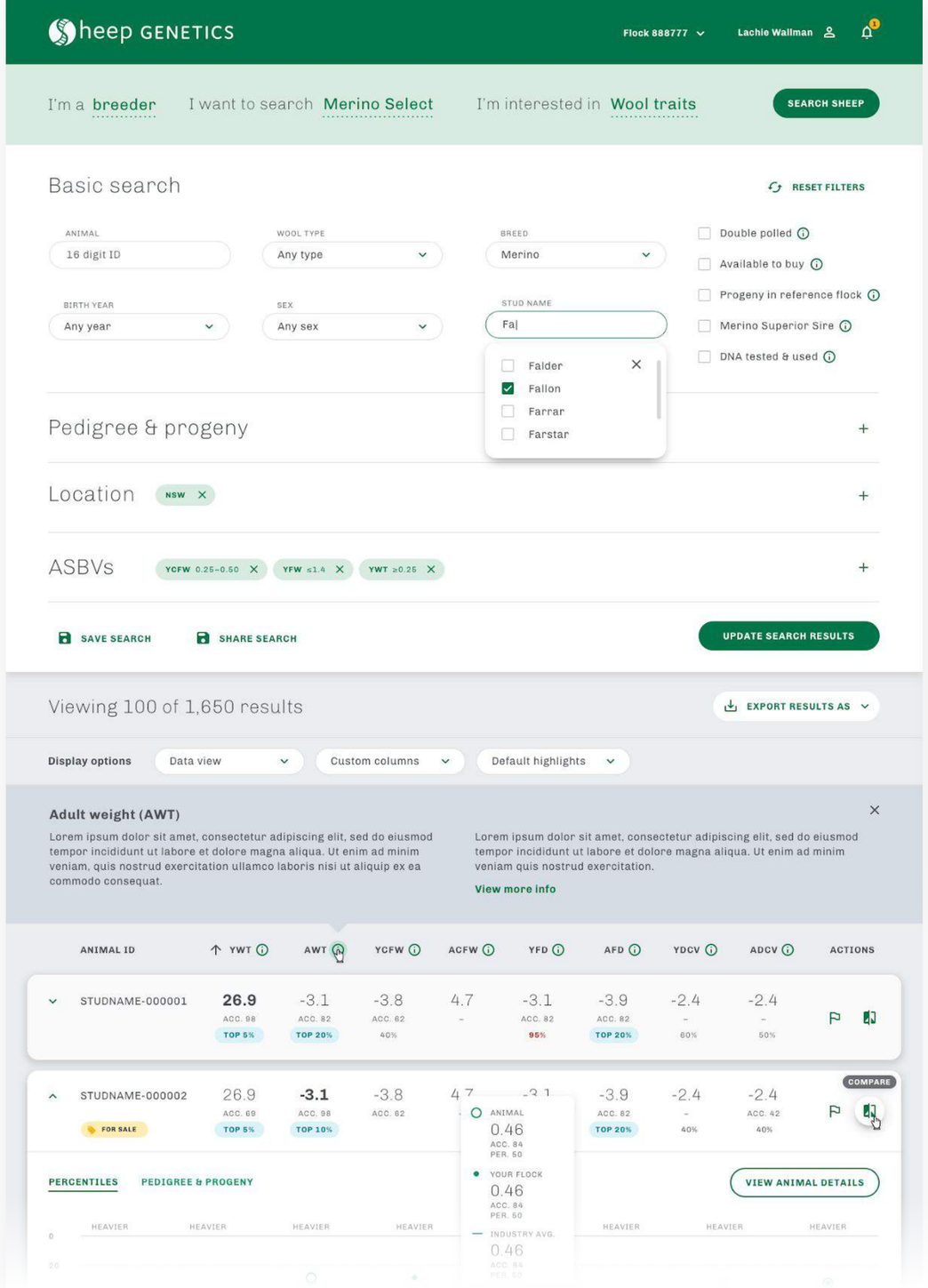
Dashboard

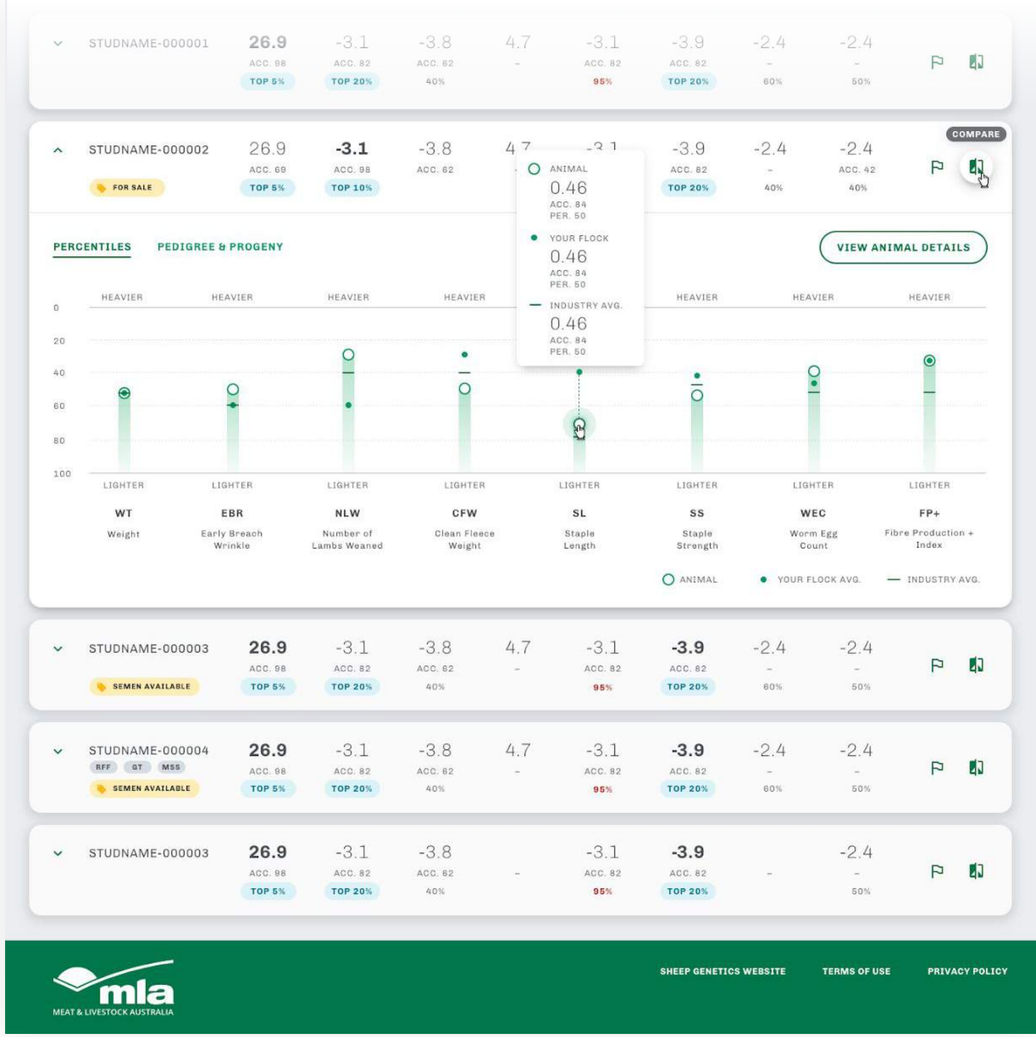




Key screen designs

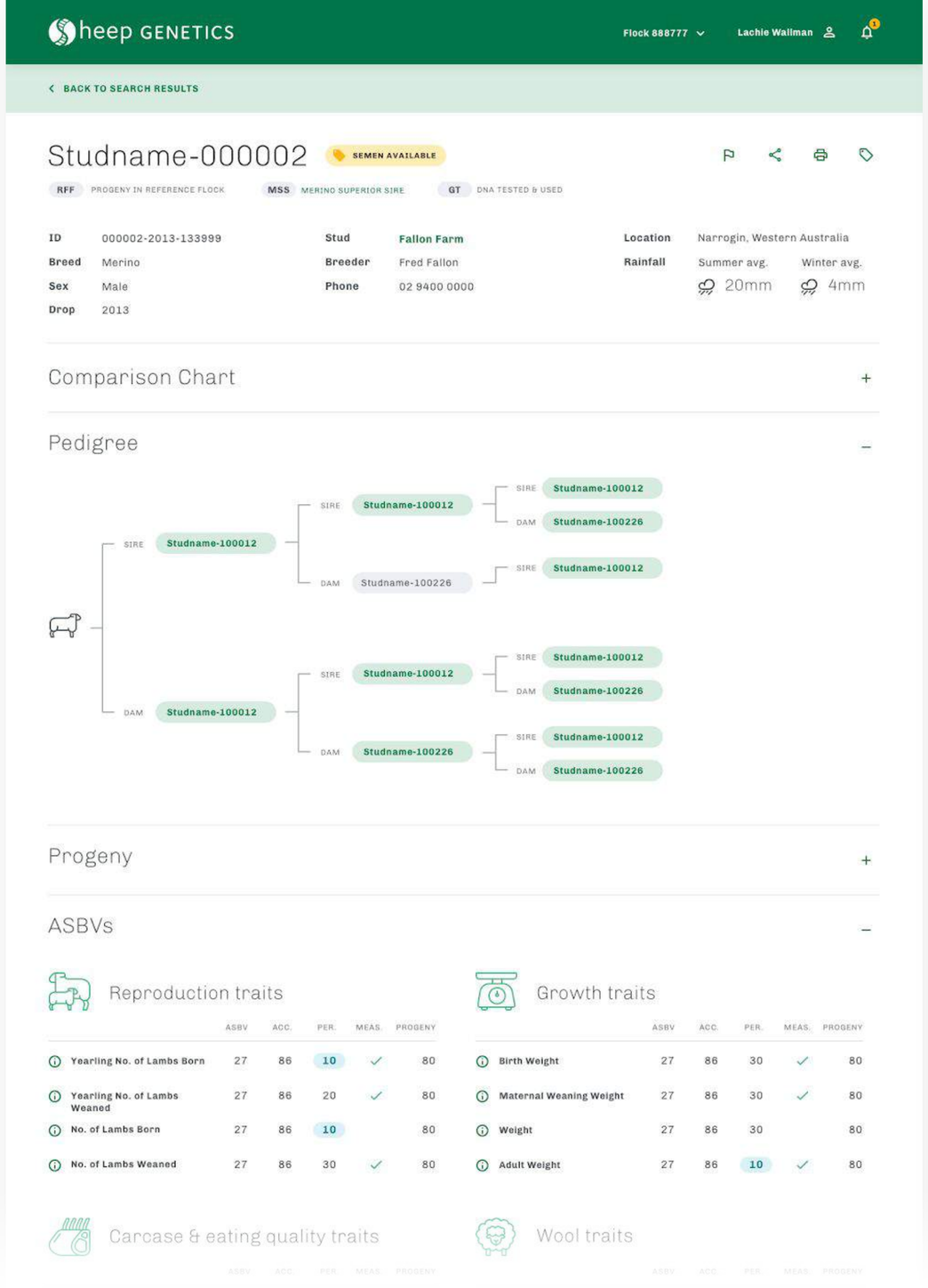
Search Display

