

Tegevusaruanne

Uue Ida- ja/või Põhja-Euroopa genoomselektiooni konsortsiumi loomise eeluuring. Eesti piimaveiste genoomaretusväärtusel põhineva hindamissüsteemi ettevalmistamine". Eesti piimaveiste genoomaretusväärtusel põhineva hindamissüsteemi ettevalmistamine (projekti IV osa). I etapi tööd (november 2018.a. kuni jaanuar 2019.a.).

- Peetud on kuus partnerite koosolekut, samuti läbi töötatud holsteini tõu geneetilise materjali inventuur (projekti I osa) sisulise kasutamise võimalused edasises Eesti holsteini tõugu veiste aretustegevuses. Eelarve otstarbekama kasutamise huvides piiratakse pullide materjali genotüpiseerimist 50 pulliga, kelle geneetiline materjal on aretustegevuses kasutusel.
- Lisaks võimalikus konsortsiumis kaasalöömisele oleks hea Eesti karjakasvatajatel saada ülevaade ka olemasoleva karja geneetilisest väärtusest. Selleks peaksime tegema genotüpiseerimise Eesti esimese aasta lehmikute valimist. Valimi suurus võiks olla kuni 10%, hinnanguliselt kuni 2000 looma. Selle järel oleks võimalik välismaiseid aretusväärtusi seostada paremini siinse keskmisega. Antud ettepaneku elluviimine muudab oluliselt algset projekti, samuti ulatub üle innovatsioonitegevuse piiri. Tellijale on tehtud ettepanek projekti muutmiseks.
- Piimaveiste pullide genotüpiseerimise ettevalmistamiseks on küsitud hinnapakkumised (kokkuvõtte järgneb)
- Läbirääkimisi peetakse kahe erineva Euroopa aretusorganisatsiooniga lehmikute genotüpiseerimise teenuse hinna ja tingimuste üle ning kirjutatakse Eesti esimese aasta lehmikute valimi koostamise meetodikat.

Kuult firmalt küsiti hinnapakkumist 1000 piimaveise genotüpiseerimiseks Illumina BovineSNP50 geenikiibil. Lisaks küsiti genotüpiseeritavale materjalile esitatavaid nõudeid DNA koguse ja kvaliteedi osas (vt. tabel 1). Hinnapakkumist ei saadud Iirimaa laborist DNA Ireland.

Tabel 1. Laborite loetelu, kellega kontakteeruti hinnapakkumiste küsimiseks

Labori nimi	e-aadress	Riik	Vastus päringule
Labogena	labogena@jouy.inra.fr	Prantsusmaa	Jah
Genoskan	rkv@genoskan.dk	Taani	Jah
Geneseek	geneseekinfo@neogen.com	UK	Jah
DNA Ireland	info@dnaireland.ie	Iirimaa	Ei
LanLab	kent@lanlab.ee	Eesti	Jah
Dr. van Haeringen Laboratorium B.V	info@vhlgenetics.com	Holland	Jah

Tabelis 2 toodud hinnapakkumised annavad ülevaate erinevate firmade genotüpiseerimise teenuse maksumusest, nõuetest DNA kvaliteedile ja kogusele, tähtaegadest ning tingimustest teenuse tellimisel.

Ühe veise genotüpiseerimise hinna põhjal on senini saadud hinnapakkumiste põhjal rahaliselt kõige soodsam tellida piimaveiste genotüpiseerimine firmast Neogen (30 €/veis + km). Hind ei sisalda geneetilisest materjalist DNA eraldamist ja genotüpiseerimiseks ettevalmistamist Neogenis.

Saadud hinnapakkumised on eelvaliku aluseks, et konkreetse proovide arvu puhul valmistada ette ja küsida hinnapakkumisi vähemalt kolmelt teenuse pakkujalt.

Tabel 2. Saadud hinnapakkumised 1000 piimaveise genotüpiseerimiseks Illumina BovineSNP50 geenikiibil

