Analysis of seedling survival and growth in ASRI restoration site

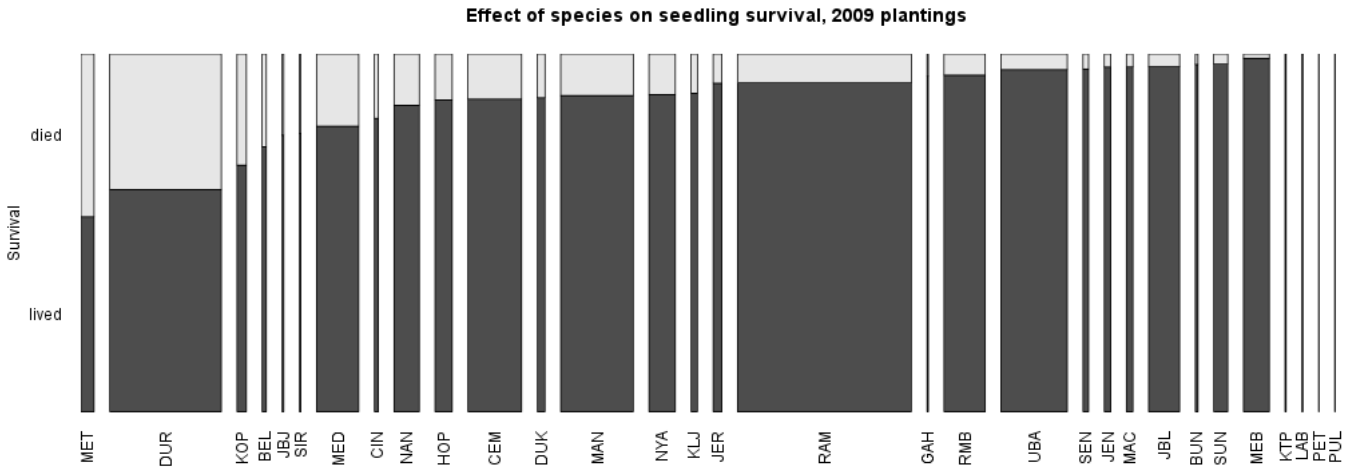
Seedlings planted in 2009 , from month 0 to month 18

Overall seedling survival

Survival: **79.45734%** out of **14005** seedlings

Survival and growth vs. species

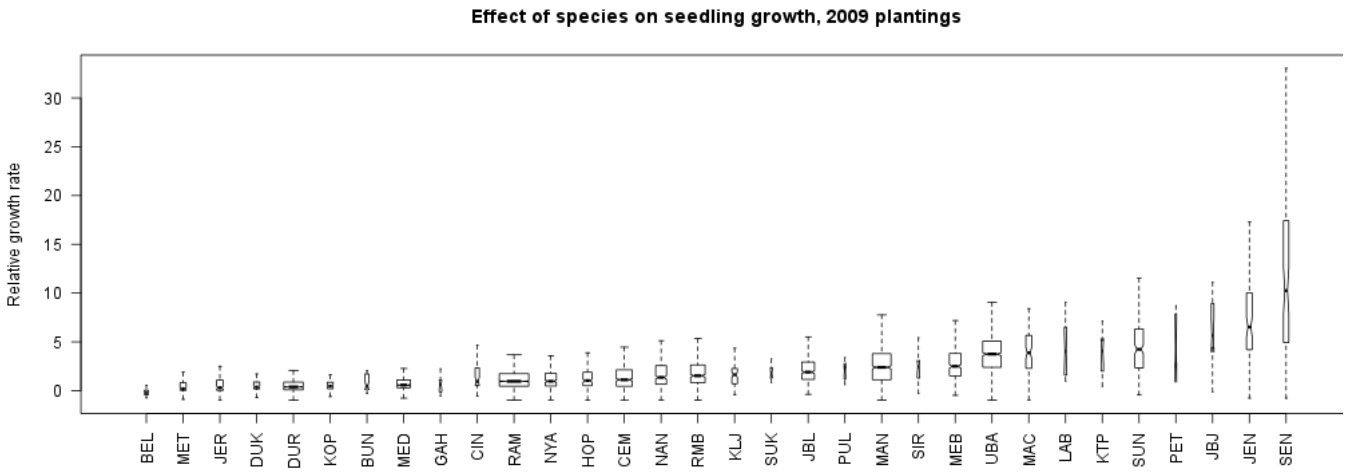
Survival




```
  Pearson's Chi-squared test

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 1156.963, df = 31, p-value < 2.2e-16
```

