PFI: Yields

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Yields for SB and Corn in acre buschel per pound.

Read data and load libraries.

```
pfi <- read.csv("/Users/marianwaitwalsh/GitHub/PFI/data/PFI_clean.csv")
weather <- read.csv("/Users/marianwaitwalsh/GitHub/PFI/2-topics/yield/IA_annual_rainfall_raw.csv")
library(dplyr)
library(tidyr)
library(reshape2)
library(ggplot2)
```

Subset the `PFI` data.

```
yields <- pfi %>%
  filter(item_type == "Unit Quantity", crop %in% c("Corn","SB")) %>%
  select(-c(item, item_type)) %>%
  group_by(field_id, year)
```

Clean the weather data and join with `yields`.

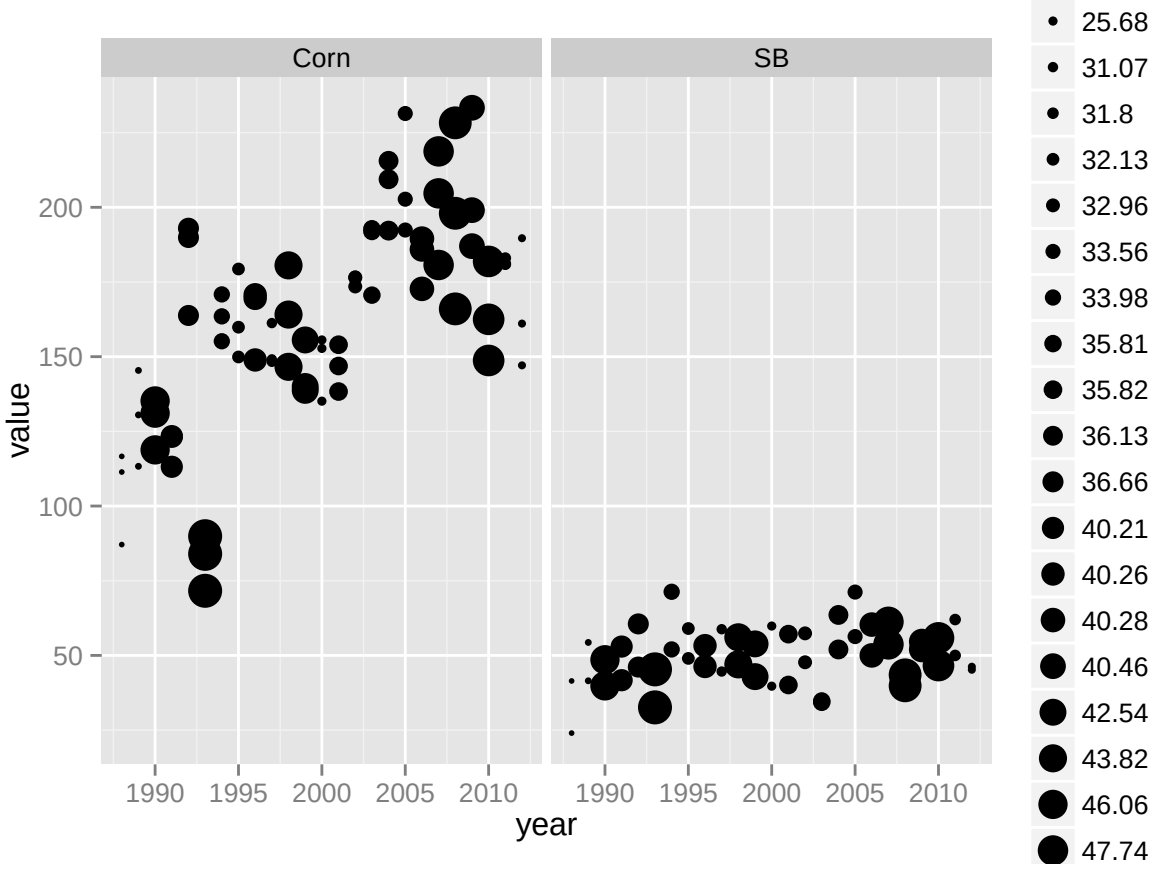
```
wBoone <- weather %>%
  filter(stationName == "Boone") %>%
  gather(key, value, 5:373) %>%
  separate(key, into = c("year", "key"), sep = "\\_") %>%
  spread(key, value) %>%
  select(year, MAXT, MINT, PREC)

wBoone$year <- sapply(wBoone$year, FUN = function(x) extract_numeric(x))
yields2 <- inner_join(yields, wBoone, by = "year")
```

