

Keywords:

Categorical, Binary, Nominal, Ordinal, Quantitative, Discrete, Continuous, Experimental Unit, Sampling Unit, Precision, Accuracy

References:

Chapter 1, Bernardo

Plant Breeding Basics: "Review Trait Measures"

Applied Learning Activity:

Consider a soybean breeding program for Maturity Zone 2 in Iowa. The primary objective of this breeding program is genetic improvement of grain yield within the maturity zone. Next, consider the first stage of field trials. For this stage the breeder is primarily interested in evaluation of two traits, yield and maturity, both among and within samples of segregating populations, although s/he will also evaluate height, and opportunistic traits such as lodging and Soybean Cyst Nematode (SCN) resistance.

1. What terms are used to characterize measurements for yield, maturity, height, lodging and SCN resistance?
2. Describe how each of these five traits will be evaluated.
3. What are the sampling units? What are the experimental units?
4. Describe the precision and accuracy of the measurements for each trait.
5. Describe an algorithm that will convert maturity dates into a discrete quantitative measure (see below).

Ames Emergence notes. 15 May 2012.

1, 2, 3, 4, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 24, 25, 16, 27, 28, 30, 31

Castana Emergence notes. 16 May 2012

2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 29, 30, 33, 35, 36, 37

Ames Emergence notes. 17 May 2012

5, 6, 7, 11, 14, 22, 23, 29, 32, 37, 38, 39, 40

Castana Emergence notes 18 May 2012

1, 11, 12, 13, 14, 19, 27, 31, 32, 38, 39, 40

Ames Emergence notes. 19 May 2012.

32, 33, 34, 35, 36

Castana Emergence notes. 20 May 2012.

28, 34

Maturity Notes

<u>Ames</u>	<u>Castana</u>
8- 17 : 25	8-19 : 32
8- 23 : 9	8-20 : 25
8- 25 : 29	8-22 : 20
8- 26 : 17	8-26: 18
8- 27 : 2	8-27 : 35,36
8-28 : 13	8-28 : 23
8-29 : 4, 10	8-30 : 21, 38
8-30 : 33	8-31 : 11

8-31 : 6, 38	9-1 : 8, 14, 22, 34
9-1 : 22	9-2 : 5, 30
9-2 : 34, 37	9-3 : 1, 2, 16
9-3 : 5,18, 21, 40	9-4 : 10, 13, 17
9-4 : 11	9-5 : 39
9-7 : 20	9-7 : 24
9-8 : 1, 27, 31	9-8 : 7, 31
9-9 : 14	9-9 : 26, 40
9-10 : 24	9-10 : 29
9-11 : 3, 19, 32, 35	9-11 : 9
9-13 : 7	9-13 : 4, 33, 37
9-15 : 16, 26	9-14 : 27
9-16 : 28	9-16 : 3
9-17 : 8	9-18 : 6
9-18 : 12,36	9-20 : 15
9-20 : 39	9-23 : 12
9-21 : 23	9-25 : 28
9-22 : 30	10-4 : 19
9-23 : 15	

Harvest Date

Ames 10-1-13

Castana 10-5-13