

Literature list, Designing breeding programmes HV0175, 2020

Some additional reading will be provided to you during the course, mainly optional articles that will be posted in our virtual classroom [Canvas](#), that you will get access to at the start of the course.

Background knowledge (for those that need an update this is strongly recommended to read before or early during the course)

Kor Oldenbroek and Liesbeth van der Waaij, 2015. Textbook Animal Breeding and Genetics for BSc students. Centre for Genetic Resources The Netherlands and Animal Breeding and Genomics Centre, 2015. Groen Kennisnet:
<https://wiki.groenkennisnet.nl/display/TAB/Textbook+Animal+Breeding+and+Genetics>

Breeding goal, economic weights

Groen A.F., Steine, T., Collea, J.-J., Pedersen, J., Pribyl, J., Reinsch, N. 1997. Economic values in dairy cattle breeding, with special reference to functional traits. Report of an EAAP-working group. *Livestock Production Science* 49, 1-21. [Canvas](#)

Wolfova, M., Wolf, J. 2013. Strategies for defining traits when calculating economic values for livestock breeding: a review. *Animal* 7:9, pp 1401–1413. [Canvas](#) [Canvas](#)

Compendium and statistical methods (Good to read early during the course)

Compendium: Genetic evaluation (36 pp) with Appendix. [Canvas](#)

Compendium: Selection and genetic change (22 pp), with Appendix. [Canvas](#)

Compendium: Statistical methods in animal breeding (35 p). [Canvas](#)

Zuur A.F., Ieno, E.N., Elphick, C.S. 2010. A protocol for data exploration to avoid common statistical problems. *Methods in Ecology & Evolution* 2010, 3–14. [Canvas](#)

Crossbreeding

Sørensen, M.K., Norberg, E., Pedersen, J. and Christensen, L.G. 2008. Invited Review: Crossbreeding in Dairy Cattle: A Danish Perspective. *J. Dairy Sci.*, 91:4116-4128. [Canvas](#)

Van Vleck, L.D., Pollak, E.J., Branford Oltenacu, E.A. 1987. *Genetics for the Animal Sciences*. W.H. Freeman and Company, New York. Pp 357-368. [Canvas](#)

Ethics, behavior, longevity

Eriksson, S., Jonas, E., Rydhmer, L., Röcklinsberg, H. 2018. Invited review: Breeding and ethical perspectives on genetically modified cattle. *J. Dairy Sci.* 101, 1-17. [Canvas](#)

Neeteson-van Nieuwenhoven, A.M., Merks, J., Bagnato, A., Liinamo, A.-E. 2006. Sustainable transparent farm animal breeding and reproduction. *Livestock Science* 103, 282–291. [Canvas](#)

Röcklinsberg, H., Gamborg, C., Gjerris, M., Rydhmer, L., Tjärnström, E., Wallenbeck, A. 2016. Understanding Swedish dairy farmers' view on breeding goals - ethical aspects of longevity. In Olsson et al. *Food futures: ethics, science and culture*. 13th Congress of the European Society for Agricultural and Food Ethics, Porto, 28 Sept 1 - Oct 2016. [Canvas](#)

Genetic modifications

Jenko, J., Gorjanc, G., Cleveland, M.A., Varshney, R.K., Whitelaw, C.B.A., Woolliams, J.A., Hickey, J.M. 2015. Potential of promotion of alleles by genome editing to improve quantitative traits in livestock breeding programs. *Genetics Selection Evolution* 47-55. [Canvas](#)

Genomic selection, MAS

Dekkers, J.C.M. 2004. Commercial application of marker- and gene-assisted selection in livestock: Strategies and lessons. *J. Anim. Sci.* 82:E313-328. [Canvas](#)

