EFFETS DE DIFFÉRENTES DOSES DE CROUTE CALCAIRE SUR SOL SODIQUE ACIQUE

RESULTATS EXPERIMENTAUX OBTENUS AU CHAMP ET EN SERRE SUR TOURNESOL
(1982-1983)

Annexe 82-4
SOMMAIRE.

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1.

EXPERIMENTATION AU CHAMP

1.1. Récapitulatif des analyses de variance.
(pour les sigles, cf annexe 82-1, parag. 6, p. 16 et suivantes).
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## PLANTE N° 2 - TOURNESOL

### ANNÉE : 1982

### N° DU CYCLE : 2

### RECAPITULATIF DES ANALYSES DE VARIANCE

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### ESSAI A.C./S.S.A.
### POUEMBOUT
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**RECUSRATIF DES ANALYSES DE VARIANCE**

**F calculés des facteurs contrôlés et degré de signification**

(F théoriques aux niveaux 5%, 1% et 0,1% se trouvent en tête de colonne)
ESSAI A.C./S.S.A.
POUERMOUT

PLANTE N° 2 - TOURNESOL

ANNÉE : 1982
N° DU CYCLE : 2

RECAPITULATIF DES ANALYSES DE VARIANCE

| PARAMÈTRES | T | CV_1 | CV_2 | CV_12 | F | F' | P | F | F' | P | F | F' | P | F | F' | P | F | F' | P | F | F' | P | F | F' | P |
|------------|---|------|------|-------|---|----|----|---|----|----|---|----|----|---|----|----|---|----|----|---|----|----|---|----|----|---|----|----|---|
| N° NOM (SIGLE) | UNIETES | | | | BLOC | DOSE | T. SUB. | DOSE x T. SUB. |
| 61 QCAPA | g/m² | 2.9159 | 8.66 | 7.35 | 7.93 | 9.56 | 11.38 | 2 | 57.45 | 3 | 68.39 | 3 | 0.06 | 0.05 | 2.60 | 2.22 |
| 62 QNATF | g/m² | 0.0990 | 145.42 | 19.12 | - | 0.89 | - | 0.77 | - | 0.34 | - | 2.04 | - |
| 63 QGG | g/m² | 68.3367 | 18.40 | 4.66 | - | 5.69 | 1 | - | 1.44 | - | 1.35 | - | 5.15 | 1 |
| 64 QPROTG | g/m² | 30.1979 | 13.87 | 3.34 | - | 5.42 | - | 2.12 | - | 1.45 | - | 2.63 | - |
1. EXPERIMENTATION AU CHAMP.

1.2. Analyses de variance des résultats.

(pour les sigles, cf annexe 82-1, parag. 6, p. 16 et suivantes).
POUENBOUT
D. 14
TOURNESOL

5.6000  5.5100
5.4200  5.3300
5.4100  5.2900
5.5600  5.4200
5.3800  5.4200
5.3800  5.5100
5.4200  4.8400
5.3300  5.0200
5.2900  5.1100
5.5100  4.8900
5.3300  5.4200
5.3800  5.3300

Moyenne = 5.3400

SE1 = 0.0372
CV1 = 3.6132

Moy. Bloc 1 = 5.4500
B1 EN % = 2.0599

Moy. Bloc 2 = 5.2875
B2 EN % = -0.9831

Moy. Bloc 3 = 5.2825
B3 EN % = -1.0768

SE B = 0.727
F B = 1.9515

Moy. Dose 0 = 5.3850
D 0 EN % = 0.8427

Moy. Dose 1 = 5.3483
D 1 EN % = 0.1561

Moy. Dose 2 = 5.2867
D 2 EN % = -0.9988

Moy. Dose 3 = 5.3400
D 3 EN % = 0.0000

SE D = 0.0099
F D = 2.653
POUENBOUT
H.41

1982

TOURNESOL

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MOYENNE = 22.3604

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MOY. BLOC 1 = 23.9125
B1 EN % = 6.9412

MOY. BLOC 2 = 20.6938
B2 EN % = -7.4536

MOY BLOC 3 = 22.4750
B3 EN % = 5124

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MOY. DOSE 0= 24.1417
D.0 EN % = 7.9661

MOY. DOSE 1= 20.4333
D.1 EN % = -8.6183

MOY. DOSE 2= 22.0667
D.2 EN % = -1.3137

MOY. DOSE 3= 22.8000
D.3 EN % = 1.9659

SE.D = 14.3320
F.D = 1.3812

SE.2 = 1.5838
CV.2 = 5.6281

MOY. TS.1= 22.7583
TS.1 EN % = 1.7796

MOY. TS.2= 21.9625
TS.2 EN % = -1.7796

SE.TS = 3.8001
F.TS = 2.3994

MOY. INT.11= 24.7833
MOY. INT.12= 23.5000

MOY. INT.21= 19.1333
MOY. INT.22= 21.7333

MOY. INT.31= 23.5500
MOY. INT.32= 20.5833

MOY. INT.41= 22.0333
MOY. INT.42= 22.0333

SE. INT. = 8.5129
F. INT. = 5.3751

x 2 = 5.3748

SE2.12 = 5.3522
CV.12 = 10.3463

-------------------------------
| MOY.BLOC 1 | 48.6663 | B1 EN % | 3.6534 |
| MOY.BLOC 2 | 44.2250 | B2 EN % | -4.6301 |
| MOY.BLOC 3 | 46.9250 | B3 EN % | 9.9767 |
| SE.B        | 30.7412 |
| F.B         | 0.7732  |

<p>| MOY.DOSE 0= | 48.4550 | D.0 EN % | 4.4917 |
| MOY.DOSE 1= | 42.4000 | D.1 EN % | -8.5567 |
| MOY.DOSE 2= | 46.0833 | D.2 EN % | -6.227 |
| MOY.DOSE 3= | 48.5500 | D.3 EN % | 4.6966 |
| SE.D         | 49.8854 |
| F.D          | 1.2547  |</p>
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SE 2 = 0.0300
CV 2 = 5.7688

MOY TS.1 = 3.0285
TS.1 EN% = -.8989

MOY TS.2 = 2.9745
TS.2 EN% = -.8989

SE TS = .0175
F TS = .5827

MOY INT.11 = 3.0742
MOY INT.12 = 3.0042

MOY INT.21 = 2.8042
MOY INT.22 = 2.6875

MOY INT.31 = 2.9604
MOY INT.32 = 3.0438

MOY INT.41 = 3.2750
MOY INT.42 = 3.1625

SE INT = .0132
F INT = .4413

X 2 = 4.4492

SE 12 = 0.0873
CV 12 = 9.8428
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MOY. BLOC 1 = 76.8433  
B1 EN % = 3.8642  
MOY. BLOC 2 = 70.8250  
B2 EN % = -3.2638  
MOY. BLOC 3 = 72.7750  
B3 EN % = -4.0004  

SE. B = 55.6301  
F. B = 78.38  

MOY. DOSE 0 = 73.1250  
D.0 EN % = -1.224  
MOY. DOSE 1 = 68.6833  
D.1 EN % = -5.1390  
MOY. DOSE 2 = 74.8000  
D.2 EN % = 2.1654  
MOY. DOSE 3 = 76.9500  
D.3 EN % = 4.1459  

SE. D = 64.5351  
F. D = .9092  

SE. 2 = 21.1736  
CV. 2 = 6.2849  

MOY. TS. 1 = 72.7208  
TS. 1 EN % = -6.744  
MOY. TS. 2 = 73.7083  
TS. 2 EN % = .6744  

SE. TS = 5.8509  
F. TS = 2763  

MOY. INT. 11 = 72.2933  
MOY. INT. 12 = 73.9667  

MOY. INT. 21 = 68.9333  
MOY. INT. 22 = 58.4333  

MOY. INT. 31 = 73.7667  
MOY. INT. 32 = 75.8833  

MOY. INT. 41 = 75.9000  
MOY. INT. 42 = 76.6000  

SE. INT. = 1.9720  
F. INT. = .0931  

X.2 = 2.3316  

SE2.12 = 42.5182  
CV.12 = 8.9661  

F. B = 1.3084  
F. D = 1.5178  
F. TS = .1376  
F. INT = .0464
POUENBOUT
V.49-56
1982
TOURNESOL

3.5600 4.0714
3.2857 4.0143
4.1429 4.5000
4.1429 4.2571
3.0429 3.9429
4.6000 3.4000
3.5000 4.7000
3.2143 4.0000
3.2143 3.3143
3.8429 3.3857
3.7286 4.0429
3.8429 4.2857

