Toshimi Baba

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WORK EXPERIENCE

2012 – Present **Hokkaido Holstein Agricultural Association**, Sapporo, Hokkaido, Japan
(**Holstein Cattle Association of Japan, Hokkaido branch**)
Research scientist of animal breeding and genetics in dairy cattle

2019/4 – 2020/4 Visiting scholar of **Virginia Polytechnic Institute and State University**, Blacksburg, Virginia, US (Dr. Gota Morota)

EDUCATION

2009 – 2012 **Iwate University**, Morioka, Iwate, Japan
- **Ph.D. in Agricultural Science**
- Thesis: "A series of studies to obtain the accurate genetic evaluations on economic traits of Japanese dairy cattle"
- Adviser : Prof. Mitsuyoshi Suzuki

2007 – 2009 **Obihiro University of Agriculture and Veterinary Medicine**, Obihiro, Hokkaido, Japan
- **M.S. in Animal Science**

2003 – 2007 **Obihiro University of Agriculture and Veterinary Medicine**, Obihiro, Hokkaido, Japan
- **B.S. in Animal Science**

EXPERIENCES / SKILLS

- Over 10 years of experiences in field of animal breeding and quantitative genetics
- Advanced programing skills in *Fortran, Perl, AWK* and *UNIX commands*
- Statistical analysis using for the *SAS, R, Octave*
- Abundant knowledges in genetic improvement of dairy cattle
- Development of genetic/genomic evaluation program applied to very large data
- Genetic analysis using genotypic markers

RESEARCH INTERESTS

- Genetics in livestock and plant

- Bayesian approach in genomic prediction
- Efficient program in genetic/genomic evaluation
- Genetic improvement of Japanese dairy cattle

PUBLICATIONS

Preprints

(1) Abe H, Hagiya K, Yamaguchi S, Nakagawa S, Gotoh Y, **Baba T,** Kawahara T. 2020. Genetic parameters and trends of cow livability in Holsteins in Hokkaido, Japan. *Nihon Chikusan Gakkaiho.* xx(x). xxx-xxx.

2020

(2) **Baba T,** Momen M, Campbell MT, Walia H, Morota G. 2020. Multi-trait random regression models increase genomic prediction accuracy for a temporal physiological trait derived from high-throughput phenotyping. PLOS ONE. 15(2):e0228118.

2019

(3) Yamaguchi S, Masuda Y, Nakagawa S, Abe H, Gotoh Y, **Baba T,** Kawahara T. 2019. Genetic parameters for mastitis incidence and its indicators based on somatic cell score for Holsteins in Hokkaido, Japan. *Animal Science Journal.* 90(8). 915-923.

2018

(4) **Baba T,** Gotoh Y, Yamaguchi S, Nakagawa S, Abe H, Masuda Y, Kawahara T. 2018. Carrier frequency of recessive disorders affected on embryonic loss and calf mortality in Japanese Holsteins. *Nihon Chikusan Gakkaiho.* 89(2). 163-169.

2017

(5) **Baba T,** Gotoh Y, Yamaguchi S, Nakagawa S, Abe H, Masuda Y, Kawahara T. 2017. Application of single-step genomic best linear unbiased prediction with a multiple-lactation random regression test-day model for Japanese Holsteins. *Animal Science Journal.* 88(8) 1226-1231.

(6) Hagiya K, Hanamure T, Hayakawa H, Abe H, **Baba T,** Muranishi Y, Terawaki Y. 2017. Genetic correlations between yield traits or days open measured in cows and semen production traits measured in bulls. *Animal*. 1-5.

2016

(7) Sugimoto M, **Baba T,** Gotoh Y, Kawahara T, Sugimoto Y. 2016. A Friend Leukaemia Integration 1 is Associated with Conception Rate in Holsteins. *Reproductive Immunology Open Access*. 1:7.

(8) Kawakami J, Hanamure T, Hagiya K, Hayakawa H, **Baba T,** Suzuki M. 2016. Estimates of heritability and repeatability of semen characteristics in Holstein bulls. *Nihon Chikusan Gakkaiho.* 87(2). 101-106.

2015

(9) Yamaguchi S, Masuda Y, Nakagawa S, Gotoh Y, Abe H, **Baba T,** Kawahara T, Suzuki M. 2015. Optimal genetic evaluation model for the Somatic Cell Score in Holstein population of Hokkaido, Japan. *Nihon Chikusan Gakkaiho.* 86(2). 153-164.

2014

(10) Masuda Y, **Baba T**, Suzuki M. 2014. Application of supernodal sparse factorization and inversion to the estimation of (co)variance components by residual maximum likelihood. *Journal of Animal Breeding and Genetics.* 131(3) 227-236.

(11) Masuda Y, **Baba T**, Suzuki M. 2014. Genetic analysis of twinning rate and milk yield using a threshold-linear model in Japanese Holsteins. *Animal Science Journal*. 86(1) 31-36.

2013

(12) Kawahara T, Gotoh Y, **Baba T,** Yamaguchi S, Suzuki M. 2013. Influence of calving difficulty on milk production yields, fertilities, stillbirth and economic effect for Japanese Holsteins. *Nihon Chikusan Gakkaiho.* 84(3). 309-317.

