

## Introduction to "Agricultural Technology on the Great Plains"

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This topical issue of *Heritage of the Great Plains* explores the history of agricultural technology on the plains, Kansas in particular. Each author looks at a particular facet of technology in a particular place on the plains. The essays each could stand alone with a certain level of interest and significance, but considered together, their level rises to the plane where generalities take shape. The essays have some themes in common, and surely the commonalities are not mere coincidence.

Of such themes, the most perplexing to me is the question of where agricultural technologies originated. In the 1980s we are quick to assume that agricultural technologies come from agencies and intellects remote from the farm. The agricultural-research complex of the United States Department of Agriculture, including the state and regional experiment stations, and the research-and-development departments of the great agribusiness corporations seem so potent that we forget they were not always so. Before they became so dominant, where did farmers of the plains get the methods and tools they used?

The story begins with settlement, as agriculturalists with customs and ways long tried and hallowed in other parts penetrated the plains and found that much of their certain knowledge no longer applied. This is the familiar tale told by Walter P. Webb in *The Great Plains*--that people had to change their institutions and tools to suit the new region. The question I pose here is, more particularly, how did that come about? Who generated the new ideas that replaced old assumptions?

The answer must recognize first that from settlement on, although agricultural research was not so developed as today, there were people and agencies off the farm and outside the region supplying farmers with technological alternatives and urging farmers to try them. As the essay here by Jan Orton shows, farmers and stockmen in Butler County, Kansas, struggled toward a legal solution to the fencing question, but what finally settled the problem was the technological advent of barbed wire. When farmers of the plains needed a new feed grain to supplement corn, Joyce Thierer shows us, the U.S. Department of Agriculture brought them kafir. The outstanding example along these lines, though, is DDT: as Mark Weeks documents, that product of military research converted government scientists and extension agents from cheerleaders in farmers' fight for pest control into bearers of what seemed the ultimate chemical remedy.

These were important strokes, of course, but they comprise only part of the origins of agricultural technology. Farmers did not merely accept technologies offered them, but also generated innovations and refined customs of their own. Sometimes these merely filled in the details on the technological landscape--developing the right kind of gate or water-gap or post on which to string barbed wire, for instance. Sometimes they constituted an elaborate web of ways oriented around some introduced technology, which was the case with kafir culture. In still other cases, however, some ordinary farmer came up with a great problem-solving idea or device that proved broadly applicable and immensely significant. It occurs to me, for instance, that every important implement of tillage especially suited to the conditions of the plains originated with a folk inventor. In the case of the one-way plow, as told here by Steven R. Sears, it does not matter whether you think Charlie Angell or Henry Krause (or someone else) invented the implement; they were all just folk farmer-inventors fooling around in their shops. It is even more obscure who came up with the first

hopperdozer or built the first chinch-bug barrier, but that only goes to show that before DDT, pest control, too, was a great area for generation of folk technologies.

Besides outside agencies and local farmers, one other force was at work to shape technologies on the land--the land itself, by which I mean both the broad Great Plains environment and the local sub-regions (such as the Flint Hills) within it. Environmental constraints created a mixed crop-and-pasture situation in Butler County, called kafir into cultivation in Wabaunsee County, and encouraged the sort of extensive farming that brought the one-way into use. The insect pests battled by farmers in Butler County were a part of the environment itself. And although essayist Allen Pauls here gives primary credit to a cultural circumstance, Mennonite immigration, for the good wheat upon which a milling industry might be based, growing conditions on the central plains also were a necessary condition. The most resourceful and industrious Mennonites would not have made Turkey Red wheat a success had they landed in Alabama.

The essay by Pauls reminds us, too, of the wild card in this deck of determinants--human choice. The farmers of Inman watched as milling, a technology vital to their marketing, passed from local hands to more and more distant corporate board rooms. They did not just watch, though; they voted with their feet (their trucks, actually) in favor of more accommodating policies at the elevator. Their exercise of choice was not too effective in changing the policies of distant authorities, but it was a choice.

With choice goes both creativity and responsibility. Other agencies might provide technologies, and environment might constrain, but farmers themselves chose just how to mix alternatives in their own operations. They debated about types of fencing, blended kafir into a mixed-farming calendar, put down money for one-ways, selected the elevators to which they would deliver grain, and weighed the advice of county agents about how to kill insect pests. They were active and autonomous parties in the technological evolution of agriculture.

The decision-making farmer, therefore, stands at the center of this anthology of agricultural history.