NPIP and PBSELECT update

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Introduction

The National Pig Improvement Program (NPIP) and PBSELECT are automated genetic evaluation systems run at AGBU. They have different target groups, but operate similarly:

- data submission and return of results is via e-mail;

- runs are triggered by the arrival of new data;

- they use the PIGBLUP analysis engine; and

- clients are restricted in the analysis options available.

With so many similarities, it is logical that the two systems be maintained and developed side by side, making use of common code wherever possible. However, the NPIP was developed far earlier than PBSELECT and subsequent developments were made without reference to any potential new system. PBSELECT was designed with both systems in mind, with a view to transferring the new structure into the NPIP to create a more streamlined, maintainable system.

The purpose of this paper is to outline the current status of the two systems and where they will go in the immediate future.

National Pig Improvement Program

The NPIP was initiated by Queensland Department of Primary Industries around 10 years ago. In 2001, the development and running of the system was transferred to AGBU. The major changes that resulted from this were a change to using PIGBLUP to perform the analyses, the development of an automatically updated web site (http://npip.une.edu.au) and client usage of the e-mail data submission facility.

The NPIP is an across-herd genetic evaluation system. As such, the estimated breeding values (EBVs) produced can be directly compared between the participating herds. This is dependent upon the identification of genetic links between the herds, which requires the transfer of identification information from each participating herd.

National Pig Improvement Program EBVs are of use to anyone looking to source genetic material from outside their herd, whether they are NPIP participants or producers.

1. New participants

Three new users have joined the NPIP since the last pig genetics workshop; all having Large White herds and one having both Landrace and Duroc as well. In addition, one existing member now has a Duroc herd as well.

2. Transfer of PBSELECT developments

Work to transfer the NPIP system into a structure closer to that of PBSELECT, and hence share more of the script and program code, is on-going. This will result in the NPIP accepting all PIGBLUP data formats and allowing users to have more than 10 character animal identifiers. In the first instance, the graphics library chosen for use in PBSELECT has been incorporated into the NPIP.

3. AI centre information on the web

Most AI centres have a web presence. However, it has not generally been possible to access up to date NPIP EBVs from these sites.

Meanwhile, the NPIP web site has routinely displayed automatically updated lists of EBVs for known AI boars within each breed. The problem of these for an AI centre is that the lists cover all AI centres – so providing links to these would be advertising for the opposition as well as yourself.

It is now possible for AI centres to link to the NPIP web site in order that their clients can have immediate access to the most up-to-date NPIP EBVs for boars marketed by that centre.

For each centre, a web page exists with a URL of the form http://npip.une.edu.au/ai/XXX.html, where XXX is the code for that AI centre. Within that page there is a table of EBVs for each of the three breeds. An AI centre may choose to link to this page as a frame or in a new window rather than have clients leave their site to visit the NPIP site.

For each AI current boar, a page with a URL of the form http://npip.une.edu.au/ai/HHH_BOARID.html exists, where HHH is the herd of origin code and BOARID is the identifier in the herd of origin. This page displays a graphic similar to the PIGBLUP profile graph:

NPIP EBV Percentiles for Gatton Great Big Boar 123
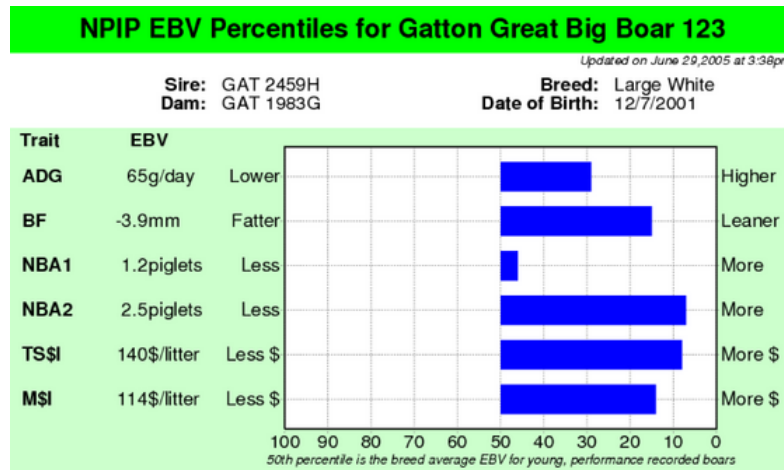
Once AGBU is informed that a boar is no longer standing at AI he is removed from the AI boars list, resulting in his personal web page being removed and his EBVs no longer being added to AI results tables.

PBSELECT

The PBSELECT service is an automated bureau service. Genetic evaluations are within-herd, and the results cannot be directly compared with those from any other genetic evaluation.

There is a group of producers within Australia that breed some of their replacements on-farm and routinely performance record animals in a herd-recording system. The PBSELECT system is aimed at getting these people to make use of EBVs in their on-farm selection decisions. This benefits them through improved selection decisions making better use of their previous investment in recording, it should also encourage them to expect EBV information from breeders that supply them with seedstock.

