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Comparative Chlorophyll Losses in Susceptible Wheat Leaves Fed upon by Russian Wheat Aphids or Greenbugs (Homoptera: Aphididae)

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ABSTRACT

Studies were conducted using a chlorophyll meter (SPAD-502, Minolta Corporation, Ramsey, NJ) to estimate chlorophyll loss in wheat leaves caused by feeding damage from Russian wheat aphids, *Diuraphis noxia* (Mordvilko) and greenbugs, *Schizaphis graminum* (Rondani). A SPAD Index was calculated as the chlorophyll loss in SPAD units (SPAD meter reading for uninfested tissue – SPAD meter reading for infested tissue), dividing by the SPAD meter reading for uninfested tissue. Thus, the larger the value for the SPAD Index, the greater the proportional loss of chlorophyll for that treatment. Russian wheat aphids and greenbugs were allowed to feed on wheat leaves for periods of 1 to 10 days. For Russian wheat aphids, chlorophyll loss increased gradually as the duration of the feeding period increased (i.e., up to 10 days). However, for greenbugs, chlorophyll loss increased more quickly up to the 4th day of feeding, and then remained relatively constant. Overall chlorophyll loss was greater from greenbugs than from Russian wheat aphids, suggesting greater feeding damage by greenbugs. This SPAD meter technique could be used to screen wheat germplasm for resistance to greenbugs.