La consommation de Glyphosate en France

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S6 2023/2024

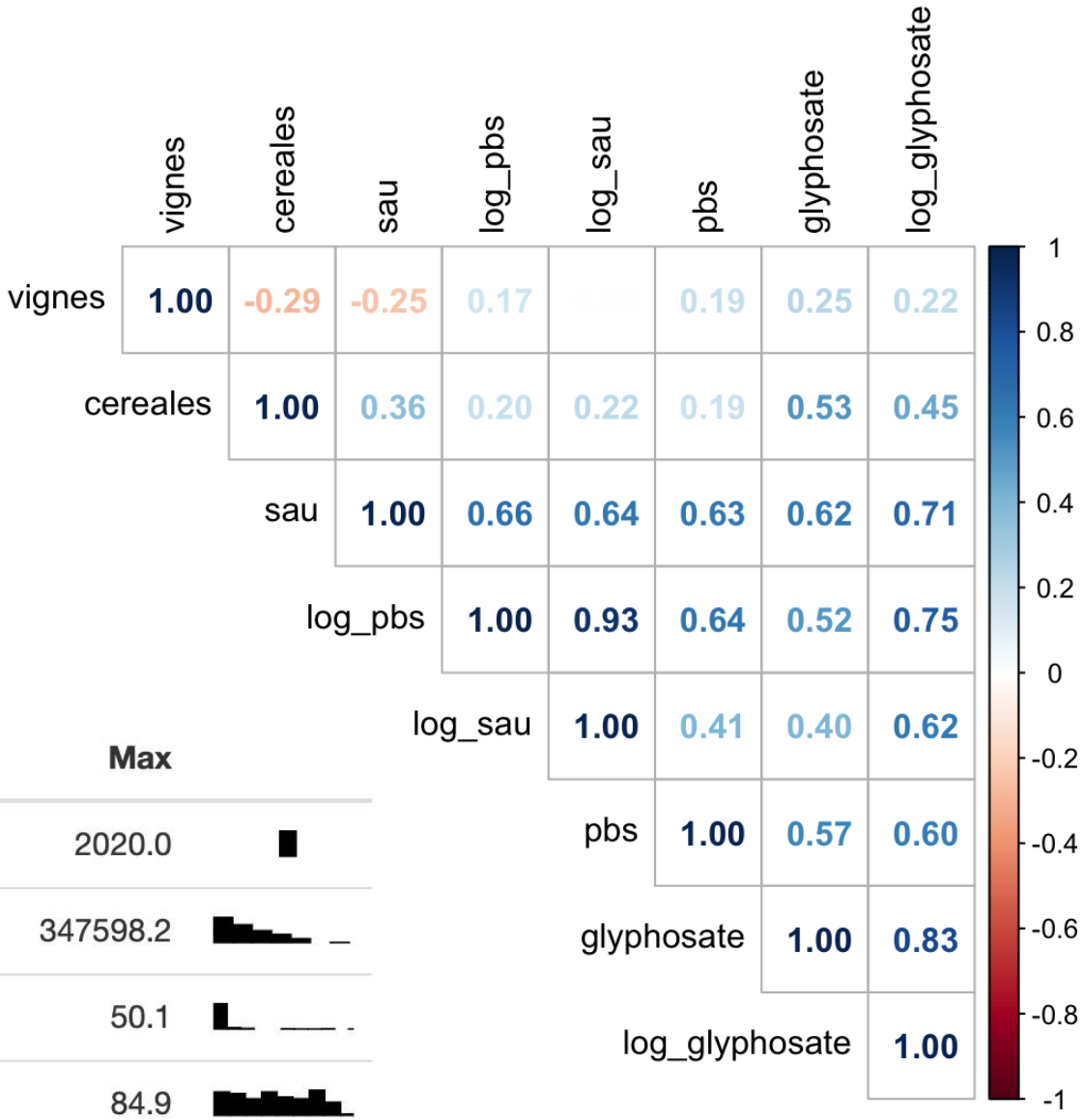
Outline

- Introduction : le glyphosate en France
- Présentation de la base de données
- Analyse des données et tendances
- Constitution du modèle et estimations paramétriques
- Verification du respect des hypotheses statistiques

Quels sont les déterminents de la consommation de glyphosate en France Metropolitaine ?

Données

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
annee	1	0	2020.0	0.0	2020.0	2020.0	2020.0
glyphosate	96	0	88445.5	68943.1	749.7	80946.9	347598.2
vignes	41	10	4.7	10.8	0.0	0.4	50.1
cereales	90	0	38.4	24.2	0.0	38.7	84.9
pbs	96	0	668782.6	520026.7	103.0	534718.0	2685717.0
sau	96	0	278602.9	143130.3	1.0	296772.5	557179.0



Equation à estimer

$$log\_glyphosate = \beta_0 + \beta_1 * log\_pbs + \beta_2 * log\_sau + \beta_3 * cereales + \beta_4 * vignes + u$$

Equation estimée

$$\widehat{log\_glyphosate} = 2.2835492 + 0.9274632 * log\_pbs - 0.3491169 * log\_sau + 0.0202582 * cereales + 0.0161862 * vignes$$

```
t test of coefficients:

             Estimate Std. Error t value  Pr(>|t|)
(Intercept)  2.2835492  1.2613115  1.8105   0.07353 .
log_pbs      0.9274632  0.1840211  5.0400 2.353e-06 ***
log_sau     -0.3491169  0.1679091 -2.0792   0.04041 *
cereales     0.0202582  0.0037292  5.4322 4.606e-07 ***
vignes       0.0161862  0.0078956  2.0500   0.04324 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Hypothèses

```
res1 <- residuals(mco1)
t.test(res1)
```

```
##
##  One Sample t-test
##
## data:  res1
## t = 3.6651e-16, df = 95, p-value = 1
## alternative hypothesis: true mean is not equal to 0
```

H1

```
bptest(mco1)
```

```
##
##  studentized Breusch-Pagan test
##
## data:  mco1
## BP = 42.536, df = 4, p-value = 1.292e-08
```

H2

```
##
##  RESET test
##
## data:  mco1
## RESET = 45.031, df1 = 4, df2 = 87, p-value < 2.2e-16
```

H4

```
vif(mco6)
```

```
##     log_pbs     log_sau    cereales      vignes  sq_log_pbs  sq_log_sau
##   229.44267    61.37465    21.84704    17.72878   156.65371    41.71972
## sq_cereales   sq_vignes
##    20.02282    15.47311
```

```
apply(data_numeric, 2, var)
```

H5

```
##   glyphosate       vignes     cereales          pbs          sau
## 4.753154e+09 1.057573e+02 5.840983e+02 2.704278e+11 2.048628e+10
```

Conclusion