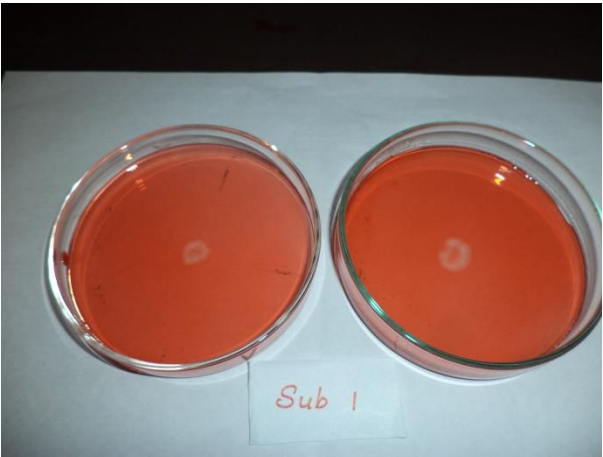


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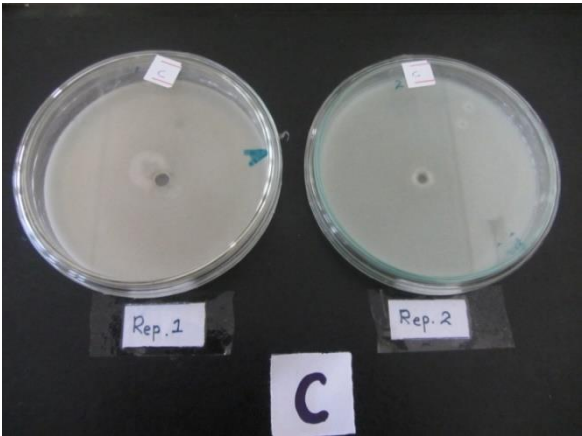
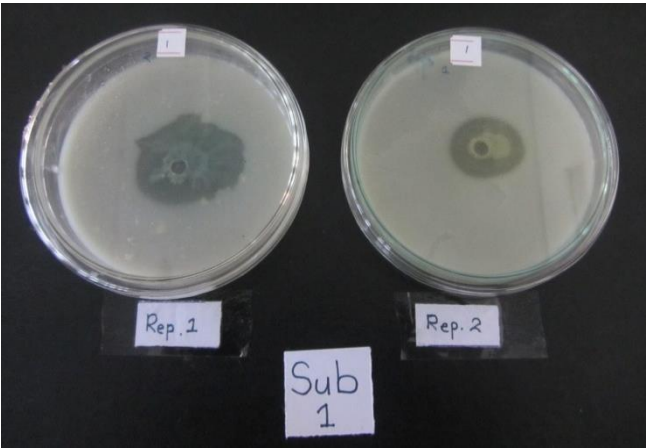
**Supplementary Figures and Tables**  
**Cellulose utilization by Sub1.**



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**Protein utilization by Sub 1.**