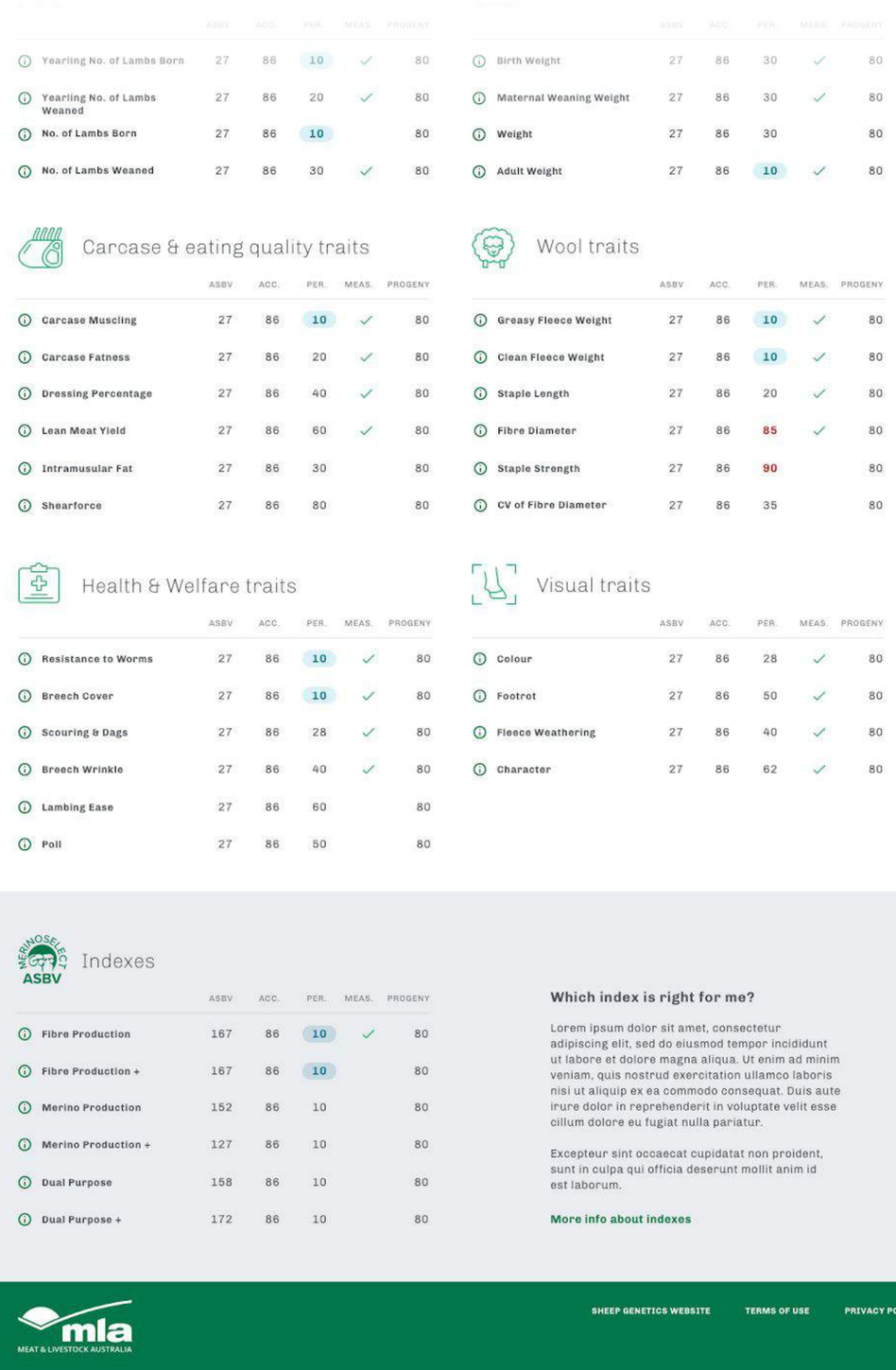




Key screen designs

Animal Detail





04

Solution design

Introduction

The following considerations have informed Tigerspike's solution design recommendation:

Performant

One of the main issues with the current tool is the performance of searches completed by users. For this reason, recommendations are made to ensure performance is improved wherever possible.

