Uso del paquete estadístico R para ajustar datos de producción de leche

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

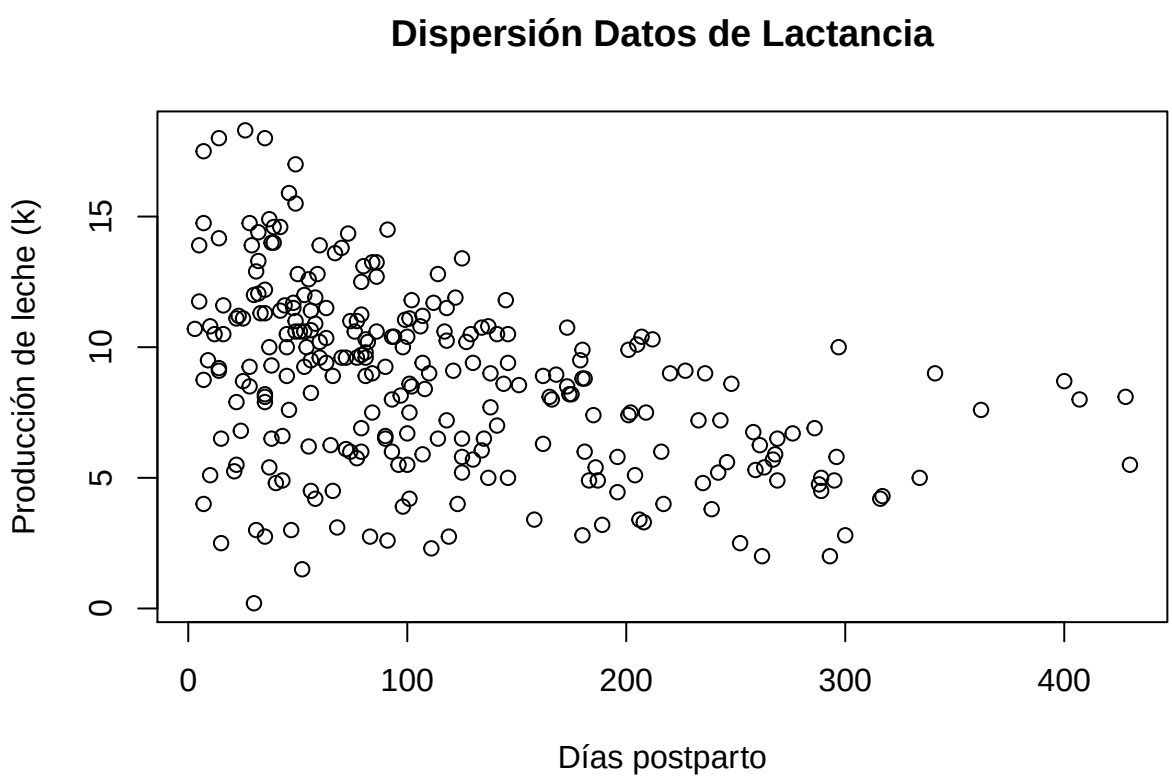
```
lactancia=read.table("DPP_PROD_CC.txt", header=T, dec=",", sep="")
```

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(lactancia)
```

```
##          ID           DPP             PROD            CC
##  almendron:  3   Min.   :  3.0   Min.   : 0.20   CUATRO:  2
##  arrendajo:  3   1st Qu.: 48.0   1st Qu.: 6.00   DOS   :182
##  asamblea :  3   Median : 91.0   Median : 8.90   TRES  : 59
##  ayudita  :  3   Mean   :116.5   Mean   : 8.65   UNO   : 26
##  azabache :  3   3rd Qu.:173.0   3rd Qu.:10.80
##  azucena  :  3   Max.   :430.0   Max.   :18.30
##  (Other)  :251
```

```
plot(lactancia$DPP, lactancia$PROD, xlab = "Días postparto", ylab = "Producción de leche (k)",
    main = "Dispersión Datos de Lactancia")
```




```
library("nlstools")
```

```
##
## 'nlstools' has been loaded.
```

```
## IMPORTANT NOTICE: Most nonlinear regression models and data set examples
```

```
## related to predictive microbiolgy have been moved to the package 'nlsMicrobio'
```

Ajuste de producción de leche al modelo de Wood

La ecuación que describe el modelo de Woood [**?**] es la siguiente:

$$y = at^b e^{-ct}$$

