Kern County Agriculture – CDFA parcel spatial join

```
library(tidyverse) # General data organization
```

```
## -- Attaching packages ---------------------------------------------------------------------------
## v ggplot2 3.2.1     v purrr   0.3.2
## v tibble  2.1.3     v dplyr   0.8.3
## v tidyr   1.0.0     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.4.0
## -- Conflicts ------------------------------------------------------------------------------------
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(rgdal) # Gdal for R
```

```
## Loading required package: sp
## rgdal: version: 1.4-4, (SVN revision 833)
##  Geospatial Data Abstraction Library extensions to R successfully loaded
##  Loaded GDAL runtime: GDAL 2.4.2, released 2019/06/28
##  Path to GDAL shared files: /Library/Frameworks/R.framework/Versions/3.6/Resources/library/rgdal/gdal
##  GDAL binary built with GEOS: FALSE
##  Loaded PROJ.4 runtime: Rel. 5.2.0, September 15th, 2018, [PJ_VERSION: 520]
##  Path to PROJ.4 shared files: /Library/Frameworks/R.framework/Versions/3.6/Resources/library/rgdal/proj
##  Linking to sp version: 1.3-1
```

```
library(rgeos) # need this for gBuffer
```

```
## rgeos version: 0.5-1, (SVN revision 614)
##  GEOS runtime version: 3.7.2-CAPI-1.11.2
##  Linking to sp version: 1.3-1
##  Polygon checking: TRUE
```

```
library(sf) # Specific operations on different versions of shapefiles in R
```

```
## Linking to GEOS 3.7.2, GDAL 2.4.2, PROJ 5.2.0
```

```
source("../R/5_KernAg_CDFA_Join.R")
```

** The purpose of this Rmarkdown file is to join the CDFA parcels to the Kern County Agriculture parcels. **

Notes:

- The CDFA parcels were determined by editing APNs reported to the CDFA by farmers to match the format in Kern County Assessor Parcel spatial data, and then matching the CDFA APNs to the Kern County Parcel APNs.
- Kern County Agriculture parcels are available on the Kern County Website.
- Polygons in each Kern County Agriculture and Kern County Parcel shapefiles have different dimensions, with Kern Agriculture fields being generally smaller and containing more detailed agriculture information. This spatial join maintains the Kern County Agriculture shapefile's polygon dimensions, which gives us more detailed and accurate information about crop fields in Kern County.

```
# Years of interest
years = 2017
```

```
# Buffer widths: In the function these are negative and reduce the CDFA field size. A larger buffer res
buf_width = c(50)

for(i in years){

  for(j in buf_width){

    # Create the output directory for the output CSV file that lists the CDFA data with commodities fro
    dir.create(paste0("../R_output/CSV/CDFA/Commodities/",i),
               recursive = TRUE)

    # Create the output directory for the CDFA_KernAg_join shapefile that is filtered to contain only f
    dir.create(paste0("../R_output/spatial/CDFA_commodities/",i,"/buffer",j),
               recursive = TRUE)

    # Create the output directory for the full CDFA_KernAg_join shapefile, no filters applied.
    dir.create(paste0("../R_output/spatial/KernAg_CDFA_join/",i,"/buffer",j),
               recursive = TRUE)

    # Apply the function that is in the KernAg_CDFA_Join.R script
  kernAg_CDFA_joinFun(i, buf_width = j, write_all_shp = T, write_cdfa_shp = T)

     }

  }
```

```
## OGR data source with driver: ESRI Shapefile
## Source: "/Users/clairepowers/Desktop/Organics_Final/Working/R_files/R_input/spatial/kern_AG_withStor
## with 10642 features
## It has 24 fields
## OGR data source with driver: ESRI Shapefile
## Source: "/Users/clairepowers/Desktop/Organics_Final/Working/R_files/R_output/spatial/CDFA_parcels/20
## with 357 features
## It has 6 fields
```