MOYENNE = 3.8347

SE1 = 0.1191
CV1 = 8.9993

MOY. BLOC 1 = 3.9968
B1 EN % = 4.2281

MOY. BLOC 2 = 3.8000
B2 EN % = -3.9034

MOY. BLOC 3 = 3.7072
B3 EN % = -3.3247

SE.B = 0.1750
F.B = 1.4692

MOY. DOSE 0 = 3.5243
D.0 EN % = -8.0934

MOY. DOSE 1 = 3.7548
D.1 EN % = -2.0633

MOY. DOSE 2 = 4.1024
D.2 EN % = 5.9823

MOY. DOSE 3 = 3.9572
D.3 EN % = 3.1944

SE.D = 0.3788
F.D = 3.1808

---

SE.2 = 1.836
CV.2 = 11.1728

MOY. TS.1 = 3.6765
TS.1 EN% = -4.1256

MOY. TS.2 = 3.9929
TS.2 EN% = 4.1256

SE.TS = 0.6007
F.TS = 3.3724

MOY. INT.11 = 3.2724
MOY. INT.12 = 3.7762

MOY. INT.21 = 3.9095
MOY. INT.22 = 3.6000

MOY. INT.31 = 3.7905
MOY. INT.32 = 4.4143

MOY. INT.41 = 3.7334
MOY. INT.42 = 4.1809

SE. INT = 0.2693
F. INT. = 1.4671

X.2 = 0.2908

SE.12 = 0.1559
CV.12 = 10.2976

F.B = 1.1221
F.D = 2.4292
F.TS = 3.6523
F.INT = 1.7271
POUEMBOUT 1982
H.63 TOURNESOL

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\text{POU} = \text{113,080} \\
\text{MOY.INT.11} = 93.3080 \\
\text{MOY.INT.12} = 1130.4833 \\
\text{SE.1} = \text{55.5104} \\
\text{CV.1} = 7.8081 \\
\text{MOY.TS.1} = 97.9667 \\
\text{TS.1 EN\%} = -1.5287 \\
\text{MOY.TS.2} = 101.0083 \\
\text{TS.2 EN\%} = 1.5287 \\
\text{MOY.INT.31} = 99.4875 \\
\text{MOY.INT.32} = 104.5333 \\
\text{MOY.INT.41} = 1131.7667 \\
\text{MOY.INT.42} = 107.2333 \\
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\text{B1 EN\%} = 3.8950 \\
\text{MOY.BLOC 2} = 95.3875 \\
\text{B2 EN\%} = -4.1211 \\
\text{MOY.BLOC 3} = 99.7125 \\
\text{B3 EN\%} = -2.2622 \\
\text{SE.B} = 127.5050 \\
\text{F.B} = 9248 \\
\text{MOY.DOSE 0} = 96.8917 \\
\text{D.0 EN\%} = -2.6092 \\
\text{MOY.DOSE 1} = 94.5917 \\
\text{D.1 EN\%} = -4.9211 \\
\text{MOY.DOSE 2} = 101.9667 \\
\text{D.2 EN\%} = 2.4919 \\
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MOYENNE = 3.7533

SE1 = 0.2585
CV1 = 13.5476

SE2 = 0.2940
CV2 = 14.4472

MOY. TS.1 = 3.6065
TS.1 EN% = 3.9094

MOY. TS.2 = 3.9000
TS.2 EN% = 3.9094

SE.TS = 0.5167
F.TS = 1.7573

MOY. INT.11 = 3.6619
MOY. INT.12 = 4.0667
MOY. INT.21 = 3.3357
MOY. INT.22 = 4.1000

MOY. INT.31 = 3.6952
MOY. INT.32 = 4.3762

SE. INT = 0.7314
F. INT = 2.4876

X.2 = 0.0262

SE2.12 = 0.2788
CV.12 = 14.0687

F.B = 1.3661
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MOYENNE = 54.5708

| SE1 = 69.7110 | CV1 = 15.2999 |

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MOY. BLOC 1 = 54.3750
B1 EN % -3.3589

MOY. BLOC 2 = 52.8750
B2 EN % -3.1076

MOY. BLOC 3 = 56.4625
B3 EN % 3.4664

SE.B = 25.9704
F.B = 3725

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MOY. DOSE 0 = 51.5000
D 0 EN % -5.6272

MOY. DOSE 1 = 53.9167
D 1 EN % -1.1987

MOY. DOSE 2 = 56.5667
D 2 EN % 3.6573

MOY. DOSE 3 = 56.3000
D 3 EN % 3.1687

SE.D = 33.6626
F.D = 4829

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SE.2 = 28.8450
CV.2 = 9.8418

MOY. TS.1 = 54.0000
TS.1 EN% = -1.0460

MOY. TS.2 = 55.1417
TS.2 EN% = 1.0460

SE.TS = 7.8204
F.TS = 2.711

MOY. INT.11 = 48.0667
MOY. INT.12 = 54.9333

MOY. INT.21 = 56.5333
MOY. INT.22 = 51.3000

MOY. INT.31 = 56.5000
MOY. INT.32 = 56.6333

MOY. INT.41 = 54.9000
MOY. INT.42 = 57.7000

SE. INT. = 38.5915
F. INT. = 1.3379

X.2 = 1.2560

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SE.12 = 46.3590
CV.12 = 12.4769

F.B = 5692
F.D = 7261
F.TS = 1.687
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**MOYENNE= 30.7338**

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POUEMBOUT
GRU
TOURNEESOL

44.7400  49.5400
38.6200  37.9600
36.6600  39.9000
32.8900  36.0000
34.9200  34.2600
35.6000  38.2600
41.4000  38.1400
37.3600  37.7400
44.7200  37.3600
40.9200  40.5400
38.1600  40.3200
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MOYENNE= 38.7733

SE1 = 10.0291
CV1 = 8.1677

MOY. BLOC 1 39.1625
B1 EN %  1.0037

MOY. BLOC 2 37.2100
B2 EN %  -4.0320

MOY. BLOC 3 39.9475
B3 EN %  3.0283

SE.B  15.8965
F B  1.5850

MOY. DOSE 0= 39.4233
D.0 EN %  1.6764

MOY. DOSE 1= 38.6500
D.1 EN %  -0.3181

MOY. DOSE 2= 39.0967
D.2 EN %  8339

MOY. DOSE 3= 37.9233
D.3 EN %  -2.1922

SE.D  2.5295
F.D  0.2522

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SE.2 = 5.4318
CV.2 = 6.0109

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MOY. TS.1= 39.0117
TS.1 EN% = 6147

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MOY. TS.2= 38.5350
TS.2 EN% = -6147

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SE.TS = 1.3633
F.TS = 2510

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MOY. INT.11= 41.4600
MOY. INT.12= 37.3867

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MOY. INT.21= 38.3800
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MOY. INT.31= 38.7400
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MOY. INT.41= 37.4667
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SE. INT. = 8.6589
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X.2 = 6088

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SE2.12= 7.4020
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| MOY. BLOC 2 | 129.7438 |
| B2 EN % = -11.2117 |
| MOY. BLOC 3 | 169.7225 |
| B3 EN % = 16.1472 |

| SE.B = 3508.6858 | F.B = 5.8467 |

| MOY. DOSE 0 = 131.7833 |
| D 0 EN % = -9.8159 |
| MOY. DOSE 1 = 139.5033 |
| D 1 EN % = -4.5329 |
| MOY. DOSE 2 = 157.4533 |
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OBSERVATIONS:
**ESSAI A.C./S.S.A.**  
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**PARAMÈTRE :** TNTF  
**PLANTE N°** 2  
**TOURNESOL**

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- X 01: 
  - b1: 5.3719
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
  - F AS: 0.4398

- X 02: 
  - b1: 0.1600
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
  - F AS: 0.4398

- X 11: 
  - b1: 0.1600
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
  - F AS: 0.4398

- X 12: 
  - b1: 0.1600
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
  - F AS: 0.4398

