

History of the Cranberry Experiment Station

The origin of the Cranberry Station may be traced back to the 1905 summer meeting of the Cape Cod Cranberry Growers Association. Professor H. T. Fernald of the Massachusetts Agricultural College in Amherst, now the University of Massachusetts at Amherst, was asked to speak to that group. He talked about certain insects, including cranberry fruitworm and black-headed fireworm, that were said to have very seriously reduced the crop every year in the early history of the Massachusetts cranberry industry. After his presentation, Dr. Fernald was urged by the growers to develop plans for further research on this subject. Henry J. Franklin was chosen for this assignment, which he described many years later as follows:



Cranberry Experiment Station from Spectacle Pond, circa 1930s.

“As a result of all this, arrangements were made with the Experiment Station [the Agricultural Experiment Station based in Amherst] to send a man into the cranberry section to make a survey of the cranberry insect problems during the growing season of 1906. As I was taking the graduate course for the Ph.D. degree at the College at the time, majoring with the Fernalds in entomology, and seemed to be in need of material for study in the field of economic entomology, I readily fell in with Dr. Fernald’s suggestion that I go to the Cape on this mission. So I spent the summer of 1906 on the Cape Cod bogs and the work there was continued through the summer of 1907. I found the work difficult at times, partly because I was working alone and partly because means of transportation were often inadequate, much walking over sandy roads being necessary.”



Dr. Henry Franklin, circa 1930s.

Spurred by interest in the cranberry insect survey work of Franklin, the Cape Cod Cranberry Growers Association petitioned the Legislature to fund a permanent facility for cranberry research. In 1909, in anticipation of a positive outcome, the Massachusetts Agricultural Experiment Station director appointed Henry Franklin, now *Dr. Franklin*, to be in charge of the cranberry program. In 1910, the legislature made \$12,600 available for the purchase of land, including a cranberry bog, and the construction of a building which was completed in 1911. And thus, the Cranberry Experiment Station of the Massachusetts Agricultural Experiment Station was begun, with Henry Franklin as Director.

In the early years, Franklin was the sole University scientist at the Station, aided by various technical support staff. Also participating in early research efforts at the Station was a research scientist stationed in East Wareham by the Bureau of Plant Industry, U.S. Department of Agriculture. The USDA position was created for a researcher to explore problems in the areas of botany and plant pathology. The USDA post was held from 1918 to 1927 by Dr. Neil E. Stevens. Dr. Stevens is most known for his research into the effects of weather conditions on cranberry fruit quality. He was instrumental in the development

of the data that formed the basis of the Cranberry Keeping Quality Forecast, which remains in use today. From 1929 to 1953, Dr. Herbert F. Bergman was assigned to the Station by the USDA. Dr. Bergman continued the tradition of studying the impact of weather on cranberry with his definitive work on cranberry oxygen flood. Dr. Bergman also studied the growth and flowering and was the lead scientist for the USDA cranberry breeding program an outbreak of ‘false blossom’



Drs. Wilcox, Chandler, and Bergman (l-r), circa 1940s.

As a result of that breeding programs in New Jersey and been named and released. (named for Neil Stevens) were Chandler of the Cranberry additional cultivars from the original selections. ‘Pilgrim’, ‘Franklin’ (named for Henry Franklin), and ‘Bergman’ (named for Henry Bergman) were specifically selected for good performance under Massachusetts conditions.

program which also had active Wisconsin, six hybrid cultivars have ‘Beckwith’, ‘Wilcox’, and ‘Stevens’ released in 1950. In 1961, Dr. Fred Station named and released three



Weather shelter in between the garage (l) and administration building (r), circa 1940s.

In response to a need to predict and prevent frost damage on the cranberry crop, Dr. Franklin, a tireless researcher, began a study of factors in the weather and in the cranberry plants that were related to frost injury. By 1920 he had developed a workable frost warning service that included a prediction of the minimum on-bog temperature for that night and an indication of what temperatures could be tolerated by the plants based on their stage of growth and development. The impressiveness of this achievement, for one whose training was not in meteorology or in plant physiology,

but rather in entomology, can not be overemphasized. With only minor modifications, many by Franklin himself during the 1930s and 1940s, the formulae used to predict frost events on Massachusetts cranberry bogs remain in use today by the Cape Cod Cranberry Growers Association’s Frost Warning Service. The success rate for predicting frost events on cranberry beds using the Franklin system remains greater than that obtained using modern computer models.



Dr. Franklin, circa late 1940s (courtesy Cranberries Magazine).

Dr. Franklin remained as Director of the Cranberry Station until his retirement in 1952. In a career spanning more than forty years, Franklin made huge contributions to the science of cranberry entomology. Franklin pioneered the use of water management and sanding for insect control, laid the foundation for insect monitoring programs that remain the mainstay of IPM programs today,

established economic thresholds for insect damage on cranberry, and authored the definitive cranberry insect guide of its time, 'Cranberry Insects of Massachusetts'. That publication represented the culmination of 30 years of Franklin's insect studies in the cranberry bogs of Massachusetts and remains an important resource to researchers today. The updated insect guide 'Cranberry Insects of the Northeast' by Anne Averill and Martha Sylvia, available from the Station (link to [Publications](#) for ordering information), draws heavily on Franklin's groundbreaking work.

Upon Franklin's death, Chester Cross (Station director from 1952-1981) wrote:

"I think one of Dr. Franklin's first rules for thought and action was: 'Take no man's word or oath' To any serious problem that came his way, he fastened his mind with a tenacity that excluded all lesser things like time, meals, or the convenience of others. Thus he worked on the frost problems of the cranberry growers and developed an excellent system for predicting minimum bog temperatures. It mattered not a whit that his training had been in entomology (where he became the world authority not only on cranberry pests but also on the bumble bee), for he knew that by persistent application day and night, week days and week-ends, that any problem could be solved by one determined to solve it, and he did."



The laboratory facility, circa 1960s.

If one considers Franklin, Bergman, and Stevens the first generation of scientists at the Cranberry Station, Chandler and Cross were the second generation working on weather, fertility, and cultural practices.

From 1950 through the 1980s, the third generation of researchers saw the advent of modern practices in cranberry growing. Dr. John 'Stan' Norton researched water harvesting techniques for Massachusetts and was instrumental in the introduction of the use of sprinkler irrigation to Massachusetts bogs, particularly for their use in frost protection. Dr. Bill Tomlinson continued

Franklin's work in entomology. Dr. Karl Deubert and Dr. Robert Devlin contributed research in the areas of biochemistry and plant physiology, respectively.

Throughout this period, Irving Demoranville served as extension horticulturist working on physiological, weed science, and fertility issues and continuing Franklin's frost research. 'Dee' ended his 45-year career at the Station as Director, serving from 1981-1996.



Irving Demoranville, circa late 1980s.

In its 90 year history, the Cranberry Experiment Station and its scientific staff have seen many changes in cranberry growing as a result of its research efforts. Some of the major milestones include the development of the frost forecasting system and determination of cranberry hardiness levels, insect monitoring and modern IPM programs, introduction of modern cultivars, the use of biological control agents for cranberry pests, modern fertility management programs, effective weed management combining cultural control with post-emergence herbicide use, and effective disease prediction and management programs.



The UMass Cranberry Experiment Station, 1998. Photo by Bruce Lampinen.

Currently the fourth generation of Station scientists conducts research on insects, weeds, diseases, IPM, nutrition and fertility, water management, and plant physiology (link to [Personnel Page](#)). The Station continues to rank as a leader in the United States, North America, and worldwide for research and outreach programs on cranberry culture.