Section 1

# MANE 6313

Subsection 1

## Week 13, Module F

# Student Learning Outcome

- Select an appropriate experimental design with one or more factors,
- Select an appropriate model with one or more factors,
- Evaluate statistical analyses of experimental designs,
- Assess the model adequacy of any experimental design, and
- Interpret model results.

# Module Learning Outcome

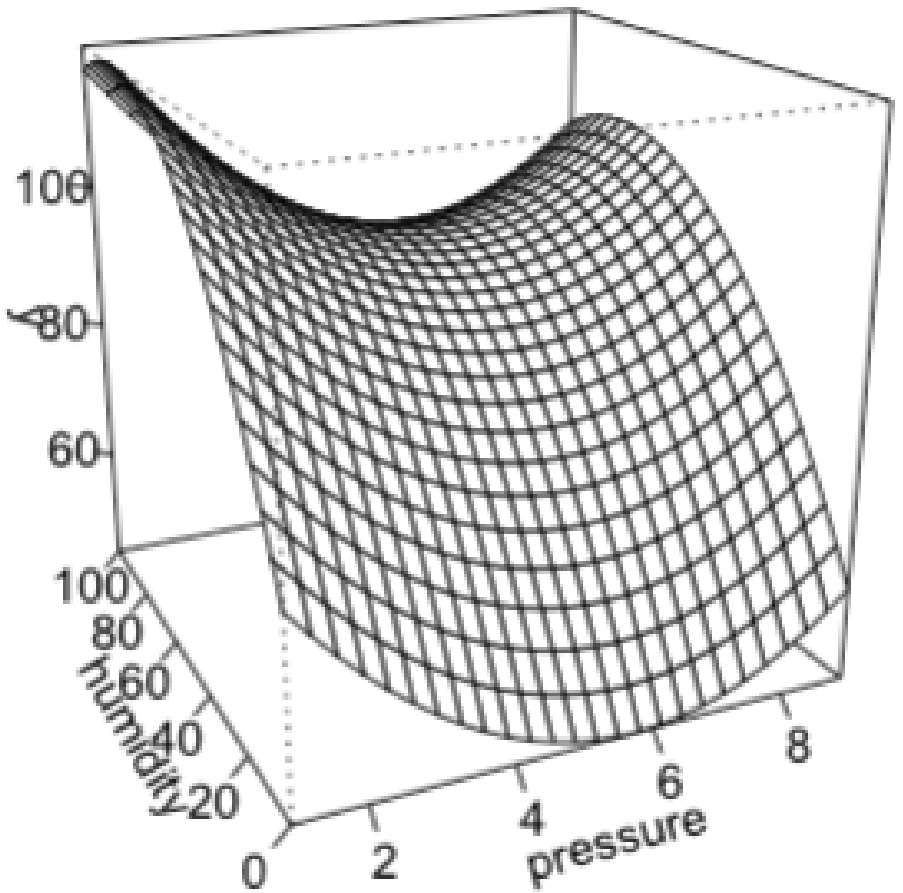
*Interpret contour and 3D plots in R*

## Graphical Analysis in R

- R provides contour plots and 3D (perspective) plots
- The second Box-Benkhen model from Module E will be used in this module

