

## ECOLOGICAL DETERMINANTS OF AGRARIAN PROTEST<sup>1</sup>

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**ABSTRACT.** Agrarian protest movements are considered as a collective response by a farm population to adverse physical, environmental, and economic conditions, with the greatest adverse impact upon farmers specializing in an economically depressed commodity. Focus is on the emergence of the National Farmers Organization (NFO) in Iowa in 1956. A core group of counties in southwestern Iowa is compared with the other western counties and with the state as a whole on difference in rainfall deficiency and commodity specialization in corn and livestock. The analysis lends support to the model that states that, in a farm population, negative physical environmental and economic factors operate through commodity specialization to generate agrarian protest.

Index descriptors: agrarian protest movements, human ecology.

### INTRODUCTION

Even a cursory overview of the political and social history of the United States reveals that class movements advocating social change and change in the control of economic institutions and processes have regularly occurred in the agrarian sector of society. To understand these agrarian social movements and American radicalism, it is necessary to study the conditions that generate the movements and the factors leading to their success or failure.

Morrison and Hundley (1970) have stated that research is needed to determine the economic, social, and political conditions that constitute the structural strains generating agrarian movements. In particular they have asked what crises and precipitating events are necessary to initiate a movement and whether such crises occur more often in certain types or scales of farming or where certain tenure, ethnic, or ecological patterns prevail.

A variety of crises or precipitating events of agrarian protest movements have been identified. These include relative deprivation (Morrison and Steeves, 1967), rural class relations associated with

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alternative forms of agricultural organization (Stinchcombe, 1961), the effect of the world market and capitalism on the middle peasant (Wolf, 1969), and the relationship of both cultivators and noncultivators to the factors of agricultural production (Paige, 1975).

While researchers have examined the economic, social, and political conditions that initiate agrarian movements, they generally have not included the ecological or environmental factors. This neglect stems in part from mainstream sociologists' emphasis on anti-reductionism and their taboo against geographical determinism (Dunlap and Catton, 1979). Although historians have recognized the environmental conditions that paralleled the emergence of agrarian protest movements (C. W. Stofferahn and P. F. Korsching, presented paper, Midwest Sociological Society, 1980), with few exceptions (Lipset, 1950; Lundberg, 1927), sociologists have not posited any relationship with environmental factors.

The purpose of this paper is to examine the environmental, social, economic, and political conditions under which the National Farmers Organization emerged. Lipset's (1950) environmental perspective will be placed within the framework of the human ecological complex (Duncan, 1959; Duncan and Schnore, 1959; Micklin, 1973). This focuses the analysis upon the collective adaptation of a population to adverse environmental conditions rather than individual response to a crisis.

### THEORETICAL ORIENTATION

Sociological human ecology is the study of man's social interaction in adjusting and competing for access to the material environment. This adaptation to the environment is achieved, first of all, through complex cooperative arrangements (organizations) which develop within populations. As with other areas of sociology, the primary focus for ecologists is the general problem of social organization. Human ecology, however, maintains a distinction in the important role it assigns to the population and its environment. Ecologists make some assumptions about organization relative to environment and population (Hawley, 1968). One is that a given population is viewed holistically and, therefore, organization is a population property and not simply the interactions of a collectivity of individuals. Thus, analysis focuses upon populations, not collections of individuals. A second assumption is that the organization emerges through continuous interaction between a population and its environment. Thus, both variables must be considered in examining organization, with a

further implication that adaptation is a process occurring through time and space (Hawley, 1968).

In addition to organizations, adaptation to the environment also is achieved through adaptive mechanisms: those socially organized activities through which collectivities are able to influence the remaining components of the ecosystem. The engineering, regulatory, and distributive adaptive mechanisms (Micklin, 1973) will be used in this paper.

