

Every Farm a Factory: The Industrial Ideal in American Agriculture. *By Deborah Fitzgerald.* New Haven: Yale University Press, 2003. 242 pp. Index, notes, appendix, photographs. Cloth, \$45.00. ISBN 0-300-08813-2.

Reviewed by R. Douglas Hurt

Deborah Fitzgerald, associate professor in the Program in Science, Technology, and Society at the Massachusetts Institute of Technology, has written an engaging book about agricultural change in the United States between 1918 and 1930. During that time, American agriculture became increasingly industrial as technological change, new credit opportunities, scientific and managerial expertise, and federal agricultural policy helped farmers give system and order to their operations. Agricultural experts and farmers increasingly equated the saving of time and labor with productivity and profits.

Military demands and escalating commodity prices during World War I had encouraged farmers to expand production, particularly for wheat and meat. Farmers increased production by borrowing money, enabling them to buy more land and purchase machines for plowing, planting, and harvesting greater acreage, because there were not enough farm hands and draft animals to do the necessary work. When commodity prices collapsed in 1920, most farmers tried to increase production to maintain their wartime income. At the same time, government officials, business leaders, academics, county agents, and economists advocated the industrialization of agriculture. Simply put, agricultural leaders urged farmers to standardize production, mechanize, and rely on experts for advice in order to become more efficient and productive.

In order for agricultural experts, particularly economists, to improve agriculture by industrial methods, they needed to understand farming across broad areas. They could do so only by quantifying a host of statistics that explained farm operations. By understanding production costs through quantification, for example, the experts could recommend adjustments to ensure that farmers would achieve the greatest productivity and profits. Officials in the U.S. Department of Agriculture and at the land-grant colleges became great compilers and analyzers of statistical data and advocates of cost

accounting, in order to give farmers the best scientific and managerial advice possible and to encourage them to think of farming as a business.

In 1907 agricultural engineers also created their own identity by establishing the American Society of Agricultural Engineers. These new engineers devoted their attention to a host of farm problems, all for the purpose of bringing greater efficiency to the farm. Specifically, agricultural engineers were committed to the idea that tractors could save human labor and replace horses, particularly if the size of the farm merited investment in tractors. The purchase of tractors and combines increased operating costs, but most farmers could rationalize their equipment purchases to ensure efficiency, increase production, and improve income.

During the 1920s, Fitzgerald contends, many farmers and managers began operating farms like factories, because they used power machinery to produce a consumable product. In addition to streamlining wheat production, the industrialization of agriculture affected fruit-raising in the Far West, where growers pooled resources and hired managers to oversee the orchards and market the fruit. Improved incubators and the adoption of electric lighting revolutionized poultry-raising and improved cotton gins, and cotton strippers enabled farmers to expand into the Southwest. Farm workers often became merely wage laborers who operated machinery but had no attachment to the land. As a result, agriculture became increasingly impersonal and less family oriented on the large, industrial farms. At the same time, agricultural engineers favored factory farming because it validated their work and their vision for agriculture in the future.

Thomas Campbell epitomized the industrial farmer during the early twentieth century. Campbell believed engineering could make farms more rational and productive. During the 1920s, he operated 100,000 acres in southeastern Montana. Fitzgerald argues that Campbell's farm was industrial, because it depended on machinery, economic and engineering expertise, and outside capital. Fitzgerald also traces the fascination of some agriculturists, such as M. L. Wilson, with the development of large-scale farms in Russia. She carefully shows that the transfer of technology and American agricultural expertise to the Soviet Union could not overcome the social, cultural, and political obstacles that prevented the collectives and state farms from functioning on an efficient, productive, and profitable industrial scale.

Fitzgerald maintains that the first stage of agricultural industrialization ended with the Great Depression. Industrialized agriculture, however, remained a feature of American agricultural life, due to federal policy that encouraged farmers to expand and mechanize. The result has been increased productivity, larger farms, and fewer farmers. Fortunately Fitzgerald does not wistfully yearn for a bygone age when farmers worked with horses and mules and lived without electricity or indoor plumbing. She clearly argues that mechanization, expertise, and government policy changed agriculture for all time.

Fitzgerald's contention that the industrialization of agriculture began during World War I is, of course, arguable, given the development during the late nineteenth century of large-scale, mechanized wheat farms in California, the Red River Valley of the North, and the Great Plains, and the organization of fruit-growing cooperatives in the Far West. Even so, Fitzgerald has written an important study based on extensive archival research about the transformation of American agriculture during the early twentieth century. Agricultural historians know the general outlines of her story, but she has provided new details in a well-written narrative that clarifies our understanding of the major developments in American agriculture between the First World War and the Great Depression. Anyone interested in the history of American agriculture, broadly conceived, will find this study useful and informative.

R. Douglas Hurt is head of the Department of History at Purdue University. His most recent books are Problems of Plenty: The American Farmer in the Twentieth Century (2002) and a collection of essays, African American Life in the Rural South, 1900–1950 (2003). He is writing a book on the Great Plains during World War II.