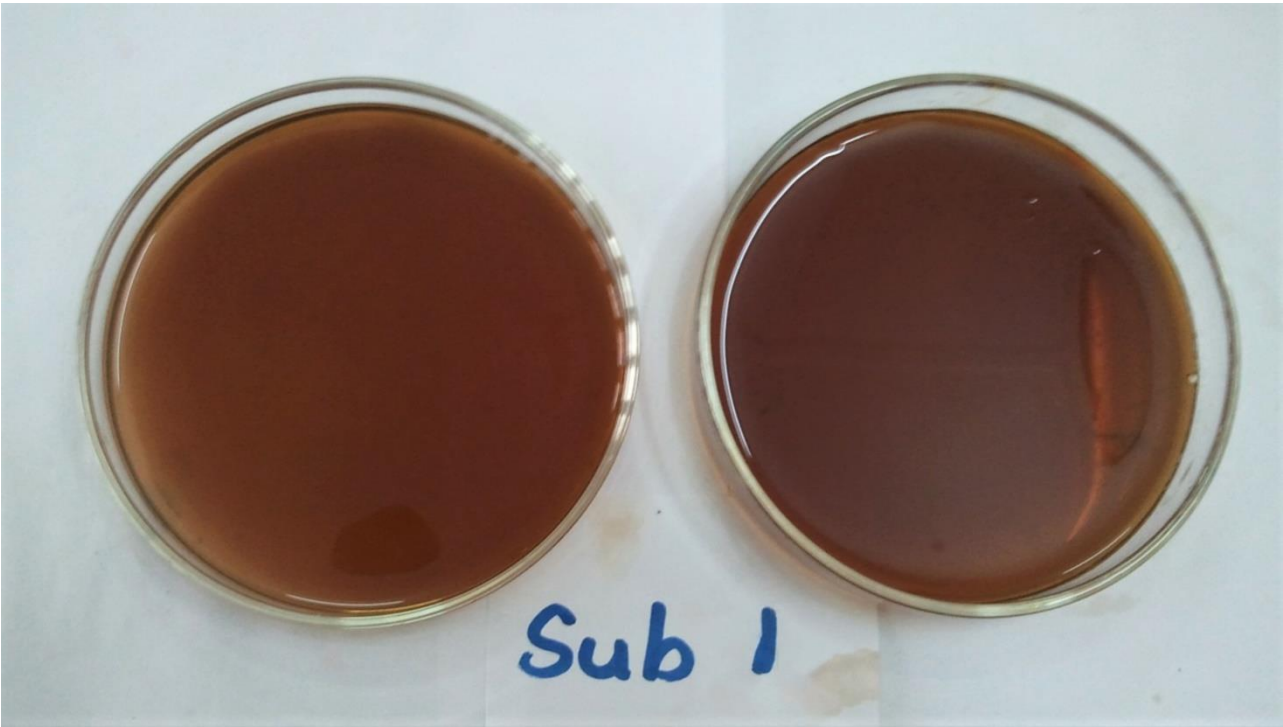
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730 **Pectin utilization by Sub1 (Test plates with no pectinase activity)**



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732 **Supplementary Figure 1 – Cellulose, Pectin and Protein utilization by Sub1.**

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744 **Supplementary Figure 2(a) - Original nodules that were used for the isolation**  
745 **process, as observed in *Pueraria* plants.**