The following four variables are the basic parameters of ecological investigation as defined by the ecosystem or ecological complex outline by Duncan (1959), Duncan and Schnore (1959), and Micklin (1973):

1. The population or the spatially delineated aggregate of human individuals doing the adjusting.
2. The environment or all those aspects that influence the possibilities and conditions of life by impinging upon the human organism either in isolation or as a collectivity.
3. The organization or, "... the broad general term used to refer to the complex of functional interrelationships by which men live" (Hawley, 1950).
4. The adaptive mechanisms "by which a population and/or environmental components are maintained, controlled or manipulated, resulting in an alteration in survival potential for a system" (Micklin, 1973).

The general proposition of this paper is that the emergence of agrarian protest movements among farm populations is a collective response to adverse ecological conditions. A model will now be developed specifying the interrelationships among the ecosystem variables.

### Physical Environment

For a farm population, important aspects of the environment are the soil and climate. Little research exists relating such environmental conditions to agrarian protest movements, probably because of a tendency of sociologists to avoid reductionist theories such as geographic determinism. One study, however, which included the environment as an explanatory factor in behavior, was conducted by Lundberg (1927). Therein, two radical and two conservative counties in North Dakota and Minnesota were compared with respect to their demographic and economic conditions. These counties were selected on the basis of their support of, or opposition to, the farmers' organization

known as the Non-Partisan League in the elections of 1916, 1918, 1920, 1922, and 1924. In comparing the physical environments, the authors found that in the radical counties soil type and rainfall were less favorable to intensive agriculture and, "... these factors were undoubtedly of vast fundamental importance in determining the derivative social conditions . . . immediately responsible for political behavior of a certain type" (Lundberg, 1927). Before we accuse Lundberg of geographic determinism we should consider a further conclusion of his research. "The most striking fact in the comparison of the radical and the conservative counties with respect to their economic conditions is the uniformly inferior economic circumstances and prosperity in the radical counties" (Lundberg, 1927).

### Economic Environment

A second component of the immediate environment relevant to our research is economic conditions. The economic environment is allocated over time by distributive adaptive mechanisms: those "... collective processes that result in the relocation of components of an ecological system in social and/or physical space" (Micklin, 1973). Of particular importance here is how the environment itself is redistributed when produced goods are exchanged and consumed. The economic environment can be redistributed to the detriment of a population. This adverse economic redistribution becomes part of the environment to which a population reacts.

In their analysis of agrarian political behavior, Campbell et al. (1964) found that farmer political behavior is variable and economically sensitive. They found a very strong relationship between price patterns that the farmer had experienced before 1956 and the partisan direction of his presidential vote in that year. They concluded that, when farmers do engage in political activity, it is due to their economic sensitivity and insecurity. This explains, they continue, the third-party movements of the nineteenth century and their unique transient nature. Once farmers secure economic relief, the political base disappears, and the revolt is ended.

The farmer appears to respond to his economic situation, with little reference to the manner in which others in the same occupational category are faring. Since prices and hence economic situations are tied to specific crops, economic winds frequently blow in several directions at once across rural America, leading to a variegated response. The "farm revolt," if represented by any gross unidirectional shift

in farm partisanship, is likely to come about only when economic difficulty faces a large proportion of farmers at once (Campbell et al., 1964).

Taylor's (1949) reflections of agrarian protest movements basically concur with these findings. He hypothesized a consistent relationship between activity peaks in farmers' movements and depressions in farm commodity prices (Taylor, 1949).

The allocation of distributive adaptive mechanisms is further impacted by regulatory adaptive mechanisms or "those processes that serve to guide action toward the realization of societal values as expressed via the political processes" (Micklin, 1973). For a farm population, these regulatory mechanisms may take various forms including price supports, loan rates, acreage allotments, tax and monetary policies, and import and export policies. The effect of these regulatory mechanisms becomes expressed in the prices farmers receive for their production. The state may aggravate the economic difficulties facing a farm population, through regulatory policies which decrease the price of crops.

