Development of Early Maturing Wilt-Resistant Strains of Korean Lespedeza

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THE introduction into the United States, in 1919, of the early maturing annual lespedeza, *Lespedeza stipulacea*, later designated and distributed as Korean lespedeza, is recognized as of great agricultural significance.

At a much earlier date, probably prior to 1846, common lespedeza, *Lespedeza striata*, had been introduced into the cotton belt from Japan and had rapidly gained popularity as an acid-tolerant legume adapted to relatively poor land. Its greatest value, perhaps, has been when used for pasture in mixture with grasses, the annual legume carrying over from year to year by volunteering from shattered seed. The length of season required for seed maturity, however, is such that common lespedeza is not well adapted north of Kentucky, southern Illinois, and southern Missouri.

Korean lespedeza was found to be sufficiently early to reseed from year to year as far north as the Iowa-Missouri line, with limited value in extreme southern Iowa. The fact that over 10 million acres of lespedeza are reported from Missouri attests to the outstanding value of this legume.

The need in Iowa for a lespedeza sufficiently early to carry over dependably from year to year from shattered seed has long been recognized, especially for the southern half of the state.

An early maturing strain selected by the Division of Forage Crops and Diseases of the U. S. Dept. of Agriculture, designated as F.C. No. 19604 and later called Early Korean lespedeza, was released in 1936 after having been tested through a period of years by the Iowa, Illinois, and Missouri agricultural experiment stations. In 1937, just one year after its release, plantings of Early Korean 19604 at Arlington, Va., as well as in scattered Illinois, Missouri, and southern Iowa plantings showed evidence of serious disease damage. This disease was later identified as a bacterial wilt caused by the organism *Phytophthora lespedezae*, which apparently is both seed and soil borne. Early symptoms of infection are dark water-soaked spots, extending parallel to the leaflet veins. In hot, bright weather this stage is of short duration, the infected leaves soon becoming brown, dried, and curled. Because of the marked susceptibility of the Early Korean 19604 strain to this disease, and the severe damage it caused, a search was begun for resistant material.

H. D. Hughes observed in the summer of 1938 occasional small clusters or families of lespedeza plants growing along the highways in two separate locations in the vicinity of Cedar Rapids (east central