

Exploratory Data Analysis and Data Visualization

July 1, 2019





Beef Calf Lots

94,872 lots



Descriptive Statistics

Factor	Mean	SD	Range
Size of lot (head)	111.5	72.0	5 to 1,380
Weight	561.0	79.0	235 to 960
Sale Price (\$/cwt)	134.75	48.86	41.25 to 422.00

$$111.5 * 561 = 62,551.5$$

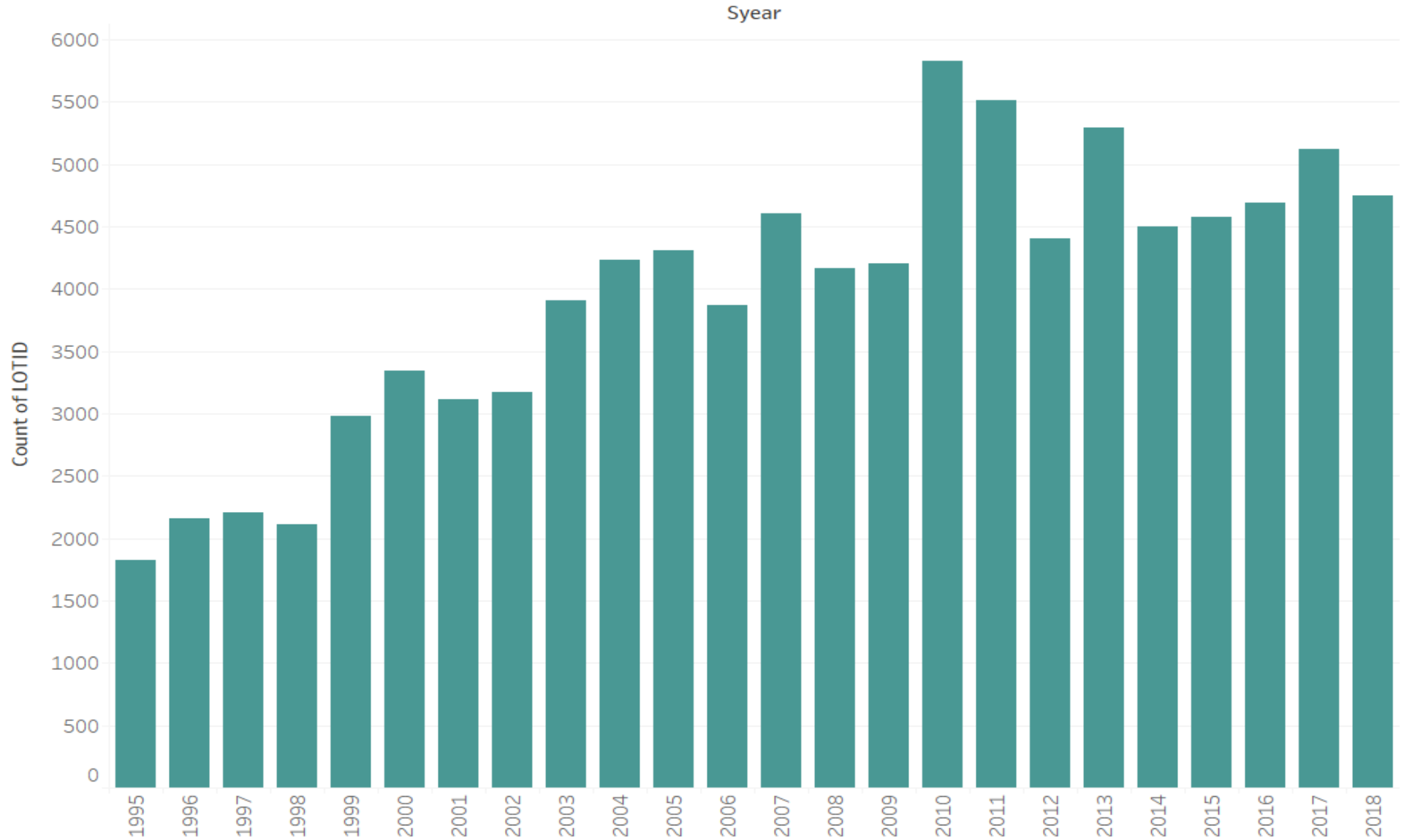


SYEAR	LOTID	SMONTH	HEAD	SEX	WT	PRICE	STATECODE	SAREA	BREED	FRAME	FLESH	VAC	
SYEAR	1.000000												
LOTID	0.971616	1.000000											
SMONTH	-0.088036	-0.047674	1.000000										
HEAD	-0.112701	-0.107917	-0.016740	1.000000									
SEX	-0.003453	-0.002026	-0.001158	-0.083927	1.000000								
WT	0.125283	0.116331	-0.085901	-0.133153	-0.233292	1.000000							
PRICE	0.732215	0.723935	-0.083700	-0.029359	-0.089740	-0.053411	1.000000						
STATECODE	-0.167889	-0.184238	0.006256	-0.006816	0.010311	-0.037952	-0.123237	1.000000					
SAREA	-0.041601	-0.040155	-0.000927	-0.040767	0.015743	-0.024189	-0.075940	0.880773	1.000000				
BREED	-0.185266	-0.166417	0.042095	-0.046834	0.044483	-0.040775	-0.177306	0.362120	0.407920	1.000000			
FRAME	-0.001793	0.007888	0.032692	-0.008735	-0.012067	0.216679	-0.017083	-0.138771	-0.161950	0.029630	1.000000		
FLESH	-0.036868	-0.038818	-0.014937	-0.096600	-0.015052	0.226646	-0.073875	0.012126	0.010374	-0.023344	0.032364	1.000000	
VAC	0.432266	0.368652	-0.103688	-0.037788	-0.012702	0.091223	0.306816	-0.133954	-0.106852	-0.184929	-0.008353	0.040442	1.000000