### Specialized Farm Population

The adverse physical and environmental conditions are especially detrimental to a farm population specializing in only one type of crop or livestock production. Such specialization is encouraged by technology or engineering adaptive mechanisms. These mechanisms include the "... creative processes and discoveries of scientific activity as well as application of material technology developed from such activity" (Micklin, 1973). Level of technology generally is considered to be the enabling factor operating between a population and its environment. Improvement in technology enables a population to improve the efficiency of its sustenance activities and to shape its productive activity as an adaptation to its environment.

One of these technological improvements toward more efficient production and adaptation to the environment has been specialization in a single crop. General farming was still common in the Middle West in 1950.<sup>3</sup> But as early as 1900 there was a definite tendency toward specialized farming suited to the climate and soil of the region (Saloutos and Hicks, 1951).

<sup>3</sup>General farming was defined by the census as no one source of income representing so much as 40 percent of the total value of products of the farm (Saloutos and Hicks, 1951).

Although specialization embodies certain efficiencies and thus leads to higher profits during times of economic prosperity, adverse economic and climatic conditions may have a more severe impact on specialized farming operations because of a lack of income-generating alternatives. Thus, farming populations in which specialization predominates are more likely to suffer the effects of adverse environmental conditions and, in turn, are more likely to respond in some collective manner. "Whenever any significant number of owner-operators are threatened with dispossession from their lands, desperation and revolt are likely to flare up in the farming districts" (Smith and Zopf, 1970).

Lipset (1950) attached significance to effects of distributive, regulatory, and engineering mechanisms on specialized farm populations in developing agrarian protest in studying that the Cooperative Commonwealth Federation of Saskatchewan, said further that:

The agrarian revolt became significant . . . when western wheatbelt farmers had to resort to various collectivists schemes to alleviate the coercions of a growing monopoly capitalism. Once settled on their raw new farms and deeply in debt to bankers for equipment, the farmers whole existence rested precariously on the weather and the world price of wheat (Lipset, 1950).

He further said that:

. . . a clue, therefore, to understanding the continued unrest on the Canadian prairies lies in the perpetuation of an extremely unstable agricultural economy. The Prairie Provinces of Canada still depend on the frontier cash crop, wheat. Saskatchewan has never been able to develop a mature, stable economy, whether industrially or agriculturally. . . The implications of this fact for the continuation of organized unrest can easily be seen . . . in the fluctuations in yield and price of wheat from year to year . . . It is the "Boom or Bust" character of wheat production which unhinges life's plans (Lipset, 1950).

This led to Lipset's hypothesis that the insecurity involved in the reliance on a single crop (wheat in frontier conditions) is an important factor in generating farm movements.<sup>4</sup>

<sup>4</sup>Similar conditions existed for the pioneer wheat farmers in the United States.

## THE NATIONAL FARMERS ORGANIZATION

The nature of prevailing conditions at the time of the emergence of the National Farmers Organization (NFO) support this theory. NFO had its beginnings in September of the drought year 1955 in southwestern Iowa.<sup>5</sup> Beef cattle and hog production had reached cyclical peaks that year, and market prices went into an alarming slump. The continued pinch of the cost-price squeeze coupled with poor crop prospects painted a dismal future for many farmers (Brandsberg, 1964).

Farmers in southwest Iowa were dissatisfied with the Farm Bureau, which they felt represented the interests of agribusiness and which opposed federal price supports. Neither the Farmers Union nor the Grange, both favoring price supports, was strong in Iowa. As a result, southwest Iowa farmers felt that the time was ripe for the organization of a new farm movement to represent "their" interests, and indeed, early reported membership figures were phenomenal. By the end of January 1956, 71,000 national members were claimed and, two months later, 140,000 national members (Brandsberg, 1964).

Brandsberg (1964) described the environmental conditions that existed in the areas in which the NFO was organized:

Crops were hit worst in the areas of southwestern Iowa and northwestern Missouri, where the movement had its greatest strides at the outset. Iowa's corn crop forecast was revised downward on September 1 to 43 bushels per acre, the lowest since 1947. Iowa pastures were reported in the poorest condition since 1936, all because of dry heat waves during August 1955. In Nebraska, drought shrivelled corn prospects by 30 bushels per acre to 15.5 bushels by September 1. The prior estimate had been made on June 1.

