Manuscript1

Josephine Johnson

2022-12-20

## Effective Population Size

Using the following equation, effective population size (Ne) was calculated based on linkage disequilibrium (LD) data between the markers for both NDSU and USDA:

Where, = effective population size

= genetic distance in morgan’s

= expected

In order to find the ‘c’ (genetic distance in Morgan’s), the physical distance between the markers was divided by 200kb.

### Prediction of (expected ):

Expected was predicted using equation (2). Now, let’s fit the Sved (1971) formula - equation (1),

Firstly, we split the values into predictor (X) and response (Y). Here, we ignored the intercept and calculated the coefficient .

Using the previous equation (3), we calculated the coefficient.