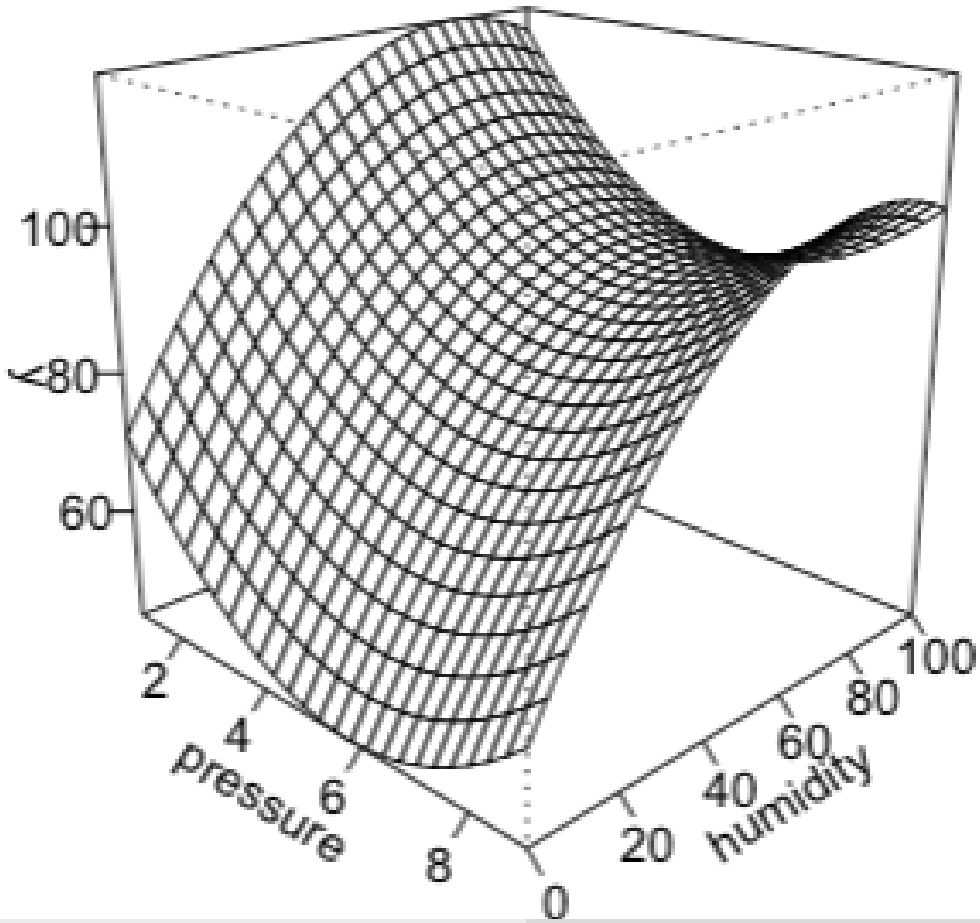
# 3D Plot

```r
persp(bbd11.model2,x2~x3,zlab="y")
```



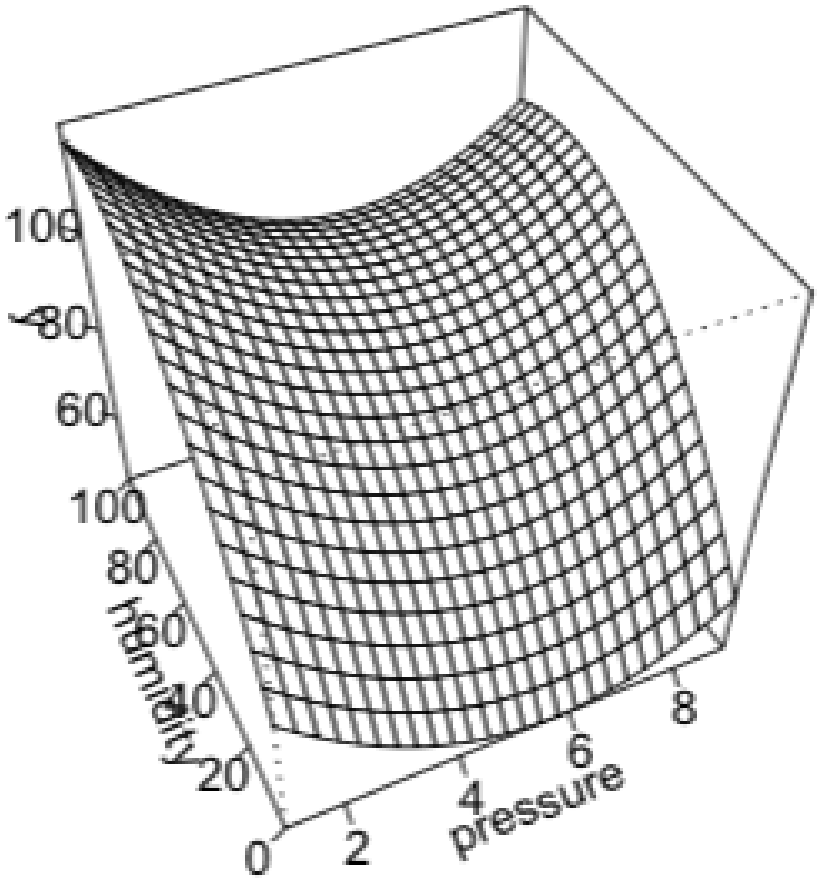
# 3D Plot with Theta=45, Phi=0

```r
persp(bbd11.model2,x2~x3,zlab="y",theta=45)
```