Scalable

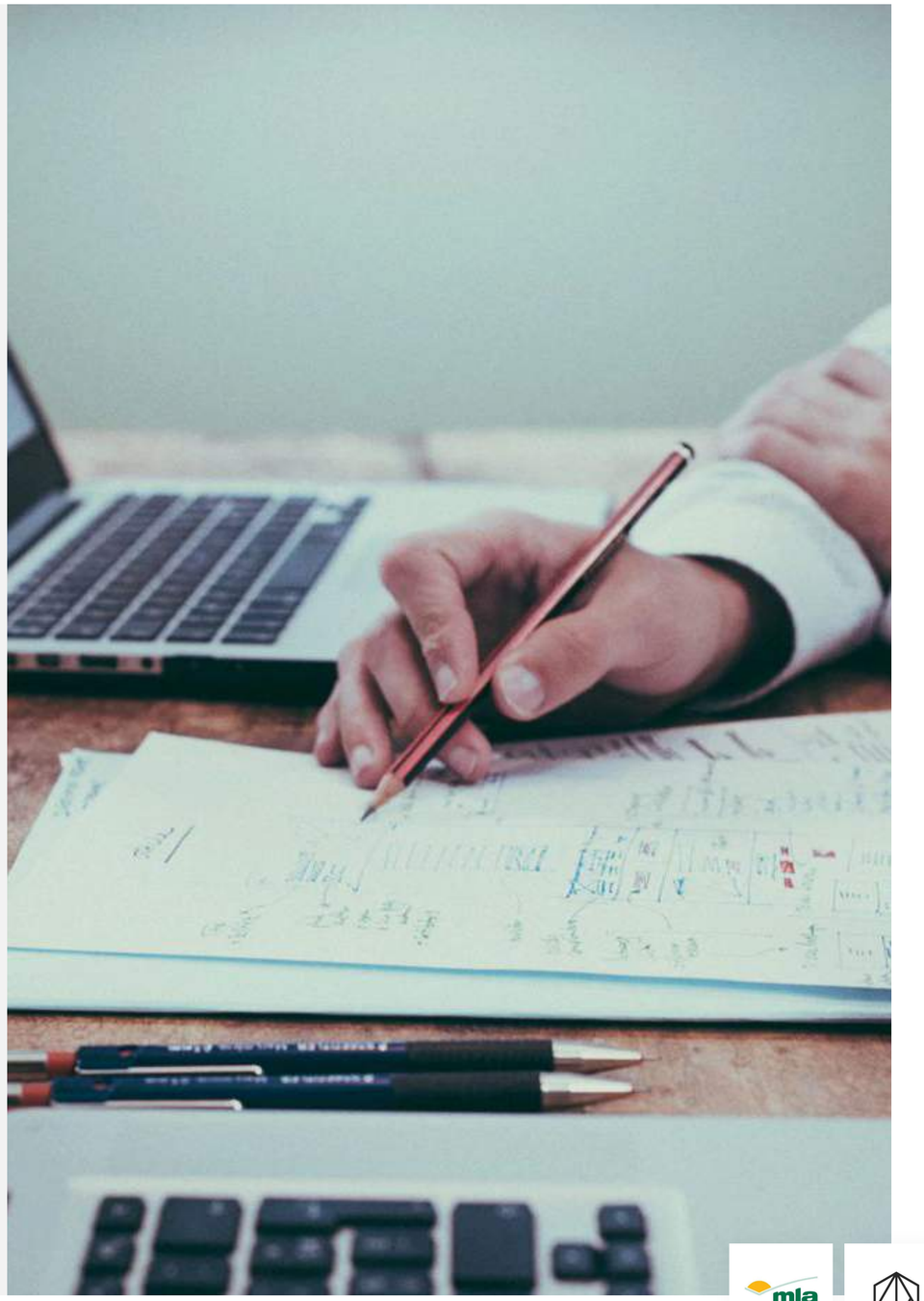
The solution is being reimagined with a focus on increasing adoption amongst industry members. This should manifest in more traffic to the tool and downstream systems. The architecture is therefore designed to cater with this scale as well as be able to scale down during periods of low activity.

Maintainable

The codebases may be maintained by the Sheep Genetics or the MLA team at a future point in time and so should be written in a way to reflect industry standards. As the project also includes a roadmap for future development updates, ensuring maintainability will allow these to be implemented quickly.

Platform agnostic

MLA and Sheep Genetics are currently reviewing their strategy regarding hosting technologies. In order to support multiple cloud providers, technical decisions will consider if they can be deployed on either AWS or Azure environments.

