

P. R. BEUSELINCK
RESEARCH GENETICIST, USDA-ARS

AGRONOMY DEPARTMENT
UNIVERSITY OF MISSOURI

PhD 1980, OREGON STATE UNIVERSITY

Broadleaved birdsfoot trefoil, *L. corniculatus* L., is the most widely used of the *Lotus spp.* in North America. It is noted for its bloat hazard free, high quality herbage and tolerance of low fertility conditions. Birdsfoot trefoil is also noted for its poor seedling vigor and poor persistence.

Dr. Beuselinck's research emphasizes the solution of problems having national importance to U.S. agriculture. His studies have documented genetic variation for seed size associated vigor within and among species of *Lotus*, within populations, and the effect of environment and genetic-environmental interactions for these characters.

Current research efforts also include: the examination of ovule and seed abortion; the dynamics of cell size, number, and volume as related to seed size; examination of reproductive tissues, ovaries and pollen in studies of sporogenic and gametogenic differences in *Lotus spp.* and their interspecific hybrids.

Much of Dr. Beuselinck's research emphasis has been placed on *L. corniculatus* but others like *L. tenuis*, narrowleaved birdsfoot trefoil, and *L. pedunculatus*, bigfoot trefoil, *L. conimbricensis*, and *L. edulis* receive increased attention due because they offer interspecific and taxonomic opportunities to the improvement of *corniculatus*. Many opportunities exist for the examination and development of annual forms of *Lotus* to fulfill specific cropping requirements.

Important problems face *Lotus* improvement through interspecific or intraspecific breeding and selection especially cytogenetics and taxonomy. Most taxonomic differences are based on somatic chromosome number, seed morphology, and leaf morphology; the genotype x environment effect on plant phenotype is very high. There are many research opportunities to advance the knowledge of this genus.

SELECTED PUBLICATIONS

Beuselinck, P. R. and R. L. McGraw. 1983. Seedling vigor of three *Lotus* species. *Crop Sci.* 23:390-391.

Beuselinck, P. R., E. J. Peters, and R. L. McGraw. 1983. Cultivar and management effects on persistence of birdsfoot trefoil. *Agron. J.* 76:490-492.

Beuselinck, P. R., M. Ben Younes, and R. L. McGraw. 1986. Taxonomic investigations of an accession of *Lotus sp.* *Crop Sci.* 26:661-664.

Beuselinck, P. R., and R. L. McGraw. 1987. Indeterminate flowering and reproductive success in birdsfoot trefoil. *Crop Sci.* (in Review).