

Alternative weightings of traits in a
dairy cattle breeding program.

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To find the effects of varying the relative weights of
important traits the following study was done:

Data - 3 batches of bulls of Norwegian Cattle,
125-130 bulls per batch.

These bulls are progeny tested so that varying
weights were used on their breeding values for
single traits to obtain overall breeding values
for different breeding objectives.

Selection - 15 bulls were selected per batch.

Based on this selection, selection
differences were calculated for each set of
weights.

Economic gain - These selection differences were
transferred to genetic gain by means of
previous studies in Norwegian Cattle.

The alternative sets of relative weights are shown in fig.1.
Fig.2. and fig. 3 show the results based on Norwegian
conditions, both economic values and population size.

Conclusions: It is worthwhile to give traits as health and
fertility high weights relative to milk yield. Which is the
best alternative depends very much on the net value of
increased milk yield.

This method should be possible to use also for breeding
programs in other countries. Assuming the relations among
traits are about the same, the Norwegian data could help to
give some idea of the best alternative in situations with
quite different economic values than here.

Fig. 1.

Alternative weighting of traits.

Trait	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>
Milk yield	100	32	19	14	9	
Beef		11	11	11	11	
Milking speed		4	5	5	5	
Leakage		7	9	9	9	
Conformation		4	5	5	5	
Udder and teats		5	7	7	7	
Temperament		2	4	4	4	
Fertility of daughters		11	12	12	12	
Calving ease		4	4	4	4	
Still births		4	4	4	4	
Mastitis		11	12	18	23	100
Ketosis		7	9	9	9	

First year's value of one round of selection
with varying weights in Norwegian cattle.