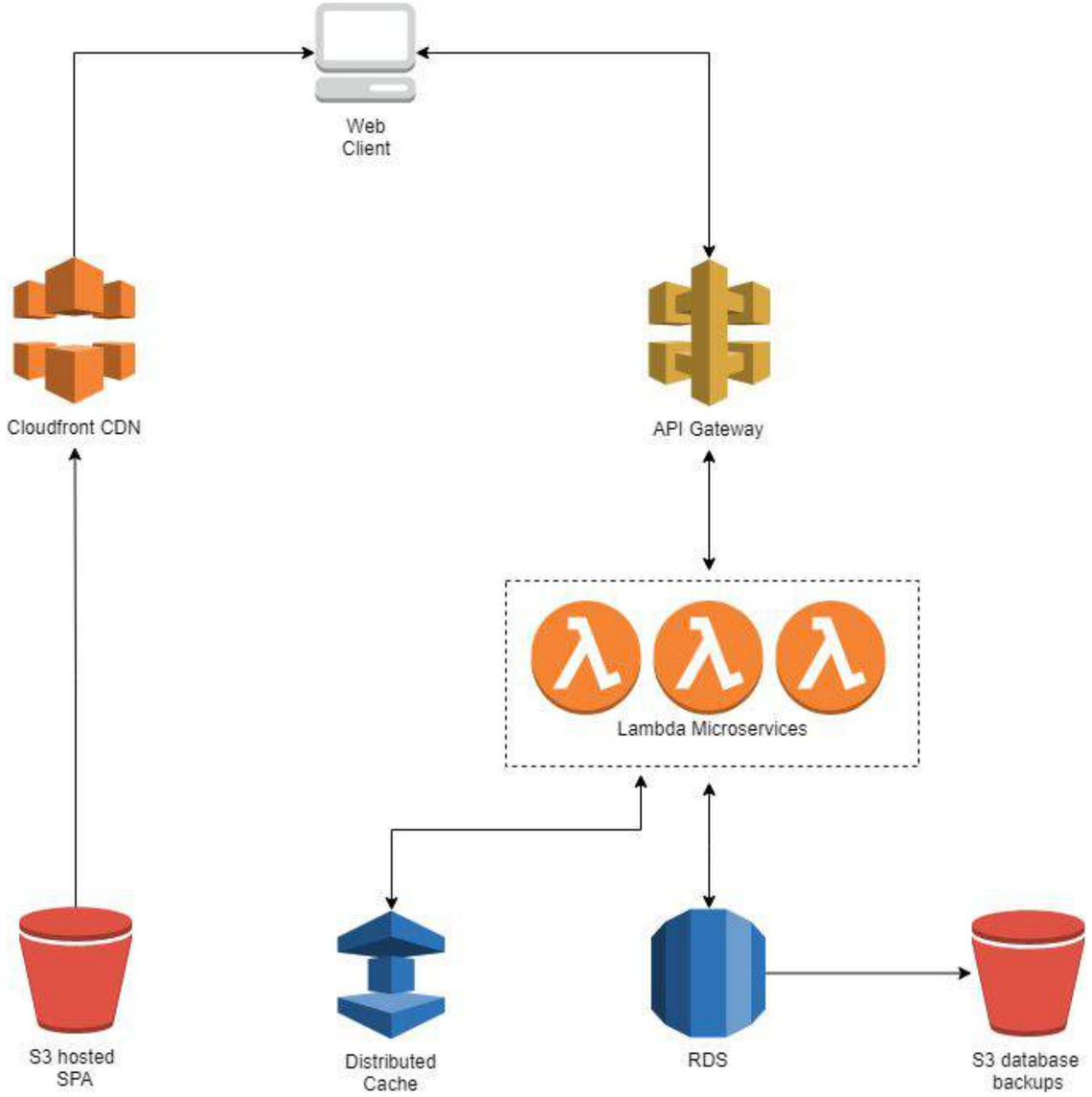


Solution design

Solution Architecture

Overview:

- Leveraging caching and the infrequent changes to data in order to increase search performance and reduce load on the database.
- A database that can be scaled at the push of a button.
- An API that's functions can scale up and down independently (and infinitely) to ensure that heavily used functions don't affect the performance of the others.
- Serverless architecture removes the reliance on physical infrastructure and increases the overall reliability of the solution.

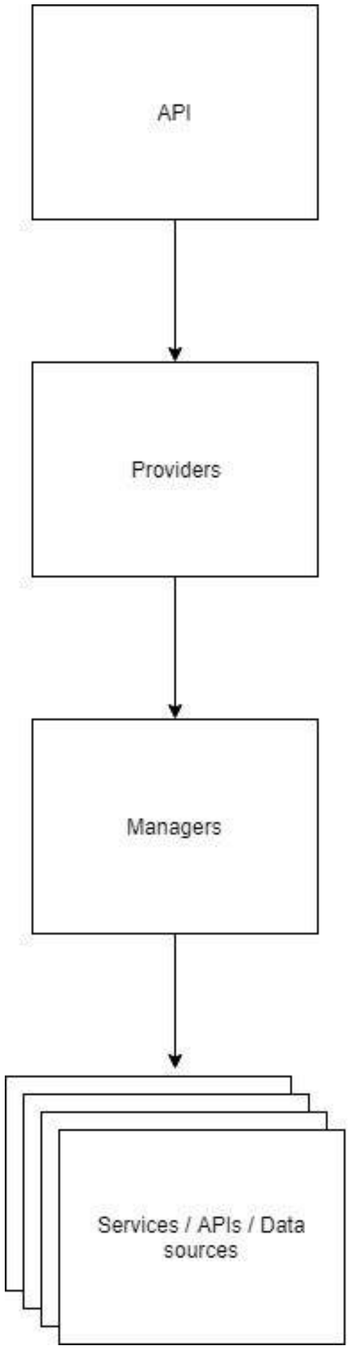


Solution design

Code Structure

Overview:

- Focus on reusable modules to keep codebase a simple as possible rather than repeated code.
- Maintains a focus on testable business logic, which gives confidence when future updates are made.
- Scalable structure allows additional integration points to be added without causing project bloat
- Loosely coupled dependencies allow integration points to be switched out without causing large amounts of rework. This is particularly useful considering the upcoming database rewrite project.