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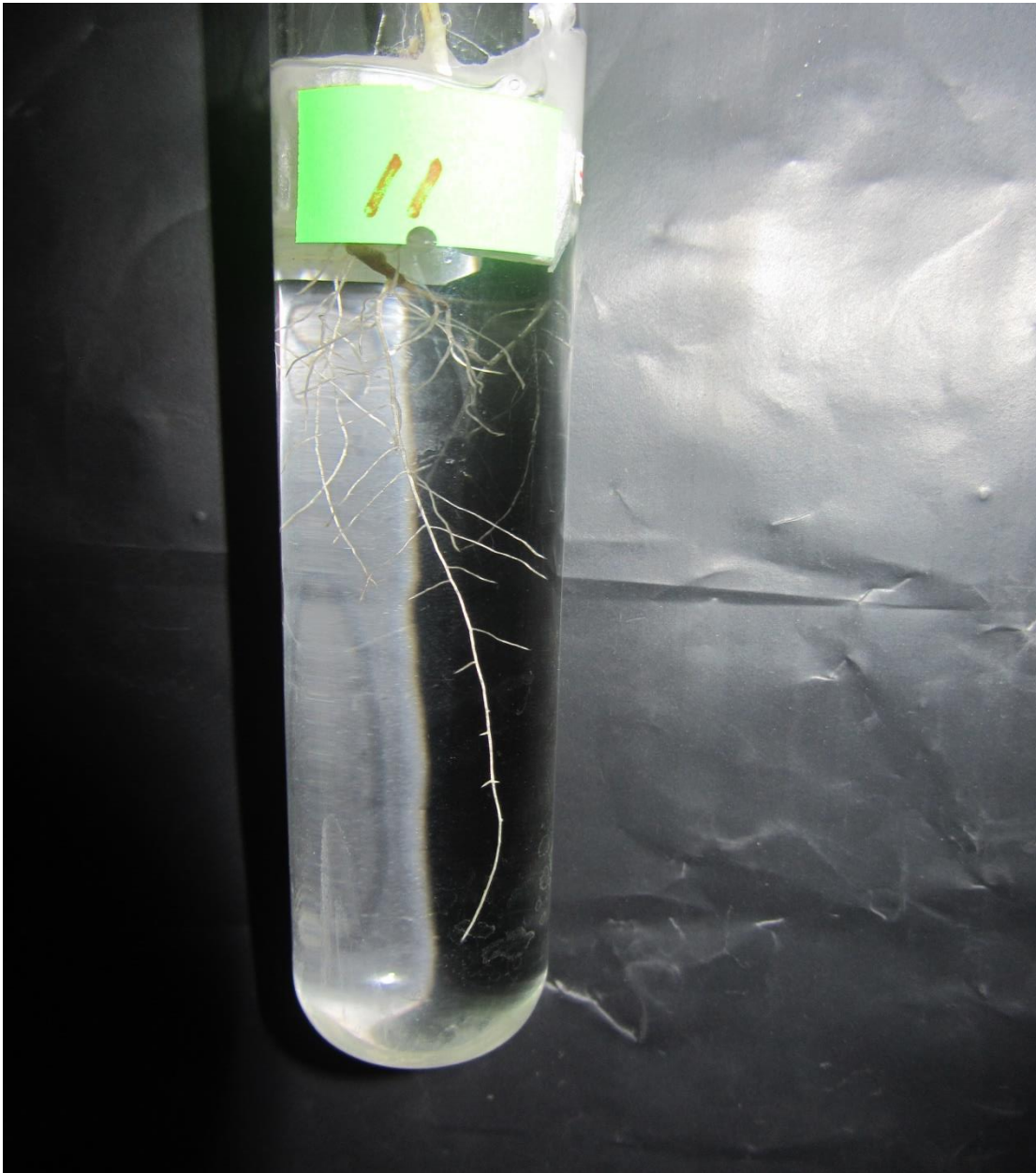
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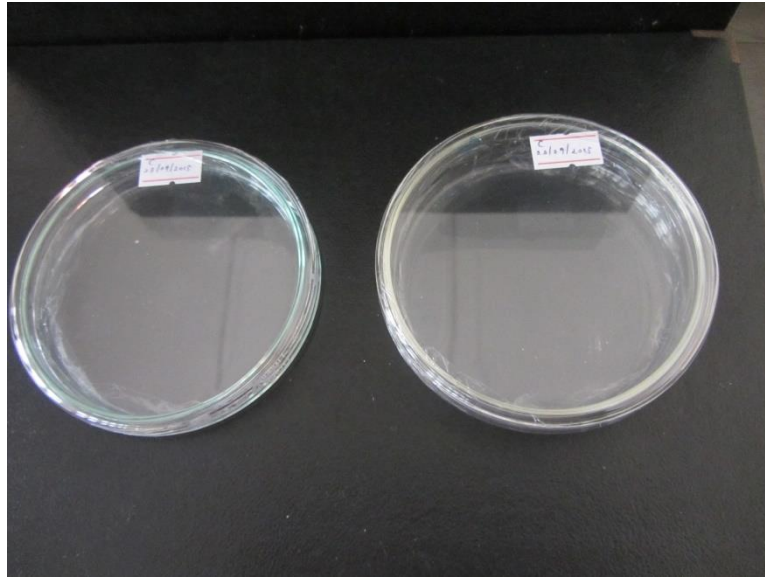
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**Supplementary Figure 2(b)- Two negative controls of Sub1 with no visible nodules (above)**



**Supplementary figure 3 - Negative controls for proline plates to assess swarming motility by Sub1.**

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**Supplementary Figure 4 – Sub1 infected plants (top) and control plants (bottom), showing differences in shoot length at week 5, post-reinfection.**



Control



**Supplementary Figure 5 – The negative control showing no biofilm formation. Biofilm formation by Sub1 is shown in figure 3.**

894 **Supplementary Table 1 – Statistical analysis on root lengths of the**  
895 **plants**  
896