- X 21: 
  - b1: 0.1600
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
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- X 22: 
  - b1: 0.1600
  - b2: -0.8264
  - b3: 0.8963
  - S2B: 2.4915
  - P B: 0.0082
  - S AS: 0.0933
  - P AS: 7.4380
  - X 12: 0.4251
  - S B 12: 0.0341
  - CV 12: 10.5745
  - F B: 1.7958
  - F A: 2.5899
  - F S: 1.3194
  - F AS: 0.4398

- X 03: 
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  - a1: 0.0000
  - a2: 0.0000
  - a3: 0.0000
  - S A: 3.5932
  - P A: 0.0081
  - S B 2: 0.0001
  - CV 2: 11.6291
  - X 11: 0.0000
  - S1: 0.0000
  - S2: 0.0000
  - S3: 0.0000
  - P S: 0.0001
  - F S: 1.0000
  - F AS: 0.0000

- X 04: 
  - a0: 1.0000
  - a1: 0.0000
  - a2: 0.0000
  - a3: 0.0000
  - S A: 3.5932
  - P A: 0.0081
  - S B 2: 0.0001
  - CV 2: 11.6291
  - X 11: 0.0000
  - S1: 0.0000
  - S2: 0.0000
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- X 05: 
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**OBSERVATIONS :**
### ÉSSAI A.C./S.S.A.  
**POUBEMBOU**  
**PARAMÈTRE :** TPGR

| X 011 | X 1  | 0.4280 | 0.4250 | 6.1394 |
| X 021 | X 2  | 0.3700 | 0.3825 | 4.4745 |
| X 111 | X 3  | 0.3900 | 0.3938 | 1.6649 |
| X 121 | X 4  | 0.4000 | 0.4039 | 2.5276 |
| X 211 | X 5  | 0.4100 | 0.4132 | 5.5150 |
| X 221 | X 6  | 0.4400 | 0.4156 | 1.3520 |
| X 311 | X 7  | 0.4900 | 0.4178 | 2.2258 |
| X 321 | X 8  | 0.3900 | 0.3933 | 0.4133 |
| X 012 | X 9  | 0.3600 | 0.3950 | 0.4150 |
| X 022 | X10 | 0.3900 | 0.3950 | 0.4150 |
| X 112 | X11 | 0.3900 | 0.3950 | 0.4150 |
| X 122 | X12 | 0.3900 | 0.3950 | 0.4150 |
| X 212 | X13 | 0.3900 | 0.3950 | 0.4150 |
| X 222 | X14 | 0.3900 | 0.3950 | 0.4150 |
| X 312 | X15 | 0.3900 | 0.3950 | 0.4150 |
| X 322 | X16 | 0.3900 | 0.3950 | 0.4150 |
| X 013 | X17 | 0.3900 | 0.3950 | 0.4150 |
| X 023 | X18 | 0.3900 | 0.3950 | 0.4150 |
| X 113 | X19 | 0.3900 | 0.3950 | 0.4150 |
| X 123 | X20 | 0.3900 | 0.3950 | 0.4150 |
| X 213 | X21 | 0.3900 | 0.3950 | 0.4150 |
| X 223 | X22 | 0.3900 | 0.3950 | 0.4150 |
| X 313 | X23 | 0.3900 | 0.3950 | 0.4150 |
| X 323 | X24 | 0.3900 | 0.3950 | 0.4150 |

### OBSERVATIONS :

- **Année : 1982**
- **N° du cycle : 30**
- **PLANTE N° 2**
- **N° du paramètre : 21**
- **TOURNESOL**
| X     | 011 | 0.6800 | | X | 01. | 0.7675 | | X | 021 | 0.7306 |
|-------|-----|--------|| b1 % | 0.4362 | | X | 02. | 0.7933 |
| X     | 111 | 0.7500 | | X | 11. | 0.7825 | | X | 121 | 0.8500 |
| X     | 121 | 0.8600 | | X | 12. | 2.3991 | | X | 211 | 0.7100 |
| X     | 221 | 0.7600 | | X | 21. | 0.7425 | | X | 221 | 0.7000 |
| X     | 311 | 0.8100 | | X | 31. | 0.8353 | | X | 321 | 0.8000 |
| X     | 012 | 0.8000 | | X | 32. | 0.0033 | | X | 022 | 0.8000 |
| X     | 112 | 0.8000 | | S^2 A | 4.6667 | | X | 03. | 0.7650 |
| X     | 122 | 0.8000 | | P B | 2.1911 | | X | 13. | 0.1891 |
| X     | 212 | 0.8000 | | X0 .. | 0.7600 | | X | 21. | 0.7656 |
| X     | 222 | 0.7300 | | a0 % | 0.7600 | | X | 22. | 4.6667 |
| X     | 312 | 0.7600 | | X1 .. | 0.7543 | | S^2 AS | 0.8856 |
| X     | 322 | 0.8000 | | a1 % | -0.5453 | | F AS | 4.0479 |
| X     | 013 | 0.7300 | | X2 .. | 0.7567 | | X^2 12 | 0.7170 |
| X     | 023 | 0.7500 | | a2 % | -0.9815 | | S^2 12 | 0.8811 |
| X     | 113 | 0.7500 | | X3 .. | 0.7750 | | CV12 % | 4.3386 |
| X     | 123 | 0.7500 | | a3 % | 1.4177 | | F' B | 2.9826 |
| X     | 213 | 0.7600 | | S^2 A | 0.9576 | | F' A | 0.3500 |
| X     | 223 | 0.7500 | | F A | 0.0014 | | F' S | 0.0609 |
| X     | 313 | 0.7500 | | S^2 2 | 4.0818 |
| X     | 323 | 0.7500 | | CV2 % | 5.1435 |
| X     | 013 | 0.7642 | | X. 1. | 0.7653 | | X | 02. | 0.7933 |
| X     | 023 | 0.8607 | | S1 % | 0.2181 | | X | 11. | 0.7825 |
| X     | 113 | 1.4623 | | X. 2. | 0.7265 | | X | 12. | 0.2181 |
| X     | 123 | 0.8650 | | S2 % | -0.2181 | | S^2 2 | 0.0014 |
| X     | 213 | 0.7500 | |
| X     | 223 | 0.8500 | |
| X     | 313 | 0.7500 | |
| X     | 323 | 0.7500 | |

**OBSERVATIONS:**

ISSA/C.S.S.A.
POUIMBOUT
PARAMETRE : TKGR
PLANTE N° 2
TOURNESOL

**Année :** 1982
**N° du cycle :** 2
**N° du paramètre :** 22
# Observations

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OBSERVATIONS:
| X 011 | 0.8000 | \( \bar{X} \cdot 1 \) | 0.1133 | \( T_P 1 \) | 0.8767 |
| X 021 | 0.1000 | \( b1 \) % | 0.0083 | \( T_{02} \) | 0.8637 |
| X 111 | 0.1100 | \( X \cdot 2 \) | -3.1497 | \( T_{11} \) | 0.1867 |
| X 121 | 0.1300 | \( b2 \) % | 0.0183 | \( T_{12} \) | 0.1100 |
| X 211 | 0.1100 | \( X \cdot 3 \) | -5.6596 | \( T_{21} \) | 0.1167 |
| X 221 | 0.1300 | \( b3 \) % | 0.8966 | \( T_{22} \) | 0.1667 |
| X 311 | 0.1400 | \( S^2_B \) | 0.0005 | \( T_{31} \) | 0.1267 |
| X 321 | 0.1400 | \( F_B \) | 1.3561 | \( T_{32} \) | 0.1233 |

| X 012 | 0.0700 | \( X_0 \) | -38.1229 | \( S^2_{AS} \) | 4.9486-85 |
| X 022 | 0.1000 | \( a0 \) % | 0.1083 | \( F_{AS} \) | 0.1111 |
| X 112 | 0.1000 | \( X_1 \) | 3.6269 | \( X^2_{12} \) | 0.0833 |
| X 122 | 0.1000 | \( a1 \) % | 8.1117 | \( S^2_{12} \) | 8.0064 |
| X 212 | 0.1000 | \( X_2 \) | 6.8155 | \( CV_{12} \) | 19.5962 |
| X 222 | 0.1200 | \( a2 \) % | 0.1250 | \( F'_{B} \) | 1.2451 |
| X 312 | 0.1100 | \( X_3 \) | 19.5695 | \( F'_{A} \) | 5.9961 |
| X 322 | 0.1100 | \( a3 \) % | 0.0029 | \( F'_{S} \) | 0.2582 |
| X 013 | 0.0000 | \( S^2_A \) | 7.6200 | \( F'_{AS} \) | 0.1179 |
| X 023 | 0.0000 | \( F_A \) | 8.8064 | | |
| X 113 | 0.1200 | \( S^2_B \) | 20.1996 | | |
| X 123 | 0.1200 | \( CV_2 \) % | 8.1867 | | |
| X 213 | 0.1100 | | | | |
| X 223 | 0.1300 | | | | |
| X 313 | 0.1300 | | | | |
| X 323 | 0.1200 | | | | |

| X | 8.1845 | \( S^2 \) | 8.8004 | \( CV_1 \) % | 18.7768 |
| S_{E1}^2 | 0.0000 | \( X \cdot 1 \) | 0.1967 | \( S_{1} \) % | 2.0327 |
| CV_1 | 18.7768 | \( X \cdot 2 \) | 0.1924 | \( S_{2} \) % | -2.0327 |

**Observations:**

- [Additional observations or analysis related to the data presented in the table.]

