

IN DEDICATION TO DR. TOM L. HARVEY

Tom Larkin Harvey was born in Nebraska in 1926 and served as a rifleman in the 38th Infantry Division during the Philippine Islands campaign in the Pacific theatre of WWII. After the war, Tom joined the Naval Reserve and rose to the rank of Commander in the Medical Service Corps where he remained active for many years. He obtained his Bachelor and Master of Science degrees from Kansas State University in 1950 and 1951, respectively. Following graduation, he spent several years as an Instructor of Entomology at New Mexico State University before returning to serve at KSU in the same capacity. In 1957, he was hired as Assistant Professor of Entomology at KSU and was posted to the Fort Hays Experiment Station (now the Agricultural Research Center–Hays). A sabbatical leave afforded him the opportunity to complete his Ph.D dissertation at Oklahoma State University in 1963. His thesis documented the evolution of resistance to Bt, at the time a novel microbial insecticide, in the house fly, the first recorded case of resistance to Bt (previously, he had shown that feeding Bt spores to cattle could prevent development of house flies in manure). Tom was promoted to Associate Professor in 1964 and full Professor in 1970 and spent virtually his entire career at Kansas State, where he authored and co-authored some 120 publications and numerous crop variety registrations. In addition to membership in several scientific societies, he was a member of the Entomological Society of America for 57 years.



Tom was a true pioneer of entomology on the High Plains and his interests reflect how well attuned he was to the entomological needs of agriculture in the region; plant resistance to insects, veterinary entomology, insecticide application technologies, and resistance evolution. He believed deeply in public service, and his research was always designed to yield benefits for others. For example, he measured the weight loss in steers caused by horn fly feeding to demonstrate to farmers the importance of controlling them. He dyed white cows black on one side to show that biting flies were more attracted to dark animals. Watching the behavior of cattle, Tom soon realized that treatment of only a few animals could control flies in the whole herd, and that attaching ear tags to nursing calves protected also their mothers. Tom's 1970 invention of the ear tag is the kind of innovation that would have been patented and sold to a private company in today's research environment, but Tom made the technology freely available and never received a dime while chemical companies made millions from it. This was just one of many techniques that he developed for applying insecticides to cattle. Others included pickup-mounted sprayers, backrubbers, impregnated strips and wax bars, and the use of a chin ball attached to a bull to treat cows. Decades before paintball became a popular sport, Tom was shooting cows from a pickup with insecticide-loaded paintballs from an air pistol. This solved the problem of having to stress cattle with mid-summer round-up to replace ear-tags as their efficacy waned. The technique was very effective, but filling the paintballs with insecticide was time-consuming and he was never able to obtain commercial support for their production. When horn flies evolved resistance to pyrethroid ear tags in 1985, Tom was the first to report it and suggest management solutions.

As a former student of Reginald Painter, a founding father of plant resistance to insects, Tom was instrumental in the development of many insect-resistant varieties of field crops. He was the first to document insects impacting alfalfa seed production in Kansas and, when the spotted alfalfa aphid became invasive in the 1950s, Tom collaborated with Painter and others to produce cultivars resistant to both alfalfa and pea aphids. When plant breeders introduced wheat with pubescent leaves to improve resistance to cereal leaf beetle, Tom showed that these cultivars collected more wheat curl mites because the leaf hairs made it easier for airborne mites to gain purchase on the plants. Tom was instrumental in documenting the evolution of a long succession of greenbug 'biotypes' on wheat, recognized by their ability to overcome specific sources of resistance, and developed the aphid-rearing protocols and bioassays that we still use today. When greenbugs began attacking sorghum in 1968, Tom worked with sorghum breeders to develop the first greenbug resistant cultivar in 1975 and showed that increasing plant density could reduce seedling infestation. He also discovered sources of wheat resistance to Russian wheat aphid in the 1990s that enabled development of some of the earliest locally-adapted resistant cultivars. Tom demonstrated that the wheat curl mite was responsible for vectoring several virus diseases of wheat, and his final projects were focused on the development of mite-resistance wheat cultivars and understanding the nature of simultaneous transmission of different viruses by the mites.

When I succeeded Tom at ARCH in 2002, I spent several winter months poring over the library of resources he left me that charted the history of his career. In semi-retirement, he was always outgoing, helpful, and a valuable resource as I learned the ropes of crop protection on the High Plains. He was an exceptionally humble and humanitarian person, reminding me in many ways of my own father. In 2005, Tom received a plaque from the governor of Kansas to commemorate his 50 years of service to KSU and the state of Kansas. He retired fully three years later, spending winters with his wife Joan in their house in Sun City, Florida, and returning to Hays in the summer where he continued to volunteer his time at the research station, assisting with studies of virus transmission by mites. It was on such a summer afternoon that his car was struck broadside by a semi-trailer as he crossed an intersection in front of the research station – on his way to check on his mites. He is survived by his wife, two daughters, five sons, and numerous grandchildren.

Written by J.P. Michaud, Associate Professor of Entomology, Kansas State University, Agricultural Research Center–Hays.