2012

(13) **Baba T,** Kaneko H, Masuda Y, Suzuki M. 2012. Phenotypic and genetic factors of twinning rate in Japanese Holsteins. *Nihon Chikusan Gakkaiho.* 83(2). 125-132.

2011

(14) **Baba T,** Shimizu C, Hashimoto Y, Masuda Y, Suzuki M. 2011. Genotype x environment interaction in feeding systems and sire countries for Holsteins. *Nihon Chikusan Gakkaiho.* 82(1). 1-17.

INVITED PRESENTATIONS

2015

(1) Genetic improvement of type traits in dairy cattle. Workshop of "Direction of improvement for type characteristics of dairy cattle" in the 4th Hokkaido Society of Livestock and Grassland Science. Rakuno Gakuen University. Ebetsu, Hokkaido, Japan. August 30.

2014

(2) Genomic selection in dairy cattle and issues of genomic evaluation in Japan. The 8th Livestock DNA Nishigo Symposium. National Livestock Breeding Center. Nishishirakawa, Fukushima, Japan. November 7.

ORAL PRESENTATIONS

2019

(1) Integrating milk infrared spectra and genomic data for prediction of milk composition traits. NCERA-225 Annual Meeting. Implementation and Strategies for National Beef Cattle Genetic

Evaluation. Blacksburg, VA. October 10-11.

(2) Approximated reliability of genetic evaluation for locomotion from type classification of dairy cattle. The 125th Japanese Society of Animal Science Meeting. The University of Azabu, Kanagawa, Japan. March 28 – 30.

(3) Genetic analysis for blinded teat from type records. The 124th Japanese Society of Animal Science Meeting. The University of Tokyo, Tokyo, Japan. March 28 – 30.

2018

(4) Genetic analysis for blinded teat from type records. The 124th Japanese Society of Animal Science Meeting. The University of Tokyo, Tokyo, Japan. March 28 – 30.

2017

(5) Association between disease gene of cholesterol deficiency and economic traits. The 123th Japanese Society of Animal Science Meeting. Shinshu University, Kamiina, Nagano, Japan. September 6 – 7.

(6) Impact of blending MACE of foreign bulls to genomic prediction in national genomic evaluation. The 122th Japanese Society of Animal Science Meeting. Kobe University, Nada-ku, Kobe, Hyogo, Japan. March 28 – 30.

2016

(7) Influence by scaling to genomic and pedigree relationship matrix in ssGBLUP. The 121th Japanese Society of Animal Science Meeting. Nippon Veterinary and Life Science University. Musashino, Tokyo, Japan. March 27 – 30.

2015

(8) Validation reliability of genomic prediction for progeny-tested bulls with daughters. The 120th Japanese Society of Animal Science Meeting. Rakuno Gakuen University. Ebetsu, Hokkaido, Japan. September 11 – 12.

(9) Prediction accuracy in single-step genomic evaluation when using genotyped cows. The 119th Japanese Society of Animal Science Meeting. Utsunomiya University. Utsunomiya, Tochigi, Japan. March 28 – 30.

2014

(10) Simulation study: effect by including genotyped cows to reliability of genomic evaluation. The 118th Japanese Society of Animal Science Meeting. Tsukuba International Congress Center, Tsukuba, Ibaraki, Japan. March 27 – 29.

POSTER PRESENTATIONS

2018

(1) Genomic predictions by single-step genomic BLUP with heterogeneous SNP variance for Japanese Holsteins. The 11th World Congress of Genetics Applied to Livestock Production.

Aotea Center, Auckland, New Zealand. February 11 – 16.

2017

(2) Carrier frequency of recessive disorders affected on embryonic loss and calf mortality in Japanese Holsteins. The 6th Hokkaido Society of Livestock and Grassland Science. Agricultural Research Department, Shintoku, Hokkaido, Japan. September 2 - 4.

2016

(3) Validation reliability of single-step genomic prediction using a multiple-lactation random regression test-day model in Japanese Holsteins. The 17th Asian- Australasian Animal Production Animal Science Congress. Kyushu Sangyo University, Fukuoka, Japan. August 22-25.

(4) A method to discover parentage conflict using SNP data in Holstein. The 5th Hokkaido Society of Livestock and Grassland Science. Agricultural Research Department, Shintoku, Hokkaido, Japan. September 10 - 12.

2015

(5) Comparison of inbreeding coefficients from genomic and pedigree information in Holstein. The 4th Hokkaido Society of Livestock and Grassland Science. Rakuno Gakuen University. Ebetsu, Hokkaido, Japan. August 30 - September 1.

2014

(6) A bias by genomic evaluation in reference population added genotyped cows. The 3th Hokkaido Society of Livestock and Grassland Science. Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido, Japan. August 30 - September 1.

2013

(7) A study of genetic evaluation model for Holstein calf mortality using clinical data. The 2th Hokkaido Society of Livestock and Grassland Science. Mombetsu Cultural Center, Mombetsu, Hokkaido, Japan. August 30 - September 1.

2012

(8) Estimation of genetic parameter for conception rate of Holstein by random regression model. The 1st Hokkaido Society of Livestock and Grassland Science. Hokkaido University Conference Hall, Sapporo, Hokkaido, Japan. December 15 - 16.