

## Thomas Gulya

Research Plant Pathologist

Sunflower Research Unit, Red River Valley Agricultural Research Center

USDA - Agricultural Research Service

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### Education

1966-1970 University of Delaware; major, Agriculture. B.S. 1970.

1973-1975 Iowa State University; major, Plant Pathology. M.S. 1975.

1975-1978 Iowa State University; major, Plant Pathology. Ph.D. 1978.

### Work Experience

1974-1975 Research Assistant - Soybean Diseases, Iowa State University, Dept. of Plant Pathology

1975-1978 Research Assistant - Corn Disease, Iowa State University, Dept. of Plant Pathology

1978-present Research Plant Pathologist, USDA, ARS, Fargo, ND

### Accomplishments

Dr. Gulya, together with Dr. Jerry Miller, retired project geneticist, have made over 100 germplasm releases (many specifically for disease resistance). Recent accomplishments have been the combination of multiple disease resistance genes, rather than single genes, along with high oleic acid and herbicide resistance into elite lines. Dr. Gulya has developed many procedures for downy mildew that have been adopted around the world, including race differentials, germplasm and fungicide testing methods, standardized race nomenclature and spore storage techniques. He alerted the sunflower industry to fungicide-resistant downy mildew, identified alternative fungicides, and provided data for full registration. The USDA-Plant Introduction sunflower seed collection, recognized as one of the most complete collections in the world, relies upon Dr. Gulya for 90% of its disease resistance data. Dr. Gulya has participated in six exploration trips throughout the United States with the project botanist (Gerald Seiler) to collect seeds of wild *Helianthus* species, which are evaluated for resistance to all major sunflower diseases. As one of the ongoing objectives of the Sunflower Unit is to find and transfer useful traits from wild sunflowers, these additional collections have greatly increased the genetic diversity available to sunflower scientists. Sclerotinia stalk rot and head rot are currently the most serious threats to the U.S. industry. Dr. Gulya has obtained funds for establishing two mist-irrigation Sclerotinia nurseries, allowing efficient resistance evaluation. This work led to the release of five oilseed restorer lines, three maintainer oilseed lines, and 8 confection genetic stocks, all of which combine head rot and stalk rot resistance. The confection germplasm releases are the first material incorporating head rot resistance into long-seeded confection types, which is ideotype desired by private seed companies. He is the lead PI on a project in its sixth year of funding from the USDA Sclerotinia Initiative, and is co-PI on three other projects. Dr. Gulya developed a mechanized stalk rot inoculation technique, and has set up a series of test plots with university and industry cooperators.