Searching for Genetics Online

The majority of beef cattle Breed Societies/Associations now have their web service areas available online. This puts the entire herd book at a beef producer's fingertips, allowing the exploration of pedigree, BREEDPLAN EBVs, Selection Index values and other information (e.g. genetic condition status) for each animal. There is also the ability for beef producers to search and sort online sale and semen catalogues to easily identify animals with the best genetics for their breeding program.

While this document will cover how to explore the web services area, the A BREEDPLAN Guide to Animal Selection tip sheet, available on the Help Centre of the BREEDPLAN website, provides a best practice guide to using this information in animal selection decisions.

ACCESSING THE WEB SERVICES AREA OF A BREED SOCIETY/ASSOCIATION

The web services area can be accessed via the relevant Breed Society/Association website. While different Breed Societies/Association may display the links differently, each website should have links to web service areas such as Animal or EBV Enquiry.

ANIMAL ENQUIRY

The Animal Enquiry web service area can be used to search by animal name, society ident, herd, breeder location and other identifiers. It is important to note that there is variation in which identifiers are made available

Figure 1. Searching for animals via the web services area

FAST // FACTS

- Access the web services area of the relevant Breed Society/Association

- Use the wildcard symbol (%) if unsure of an animal's name, identifier or a member's name

- Use the "Select if" to filter animals based on different characteristics

- Search for animals based on minimum or maximum EBV trait parameters

- Sort animals by EBV, by clicking on the trait name in the column heading

- Search and sort Sale and Semen catalogues in the same way as the EBV Enquiry

by each breed society/association. The Animal Enquiry search brings up a list of animals with their name, sex, ident and birth date. For some societies, additional columns may include registration status, horn/poll status and/or coat colour. Once the list of animals has appeared, it is possible to change from an Animal Enquiry list to an EBV Enquiry list by clicking on the "Show ALL EBVs" option in the top left corner of the web browser window.

To **search for an animal by name**, type the name into the "Name" field and click the "search" button. If you are unsure of the animal's name, or only know part of it, place a "%" sign, known as the wildcard symbol, at the beginning and end of the name (as shown in Figure 1). This will bring up all animals whose names contain that word.

To look up **animals from a particular herd**, the details for the herd and animals of interest need to be entered. For

example, if you wanted to look up all male calves born in 2012 from the herd "Top Stud", you would enter the herd's prefix in the name field with the wildcard symbol (%), enter a "Calving Year" of 2012, and select if "Animal is Male". This is shown in Figure 1. You can also choose to select animals from multiple calf drops by placing a comma between the years e.g. 2012,2014 would bring up all calves born in the 2012, 2013 and 2014 calving years (note: no space after the comma).

There are a number of other "Select if" options available which users can use to further filter their searches. These differ between Breed Societies but can include genetic condition status, coat colour, horn/poll status, sire and dam names, and breeder location.

EBV ENQUIRY

The EBV Enquiry web service area contains the same searches as the Animal Enquiry area but with the addition of the ability to restrict searches with EBV and selection index thresholds. Once the list of animals with their EBVs has appeared, it is possible to change back to an Animal Enquiry list by clicking on the "Hide EBVs" option in the top left corner of the web browser window.

With the EBV Enquiry, users can choose to **only select animals which meet certain EBV trait parameters** which they have specified. These include a minimum and maximum value for each trait, and a minimum EBV accuracy. The example in Figure 2 shows what you would enter if you only wanted to view animals which had below breed average Birth Weight EBVs, but above breed average 200 Day Weight EBVs.

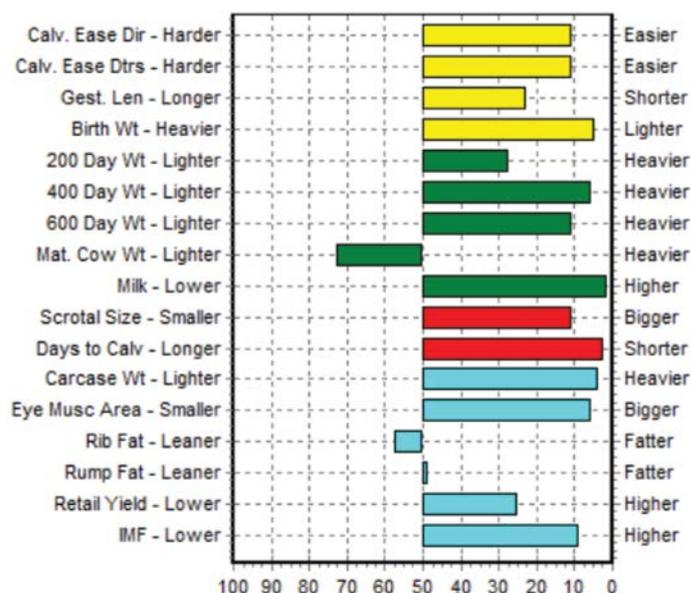| Trait Description	Min	Max	Min. Accuracy (%)	Breed Avg *
Calving Ease Dir (%)				+0.0
Calving Ease Dtrs (%)				+0.3
Gestation Length (days)				-3.1
Birth Wt. (kg)		+4.5		+4.5
200 Day Wt. (kg)	+39			+39