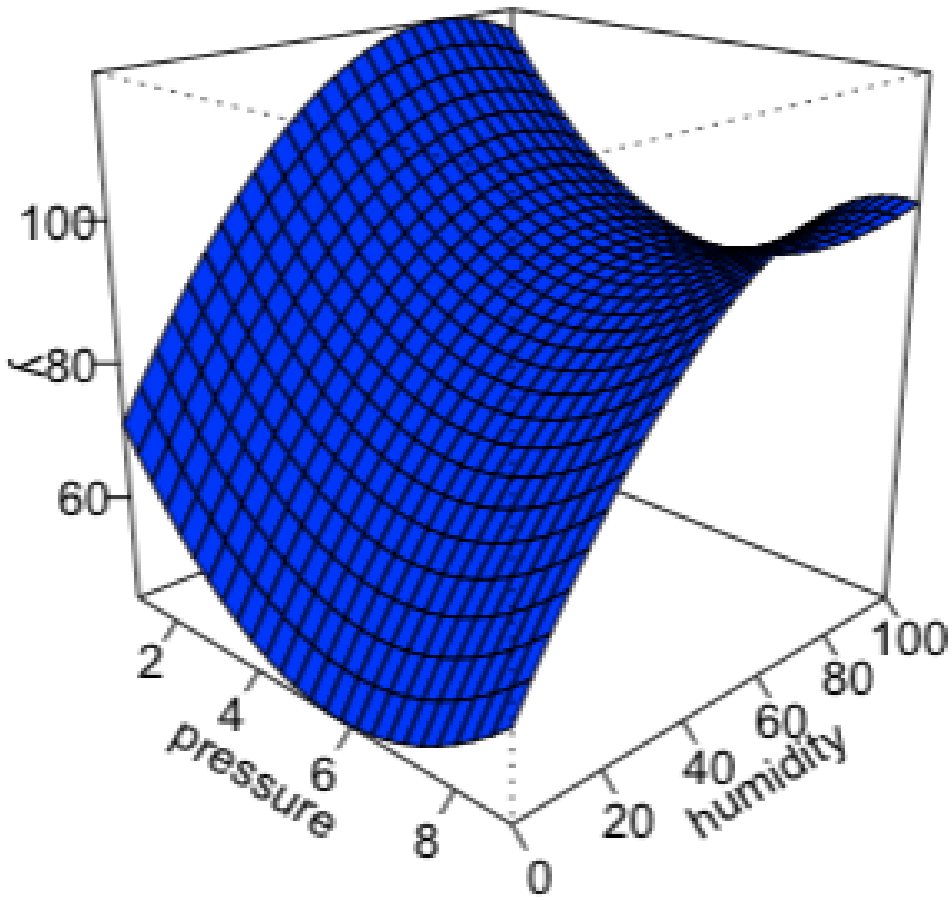
# 3D Plot with Theta=0,Phi=45

```r
persp(bbd11.model2,x2~x3,zlab="y",phi=45)
```



