

## In memory of Jerome Anthony Klun (1939–2026)

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On January 2, 2026 Jerome “Jerry” Anthony Klun passed away in Silver Spring, Maryland, USA. Born on May 4, 1939, in Ely, Minnesota, Jerry was the son of the late Anton D. Klun and Julia A. (Pishler) Klun, one of seven children (Fig. 1).

He was very proud of his family in Ely, their family-run business, and their Slovenian background, family ties that strongly fueled his desire to learn more about his European roots. This was probably what prompted Jerry and his wife to embark on a journey to Slovenia and then to Bologna, Italy, back in 1988.

After graduating from Ely Memorial High School in 1956, he went on to gain an Associate of Arts degree at Vermilion State Junior College in Ely (1958), a Bachelor of Science in Biology from the University of Minnesota-Duluth (1961), and finally a PhD in Entomology from Iowa State University. He then undertook 45 years of federal service at the laboratories of the U.S. Department of Agriculture, first in Ankeny, Iowa, and later at the Beltsville Agricultural Research Center in Maryland.

The skills acquired through his study and laboratory experiences in chemistry and biology, combined with his PhD in Entomology, allowed Jerry to gain a deeper understanding of insect communication, the resistance of plants to insect pests, and the chemical structures involved in insect semiochemicals, especially pheromones for moths, repellents for mosquitoes, ticks and sand flies. He isolated these scent molecules and modified them by introducing subtle structural differences for use in pioneering field trials of mating disruption (Fig. 2), thereby successfully controlling the population of pest moths without resorting to insecticides. He conducted in-depth studies that revealed how insects metabolize and react to these chemicals. He also developed new research methods and tools, such as – during his research on *Ostrinia nubilalis*, the European corn borer (ECB) moth sex pheromones in 1976 in Ankeny – the “cold table” that kept the insect specimens immobile and anesthetized.



**Figure 1.** Jerome Anthony Klun (1939–2026).

Between mid-September 1976 and for an entire scholarship year, I had the privilege of working with Jerry in Ankeny and at Iowa State University (ISU). His kindness and hospitality left a deep impression on both my wife and me.

Dedicating these few lines to his memory is a way to draw attention to his work as a researcher, and it is a true pleasure for me to write about him and introduce him to those who never had the chance to meet him.

During 1974 and 1975, Jerry and I engaged in a lengthy correspondence regarding the attractants of ECB, a subject



**Figure 2.** Jerry on the left and a colleague preparing for the application of ECB mating disruption trials in a corn field. Ankeny, Iowa.

of study for both of us: me in Italy and Jerry in Iowa. An intriguing discrepancy emerged from the field tests: in the Bologna area, I was capturing male ECBs using sticky traps baited with the (3:97) *Z:E-11-tda* lures, while in Iowa, the opposite isomer blend (97:3) *Z:E-11-tda* was used.

This strange situation was finally clarified thanks to a brilliant idea by Jerry and the opportunity provided by the International Working Group on *Ostrinia* (IWGO)- one of the pioneering, truly international, non-profit groups. Thanks to the dispatch of all the necessary material prepared by Jerry from the Ankeny laboratory, it was possible to conduct a survey across Europe (the native range of *O. nubilalis*) and in parts of the US, focusing on the various ECB populations and their response to sex pheromones. This laid the groundwork for further studies on ECB pheromones, leading to the conclusion that the insect that arrived in the United States in the 1920s had been transported from Italy via broomcorn in the vicinity of New York (ECB, *E* strain), while another accidental introduction likely originated from an ECB population of North-Central European origin (ECB, *Z* strain).

Everything thus became clear thanks to this study, conceived by Jerry, conducted in various locations across Europe and the United States, and published in 1975.

The following year, thanks to Jerry's generosity in promising me a reception in Ankeny and in hosting me and my wife – first at his home, then at the Union on ISU campus, and finally in a beautiful house owned by ISU in Ames. In short, it was all thanks to him that I was able to go to Iowa. Jerry picked up my wife and me from the Des Moines airport in his superb new Ford Thunderbird coupé, and we arrived at his home in Ames. A real dream!

