tip of the keel, in contrast to that extending over the tip of the keel. Their pods are flat, wide in comparison to length, and not coiled, in contrast to those narrow and often coiled. Their seeds are oriented in the pod with the long axis of the cotyledons perpendicular to the placental suture, in contrast to those parallel (figure 2). The radicles of the seed are fully as long as the cotyledons in contrast to short radicles of other species (figure 3). Their first seedling leaf is attached to the epicotyl some distance above the junction of the cotyledons, in contrast to being attached at the junction (figure 4).

In mating M. ruthenica with M. platycarpa, a normal sized pod was formed for nearly every flower pollinated when M. platycarpa was the pistillate parent. The seeds aborted in various stages of development, except five which resulted in hybrid plants. The reciprocal mating resulted in no perceptible ovary development.

diplotene, diakinesis, and metaphase I. In several hybrids differed in meiotic behavior, it was assumed that the basis was intraspecific.

Medicago platycarpa and M. ruthenica, although containing potentially useful germplasm, probably are not closely enough to the cultivated Medicago to allow transfer of genes between them is possible.

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**INTERSPECIFIC HYBRIDIZATION IN MEDICAGO**

A NUMBER of crosses were made at the University of Wisconsin, in 1948, 1949, and 1950, between cultivated alfalfa (Medicago sativa) and other Medicago species, including species in other sections of the genus. Fryer1 were unsuccessful in similar crosses. It was thought, however, that by mating plants of equal chromosome numbers and by using bud pollinations the chance of success would be increased. The species of Medicago used, with their normal chromosome number and source, are shown in table 1.

The chromosome numbers of M. orbicularis, M. falcata, and M. lupulina were doubled by colchicine treatment, for mating with species normally having 32 chromosomes. Some bud pollinations were made in each mating, with no greater success, however, than with mating at anthesis.

Emasculating the autogamous bur clovers required sucrose plus washing the stigma with a fine jet of water.

About 2000 crosses were made, approximately half of which involved cultivated alfalfa with M. lupulina and M. scutellarata. A summary of the results of the hybridization attempts is shown in table 2.

The pods in this case reached nearly mature size before abscission. The embryos of the seeds in these pods were healthy, and when pollinated with M. ruthenica were fertile. The hybrids were morphologically intermediate between the parents, and were cross compatible with each other and with plants of M. platycarpa. Like M. platycarpa the hybrids did not seed when pollinated with M. ruthenica, but their pollen was ineffective on M. ruthenica.


2 Dann, Bernhard. Z. Zuchtg. A. 15: (366)-418. 1930.

Published December, 1956