STA 404/504 Homework 6
Map Building

Submission through Canvas - Due Monday 318/19 at 5:00 PM

Learning Objectives:

- Merging data using dplyr join statements
- Constructing maps with ggplot2
- Design choices for constructing maps

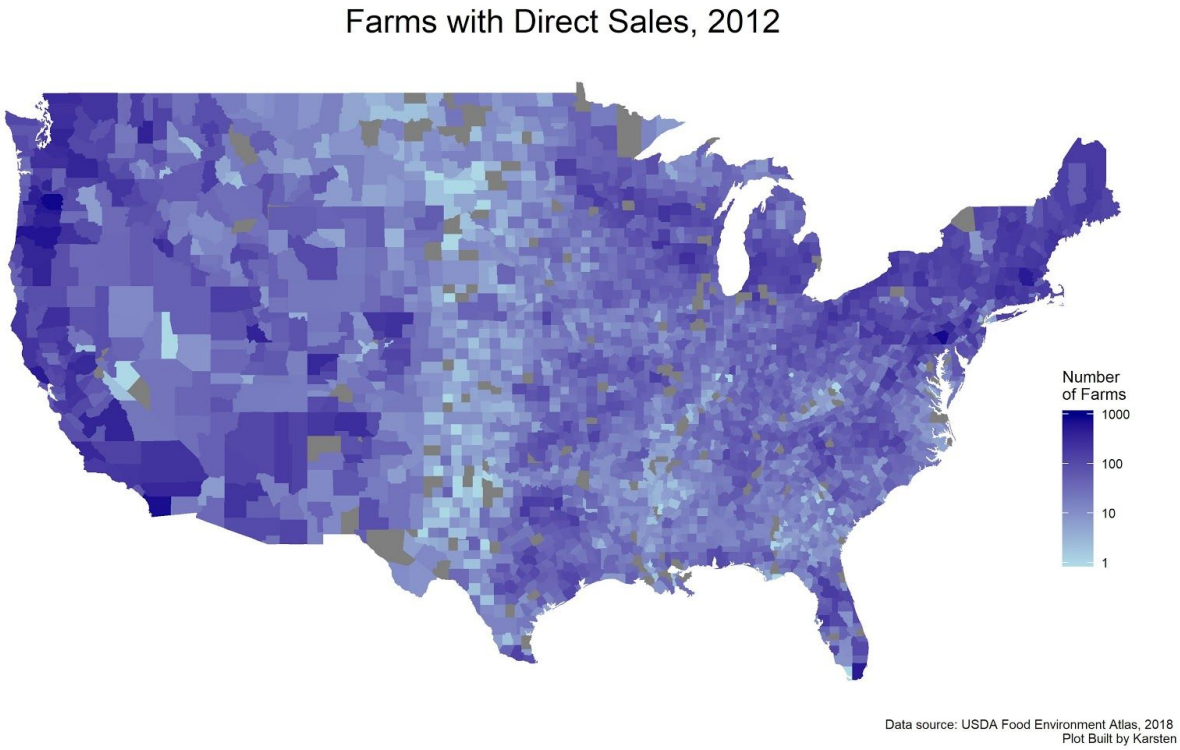
Start-up R code:

```
library(tidyverse)
library(ggthemes)
library(readxl)
setwd("--- Set your working directory here ---")

#data posted to Canvas, orignally downloaded from the link below
#https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-d
ownloads/

## local foods data from "LOCAL" tab in excel sheets
local_food <- read_excel(path="DataDownload.xls", sheet="LOCAL") %>%
  select(FIPS, State, County, FRESHVEG_FARMS12, ORCHARD_ACRES12,
         GHVEG_FARMS12, GHVEG_SQFTPTH12, FMRKT16, FMRKTPTH16, DIRSALES_FARMS12)
head(local_food)
# Note: postal abbreviations on state names

## FIPS codes for State and county (unabbreviated) from "Supplemental Data - County" tab
county_fips <- read_excel(path="DataDownload.xls", sheet="Supplemental Data - County") %>%
  select(FIPS, State, County)
head(county_fips)

## County boundary data
county_outlines <- map_data("county")
head(county_outlines)
```

Assignment:

The USDA Food Environment Atlas is a governmental database on local food availability. One particular component is the presence of local agriculture. Farms that have direct to consumer sales are potentially of interest because they provide a source for purchasing food that was produced locally. Your assignment is to recreate the heatmap of county level counts of farms with direct sales (shown below). To accomplish this you will need to combine the data sets from the shown in the startup code above, and apply methods that we have discussed throughout Week 7 of class.

Note: (1) you like need to merge the full names of the states onto the food data before it can then be merged onto the county outlines, and (2) the fill mapping on the map is done using a $\log_{10}()$ transformation on the counts.



Submission Format: Upload the following to Canvas
R code file showing your work **+ a png file** of your map.