897 **One-way ANOVA: Beginning\_1 versus Experiment\_1**

898  
899 Method  
900  
901 Null hypothesis All means are equal  
902 Alternative hypothesis At least one mean is different  
903 Significance level  $\alpha = 0.05$   
904  
905 Equal variances were assumed for the analysis.  
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907  
908 Factor Information  
909  
910 Factor Levels Values  
911 Experiment\_1 2 Control, Sub 1  
912

913  
914 Analysis of Variance  
915  
916 Source DF Adj SS Adj MS F-Value P-Value  
917 Experiment\_1 1 0.6050 0.6050 2.30 0.180  
918 Error 6 1.5750 0.2625  
919 Total 7 2.1800  
920

921  
922 Model Summary  
923  
924 S R-sq R-sq(adj) R-sq(pred)  
925 0.512348 27.75% 15.71% 0.00%  
926

927  
928 Means  
929  
930 Experiment\_1 N Mean StDev 95% CI  
931 Control 4 1.175 0.450 (0.548, 1.802)  
932 Sub 1 4 1.725 0.568 (1.098, 2.352)  
933

934 Pooled StDev = 0.512348  
935  
936

937  
938  
939 **One-way ANOVA: 1st week\_1 versus Experiment\_1**

940  
941 Method  
942  
943 Null hypothesis All means are equal  
944 Alternative hypothesis At least one mean is different  
945 Significance level  $\alpha = 0.05$   
946  
947 Equal variances were assumed for the analysis.  
948

949  
950 Factor Information  
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952 Factor Levels Values  
953 Experiment\_1 2 Control, Sub 1  
954

955  
956 Analysis of Variance  
957  
958 Source DF Adj SS Adj MS F-Value P-Value

Experiment_1	1	0.1513	0.1513	0.16	0.707
Error	6	5.8175	0.9696		
Total	7	5.9687			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
0.984674	2.53%	0.00%	0.00%

Means

Experiment_1	N	Mean	StDev	95% CI
Control	4	2.275	1.328	(1.070, 3.480)
Sub 1	4	2.550	0.420	(1.345, 3.755)

Pooled StDev = 0.984674

One-way ANOVA: 2nd week\_1 versus Experiment\_1

Method

Null hypothesis	All means are equal
Alternative hypothesis	At least one mean is different
Significance level	$\alpha$ = 0.05

Equal variances were assumed for the analysis.

Factor Information

Factor	Levels	Values
Experiment_1	2	Control, Sub 1

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Experiment_1	1	0.02000	0.02000	0.01	0.912
Error	6	9.12000	1.52000		
Total	7	9.14000			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
1.23288	0.22%	0.00%	0.00%

Means

Experiment_1	N	Mean	StDev	95% CI
Control	4	3.500	1.294	(1.992, 5.008)
Sub 1	4	3.600	1.169	(2.092, 5.108)

Pooled StDev = 1.23288

One-way ANOVA: 3rd week\_1 versus Experiment\_1

Method



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1027 Null hypothesis All means are equal  
1028 Alternative hypothesis At least one mean is different  
1029 Significance level  $\alpha = 0.05$   
1030  
1031 Equal variances were assumed for the analysis.  
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1034 Factor Information  
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1036 Factor Levels Values  
1037 Experiment\_1 2 Control, Sub 1  
1038  
1039

1040 Analysis of Variance  
1041

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Experiment_1	1	0.1250	0.1250	0.05	0.830
Error	6	14.9150	2.4858		
Total	7	15.0400			

1046  
1047

1048 Model Summary  
1049

S	R-sq	R-sq(adj)	R-sq(pred)
1.57665	0.83%	0.00%	0.00%

1052  
1053

1054 Means  
1055

Experiment_1	N	Mean	StDev	95% CI
Control	4	5.225	1.115	(3.296, 7.154)
Sub 1	4	4.975	1.931	(3.046, 6.904)

1059

1060 Pooled StDev = 1.57665  
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1064  
1065 **One-way ANOVA: 4th week\_1 versus Experiment\_1**

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1067 Method  
1068

1069 Null hypothesis All means are equal  
1070 Alternative hypothesis At least one mean is different  
1071 Significance level  $\alpha = 0.05$   
1072  
1073 Equal variances were assumed for the analysis.  
1074  
1075