The API layer concerns itself purely with the interaction between requests from clients, their routes and if they require authentication. This layer is responsible for passing request data to the relevant provider function.

The provider layer is the only layer where any business logic should exist.. The function of this layer is combine multiple requests to managers with business rules to produce the response required. This layer should have close to 100% unit test coverage.

The managers are responsible for a single integration point. This may be a database or an external API. The manager would contain the method for authenticating and converting data from the data source to a format recognisable by the provider.. The same managers can be reused across multiple providers.

This represents external APIs or databases that the codebase may access.

Solution design

Database Strategy

Overview:

- Move away from using views to search for data as they are relatively very slow
- Keep database schema as is, to avoid large amounts of rework and support to upcoming database redesign project.
- Avoid being heavy handed with database queries and tactically only return the data that the current function requires.
- Frequently review database performance to determine whether it can be scaled up or down.

05

Epic backlog

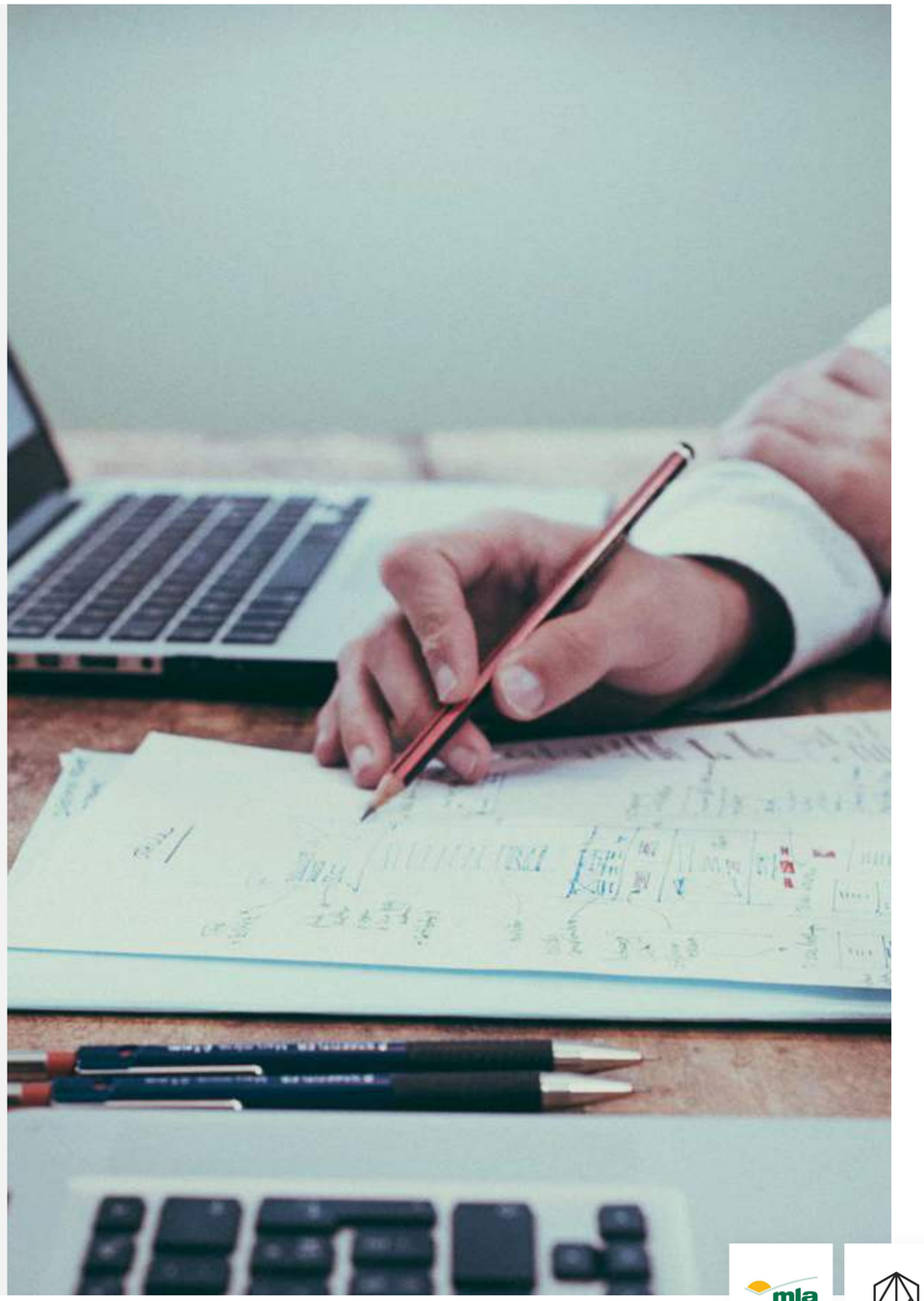
Introduction

The following backlog of epics was prepared and shared with the Sheep Genetics team to prioritise on 22/08/19.

