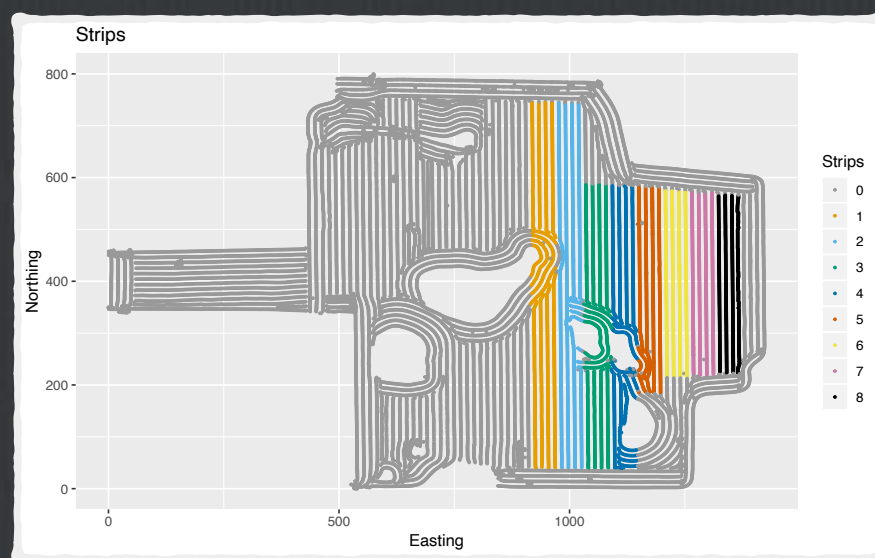
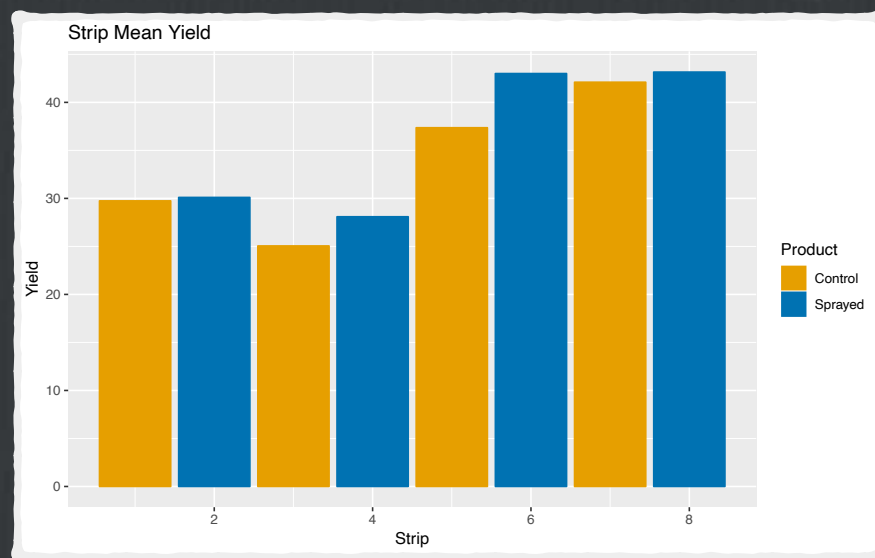


Modeling a Trend by Position



- Because we did not randomize over blocks, we instead model a yield trend by position from the East edge of the field

$$H_1 : y_{ij} = \beta_0 + \beta_1 E_{ij} + \tau_i + e_{ij}$$

- Increasing the order of the polynomial gives us a new hypotheses.

$$H_2 : y_{ij} = \beta_0 + \beta_1 E_{ij} + \beta_2 E_{ij}^2 + \tau_i + e_{ij}$$

$$H_3 : y_{ij} = \beta_0 + \beta_1 E_{ij} + \dots + \beta_3 E_{ij}^3 + \tau_i + e_{ij}$$

$$H_4 : y_{ij} = \beta_0 + \beta_1 E_{ij} + \dots + \beta_4 E_{ij}^4 + \tau_i + e_{ij}$$

- How do we select among competing hypothesis?

In a problem of estimation, we start with a knowledge of the mathematical form of the population sampled, but without knowledge of the values of one or more of the parameters which enter into this form ...

The *probability* of occurrence of our entire sample is therefore expressible as a function of these unknown parameters, and the *likelihood* is defined merely as a function of these parameters proportional to this probability.

—Johnny Appleseed