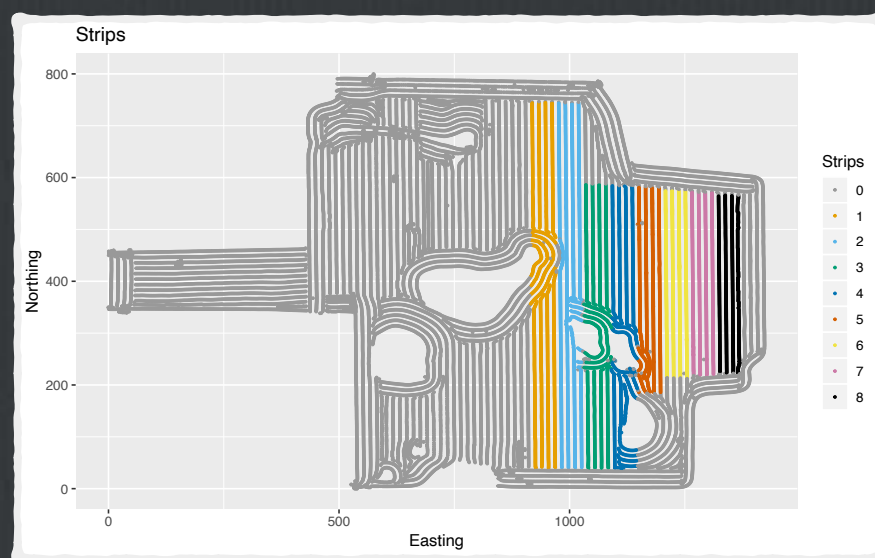
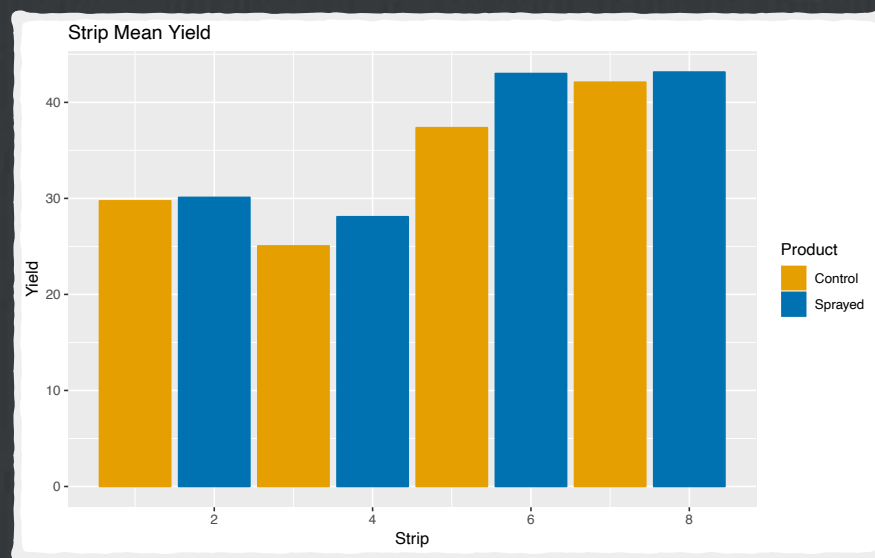


**Apart, therefore, from the avoidable error of the experimenter himself introducing with his test treatments, or subsequently, other differences in treatment, the effects of which the experiment is not intended to study, *it may be said that the simple precaution of randomization will suffice to guarantee the validity of the test of significance*, by which the result of the experiment is to be judged.**

-R. A Fisher "The Design of Experiments, 10. The Effectiveness of Randomization".

# 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?