

Conclusions

Clone modelling was improved in the national evaluation. About 67% of the 7,068 copies in the clone file were natural identical twins, 25% were split embryos, and 7% were nuclear transfer clones. The model changes were not complex but required slight revisions to many programs, which led to small positive effects for many downstream analyses. Benefits of the new model were more exact pedigree inbreeding coefficients for descendants of clones, more precise genetic evaluations for clones, identical genomic evaluations for female clones, identical evaluations for bulls in additional trait groups such as type and calving, combined progeny counts for cloned bulls instead of reporting only the daughter count of the clone with the most, and improved ancestor discovery. The new or revised programs better account for cloned animals and identical twins. Milk production of cows obtained by nuclear transfer cloning was as expected, but the clones had poorer performance than the source animals for some other traits. Many AI companies now market cloned bulls, and many dairy cattle may soon have clones in their pedigrees.

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