vivero.R

Usuario

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```
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#clase 2

#BASE DE DATOS VIVEROS


# Importar Datos Vivero ----------------------------------------------------

vivero <- read.csv("C:/MCF202-2019/MCF202/Datos/Tvivero.csv", header = T)
summary(vivero)
```
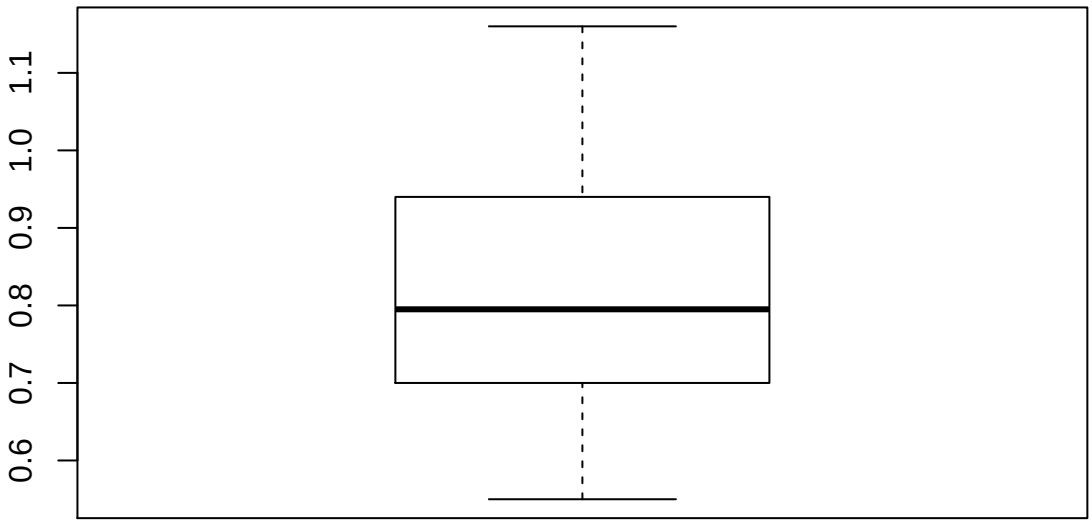

```
##      planta            IE         Tratamiento
##  Min.   : 1.00   Min.   :0.5500   Ctrl:21
##  1st Qu.:11.25   1st Qu.:0.7025   Fert:21
##  Median :21.50   Median :0.7950
##  Mean   :21.50   Mean   :0.8371
##  3rd Qu.:31.75   3rd Qu.:0.9375
##  Max.   :42.00   Max.   :1.1600
```

