

(= Durchschnitt von Feld- und Versuchsmaterial) und im durchschnittlichen Minutengemelk um 17 Prozent Darüber hinaus wurde das Geburtsgewicht der F_1 -Kälber erhöht. Bei Mastbullen führte eine geringere Fleischfülle bei F_1 -Bullen zu einer schlechteren Bezahlung als bei Mastbullen reinrassig deutscher Herkunft (— —, 10 DM/kg Lebendgewicht).

Wenn die Verwendung von *HF*-Bullen in der *deutschen Schwarzbuntzucht* ökonomisch sinnvoll sein soll, dann muss die Steigerung der Milchleistung die aufgetretenen und ökonomisch bedeutenden Nachteile dieser Zuchtmaßnahme (höherer Nährstoffbedarf für Erhaltung und Foetusausbildung, schlechtere Bezahlung von Mastbullen) mehr als nur ausgleichen.

Über Berechnungen von Deckungsbeiträgen ergab sich, dass bei einer Mehrleistung von rd. 10 kg FCM je kg höheres Lebendgewicht eine Wettbewerbsgleichheit zwischen F_1 -Kühen ($HF \times DSB$) und *Deutschen Schwarzbunten* gegeben ist. Wird diese Differenz zugunsten der F_1 -Tiere überschritten, dann ist die Einkreuzung ökonomisch sinnvoll.

GENETIC EVOLUTION OF CATTLE FOR BEEF PRODUCTION IN NEW ZEALAND

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Although the trials reported vary widely in design, in genetic sampling and environmental conditions and hence in the generality of their findings, the following conclusions seem warranted in the New Zealand farming situation.

- i) Relative to the *Angus*, the *Friesian* produces 20-30 p. 100 more and the *Hereford* 5-10 p. 100 more final liveweight and carcass weight when slaughtered off pasture at 18-22 months of age. Approximately half this superiority is manifested in corresponding *Angus* crosses.
- ii) In terms of weaning performance the *Friesian* dam is greatly superior, the *Hereford* slightly inferior, to the *Angus*.
- iii) Heterosis in growth rate is of the order of 5 p. 100 in crosses among the *Angus*, *Hereford* and *Friesian*.
- iv) Dairy and dairy \times beef breed carcasses contain proportionately more bone and consequently less meat than those from British beef breeds. Differences in dressing percentage are not consistent but tend to favour the beef breeds.
- v) As a crossing sire for meat production from *Jersey* cows, the *Charolais* is superior to the *Hereford* but not significantly better than the *Friesian*, despite its higher lean meat yield.

Further information is needed on the lifetime calf production efficiency of the *Friesian* and *Friesian*-cross cow under hill country conditions and on the merit of *Charolais* crosses in suckler beef herds. Very preliminary results suggest that some of the other large European breeds may have potential in improving beef productivity from both dairy and suckler herds. Efficient exploitation of breed resources — through breed substitution, synthesising of new breed combinations or systematic crossbreeding—clearly demands more detailed knowledge of general and specific combining abilities. Effective oestrous control in beef herds will facilitate artificial breeding and so permit realisation of the benefits and flexibility of crossbreeding systems.

A consistent finding in those experiments where sires were identified has been the wide range in progeny performance of individual sires within breeds, usually greater than breed differences themselves. This pinpoints the very great importance of sound selection on performance merit, whatever the breed or breeding system.

POSSIBILITY OF ESTIMATING HETEROISIS WHEN THE EXTRANEIOUS BREED IS IMPORTED BY MEANS OF SEMEN

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Exchanging deepfrozen semen may be a valuable tool for utilizing different breeds as potential breeding resources.

Imported semen of dairy bulls of extraneous breeds can be utilized as follows :

1. Importation of positive genes for further additive breeding work.
2. Enhancing the producing ability of the native population by means of exploiting any effect of heterosis.