To recap, Epics are large bodies of work linked to a common objective or function that we want to make available for users in the new Search Tool *e.g. Share, export search results.*

Epics comprise a number of individual 'user stories' which are more granular in detail and outline a particular function from a users perspective *e.g. As a user, I want to see see a link to export the search results, so that I can view the search results as a pdf or in excel.*

Prioritisation was completed using the MoSCoW method (refer below). The process helps determine what epics Sheep Genetics viewed as a priority for initial product releases and what can be delayed.



MoSCoW method:

- **Must have.** Form the core scope for the product
- **Should have.** Aren't critical, however deliver high value
- **Could have.** 'nice to haves' that can be explored in the future.
- **Won't have.** Not a priority.

Epic backlog

Overview

Tigerspike identified 30 epics for review and prioritisation by Sheep Genetics.

Epics marked with an asterix highlight the original scope included in the SOW. The additional epics were informed by insights from industry members and Sheep Genetics staff.

- Refine search parameters*
- Display search results*
- Share & export search result*
- Compare search results*
- Animal display details*
- Sale and semen catalogues*
- Multi-vendor sales*
- Saved searches*
- Pen cards*
- Authentication and user management*
- Admin tools*
- View resources*
- Dashboard configuration
- Account page configuration
- Display preferences
- Data permissions
- Link service providers to accounts
- Stud profile page
- Download reports
- Trend graphs
- Flagged animal list
- Flag a sales catalogue
- Flock averages
- Notifications - SG News
- Notifications - Catalogue info
- Suggested searches
- Saved studs
- Breeding objectives
- Notifications - Animals
- Notifications - Service providers

Epic backlog

Must Haves

Determined by Sheep Genetics as the highest value epics they would like to include in the new Search Tool.

- Refine search parameters*
- Display search results*
- Share & export search result*
- Compare search results*
- Animal display details*
- Sale and semen catalogues*
- Multi-vendor sales*
- Saved searches*
- Pen cards*
- Authentication and user management*
- Admin tools*
- View resources*
- Dashboard configuration
- Account page configuration
- Display preferences
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- Notifications - Catalogue info
- Suggested searches
- Saved studs
- Breeding objectives
- Notifications - Animals
- Notifications - Service providers

Epic backlog

Should have

These epics are determined as high value, but will be prioritised for inclusion in future Search Tool releases.

- Refine search parameters*
- Display search results*
- Share & export search result*
- Compare search results*
- Animal display details*
- Sale and semen catalogues*
- Multi-vendor sales*
- Saved searches*
- Pen cards*
- Authentication and user management*
- Admin tools*
- View resources*
- Dashboard configuration
- Account page configuration
- Display preferences
- Data permissions
- Link service providers to accounts
- Stud profile page
- Download reports
- Trend graphs
- **Flagged animal list**
- **Flag a sales catalogue**
- **Flock averages**
- **Notifications - SG News**
- **Notifications - Catalogue info**
- Suggested searches
- Saved studs
- Breeding objectives
- Notifications - Animals
- Notifications - Service providers

Could have

These epics are not an immediate priority, but will be assessed for potential inclusion in ongoing releases.

- Refine search parameters*
- Display search results*
- Share & export search result*
- Compare search results*
- Animal display details*
- Sale and semen catalogues*
- Multi-vendor sales*
- Saved searches*
- Pen cards*
- Authentication and user management*
- Admin tools*
- View resources*
- Dashboard configuration
- Account page configuration
- Display preferences
- Data permissions
- Link service providers to accounts
- Stud profile page
- Download reports
- Trend graphs
- Flagged animal list
- Flag a sales catalogue
- Flock averages
- Notifications - SG News
- Notifications - Catalogue info
- **Suggested searches**
- **Saved studs**
- **Breeding objectives**
- **Notifications - Animals**
- **Notifications - Service providers**

In summary

These 30 Epics inform the product roadmap for the new Search Database Tool.

Must have

- Refine search parameters*
- Sale and semen catalogues*
- Admin tools*
- Data permissions
- Display search results*
- Multi-vendor sales*
- View resources*
- Link service providers to accounts
- Share & export search result*
- Saved searches*
- Dashboard configuration
- Stud profile page
- Compare search results*
- Pen cards*
- Account page configuration
- Download reports
- Animal display details*
- Authentication and user management*
- Display preferences
- Trend graphs

Should have

- Flagged animal list
- Flag a sales catalogue
- Flock averages
- Notifications - SG News
- Notifications - Catalogue info

Could have

- Suggested searches
- Saved studs
- Breeding objectives
- Notifications - Animals
- Notifications - Service providers