```
# Prueba de t de una muestra -----------------------------------------------

par(mfrow=c(1,1))
boxplot(vivero$IE)
```




```r
t.test(vivero$IE, mu = 0.85)
```

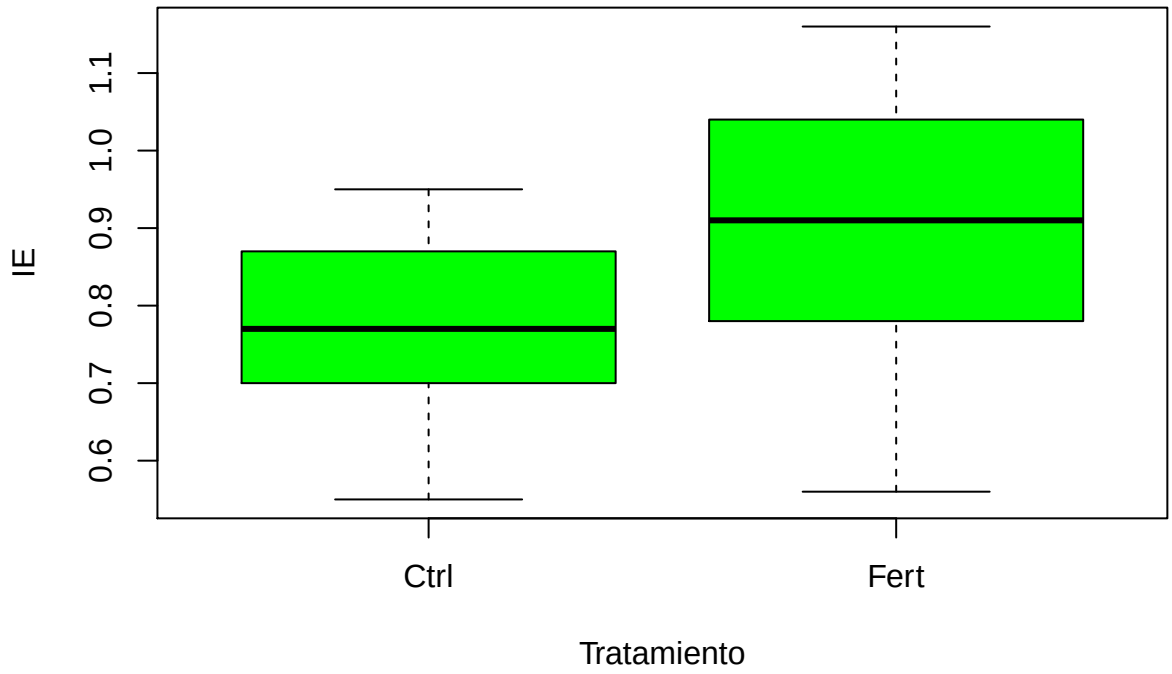
```
##
##  One Sample t-test
##
## data:  vivero$IE
## t = -0.5049, df = 41, p-value = 0.6163
## alternative hypothesis: true mean is not equal to 0.85
## 95 percent confidence interval:
##  0.7857153 0.8885704
## sample estimates:
## mean of x
## 0.8371429
```

```r
#Hipotesis Nula

#La media observada no es diferente estadisticamente ya que el valor
#de P es mayor que el alfa establecido (0.05). Además la media teorética se
#encuentra dentro del rango de los valores de intervalos de confianza.

t.test(vivero$IE, mu = 0.9)
```

```
##
##  One Sample t-test
##
## data:  vivero$IE
## t = -2.4684, df = 41, p-value = 0.01783
```

```
## alternative hypothesis: true mean is not equal to 0.9
## 95 percent confidence interval:
##  0.7857153 0.8885704
## sample estimates:
## mean of x
## 0.8371429
```

```
#Hipotesis alternativa

#La media observada es diferente a la medida teorética, por lo cual aceptamos
#la H1. 1 valor de p(0.01) es menor que el valor de alfa establecido (0.05)


# Pruebas de t muestras independientes ------------------------------------

boxplot(vivero$IE ~ vivero$Tratamiento, col= "green", xlab = "Tratamiento",
        ylab = "IE")
```




```
shapiro.test(vivero$IE)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  vivero$IE
## W = 0.96225, p-value = 0.1777
```

```
var.test(vivero$IE ~ vivero$Tratamiento)
```

```
##
##  F test to compare two variances
##
## data:  vivero$IE by vivero$Tratamiento
## F = 0.41068, num df = 20, denom df = 20, p-value = 0.05304
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1666376 1.0121038
## sample estimates:
## ratio of variances
##          0.4106757
```

```
#Las varianzas de ambos tratamientos son iguales asi lo prueba el valor de p
#obtenido mediante la prueba de varianzas (var.test)
t.test(vivero$IE ~ vivero$Tratamiento,var.equal = T)
```

```
##
##  Two Sample t-test
##
## data:  vivero$IE by vivero$Tratamiento
## t = -2.9813, df = 40, p-value = 0.004868
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.23331192 -0.04478332
## sample estimates:
## mean in group Ctrl mean in group Fert
##          0.7676190          0.9066667
```

```
#Existencia un diferencia significativa entre el IE de las plantas fertilizadas,
#El valor de p (0.004) comprueba nuestra hipotesis de que el fertilizante
#"power" mejora el IE.