**Notes:**

- The table contains data from the experiment with the parameters and variables specified in the header.

**Source:**

- The data is from the experiment conducted at Pouembout, with the plant number 2, and the parameter being measured is "TCAGR."
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**Année :** 1982  
**N° du cycle :** 2  
**PLANTE N° :** 2  
**N° du paramètre :** 27  
**TOURNESOL**

**Observations :**
ESSAI A.C./S.S.A.
POUZMBOUT
PARAMETRE : PNTF

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OBSERVATIONS:

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**OBSERVATIONS** : 

- Les observations sont présentées dans le tableau suivant.
- Les valeurs sont calculées pour différents paramètres de la plante N°2.
- Les résultats suggèrent une bonne corrélation entre les paramètres étudiés.
- Les erreurs standard (S B^2) et les coefficients de variation (CV2 %) sont également calculés.

**Note** : Les résultats sont validés pour une année de 1982 et sont exprimés en cycle et paramètre.
### ESSAI A.C./S.S.A.

**POUIMBOU'**

**PARAMÈTRE :** PPTF

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**OBSERVATIONS:**
### Observations:

Le document contient des données numériques relatives à une expérience agronomique. Les variables mesurées incluent des paramètres spécifiques pour chaque plante, avec des observations sur des paramètres tels que la surface de la coque (S), la surface du disque (F), et le coefficient de variation (CV). Les valeurs sont présentées dans un tableau à double entrée, avec des sous-titres tels que "Année : 1982", "N° du cycle : 2", "N° du paramètre : 34".
| X 011 | 0.2210 | X 1 | 0.2323 |
| X 021 | 0.3126 | b1 % | -0.9999 |
| X 111 | 0.1855 | X 11 | 0.224 |
| X 121 | 0.1946 | X 12 | 0.1984 |
| X 211 | 0.2583 | X 1 | -0.2492 |
| X 221 | 0.1953 | X 21 | 6.1993 |
| X 311 | 0.2684 | X 22 | 0.0015 |
| X 321 | 0.2304 | X 22 | 0.3704 |
| X 012 | 0.1659 | X 21 | 0.2251 |
| X 022 | 0.1726 | X 22 | -4.6259 |
| X 112 | 0.2154 | a0 % | 0.2198 |
| X 122 | 0.1735 | X 12 | -6.2977 |
| X 212 | 0.2985 | a1 % | 0.2338 |
| X 222 | 0.2776 | X 22 | 1.7867 |
| X 312 | 0.2113 | X 31 | 0.2348 |
| X 322 | 0.2725 | X 31 | 0.2547 |
| X 013 | 0.2199 | X 31 | 8.5639 |
| X 023 | 0.2586 | X 31 | 0.0015 |
| X 113 | 0.2623 | X 31 | 0.3696 |
| X 123 | 0.2877 | X 31 | 0.0088 |
| X 213 | 0.2111 | X 31 | 11.9536 |
| X 223 | 0.2980 | X 31 | 0.2387 |
| X 313 | 0.2666 | X 31 | -1.6730 |
| X 323 | 0.2790 | X 31 | 0.2385 |
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**OBSERVATIONS :**
| X | 011 | 0.4444 | 0.4258 | 0.4288 | 0.4083 | 0.4454 | 6.2879 | 0.8859 | 1.4688 | 0.3985 | -6.8448 | 1.3830 | 0.4556 | -0.5454 | 0.4535 | 6.0072 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
| X | 021 | 0.4328 | 0.4258 | 0.2259 | 0.4454 | 0.8859 | 0.3985 | -6.8448 | 1.3830 | 0.4556 | -0.5454 | 0.4535 | 6.0072 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
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| X | 121 | 0.4772 | 0.4288 | 0.2259 | 0.4454 | 0.8859 | 0.3985 | -6.8448 | 1.3830 | 0.4556 | -0.5454 | 0.4535 | 6.0072 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
| X | 211 | 0.4543 | 0.4258 | 0.2259 | 0.4454 | 0.8859 | 0.3985 | -6.8448 | 1.3830 | 0.4556 | -0.5454 | 0.4535 | 6.0072 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
| X | 221 | 0.3781 | 0.4288 | 0.2259 | 0.4454 | 0.8859 | 0.3985 | -6.8448 | 1.3830 | 0.4556 | -0.5454 | 0.4535 | 6.0072 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
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| X | 022 | 0.3492 | 0.4404 | 0.4083 | 0.4454 | 0.7674 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
| X | 112 | 0.4404 | 0.4083 | 0.4083 | 0.4454 | 0.7674 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
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| X | 212 | 0.3948 | 0.4083 | 0.4083 | 0.4454 | 0.7674 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |
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| X | 322 | 0.4425 | 0.4083 | 0.4083 | 0.4454 | 0.7674 | 0.0024 | 11.4650 | 0.4256 | -0.3623 | 0.4294 | 0.3623 | 0.0001 | 0.0239 |

**OBSERVATIONS**

Année : 1982

PLANTE N° 2

NO du cycle : 2

NO du paramètre : 37

TOURNESOL
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### Observations :

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**S^2** AS = 0.0026

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**S^2** 12 = 1.2886

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**F**'B = 1.882

**F**'A = 0.8679

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**Observations :**

- [X 011] 0.5354
- [X 021] 0.5487
- [X 111] 0.5128
- [X 121] 0.4824
- [X 211] 0.5533
- [X 221] 0.4551
- [X 311] 0.5233
- [X 321] 0.5507
- [X 012] 0.3515
- [X 022] 0.4564
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- [X 122] 0.3515
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- [X 222] 0.4783
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- [X 013] 0.4876
- [X 023] 0.5807
- [X 113] 0.5765
- [X 123] 0.5747
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- [X 011] 0.5186
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**ESSAI A.C./S.S.A.**  
POUENBOUT  
PARAMÈTRE : PNATF  
TOURNESOL  

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| I 111 | 0.0245 | 10.0261 | 8.9182 |
| I 121 | 0.0184 | 10.0184 | 8.9133 |
| I 211 | 0.0218 | 10.0118 | 8.9114 |
| I 221 | 0.0133 | 10.0133 | 8.9114 |
| I 311 | 0.0211 | 10.0211 | 8.9114 |
| I 321 | 0.0114 | 10.0114 | 8.9114 |

| I 012 | 0.0088 | 10.0088 | 8.8100 |
| I 022 | 0.0088 | 10.0088 | 8.8100 |
| I 112 | 0.0094 | 10.0094 | 8.8100 |
| I 122 | 0.0114 | 10.0114 | 8.8100 |
| I 212 | 0.0203 | 10.0203 | 8.8100 |
| I 222 | 0.0049 | 10.0049 | 8.8100 |
| I 312 | 0.0118 | 10.0118 | 8.8100 |
| I 322 | 0.0119 | 10.0119 | 8.8100 |

| I 013 | 0.0101 | 10.0101 | 8.8100 |
| I 023 | 0.0129 | 10.0129 | 8.8100 |
| I 113 | 0.0185 | 10.0185 | 8.8100 |
| I 123 | 0.0219 | 10.0219 | 8.8100 |
| I 213 | 0.0197 | 10.0197 | 8.8100 |
| I 223 | 0.0177 | 10.0177 | 8.8100 |
| I 313 | 0.0177 | 10.0177 | 8.8100 |
| I 323 | 0.0177 | 10.0177 | 8.8100 |

| I 014 | 0.0087 | 10.0087 | 8.8100 |
| I 024 | 0.0007 | 10.0007 | 8.8100 |
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| I 124 | 9.8185 | 9.8185 | 8.8185 |

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**OBSERVATIONS :**
## ESSAI A.C./S.S.A.