06

Design & build recommendation

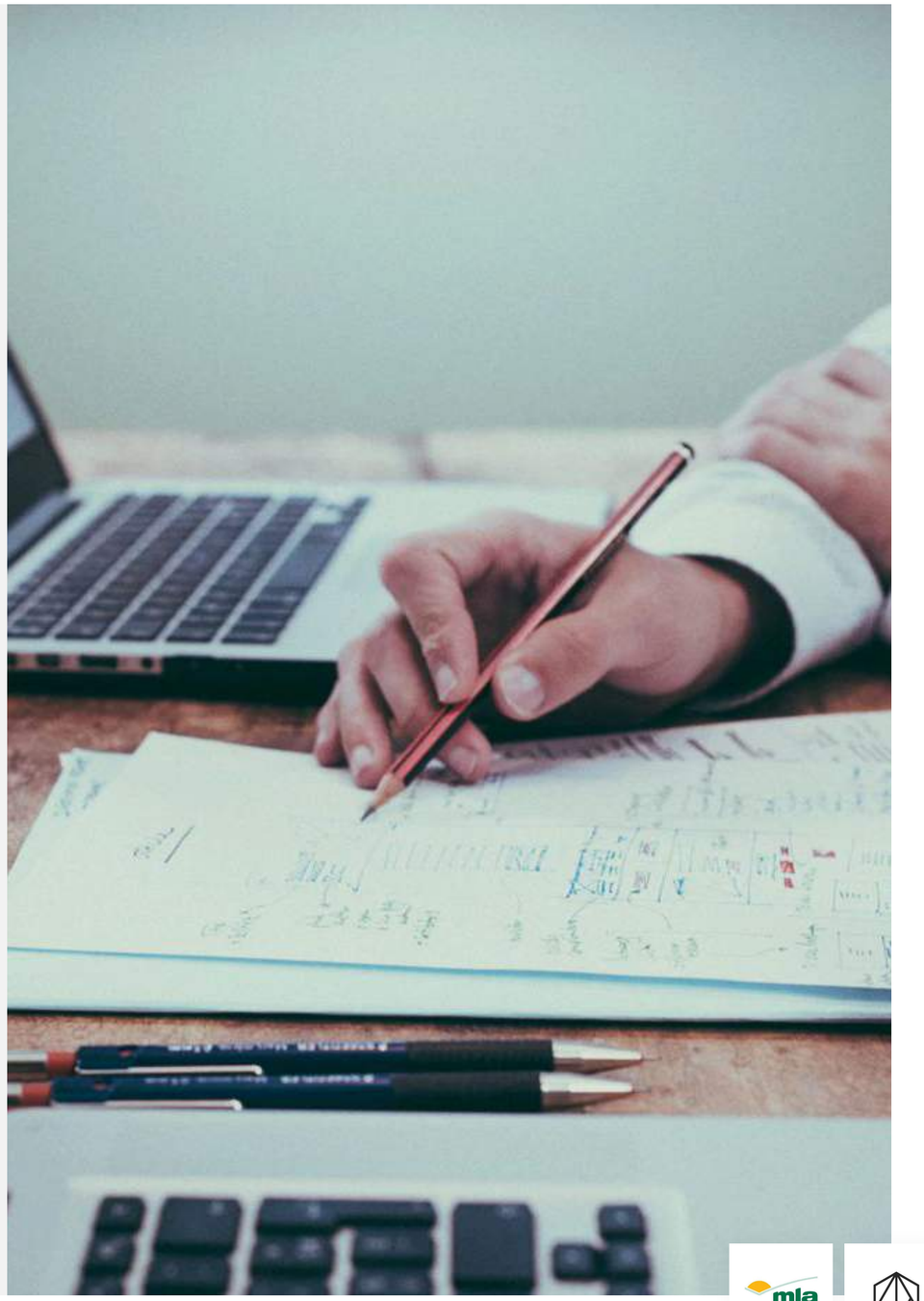
Introduction

The design and build recommendation is based on delivery of an initial backlog, prioritised by the Sheep Genetics project team.

The backlog is based on conservative estimates that are subject to further refinement with Tigerspike's delivery team and Sheep Genetics project team once Phase 2 commences.

To move the product vision into delivery we recommend:

- Project ran as an agile program
- Delivered by a multidisciplinary Scrum team
- 8 x 'Sprints' to deliver the initial product backlog.
  - 1 x Foundation;
  - 6 x Feature Development; and
  - 1 x Hardening



Initial backlog

Will include 14 of the 20 Must have epics.

Must have

- Refine search parameters*
- Sale and semen catalogues*
- Admin tools*
- Data permissions
- Display search results*
- Multi-vendor sales*
- View resources*
- Link service providers to accounts
- Share & export search result*
- Saved searches*
- Dashboard configuration
- Stud profile page
- Compare search results*
- Pen cards*
- Account page configuration
- Download reports
- Animal display details*
- Authentication and user management*
- Display preferences
- Trend graphs

Should have

- Flagged animal list
- Flag a sales catalogue
- Flock averages
- Notifications - SG News
- Notifications - Catalogue info

Could have

- Suggested searches
- Saved studs
- Breeding objectives
- Notifications - Animals
- Notifications - Service providers

Note: Epics marked with an asterix highlight the original scope included in the SOW.

Thank you

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Mumbai — Singapore — Tokyo —
Melbourne — Sydney — Brisbane