Growth



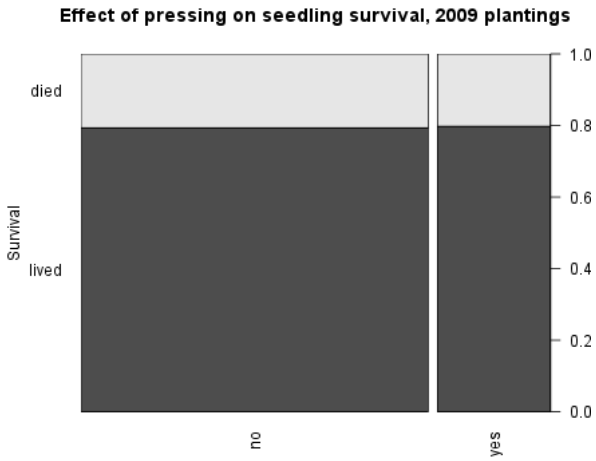

```
Analysis of Variance Table

Response: a$htgr
                      Df Sum Sq Mean Sq F value    Pr(>F)
as.factor(a[, myfactor])   31  19561   631.0  170.31 < 2.2e-16 ***
Residuals                8562  31722     3.7
---
```

```
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. pressing

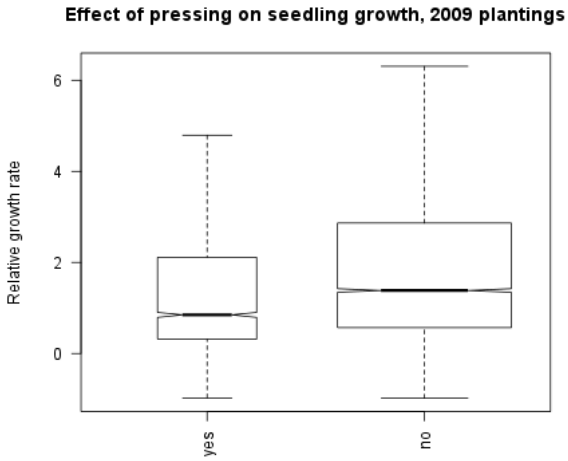
Survival




```
	Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 0.2733, df = 1, p-value = 0.6011
```

Growth

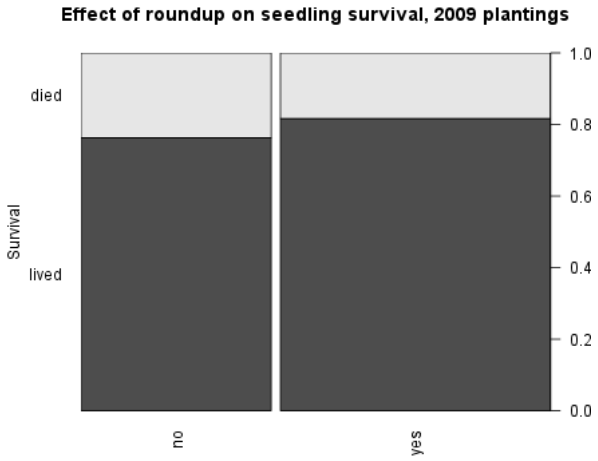



```
Analysis of Variance Table

Response: a$htgr
                       Df Sum Sq Mean Sq F value    Pr(>F)
as.factor(a[, myfactor])     1    548  547.68   95.78 < 2.2e-16 ***
Residuals                11194  64008    5.72
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. roundup

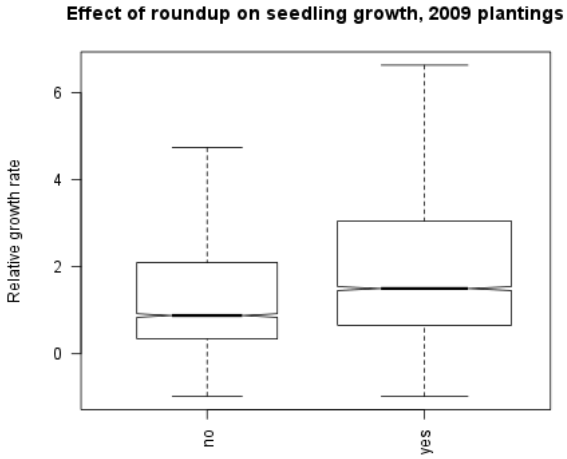
Survival




```
  Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 59.5613, df = 1, p-value = 1.185e-14
```