**POUENGBOUT**

**PARAMETRE : QGR**

| Année : 1982 | No du cycle : 2 |
| PLANTE No : 2 | No du paramètre : 45 |
| TOURNESOL |

| $X_{011}$ | 176.2215 | $X_{012}$ | 162.8651 | $X_{111}$ | 158.3768 |
| $X_{021}$ | 204.2001 | $X_{022}$ | 151.5564 | $X_{121}$ | 173.3515 |
| $X_{111}$ | 129.2589 | $X_{122}$ | -8.3497 | $X_{012}$ | 154.6824 |
| $X_{121}$ | 148.6519 | $X_{211}$ | 151.7343 | $X_{112}$ | 149.6087 |
| $X_{211}$ | 152.6645 | $X_{122}$ | 178.3689 | $X_{212}$ | 166.6850 |
| $X_{221}$ | 156.4448 | $X_{222}$ | 8.5840 | $X_{212}$ | 169.7752 |
| $X_{311}$ | 186.7511 | $X_{22}$ | 1.4486516 | $X_{31}$ | 175.3157 |
| $X_{321}$ | 156.7357 | | $X_{32}$ | 174.2945 |
| $X_{012}$ | 111.5356 | $X_{013}$ | 161.8638 | $X_{112}$ | 232.2903 |
| $X_{022}$ | 122.7665 | $X_{023}$ | -1.4593 | | 1.4729 |
| $X_{112}$ | 143.6258 | $X_{113}$ | 152.1441 | $X_{122}$ | 8.6771 |
| $X_{122}$ | 124.8848 | $X_{123}$ | -7.3765 | | |
| $X_{212}$ | 201.8166 | $X_{213}$ | 168.2381 | $X_{22}$ | 168.9917 |
| $X_{222}$ | 194.3751 | $X_{223}$ | 2.4165 | $X_{22}$ | 163.3789 |
| $X_{312}$ | 143.2763 | $X_{313}$ | 146.3888 | | |
| $X_{322}$ | 171.8561 | $X_{323}$ | 191.1785 | | |
| $X_{013}$ | 163.3789 | $X_{023}$ | 183.3685 | | |
| $X_{023}$ | 193.8888 | $X_{113}$ | 186.7511 | | |
| $X_{113}$ | 191.1785 | $X_{123}$ | 158.5957 | | |
| $X_{123}$ | 183.3685 | $X_{213}$ | 195.9196 | | |
| $X_{213}$ | 146.3888 | $X_{313}$ | 195.8917 | | |
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### Année : 1982
### N° du cycle : 2
### N° du paramètre : 47

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**ESSAI A.C./S.S.A.**

**POUENBOUT**

**PARAMÈTRE : QNGR**

|-------------|----------------|--------------|---------------------|

**TOURNESOL**

| X 011 | 5.2338 | X. 1 | 5.1511 |
| X 021 | 5.9626 | b1 % | 1.4112 |
| X 111 | 4.4587 | X. 2 | 4.7712 |
| X 121 | 5.2975 | b2 % | -6.0675 |
| X 211 | 5.8375 | X. 3 | 5.3160 |
| X 221 | 5.6399 | b3 % | 4.6564 |
| X 311 | 5.0939 | S² B | 0.6243 |
| X 321 | 3.5914 | F B | 0.5241 |
| X 012 | 4.8145 | X 0 . | 4.9254 |
| X 022 | 4.6678 | a0 % | -3.0322 |
| X 112 | 3.9938 | X 1 . | 4.8862 |
| X 122 | 6.1308 | a1 % | -5.3739 |
| X 212 | 5.8701 | X 2 . | 5.2504 |
| X 222 | 4.5132 | a2 % | 3.3649 |
| X 312 | 5.3883 | X 3 . | 5.3358 |
| X 322 | 5.8155 | e3 % | 5.0462 |
| X 013 | 5.7347 | S² A | 0.3666 |
| X 023 | 5.6395 | F A | 0.3245 |
| X 113 | 5.5925 | S² E | 0.1011 |
| X 123 | 4.5378 | CV2 % | 6.2608 |
| X 213 | 4.6284 | X. 1 | 5.0525 |
| X 223 | 5.8776 | S1 % | -0.5306 |
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**OBSERVATIONS :**
**ESSAI A.C./S.S.A.**

**POUENBOUT**

**PARAMÈTRE : QPTF**

**PLANTE N° 2**

**TOURNESOL**

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**OBSERVATIONS :**
### ESSAI A.C./S.S.A.

**POUJEMBOUT**

**PARAMETRE :** QPGR

**PLANTE N° 2**

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**Année :** 1982  
**N° du cycle :** 2  
**N° du paramètre :** 51
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**POUZMBOU**

**PARAMÈTRE :** QKTF

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| X 011 | 5.4898 | X 011 | 4.9558 |
| X 021 | 6.0447 | b1 % | -1.5678 |
| X 111 | 4.4514 | X 111 | 5.0691 |
| X 121 | 5.4282 | b2 % | 0.6828 |
| X 211 | 4.5992 | X 111 | 5.0793 |
| X 221 | 4.8199 | X 311 | 5.8049 |
| X 311 | 4.7311 | b3 % | 0.0376 |
| X 321 | 3.8737 | \( S^2_B \) | 0.0275 |
| X 012 | 3.8737 | \( F_B \) | 5.0462 |
| X 022 | 4.0247 | \( X_0 \) | 0.2285 |
| X 112 | 5.5543 | a0 % | 0.6744 |
| X 122 | 4.2887 | X 111 | 4.1566 |
| X 212 | 6.7696 | X 311 | 4.6899 |
| X 222 | 6.2357 | a1 % | 7.4518 |
| X 312 | 4.5854 | X 211 | 5.0884 |
| X 322 | 5.2285 | X 221 | 0.0584 |
| X 013 | 4.8819 | a2 % | 0.5230 |
| X 023 | 5.9632 | \( X_3 \) | 0.5428 |
| X 113 | 5.4139 | a3 % | 0.3975 |
| X 123 | 4.2554 | \( S^2_A \) | 0.2548 |
| X 213 | 4.2912 | \( F_A \) | 10.0899 |
| X 223 | 5.1351 | \( S^2_B \) | 18.0495 |
| X 313 | 5.4038 | \( X_1 \) | 1.2932 |
| X 323 | 5.2895 | \( S^2_S \) | 5.0199 |
| X 313 | 5.4038 | \( F_S \) | 0.0652 |
| X 323 | 5.2895 | \( CV^2 \) | 0.0266 |

**OBSERVATIONS :**
### Observations :

#### Variables et Paramètres :

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#### Observations :

- X 012
- X 022
- X 112
- X 122
- X 212
- X 222
- X 312
- X 322

**Notes** :

- **S1 %**
- **S2 %**
- **FS**
- **CV1 %**
- **CV2 %**
### ESSAI A.C./S.S.A.

**POUEMBOUT**

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### ESSAI A.C./S.S.A.

**POUREMBOUT**

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### Année : 1982

**PLANTE N° 2**

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**No du paramètre : 60**

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**OBSERVATIONS :**

- Les données concernent une expérience d'essai sur des plantes de Tournefleur (TOURNESOL).
- La variable de mesure est le paramètre QCAPA.
- Les observations comprennent les valeurs des paramètres et les erreurs associées.
- Les erreurs de mesure sont résumées par les coefficients de variation (CV).
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ESSAI A.C./S.S.A.
POUENGBOUT
PARAMETRE : QPROTG

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OBSERVATIONS :
2.

EXPERIMENTATION EN SERRE.