The system provides a much reduced service compared to PIGBLUP – there are no pre- or post-analysis tools and the analysis settings cannot be modified by the client

The system came on-line at the end of 2005, some years after the NPIP was transferred to AGBU. Since it does not need to merge data from different sources, the PBSELECT system is simpler than the NPIP.

For a new client, AGBU staff assist in making sure that the data are in the correct format (any of the PIGBLUP formats) and does not contain too many errors. The analysis is then set up on an AGBU server.

As with the NPIP, results are returned to the client as a compressed (ZIP) archive of HTML and image files – ie a structured set of files that can be viewed with a standard web browser and opened in other programs, such as a word processor or spreadsheet, if required. Figure 1 shows examples of the graphics returned to the PBSELECT clients. While the overall look of these will be familiar to NPIP clients, the quality of the output is much higher here due to the use of a different graphics library to do the drawing. This graphics library will also be used in NPIP development from now on.
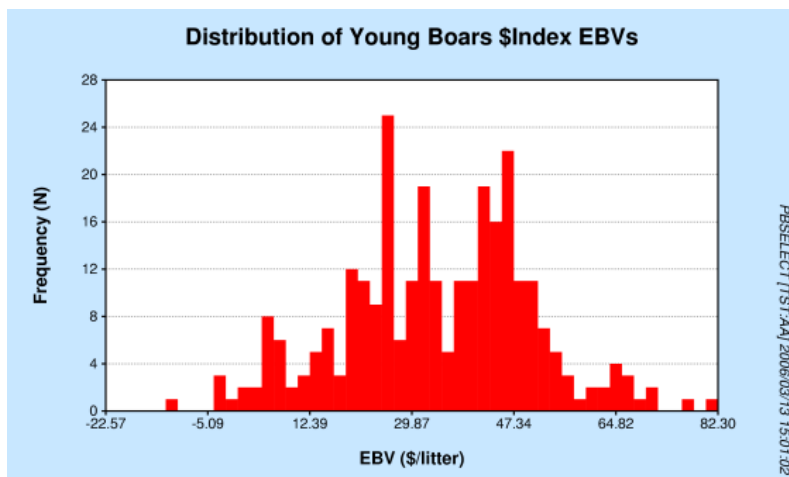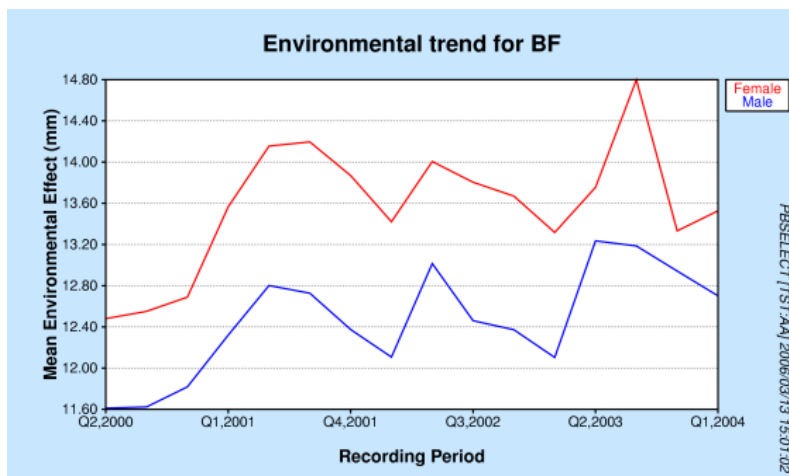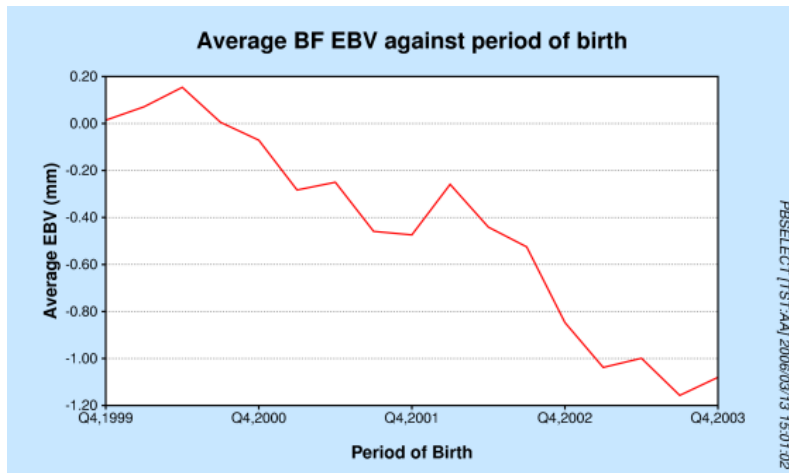
Figure 1. Examples of PBSELECT results graphics

The PBSELECT system is regularly used and has proven to be robust and stable.

Acknowledgement