

North Dakota State University  
PLSC 731: Plant Molecular Genetics

On-Line Learning Study Guide  
*Mapping Quantitative Trait Loci*

The following is your on-line study guide for the topic of "*Mapping Quantitative Trait Loci*". You have access to the following resources at this WWW site:

- **Highlighted .pdf Notes** (used in the on-line lecture)
- **Two papers that describe QTL analysis in plants**
- **Classic paper relevant to the topic** (not required reading)

**Learning Objectives**

1. Develop a define of a Quantitative Trait Locus
2. Understand the relevance of the research of Sax (1923) for QTL mapping
3. Appreciate the early application of isozymes to select for yield improvement
4. Understanding the three basic types of QTL analyses
5. Define  $R^2$  in relation to the effect of a QTL
6. Understand the effect linkage distance has upon estimated the  $R^2$  value of a QTL
7. Describe the role of the permutation test in selecting the significant QTL

**Be prepared to be assessed with respect to your understanding of the learning objectives by class discussion.**