The collaboration with Jerry was immediately very close, but also with other researchers in Ankeny, particularly with the then-lab leader Wilbur “Bud” Guthrie, the future leader Leslie “Les” Lewis, and Robert “Bob”

Lynch (Fig. 3). The entire group of researchers was very friendly and welcoming, as was the group of entomologists in Ames, the “Ladybird Coccinella Club,” in their reception of foreign researchers, PhD students, and fellows at ISU.

In the field of research on ECB and, later, also on corn insect pests, the Agricultural Research Service in Ankeny was undoubtedly a center of excellence.

Jerry, using analytical techniques that were not always state-of-the-art but applying them with great expertise – drawing on his background as a chemical expert combined with his PhD in Entomology – discovered the DIMBOA resistance factor in certain varieties of corn.

The ECB insect rearing on artificial diet in facilities at Ankeny was highly advanced and was developed specifically for research into classical biological control and the introduction of parasitoids from Europe, and subsequently into corn resistance. The evaluation of the resistance of corn hybrids to the ECB larvae was conducted in large experimental plots. On May 1 of each year, numerous plots of various corn hybrids were planted, and their resistance to the pest was subsequently tested through artificial infestations with ECB eggs.

Jerry was also conducting research on the pheromones of the ECB, as well as of the Asian corn borer. The insect rearing facilities had available strain *E* (directly selected from New York) and strain *Z* from Iowa.

In November 1976, a new gas chromatograph arrived at Jerry's lab, and it took him quite some time to set it up to work with trace amounts of pheromones. Once the most effective capillary column was finally fine-tuned, it became possible to identify the *Z* and *E* strains – as well as the hybrids – in every single ECB female. The satisfaction was immense, and Jerry's enthusiasm was evident when, several minutes after injecting the female's tips, solvent, and internal standard, I heard his voice exclaim:



**Figure 3.** From the right to the left: Jerry, Bob Lynch, Les Lewis and two other researchers. Ankeny, Iowa.

“Holy Moses! What two beautiful peaks have shown up on the chromatogram!”

Then came another word of encouragement to carry out further analyses, with the phrase he often repeated: “Put your shoulders into it!”

Jerry had no need for encouragement when it came to work. Not only in the lab or in the field, but even on weekends, he never had moments of boredom or idleness. He tended the garden, washed the car, worked in the garage, prepared barbecues and pizzas, and, of course, played with his three children, Curt, Eric, and Toinette.

After the period that Jerry spent and worked in Ankeny, he was given the opportunity to continue his research in Beltsville.

In late summer 1977, various pieces of equipment were transferred from the Ankeny laboratory to the new location, the Chemical Ecology Laboratory at the USDA, ARS Beltsville Agricultural Research Center (BARC) in Maryland.

Jerry was director of the BARC laboratory for many years and played a central role in the development of repellents, attractants, and other semiochemicals.

In summary, his work has influenced studies on corn resistance to the ECB moth, research on the sex pheromones of the ECB and other lepidoptera, the chemistry of repellents (including DEET analogues), the discovery of new bioactive natural compounds, the behavioral biology of blood-feeding insects, disease vector management, as well as the development of equipment for testing repellency.

Jerry’s groundbreaking work has been published in countless peer-reviewed articles (which I have attempted to list in this tribute) and mentioned in seven patents. In 2002, he was one of the first recipients of the Inspiring Scientists and Engineers Award, newly established by the Swenson College of Science and Engineering at the University of Minnesota-Duluth. This award is given to

alumni who have made outstanding contributions in the fields of science, engineering, and materials.

It is impossible for me to forget how much Jerry ‘gave me’ in terms of my work, and the great friendship and kindness he continued to show me over the years. He reviewed and suggested changes and improvements to several of my works, and he also served on the editorial board of this journal for many years.

The list I have attempted to provide here is probably not exhaustive and can also be found on the ResearchGate platform (accessed in April 2026).

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