

The model I think I want

$$\hat{y}_{fls,i} = \alpha_{fls.grand} + \alpha_{fls,sp[i]}$$

$$\alpha_{fls,sp} \sim N(0, \sigma_{\alpha,fls})$$

$$y_{fls} \sim N(\hat{y}_{fls}, \sigma_{fls,y}^2)$$

$$\hat{y}_{trait,i} = \alpha_{trait.grand} + \alpha_{trait,sp[i]}$$

$$\alpha_{trait,sp} \sim N(0, \sigma_{\alpha,trait})$$

$$y_{trait} \sim N(\hat{y}_{trait}, \sigma_{trait,y}^2)$$

And put them together:

$$N(\hat{y}_{trait}, \sigma_{trait,y}^2) \sim N(\hat{y}_{fls}, \sigma_{fls,y}^2)$$

or maybe simply...

$$y_{trait} \sim y_{fls}$$