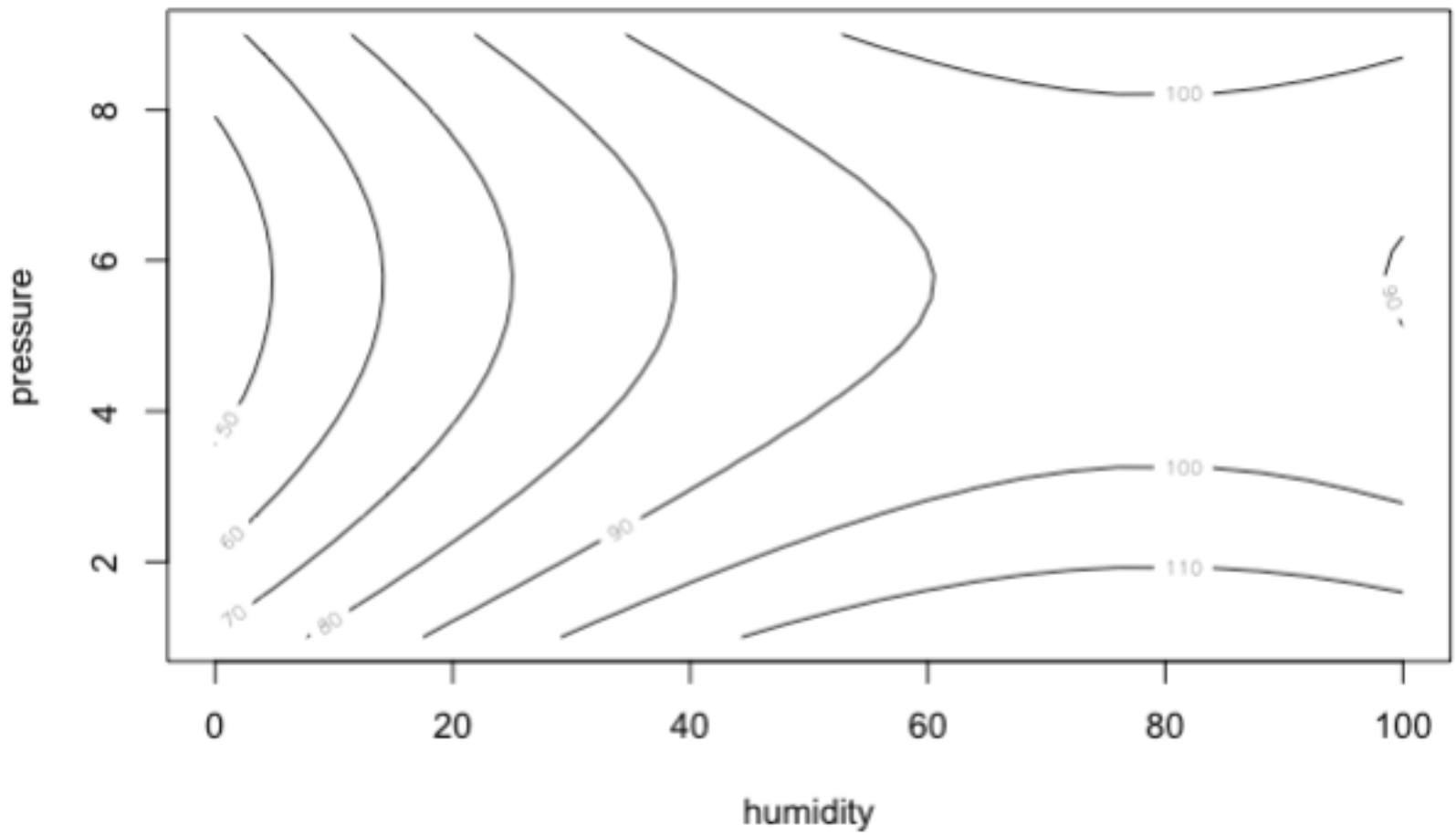
# 3D Plot with Color

```r
persp(bbd11.model2,x2~x3,zlab="y",theta=45, col="blue")
```