Growth

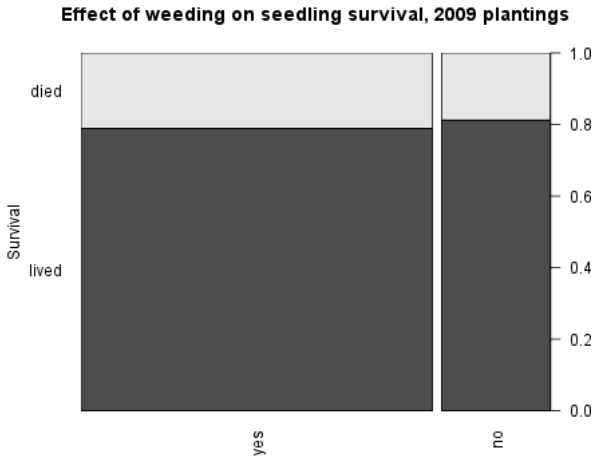



```
Analysis of Variance Table

Response: a$htgr
                          Df Sum Sq Mean Sq F value    Pr(>F)
as.factor(a[, myfactor])   1   1164 1163.88  205.52 < 2.2e-16 ***
Residuals              11194  63392    5.66
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. weeding

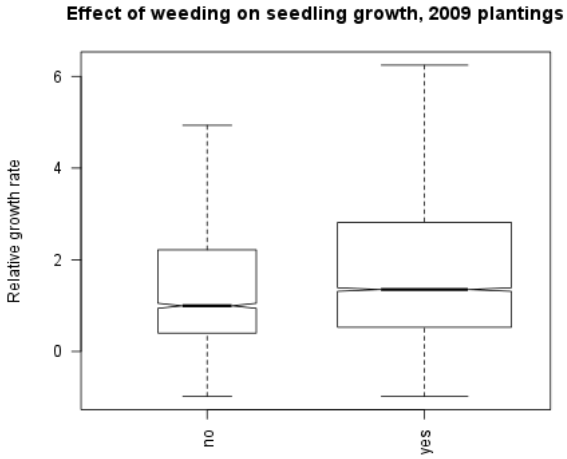
Survival




```
  Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 8.4542, df = 1, p-value = 0.003642
```

Growth

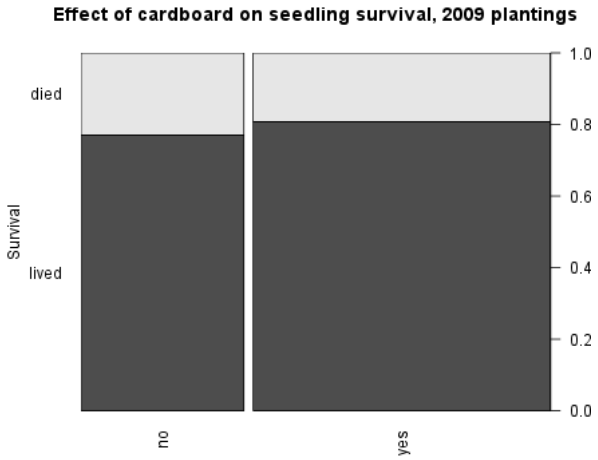



```
Analysis of Variance Table

Response: a$htgr
                          Df Sum Sq Mean Sq F value    Pr(>F)
as.factor(a[, myfactor])   1    241 240.881  41.925 9.881e-11 ***
Residuals              11194  64315   5.746
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. cardboard

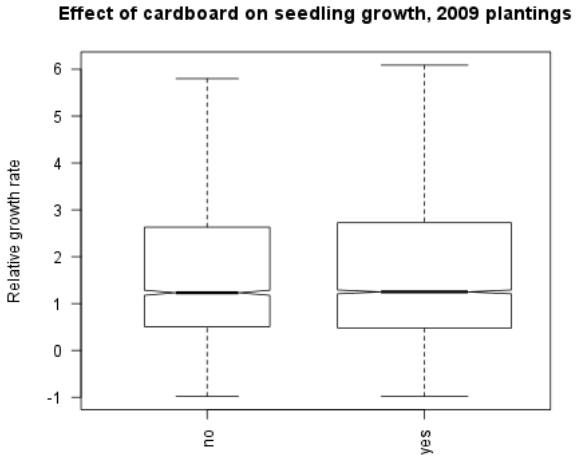
Survival




```
  Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 27.2778, df = 1, p-value = 1.762e-07
```

