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Photosynthesis in Corn

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PHOTOSYNTHESIS IN CORN

W. E. LOOMIS and K. H. BURNETT

Studies on the photosynthetic efficiency of corn conducted in the Department of Botany at Ames have indicated that:

(1) The upper leaves of the corn plant are more efficient, area for area, than the lower leaves, under approximately the same light exposure.

(2) Any removal of leaves tends to reduce the yield of grain and total dry matter, but removal of leaves early in the season before leaf growth is completed or late in the season after the grain is partly formed, has less effect than removal during the early silk when the vegetative growth is complete and the production of grain not yet well started.

(3) The removal of the ear results in a stiff stalk with a well developed root system and a heavy anthocyanin production. The total weight of the earless stalk increases very little, while the weight of stalk and ear on the checks is doubling. Attempts to measure directly the rate of photosynthesis in normal stalks and stalks with the ears removed have given differences lower than are obtained on the basis of total dry matter produced per plant, but the data indicate that the rate of photosynthesis in corn is affected by grain production and therefore subject to indirect control by soil fertility and genetic factors.

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