

## **PLSC 731 Paper Review**

### **Clarke et al – QTL analysis of flowering time in *Arabidopsis thaliana***

1. Provide a brief history of the use of *Arabidopsis* to study flowering time in plants.
2. What evidence suggests that chromosome 4 contains flowering time genes?
3. What are the results of genetic crosses and mutation analysis for flowering time in *Arabidopsis*?
4. Describe the value of QTL analysis.
5. Describe the experimental population.
6. What are the details of the mapping population and the mapping tools used to develop the RFLP map.
7. Are the growth conditions appropriate? Can you trust the phenotypic data?
8. What are the details of the linkage mapping? QTL analysis?
9. Describe the molecular map.
10. What data was used to map flowering time loci? Is this appropriate?
11. Describe the distribution of QTL discovered.
12. Were all QTL discovered in each of the environments?
13. What allelic effects were observed?
14. What are the effects of each QTL relative to the different environments tested?
15. Why was the interaction between RLN3 and RLN4 tested? What were the results?
16. How do these results compare with previous genetic analyses of flowering time?
17. What genotype would flower earliest?
18. Are any of the QTL previously described flowering time loci? What evidence supports the conclusion?