Figure 2. Search & Sort Based on EBVs

Once the user has searched and created a list of animals, they can **re-sort the list based on a particular EBV or selection index** by clicking on the trait header. In the example shown in Figure 3, the animals are sorted on their 600 Day Weight EBV, which is highlighted in grey. If you then wanted to sort the animals on their Milk EBV, you would need to click on the Milk column header (red arrow).

Animal	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)
Animal 1	+64 / 70%	+113 / 70%	+166 / 71%	+156 / 66%	+25 / 63%	+3.6 / 76%
Animal 2	+53 / 78%	+96 / 78%	+149 / 77%	+146 / 71%	+12 / 64%	+2.7 / 77%
Animal 3	+58 / 71%	+101 / 68%	+148 / 70%	+149 / 62%	+18 / 54%	+4.3 / 70%
Animal 4	+53 / 68%	+102 / 69%	+148 / 71%	+136 / 64%	+21 / 53%	+2.5 / 76%
Animal 5	+54 / 68%	+103 / 67%	+147 / 68%	+141 / 62%	+16 / 57%	+4 / 76%

Figure 3. In this example the animals are sorted on their 600 Day Weight EBV, which is highlighted in grey. To sort the animals on their Milk EBV, you would need to click on the Milk column header (red arrow).

The EBVs and Selection Index values for an individual animal are also presented graphically in the EBV Percentile Graph (Figure 4). This graph allows the user to **visualise where an animal ranks against the current genetics** of the breed (i.e. two year old animals), without the need to remember each EBV or consult the EBV Percentile Bands Table. An EBV Accuracy Graph is also available. Both graphs can be accessed by clicking on the EBV Graph 'View' icon (as depicted in the 'Viewing an Individual Animal's Details' box) or by clicking on the graph icon at the top left of the EBV table. You can switch between the two graphs by clicking on the "switch graph" button.

50th Percentile is the Breed Avg. EBVs for 2019 Born Calves

Figure 4. The EBV Percentile Graph provides a visual representation of where an individual animal ranks against the current genetics of the breed (i.e. two year old animals).

SALE AND SEMEN CATALOGUES

The same search and sort principles discussed in the Animal and EBV Enquiry sections can also be used to create shortlists **of selection candidates** within online sale and semen catalogues. Both the Sale and Semen Catalogues have their own web service area accessible from the list of web services near the top of the web page. Once a user has entered either the sale or semen catalogue web service area, they will be able to click on specific catalogues within which they want to search. If users would prefer to search for all animals for sale and/or with semen available, mose Breed Societies/Associations have this provision available via the EBV Enquiry area. Note that if there is no upcoming sales or vendors have not supplied their catalogues to their breed society/association, the sale and semen catalogue web service areas may not contain any catalogues to search.

Once a user has entered a catalogue, they can choose to search/sort these catalogues in the same manner as they would in the EBV Enquiry facility by clicking on the "Search/Sort Catalogue" option on the top left hand side of the screen.

SUMMARY

With an enormous amount of information for registered cattle now available online, it is essential that today's beef producer is familiar with the web services area offered by their Breed Society/Association. The digitalisation of the herd book allows the beef producer the ability to explore pedigree, BREEDPLAN EBVs, Selection Index values and other information for each animal. This, combined with the ability to search and sort online sale and semen catalogues, gives beef producers a considerable opportunity to easily identify the best genetics for their breeding programs.

To further discuss the use of the web services to search for genetics online, please contact staff at Southern Beef Technology Services (SBTS) or Tropical Beef Technology Services (TBTS).

Viewing an Individual Animal's Details

A range of information is available from the internet for each particular seedstock animal, such as pedigree, breeder, current owner, genetic condition status and latest EBVs.