

**COTTON PHYSIOLOGY RETROSPECTIVE:
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Abstract

Frank Eaton began his career about 1920. His last papers were in 1955, so his work spanned about 35 years. However, his impact on cotton physiology continues today. His papers are as current as this conference. We could all do well to spend some time with his data and his insight into the forces that make a cotton plant behave the way it does.

Discussion

Frank Eaton's breadth of interest was immense. He studied nutrition from boron (Eaton 1944) to sulfur (Eggle and Eaton, 1951) and nitrogen (Eaton, 1947; Eaton and Rigler, 1945; Eaton and Eggle, 1952, 1953). He studied flowering and boll loading from square initiation to boll opening (Eaton, 1931a; Eaton and Eggle 1952, 1954; Eaton, et al. 1947) He studied fiber maturation (Eaton, et al. 1947). Some of his most often cited works were his observations about carbohydrate translocation (Eaton 1930; Eaton and Joham, 1944; Eaton and Eggle 1948, 1952, 1953, 1954), but he also observed leaf temperatures and solar heat transfer (Eaton and Belden, 1929), root/shoot ratios (Eaton 1931b; Eaton and Joham, 1944), and osmotic adjustment to water stress (Eaton 1943; Eggle and Eaton 1948).

He collected data about Pima, Acala, Delta types, and Texas short season cultivars. He published papers with soil scientists, plant pathologists and geneticists.

His papers are published primarily in the Journal of Agricultural Research and Plant Physiology in the 1930's and '40's. At the end of his career he did overviews of the literature and knowledge of cotton physiology (Eaton, 1950; Eaton, 1955). It can be said that Frank Eaton legitimized this discipline of study. All cotton physiologists owe a debt to this man.

His published data sets are so comprehensive and complete that they could be used today to examine whether today's cultivars respond the same as those of 75 years ago. For instance, his tables of leaf temperatures (Eaton and Belden, 1945) include hourly measurements of not only the leaf temperatures but also the relevant air and solar conditions.

Frank Eaton had great insight into the physical, chemical and botanical forces that interact to shape the cotton crop.

All cotton physiologists should spend some time reading his work.

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