CONVERSION FACTORS BETWEEN THE DUTCH AND ISRAELI HOLSTEIN POPULATIONS

J. I. Weller, M. Ron, and E. Ezra
A. R. O., The Volcani Center, Bet Dagan, Israel

Introduction

Using the method of Wilmink et al. (1986) equations were developed to convert Dutch sire evaluations for milk, fat, protein, percent fat, percent protein, INET and the Israeli selection index to their expected values in Israel. The conversion factors were based on four Dutch sires and seven Israeli sires with evaluations in both countries with repeatability > 0.8.

Material and Methods

Repeatabilities and predicted differences in kgs for the eleven test sires in Israel and the Netherlands are given in Table 1. Evaluations are from the Israeli and Dutch sire summaries of April, 1992. Repeatabilities of all sires were > 0.99 in their home countries. Dutch evaluations were converted from breeding values to predicted differences by division by 2. The following equations were used to compute INET, and the Israeli breeding Index (PD91):

$$INET = -0.15PD_m + 2PD_f + 12PD_p$$

$$PD91 = -0.274PD_m + 6.41PD_f + 34.85PD_p$$

Where PD_m, PD_f and PD_p are the predicted differences for milk, fat, and protein, respectively. The following equation was used to compute conversion factors for each trait:

$$PD_i = a + b(R_i)PD_n$$

Where PD_i and PD_n are the sires' predicted differences in Israel and the Netherlands, respectively; R_i is the sires' repeatability in Israel; a is the y-intercept, and b is the slope of the regression equation. Correlations (r) between evaluations in Israel and the Netherlands for each trait were also computed.

Results and Discussion

The y-intercepts, regressions, and correlations for each trait are given in Table 2. All regressions were > 0.6, and all correlations were > 0.75. The correlation for milk was higher than fat and protein, and correlations were highest for the concentration traits. These correlations are indicative of the absence of a major genotype by country interaction. Y-intercepts were negative for all quantity traits, and positive for the concentration traits. Thus the Israeli base is higher for the quantity traits, and lower for the concentration traits. The individual sire evaluations and the regressions are plotted in Figures 1 and 2 for INET and PD91.

Table 1. Repeatabilities and predicted differences in kgs for the test sires in Israel and the Netherlands.

Country of origin	Sire	Israel Rpt	Israel Milk	Israel Fat	Israel Protein	Netherlands Rpt	Netherlands Milk	Netherlands Fat	Netherlands Protein
Israel	Pirchach	99	149	12	6	92	717	13	12
	Amir	99	-78	-5	-6	80	572	4	7
	Gyus	99	373	7	5	93	1110	17	20
	Perek	99	-176	-6	-6	92	66	-1	-1
	Lavlar	99	242	4	5	84	852	15	16
	Shaz	99	2	-5	4	93	714	6	15
	Shoeg	99	310	1	7	94	921	16	20
Neth.	Bea Sheik	83	-304	4	3	99	388	20	17
	Scotty	82	-426	2	-1	99	313	14	13
	Tops	82	-497	5	-2	99	518	18	18
	Magic	84	-745	4	-8	99	86	14	7

Table 2. Conversion factors and correlations for production traits.

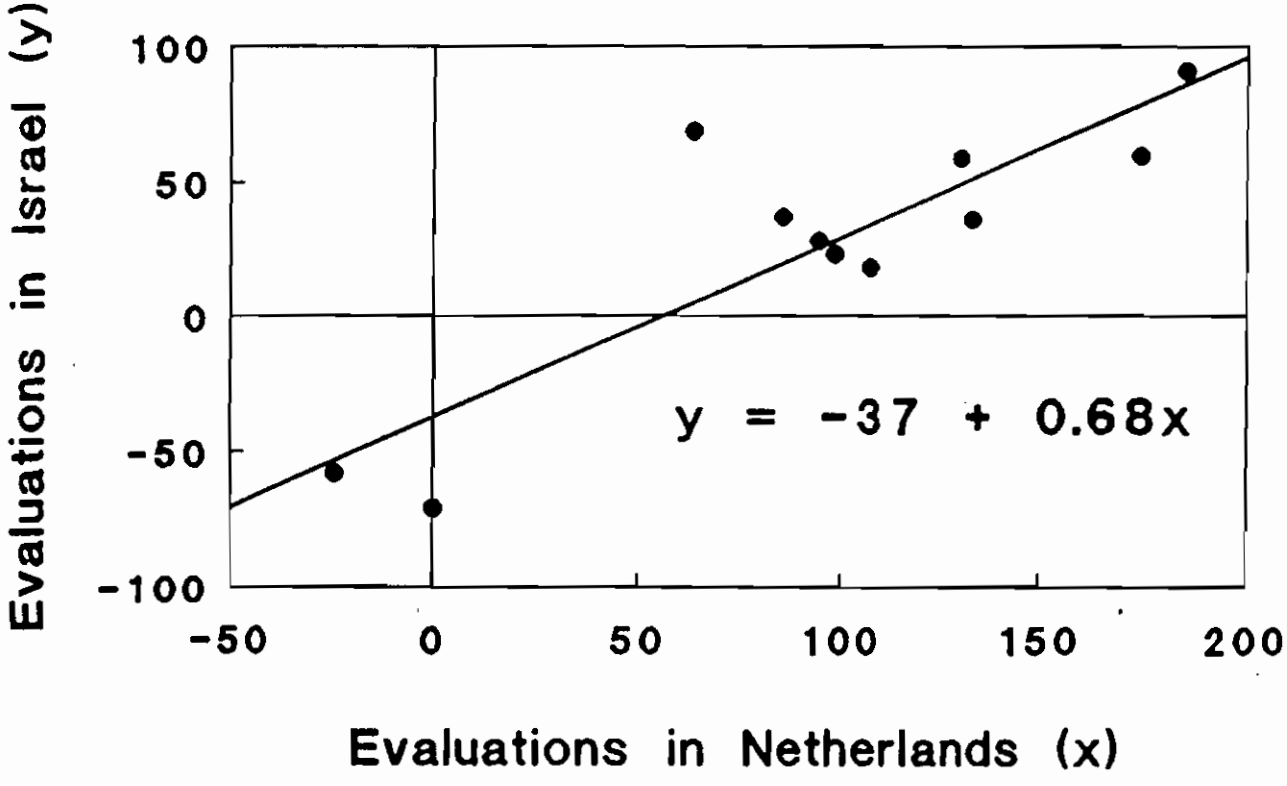
Trait	Y-intercept (a)	Slope (b)	Correlation (r)
PD91	-166	0.61	0.82
INET	-37	0.68	0.85
Milk	-605	0.90	0.85
Fat	-6.2	0.69	0.78
Protein	-7.6	0.64	0.79
% fat	0.17	0.62	0.87
% protein	0.11	0.78	0.93

References

Wilmink, J.B.M., Meijering, A., and Engel, B. 1986. Conversion of breeding values for foreign populations. *Livest. Prod. Sci.* 14:223.

Comparison of evaluations for INET

Figure 1



Comparison of evaluations for PD91

Figure 2