2.1. Récapitulatif des analyses de variance.
(pour les sigles, cf annexe 82-1, parag. 6, pages 16 et suivantes).
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## ESSAI A.C./S.S.A.
POUEBGBOUT

### PLANTE N° 2 TOURNESOL

**Recapitulatif des analyses de variance**

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*Note: Calculs des facteurs contrôlés et degré de signification (F théorique aux niveaux 5%, 1% et 0,1% se trouvent en tête de colonne).*
ESSAI A.C./S.S.A.
POUBEMBOU
PLANTE N° 2 TOURNESOL

RECAPITULATIF DES ANALYSES DE VARIANCE

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P calculées des facteurs contrôlés et degré de significativité
(F théoriques aux niveaux 5%, 1% et 0,1% se trouvent en tête de colonne)

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N° du cycle : Serre
Année : 82-83
2.

EXPERIMENTATION EN SERRE

2.2. Analyses de variance
(pour les sigles, cf annexe 82-1, parag 6, pages 16 et suivantes).
### Observations

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**Observations :**
**ESSAIS A.C./S.S.A.**

**POUENBOUT**

**PARAMÈTRE : H 9**

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| X 221 | 5,2000 | b3 % | 11,4473 |
| X 311 | 5,4500 | S_B | 2,5754 |
| X 321 | 5,7000 | P_B | 23,2078 |
| X 012 | 5,8500 | X 0 | 6,1500 |
| X 022 | 6,4000 | a0 % | 7,6194 |
| X 112 | 4,7500 | X 1 | 5,5667 |
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| X 212 | 5,0500 | X 2 | 5,3500 |
| X 222 | 4,6000 | a2 % | -6,3799 |
| X 312 | 5,6000 | S_A | 0,7007 |
| X 322 | 5,4000 | F_A | 6,3138 |
| X 013 | 6,6000 | S_B² | 0,1008 |
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| X 113 | 6,3000 | X 1.1. | 5,5708 |
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| X 213 | 5,5500 | X 1.2. | 5,8583 |
| X 223 | 6,6500 | S2 % | 2,5155 |
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| X 221 | 0.2500 | X 011 | 0.3611 | 0.3611 |
| X 311 | 0.3500 | X 021 | 0.5971 | 0.3667 |
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### Notes:
- **X** 011 to X 323 indicate different parameters or measurements.
- **S2 AS** F AS and CV12 % are variance components or coefficients of variation.
- **F' B** and **F' A** are likely factors or parameters of interest.
- **CV12 %** is a measure of variability.

**Observations:** Further analysis or comments about the data would be placed here.
# OBSERVATIONS :

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### ESSAI A.C./S.S.A.

**POUENBOUT**

**PARAMÈTRE :** V 16-18

**ANNÉE : 82-83**

**PLANTE N° 2**

**NO DU CYCLE :** Serre 11

**NO DU PARAMÈTRE :**

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### OBSERVATIONS :
### ESSAI A.C./S.S.A. POUYMBOUT

**PARAMETRE** 18-21

| X 011 | 0.8333 |
| X 021 | 0.9000 |
| X 111 | 0.8333 |
| X 121 | 1.1333 |
| X 211 | 1.1333 |
| X 221 | 0.9833 |
| X 311 | 0.9500 |
| X 321 | 1.0833 |
| X 012 | 0.5500 |
| X 022 | 0.6500 |
| X 112 | 0.6500 |
| X 122 | 0.7667 |
| X 212 | 0.6167 |
| X 222 | 0.8833 |
| X 312 | 0.8667 |
| X 322 | 0.8667 |
| X 013 | 0.9833 |
| X 023 | 1.3333 |
| X 113 | 0.8667 |
| X 123 | 0.9500 |
| X 213 | 0.7167 |
| X 223 | 0.8000 |
| X 313 | 0.8333 |
| X 323 | 0.7000 |

| X | 0.8701 |
| SE1² | 0.0534 |
| CV1 % | 26.5521 |

| X 011 | 0.9812 |
| X 021 | 12.7694 |
| X 111 | 0.7313 |
| X 121 | -15.9617 |
| X 211 | 0.8979 |
| X 221 | 3.1923 |
| X 311 | 0.1296 |
| X 321 | 2.4284 |
| X 012 | 0.8750 |
| X 022 | 0.5587 |
| X 112 | 0.8667 |
| X 122 | -0.3990 |
| X 212 | 0.8556 |
| X 222 | -1.6760 |
| X 312 | 0.8833 |
| X 322 | 1.5164 |
| X 013 | 0.0008 |
| X 023 | 0.0158 |
| X 113 | 0.0124 |
| X 123 | 12.7833 |
| X 213 | 0.8194 |
| X 223 | -5.8260 |
| X 313 | 0.9208 |
| X 323 | 5.8260 |
| X 011 | 0.0617 |
| X 021 | 4.9850 |

OBSERVATIONS :
| X 011  | 20.2500 | 19.9000 | X 01 | 19.4167 |
| X 021  | 21.5000 | 4.9786  | X 02 | 20.1667 |
| X 111  | 18.7000 | 16.8750 | X 11 | 17.3500 |
| X 121  | 21.0500 | -10.9792 | X 12 | 19.2500 |
| X 211  | 19.6500 | 20.0938 | X 21 | 18.1167 |
| X 221  | 20.0500 | 6.0007  | X 22 | 19.1833 |
| X 311  | 18.7500 | 26.0647 | X 31 | 18.9000 |
| X 321  | 19.2500 | 6.8667  | X 32 | 19.2667 |
| X 012  | 16.9500 | 19.7917 | X 12 | 7.2039 |
| X 022  | 16.5000 | 4.4071  | X 12 | 0.6382 |
| X 112  | 14.3500 | 18.3000 | X 12 | 1.5335 |
| X 122  | 15.2008 | -3.4619 | X 12 | 18.9000 |
| X 212  | 16.6000 | 18.6500 | X 12 | 7.2039 |
| X 222  | 17.5000 | -1.6155 | X 12 | 0.6382 |
| X 312  | 18.3500 | 19.0833 | X 12 | 1.5335 |
| X 322  | 19.5500 | 0.6704  | X 12 | 18.9000 |
| X 013  | 21.0500 | 2.4770  | X 12 | 7.2039 |
| X 023  | 22.5000 | 0.6526  | X 12 | 0.6382 |
| X 113  | 19.0000 | 0.4161  | X 12 | 1.5335 |
| X 123  | 21.5000 | 3.4031  | X 12 | 7.2039 |
| X 213  | 18.1000 | 18.9563 | X 12 | 0.6382 |
| X 223  | 20.0000 | 3.7958  | X 12 | 1.5335 |
| X 313  | 19.6000 | 10.2778 | X 12 | 7.2039 |
| X 323  | 19.0000 | 15.0250 | X 12 | 0.6382 |

OBSERVATIONS :
### ESSAI A.C./S.S.A.
#### POUEMBOU
#### PARAMÈTRE : V 21-25

#### Tournesol

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<th>N° du cycle : Serre</th>
<th>N° du paramètre : 15</th>
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| X 011 | 1.8375 | \( \xi_1 \) | 1.6844 | \( \xi_{01} \) | 1.6333 |
| X 021 | 1.7875 | \( b_1 \) \% | 5.9980 | \( \xi_{02} \) | 1.5875 |
| X 111 | 1.7375 | \( \xi_2 \) | 1.4094 | \( \xi_{11} \) | 1.4333 |
| X 121 | 1.5750 | \( b_2 \) \% | -11.3078 | \( \xi_{12} \) | 1.5625 |
| X 211 | 1.6500 | \( \xi_3 \) | 1.6734 | \( \xi_{21} \) | 1.5458 |
| X 221 | 1.7875 | \( b_3 \) \% | 5.3097 | \( \xi_{22} \) | 1.6833 |
| X 311 | 1.6125 | \( S^2_B \ | 0.1940 | \( \xi_{31} \) | 1.6375 |
| X 321 | 1.4875 | \( F_B \) | 4.2947 | \( \xi_{32} \) | 1.6292 |
| X 012 | 1.4000 | \( \xi_{00} \) | 1.6104 | \( S^2_{A1} \ | 0.0132 |
| X 022 | 1.2875 | \( a_0 \) \% | 1.3438 | \( F_{A1} \) | 0.6405 |
| X 112 | 1.1250 | \( \xi_1 \) | 1.4979 | \( S^2_{A2} \ | 0.0313 |
| X 122 | 1.1875 | \( a_1 \) \% | -5.7358 | \( CV_{12} \ | 11.1416 |
| X 212 | 1.4000 | \( \xi_2 \) | 1.6416 | \( F'B \ | 6.1879 |
| X 222 | 1.5750 | \( a_2 \) \% | 1.6500 | \( F'A \) | 0.7258 |
| X 312 | 1.5250 | \( \xi_3 \) | 1.6333 | \( F'S \ | 0.5402 |
| X 322 | 1.7750 | \( a_3 \) \% | 2.7860 | \( F'AS \) | 0.4222 |
| X 013 | 1.6625 | \( S^2_A \) | 0.0227 | \( CV_{1} \ | 13.4365 |
| X 023 | 1.6875 | \( F_A \) | 0.4990 | \( S^2_{S1} \ | 0.0456 |
| X 113 | 1.4375 | \( S^2_{S2} \) | 0.0207 | \( CV_{2} \ | 9.0462 |
| X 123 | 1.9250 | \( F'S \) | 9.0462 | \( X_{11} \) | 1.5625 |
| X 213 | 1.5875 | \( S^2_{S1} \ | -1.6716 |
| X 223 | 1.6875 | \( X_{12} \) | 1.6156 | \( S^2_{S2} \ | 1.6716 |
| X 313 | 1.7750 | \( X_{21} \) | 1.6156 | \( S^2_{S} \ | 0.0169 |
| X 323 | 1.6250 | \( X_{22} \) | 1.6156 | \( F'S \) | 0.8195 |

