

Abstract by Gregor Gorjanc - Partitioning international genetic trends by origin in Holstein bulls

Dairy cattle breeding is globalized to a large extent, in particular in Holstein breed. Assessing the impact of different sources of genetic gain in such a setting is important to strategically allocate limited resources. Such an assessment can be achieved by partitioning breeding values by the origin of Mendelian sampling terms. In order to capture the whole global Holstein breeding population InterBull pedigree and associated breeding values were used. Analysis was focused on the total merit indexes (TMI) from four countries: Great Britain (GBR), Ireland (IRL), New Zealand (NZL), and USA. Partitioning was performed on the global and local population scale, where the later was achieved by weighting the global partitions of each bull by the number of daughters in particular country. Analysis of global trends showed the dominating role of selection performed in USA on all four TMI. The contribution of USA origin had large positive effect on the global GBR TMI trend, positive effect on the global NZL TMI trend, and large negative effect on the global IRL TMI trend with improvement in recent years. Analysis of local GBR TMI trend showed large positive contribution of USA followed by Canada and about equal positive contribution of GBR and Netherlands. Local IRL TMI trend showed dominating negative effect of USA and fluctuating positive contributions from Netherlands, NZL, GBR, and Germany. Local NZL TMI trend showed dominating positive effect of NZL and minor positive contribution from USA followed by Netherlands. Overall, results showed the dominating positive and negative effect of USA on the global TMI trends, while local TMI trends can deviate considerably from global trends due to country specific breeding practices.