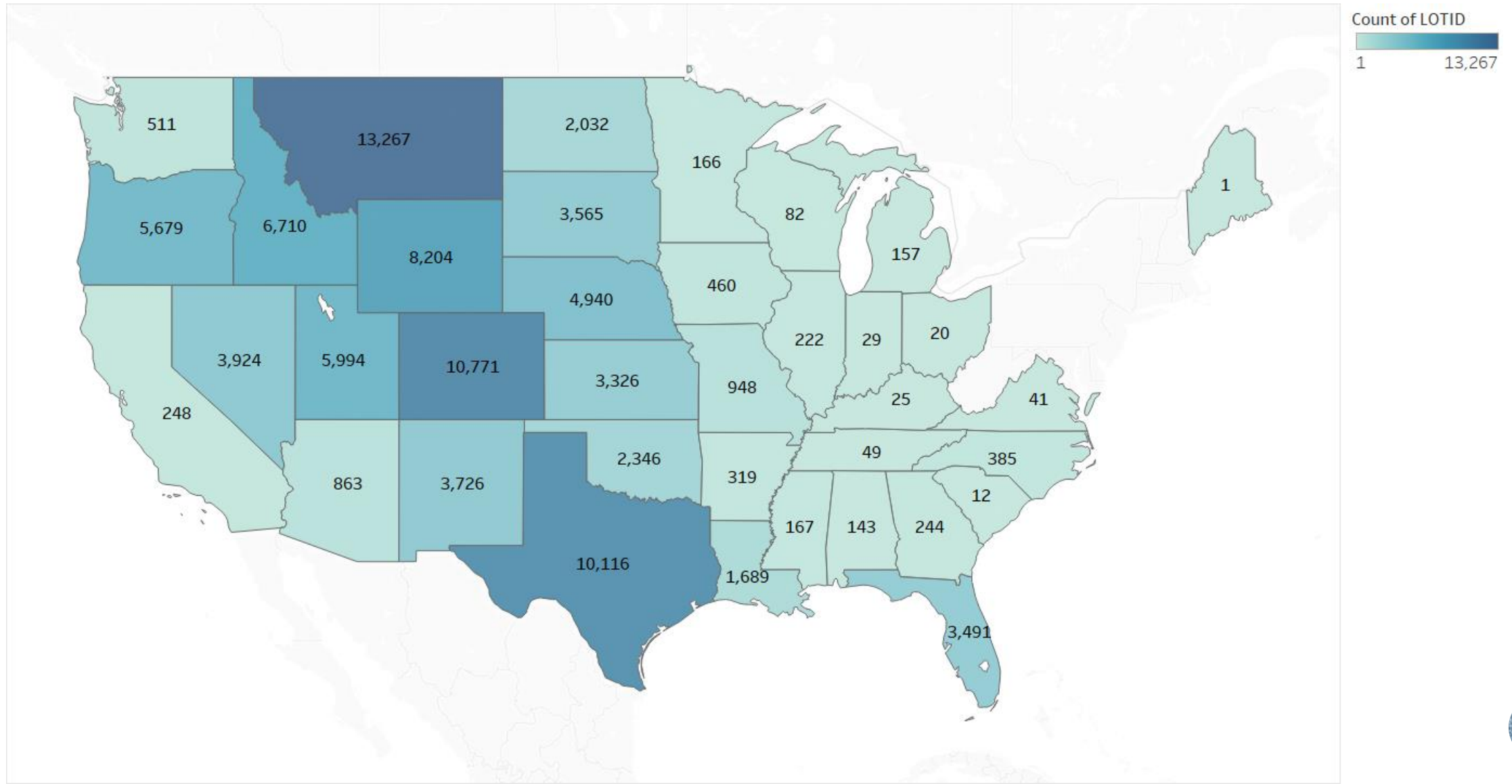
Correlations



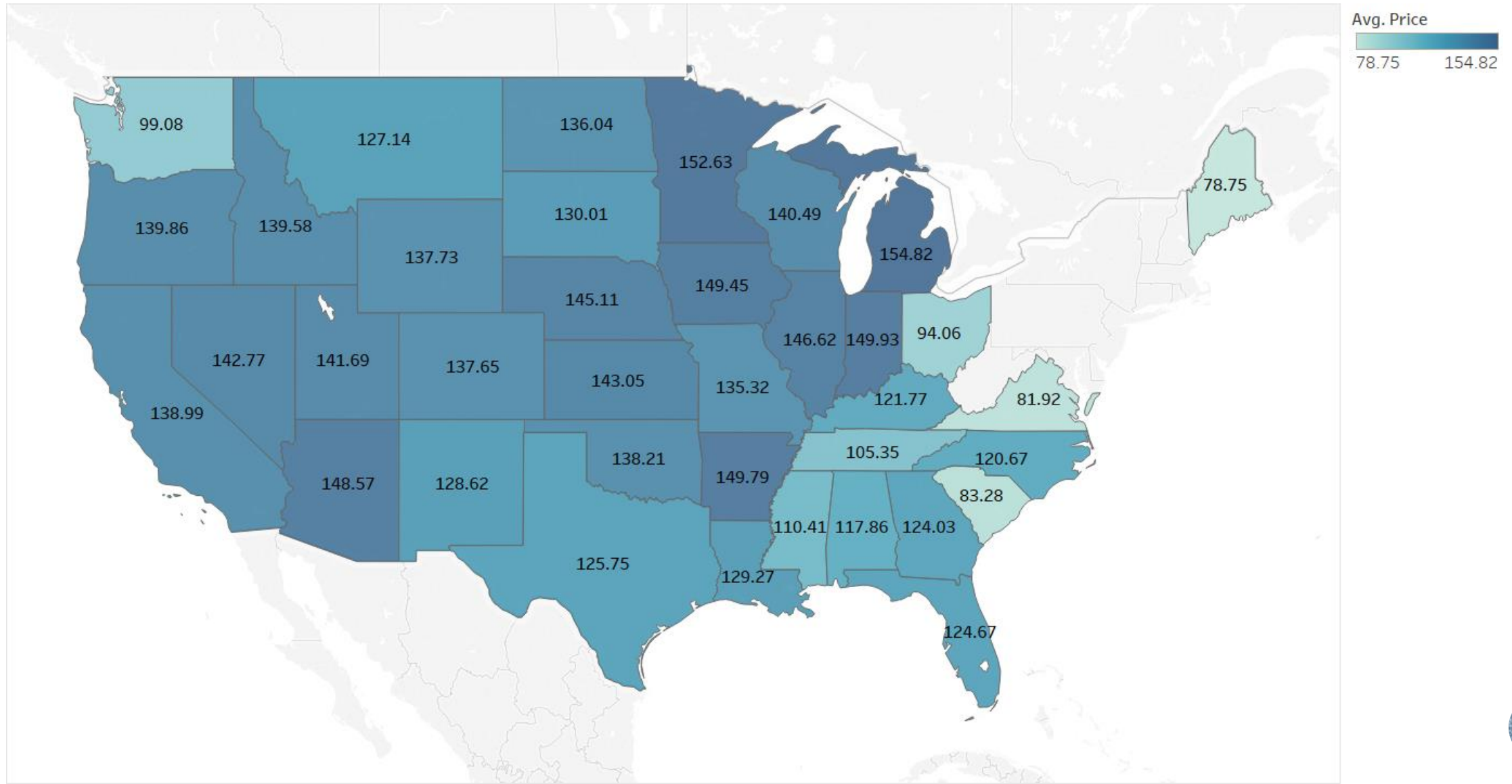
Sale Year



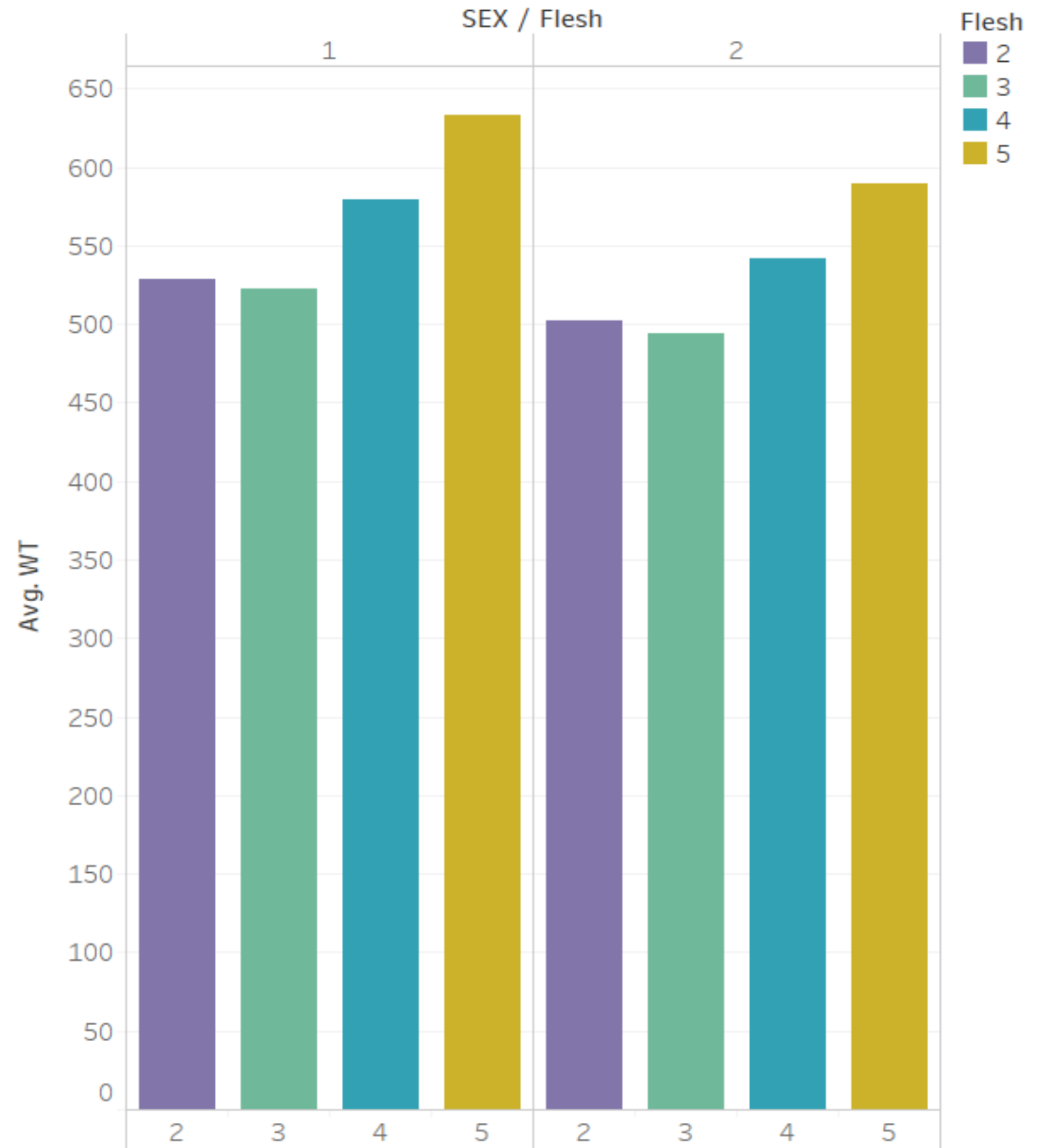
State



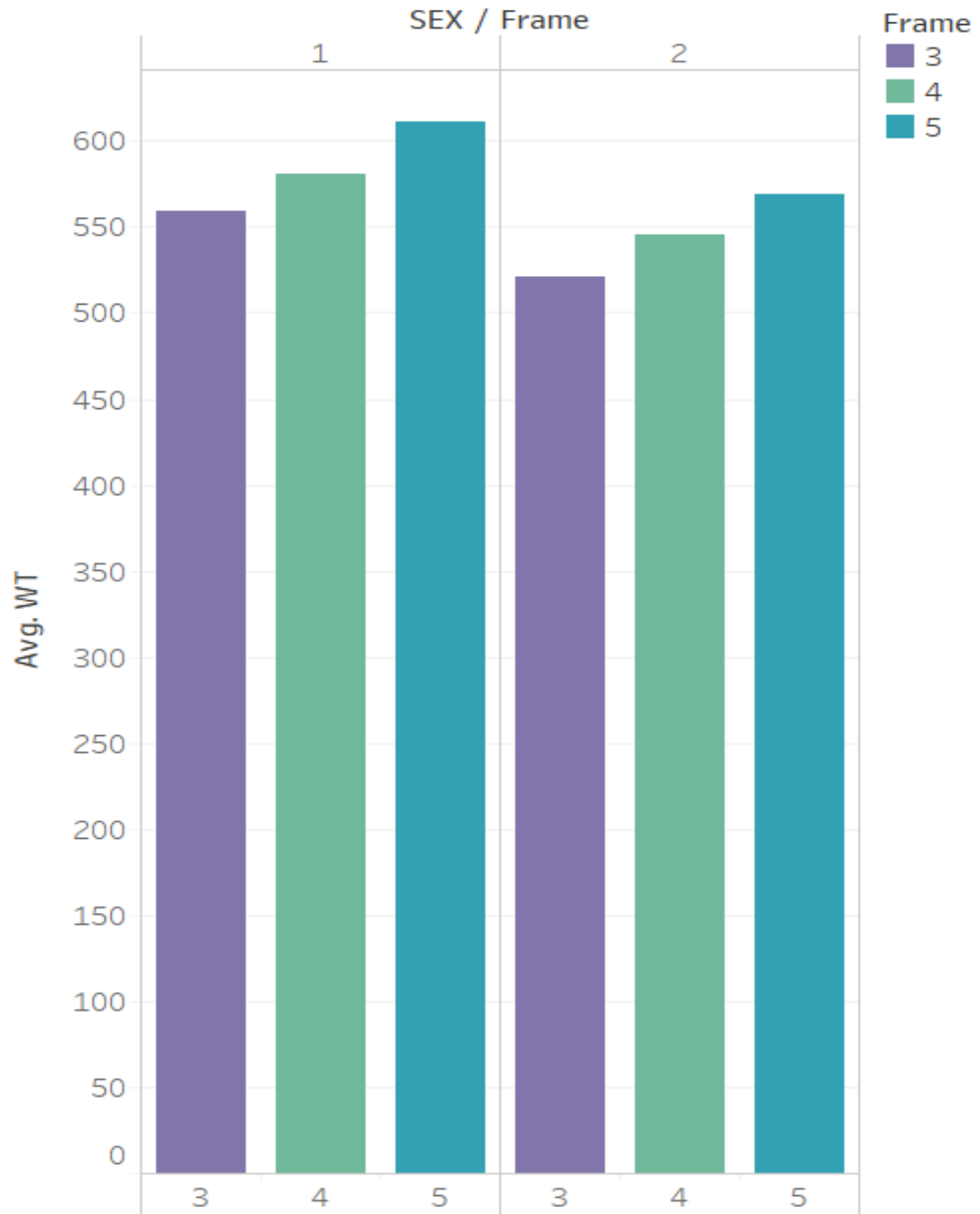
Raw average Sale Price by State



Flesh score by Sex of Calves



Frame Score by Sex of Calves





Feeder Cattle Lots

23,862 lots



Descriptive Statistics

Factor	Mean	SD	Range
Size of lot (head)	125.9	115.5	4 to 1,800
Weight	783.1	84.9	420 to 1,125
Sale Price (\$/cwt)	114.91	40.28	45.00 to 267.00