Growth

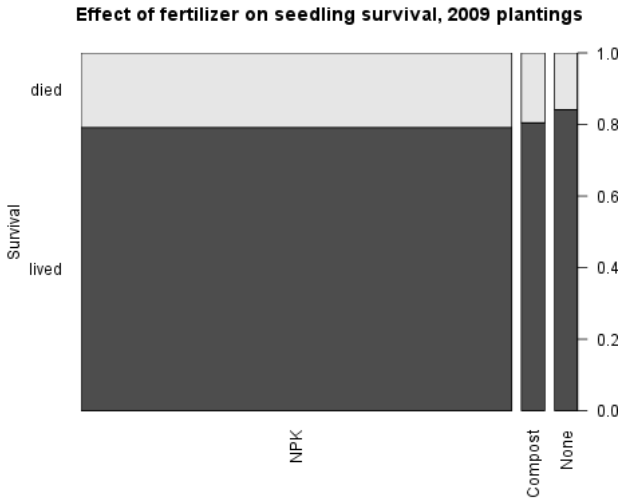



```
Analysis of Variance Table

Response: a$htgr
                          Df Sum Sq Mean Sq F value Pr(>F)
as.factor(a[, myfactor])   1      1  0.7415  0.1286 0.7199
Residuals              11194  64555  5.7670
```

Survival and growth vs. fertilizer

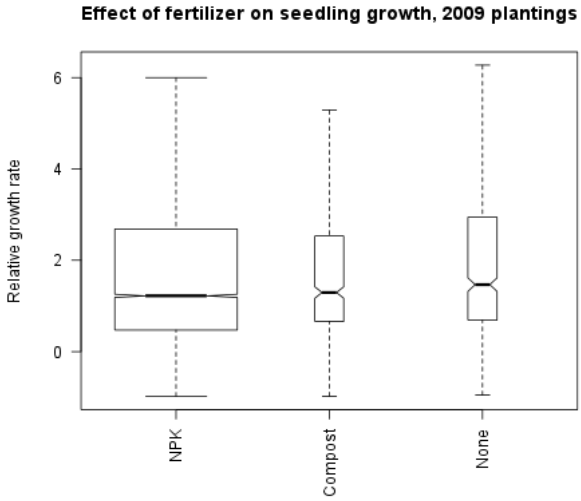
Survival




```
  Pearson's Chi-squared test

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 10.3957, df = 2, p-value = 0.005528
```

Growth

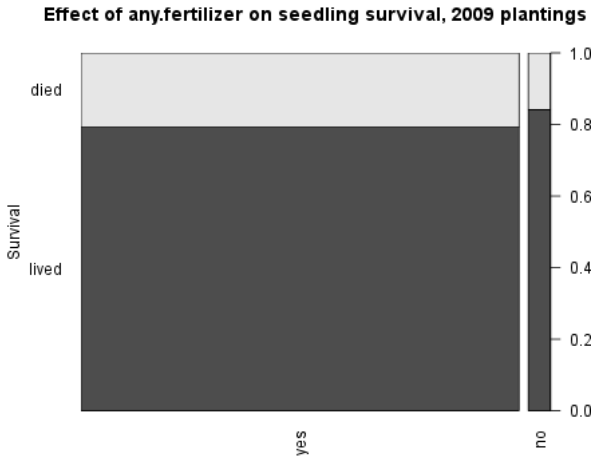



```
Analysis of Variance Table

Response: a$htgr
                          Df Sum Sq Mean Sq F value  Pr(>F)
as.factor(a[, myfactor])   2     27 13.6191  2.3623 0.09425 .
Residuals              11193  64529  5.7651
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. any.fertilizer

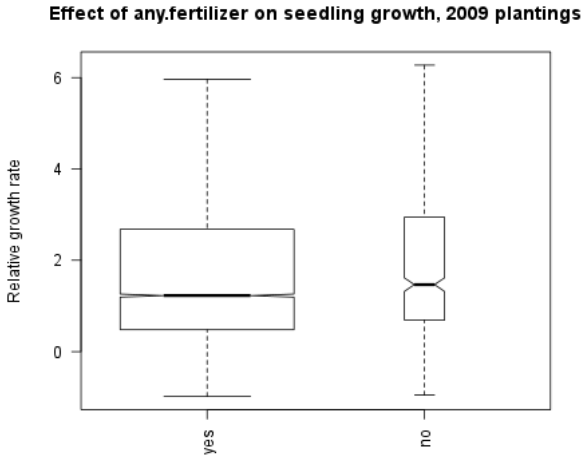
Survival




```
  Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 9.3699, df = 1, p-value = 0.002206
```

Growth




```
Analysis of Variance Table

Response: a$htgr
                          Df Sum Sq Mean Sq F value Pr(>F)
as.factor(a[, myfactor])   1     14 14.2484  2.4712  0.116
Residuals              11194  64542  5.7657
```

Survival and growth vs. nsdl

Only one level of nsdl

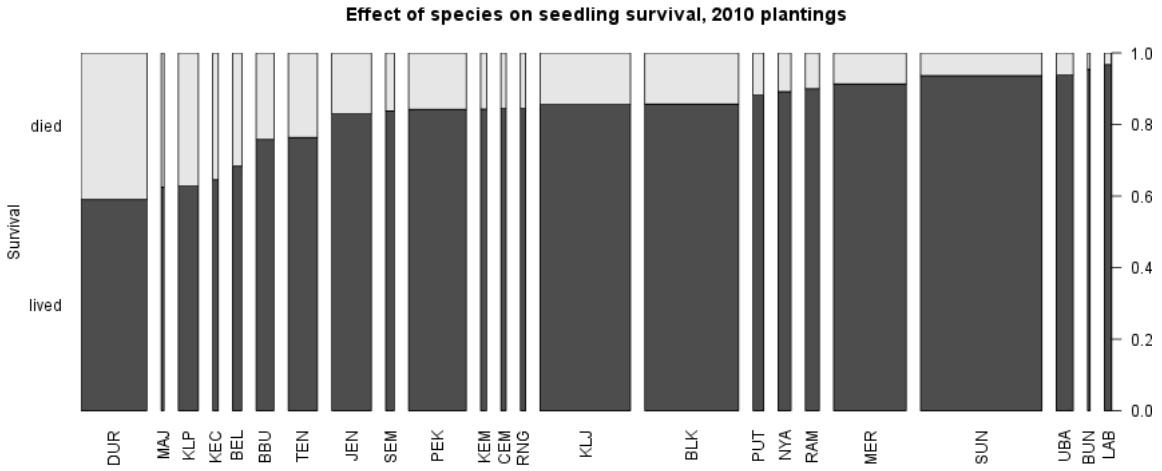
Seedlings planted in 2010 , from month 1 to month 14

Overall seedling survival

Survival: **79.45595%** out of **7389** seedlings

Survival and growth vs. species

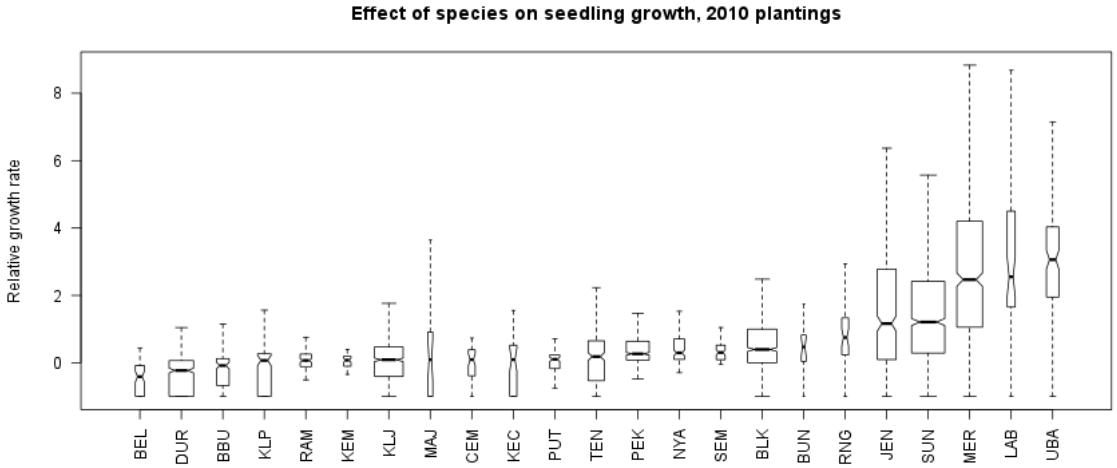
Survival




```
  Pearson's Chi-squared test

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 491.7287, df = 22, p-value < 2.2e-16
```

Growth




```
Analysis of Variance Table

Response: a$htgr
                      Df  Sum Sq Mean Sq F value    Pr(>F)
as.factor(a[, myfactor])   22  6979.7  317.26  126.54 < 2.2e-16 ***
Residuals                6117 15336.2    2.51
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Survival and growth vs. pressing

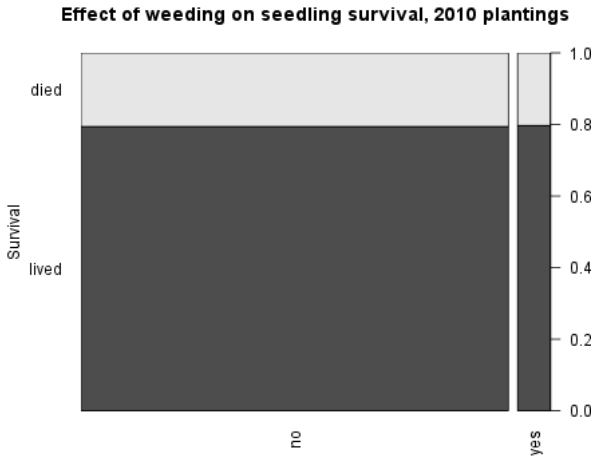
Only one level of pressing

Survival and growth vs. roundup

Only one level of roundup

Survival and growth vs. weeding

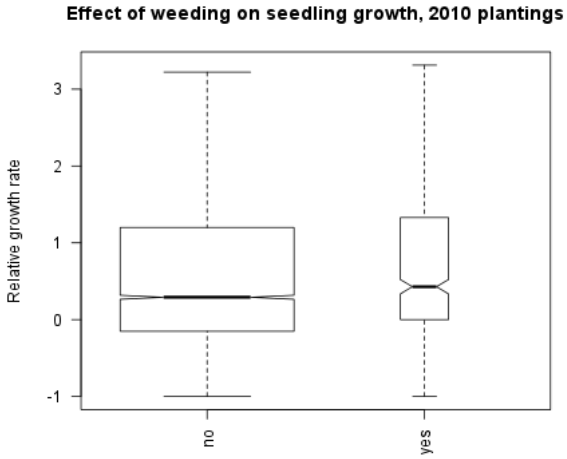
Survival




```
	Pearson's Chi-squared test with Yates' continuity correction

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 0.0118, df = 1, p-value = 0.9134
```

Growth




```
Analysis of Variance Table

Response: a$htgr
                          Df  Sum Sq Mean Sq F value Pr(>F)
as.factor(a[, myfactor])   1     0.1  0.1398  0.0415 0.8386
Residuals               7101 23930.3  3.3700
```

Survival and growth vs. cardboard

Only one level of cardboard

Survival and growth vs. fertilizer

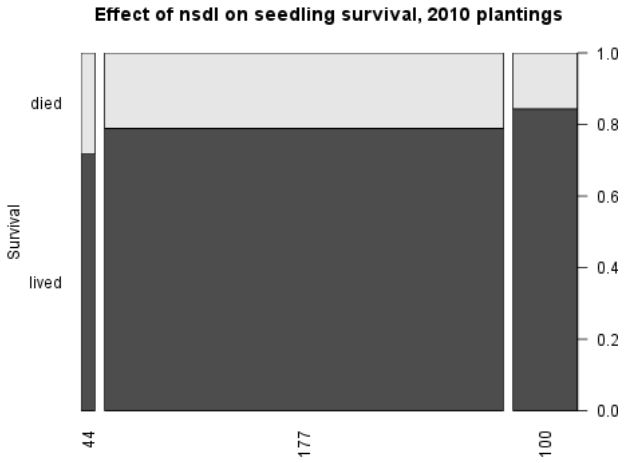
Only one level of fertilizer

Survival and growth vs. any.fertilizer

Only one level of any.fertilizer

Survival and growth vs. nsdl

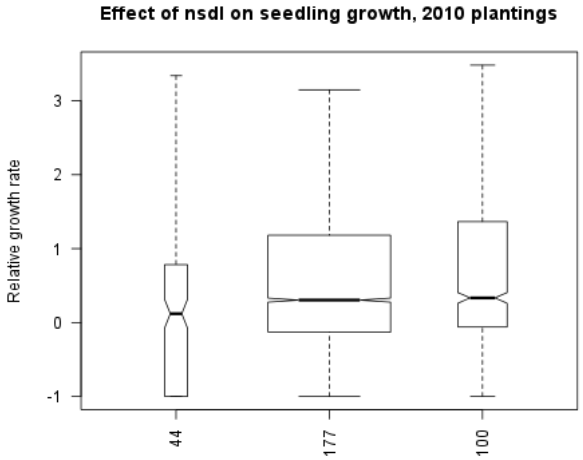
Survival




```
  Pearson's Chi-squared test

data:  as.factor(a$died) and as.factor(a[, myfactor])
X-squared = 23.6367, df = 2, p-value = 7.368e-06
```

Growth




```
Analysis of Variance Table

Response: a$htgr
                          Df  Sum Sq Mean Sq F value   Pr(>F)
as.factor(a[, myfactor])   2    44.4 22.1961  6.5977 0.001372 **
Residuals               7100 23886.1  3.3642
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Species list

	code	localname	gen	sp
1	BBU	belabuk	<NA>	<NA>
2	BEL	belian	Eusideroxylon	<NA>
3	BIN	bintangor laut	Calophyllum	inophyllum
4	BLK	belabak	Shorea	atrinervosa
5	BUN	bunut	Calophyllum	<NA>
6	CEM	cempedak	Artocarpus	integer
7	CIN	kayu cina	Podocarpus	neriifolius
8	DUK	duku	Lansium	<NA>
9	DUR	durian	Durio	zibethinus
10	GAH	gaharu	Aquilaria	malaccensis
11	GLI	<NA>	Gliricidia	sepium
12	HOP	resak 1	Hopea	<NA>
13	JBJ	jambu biji	<NA>	<NA>
14	JBL	jambu bol	Syzygium	<NA>
15	JEN	jengkol	Archeodendron	jiringa
16	JER	jeruk	Citrus	<NA>
17	KEC	kecupu	Dipterocarpus	tempehes
18	KEM	kemayau	Dacryodes	<NA>
19	KIJ	pau kijang	Irvingia	malayana
20	KLJ	kelanjau	Pentaspedon	<NA>

21	KLP	kelampai	Pimelodendron	<NA>
22	KOP	kopi	<NA>	<NA>
23	KTP	ketapang	Terminalia	cattapa
24	LAB	leban	Vitex	<NA>
25	MAC	mahang 1	Macaranga	<NA>
26	MAJ	majau	Shorea	pauciflora
27	MAN	mangga	Mangifera	indica
28	MEB	merbau	Intsia	palembanica
29	MED	medang 1	<NA>	<NA>
30	MER	meranti merah 2	Shorea	<NA>
31	MET	meranti merah 1	Shorea	parvistipulata
32	MEX	'meranti extreme'	Shorea	leprasula
33	NAN	nangka	Artocarpus	heterophyllus
34	NYA	nyatoh 1	<NA>	<NA>
35	PEK	pekawai burung	Palaquium	<NA>
36	PET	petai	Parkia	speciosa
37	PST	<NA>	Parastemon	urophyllus
38	PUL	pulai	Alstonia	<NA>
39	PUT	putat	Planchonia	<NA>
40	RAM	rambutan	Nephelium	lappaceum
41	RMB	rambai	Baccaurea	<NA>
42	RNG	rengas	<NA>	<NA>
43	SEM	semangkok	Scaphium	<NA>
44	SEN	sengon	Paraserianthes	<NA>
45	SIR	sirsak	<NA>	<NA>
46	SND	senderiung	Trema	<NA>
47	SUK	sukun	Artocarpus	incisus
48	SUN	sungkai	Peronema	<NA>
49	TEN	tengkawang	Shorea	<NA>
50	UBA	ubah 1	Syzygium	<NA>
51	VER	<NA>	Vernonia	<NA>