t.test(vivero$IE ~ vivero$Tratamiento)
```

```
##
##  Welch Two Sample t-test
##
## data:  vivero$IE by vivero$Tratamiento
## t = -2.9813, df = 34.056, p-value = 0.00527
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -0.23382707 -0.04426816
## sample estimates:
## mean in group Ctrl mean in group Fert
##          0.7676190          0.9066667
```

```
# Pruebas de t muestras dependientes ------------------------------------

t.test(vivero$IE ~ vivero$Tratamiento, paired = T)
```

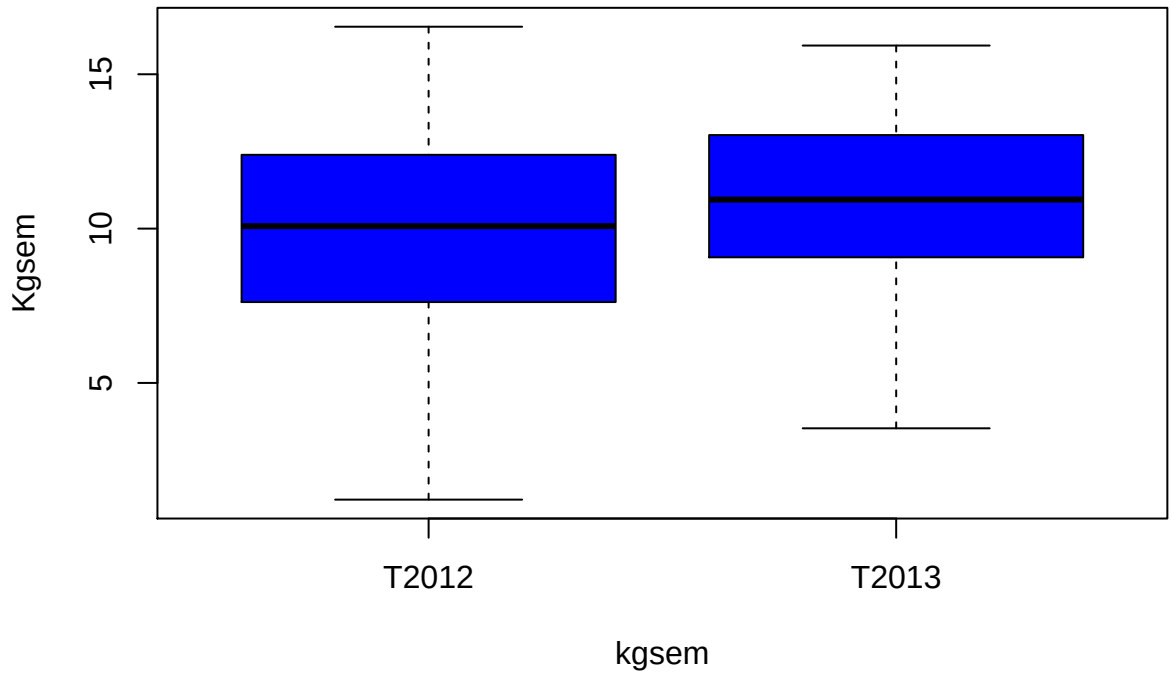
```
##
##  Paired t-test
##
## data:  vivero$IE by vivero$Tratamiento
## t = -3.0736, df = 20, p-value = 0.005993
## alternative hypothesis: true difference in means is not equal to 0
```

```
## 95 percent confidence interval:
##  -0.23341577 -0.04467947
## sample estimates:
## mean of the differences
##              -0.1390476
```

```
# Ejercicio Producción ----------------------------------------------------
inventario <- read.csv("C:/MCF202-2019/MCF202/Datos/Produccion.csv", header = T)
summary(inventario)
```