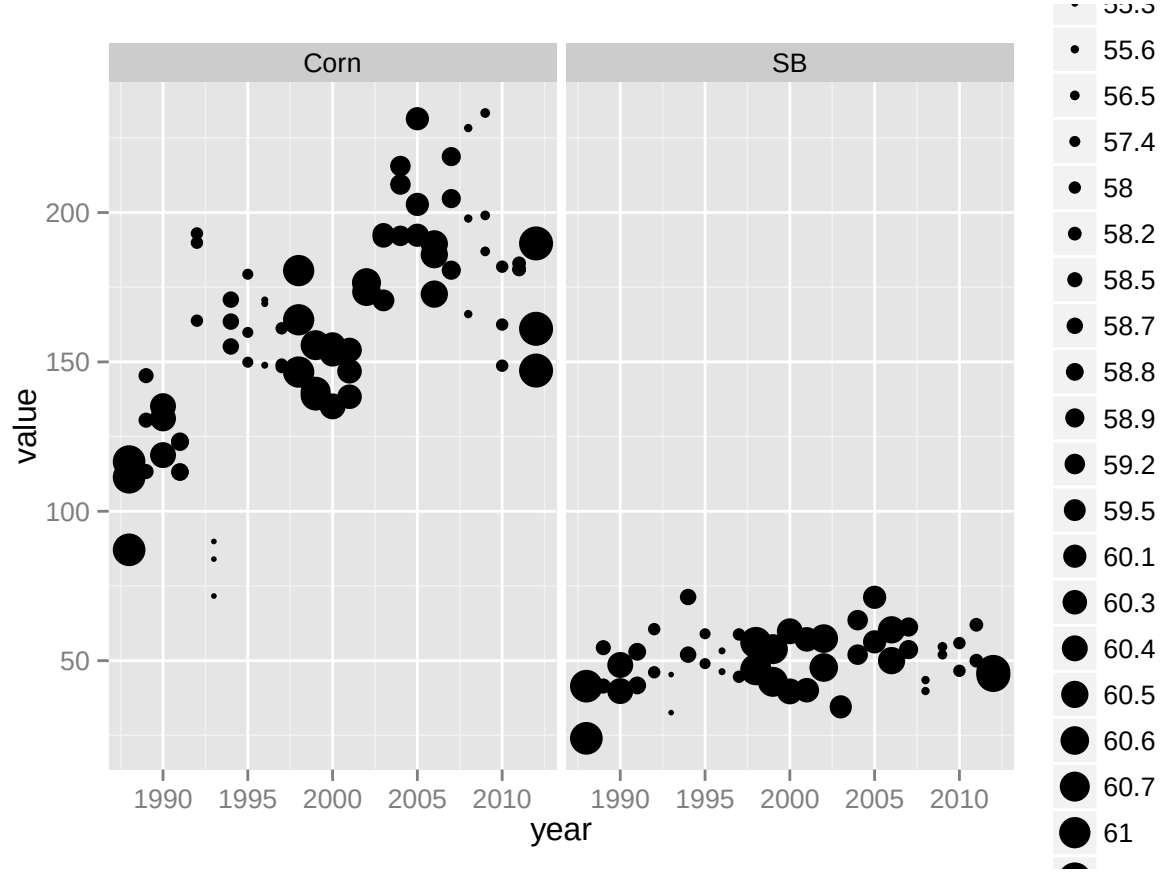
```
head(yields2)
```

```
## Source: local data frame [6 x 8]
## Groups: field_id, year
##
##   year   farmer field_id crop  value MAXT MINT  PREC
## 1 1988    Boone        1 Corn  87.10 62.3 34.9 23.11
## 2 1988    Boone        2   SB  24.00 62.3 34.9 23.11
## 3 1988 Thompson        1 Corn 116.63 62.3 34.9 23.11
## 4 1988 Thompson        2   SB  41.45 62.3 34.9 23.11
## 5 1988 Thompson      4CD Corn 111.39 62.3 34.9 23.11
## 6 1989    Boone        1 Corn 130.50 58.5 34.5 25.02
```

