



Supplementary Material

Comparing Predictive Performances of Tree-Based Data Mining Algorithms and MARS Algorithm in the Prediction of Live Body Weight from Body Traits in Pakistan Goats

Senol Celik

Department of Animal Science, Faculty of Agriculture, Bingol University, Bingol, Turkey

* Corresponding author: senolcelik@bingol.edu.tr

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SUPPLEMENTARY MATERIAL

Codes of the package “earth” of R software for statistical analysis of MARS algorithm for LBW

```
d=read.table("C:/goat.txt", header=T)
str(d)
library(earth)
m3=earth(LBW~., data=d, penalty=2, nprune=45, degree=3, pmethod="backward", nfold=5,
nk=300, keepxy=T)
summary(m3, digits=4)
evimp(m3)
n<-length(d$LBW)
n ## sample size
k= length(m3$selected.terms)
k ## number of terms in the MARS predictive model
cor.test(d$LBW, predict(m3))
Pearsoncorr=round(cor(d$LBW, predict(m3)), digits = 3)
Pearsoncorr ## Correlation coefficient
error=d$LBW-predict(m3)
sdratio=round(sd(error)/sd(d$LBW), digits=3)
sdratio
Coefofvariation=round(sd(error)*100/mean(d$LBW), digits=2)
Coefofvariation
RMSE=round(sqrt(mean(error^2)), digits=3)
RMSE
ME=round(mean(error), digits=3)
ME
RAE=round(sqrt(sum(error^2)/sum(d$LBW^2)), digits=3)
RAE
MAPE=round(mean(abs(error/d$LBW))*100, digits=4)
MAPE
MAD=round(mean(abs(error)), digits = 3)
MAD
Rsq=round(1-(sum(error^2)/(var(d$LBW)*(n-1))), digits = 3)
Rsq
AdjRsq=round(1-((1- Rsq)*(n-1)/(n-k-1)), digits=3)
AdjRsq
AIC=round(n*log(mean(error^2), base=exp(1))+2*k, digits=0)
AIC
AICc=round(n*log(mean(error^2), base=exp(1))+2*k+(2*k*(k+1)/(n-k-1)), digits=0)
AICc
plot(d$LBW, predict(m3))
```