Livestock prices also were down. Top prices on fat steers at Omaha had ranged from \$30 to \$40 per hundredweight during the first half of the decade and were \$35 in February of 1955. By August, the top had slipped to \$23.50, and it closed out the year at \$22.50. Hog prices at Omaha in 1955 topped at \$22.50 in June before dropping to \$12 per hundredweight in December (Brandsberg, 1964). These prices show how drastic the decline was. The drop was enough to erase any profit and spell additional losses for many farmers.

<sup>5</sup>Agricultural college specialists advised farmers to chop what was left of their corn for silage. In July, hot dry weather plagued the western corn belt with no sign of relief (Brandsberg, 1964).

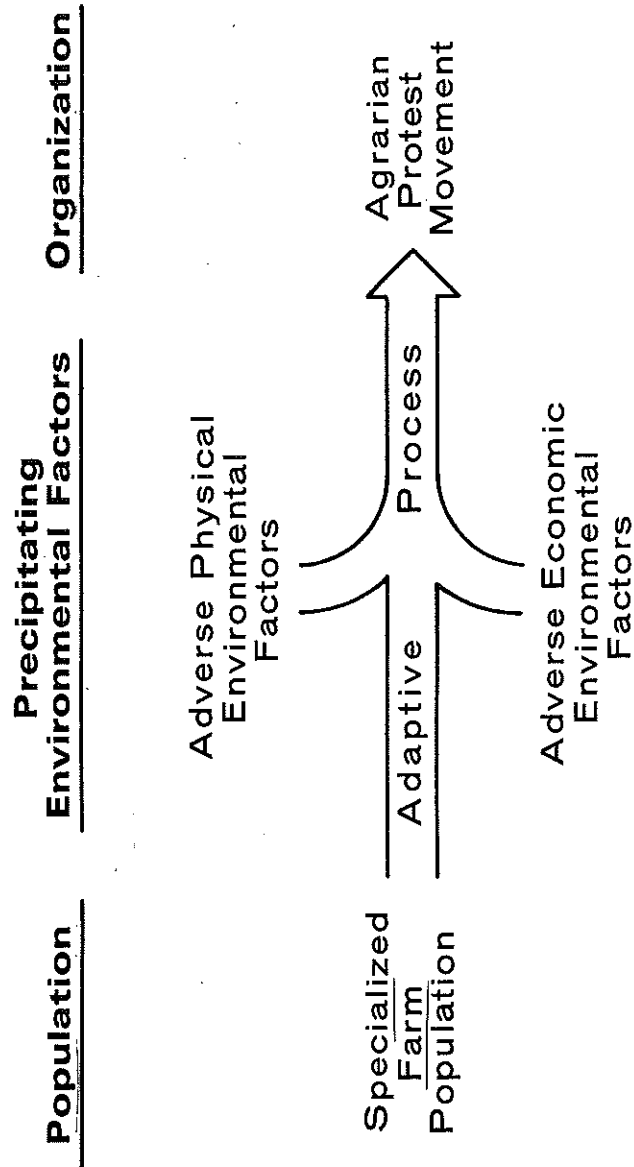


Figure 1. An ecological model of precipitating factors in the emergence of agrarian protest movements.

The original NFO goal of organizing farmers to send one of their own, or as many as needed, to Washington to get favorable legislation was not very successful. Price supports for 1956 were to be reduced significantly by the Eisenhower Administration, but the NFO claimed the pressure it exerted undoubtedly was the cause of the restoration to the previous price support levels (Brandsberg, 1964)

#### THEORETICAL MODEL

The general framework of the ecosystem components can be used to delineate specific relationships among the variables to build a model for the emergence of agrarian protest movements. Actual precipitating factors of the movements are the short-term fluctuations that strain normal adaptive capabilities. These may be physical conditions such as drought, blight, frost, or other natural phenomena that negatively affect agricultural production. They may be economic conditions such as a depressed market, increased cost of inputs, or inability to move products to market. More often than not, they are some combination of both. The model in Figure 1 has been constructed from the foregoing theoretical development to establish specific relationships among the variables. This model states that agrarian protest movements are a response by a farm population to adverse environmental and economic conditions. Since adverse economic conditions often tend to be commodity-specific, however, the greatest effects would be felt by specialized farmers, particularly those specializing in an economically depressed commodity. Farmers specializing in other commodities and general farmers would not be as severely affected and would not be as prone to organization.

