Das Ziel ist mittels eingefurhrtes Zuchtverfahren mit drei abgesonderten Niveaus in Betracht gezogen, in geschlossenen Herden innerhalb Rassen einige Produktionslinien für Fleisch, Wolle und hervorragende Fruchtbarkeit orientiert, zu erarbeiten. Die spezialisierten Linien werden zur Erhaltung zwei übrigen Zuchtniveaus unentbehrlich. Man beabsichtigt einige Anzahl des Schafbestandes aus Nutzzuchtungniveau mit Schafbocken der Fleischrassen zu kreuzen. Die Durchführung dieses Programme wird auf folgenden Regeln beruhen :

Fleischnutzung — Fleischproduktion beträgt 70 prozent des Indexwertes
Wollenutzung — Wolleproduktion betgrägt 70 prozent des Indexwertes
Fruchtbarkeitnutzung — Fruchtbarkeit von Mutterschafen betragt 50 prozent des Indexwertes.

Benotige Auswertungsdaten zur Erarbeitung einiger kombinierten Indizien fur Mutterschaf — Nachkommenschafb innerhalt eines Zentrums, werden zur Zeit gesammelt.

EFFECTIVITY OF COMPLEX CROSSING FOR BREEDING MUTTON-WOOL SHEEP IN SIBERIA

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1. — The crosses of mutton-wool sheep of a new type obtained by mating fine-fleece — coarse wool dams with the rams of two improving breeds (*Lincoln* and *Romney-Marsh*) increased by 5.2 per cent the woolclip of *Romney-Marsh* crosses.

2. — The best results in wool clip and grade are obtained from complex crosses with *Lincoln* paternity and *Romney-Marsh* maternity.

3. — Through long-term pure breeding of *Lincoln* × *Romney-Marsh* × fine-fleece — coarse wool crosses pedigree flocks of a new type mutton-wool sheep were created in Siberia with wool clip 5.3 — 5.5 kg and liveweight about 55 — 60 kg.

EINFLUSS DES GESCHLECHTS AUF DEN WERT DER HERITABILITATSKOEFFIZIENTEN DER NACH-SCHLACHT MERKMALE DER LÄMMER DER POLNISCHEN *MERINO* RASSE

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Es wurden Untersuchungen auf 65 Jungwidder und 65 Mutterschafen der polnischen *Merino* Rasse durchgeführt und Vererbungsfaktoren für 105 Nach-Schlacht-Merkmale bestimmt. Für die meisten Merkmale erlangte man relativ niedrige Werte der Heritabilitätskoeffizienten. Es kann angenommen werden, dass dies durch relativ niedriges Schlachtgewicht (ca. 35 kg) und niedriges Schachtalter der Lämmer (120 Tage) verursacht wurde, was die En thüllung des genetischen Bedingens der Nach-Schlachtmerkmalen Veränderlichkeit unmöglich machte. Höhere h^2 Werte bei Mutterschafen betreffen die Merkmale, die charakteristish für die Muskulatur und Knochigkeit des Rumpfes, dagegen bei Jungwidder Betreffen die Merkmale, welche charakteristisch für die Rumpfverfettung sind.

HEMOGLOBIN TYPES AND REPRODUCTIVE PERFORMANCE IN THE *HUNGARIAN MERINO* BREED OF SHEEP

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Studies have been conducted to find the possible reasons for the very low Hb^A gene frequency in the *Hungarian Merino* breed.

Evaluating the combined data of two State Farms, differences were found between the expected and observed values of Hb types among offspring in one mating type only; this finding

was observed earlier. The total number of offspring with HbAA type is in accordance with the expectations. Lambing rate data also support this. No difference can be observed between average lambing performance af the HbAA, HbAB and HbBB ewes.

On S.F.3.χ^2 values were significant in all mating types. HbAA ewes had fewer lambs than HbAB or HbBB ones.

On S.F.3. there might be two possible causes for the low Hb^A gene frequency : 1 /because of the effect of an unknown factor or factors, fewer HbAA lambs are born than expected; 2 /HbAA ewes, because of their lower lambing performance, are culled at younger ages.

IV. — Bases génétiques et nutritionnelles de l'efficience alimentaire

GENETICS AND FEED EFFICIENCY

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Recent advances in the understanding of the energetics of growth are a challenge to the geneticist. It is his task to unravel the genetic relationships of different aspects of the growth process in order to be better able to predict the probable consequences of different kinds of selection. To do this he has to interpret three different kinds of evidence. The first comes from selection experiments themselves (and also from genetic analyses of random breeding populations), the second from the observation of major mutants such as *obese* in the mouse and *fatty* in the rat, and the third from variation between existing breeds of domestics animals. All these lines of evidence have to be treated with some caution. The problem in interpreting the behaviour of selection lines is that we know that lines selected in the same way do not show the same response and that replication is therefore essential. Each major mutant may have its own pattern of changes and may be irrelevant to random breeding populations because there is no variation in these populations at that locus. Breeds have to be viewed as selection lines, whose criteria of selection we do not know (with consequent uncertainty in analysis).

Growth is a complicated process in time, and we need to understand the interaction between different variables, as, for instance, between food intake when fed *ad libitum* and partition of intake at fixed levels. We must further be aware that the effect of selection may depend on the age at which it is carried out. I would emphasise three points as being important in our future work.

i) We must take proper account of the level of food intake in the interpretation of selection results. Gain in broiler selection may be entirely due to the appetite control mechanism.

ii) We need more information on the effect of age at selection and on the possibility and consequences of "bending" birth curves.

iii) We need to measure the genetic variation in different aspects of the growth process, as well as the co-variation between them as for instance :

a) heat output

b) rates of protein synthesis and degradation, the former being certainly related to heat output. Could we increase the efficiency of growth by reducing the rate of protein degradation ?

c) appetite control.

THE ENERGETIC EFFICIENCY OF GROWTH

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Metabolizable energy consumed by a growing animal is partitioned between heat production and gains in body tissues, principally protein and fat. The laws of growth that govern this partition are discussed. The apparent energy costs of protein and fat deposition in rats and