

THE MODELS OF LACTATION CURVES COMPARED FOR HOLSTEIN COWS FROM THE CUKOROVA UNIVERSITY DAIRY FARM

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The models of Lactation curve for Turkish Holsteins were estimated by using multiple regression methods for daily milk yields from monthly recording of 800 lactations. The purpose of this study was to examine the models of lactation curve of Purebred dairy cows and make some suggestions concerning appropriate mathematical models.

The following four models were used to describe the milk production:

$$Y = a t^b e^{-ct}$$

$$Y = a + b (t) + c (t^2)$$

$$Y = a + b (t) + c (t^2) + d (t^3)$$

$$Y = a + b (t) + c (1/t)$$

For the four models the estimated lactation equations were:

For first model:

$$\ln Y = \ln (3.07) + (0.537) \ln (t) - (0.224) (t)$$

For second model:

$$Y = 19.726 + (0.288) (t) - (0.154) (t^2)$$

For third model:

$$Y = 15.2 + (4.32) (t) - (1.04) (t^2) + (0.054) (t^3)$$

For fourth model:

$$Y = 30 - (2.14)(t) - (9.86) (1/t)$$

R² values obtained from model (1) were all greater than those found from other models (2, 3, 4). Hence model (1) was seen to be superior to other models.