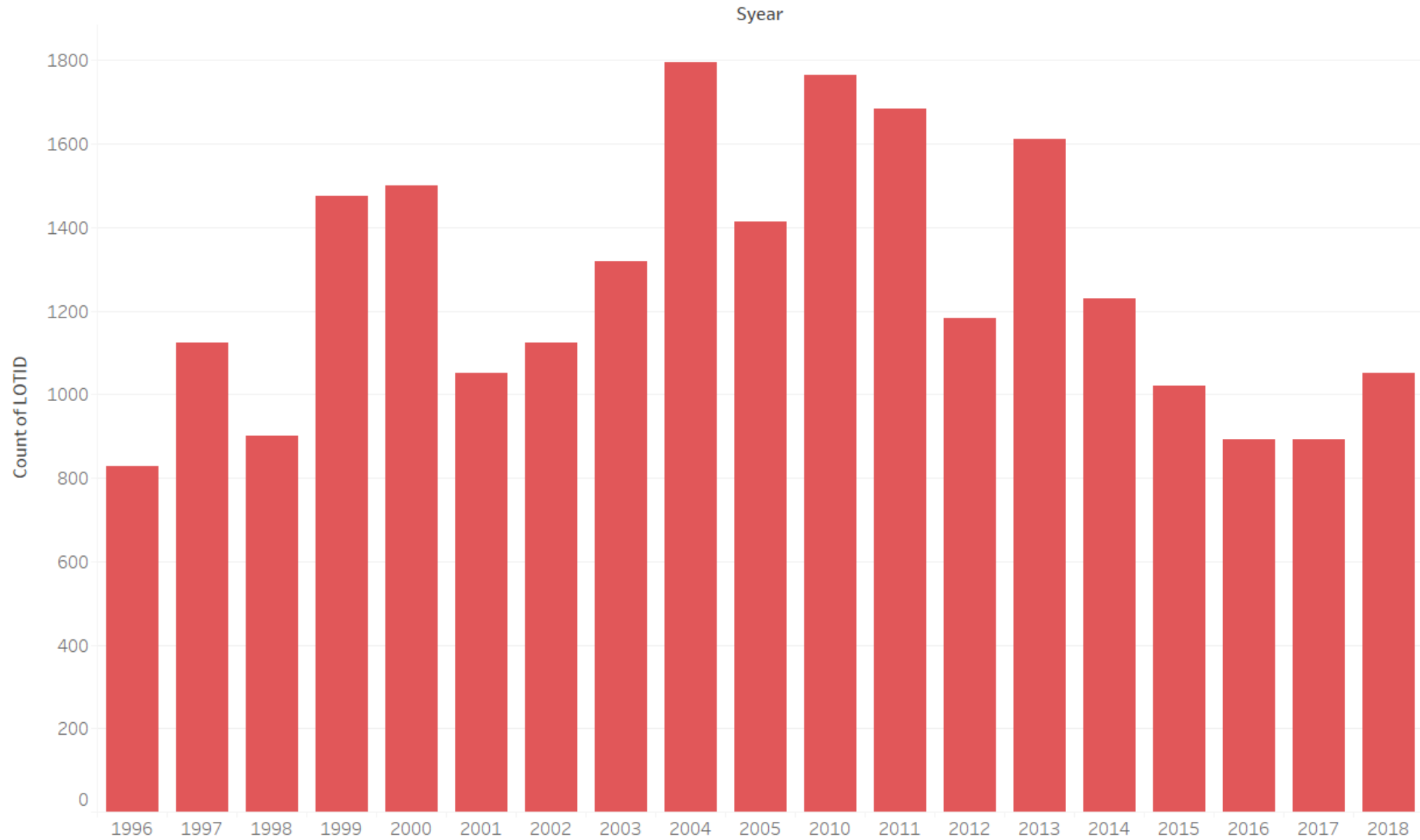


SYEAR	LOTID	SMONTH	HEAD	SEX	WT	PRICE	STATECODE	SAREA	BREED	FRAME	FLESH	VAC	
SYEAR	1.000000												
LOTID	0.990944	1.000000											
SMONTH	-0.103676	-0.064766	1.000000										
HEAD	-0.041727	-0.042079	-0.023245	1.000000									
SEX	-0.057300	-0.053624	0.002478	-0.067081	1.000000								
WT	0.246894	0.241405	-0.106987	0.083327	-0.369070	1.000000							
PRICE	0.835596	0.832601	-0.081078	-0.025014	-0.100595	0.181884	1.000000						
STATECODE	-0.168724	-0.193013	-0.005845	-0.087257	0.060387	-0.250077	-0.106882	1.000000					
SAREA	-0.039077	-0.040503	-0.012720	-0.105415	0.069802	-0.256010	-0.050853	0.876676	1.000000				
BREED	-0.225968	-0.226524	0.013944	0.022269	0.043131	-0.318067	-0.206481	0.392879	0.406660	1.000000			
FRAME	0.138352	0.145319	-0.029735	-0.000113	-0.078557	0.179771	0.129784	-0.058890	-0.021669	0.009941	1.000000		
FLESH	-0.035072	-0.032461	-0.007994	-0.005740	0.001504	0.172594	-0.039477	-0.087592	-0.082012	-0.059608	0.019022	1.000000	
VAC	0.365210	0.366607	-0.009123	-0.067963	-0.012612	0.032489	0.302515	-0.013126	0.040139	-0.113540	0.041786	0.026325	1.000000