1076 Factor Information  
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1078 Factor Levels Values  
1079 Experiment\_1 2 Control, Sub 1  
1080  
1081

1082 Analysis of Variance  
1083

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Experiment_1	1	5.281	5.281	0.55	0.487
Error	6	57.808	9.635		
Total	7	63.089			

1088  
1089

1090 Model Summary  
1091

S	R-sq	R-sq(adj)	R-sq(pred)
3.10396	8.37%	0.00%	0.00%

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Means

Experiment_1	N	Mean	StDev	95% CI
Control	4	8.82	3.45	(5.03, 12.62)
Sub 1	4	7.20	2.71	(3.40, 11.00)

Pooled StDev = 3.10396

**One-way ANOVA: 5th week\_1 versus Experiment\_1**

Method

Null hypothesis All means are equal  
Alternative hypothesis At least one mean is different  
Significance level  $\alpha = 0.05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Levels	Values
Experiment_1	2	Control, Sub 1

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Experiment_1	1	25.56	25.561	3.00	0.134
Error	6	51.19	8.531		
Total	7	76.75			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
2.92083	33.31%	22.19%	0.00%

Means

Experiment_1	N	Mean	StDev	95% CI
Control	4	11.48	3.31	(7.90, 15.05)
Sub 1	4	7.90	2.46	(4.33, 11.47)

Pooled StDev = 2.92083

**One-way ANOVA: 6th week\_1 versus Experiment\_1**

Method

Null hypothesis All means are equal  
Alternative hypothesis At least one mean is different  
Significance level  $\alpha = 0.05$

Equal variances were assumed for the analysis.

Factor Information

```
1161 Factor          Levels  Values
1162 Experiment_1      2    Control, Sub 1
1163
1164
1165 Analysis of Variance
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1167 Source          DF   Adj SS   Adj MS   F-Value   P-Value
1168 Experiment_1     1    53.05   53.045    9.78     0.020
1169 Error            6    32.53    5.422
1170 Total            7    85.58
1171
1172
1173 Model Summary
1174
1175 S      R-sq   R-sq(adj)  R-sq(pred)
1176 2.32845  61.99%    55.65%     32.42%
1177
1178
1179 Means
1180
1181 Experiment_1  N    Mean   StDev     95% CI
1182 Control      4   13.40    2.48  (10.55, 16.25)
1183 Sub 1        4    8.25    2.17  ( 5.40, 11.10)
1184
1185 Pooled StDev = 2.32845
1186
```

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## 1188 One-way ANOVA: 7th week\_1 versus Experiment\_1

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```
Method

Null hypothesis          All means are equal
Alternative hypothesis    At least one mean is different
Significance level        $\alpha = 0.05$ 

Equal variances were assumed for the analysis.
```

### Factor Information

```
Factor          Levels  Values
Experiment_1      2    Control, Sub 1
```

### Analysis of Variance

```
Source          DF   Adj SS   Adj MS   F-Value   P-Value
Experiment_1     1    80.01   80.011    20.81     0.004
Error            6    23.07    3.845
Total            7   103.08
```

### Model Summary

```
S      R-sq   R-sq(adj)  R-sq(pred)
1.96076  77.62%    73.89%     60.22%
```

### Means