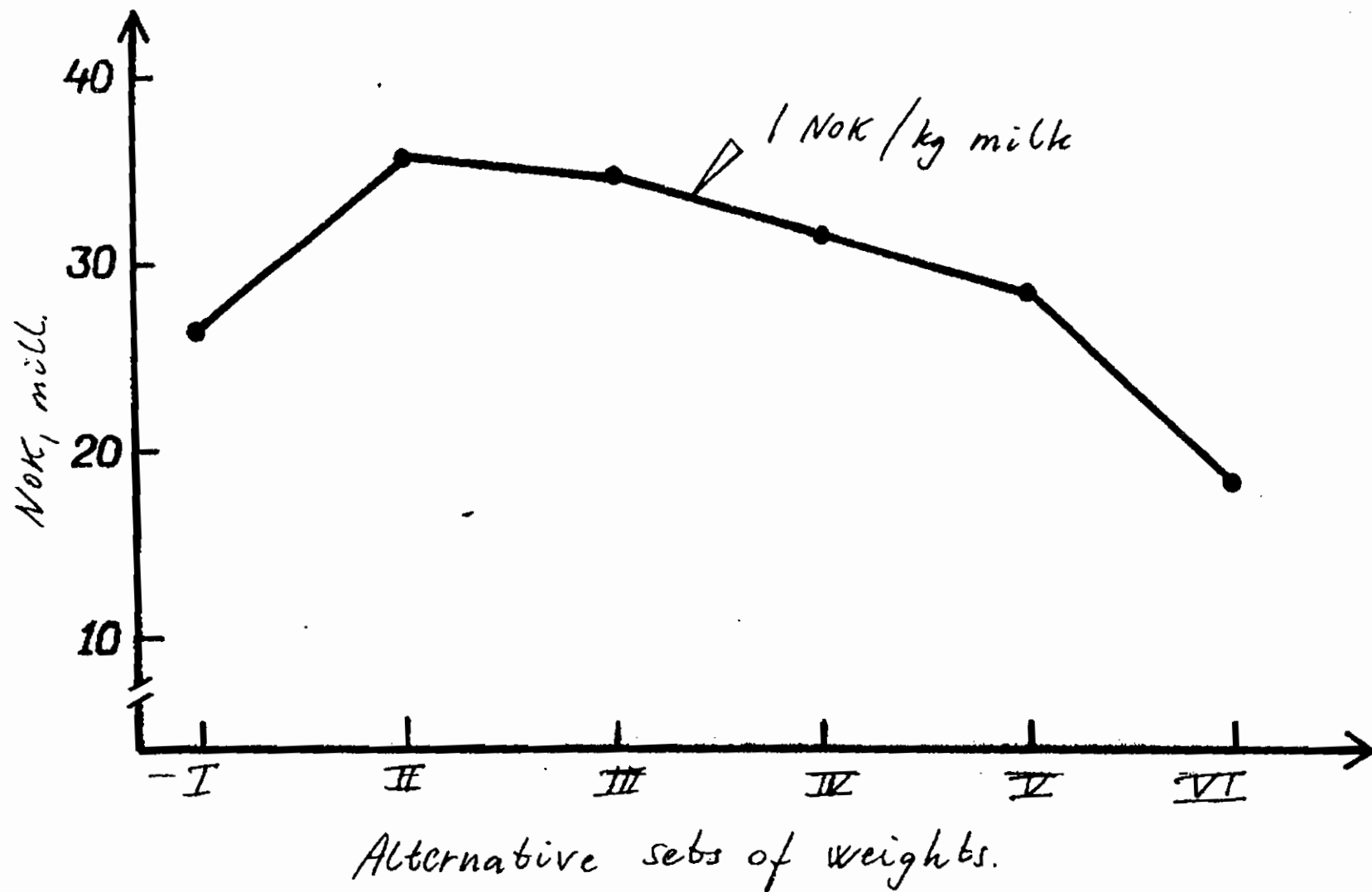


Fig. 2

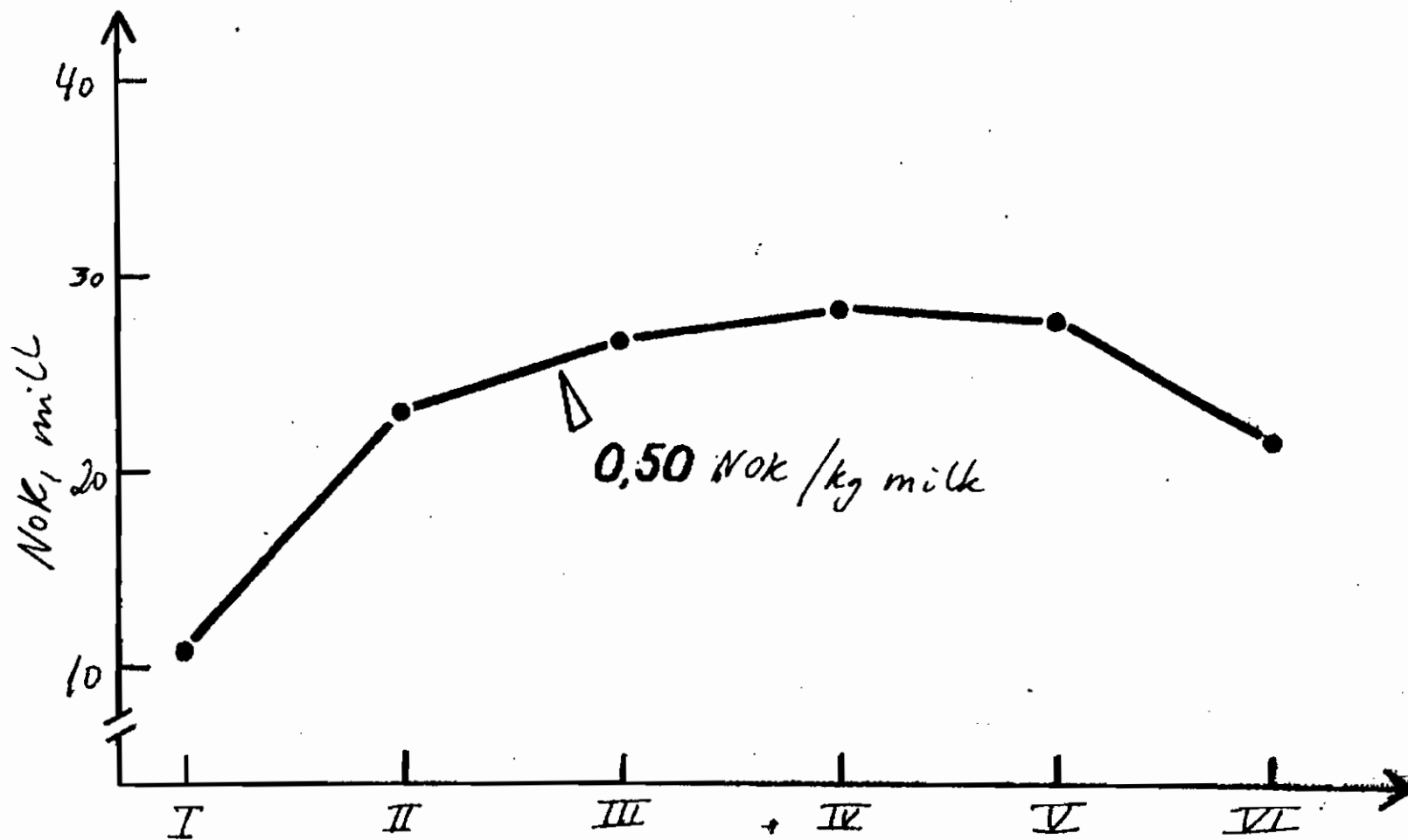


Fig. 2) Alternative set, of rights