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General recommendations for the documentation of changes in dairy cattle populations and for estimating the expected genetic merit of bulls of various origin when used on specific cowpopulations

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Multibreed selection indices for dairy cattle

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An approach to constructing a multibreed selection index is presented. This is based on the breed breeding value of individuals, and involves purebreed and heterosis values, heritability of the trait of interest, genetic correlations between environments and the time scale of selection aims. By using such an index, selection trend is towards the optimum synthetic genotype, or alternatively, rotational crossbreeding is automatically set up where this is optimal.

Möglichkeiten der Neuzüchtung beim Milchrind

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Der Wandel in der Rinderzüchtung war in den letzten 20 Jahren besonders markant. Künstliche Besamung, wissenschaftliche Erkenntnis und elektronische Datenverarbeitung bewirkten diese Entwicklung weltweit. Die Züchtung neuer Rassen als Alternative zur Auslesezüchtung und zu systematischer Kreuzung ist theoretisch gut fundiert. Voraussetzung für eine begründete Strategie einer Neuzüchtung sind gesicherte Informationen über genetisch bedingte Differenzen in erwünschten Leistungsmerkmalen zwischen potentiellen Rassen für eine Neuzüchtung. Diese mittleren Leistungsdifferenzen ermöglichen die Schätzung von Erwartungsleistungen potentieller genotypischer Gruppen. Eine Neuzüchtung kann auf lange Zeiträume beachtliche Heterosiseffekte nutzen. Es werden Ergebnisse einer Neuzüchtung aus den Rassen *Holstein-Friesian*, *Jersey* und *Deutsche Schwarzbunte* diskutiert.

General recommendations for the documentation of changes in dairy cattle populations and for estimating the expected genetic merit of bulls of various origin when used on specific cowpopulations

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The transfer of genetic material between dairy cattle populations of North America and different European countries has obtained a large extent. In connection with this a broad interest exists in procedures for comparing populations and breeding animals within and between populations.

In the first chapter of the present report of an EAAP working group recommendations for a uniform documentation of the development of populations are given.

Problems about estimating genetic differences between populations are described in a more general form in the following chapter. Traits, sources of information and analytical procedures are therefore discussed and the practical application is demonstrated by means of examples.

In order to have available better, more complete and more uniform informations in the future, the establishment of a central service unit is highly recommended in the last chapter.