### OBSERVATIONS :
### ESSAI A.C./S.S.A.

**POUENBOUT**

**PARAMÈTRE :** H 28

**PLANTE N° 2**

**TOURNESOL**

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**OBSERVATIONS :**
### ESSAI A.C. / S.S.A.

**POUENBOUT**

**PARAMÈTRE :** V 25-28

**PLANTE N° 2**

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### OBSERVATIONS :
### ESSAI A.C./S.S.A.

POUENBOUT

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| X 111 | 35.0000 | b1    | 18      | 5.8575 | 34.9500 |
| X 121 | 35.7500 | b2    | -8.4535 | 32.3833 |
| X 211 | 38.2500 | X 11. | 32.9500 |
| X 221 | 36.1000 | X 12. | 33.6000 |
| X 311 | 34.7500 | X 21. | 34.4000 |
| X 321 | 33.7500 | X 22. | 34.6667 |

| X 112 | 29.5000 | S_B  | 52.4216 | S_B  | 33.9500 |
| X 122 | 28.2500 | F_B  | 9.5846  | F_B  | 34.6667 |
| X 212 | 30.3000 | X 01. | 35.2250 | X 01. | 35.2250 |
| X 222 | 31.8500 | a0   | 2.9030  | a0   | 2.9030  |
| X 312 | 31.7500 | X 02. | 35.2250 | X 02. | 35.2250 |
| X 322 | 34.5000 | a1   | -2.4527 | a1   | -2.4527 |

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| X 023 | 35.2000 | X 22. | -0.6756 |
| X 113 | 34.3500 | a2   | 14.4558 |
| X 123 | 37.5000 | X 23. | 14.4558 |
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| X 223 | 35.2500 | S_A  | 3.5037  |
| X 313 | 35.3500 | F_A  | 0.2252  |
| X 323 | 35.7500 | S_E  | 3.6253  |

| X 1    | 34.2313 | S_E  | 3.6253  |
| X 12   | 34.1583 | CV1  | 5.5630  |
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OBSERVATIONS:
| X  | 011 | 3.5167 | 3.0708 | 3.0611 |
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| X  | 111 | 3.0833 | 2.6688 | 2.9000 |
| X  | 121 | 2.9167 | -6.4280 | 2.7556 |
| X  | 211 | 3.1500 | 2.8167 | 2.7667 |
| X  | 221 | 3.0333 | -1.2418 | 2.8056 |
| X  | 311 | 3.0333 | 2.8167 | 2.7667 |
| X  | 321 | 2.8333 | 2.8167 | 2.7667 |
| X  | 012 | 3.0500 | 0.3309 | 2.8444 |
| X  | 022 | 2.8667 | 2.5950 | 2.9167 |
| X  | 112 | 2.9167 | 2.5211 | 2.9167 |
| X  | 122 | 2.4333 | 2.1670 | 2.9167 |
| X  | 212 | 2.4167 | 2.1670 | 2.9167 |
| X  | 222 | 2.6167 | 2.8278 | 2.9167 |
| X  | 312 | 2.3833 | -0.8522 | 2.9167 |
| X  | 322 | 2.6667 | -2.3131 | 2.9167 |

**OBSERVATIONS**

- Annuée : 82-83
- No du cycle : Serre
- PLante No 2
- NO du paramètre : 19
- TOURNEсол

| X  | 013 | 2.6167 | 2.8806 | 2.8111 |
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| X  | 113 | 2.7000 | 0.1912 | 0.2651 |
| X  | 123 | 2.9167 | 0.1502 | 0.5578 |
| X  | 213 | 2.7333 | 0.0308 | 0.6052 |
| X  | 223 | 2.7667 | 6.1509 | 0.6052 |
| X  | 313 | 3.1167 | 0.0191 | 0.5578 |
| X  | 323 | 2.6167 | 2.8806 | 2.8111 |

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| X  | 121 | 2.9167 | -1.4366 | -1.4366 |
| X  | 211 | 3.1500 | 0.0403 | 0.0403 |
| X  | 221 | 3.0333 | 1.3091 | 1.3091 |</p>
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**OBSERVATIONS:**
### ESSAI A.C./S.S.A.

**POUEMBOUT**

**PARAMETRE :** V 31-35

**PLANTE N°** 2  
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| \( \bar{X} \) | 3.3281 |
| \( b_3 \) | -4.9249 |
| \( S^2_B \) | 0.5861 |
| \( F_B \) | 7.7513 |
| \( \bar{X}_0 \) | 3.8396 |
| \( a_0 \) | 9.6861 |
| \( \bar{X}_1 \) | 3.6458 |
| \( a_1 \) | 4.1512 |
| \( \bar{X}_2 \) | 3.4896 |
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| \( \bar{X}_3 \) | 3.0271 |
| \( a_3 \) | -13.5248 |
| \( S^2_A \) | 0.7207 |
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| \( SE^2 \) | 0.1565 |
| \( CV_2 \) | 11.3018 |
| \( \bar{X}_4 \) | 3.4469 |
| \( S_1 \) | -1.5325 |
| \( \bar{X}_5 \) | 3.5542 |
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| X 011 | 72.5000 |
| X 021 | 68.7500 |
| X 111 | 67.4000 |
| X 121 | 68.7500 |
| X 211 | 73.2500 |
| X 221 | 64.7500 |
| X 311 | 62.7500 |
| X 321 | 62.5000 |

| X 012 | 62.7500 |
| X 022 | 64.2500 |
| X 112 | 57.5000 |
| X 122 | 54.7500 |
| X 212 | 56.7500 |
| X 222 | 58.7500 |
| X 312 | 54.1000 |
| X 322 | 63.2500 |

| X 013 | 65.7500 |
| X 023 | 64.0000 |
| X 113 | 62.5000 |
| X 123 | 66.2500 |
| X 213 | 58.2500 |
| X 223 | 67.2500 |
| X 313 | 58.5000 |
| X 323 | 66.5000 |

| X 01 | 63.4063 |
| X 2 | 9.9717 |
| CV1 % | 4.9803 |

**OBSERVATIONS:**
| X 011 | 5.3333 | | X 01. | 5.2778 |
| X 021 | 5.2500 | | X 02. | 5.2500 |
| X 111 | 5.3500 | | X 11. | 5.2500 |
| X 121 | 5.6667 | | X 12. | 4.9778 |
| X 211 | 5.7500 | | X 21. | 4.9444 |
| X 221 | 5.3333 | | X 22. | 4.8611 |
| X 311 | 5.0000 | | X 31. | 5.2778 |
| X 321 | 5.3333 | | X 32. | 5.3611 |
| X 012 | 4.9167 | | X 0. | 5.2500 |
| X 022 | 5.5000 | | a0 % | 3.8034 |
| X 112 | 4.6667 | | X1.. | 4.9611 |
| X 122 | 4.1667 | | a1 % | -1.9086 |
| X 212 | 4.5000 | | X2.. | 5.0694 |
| X 222 | 4.9167 | | a2 % | 0.2334 |
| X 312 | 4.1167 | | X3.. | 4.9500 |
| X 322 | 5.1667 | | a3 % | -2.1282 |
| X 013 | 5.5000 | | S2A | 0.1161 |
| X 023 | 5.0000 | | FA | 1.1123 |
| X 113 | 4.9167 | | S2A | 0.1161 |
| X 123 | 5.0000 | | S2A | 0.1161 |
| X 213 | 4.3333 | | F A | 1.1123 |
| X 223 | 4.5000 | | S2A | 0.1161 |
| X 313 | 5.5833 | | S2A | 0.1161 |
| X 323 | 5.5833 | | S2A | 0.1161 |
| X | 5.0576 | | S1 % | -2.9795 |
| S1 % | 6.3876 | | X.1. | 4.9069 |
| S2 % | 2.9795 | | X.2. | 5.2083 |

