

PFI: Yields

Evan "Pete" Walsh

October 27, 2014

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.

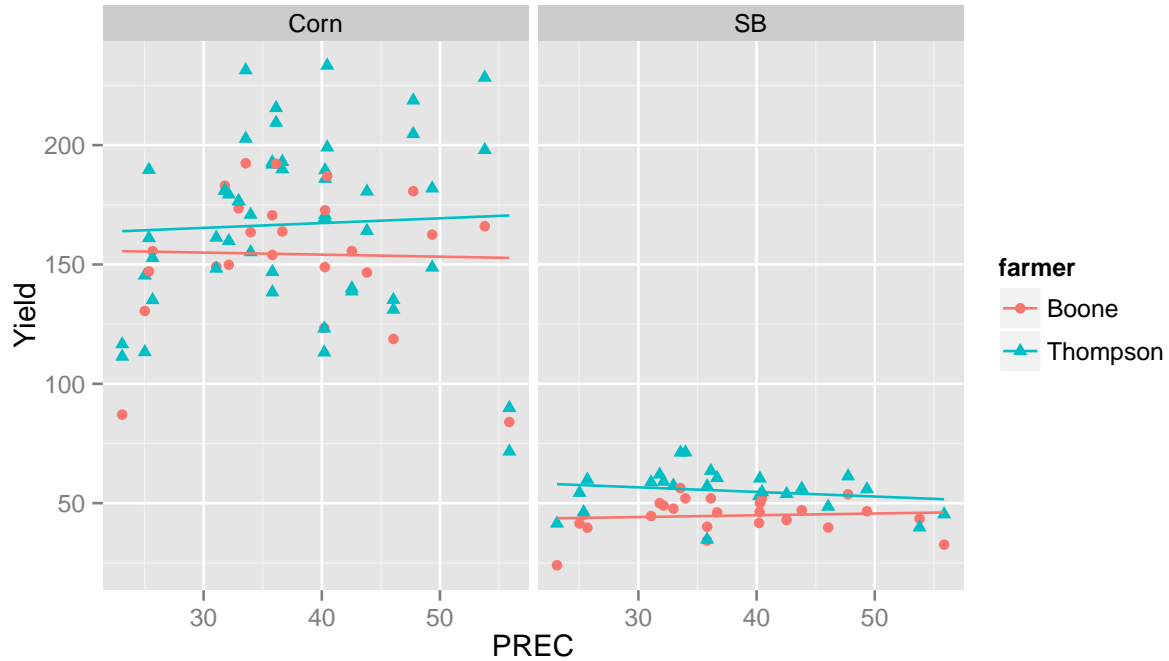
```
wBoone <- weather %>%
  filter(stationName == "Boone") %>%
  gather(key, value, 5:373) %>%
  separate(key, into = c("year", "key"), sep = "\\_") %>%
  spread(key, value) %>%
  select(year, MAXT, MINT, PREC)

wBoone$year <- sapply(wBoone$year, FUN = function(x) extract_numeric(x))
yields2 <- inner_join(yields, wBoone, by = "year")
yields2$MAXT <- as.numeric(yields2$MAXT)
yields2$MINT <- as.numeric(yields2$MINT)
yields2$PREC <- as.numeric(yields2$PREC)
```

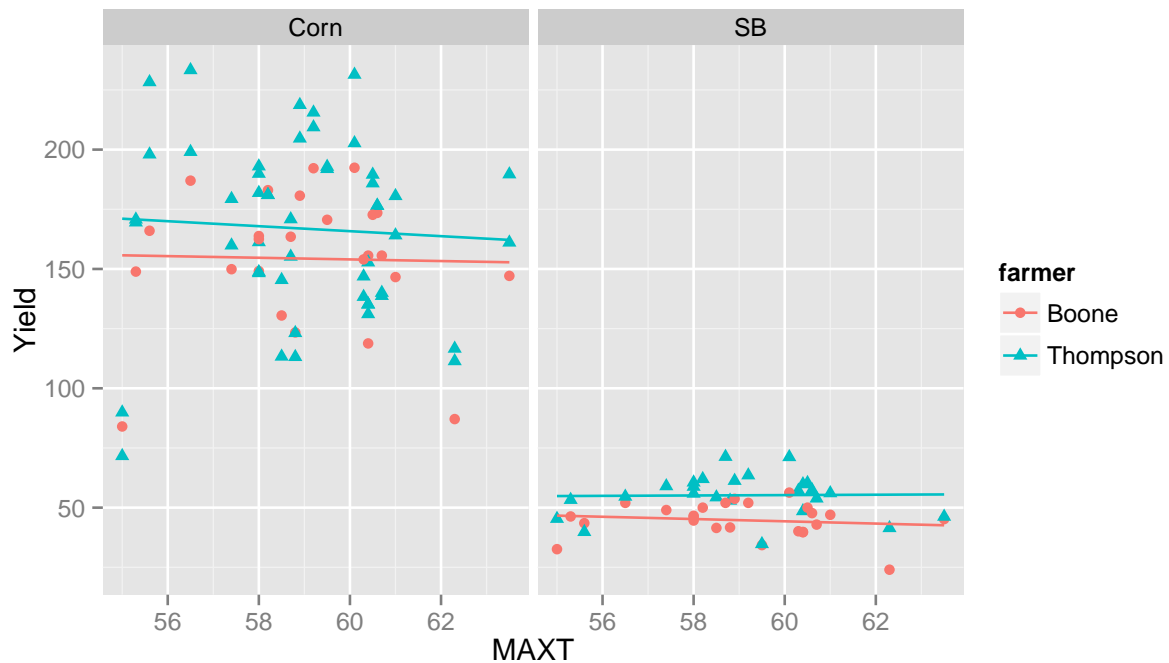
```
head(yields2)
```

```
## 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         4  Corn 111.39 62.3 34.9 23.11
## 6 1989   Boone         1  Corn 130.50 58.5 34.5 25.02
```

