Starting point:

lmer(Yield~1+PrecZscore+PrecVar+TempZscore+TempVar+ (PrecZscore+TempZscore|ID))

* scaling or z-scores needed
* estimates of similar specifications seem to be similar -> **robust,** **good**

lmer(Yield~PrecZscore +TempZscore + (PrecZscore+TempZscore|ID),data=CrMaize8)

Version with the weights (area):

lmer(Yield~PrecZscore+PrecZonVar+(PrecZscore+TempZscore|ID))

# The best models:

1. **No weights**

lme(Yield~1+PrecZscore +TempZscore,random= ~PrecZscore+TempZscore|ID , correlation=corAR1(0,form= ~ as.numeric(Year)|ID))

The best specifications based on LR tests of serial correlation, and random effect:

1. AR(1) errors

**AIC:** 1130.211  **BIC:** 1180.522

|  |  |  |  |
| --- | --- | --- | --- |
|  | Value | Std. Error | p-Value |
| Intercept | 1.685 | 0.161 | 0.000 |
| Precipitation (Z – score) | 0.155 | 0.037 | 0.000 |
| Temperature (Z – score) | -0.137 | 0.049 | 0.005 |

1. MA(3) errors

**AIC:** 1122.896 **BIC:** 1182.354