paedic mind. Most of all will they remember his unfailing kindness and sympathy. What if often he mistook geese for swans? "He always treated me as a younger equal", said an old student of many years ago, "and made me feel that I *counted*. Much of what I have done over the years has stemmed from the inspiration and encouragement of those early years when as a raw country boy I enrolled in his classes."

S. W. GEISER

Locations of Maximum Numbers of the Wheat Curl Mite, Aceria tulipae (K.) (Eriophyidae) on the Winter Wheat Plant during Spring Growth[1]

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Coincident with investigations on chemical control of wheat curl mite, *Aceria tulipae* (K.)[2], a vector of wheat-streak mosaic, it was necessary that the area of heaviest and most uniform populations on the wheat plant be determined for mite counts. Both greenhouse screening trials and field application tests of miticides are being conducted currently. Since little is known concerning this mite, certain biological observations are recorded below for the information of other workers.

As the season advanced it was found that a progressively upward movement of mite colony establishment took place on the aerial portion of winter wheat plants. Counts on basal leaves, begun April 28, tended to lose their importance as evidences of total mite populations as the plants grew. The plants started jointing in early April. Prior to head emergence, mite counts were made on the upper side of the second visible leaf where it joins the leaf sheath. These counts were made on a measured area of the leaf blade close to the leaf sheath, and included the pocket formed by the ligule (Figure 1). The mites seemed to congregate most at this site at least during the daylight hours, and the average count was twenty mites per site in unsprayed plots. Eggs were also more abundant in this sheltered area. Mites were also abundant on the curled, top leaf, but counts were not

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[2]Identifications made partly by R. E. Beer, University of Kan., and partly by H. H. Keifer, Sacramento, Cal., are gratefully acknowledged.

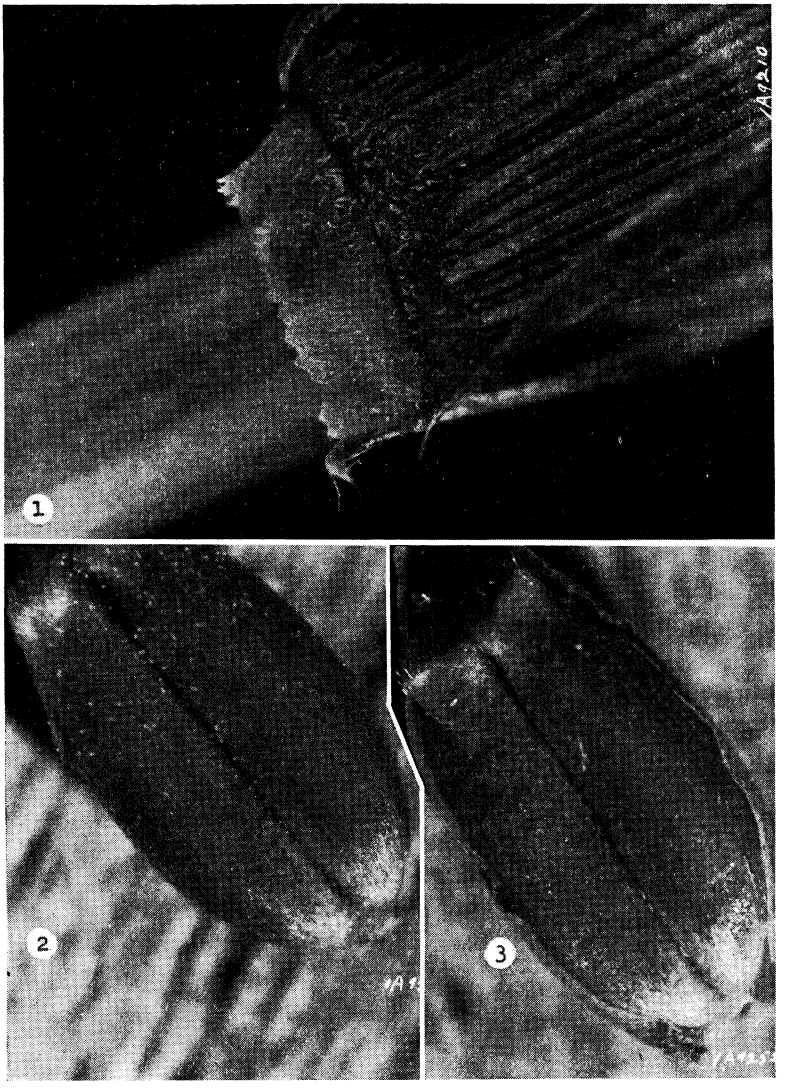

FIG. 1. Mites on ligule and leaf base. Leaf is pulled back to expose ligule and mites. Photograph taken April 29, 1954. Magnification approx. × 13.3

FIG. 2. Wheat kernel at milk stage. Eggs in basal half of crease; some pollen grains present at opposite end near brush. Photograph taken June 7, 1954. (× 13.3)

FIG. 3. Wheat kernel at milk stage. Five mites in crease. Photograph taken June 7, 1954. (× 13.3)

made in this area because of the difficulty of uncurling this leaf. As the wheat culms elongated in early May, each newly formed leaf became the most heavily infested with mites at the ligule-leaf base site. The flag leaf or top leaf was the last leaf so infested.

As the heads emerged during the latter part of May it became increasingly difficult to find any appreciable number of mites on the leaf blades of the wheat plants; but the heads carried heavy mite populations within the glumes, particularly within the lemma, adjacent to and on the kernel. Counts in the unsprayed plots averaged eight mites for the visible surface of the kernel (crease side) shown in Figure 2. Eggs apparently were being deposited freely on this surface, on the wheat kernel and in the crease of the kernel. Reproduction of the mites continued in this sheltered area through June up to and including the dough stage of the ripening grains. In a few instances large numbers of mites were observed on the basal leaves of certain plants during this period.

Studies are now under way to determine what role, if any, these mites found within the crease of the kernel may have upon carry-over of the mite to fall-planted wheat, either by way of volunteer wheat or possibly by direct carry-over to fall-planted wheat. Observations recently made by Reginald H. Painter and William W. Gibson of this Department support the possibility that volunteer wheat may become infested by mites directly from the grain. A field infested with eryophyid mites on the kernels, located two miles south of Riley, Kansas, was severely damaged by hail June 11. The young volunteer wheat which emerged following this hail was heavily infested with mites by June 22.

Winter wheat was planted March 4, in an attempt to establish a source of mite-infested wheat for miticidal testing during the period between normal wheat harvest and the time when fall-planted wheat is again available for tests. Artificial infestations were readily attained by transplanting greenhouse-infested plants in the rows at three-foot intervals. The plants showed heavy infestations June 7. On June 18, however, (following several days with air temperatures exceeding 90°F.) only one plant out of five yielded mites, and no more than two or three mites were found on any plant. However, mites were present in abundance on wheat kernels, as described above, during this same period.