

Maine-Anjou Genotyping & Discovery Project

Referenced in the "Headquarters" and "Commercial Connection" articles along with the published AMAA Board of Director meeting minutes the American Maine-Anjou Association is moving forward with this worthwhile endeavor.

One of the present AMAA board members made a comment that I think is very true, to paraphrase, in his life time two very large changes in the way cattlemen do business have occurred and now this may be the biggest of all, the first being artificial insemination, the second embryo transfer, and now specific marker panels for the Maine-Anjou breed.

What is the vision of this project?

As outlined in the board of directors meeting minutes, our goal is to identify DNA markers on a high density array that are associated with differences in genetic merit among animals within the Maine-Anjou breed. Following the breed specific training and validation of marker effects, the association will be prepared to participate in a genomically enhanced national cattle evaluation system. Genomically enhanced genetic evaluations combine our current phenotypic performance records with the newly discovered genomic information to provide estimates of genetic merit with a higher accuracy for a variety of economically important traits.

By leading the development of a training and validation project specifically for Maine-Anjou cattle, the AMAA will have unencumbered access to high density (>50,000 SNP markers per animal) for future research and development.

The principle benefit of genomically based EPD system is that accuracy of predictions can be markedly improved at younger ages especially compared to parent average estimates. Genomically enhanced EPD's will allow breeders to make more accurate selection decisions for young animals. While high accuracy proven sires are desirable for development and training of genomic tools, it is important to note that these assays are not expected to improve the accuracy of predictions for these animals.

Steps to accomplish vision.

Building of a DNA repository.

AMAA will be requesting that Maine-Anjou breeders submit semen samples from ideally but not prerequisite;

< higher accuracy EPD purebred and fullblood bulls

Watch for future announcements on this issue, AMAA staff will try to coordinate some specific time frame to submit these (non frozen, well packed) semen samples to AMAA.

Presently, we are investigating the availability of existing 50K genotypes on Maine-Anjou animals for inclusion in this effort.

The genotyping component of this research will be done at GeneSeek in Lincoln, NE. through a collaborative agreement with the National Beef Cattle Evaluation Consortium. The cost of genotyping each bull for this research will be between \$80 to \$90 and **will be the expense of the breeder submitting the semen sample.**

Program development, marker training and validation will be accomplished with the assistance of Dr. Dorian Garrick, Iowa State University.

Consulting and overseeing the steps of the project will be Dr. Bob Weaver, Kansas State University.

The time period required to accomplish this project largely depends on the number of samples Maine-Anjou breeders can assemble in a reasonable amount of time. Ideally we need approximately 1000 samples in order to have enough animals for training of models and validation of results from the project. An area of research that needs to be addressed is that of MaineTainer samples that do not have a full documented pedigree. Dr. Garrick will address this issue.

To say the least, this project has the potential to have a profound effect on the way Maine-Anjou genetics are viewed both within the breed as well as from an industry standpoint. Development of Maine-Anjou specific genomic tools is an important step forward for Maine-Anjou cattle and breeders. EPD's can be generated from genomic sources of information for animals of any age, sex or contemporary group size. DNA marker based genetic predictions enable more accurate selection of young animals for a variety of phenotypes, especially those that are very expensive or difficult to collect or measured late in life. Help your breed and help yourself by committing to nominate and genotype several influential sires in your herd.

Watch for further details on this exciting Maine-Anjou project.