```
##    Tiempo       Kgsem           BioRama           Germ
##  T2012:50   Min.   : 1.220   Min.   :44.54   Min.   :16.49
##  T2013:50   1st Qu.: 8.492   1st Qu.:49.84   1st Qu.:35.61
##             Median :10.245   Median :53.96   Median :47.85
##             Mean   :10.501   Mean   :54.91   Mean   :45.83
##             3rd Qu.:12.955   3rd Qu.:60.64   3rd Qu.:56.30
##             Max.   :16.540   Max.   :65.24   Max.   :65.02
##        H6
##  Min.   :-0.07
##  1st Qu.:14.16
##  Median :16.56
##  Mean   :16.94
##  3rd Qu.:21.24
##  Max.   :29.71
```

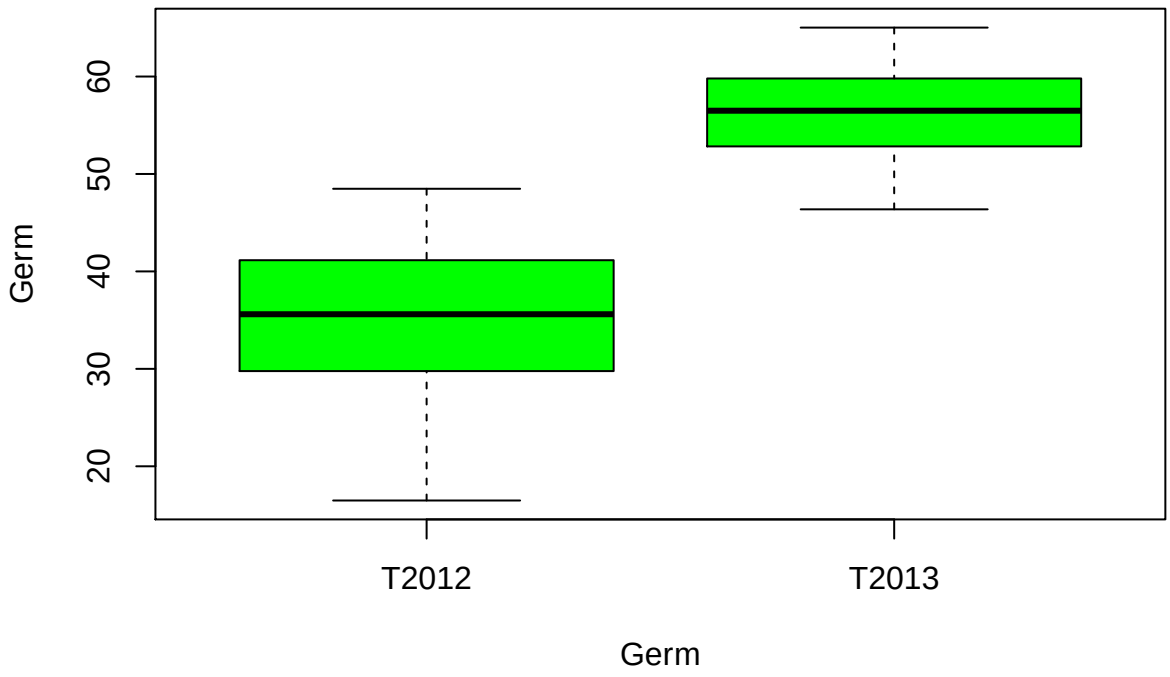
```
boxplot(inventario$Kgsem ~ inventario$Tiempo, col= "blue", xlab = "kgsem",
ylab = "Kgsem")
```



```r
t.test(inventario$Kgsem ~ inventario$Tiempo, paired = T)
```

```
##
##  Paired t-test
##
## data:  inventario$Kgsem by inventario$Tiempo
## t = -1.2538, df = 49, p-value = 0.2159
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -2.0530953  0.4754953
## sample estimates:
## mean of the differences
##                 -0.7888
```

```r
boxplot(inventario$Germ ~ inventario$Tiempo, col= "green", xlab = "Germ",
        ylab = "Germ")
```




```r
t.test(inventario$Germ ~ inventario$Tiempo, paired = T)
```

```
##
##  Paired t-test
##
## data:  inventario$Germ by inventario$Tiempo
## t = -16.678, df = 49, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -23.14844 -18.16996
```

```
## sample estimates:
## mean of the differences
##                -20.6592
```

```r
#Para sacar las medias de la germinacion en el tiempo

tapply(inventario$Germ, inventario$Tiempo, mean)
```

```
##   T2012   T2013
## 35.5036 56.1628
```