Neogen introduces GGP indicus: a new genomic profiling tool for tropically adapted cattle

Neogen is excited to announce the recent development of the GeneSeek Genomic Profiler™ indicus (GGP indicus) SNP chip, which focuses on the unique needs of Bos indicus and tropically adapted Bos taurus breeds of cattle.

Neogen has leveraged nearly a decade of cattle genotyping results to identify SNP content from a multitude of low to high density SNP genotyping platforms that routinely provide high quality genomic data. The result is a genotyping array that is highly informative for Bos indicus breeds of Brahman, Guzera, Gyr, and Nelore; Bos indicus x Bos taurus composite breeds such as DroughtMaster and Santa Gertrudis; and tropically adapted Bos taurus animals.

The GGP indicus is a 35,000 SNP marker panel with design features including: markers selected using the unique multiple-objective, local optimization (MOLO) functionality to maximize information content and location; flanking markers around the historical ISAG microsatellite parentage markers; SLICK haircoat markers; SNPs affecting milk protein and muscling; and a variety of known lethal defect tests.

These features enable customers to:

1. Transition from microsatellites to SNP-based parentage testing by using haplotype imputation information during the transition phase
2. Select for animals that are more heat-tolerant
3. Select animals with specific milk protein profiles
4. Select and manage muscling attributes for beef production
5. Manage lethal genetic defects within populations

Like all recent GGP products, the GGP indicus implements GeneSeek’s Smart Design approach for MOLO selection of SNP markers, which are distributed appropriately across the cattle genome, and are highly informative within the target populations. Additionally, the GGP indicus includes a unique internal control ensuring tracking of every sample to its well position within the 96 well DNA plate.

Any breed association or research group working with tropically adapted cattle will want to use the GGP indicus to perform high volume genotyping work to facilitate genomic selection and imputation workflows. The GGP indicus will soon be available through all of Neogen’s genotyping service labs worldwide.
If genomics did beer

Better brewing may be on the horizon after nearly a decade of research. An international team of scientists have unravelled the genome of barley. Not only could this achievement lead to a tastier beer and whiskey, but a clearer understanding of other staple food crops.

Barley is one of the most widely grown and consumed crops across the globe. Its importance stretches back some 10,000 years, and by improving our understanding of this valuable crop, farmers can grow varieties more selectively to help feed a growing world population.

With approximately 39,000 genes — more than there are in the human genome — it took a team of 77 scientists 10 years to piece together the plant’s entire sequence.

The completed sequence can help improve the overall quality of barley crops by identifying parts of the genome that might be holding breeders back, and showing them which genes they should be searching for.

The full research paper can be found here.

Neogen Genomics offers extensive options for plant genotyping. For further information on options in Europe, email genomics@neogeneurope.com.

New GGP Bovine 50K now available from Neogen’s European GeneSeek Lab

Neogen’s new GeneSeek Genomic Profiler Bovine 50K (GGP 50K), a DNA test that uses the latest findings about gene markers to predict the genetic merit of breedstock, is now available to all European customers from our laboratory based in Scotland.

The laboratory has been recently upgraded to run the new Illumina Infinium XT platform, allowing for higher throughput that will streamline sample preparation and analysis. The microarray solution enables production-scale genotyping of up to 50,000 single or multi-species custom variants.

36th International Society for Animal Genetics Conference 2017 (ISAG)

ISAG took place at the University College in Dublin, Ireland this year and attracted visitors from across the globe. The conference provides an open and friendly forum for sharing knowledge between scientists and practitioners of animal genetics applied to economically important and domesticated species. Neogen welcomed guest speaker Dr. Richard Crooijimans, assistant professor at the Department of Animal Sciences at Wageningen University and Research Center. Dr. Crooijimans discussed traditional chicken breeds in the Netherlands.

World Angus Forum

Neogen GeneSeek Operations was a proud sponsor of the 2017 World Angus Conference, which was hosted in the historic capital city of Edinburgh, Scotland. The forum is held every four years and provides a platform for the exchange of genetics information and breeding objectives. During the conference, Neogen’s Dr. Stewart Bauck presented on 20 years of leadership in beef genomics.
The partnership that works
By Andy Dorn, Allflex

Thanks to teamwork and partnership, Neogen’s GeneSeek Operations and Allflex are able to come together to provide unique and valuable genomics services to livestock producers throughout the world.

Genomics have come a long way in the past few years, and so have the options to collect samples. For years, blood and hair have been the mainstays of sample collection; however, the Tissue Sampling Unit (TSU) from Allflex has become the product of choice for producers. With the collaboration between Allflex and Neogen’s GeneSeek, we have been able to take the tissue sampling unit from a one-time sample type to a multi-use sample. This enables livestock producers to retain samples for future use.

As for me — when I’m not working in the GeneSeek lab, you can likely find me visiting customers with the outside sales force. I assist them in helping producers solve problems on their operation through identification and genomics. Giving our customers a solution that ties together their animal’s records through identification and tissue sampling empowers producers to make decisions with better data.