```
Experiment_1  N    Mean   StDev     95% CI
Control      4   15.000    1.667  (12.601, 17.399)
Sub 1        4    8.68    2.22  ( 6.28, 11.07)
```

Pooled StDev = 1.96076



## Supplementary Table 2 - Statistical analysis of shoot lengths in plants

### One-way ANOVA: 1st week versus Treatment

Method

Null hypothesis All means are equal  
Alternative hypothesis At least one mean is different  
Significance level  $\alpha = 0.05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Levels	Values
Treatment	7	1, 2, 3, 4, 5, 6, 7

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Treatment	6	15.95	2.658	1.02	0.439
Error	21	54.67	2.603		
Total	27	70.62			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
1.61352	22.58%	0.46%	0.00%

Means

Treatment	N	Mean	StDev	95% CI
1	4	8.000	1.992	(6.322, 9.678)
2	4	7.050	1.863	(5.372, 8.728)
3	4	5.850	0.661	(4.172, 7.528)
4	4	7.225	1.130	(5.547, 8.903)
5	4	7.38	2.50	( 5.70, 9.05)
6	4	6.825	0.714	(5.147, 8.503)
7	4	5.750	1.520	(4.072, 7.428)

Pooled StDev = 1.61352

### One-way ANOVA: 2nd week versus Treatment

Method

Null hypothesis All means are equal  
Alternative hypothesis At least one mean is different  
Significance level  $\alpha = 0.05$

Equal variances were assumed for the analysis.

Factor Information

Factor	Levels	Values
Treatment	7	1, 2, 3, 4, 5, 6, 7

1293	Analysis of Variance					
1294						
1295	Source	DF	Adj SS	Adj MS	F-Value	P-Value
1296	Treatment	6	13.50	2.250	0.91	0.505
1297	Error	21	51.77	2.465		
1298	Total	27	65.27			

1299	Model Summary				
1300					
1301		S	R-sq	R-sq(adj)	R-sq(pred)
1302		1.57003	20.69%	0.00%	0.00%

1305	Means				
1306					
1307	Treatment	N	Mean	StDev	95% CI
1308	1	4	8.35	2.06	( 6.72, 9.98)
1309	2	4	7.07	2.17	( 5.44, 8.71)
1310	3	4	7.000	0.770	(5.367, 8.633)
1311	4	4	7.850	1.079	(6.217, 9.483)
1312	5	4	8.250	1.984	(6.617, 9.883)
1313	6	4	7.125	0.618	(5.492, 8.758)
1314	7	4	6.300	1.494	(4.667, 7.933)
1315	Pooled StDev = 1.57003				

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1361 7 4 6.575 1.305 (4.983, 8.167)

1362  
1363 Pooled StDev = 1.53107  
1364

1365 **One-way ANOVA: 4th week versus Treatment**

1366  
1367 Method

1368  
1369 Null hypothesis All means are equal  
1370 Alternative hypothesis At least one mean is different  
1371 Significance level  $\alpha = 0.05$   
1372

1373 Equal variances were assumed for the analysis.  
1374

1375  
1376 Factor Information

1377  
1378 Factor Levels Values  
1379 Treatment 7 1, 2, 3, 4, 5, 6, 7  
1380

1381  
1382 Analysis of Variance

1383  
1384 Source DF Adj SS Adj MS F-Value P-Value  
1385 Treatment 6 18.37 3.062 1.38 0.269  
1386 Error 21 46.62 2.220  
1387 Total 27 64.99  
1388

1389  
1390 Model Summary

1391  
1392 S R-sq R-sq(adj) R-sq(pred)  
1393 1.48993 28.27% 7.77% 0.00%  
1394

1395  
1396 Means

1397  
1398 Treatment N Mean StDev 95% CI  
1399 1 4 9.18 2.12 ( 7.63, 10.72)  
1400 2 4 8.63 2.43 ( 7.08, 10.17)  
1401 3 4 8.175 0.834 (6.626, 9.724)  
1402 4 4 8.150 0.819 (6.601, 9.699)  
1403 5 4 9.275 1.526 (7.726, 10.824)  
1404 6 4 7.450 0.473 (5.901, 8.999)  
1405 7 4 6.875 1.103 (5.326, 8.424)  
1406

1407 Pooled StDev = 1.48993  
1408

1409 **One-way ANOVA: 5th week versus Treatment**

1410  
1411 Method

1412  
1413 Null hypothesis All means are equal  
1414 Alternative hypothesis At least one mean is different  
1415 Significance level  $\alpha = 0.05$   
1416

1417 Equal variances were assumed for the analysis.  
1418

1419  
1420 Factor Information

1421  
1422 Factor Levels Values  
1423 Treatment 7 1, 2, 3, 4, 5, 6, 7  
1424

1425  
1426 Analysis of Variance

1427  
1428 Source DF Adj SS Adj MS F-Value P-Value