#### METHODS

According to Brandsberg (1964), the major initial strength of the NFO was in the southwestern corner of Iowa. Although he does not name specific counties, personal communications with informants knowledgeable in NFO history indicate that Adams County and the contiguous surrounding counties were early NFO strongholds (Gauthier, Kozishek, Woodland, telephone interviews, 1980). In general, the western tier of counties also had more NFO supporters than the central and eastern areas.

The research design is based upon the assumption that the historical and informant accounts were accurate. The state is divided into geographic areas corresponding to hypothesized relative strengths

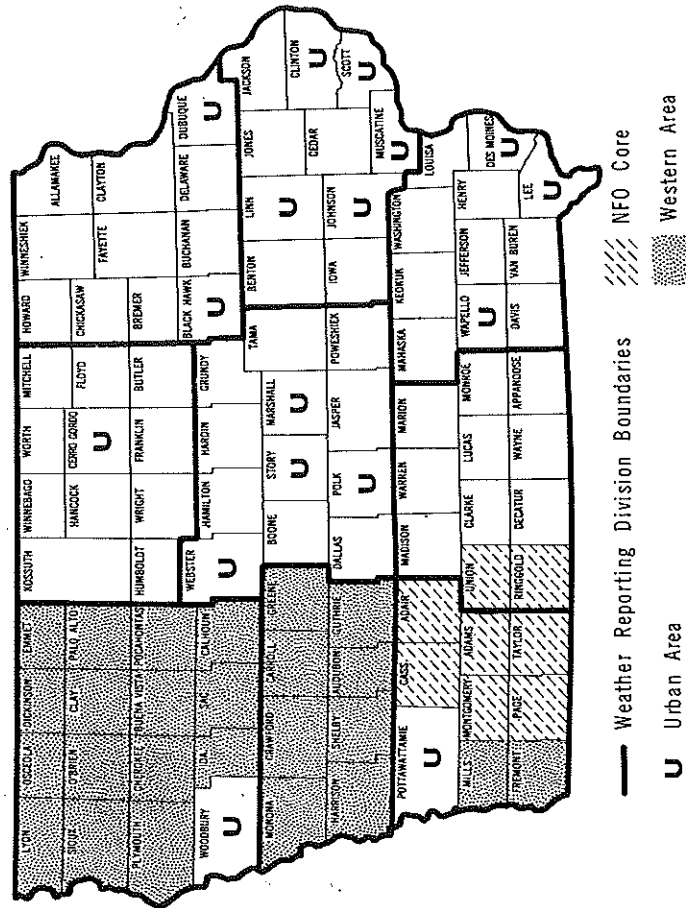


Figure 2. Weather reporting divisions, analytical areas, and urban counties.

of the early NFO movement. These areas follow the boundaries of Weather Reporting Divisions of the National Weather Service. Two counties, Union and Ringgold, actually overlap in an adjacent Weather Reporting Division but are included in the central core because of the historical and informational data. As shown in Figure 2, the three delineated areas are: (1) the central core of Adams County and the seven contiguous surrounding counties, (2) the remaining counties in the Southwest Division plus the West Central and Northwest Divisions, and (3) the rest of the state. The sets of counties in these three analytical areas are the units of analysis used in this paper.

**MEASUREMENT OF VARIABLES**

**Physical Environment**

As noted earlier, the Midwest was experiencing a severe drought in 1955. This would have had a severe impact upon cash-grain farmers and livestock producers. Therefore, the physical environment is measured in terms of departure from normal total precipitation for the growing season, April through September, by county (Table 1).