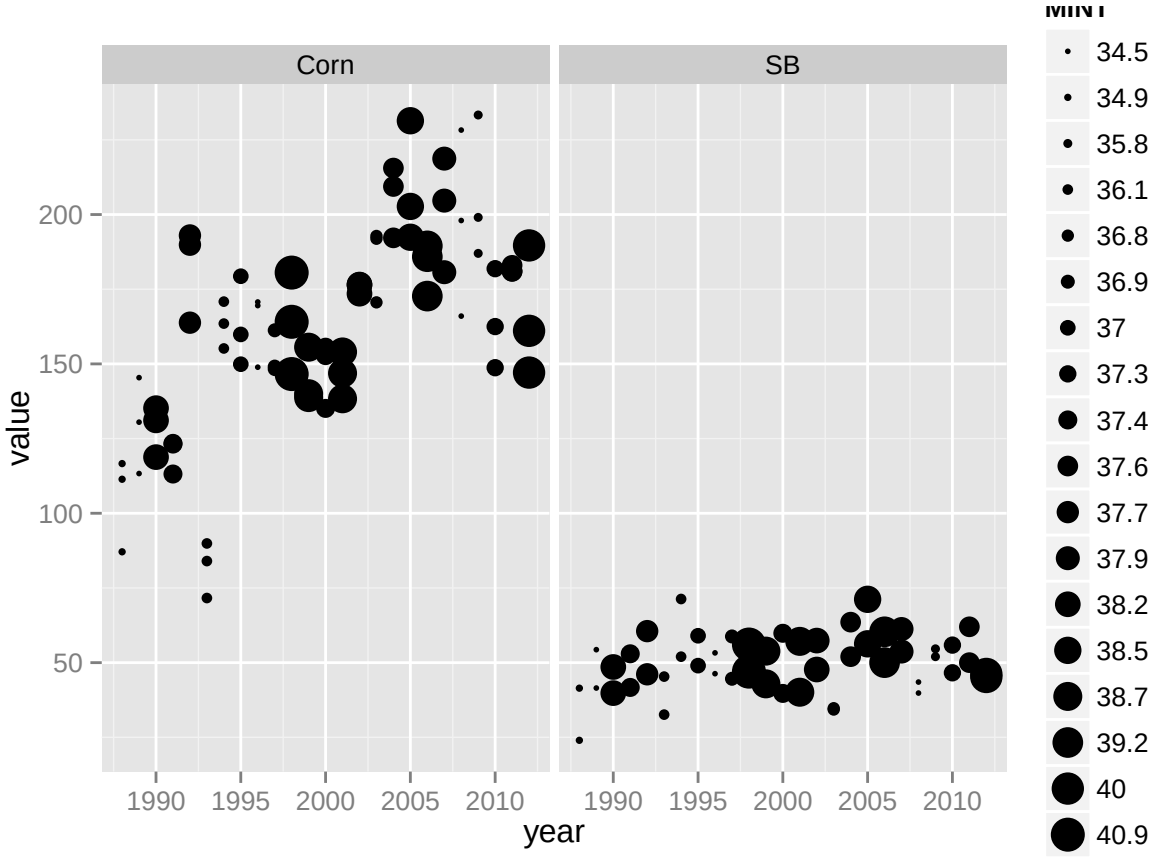
```
qplot(year, value, data=yields2, size=PREC, facets=~crop)
```




```
qplot(year, value, data=yields2, size=MAXT, facets=~crop)
```




```
qplot(year, value, data=yields2, size=MINT, facets=~crop)
```


Corn
SB
200
150
100
50
value
1990
1995
2000
2005
2010
year
MINT
34.5
34.9
35.8
36.1
36.8
36.9
37
37.3
37.4
37.6
37.7
37.9
38.2
38.5
38.7
39.2
40
40.9