Career opportunities at Neogen GeneSeek Operations
Neogen continues to grow as a global leader in food safety and animal safety technologies

Systems Developer
Be part of an expanding and growing IT infrastructure at GeneSeek, the world’s largest commercial animal genomics testing facility. As a data-oriented organization, we have an ever-increasing demand on informatics and systems to support our business. We are looking for someone who is self-motivated, disciplined and willing to work in a high-energy environment. Applicants should desire to learn and grow within the position. The primary functions of this role are to add features and functionality to existing and future systems based on gathered requirements, which include development, testing and releasing changes related to a variety of information systems in a timely release cycle fashion. The successful applicant will have a good working knowledge of the business requirements and the impact of the information systems on the daily operations. This role works with appropriate personnel/management to assure systems are of utmost quality and appropriate measures are taken for maintenance and new development as necessary. A bachelor’s degree in computer sciences or a related field is required, as is experience in multiple coding/scripting languages while being comfortable with personal growth and learning new systems as required.

Laboratory Technician I
GeneSeek is looking to fill several Laboratory Technician roles, including for Vet DX, DNA Extraction and Processing. Please see our careers web page below for details.

We’d love to have you working with us.
For more job postings, check out careers.neogen.com.

Tour groups hosted
Neogen Geneseek Operations was pleased to host several groups recently as local organizations came to see our labs.

Early in August, we saw visitors from the Youth Summit Leadership Conference. That same day, members of the Piedmontese Association of the United States visited. In total, over 150 people visited our facilities in one day!

Earlier in the summer, the Angus Leadership Group stopped by as well. Thanks to all who came to see us!
Another partnership is formed

By the time this issue goes to press, the paperwork will be in place that sees Neogen Corporation join into a partnership with the University of Queensland Animal Genetics Lab (AGL) to better serve the Australia and New Zealand markets. With this move, there are now three regional satellite laboratories available to serve the growing agricultural genomics markets in the key markets of Europe, South America and now Australia/New Zealand.

The Australian team is based at the University of Queensland (UQ) in Gatton, approximately one hour west of Brisbane, and the laboratory has been serving the needs of the Australian industry since 1993. Led by Dr. Russell Lyons, the facility is somewhat unique in the Neogen family of satellite laboratories in that they join Neogen with a full allotment of standard genotyping platforms already in place, including Illumina, Agena and others. The dedicated team of staff scientists has a long track record of supporting the industry, and a stellar reputation for impeccable service, providing high quality data to its customer base. Since 2013, AGL has partnered with Neogen to provide a number of the custom GeneSeek Genomic Profiler arrays to the marketplace in Australia, and the laboratory is deeply familiar with the processes and products that Neogen offers on a global basis. More recently, it has been involved with the development of a custom GeneSeek Genomic Profiler made with the Australian market in mind, featuring a combined ovine and Bos indicus cattle SNP set ideal for sheep and Brahman-influenced cattle.

As might be expected, the laboratories of AGL currently occupy space in the Veterinary Sciences building on the campus of UQ, so one of the first tasks for the new team will be the construction of a stand-alone, dedicated facility for Neogen. Working with the university, we have secured access to a currently unused building on campus that we will renovate to meet our needs. That gives us the opportunity to construct according to our specifications, but remain local and provide continuity of operations and employment for the key staff — something that is critical in every transition!

Over the years, we have been fortunate to have many loyal customers in the Australian market and a good working relationship with the team at AGL in Gatton. Formalizing this relationship as a merger of equals will bring about a new synergy that will benefit the agricultural sector in Australia and New Zealand, as we continue to strive to deliver value for our customers on a global basis.

Jenny Grose grew up in Lincoln and has lived in Nebraska her entire life — minus four months. Grose was born in South Korea, but came to the U.S. at only four months old.

She attended Creighton University in Omaha, Neb., where she earned her bachelor’s degree in chemistry. After beginning and ultimately deciding not to pursue a medical school tract, she launched her career at ConAgra foods. That gig was in Omaha, but Grose returned to her hometown of Lincoln in 2012. She applied to GeneSeek as a lab technician.

“I was interviewed by three really great people who still work here: Andy Nickel, Susanne Hinkley and Ryan Ferretti,” she said. “Working here has allowed me to grow and develop as an individual — I’ve worked in many different areas with many different responsibilities within a short amount of time.”

Grose worked in several areas before being invited to manage the data group. “I really enjoyed working in each department. There were things to love about each of them, and great people to train and mentor me along the way,” she said.

Regarding the future, she has high hopes.

“The portfolio of products and services we are able to offer has grown exponentially since I was hired five years ago, and continues to do so,” she said. “The work is consistently challenging, but extremely rewarding.

“One of the most exciting things about working here is that GeneSeek is on the cutting edge of commercial agrigenomics. It’s difficult to say for certain what we will be doing in the next few years, but I’m positive new research and technologies will play a large part.”

When she’s not managing the management of data, Grose likes to read, make scrapbooks and spend time with her family — including her dog.

Visit Neogen

American Association of Bovine Practitioners
September 14–16 • Omaha, Nebraska • aabp.org/meeting

World Dairy Expo
October 3–7 • Madison, WI • worlddairyexpo.com

Angus Convention
November 4–6 • Fort Worth, TX • angusconvention.com

For the latest food safety, animal safety and life science news, Neogen announcements and useful information, check out the Neogen blog at www.neogen.com/blog

Feature employee: Jenny Grose

Data Management Manager

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