```
1429 Treatment    6    18.78    3.131    1.35    0.280
1430 Error       21    48.74    2.321
1431 Total       27    67.53
```

```
1432
1433
1434 Model Summary
```

```
1435
1436      S      R-sq  R-sq(adj)  R-sq(pred)
1437 1.52351  27.82%    7.19%    0.00%
```

```
1438
1439
1440 Means
```

```
1441
1442 Treatment  N    Mean  StDev      95% CI
1443 1           4    10.00   2.21  ( 8.42, 11.58)
1444 2           4     9.22   2.42  ( 7.64, 10.81)
1445 3           4     8.500  0.876 (6.916, 10.084)
1446 4           4     9.450  1.318 (7.866, 11.034)
1447 5           4     9.375  1.526 (7.791, 10.959)
1448 6           4     7.725  0.479 (6.141,  9.309)
1449 7           4     7.750  0.645 (6.166,  9.334)
```

```
1450
1451 Pooled StDev = 1.52351
1452
```

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1453
```

## 1454 One-way ANOVA: 6th week versus Treatment

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1455
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```
1456 Method
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1457
1458 Null hypothesis          All means are equal
1459 Alternative hypothesis   At least one mean is different
1460 Significance level       $\alpha = 0.05$ 
1461 Rows unused            1
```

```
1462
1463 Equal variances were assumed for the analysis.
```

```
1464
```

```
1465
1466 Factor Information
```

```
1467
1468 Factor      Levels  Values
1469 Treatment      7  1, 2, 3, 4, 5, 6, 7
```

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1470
```

```
1471
1472 Analysis of Variance
```

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1473
1474 Source      DF  Adj SS  Adj MS  F-Value  P-Value
1475 Treatment    6   22.28   3.714    1.72    0.168
1476 Error       20   43.14   2.157
1477 Total        26   65.42
```

```
1478
```

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1479
1480 Model Summary
```

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1481
1482      S      R-sq  R-sq(adj)  R-sq(pred)
1483 1.46866  34.06%    14.28%    0.00%
```

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1484
```

```
1485
1486 Means
```

```
1487
1488 Treatment  N    Mean  StDev      95% CI
1489 1           4    10.325  1.960  (8.793, 11.857)
1490 2           3     9.73   2.72   ( 7.96, 11.50)
1491 3           4     8.700  0.898 (7.168, 10.232)
1492 4           4     9.650  1.237 (8.118, 11.182)
1493 5           4     9.500  1.472 (7.968, 11.032)
1494 6           4     7.725  0.479 (6.193,  9.257)
1495 7           4     7.975  0.943 (6.443,  9.507)
```

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1496
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1497 Pooled StDev = 1.46866

1498

1499 **One-way ANOVA: 7th week versus Treatment**

1500

1501 Method

1502

1503 Null hypothesis All means are equal

1504 Alternative hypothesis At least one mean is different

1505 Significance level  $\alpha = 0.05$

1506 Rows unused 2

1507

1508 Equal variances were assumed for the analysis.

1509

1510

1511 Factor Information

1512

Factor	Levels	Values
Treatment	7	1, 2, 3, 4, 5, 6, 7

1515

1516

1517 Analysis of Variance

1518

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Treatment	6	26.21	4.369	2.72	0.044
Error	19	30.47	1.604		
Total	25	56.69			

1523

1524

1525 Model Summary

1526

S	R-sq	R-sq(adj)	R-sq(pred)
1.26640	46.24%	29.27%	0.00%

1529

1530

1531 Means

1532

Treatment	N	Mean	StDev	95% CI
1	4	10.825	1.576	(9.500, 12.150)
2	3	10.30	1.93	( 8.77, 11.83)
3	4	8.975	0.967	(7.650, 10.300)
4	4	9.800	1.449	(8.475, 11.125)
5	3	8.967	0.981	(7.436, 10.497)
6	4	7.750	0.507	(6.425, 9.075)
7	4	8.500	1.122	(7.175, 9.825)

1541

1542 Pooled StDev = 1.26640

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1544 7<sup>th</sup> week of shoot length data sets were shown significant difference comparatively other

1545 weeks.

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