**Economic Environment**

Economic environment refers to the prices farmers are paid for their commodities. Although prices paid for a specific commodity generally would be a constant at any given time for the counties of a state, prices would vary across commodities. Differential change in prices across commodities would be particularly relevant in examining farmer unrest and discontent within certain production sectors and geographic areas. The measure to be used for the economic conditions is relative change in constant prices over a four year period in Iowa's two major commodities in 1955, cash grain (or more specifically, corn), and livestock (or more specifically, hogs and beef). The four year period was chosen to coincide with the national presidential elections for reasons to be explained later.

**Specialized Farm Population**

Specialized farm population is defined as the degree to which farmers depend upon one single commodity for most of their income. Commodities of specific interest here are livestock and cash grain. The 1954 Census of Agriculture (U.S. Department of Commerce, 1955) provides information on the number of farms per county that derive over half of their income from one single commodity. Therefore, specialization is measured in terms of the percentage of farms within

Table 1. Mean departure from average normal rainfall; mean percent general farms and farms specializing in cash grain and livestock; mean percent change in vote cast for the Democratic party, 1952-1956; and mean percent 20 years or older by geographic area.

	Rainfall <sup>a</sup>	General <sup>b</sup> Farms	Cash Grain <sup>b</sup> Specialization	Livestock <sup>b</sup> Specialization	1952-1956	
					Change In Vote <sup>c</sup> (percent)	Percent 20 or Older <sup>d</sup>
NFO Core (N=8)	-6.78 <sup>e</sup>	11 <sup>e</sup>	10.5 <sup>e</sup>	69 <sup>e</sup>	10.0 <sup>e</sup>	28
West (N=25)	-6.32 <sup>e</sup>	14 <sup>e</sup>	29.0 <sup>f</sup>	52 <sup>f</sup>	8.5 <sup>e</sup>	27
State (N=49)	-4.12 <sup>f</sup>	15 <sup>e</sup>	19.0 <sup>e</sup>	54 <sup>f</sup>	6.8 <sup>f</sup>	27

<sup>a</sup>United States Department of Commerce. 1955. Weather Bureau climatological data: Iowa. Vol. 66, No. 13. Asheville, NC.

<sup>b</sup>United States Department of Commerce. 1955. United States census of agriculture: Iowa. Vol. 1, Pt. 9. U.S. Government Printing Office, Washington, DC.

<sup>c</sup>Office of the Secretary of the State. 1952 and 1956. Census of the vote, general election 1952 and 1956. Des Moines, IA.

<sup>d</sup>United States Department of Commerce. 1952. Census of the population: 1950, Iowa. Vol. II, Pt. 15. Bureau of the Census, U.S. Government Printing Office, Washington, DC.

<sup>e,f</sup>Two means followed by the same letter are not significantly different at the .05 level.

a county that obtain the majority of their income from either livestock or cash grain. The percentage of general farms in each area is included for comparison.

### Agrarian Protest Movements

Ideally, the method for measuring agrarian protest, and especially a specific agrarian protest movement, would be with changes in membership figures over time. Unfortunately, such figures for the NFO are not currently available in any form.<sup>6</sup> A surrogate measure is necessary that has a reasonable epistemic correlation with agrarian protest in general and the NFO in particular. The results of the presidential elections of 1952 and 1956 provide such a surrogate measure; specifically, change in percentage of the population that voted Democrat between 1952 and 1956 (Office of the Secretary of State, 1952, 1956).

Farmers in the Midwest have traditionally voted Republican. Even during severe economic conditions such as existed in 1956, the farm population voted for then incumbent Eisenhower (Adams, 1961). Thus, little change should be expected in the percentage of the vote cast for Eisenhower between 1952 and 1956. The NFO was specifically organized, however, as a political force to obtain favorable legislation from Washington. One hundred percent of parity was sought at a time when the Eisenhower Administration was planning significantly to reduce price supports (Brandsberg, 1964). Because the NFO was a politically-oriented organization, whose members felt their needs were not being met by the incumbent administration, there would be a greater tendency for farmers in counties of NFO strength to vote for the opposing party.