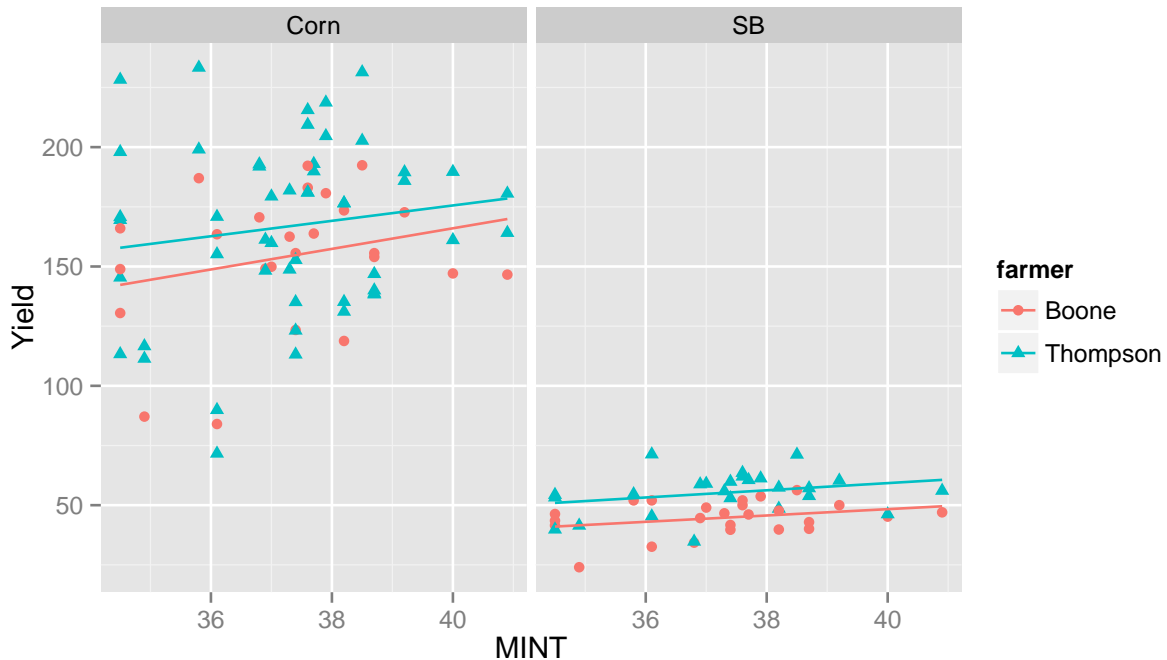
```
qplot(PREC, value, data=yields2, colour=farmer, shape=farmer,
      facets=~crop) + geom_smooth(method="lm", se=F) +
      ylab("Yield")
```



```
qplot(MAXT, value, data=yields2, colour=farmer, shape=farmer,
      facets=~crop) + geom_smooth(method="lm", se=F)+
      ylab("Yield")
```



```
qplot(MINT, value, data=yields2, colour=farmer, shape=farmer,
      facets=~crop) + geom_smooth(method="lm", se=F)+
  ylab("Yield")
```



Fields by year for Thompson that were used for SB or corn.

```
# pfi %>%
#   filter(item_type == "Unit Quantity", crop %in% c("Corn", "SB"),
#         farmer == "Thompson") %>%
#   group_by(year, field_id) %>%
#   select(1:4)
```

```
yields3 <- pfi %>%
  filter(item_type == "Expense", crop %in% c("Corn", "SB")) %>%
  spread(item, value) %>%
  select(-c(5))
for (i in 5:36) {
  yields3[,i] <- yields3[,i] != 0
}
```