A PRIMARY objective in most winter wheat breeding programs is to develop varieties with superior lodging resistance. While it is generally known that the yield and quality of winter wheat grain is reduced by lodging, little information is available as to the actual amount. Results from artificial lodging studies using a simple wire technique have been reported for oats (4) and for barley (1, 2, and 5). No such studies have been found for this technique for wheat. However, a method of pinching or breaking individual culms was used in one wheat lodging study (3).

The objective of the experiment reported herein was to use the wire technique to assess the effect of lodging on yield and certain quality characteristics when applied at different stages during kernel development. Such information will furnish a more accurate evaluation of the lodging factor when it occurs under natural field conditions.

MATERIALS AND METHODS

The experiment was conducted for three years at Urbana, Illinois, on a highly productive Flanagan silt loam. Vermillion, a soft red winter wheat variety, was seeded at the rate of 6 pecks per acre in 8-inch rows. Each spring, after active growth had started, 2-inch mesh lightweight chicken wire was fastened about 18 inches above the ground. Plants were allowed to grow up through these wires. Beginning at heading, and approximately each week thereafter, the wire over certain plots was gently moved in a horizontal direction to simulate complete lodging and then refastened. Check plots were maintained in an upright position by raising the wire to a point approximately three-fourths of the height of the wheat plants.

Individual plots were 5 feet by 20 feet. Yields were obtained by hand harvesting 12 feet from the center rows. Three repli-