

# Vision for Genetics

Angus breeders honor the man who changed beef breeding and genetics by inducting him into the Saddle & Sirloin Club.

by Barb Baylor Anderson

**H**indsight may be 20/20. But in the case of Richard Willham, foresight was what created the clear vision for his revolutionary work in beef breeding and genetics. The C.F. Curtiss Distinguished Professor Emeritus from Iowa State University (ISU) will receive the 2004 Saddle & Sirloin Portrait Award this fall for his lifetime achievement.

“From breeding value ratios (BVRs) to expected progeny differences (EPDs), Richard has been the leading force educating the beef industry through the Beef Improvement Federation (BIF) and breed associations. Richard worked tirelessly to get these technologies adopted, implemented and understood,” says Merlyn Nielsen, professor of animal science at the University of Nebraska-Lincoln (UNL), who was advised by Willham for his advanced degrees in animal breeding at ISU.

Willham graduated with his bachelor's degree from Oklahoma A&M College [later named Oklahoma State University (OSU)] in 1954 and his master's in animal breeding from ISU in 1955. After military service, he returned to ISU and became part of the team that initiated an Atomic Energy Commission irradiation project with swine. He completed his doctorate at ISU in 1960.

Willham returned to OSU in 1963 as a faculty member and began beef selection work with Angus and Hereford cattle. He also served as chairman of the graduate faculty in genetics. In 1966 he joined the ISU faculty to further breeding research. He conducted a classic beef-dairy crossbreeding study and worked on the genetic aspects of racing time in both the American Quarter Horse Association



► Richard Willham has been a leading force in the development of EPDs and other genetic prediction methods. His leadership and research led to the development of the National Sire Evaluation and subsequent NCE.

(AQHA) and the Japan Racing Association (JRA).

“Willham devoted unmeasured amounts of time to research and development in genetic prediction methods and application in the beef industry during the 1960s, 1970s and 1980s,” reads an article in the 2004 BIF proceedings honoring Willham. “Willham got breeders thinking about prediction of breeding value — what the breeder actually sells to the commercial producer — instead of basing selection solely on phenotype.”

“Perhaps his most notable research led to his leadership in developing and utilizing the National Sire Evaluation and subsequent National Cattle Evaluation (NCE),” Nielsen adds. “As a result of those efforts, we have objective genetic evaluations that are heavily used in making selection decisions today. EPDs are commonly used and relied on by cattlemen. Whether in the pickup, in the pasture, in the office, in the classroom or in the press, everyone uses and expects EPD information. Having this information has made the beef industry much better.”

## Guiding force

Willham went on to author the BIF

Guidelines sections on genetic prediction of EPDs, and he planned genetic prediction workshops.

“Willham held the guiding light that gave directly needed direction to the young and then maturing genetic prediction movement,” the BIF proceedings article states. “Even Willham probably did not envision that when he developed the classic 1963 paper on direct and maternal genetic effects that this concept would provide needed theory for prediction of direct and maternal EPDs, which are so commonplace today.”

Willham's “Computer Cow Game” has also proven its longevity. In the mid-1960s, the concept became a valuable tool for teaching principles of selection. Breeders and commercial producers played the game, coming away with clearer understanding of genetic principles and selection practices. Thousands of undergraduate students in animal breeding courses have used the simulation exercise for the same reasons, and the program remains in use today.

“Willham was the idea person who provided stimulation through ideas and solutions to technical problems for today and

CONTINUED ON PAGE 200

## Vision for Genetics CONTINUED FROM PAGE 199

identified problems that needed solutions for the future,” the BIF proceedings state, noting the variety of visuals he used to get genetic concepts across to a variety of audiences. “Those who witnessed his slide presentations at BIF or other meetings in the early 1970s can attest to the originality employed, the variety of colors, the unique drawings with the tiny RLW in the corner, penned by Willham’s hand. His creativity never ceased to amaze those closely associated with him.”