Indeed, the NFO endorsed many candidates, mostly Democrats, for the 1957 elections. Advisor to the NFO, Dan Turner, ex-governor and former manager of Eisenhower's 1952 Iowa Campaign, announced he was supporting Stevenson for President in 1956 (F. O. Leuthold and J. R. Hundley. Presented paper, Rural Sociological Meeting, 1963).

The percentage of farm population of voting age for each area is almost the same. Therefore, the farm-nonfarm difference in voting preference can be eliminated as an influencing factor. These statistics lend validity to the use of election results for the dependent variable, agrarian protest. The percentages of farm population of voting age are presented in Table 1.

<sup>6</sup>NFO has a policy not to release membership figures.

### ANALYSIS

Analysis began with computing the percentage of rural farm population for each county. The frequency distribution indicated a natural break between 23 and 29 percent. Seventeen counties had less than 24 percent rural-farm population in 1950. These counties are those that the 1950 Census of Population characterized as standard metropolitan statistical areas in 1950. To remove confounding factors, these 17 counties (shown in Figure 2) were not included in the analysis. For the remaining 82 counties, data were assembled by analytic area, and a mean was computed for each variable. The sets of counties within the subject areas became the units of analysis. The means for the variables in the three analytic areas were tested for significant differences (Table 1). The one-way analysis of variance revealed that the means for each variable were significantly different in each area. The paired combinations for each variable were also tested for equality of variance so that the pooled variance T-test could be used to detect significant differences on a variable among the areas. All but two of the ratios of population variances were significantly less than one. The calculated F values of the ratios of the population variances were sufficiently close to the values of the tabulated F values as to permit the use of the pooled variance estimates.<sup>7</sup>

Some general patterns of support for the ecological model may be discerned. The data in Table 1 support the historical references to a drought during the growing season in 1955. There is an increase in rainfall deficiency going from the state to the non-core west to the NFO core. Although the difference between the NFO core and the non-core west is not significant, the NFO core/state and the non-core west/state differences are highly significant. This lends support to a relationship between areas of the NFO strength and the severity of the drought.

The indicators for the economic conditions are not so amenable to interpretation. As mentioned, percentage changes in prices paid for corn and livestock are in themselves constant for all counties at a given time. Historical references, however, have alluded to the fact

<sup>7</sup>Fixed effects one-way ANOVA assumes a random sample, normal distribution of the dependent variable in each population and equality of variance of the dependent variable. ANOVA is sufficiently robust to permit moderate departures from the basic assumptions. The only assumption which is violated is the independence of the observations as the samples are not randomly selected. A comparison of the sample means when the population variance is not treated as equal also revealed that the variance ratios were significantly less than one.

that the early NFO had a more specific basis in livestock rather than cash grain (Wood, 1961). This is supported by Table 1, which indicates higher specialization in livestock and lower specialization in cash grain in the core than in the two other areas. Thus, change in livestock prices would be more germane to the NFO counties than to the other counties. Indeed, between 1952 and 1956 (USDA, 1952, 1956), livestock had a 47 percent drop in average standardized prices from \$24.99 to \$13.26 per cwt., whereas corn had only a 26 percent drop from \$1.84 to \$1.36 per bu.<sup>8</sup>

These data fit the model for the NFO core and for the state but not for the non-core west as an area of intermediate NFO strength. The cash-grain specialization is much higher in the non-core west than in either of the other two areas, and the livestock specialization is just below the state level. The differences are all significant except for the non-core west/state livestock comparison. The percentage of general farms is higher in the non-core west and the state than in the core areas, but the difference is not significant.

Percentage change in Democratic vote, the dependent variable, reveals the hypothesized directions, although the NFO core/non-core west difference is not large enough to be significant. The NFO core/state and the non-core west/state differences are significant.

