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LACK OF INTEGRATED STUDIES OF FARMING SYSTEMS
HAMPERS TRANSFER OF RESEARCH TO ORGANIC FARMS

by

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INTRODUCTION

As a young college graduate just beginning farming, I had an intuitive understanding that farmer's faith in unlimited agricultural technology was at best naive and near-sighted. In the longer term the production practices encouraged by that faith could potentially threaten rather than insure continued agricultural productivity. I was introduced to the concept of organic farming,¹ an alternative philosophy that emphasized the cyclic aspects of plant and animal nutrition and generally sought to minimize off-farm resources.

¹For purposes of this paper, I will assume the following definition: "Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely upon crop rotations, crop residues, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral-bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients, and to control insects, weeds, and other pests." (USDA, 1980)

As I sought to learn more, I found that information about organic farming theories and methods was scarce, largely anecdotal, and stored primarily in the minds of practicing farmers. None of the traditional sources of technical information for farmers -- the farm press, commercial farm-supply companies, and the land grant universities represented by the cooperative extension service -- had helpful information. Clearly neither companies whose business is selling inputs to farmers nor the farm press, whose bills are paid by advertising for those same farm inputs, would receive much direct benefit from supporting investigation of reduced-input farming methods. Lack of attention to limited-input or organic agriculture by the land grant universities could not be so lightly dismissed.

The organic farms that I visited appeared to be successful. The crops and livestock looked good and the farmsteads and machinery suggested economic viability as well. The farmers claimed their farming methods were, for them, superior to conventional methods. Eventually more objective studies appeared that suggested that organic farming can produce good crop yields, lower production costs, sustain an economically viable business unit, reduce soil erosion, and increase livestock feed efficiency (Lockeretz, 1981; USDA, 1980; Balfour, 1975; Hodges, 1981). Why, then, was so little recent information available from the land grant universities concerning growing crops by organic methods, especially in light of strong expressed interest on the part of farmer constituents (Dahlgren, 1983; I.G. Youngberg, personal communication; W.W. Sals, personal communication).

Current research of particular interest to organic farmers includes studies on nutrient cycling, biological nitrogen fixation, crop and weed interactions, disease- and insect-resistant or tolerant crop varieties, and biological pest control. Information on these various topics is not easily packaged for application to organic farming systems. Very little research examines these components as they interact with other elements of an organic farm-management system.

I have found that this lack of integrated study is not unique to organic farming systems. I contend that, with the exception of farm-management business analysis, study of farming systems is systematically discouraged. I further contend that absence of integrated study of farming systems is especially detrimental to organic farming. This paper contains evidence in support of these two contentions.

DEPARTMENTALIZED AGRICULTURAL SCIENCES

Adoption of advanced and scientifically sound farming practices has long been appreciated in this country. Three major pieces of legislation, the Morrill Act in 1862, the Hatch Act in 1887, and the Smith-Lever Act in 1914, established the public commitment to formal training in practical agriculture, scientific agricultural research, and rapid popularization of new techniques on farms. From the outset, the mission of the land grant schools has been "to democratize knowledge," by serving the common man (Breimyer, 1987). Commitment to applied rather than basic research was also expressed early and was insured by establishing dependence on state legislatures for research funding (J.L. Flora &