During the last 30 years, Willham broadened his scholarly endeavors to the study of the heritage of the livestock industry. He created an undergraduate course titled “Our Livestock Heritage” that has given students a chance to grasp how livestock have met social and agricultural needs throughout history. “Willham has a rare gift for bringing together both the obvious and the remote artistic creations that have had significant impacts throughout history,” the BIF paper says. Willham is also trying to develop a new logo depicting man and livestock for the American Society of Animal Science (ASAS).

### Documenting history

He wrote a history for BIF, *Ideas into Action*, and one for ISU, *The Heritage of Leadership*.

“The work I have done with genetics is of industry interest, but the livestock history is

where I think I have had an impact. When I was 14, my dad took me to look at the Saddle & Sirloin portraits in Chicago. I never forgot that experience,” Willham says. “No one else has researched the history, and that is what tells the story.”

Willham has written four books and other papers on livestock history, and he was guest curator of an art exhibition titled “Art About Livestock” in 1990 at the Brunner Art Museum on the ISU campus. His book, *The Legacy of the Stockman*, describes how humans relate to livestock. In addition, he and his colleagues have published 107 journal papers and approximately 300 popular articles. Willham served as an advisor for 32 graduate students who have gone on to hold positions in academia and industry. Under his guidance, 47 graduate theses or dissertations were completed.

### Angus influence

Willham was considered the genetics “resource person” for the American Angus Association from the late 1960s through the 1980s. He was assisted by the Association’s computer specialist, Iris Paukau.

“One of the turning points came in 1972 at perhaps the most important Board meeting ever. The leaders at that time went out on a limb and did so without fear,” Willham recalls. “The Board voted in favor of open AI (artificial insemination) and to start a National Sire Evaluation program. I was very tickled. The whole Association came

together to come up with 10 reference sires and to begin to deliver semen. That was the beginning.”

Henry Gardiner, Ashland, Kan., recalls working with Willham during Gardiner’s stint (1977-1982) on the Association Board of Directors. “During that six years, I worked with Dr. Willham on the Breed Improvement Committee, where he was our technical advisor. The first American Angus *Sire Evaluation Report* was published in 1974, and the first field data report in 1980. These reports and the many that have followed have allowed beef breeders to greatly improve their genetics. Dr. Willham’s brilliant expertise in figuring EBVs (estimated breeding values) and EPDs has allowed the beef business to be the dynamic and profitable business that it is today,” Gardiner says.

“You don’t see any corporations with a beef breeding program. We gave producers the tools — like indexes and EPDs — to be the breeders, and they are still, today, the ones in charge of breeding,” Willham says. “Breeders have the tools they need to continue into the future.”

Even in retirement, Willham has remained active in the beef cattle industry. He was secretary of the BIF Genetic Prediction Committee, and has helped develop numerous other national breed sire evaluations. Willham and his wife, Esther, have two children and three grandchildren.

Willham, like previous honorees, was selected by his peers for induction into the Saddle & Sirloin Club portrait collection. The portrait presentation ceremony will be Nov. 14 in Louisville, Ky., during the North American International Livestock Exposition (NAILE).

The Saddle & Sirloin Club is the world’s largest gallery of portraits devoted to a single industry. The gallery was established in 1903 as a way to pay tribute to leaders of the livestock industry. Currently, the Saddle & Sirloin Club gallery contains 341 portraits, and is housed in the West Hall of the Kentucky Fair & Exposition Center (KFEC) in Louisville and in the hallways and dining room of the Executive West Hotel across the street from the center.



**Editor’s Note:** In order to commission the portrait artist and pay other expenses, \$25,000-\$30,000 must be raised. Angus breeders interested in making a contribution can make checks payable to: ISU Foundation — Willham Recognition. Mail checks to Maynard Hogberg, Department of Animal Science, 1221 Kildee Hall, Iowa State University, Ames, IA 50011.