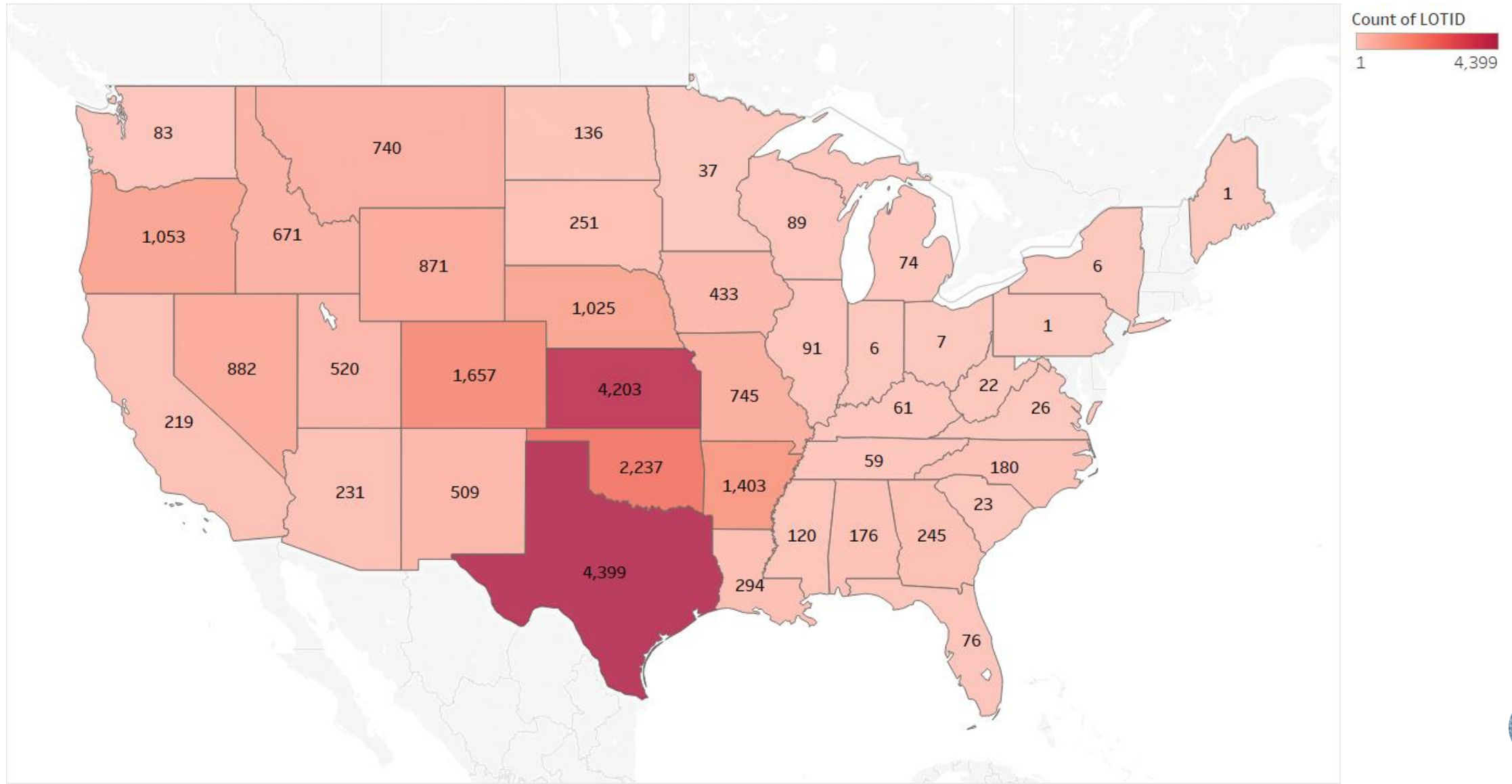
Correlations



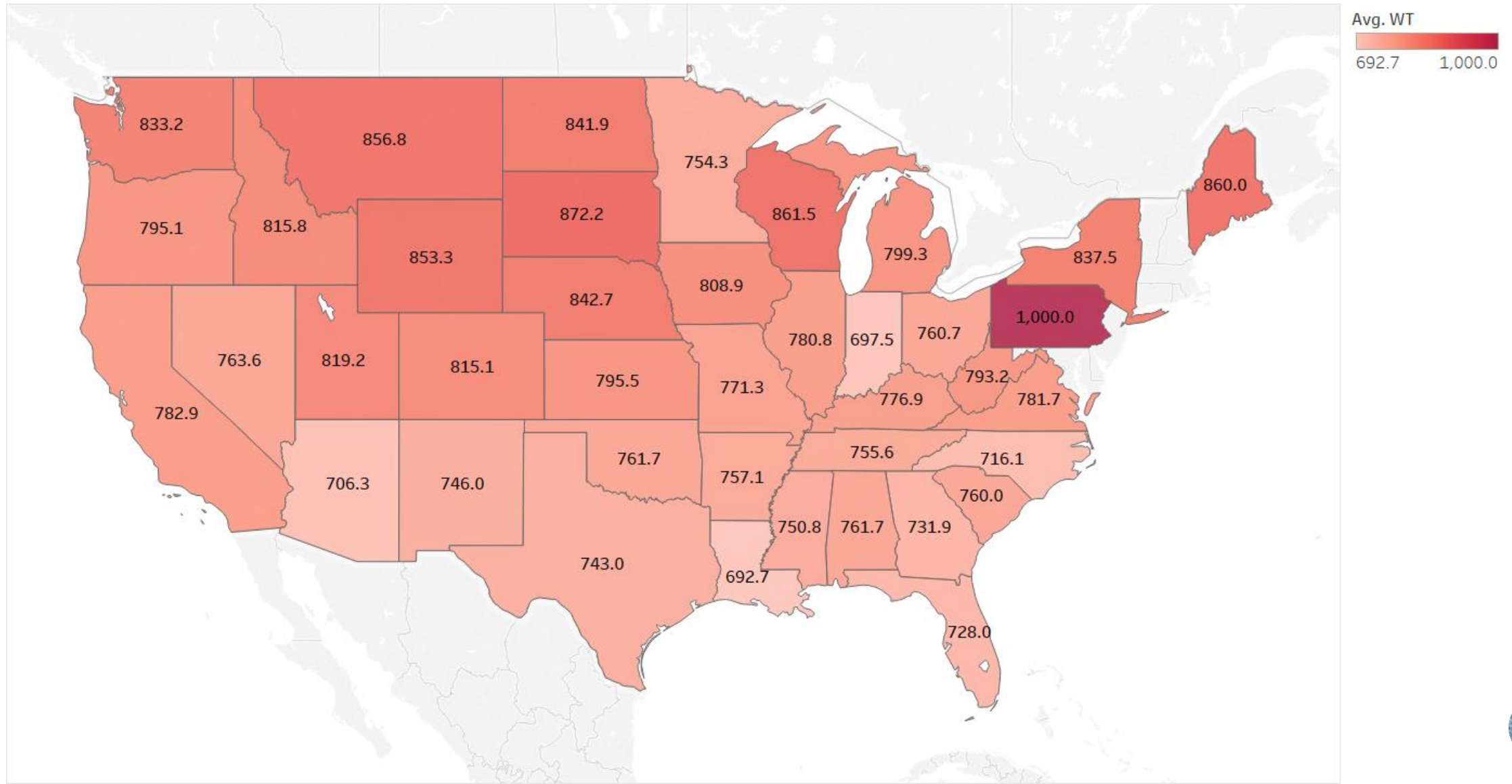
Sale Year



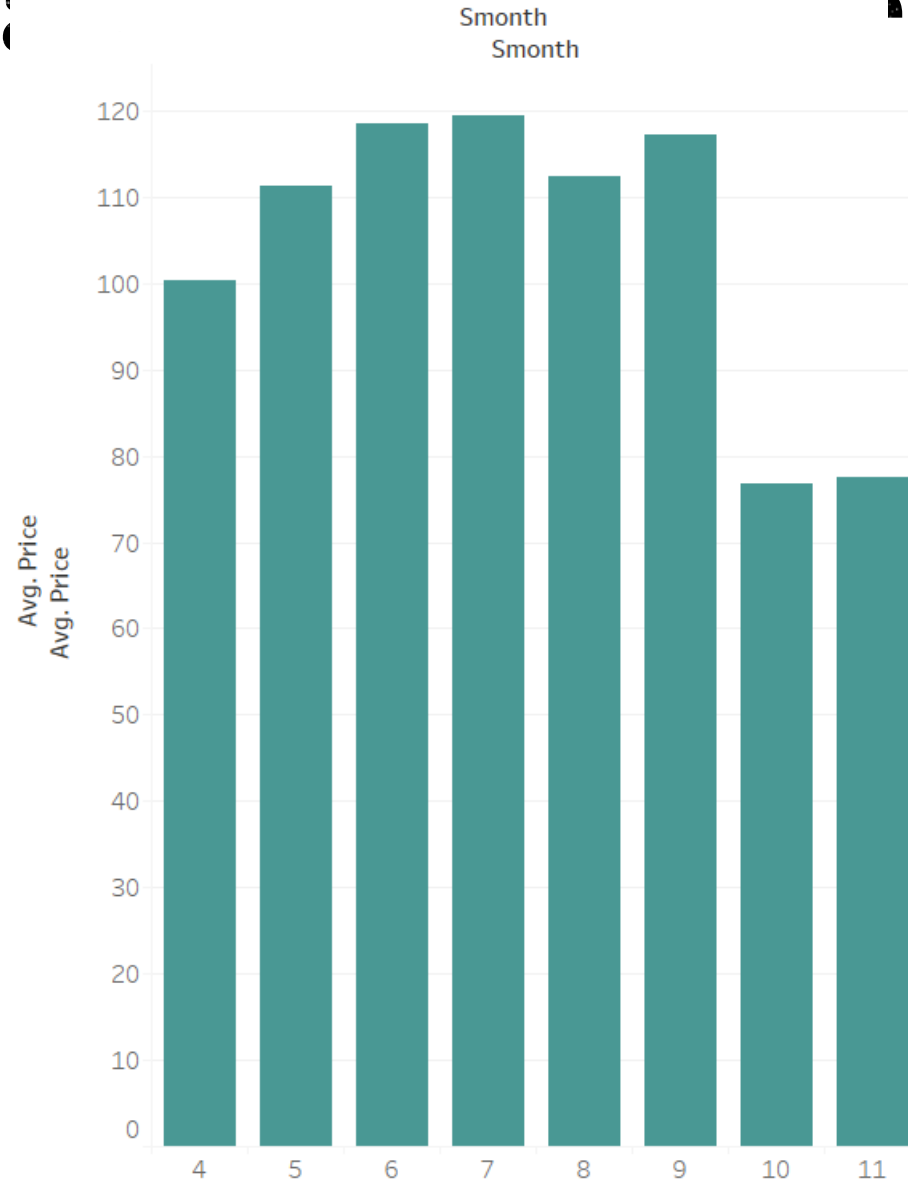
State



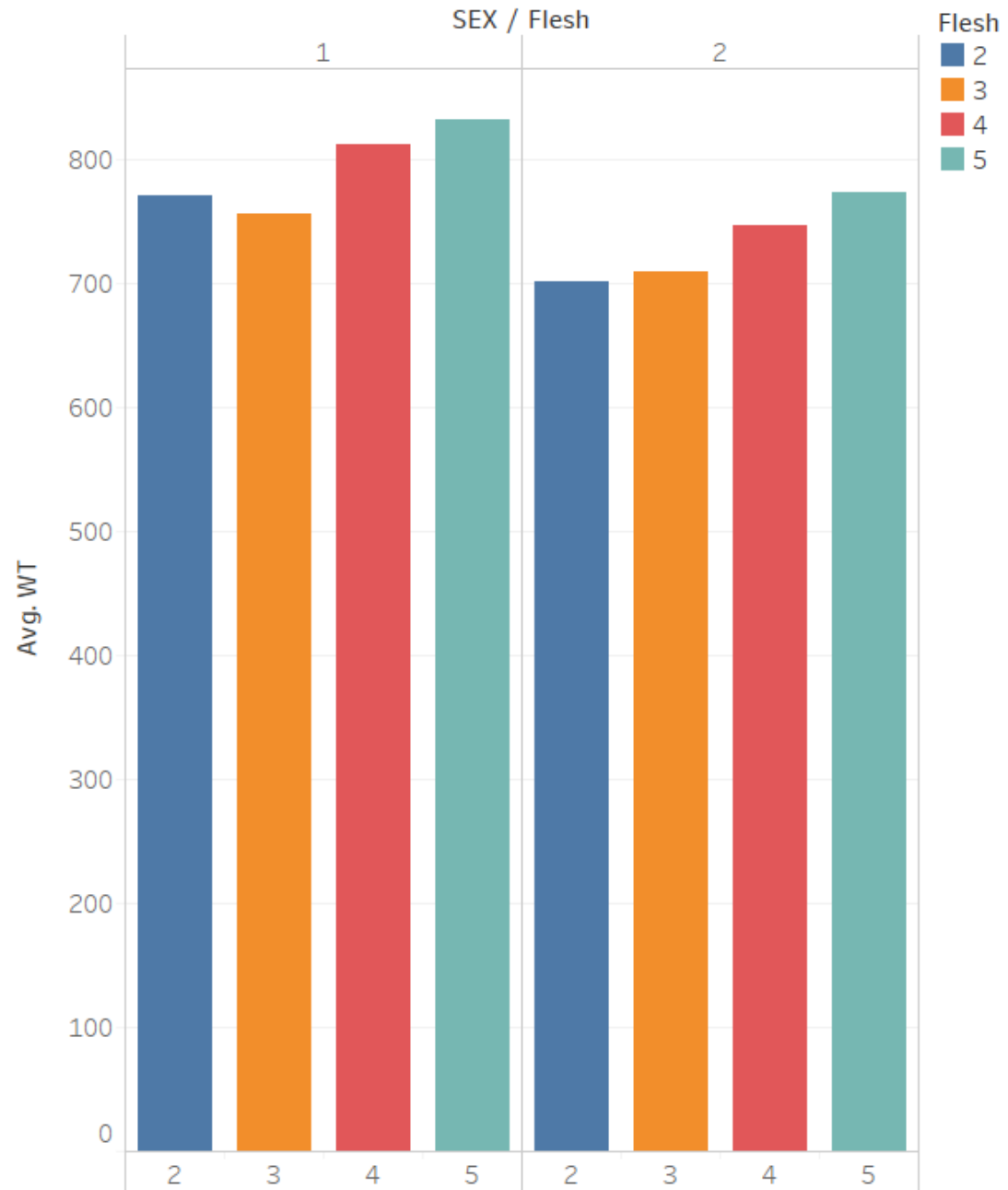
Raw average Sale Price by State



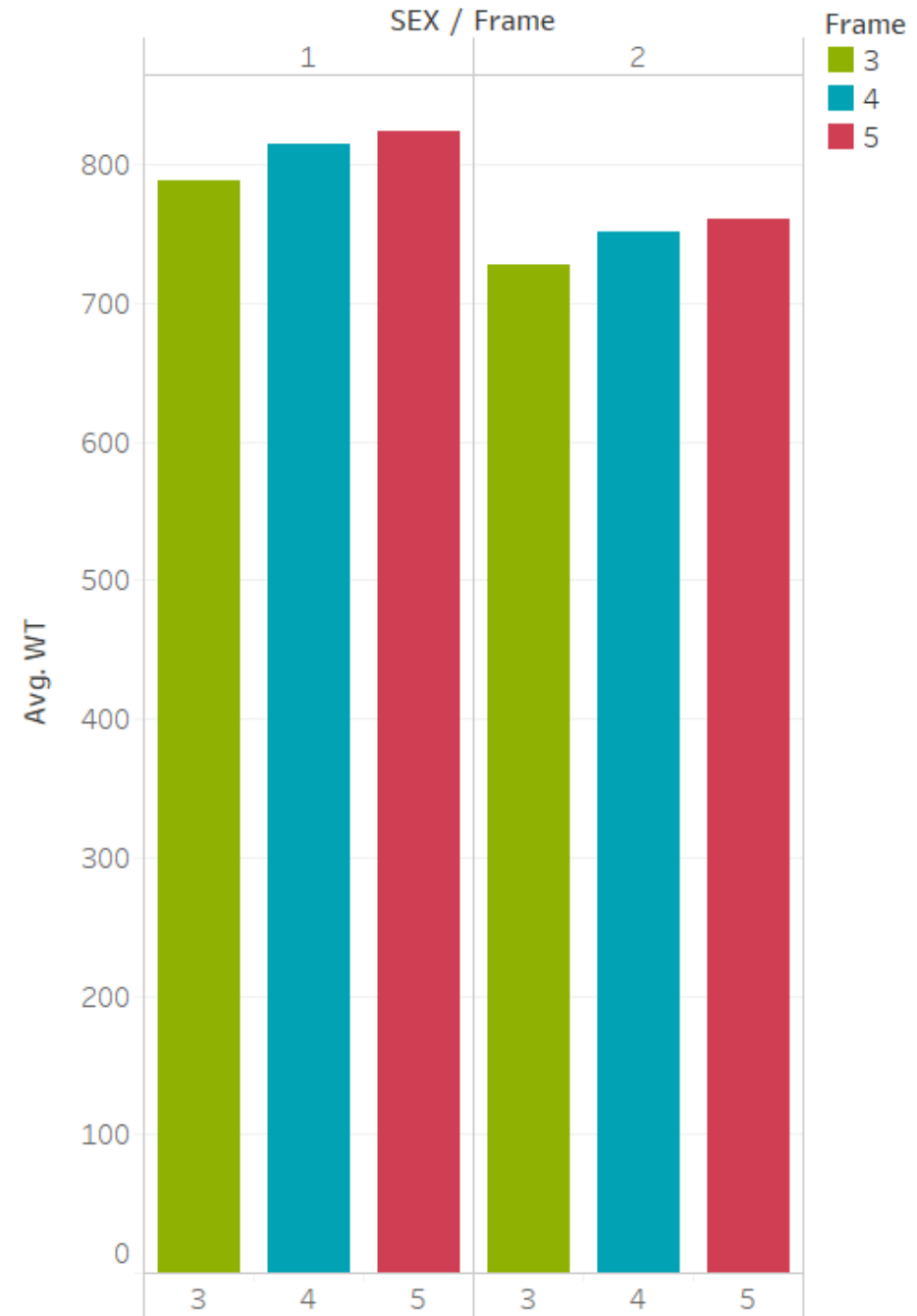
Raw average Sale Price by State



Flesh score by Sex of Feeders



