USDA Soil Texture Ternary Diagram

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Load the packges needed to make the triangle.

```
library(ggtern)
library(plyr)
library(readxl)
library(dplyr)
```

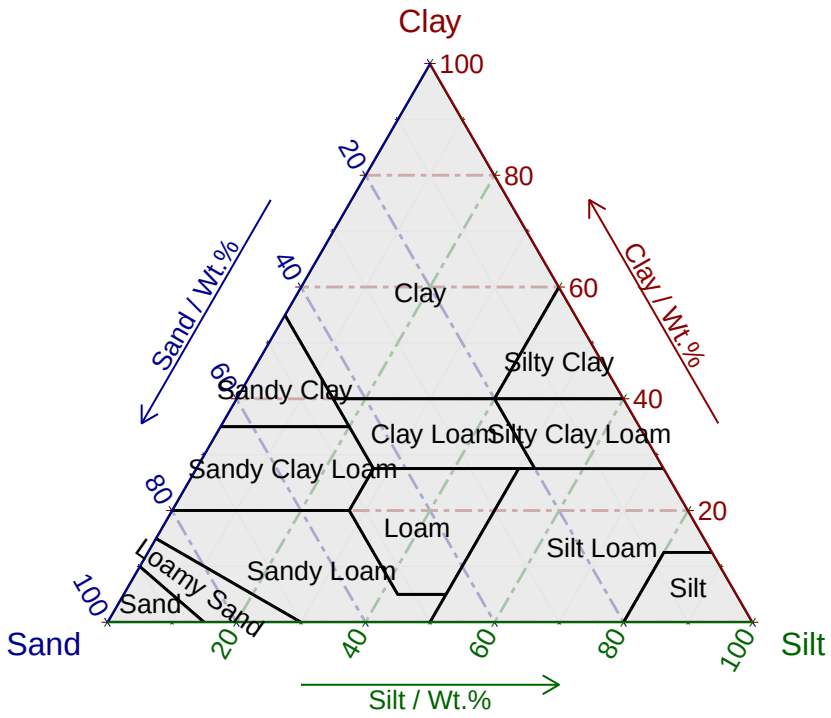
Create data to draw the triangle. Load data for plotting if you have them.

```
# to graph your own data load them here
#soil_data <- read_excel('soil_data.xlsx')

# this is the data for the triangle itself
#Load the Data.
data(USDA)
#Put tile labels at the midpoint of each tile.
USDA.LAB <- ddply(USDA,"Label",function(df){
  apply(df[,1:3],2,mean)
})
#Tweak
USDA.LAB$Angle = sapply(as.character(USDA.LAB$Label),function(x){
  switch(x,"Loamy Sand"=-35,0)
})
```

Construct the ternary diagram

```
ggtern(data=USDA,aes(Sand, Clay, Silt, fill = Label)) +
  geom_polygon(alpha=0.75,size=0.5,color="black") +
  scale_fill_manual(values = rep('gray90', times = 17)) +
  geom_mask() +
  geom_text(data=USDA.LAB,aes(label=Label,angle=Angle),color="black",size=3.5) +
  # to add your own data points to the grap use geom_point
  #geom_point(data = soil_data, aes(shape = Label), size = 3) +
  #scale_shape_manual(values = c(1, 2, 5, 8,20)) +
  theme_rgbw() +
  theme_showsecondary() +
  theme_showarrows() +
  weight_percent() +
  guides(fill='none') +
  theme(plot.title = element_text(hjust = 0.5),
        legend.position = c(.85, .7)) +
  labs(title = "USDA Textural Classification Chart",
       shape  = "Depth",
       color = "Depth")
```



Save the graph to a file.

```
ggsave('USDA_triangle_ggtern.jpg', width = 17, height = 17, units = 'cm', scale = 1.2)
ggsave('USDA_triangle_ggtern.pdf', width = 17, height = 17, units = 'cm', scale = 1.2)
```