Prediction of Slaughter Body Weight in Rabbits: Multivariate Approach through Path Coefficient and Principal Component Analysis

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Abstract : The multivariate path coefficient approach was employed to study the effects of various production and reproduction traits on the slaughter body weight of rabbits. Information on 562 rabbits maintained at the university rabbit farm attached to the Centre for Advanced Studies in Animal Genetics, and Breeding, Kerala Veterinary and Animal Sciences University, Kerala State, India was utilized. The manifest variables used in the study were age and weight of dam, birth weight, litter size at birth and weaning, weight at first, second and third months. The linear multiple regression analysis was performed by keeping the slaughter weight as the dependent variable and the remaining as independent variables. The model explained 48.60 percentage of the total variation present in the market weight of the rabbits. Even though the model used was significant, the standardized beta coefficients for the independent variables viz., age and weight of the dam, birth weight and litter sizes at birth and weaning were less than one indicating their negligible influence on the slaughter weight. However, the standardized beta coefficient of the second-month body weight was maximum followed by the first-month weight indicating their major role on the market weight. All the other factors influence indirectly only through these two variables. Hence it was concluded that the slaughter body weight can be predicted using the first and second-month body weights. The principal components were also developed so as to achieve more accuracy in the prediction of market weight of rabbits.