Pakkuja	Kontakt	Ühe veise genotüpiseerimise maksumus ilma käibemaksuta	Nõuded	Tähtaeg	Kommentaariid
Neogen/ European Headquarters of Neogen Corporation	Helene Hofeneder- Barclay h.hofeneder@neogeneurope.com	GGP Bovine 50K chip and genotyping – € 30	For the DNA we would require 400-500 ng of good quality and largely intact DNA (minimum 5kb).	The turnaround time for genotyping the DNA for you is 15 business days and we would genotype your samples in our Ayr lab in Scotland.	<p>An improved version of the Illumina Bovine SNP50 Beadchip which is Neogen GGP Bovine 50K chip.</p> <p>GeneSeek Genomic Profiler (GGP) Bovine 50K: GGP Bovine Basic includes approximately 51,000 MOLO (Wu et al., 2016) selected SNP content for <i>Bos taurus</i> cattle. MOLO utilizes a heuristic search algorithm used to find local optima which approximated the global optimum – This means that it evaluates MAF and spacing in parallel at each specific chromosomal location given the choice of multiple SNPs. Imputation accuracy to the GGP Bovine 150K is greater than 99% for most taurine breeds and an average MAF of 35% across all chromosomes. The array also includes universally used bovine parentage SNP markers as well as more than 100 SNPs with causative function across different cattle breeds. Nearly all 50,000 SNPs are a subset of the Illumina BovineHD (777K).</p> <p>Liquid DNA Samples in 96-Well Plates:</p> <ul style="list-style-type: none"> • We need at least 300ng of good quality and largely intact DNA • Dispense an adequate amount of DNA in each well • Plates should be sealed properly with well mats, strip caps, adhesive foil seals, and/or a heat sealing system to avoid accidental spillage or cross contamination. • It is necessary to freeze the samples and ship on dry ice. Pack the plates, while still frozen, on dry ice, in a Styrofoam box. Make sure there is enough dry ice or cold pads on the top, bottom, and both sides of the plates. • If shipping more than one plate, wrap the plates in aluminium foil and/or vinyl tape (not lab tape) so they will not move around during shipment. Lab tape will become brittle and rip when exposed to dry ice. <p>Any style of 96 well plates are be OK</p>

					<p>DNA Samples in Tubes:</p> <ul style="list-style-type: none"> • At least 300ng of good quality and largely intact DNA • DNA stored in individual tubes should be capped tightly to prevent accidental spillage or cross contamination. It is recommended to use parafilm to wrap the lids for additional support. • DNA samples in tubes may be shipped at room temperature for overnight delivery. It is not necessary to send the samples on dry ice or wet ice. • It is an option to dry down DNA if shipped from outside the US. For this, dispense an adequate amount of DNA in to each tube, leave lid open and dry in a 50°C or 37°C incubator or oven. Once dried, let the tube(s) cool to room temperature, close lid and ship at room temperature.
LanLab	Kent Langel, kent@lanlab.ee	Axiom™ Bovine Genotyping Array – 35 €	-	-	<p>Minimum quantity 384 samples (= 1 plate).</p> <p>Axiom™ Bovine Genotyping Array: https://www.thermofisher.com/order/catalog/product/550857</p> <ul style="list-style-type: none"> •51,987 markers for genomic and trait selection •44,705 markers validated by the Council for Dairy and Cattle Breeding (CDCB) •239 VIP markers associated with economically important traits •200 parentage markers, including ISAG core markers •1,213 markers on the Y-chromosome •SNPs that are evenly distributed across the bovine genome •Marker annotations aligned to the <i>Bos Taurus</i> UMD 3.1 genome
LABOGENA	Julien PRADELLES, Julien.PRADELL ES@labogena.fr	Bovine HDD BeadChip – 93,00 €; Bovine 50K BeadChip – 41,10 €. DNA extraction is included.	If DNA is provided by the client: 30 µl at a concentration of 50 ng/µl, with a Quality extraction kit in 96-well PCR plate Abgene AB-0800 heat sealed with a film peelable. DNA provided by the customer will be checked on arrival by	Maximum of 30 working days after receipt of all samples, except default analysis (excluding sample quality	<p>Minimum quantity 96 samples.</p> <p>We can do the DNA extraction with the same price, we accept blood tubes but the best samples are ear biopsias. We can supply you with the tubes and the tools if you need it.</p> <p>A 50% deposit is to send on order, the rest is to pay when receiving the invoice.</p> <p>Unit prices are for directing at minimum specified number.</p> <p>The offer is limited to one single shipment.</p>

			our standards, and a receipt stating the differences with the specifications will be sent.	releases)	
Genoskan/ Eurofins	Dr. Tina Beckmann, TinaBeckmann@eurofins.co.uk	The total price would be 52 416,00 €. If all chips are fully used (1008 samples), the price is 53 €/sample.	DNA with a concentration of 20 ng/μl, and we require 10 μl. the DNA should be of good quality and have a OD of 1,8-2,0.	-	Due to the chip format of the Illumina BovineSNP50 BeadChip, the number for the chips would be 1008 samples to have full chips. If you prefer we would also be happy to do the DNA purification for you.
Dr. van Haeringen Laboratorium B.V	Maarten de Groot, mgr@vhladmin.nl ;	Bovine SNP50v2: 57,50 € GGP HD Bovine: 62,50 €	DNA extraction from hair, blood or tissue is included in the price, but if you want to submit DNA, Illumina recommends a DNA concentration of 20 ng/μL.	-	You specifically request the BovineSNP50v2, however, please also let me make a counter proposal for a chip that may be more informative to you, the GGP HD chip. This chip almost completely overlaps the BovineSNP50v2 and adds 100k more markers evenly spread across the genome.

Tervisetehnoloogiate Arenduskeskus AS
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