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Distribution and location of genetic effects for dairy traits. *By Cole et al., page 2931.* Genetic effects for many dairy traits and economic merit are evenly distributed across all chromosomes. A high-density genome scan confirmed previously known major genes on *Bos taurus* autosomes 6 and 14 but revealed few other large effects. Markers on *Bos taurus* autosome 18 had large effects on dystocia, several conformation traits, longevity, and total merit, and may be related to calf birthweight. Accuracy was highest when each marker was assumed to have an effect on each trait, but with a heavy-tailed distribution for marker effects. Genomic evaluations may be used to locate causative mutations in the genome. Results validate quantitative genetic assumptions.