Results are somewhat ambiguous when three areas are used based upon a gradient assumption of declining NFO strength going from the NFO core to the non-core west to the state. There is, however, a definite discernable difference between the NFO core and the rest of the state. To examine this difference, the counties of the non-core west and the state are combined and compared with the NFO core. Table 2 shows that a significant difference indeed exists for rainfall deficiency, general farms, cash grain and livestock specialization, and vote change. These significant differences between the NFO core and the state lend support to the proposed model.

### DISCUSSION AND CONCLUSION

What do these results indicate about the proposed model for agrarian protest movements? No direct attempt was made in the analysis to test causality. This conservative analysis was dictated by the measurement of the dependent variable. Actual membership figures were not available. Change in Democratic vote between 1952

<sup>8</sup>1952 was also a low year for both corn and livestock prices. Therefore, the 1956 prices are on the extreme.



Table 2. Mean departure from average normal rainfall; mean percent farms specializing in cash grain and livestock; and mean percent change in vote cast for the Democratic party, 1952-1956, for the Core and state.

	Rainfall <sup>a</sup>	General Farms <sup>b</sup>	Cash Grain <sup>b</sup> Specialization	Livestock <sup>b</sup> Specialization	1952-1956 Change In Vote <sup>c</sup> (percent)
NFO Core (N=8)	6.78 <sup>d</sup>	10.8 <sup>d</sup>	10.5 <sup>d</sup>	69 <sup>d</sup>	10.0 <sup>d</sup>
State (N=74)	4.86 <sup>e</sup>	14.8 <sup>d</sup>	22.4 <sup>e</sup>	53 <sup>e</sup>	7.4 <sup>e</sup>

<sup>a</sup>United States Department of Commerce. 1955. Weather Bureau climatological data: Iowa. Vol. 66, No. 13. Asheville, NC.

<sup>b</sup>United States Department of Commerce. 1955. United States census of agriculture, 1954: Iowa. Vol. 1, Pt. 9. U.S. Government Printing Office, Washington, DC.

<sup>c</sup>Office of the Secretary of the State. 1952 and 1956. Census of the vote, general election 1952 and 1956. Des Moines, IA.

<sup>d-e</sup>Two means followed by the same letter are not significantly different at the .05 level.

and 1956, therefore, was used as a surrogate measure. From historical information and informants, the general areas of NFO strength were identified, and the change in Democratic vote corresponded with these areas. Going beyond general areas, however, to individual counties without additional information would be making unrealistic assumptions.

Given that causality was not tested, the data still supported the ecological model, particularly in comparing the NFO core to the state. Relative to the physical environment, although the entire state was suffering from a drought, the NFO core had a significantly greater negative departure from normal than the rest of the state. Economically, both cash grain and livestock prices were depressed, but the livestock prices were more depressed than cash-grain prices. Adverse physical and economic environment factors combined with a specialized farm population had the hypothesized effect. Because the NFO core had a much higher degree of specialization in livestock than did the rest of the state, the negative environmental effect of less rainfall and depressed livestock prices were compounded for that area. On the other hand, the effect was not as severe for the rest of the state because there was more rainfall and the cash-grain prices were at least proportionately better. Thus, there is support for the model that, in a farm population, negative physical and economic factors can operate through enterprise specialization to generate agrarian protest.

Although the proposed ecological model also may have weaknesses, sociohistorical analyses of other agrarian protest movements have shown relationships similar to those found in this research among environmental factors, enterprise specialization, and agrarian protest (C. W. Stofferahn and P. F. Korsching. Presented paper, Midwest Sociological Society, 1980). The close relationship between environmental factors and agrarian protest should not be unexpected.

The utility of the ecosystem model for analyzing social behavior is that it explicitly includes physical environmental factors when those factors are appropriate. Most other theoretical approaches either implicitly assume that the conditions of the physical environment are constants or that they have no perceivable or theoretically relevant impact upon behavior. This may seem a narrow approach in studying the social behavior of populations so closely tied to and dependent upon the vagaries of the physical environment. Human ecology and the ecosystem model can provide us with new insights into the explanation of social phenomenon such as agrarian protest movements.

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