# Non-image Contour Plot

```
61 ```{r}
62 contour(bbd11.model2,~x2+x3)
63 ```
```



# Contour Plot with More Lines

```r
contour(bbd11.model2,~x2+x3,nlevels=20)
```

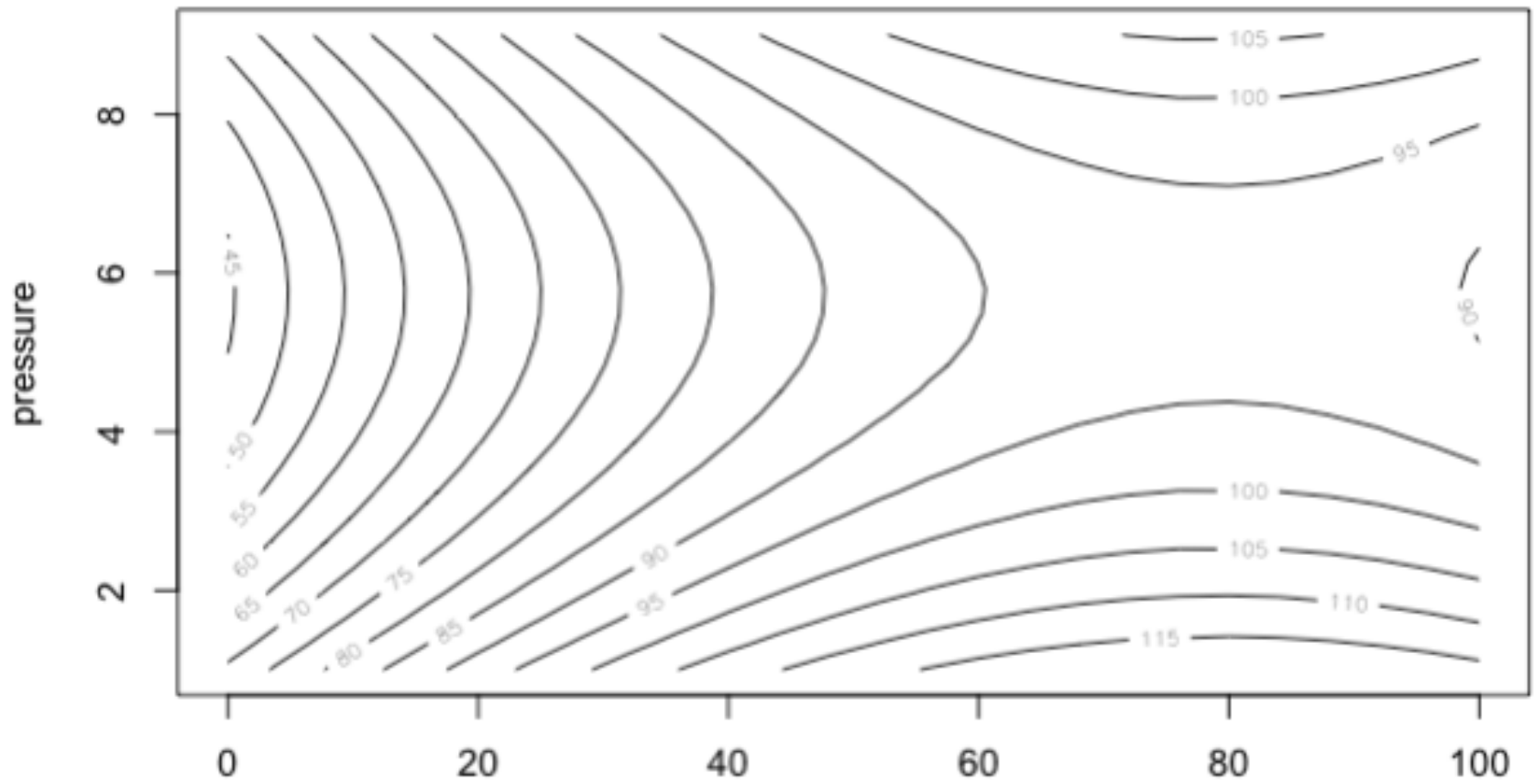
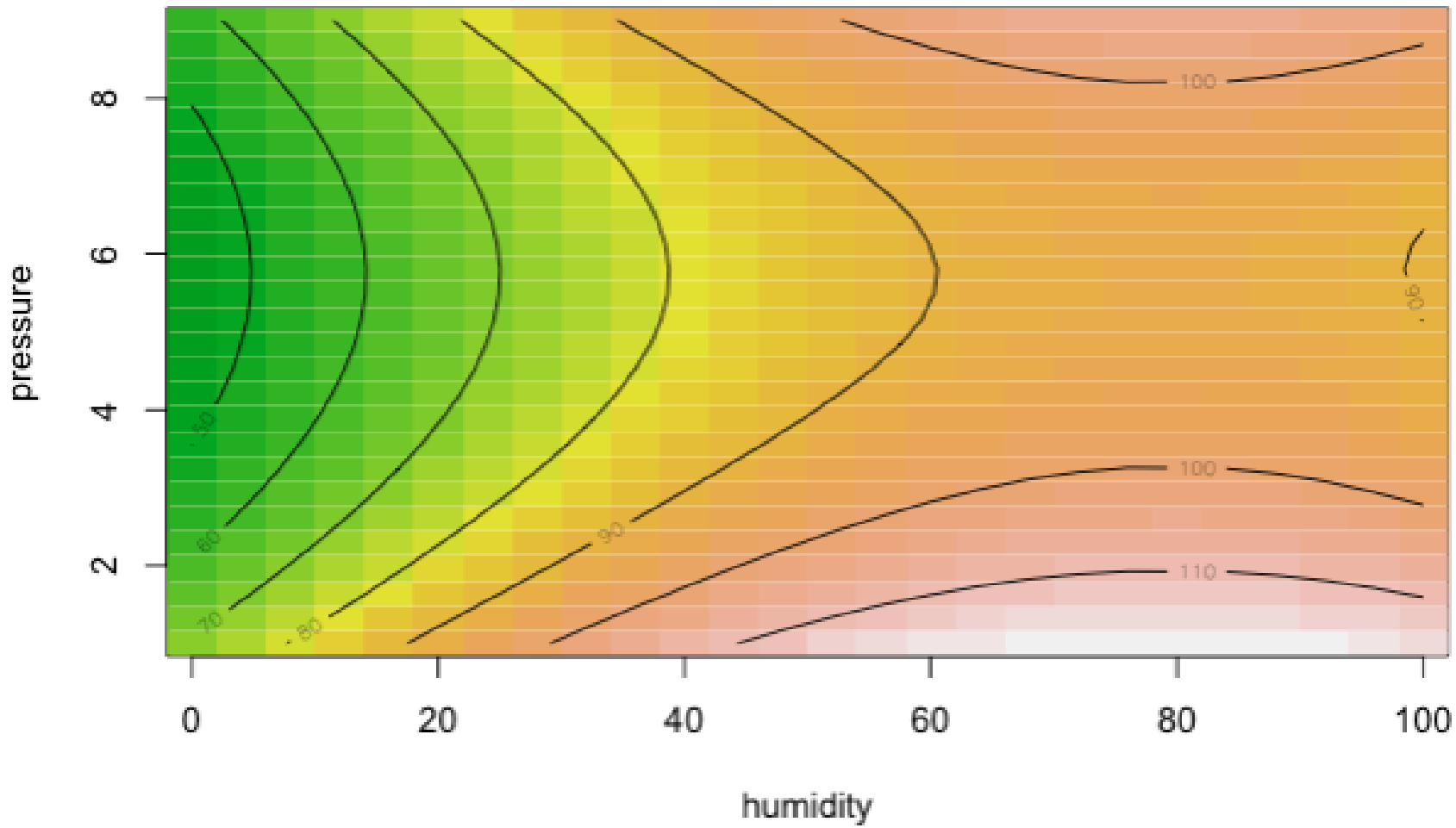



