Chapter 12

Energy Efficiencies of Farming Wheat, Corn, and Potatoes Organically

DAVID PIMENTEL, GIGI BERARDI, AND SARAH FAST

Since the mid-1930's, agricultural productivity measured in crop yield per acre has more than doubled (24). The USA now dominates the world's grain exports and in fiscal 1981, U.S. agricultural exports are projected to reach a record $45 billion. This high level of productivity has been due largely to the mobilization of energy resources in agricultural production combined with the use of high-yielding crop varieties and in part to timeliness of operations and other cultural practices (6).

The large fossil energy subsidies needed to maintain the U.S. agricultural system have been the subject of much research (15). The growing interest over the magnitude of the energy inputs is shared not only by researchers but also by individual farmers who are trying to minimize energy inputs and thus production costs (27), and by consumers who may ultimately pay higher food prices (7, 22).

The amount of energy expended for food production, distribution, and preparation in the USA represents about 17% of the total U.S. energy; approximately one-third (6%) of this is used for food production (20). The major fossil energy inputs to the agricultural system are fuel used for machinery operations and synthetic fertilizers (15). Methods of reducing fuel use on the farm have been the subject of much investigation.

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1 Contribution of the Dep. of Entomology and Section of Ecology and Systematics, New York State College of Agriculture and Life Sciences, Cornell Univ., Ithaca, NY 14853.

2 Professor and graduate research assistant, Dep. of Entomology and Dep. of Natural Resources, Cornell Univ., Ithaca, NY 14853, assistant professor, Allegheny College, Meadville, PA 16335.

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