

Agronomy 405/505
Spring 2011
Problem Set 13
Due Tuesday, April 26, 2011.

Assigned April 21, 2011.

1. 14.1 in Campbell and Norman.
2. 14.2 in Campbell and Norman.
3. 14.4 in Campbell and Norman.
4. Read about the DynaMax, Inc. SmartCrop™ monitoring system on the course webpage or at <http://dynamax.com/SmartCrop.htm>.
 - (a) The total water vapor conductance g_v of a plant canopy is composed of two conductances in series. What are these two conductances and what do they represent?
 - (b) Which of these two conductances is likely the “controlling” conductance, i.e. the conductance that can become the smallest of the two?
 - (c) Examine the model of T_{canopy} in (14.8) and the model of λE_{canopy} in (14.12). What happens to the ratio $\frac{\gamma^*}{s+\gamma^*}$ when g_v has its smallest value?
 - (d) What happens to the ratio $\frac{\gamma^*}{s+\gamma^*}$ when g_v has its largest value?
 - (e) For what plant conditions will g_v have its smallest value?
 - (f) For what plant conditions will g_v have its largest value?
 - (g) What happens to T_{canopy} when g_v has its smallest value?
 - (h) Explain how you think the SmartCrop™ monitoring system works.