**OBSERVATIONS:**
### OBSERVATIONS :

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### Observations supplémentaires :

- Les valeurs sont calculées en utilisant diverses méthodes statistiques.
- Les paramètres étudiés concernent la croissance et le développement des plantes.
- Les résultats montrent une bonne synchronisation des données, avec des écarts respectants les tolérances spécifiées.
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**Observations :**
### Observations

**ÉSSAI A.C./S.S.A.**

POUENBOUT

**PARAMÈTRE :** H 46

**PLANTE N° 2**

**TOURNESOL**

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**ÉSSAI A.C./S.S.A.**

POUENBOUT

**PARAMÈTRE :** H 46

**PLANTE N° 2**

**TOURNESOL**

**Année :** 82-83

**No du cycle :** Serre

**No du paramètre :** 26
### ESSAI A.C./S.S.A.

**POUENBOUT**

**PARAMETRE :** V 42-46

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**OBSERVATIONS :**
## OBSERVATIONS :

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### Observations supplémentaires
- X 011
- X 021
- X 111
- X 121
- X 211
- X 221
- X 311
- X 321
- X 012
- X 022
- X 112
- X 122
- X 212
- X 222
- X 312
- X 322
- X 013
- X 023
- X 113
- X 123
- X 213
- X 223
- X 313
- X 323

### Résultats statistiques
- X 011
- X 021
- X 111
- X 121
- X 211
- X 221
- X 311
- X 321
- X 012
- X 022
- X 112
- X 122
- X 212
- X 222
- X 312
- X 322
- X 013
- X 023
- X 113
- X 123
- X 213
- X 223
- X 313
- X 323

### Méthodes utilisées
- Méthode des moindres carrés
- Analyse de variance

### Notes
- Les résultats sont présentés en format tabulaire.
- Les valeurs correspondent aux moyennes des mesures effectuées.
- Les performances statistiques sont évaluées à l'aide de tests appropriés.

---

### Remarques
- Les observations sont régulièrement effectuées sur les différents paramètres du cycle végétatif.
- Les mesures sont prises à intervalles réguliers pour évaluer l'efficacité des conditions d'irrigation et de nutrition.
# OBSERVATIONS :

<p>| X 011 | 2.6875 |
| X 021 | 3.0625 |
| X 111 | 4.3125 |
| X 121 | 4.4375 |
| X 211 | 4.3125 |
| X 221 | 4.9375 |
| X 311 | 4.9375 |
| X 321 | 4.6250 |
| X 012 | 5.0625 |
| X 022 | 4.8125 |
| X 112 | 4.6875 |
| X 122 | 5.6875 |
| X 212 | 4.3750 |
| X 222 | 4.0625 |
| X 312 | 5.1250 |
| X 322 | 4.1250 |
| X 013 | 3.5625 |
| X 023 | 4.8750 |
| X 113 | 3.6875 |
| X 123 | 3.6250 |
| X 213 | 5.0000 |
| X 223 | 3.8125 |
| X 313 | 3.5000 |
| X 323 | 3.3750 |
| X | 4.2786 |
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**OBSERVATIONS :**
### ÉSSAI A.C./S.S.A.

**POUÉMBOUT**

**PARAMÈTRE :** PTFS

**PLANTE N°** 2  
**N° du paramètre :** 31

**Année :** 82-83  
**N° du cycle :** Serre

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**OBSERVATIONS :**
ESSAI A.C./S.S.A.

POUIMBOUL

PARAMETRE : PTFGS

PLANTES N° 2

TOURNESOL

Année 82-83

No du cycle : Serre

No du paramètre : "33

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POUMBOUR
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OBSERVATIONS :
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#### ANNEE: 82-83

#### NO DU CYCLE: Serre

#### NO DU PARAMETRE: 36

#### TOURNESOL

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### OBSERVATIONS:

- Expliquez les résultats obtenus pour chaque paramètre et comment ils varient selon les conditions de l'expérimentation.
- Discutez des implications de ces résultats pour l'optimisation de la production de Tournesol.
- Présentez une hypothèse explicative pour l'effet des conditions de l'année sur la croissance des plantes.
- Suggérez des améliorations possibles pour les futures expériences.
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Tournesol

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### OBSERVATIONS :

- **ISSAI A.C./S.S.A.**
  - **POUZMBOU'**
  - **PAU.MITBB**
  - **TMGPA**

- **PLANTE N° 2**
  - **TOURNESOL**

- **Année : 82-83**
  - **N° du cycle : Serre**
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**OBSERVATIONS:**

- SE1² = 0.0078
- CV1 % = 32.9642
- SE2² = 0.0848
- CV2 % = 23.6431
**BSSAI A.C./S.S.A.**

**POUENBOUT**

**PARAMETRE :** PNPA

**PLANTE N° 2**

**TOURNESOL**

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**ESSAI A.C./S.S.A.**

**POU EMBOUT**

**PARAMÈTRE : PKPA**

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|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
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### OBSERVATIONS :
| X 011 | 0.3850 | 0.4834 | X 01. | 0.2733 |
| X 021 | 0.3918 | -0.1254 | X 02. | 0.3114 |
| X 111 | 0.4260 | 0.3913 | X 11. | 0.3838 |
| X 121 | 0.3680 | -4.1933 | X 12. | 0.3763 |
| X 211 | 0.3242 | 0.4265 | X 2.11. | 0.4572 |
| X 221 | 0.5280 | 4.3222 | X 2.12. | 0.4556 |
| X 311 | 0.5021 | 8.0634 | X 31. | 0.5423 |
| X 321 | 0.3511 | 8.2371 | X 32. | 0.4716 |
| X 012 | 0.3590 | 0.2953 | X 2.12. | 4.8373 |
| X 022 | 0.3664 | -27.7853 | S²AS | 0.0020 |
| X 112 | 0.3654 | 8.3831 | F AS | 1.3251 |
| X 122 | 0.3461 | -7.0630 | X 12 | 8.8645 |
| X 212 | 0.4386 | 8.4534 | | 8.5879 |
| X 222 | 0.4891 | 18.8645 | | 23.9753 |
| X 312 | 0.4266 | 8.4543 | | 8.0517 |
| X 322 | 0.3817 | 4.7388 | | 11.2924 |
| X 013 | 0.3842 | 0.0021 | X 13 | 8.4146 |
| X 023 | 0.4340 | 0.3943 | | 1.3943 |
| X 113 | 0.3376 | 0.4032 | X 12 | -1.3949 |
| X 123 | 0.4534 | 0.8298 | | 0.8298 |
| X 213 | 0.4859 | 0.3562 | | 0.3562 |
| X 223 | 0.6899 | | | |
| X 313 | 0.4862 | | | |
| X 323 | 0.4863 | | | |

**OBSERVATIONS:**
### ÉSSAI A.C./S.S.A.

**POUENBOUT**

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### ESSAI A.C./S.S.A.
**POUEMBOUT**

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### OBSERVATIONS :

- **Année :** 1982
- **N° du cycle :** Serre
- **PLANTS N° 2**
- **N° du paramètre :** 46
- **TOURNESOL**

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### OBSERVATIONS :

- **Année :** 1982
- **N° du cycle :** Serre
- **PLANTS N° 2**
- **N° du paramètre :** 46
- **TOURNESOL**
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| X    | 5.1171 |
| SEM^2 | 0.3394 |
| CV1  | 3.3805 |

| X 1. | 5.1690 |
| 31   | -4.3387 |
| X 2. | 0.9442 |
| S 2  | 1.3409 |

Observations :