Figure 6: Contour Plot with 20 lines

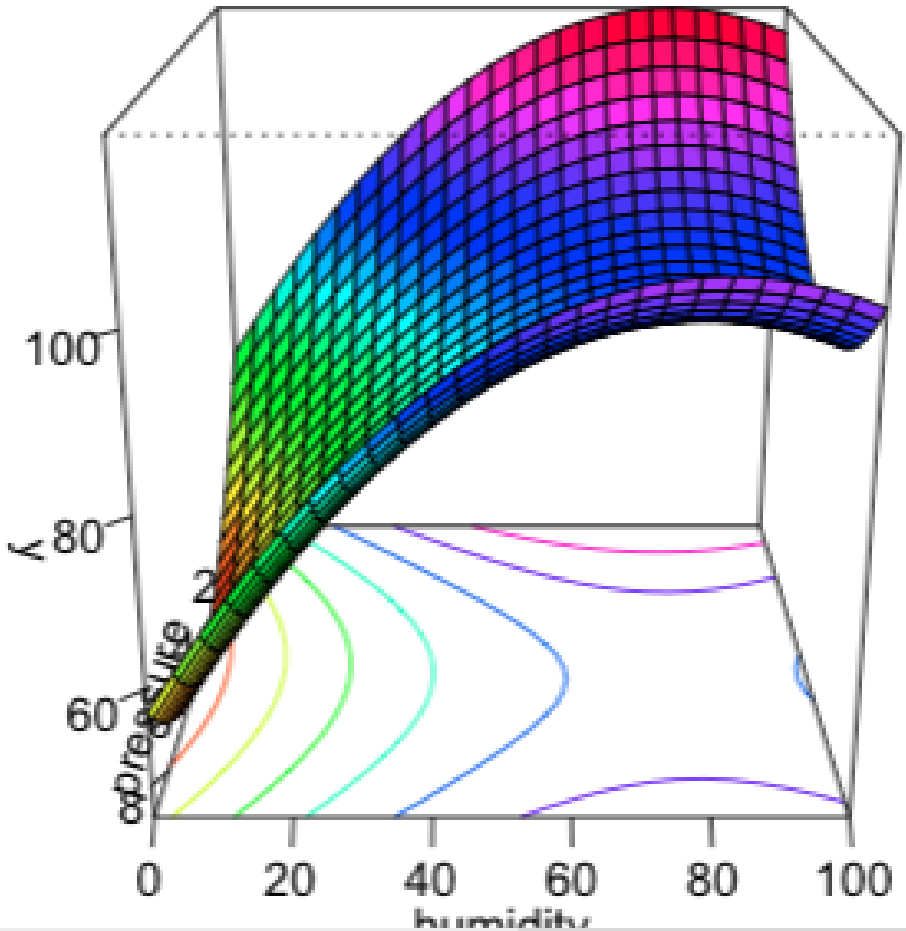
# Contour Plot as Image

```r
contour(bbd11.model2,~x2+x3,image=TRUE)
```



# 3D Plot with Contours

```r
persp(bbd11.model2,x2~x3,zlab="y",theta=90, col=rainbow(50),contours="colors")
```



# R Demonstration