Frame Score by Sex of Feeders



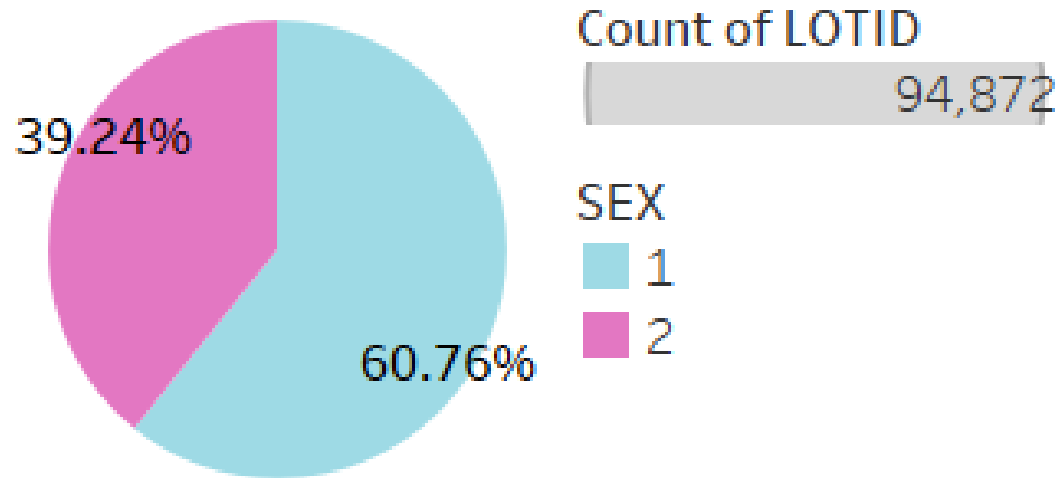


Comparison of Beef Calves and Feeder Cattle Lots

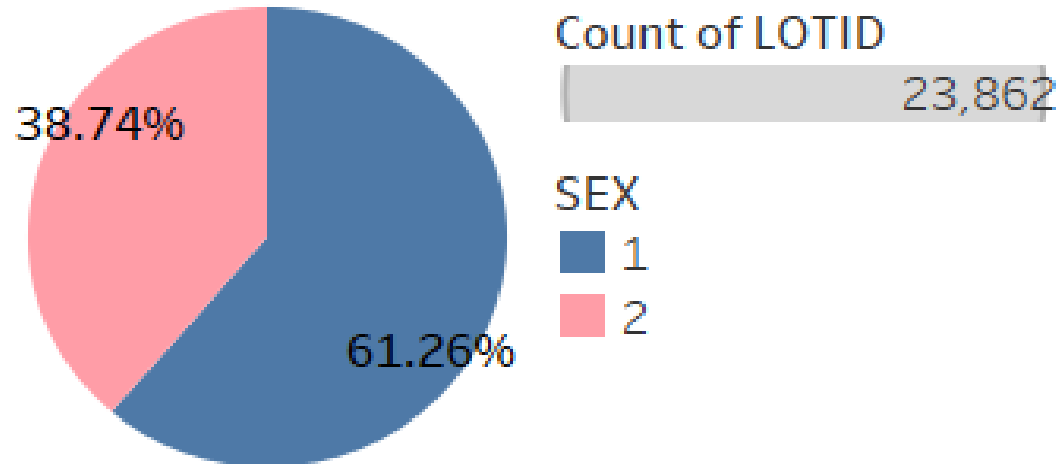


Sex of Lot

Calves

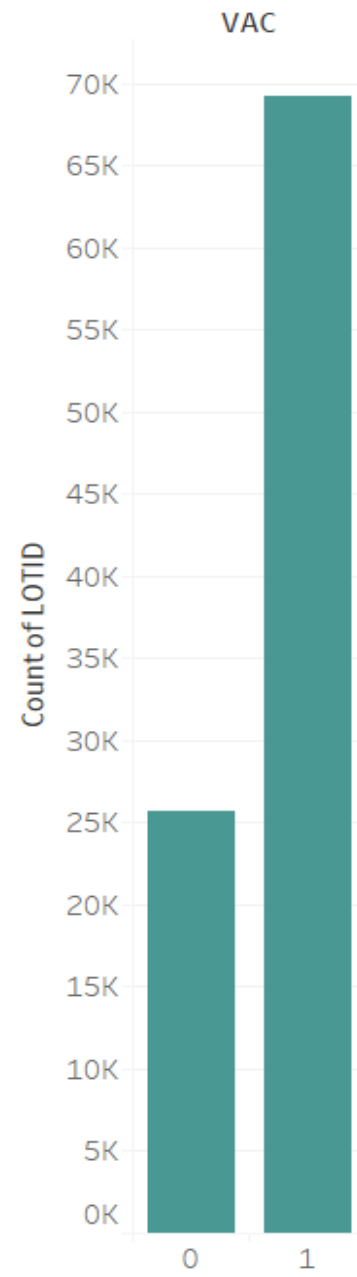


Feeders

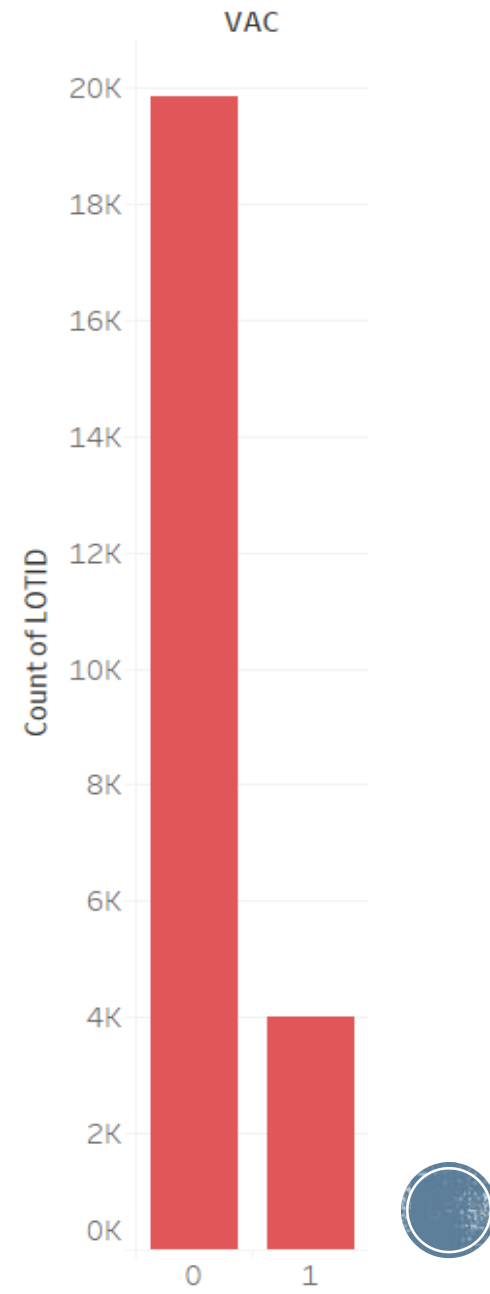


Vaccination Program Qualification

Calves

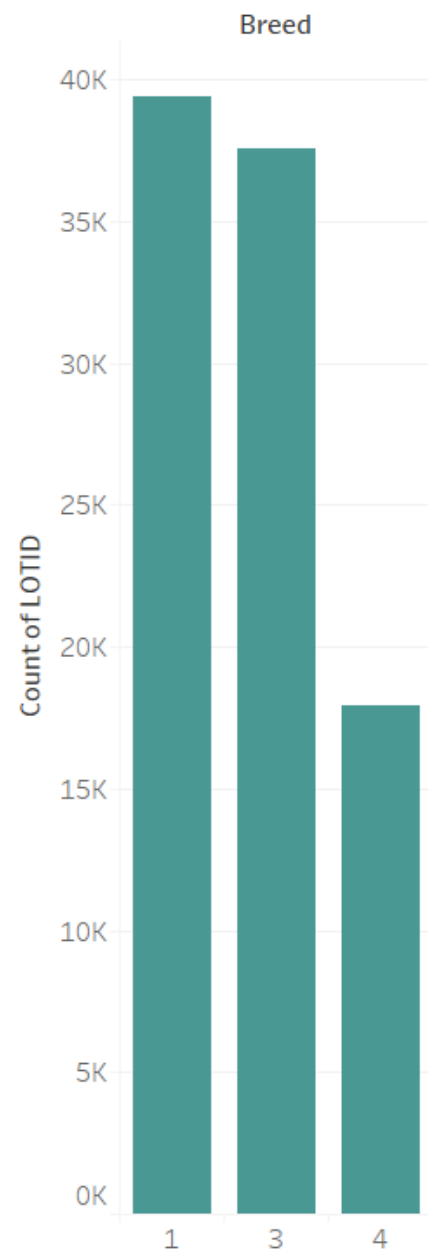


Feeders

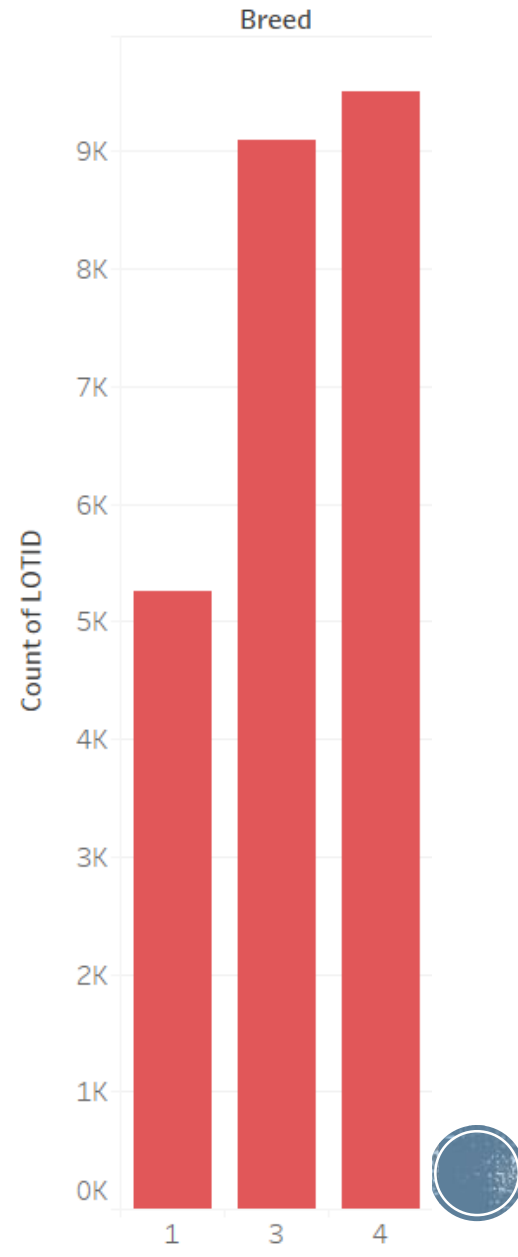


Breed Description

Calves

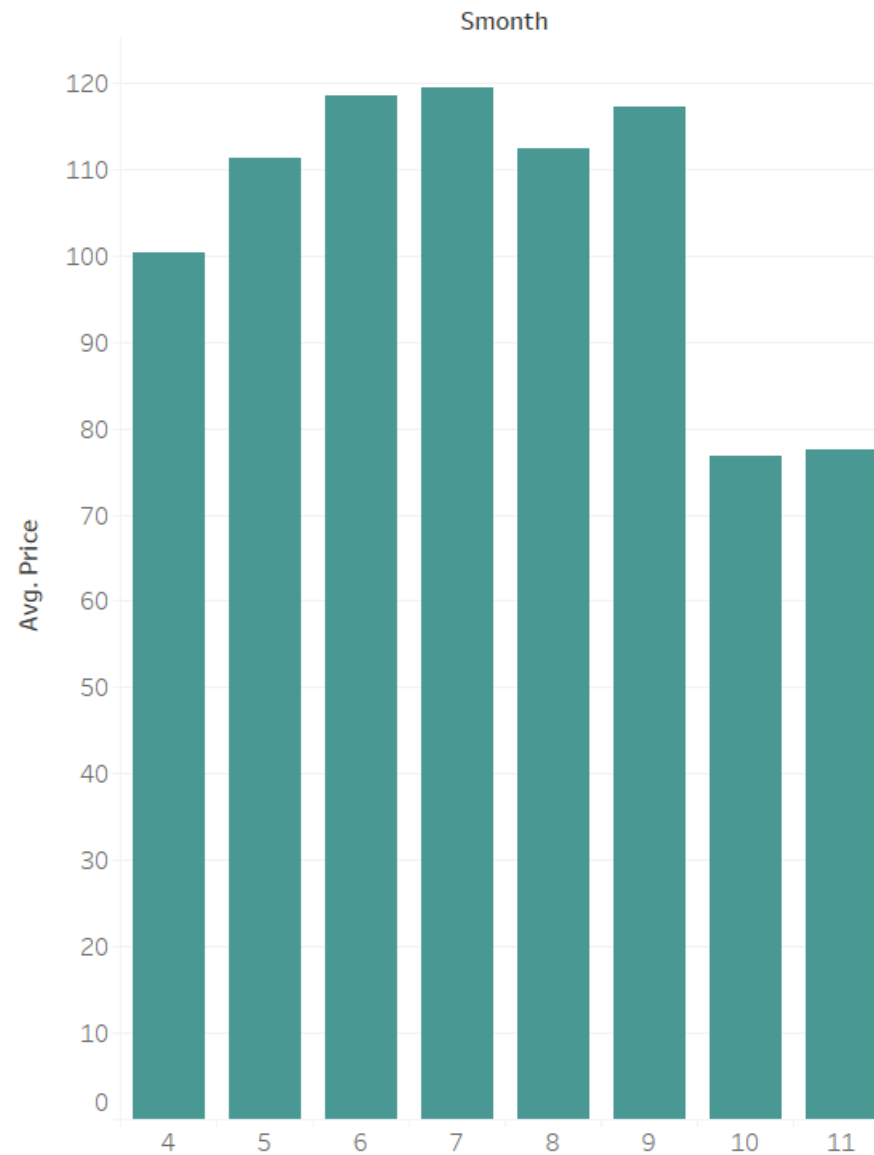


Feeders

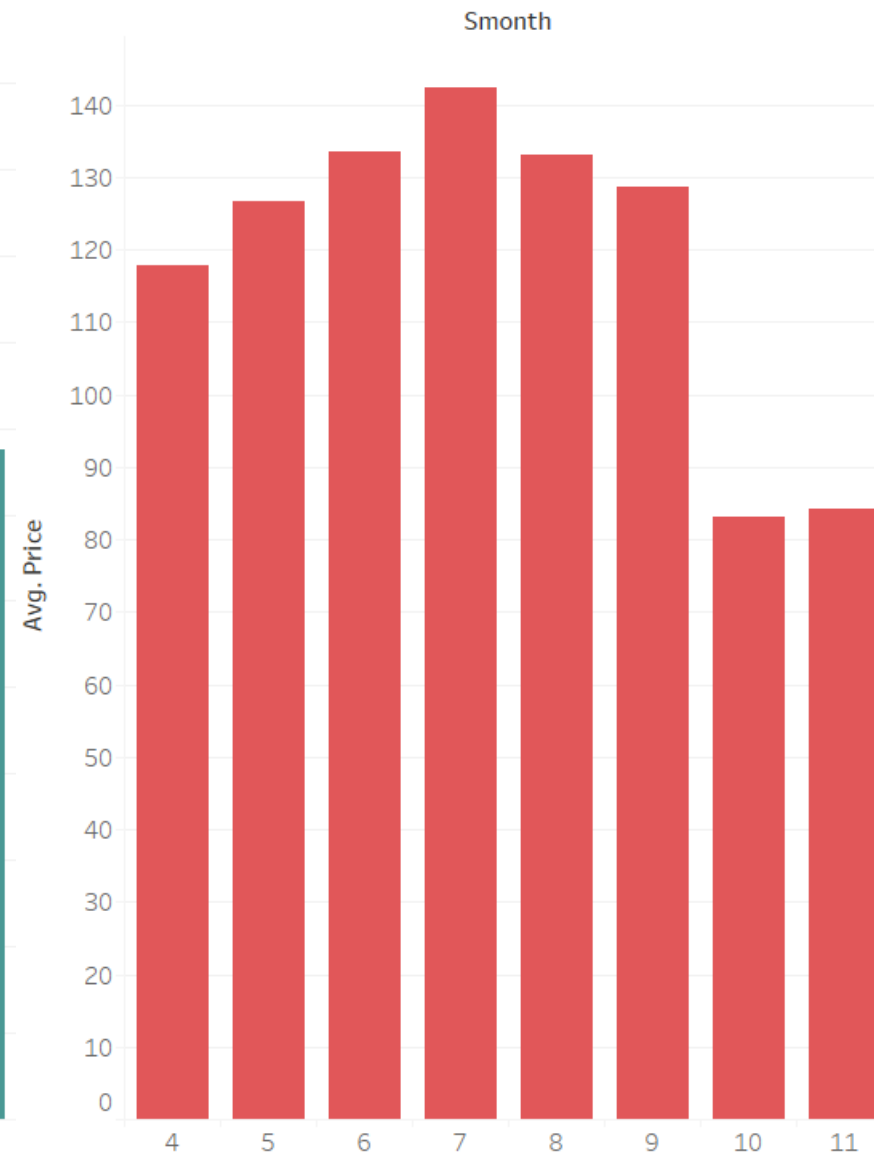


Sale Price by Sale Month

Calves

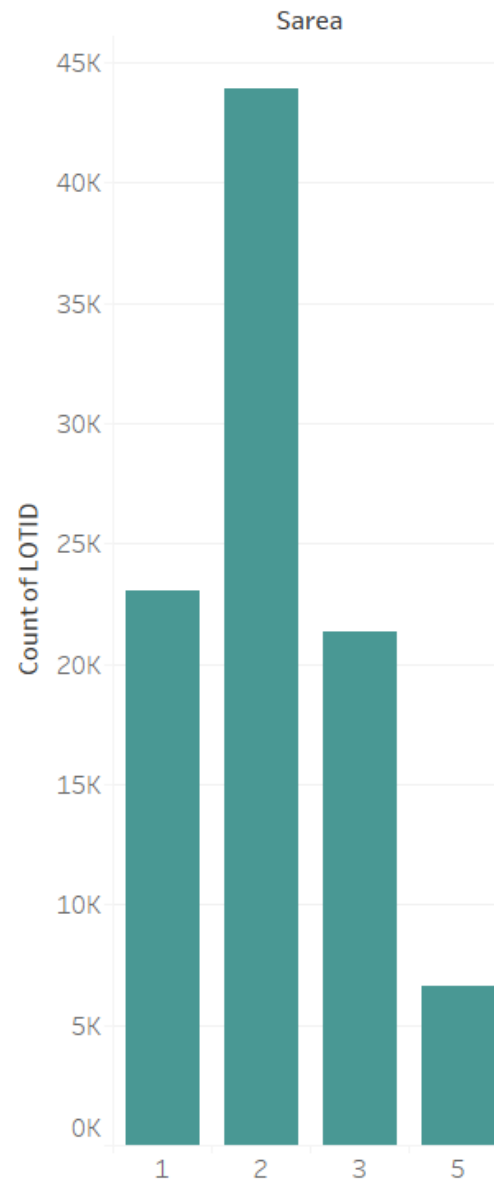


Feeders

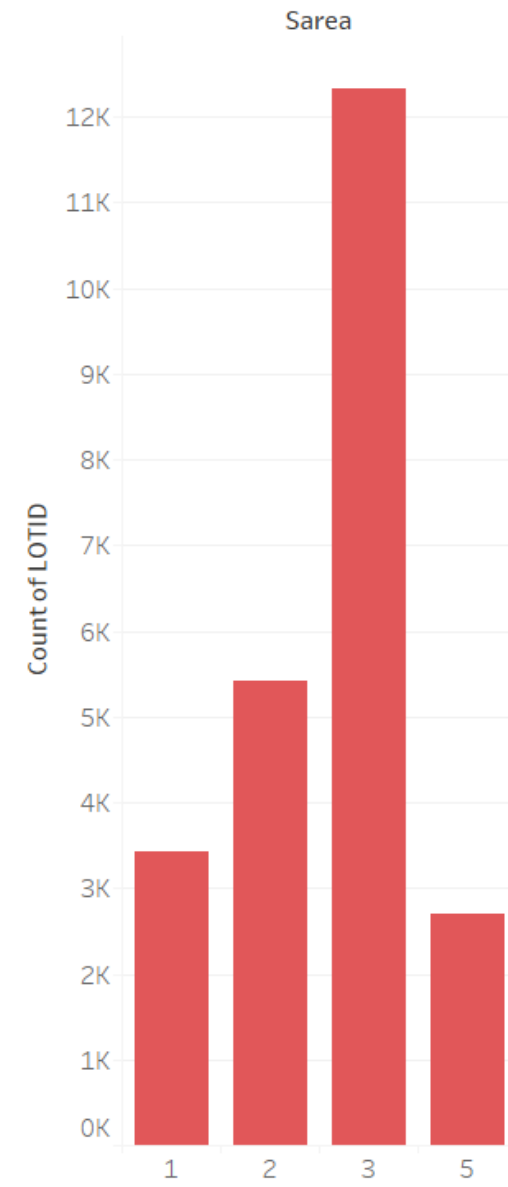


Sale Area/Region

Calves

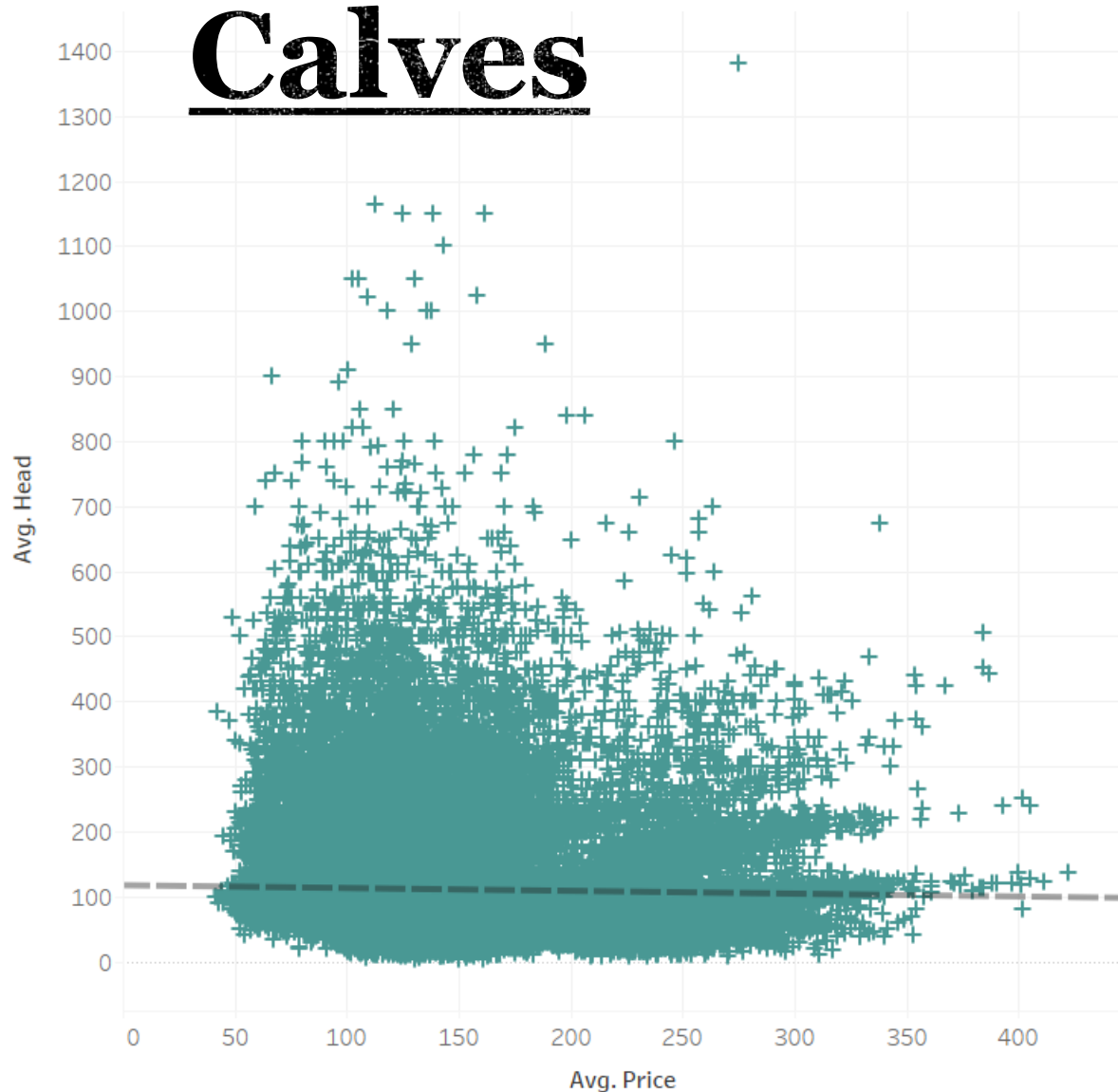


Feeders

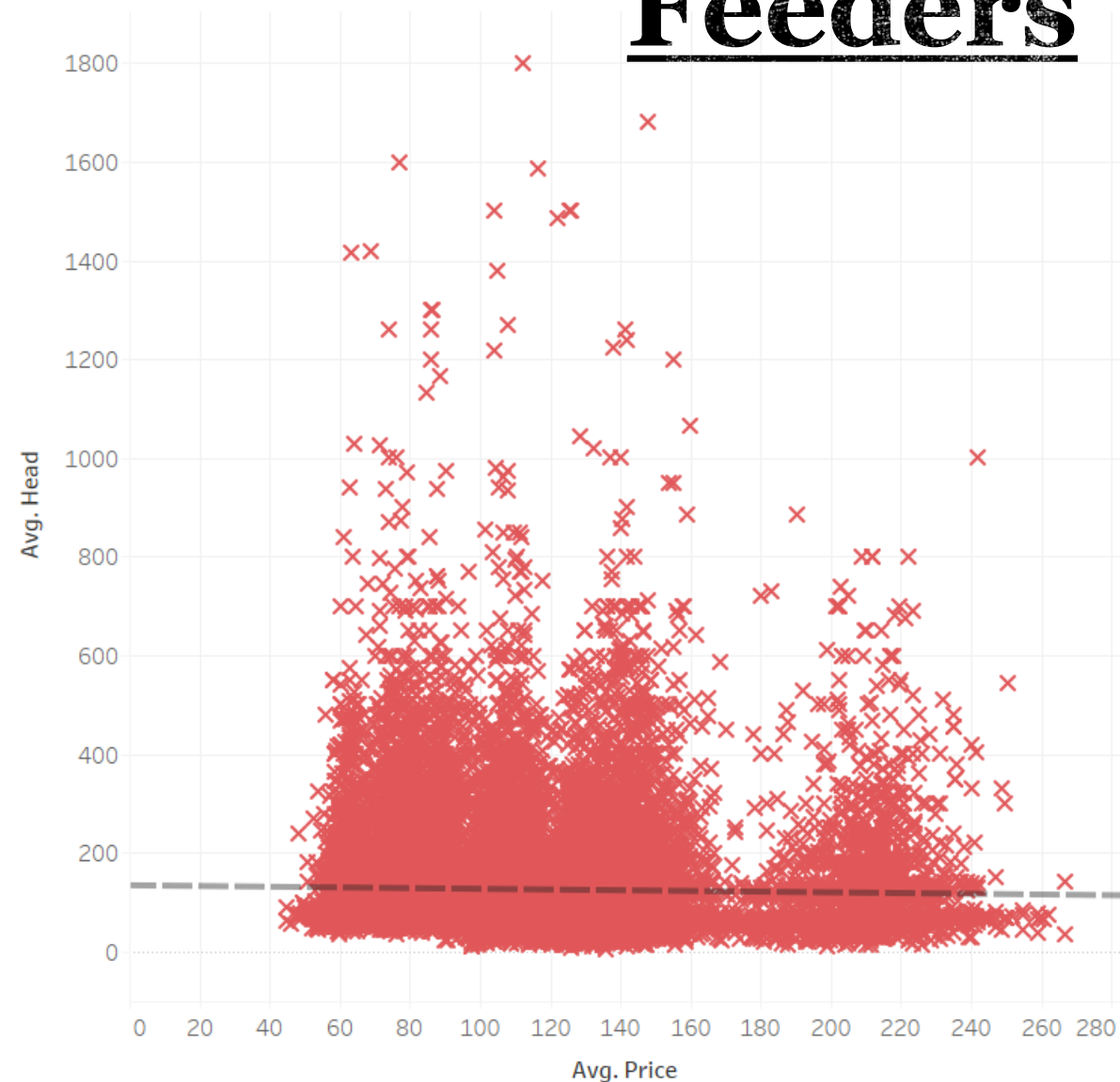


Average Head by Price

Calves

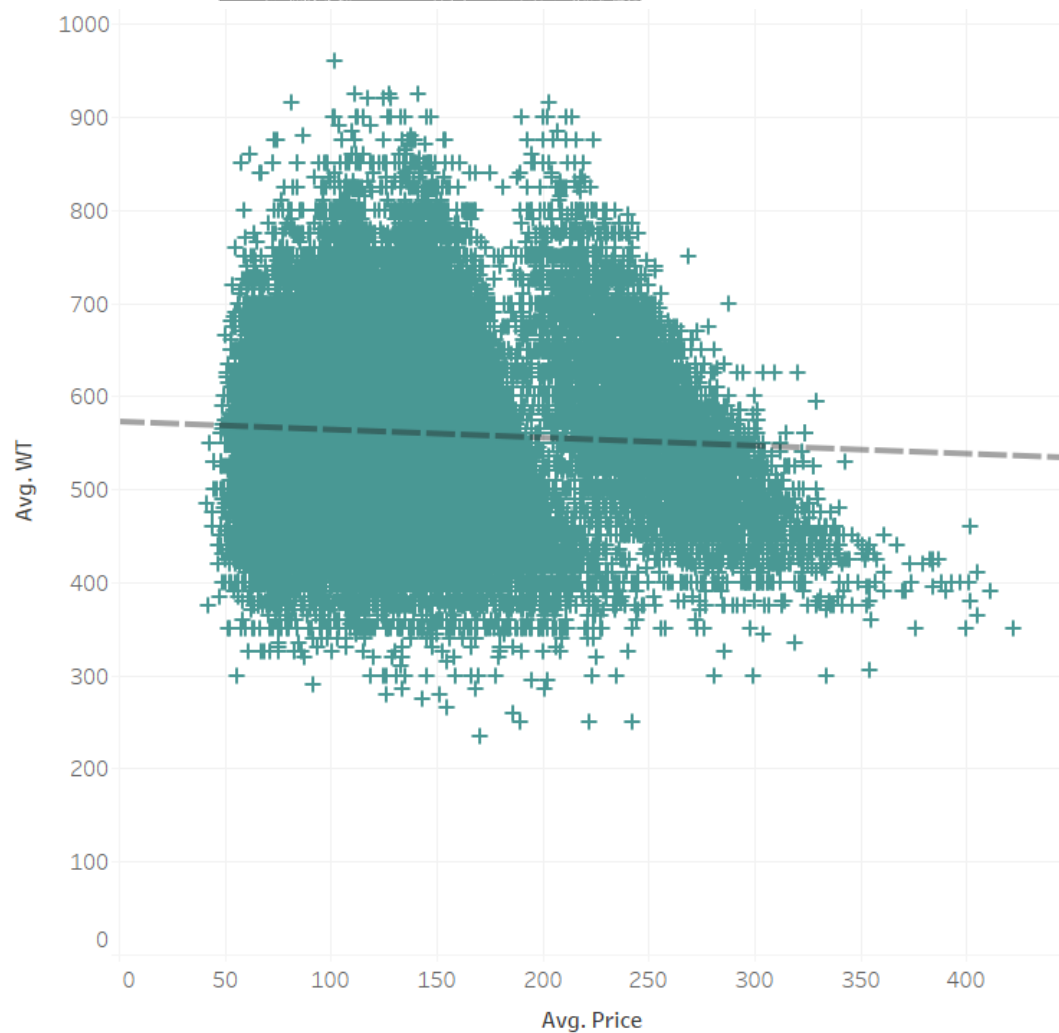


Feeders

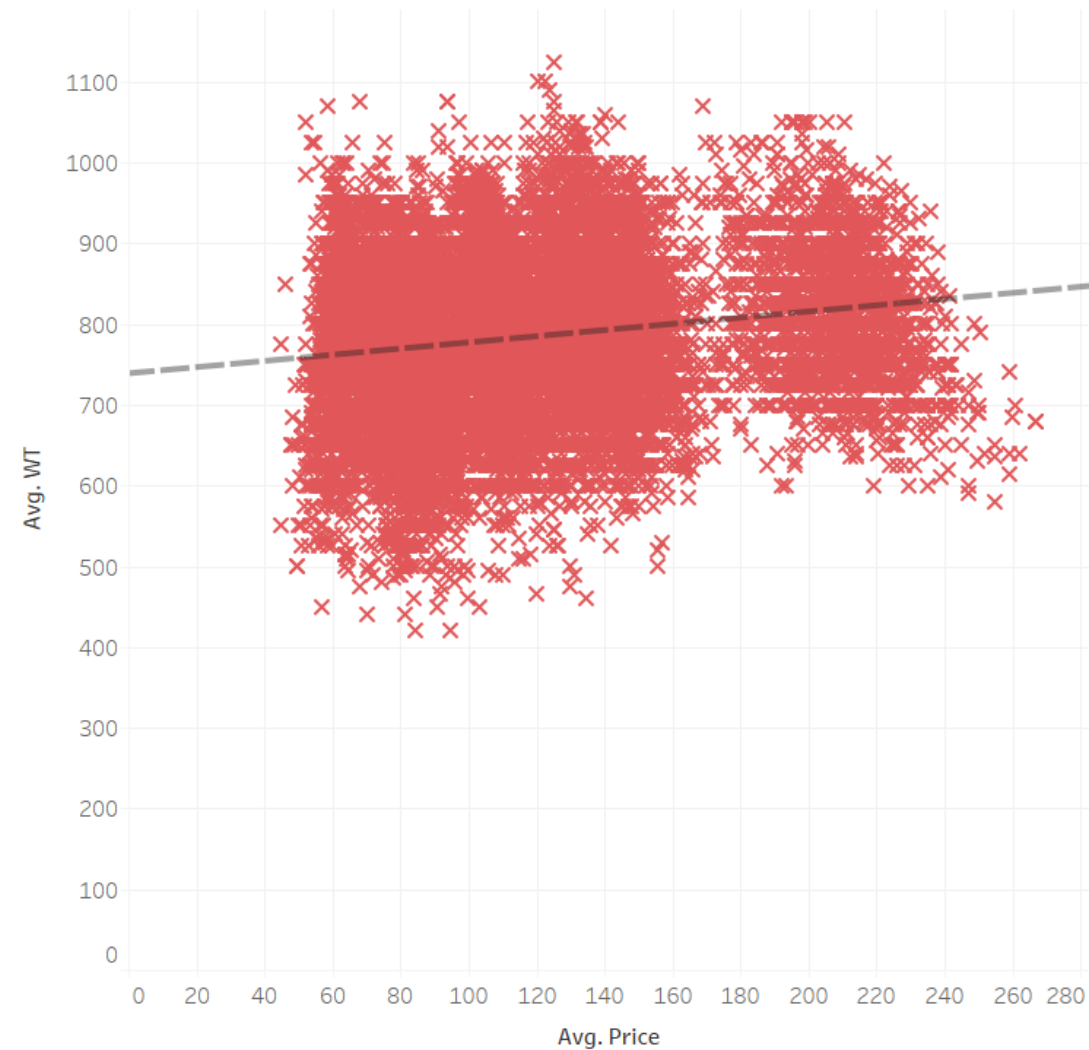


Average Weight by Price

Calves



Feeders



Insights from EDA & Data Visualization

- Poor interpretation of correlations because of categorical variables
- Calves and feeder cattle represent two different populations
 - Be cautious when interpreting comparisons
- Good distributions within each variable
- Need to include both linear and quadratic terms for weight and head (size of lot)
- While different populations, the raw sale price for each sale month appears to follow similar patterns for calves and feeders