García-Ruiz, A., Cole, J.B., VanRaden, P.M., Wiggans, G.R., Ruiz-López, F.J., and Van Tassell, C.P. 2016. Changes in genetic selection differentials and generation intervals in US Holstein dairy cattle as a result of genomic selection *PNAS* July 12, 2016. 113 (28) E3995-E4004
<https://doi.org/10.1073/pnas.1519061113>

Jonas, E & deKoning, DJ, 2015. Genomic selection needs to be carefully assessed to meet specific requirements in livestock breeding programs. *Frontiers in Genetics*. Volume 6, Article 49, 1-8. [Canvas](#)

Meuwissen, T., Hayes, B. 2016. Genomic selection: A paradigm shift in animal breeding. *Animal Frontiers*, Vol. 6, No. 1. [Canvas](#)

Sonesson, A.K, Ødegård, J. 2016. Mating structures for genomic selection breeding programs in aquaculture. *Genetics Selection Evolution* 48:46. [Canvas](#)

Genotype by environment interactions

Hammami, H., Boulbaba, R and Gengler, N. 2009. Genotype by environment interaction in dairy cattle. *Biotechnol. Agron. Soc. Environ.* 13(1), 155-164. [Canvas](#)

Sustainable breeding, genetic resources

EFFAB, 2012. European forum of farm animal breeders. Read about CODE-EFABAR at <http://www.responsiblebreeding.eu/>. [Canvas \(link\)](#)

FAO, 2010. Breeding strategies for sustainable management of animal genetic resources. *FAO Animal production and health guidelines*. No. 3. Rome. Pages 94-139; Section D Developing straight-breeding programmes and Section E Developing cross-breeding programmes. Available on <http://www.fao.org/docrep/012/i1103e/i1103e.pdf> [Canvas \(link\)](#)
See also <https://sustainabledevelopment.un.org/?menu=1300>.

Hansen Axelsson, H. 2013. Breeding for Sustainable Milk Production - From Nucleus Herds to Genomic Data Doctoral Thesis 2013:43, SLU. (Summarizing chapter) [Epsilon/Canvas](#)

Jordbruksverket, 2009. A short version the action plan for the long-term sustainable management of Swedish animal genetic resources 2010-2020. [Canvas](#)

Meuwissen, T. 2009. Genetic management of small populations: A review. *Acta Agriculturae Scand Section A*. 59:71-79. [Canvas](#)

Olesen, I., Groen, A.F. and Gjerde, B. 2000. Definition of animal breeding goals for sustainable production systems. *J. Anim. Sci.* 78: 570-582. [Canvas](#)

Philipsson J., Rege, J.E.O., Zonabend E. and Okeyo A.M. 2011. Sustainable breeding programmes for tropical farming systems In: *Animal Genetics Training Resource*, version 3, 2011. Ojango, J.M., Malmfors, B. and Okeyo, A.M. (Eds). International Livestock Research Institute, Nairobi, Kenya, and Swedish University of Agricultural Sciences, Uppsala, Sweden. [Canvas](#)

Woolliams, J, Berg, P, Mäki-Tanila, A, Meuwissen, T, Finland, E. 2005. Sustainable management of animal genetic resources. Nordic gene bank farm animals. Norway. ISBN 82-997123-1-9. *A number of books will be available to borrow from the course leader.*

Use of reproduction technologies

Gordon, IR. 2005. *Reproductive Technologies in Farm Animals*. CABI Publishing. ISBN: 9780851990491.

Available on internet. Pp 16-28, 51-59, 82-89 and 269-275. *Read online:*

<http://site.ebrary.com/lib/slub/reader.action?docID=10073619> *Note that a newer version is available in the library (but not freely online), copies from the newer version can be posted on Canvas when the course starts.*

Kashinatan, P., Wei, H., Xiang, T., Molina, J. A., Metzger, J., Broek, D., Kasinathan, D., Faber, D.C., Allan, M.F. 2015. Acceleration of genetic gain in cattle by reduction of generation interval. *Scientific Reports* 5: 8674. *Canvas*