```
reglac <- nls(PROD ~ a * DPP^b*exp(-c*DPP), data = lactancia,
              start = list(a=7, b=0.21, c=0.01),
              control = list(maxiter=200, warnOnly=TRUE))
```

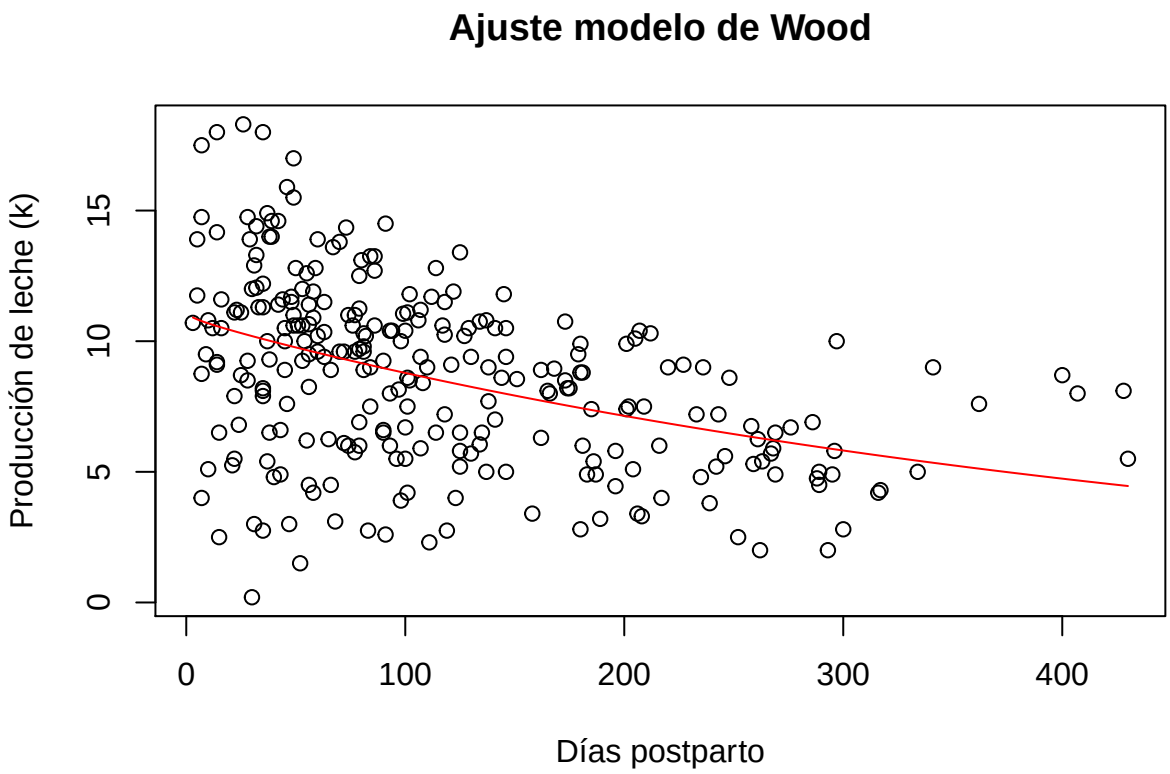
```
overview(reglac)
```

```
##
## ------
## Formula: PROD ~ a * DPP^b * exp(-c * DPP)
##
## Parameters:
##     Estimate Std. Error t value Pr(>|t|)
## a 11.0440857  1.6795781   6.576 2.55e-10 ***
```

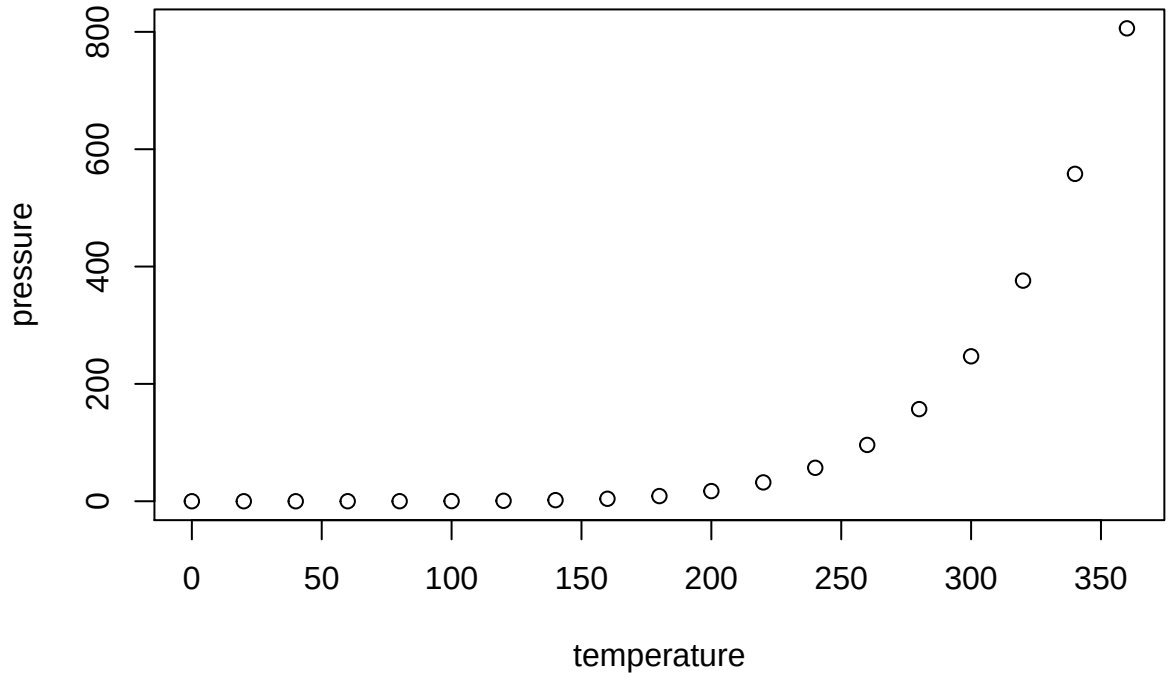
```
## b -0.0055613  0.0470363  -0.118 0.905970
## c  0.0020318  0.0006004   3.384 0.000822 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.133 on 266 degrees of freedom
##
## Number of iterations to convergence: 6
## Achieved convergence tolerance: 9.018e-06
##
## ------
## Residual sum of squares: 2610
##
## ------
## t-based confidence interval:
##            2.5%       97.5%
## a  7.7371268588 14.35104446
## b -0.0981721418  0.08704945
## c  0.0008497054  0.00321399
##
## ------
## Correlation matrix:
##            a          b          c
## a  1.0000000 -0.9739664 -0.7553082
## b -0.9739664  1.0000000  0.8657931
## c -0.7553082  0.8657931  1.0000000
```

Graficando la línea de regresión sobre la nube de puntos

```
plotfit(reglac, smooth = TRUE,xlab='Días postparto',ylab='Producción de leche (k)',
        main='Ajuste modelo de Wood')
```



You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot