Some title

Kevin Wright, 05.09.2014

1 Setup

```
require("agridat")
require("asreml")
require("lattice")
require("latticeExtra")
1+1
```

```
[1] 2
```

Title: The agridat package is growing

Abstract

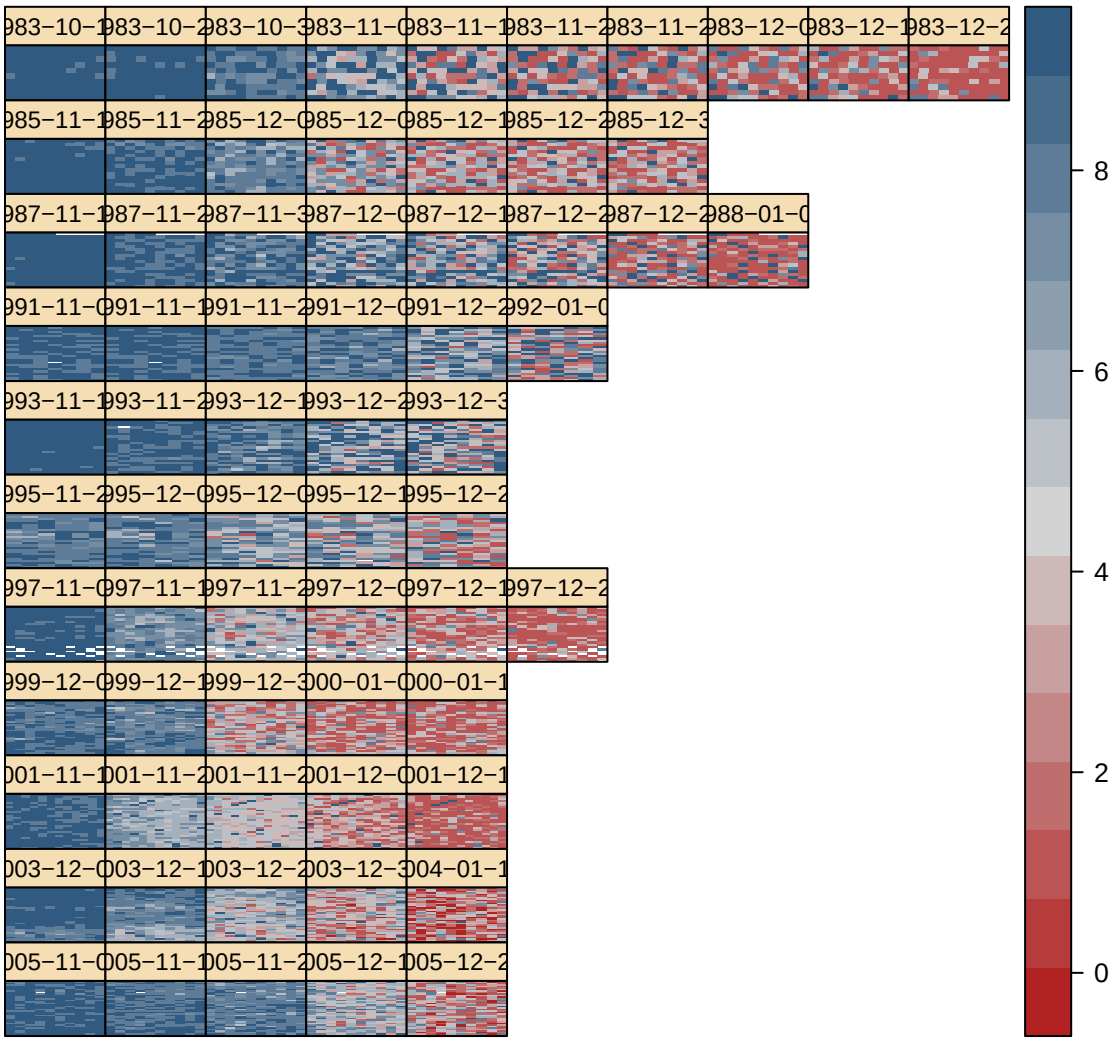
The agridat package is an extensive collection of data sets that have been previously published in books and journals, primarily from agricultural experiments. A sample of datasets in the package are presented graphically with interpretive comments.

2

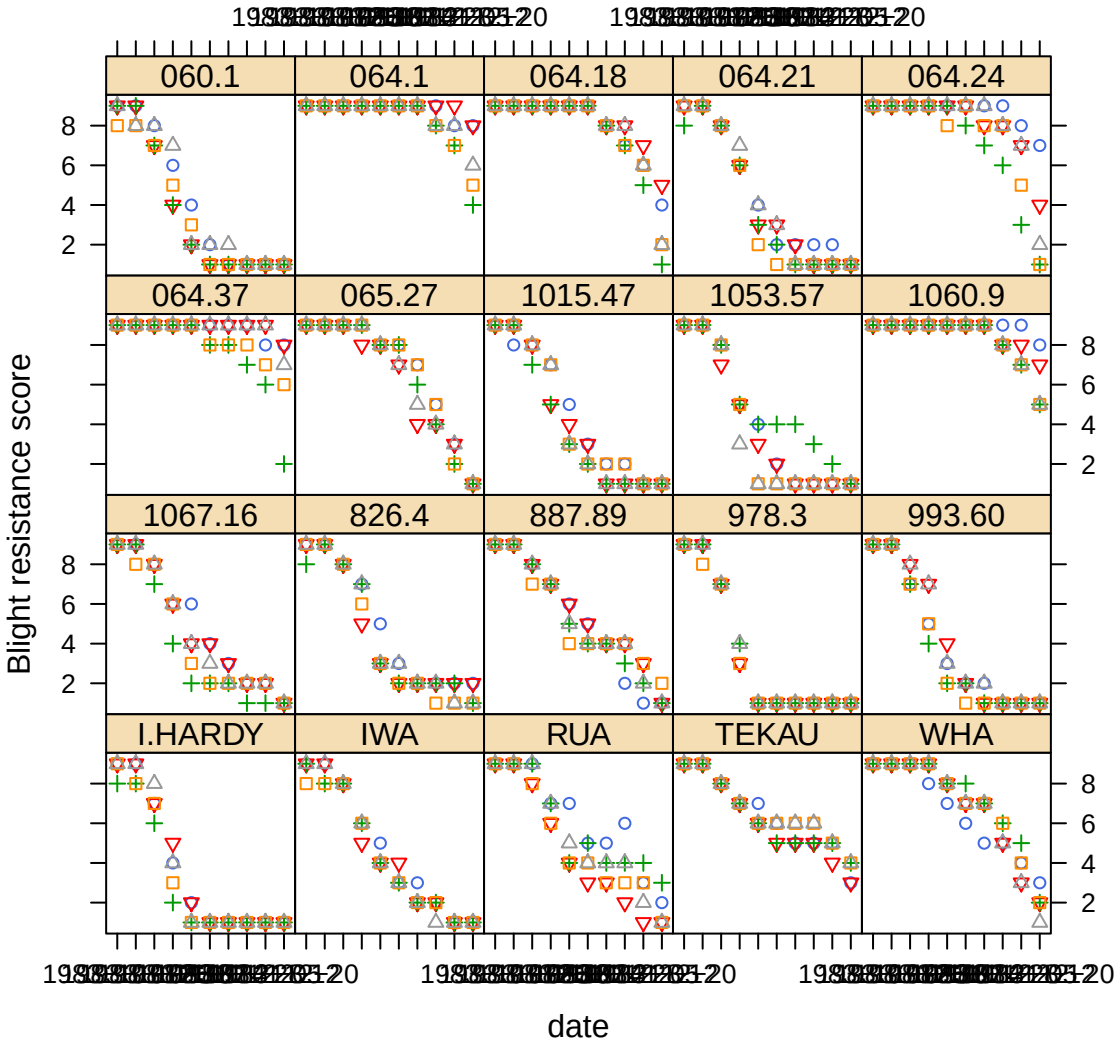
```
dat <- lee.potatoblight

# Note the progression to lower scores as time passes in each year
skp <- c(rep(0,10),
         rep(0,7),1,1,1,
         rep(0,8),1,1,
         rep(0,6),1,1,1,1,
         rep(0,5),1,1,1,1,1,
         rep(0,5),1,1,1,1,1,
         rep(0,6),1,1,1,1,
         rep(0,5),1,1,1,1,1,
         rep(0,5),1,1,1,1,1,
         rep(0,5),1,1,1,1,1)
desplot(y ~ col*row|date, dat, main="lee.potatoblight",
        layout=c(10,11),skip=skp)
```

```
Warning:  coercing argument of type 'double' to logical
```



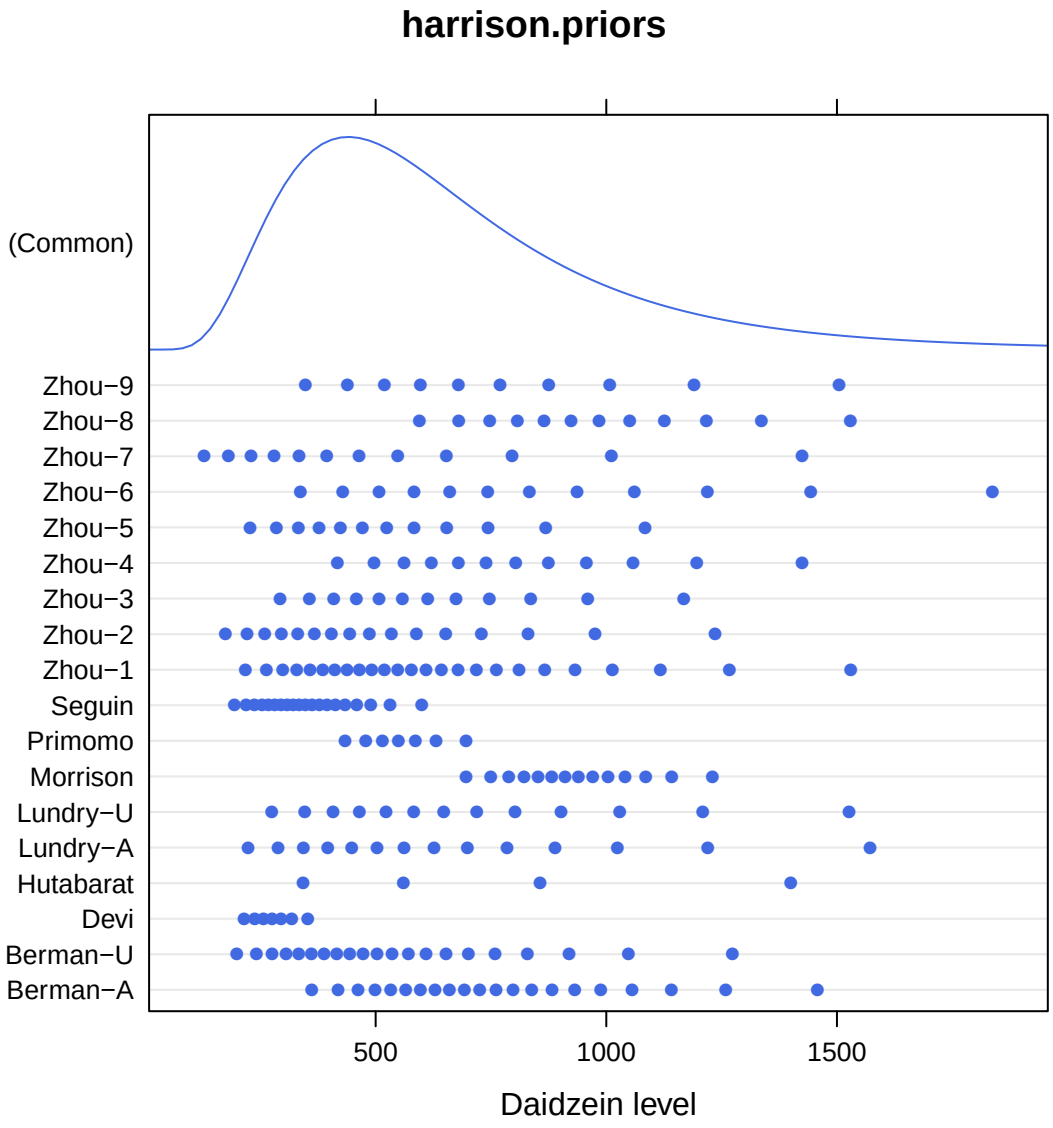

```
# 1983 only.  I.Hardy succumbs quickly
xyplot(y ~ date|gen, dat, subset=year==1983, group=rep,
       ylab="Blight resistance score", main="lee.potatoblight", as.table=TRUE)
```


lee.potatoblight
060.1
064.1
064.18
064.21
064.24
064.37
065.27
1015.47
1053.57
1060.9
1067.16
826.4
887.89
978.3
993.60
I.HARDY
IWA
RUA
TEKAU
WHA
Blight resistance score
date

3 An informative prior

Harrison et al. (2012) used a Bayesian approach to model daidzein in soybean samples. In order to develop an informative prior for the distribution of daidzen in soybean, 18 previous reports were compiled to a table listing the source, number of samples tested, and the minimum and maximum observed daidzein levels in the samples. A lognormal distribution was fit for each previous study, which was used to fill in the n-2 values between the minimum and maximum. The results are shown in the dotplot. All observed/imputed data were then used to fit a common lognormal distribution that can be used as an informative prior. This common prior is shown at the top of the dotplot.

```
     source number   min  max
1 Hutabarat      4 343.0 1400
2   Primomo      7 434.0  696
3  Morrison     14 696.0 1230
4  Berman-U     21 198.9 1274
5  Berman-A     21 361.5 1458
6  Lundry-U     13 274.9 1526
```



Appendix

This document was prepared 05.09.2014 with the following configuration:

- R version 3.0.3 (2014-03-06), `x86_64-w64-mingw32`
- Base packages: base, datasets, graphics, grDevices, grid, methods, stats, utils
- Other packages: agridat 1.9, asreml 3.0, knitr 1.5, lattice 0.20-29, latticeExtra 0.6-26, RColorBrewer 1.0-5, reshape2 1.4
- Loaded via a namespace (and not attached): compiler 3.0.3, evaluate 0.5.5, formatR 0.10, highr 0.3, plyr 1.8.1, Rcpp 0.11.1, stringr 0.6.2, tools 3.0.3

References

JM Harrison, D Culp, and GG Harrigan. Bayesian MCMC analyses for regulatory assessments of food composition. In *Kansas State University Conference on Applied Statistics in Agriculture, Manhattan, Kansas*, 2012. 4