

dollar and PD milk, while a negative effect of PD dollar on percent fat has been observed. However an extremely close negative correlation ( $-0.59$  and  $-0.73$ ) has been found between the PD milk and PD percent fat for sires with high PD milk estimates both in the *Holstein-Friesian* and particularly in the Jersey breed. This is indicating a non-linear negative relationship between the two characters which is extremely close in the studied bull population and at the same time it is decreasing the level of correlation between PD milk and PD kg fat and probably between PD milk and kg protein as well ( $r = 0.16$  and  $r = 0.31$ ) for the *Holstein-Friesian* and the *Jersey* breeds respectively. 60 per cent of the *Holstein-Friesian* sires caused a decline in PD conformation score and only 14 per cent of the bulls has improved both percent fat and conformation score. PD kg fat is the only character which has shown a more or less positive relationship to the PD estimates of the four other characters.

#### COW EVALUATION WITH BLUP

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Two different models for cow-indexing with BLUP were investigated. Model 1, known as "repeatability model" used second and higher lactations as a repeat of the first one. It was assumed that all heritabilities were equal as were all correlations between any two lactations. In the second model, the "multiple trait model", each lactation was a different trait. With this model different heritabilities and correlations were applied. Both models were tested with datas of the Braunvieh population in Baden-Württemberg. The results were compared with each other. The overall correlation between the two breeding-values was 0.95, ranging from 0.88 for the oldest group of cows to 0.98 for cows with only one lactation.

#### INTERACTION BETWEEN ENVIRONMENTAL INTENSITY AND HOLSTEIN UPGRADING IN GERMAN FRIESIANS

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About 60 000 first lactation milk records of different *Holstein Friesian* crosses were analyzed in order to quantify interactions between genetic group and environmental intensity. It was found that the interaction "HF-group  $\times$  ecological region" is not important, whereas interactions "sires within genetic group  $\times$  ecological zone" seem to be significant. On the other hand there are substantial interactions between HF-group and herd level so that utilization of the benefits of HF-crosses for milk production is obviously much greater at a high production level.

#### INFLUENCE OF DIFFERENT LACTATION DISEASES ON AVERAGE HERD MILK PRODUCTION

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In this paper, analyses, with the purpose of estimating the influence of different lactation diseases on average herd milk production, have been described.

The following results were obtained :

1. The frequency of cows in the herds treated for mastitis, ketosis, milk fever, fertility diseases, and all diseases accounted for 7 per cent of the total variance in average herd milk yield, when only these effects were included.
2. When including other "herd describing" variables in the analyses, the "disease variables" accounted for an increase in the described part of the total variance of only 0.7 per cent units.

3. There was found a significant linear regression of average milk yield on ketosis and significant curvilinear regressions of average herd milk yield on milk fever, on fertility disease, and on all diseases. There was found no significant regression of average herd milk yield on mastitis frequency.

THE RELATION BETWEEN LOCUS TRANSFERRIN AND THE BREEDING QUALITY TRAITS OF COUNTRY CATTLE RACE : *LOWLAND BLAK-WHITE* AND *LOWLAND RED-WHITE*

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In 3 343 cows of *Lowland black-white* and 1925 cows of *Lowland red-white* the relations between the breeding value of traits : birth weight, daily gain of weight, weight in 365th day, milk yield, fat yield, fat percentage and the determined type of transferrins were studied. It has been found that such relations occur only in *lrw* race for the traits : birth weight, daily gain of weight, milk yield and fat yield. In all remaining cases the relations were insubstantial. Allel  $T^B$  influenced positively for the formation of  $a/m$  traits. Allel  $T^D$  in all cases had a negative influence.

EINFLUSS GENETISCHER VARIANTEN DER MILCHPROTEINE AUF MILCHZUSAMMENSETZUNG

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Von 2 261 deutschen *Fleischviehkühen* (Tochter-Mutter-Paare) wurden die genetischen Varianten der Caseine und des  $\beta$ -Lactoglobulins, der Serumeiweißgehalt, der Caseingehalt und der Gesamteiweißgehalt der Milch bestimmt. Für die Haplotypen des Casein-Komplexes und für die Allele des  $\beta$ -Lactoglobulin-Locus wurden die Effekte der Gensubstitution, der Dominanz und der Epistasie geschätzt.

Die Differenzen zwischen den Haplotypen waren für den Caseingehalt signifikant. Die Allele des  $\beta$ -Lactoglobulin-Locus zeigten einen hochsignifikanten Einfluß auf den Serumeiweißgehalt und in einer ausgeprägten negativen pleiotropen Wirkung auch auf den Caseingehalt. Dies führte zur Kompensation im Gesamteiweißgehalt. Epistatische Effekte waren signifikant für den Casein- und Serumeiweißgehalt. Dominanzeffekte waren nicht signifikant. Beim Serumeiweißgehalt konnte Prozent der Varianz durch die  $\beta$ -Lactoglobulin-Genotypen erklärt werden. Die genetischen Varianten zeigten bei den Milchproteinfraktionen größere Effekte als beim Gesamteiweißgehalt.

THE IMPORTANCE OF COAT COLOUR AND COAT TYPE FOR PRODUCTIVE PERFORMANCE OF BEEF CATTLE UNDER SUBTROPICAL CONDITIONS

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The effect of coat colour and coat type on growth performance of beef cattle under subtropical conditions has been investigated. It involved 3 097 *Afrikaner* ( $Z \times Z$ ), *Afrikaner*  $\times$  Dual purpose ( $Z \times D$ ), and *Afrikaner*  $\times$  British breed ( $Z \times M$ ) dams and their offspring from matings with Z, D, and M sires. Variation in coat colour has no significant effect on weight of dams and weaning weight of offspring. Highly significant differences in coat type exist between breeding group of dam and breed group of offspring. The highly significant effect of coat type on body weight of dam is similar for the three dam breeding groups. Coat type of dam affects actual weaning weight of calves but not weaning weight per unit cow weight. Weight gain of