

## midterm\_project

```
strawberries = read.csv("Strawberries.csv")
head(strawberries)
```

```
##      Program Year Period Week.Ending Geo.Level      State State.ANSI Ag.District
## 1  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
## 2  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
## 3  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
## 4  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
## 5  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
## 6  CENSUS 2019   YEAR          NA      STATE CALIFORNIA      6      NA
##      Ag.District.Code County County.ANSI Zip.Code Region watershed_code Watershed
## 1              NA      NA      NA      NA      NA      0      NA
## 2              NA      NA      NA      NA      NA      0      NA
## 3              NA      NA      NA      NA      NA      0      NA
## 4              NA      NA      NA      NA      NA      0      NA
## 5              NA      NA      NA      NA      NA      0      NA
## 6              NA      NA      NA      NA      NA      0      NA
##      Commodity                                     Data.Item
## 1 STRAWBERRIES          STRAWBERRIES, ORGANIC - OPERATIONS WITH SALES
## 2 STRAWBERRIES          STRAWBERRIES, ORGANIC - SALES, MEASURED IN $
## 3 STRAWBERRIES          STRAWBERRIES, ORGANIC - SALES, MEASURED IN CWT
## 4 STRAWBERRIES STRAWBERRIES, ORGANIC, FRESH MARKET - OPERATIONS WITH SALES
## 5 STRAWBERRIES STRAWBERRIES, ORGANIC, FRESH MARKET - SALES, MEASURED IN $
## 6 STRAWBERRIES STRAWBERRIES, ORGANIC, FRESH MARKET - SALES, MEASURED IN CWT
##      Domain                               Domain.Category      Value CV....
## 1 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED)      174      8
## 2 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED) 300,277,717 33.1
## 3 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED)  1,384,016 30.4
## 4 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED)      170      8
## 5 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED) 275,716,713 35.5
## 6 ORGANIC STATUS ORGANIC STATUS: (NOP USDA CERTIFIED)  1,177,214 33.7
```

```
pesticides = read.csv("Pesticides.csv")
head(pesticides)
```

```
##      Pesticide Carcinogen Hormone.Disruptor Neurotoxins
## 1
## 2 Tetrahydrophthalimide (THPI)
## 3
## 4      Pyraclostrobin
## 5
## 6      Captan      known
##      Developmental.or.Reproductive.Toxins Bee.Toxins
## 1
## 2
```

```
## 3
## 4          slight
## 5
## 6
```

```
chemicals = read.csv("chemicals_herbicides_fungicides_other.csv")
head(chemicals)
```

```
## Herbicides
## 1      2,4-D
## 2   paraquat
## 3 glyphosate
## 4 glyphosate
## 5   Clomazone
## 6
##
## 1 https://www.nrdc.org/stories/24-d-most-dangerous-pesticide-youve-never-heard
## 2 https://www.intechopen.com/chapters/44984
## 3
## 4
## 5
## 6
```

```
head(strawberries["Domain"])
```

```
## Domain
## 1 ORGANIC STATUS
## 2 ORGANIC STATUS
## 3 ORGANIC STATUS
## 4 ORGANIC STATUS
## 5 ORGANIC STATUS
## 6 ORGANIC STATUS
```

```
# sub-dataset that contains data that uses pesticide (insecticide).
strawberries_insec = strawberries[which(strawberries$Domain=="CHEMICAL, INSECTICIDE"),]
head(strawberries_insec)
```

```
## Program Year Period Week.Ending Geo.Level State State.ANSI Ag.District
## 175 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## 176 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## 177 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## 178 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## 179 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## 180 SURVEY 2019 YEAR NA STATE CALIFORNIA 6 NA
## Ag.District.Code County County.ANSI Zip.Code Region watershed_code
## 175 NA NA NA NA NA 0
## 176 NA NA NA NA NA 0
## 177 NA NA NA NA NA 0
## 178 NA NA NA NA NA 0
## 179 NA NA NA NA NA 0
## 180 NA NA NA NA NA 0
## Watershed Commodity Data.Item
```

```

## 175      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
## 176      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
## 177      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
## 178      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
## 179      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
## 180      NA STRAWBERRIES STRAWBERRIES, BEARING - APPLICATIONS, MEASURED IN LB
##          Domain                                     Domain.Category
## 175 CHEMICAL, INSECTICIDE      CHEMICAL, INSECTICIDE: (ABAMECTIN = 122804)
## 176 CHEMICAL, INSECTICIDE      CHEMICAL, INSECTICIDE: (ACEQUINOCYL = 6329)
## 177 CHEMICAL, INSECTICIDE      CHEMICAL, INSECTICIDE: (ACETAMIPRID = 99050)
## 178 CHEMICAL, INSECTICIDE      CHEMICAL, INSECTICIDE: (AZADIRACHTIN = 121701)
## 179 CHEMICAL, INSECTICIDE CHEMICAL, INSECTICIDE: (BEAUVERIA BASSIANA = 128924)
## 180 CHEMICAL, INSECTICIDE      CHEMICAL, INSECTICIDE: (BIFENAZATE = 586)
##          Value CV....
## 175      500
## 176    5,400
## 177    2,800
## 178      800
## 179    (NA)
## 180   17,900

```