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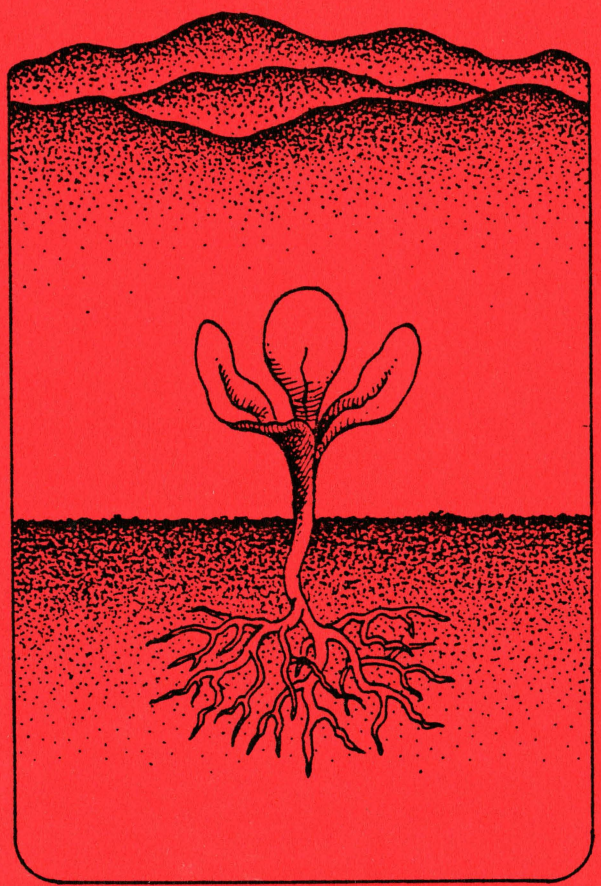

# Improving Data for Rural Sociological Research: A Case Study of Operationalizing the Content Analysis of Farm Magazine Ads

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# IMPROVING DATA FOR RURAL SOCIOLOGICAL RESEARCH: A CASE STUDY OF OPERATIONALIZING THE CONTENT ANALYSIS OF FARM MAGAZINE ADS

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Nothing can make a point quite as graphically as a "story." To appreciate where this monograph is "coming from," a little allegory can be helpful.

## PROBLEM BACKGROUND[1]

Once there was a small company devoted to making orange juice. Its beginnings were humble. Originally, nothing more was involved than simply turning people loose with a paring knife to slice open oranges and wring out the juice from the ensuing halves on those funny little glass contraptions with a ribbed apex. In time the crudeness of the squeezing operation was lessened by introducing a hand press, which both increased the amount of juice extractable from a given orange slice and decreased the hands-on messiness of the task. Time moved on, and motorization of the press took place. The drudgery of direct human effort was replaced by mechanical contrivance. Then, things really took off. Barely was one juice machine model in place than it was under duress for replacement by yet an even more elegant and powerful extractive device. The company was enthralled by its technological commitment. Factory mechanization was undoubtedly helpful. The people on the production line generally loved it; being the master of ten-ton, electronically tricky behemoths was taxing but exciting and rewarding. Visitors were impressed, orders never ceased, profits were recorded.

Here and there, however, a few on-line workers were troubled. Despite the huge change in the extractive devices, the actual output of orange juice was not greatly enhanced over time. Neither the total amount produced was up sharply nor was there greatly more fluid being gotten from this or that orange. While a technological revolution was rampant in the factory, there was not a parallel leap forward in the orchards. The oranges being entered into the production stream were not especially juicy. Whatever was in the fruit by way of fluids was being wrung out. Some of the company workers wondered about this intriguing fact. Although the call was out for even greater sophistication in presses, they pondered whether it might not make more sense for the company to upgrade the quality of the oranges getting squeezed.

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The foregoing story can be readily deciphered with the following keys: company = rural sociology; oranges = sociological raw data; orange juice = the explanatory capability of sociological research, conveniently indexed by a measure like $R^2$; juice squeezers = the statistical techniques available to manipulate sociological research data.

It has been suggested that our research efforts at this time in rural sociology bear out the allegory as factual. Moreover, continuing that imagery, we can specify a significant aspect to the orange-juice problem not revealed in the story. It happens to be the case that the variety of oranges used by the company has been largely singular -- at least in the era of greatest upsurge in squeezer sophistication. Stokes and Miller (1985), in reviewing the methodology shown in the half-century of Rural Sociology, have written: "Survey research has been unchallenged as the dominant data collection technique in rural sociology for the past 40 years... Over 90 percent of all research (reported in that journal) is based on...replies of persons to questionnaires or interview schedules." This mode of data generation, however, is not the only one available to sociologists.

Webb et al. (1981) have catalogued and surveyed a wide array of potential data techniques and sources for sociologists that do not rely on asking people what they feel, or like, or did, or might do, or wish they could do, and so on through the panoply of questions that share the vector of reactivity (i.e., having persons respond directly to the researcher's probes). So-called unobtrusive measures are alternative avenues for getting sociological data.

## PURPOSE OF THE MONOGRAPH

The present publication is conceived very much in the light of the foregoing parable. Its goal is to try improving the fruit of rural sociological data.

As already noted, the preponderance of data generating techniques used in rural sociological research are a narrow range of reactive techniques. If we are to move in the direction of improving our "oranges," we need also to try other ways of generating data.

The purpose of this publication is to delve at considerable length and detail the nitty-gritty of getting data for a recent study of value differences and/or similarities among organic and conventional farm management philosophies as seen in the advertisements appearing in farm magazines ostensibly catering to these alternative ways of doing things in American agriculture today [2].

The presumption of this publication is that one of the reasons presently for a relative dearth of nonreactive data generating studies in rural sociology is simply a lack of role models, experience, or exposure to relevant alternatives. To help correct this inexperience factor, to make the unfamiliar more familiar, we need to share the journeys of those who

have ventured out on the less charted waters of nonreactive rural sociological research. This we intend to do by following closely the methodological foray and explication used in a recent study trying to assess farmers values (Dalecki, 1986).

## CHOOSING THE GENERAL RESEARCH APPROACH

Many different approaches have been used to empirically study human values. Attitude surveys, for example, have been used to get at values indirectly through responses given by subjects to other survey questions (Kohn, 1977). Morgan and associates (1964) used psychological projective techniques to examine self-reliance. Rokeach (1973) asked subjects directly to rank "values" (i.e., words describing them) which were identified as such to the subjects. Johns-Heine and Gerth (1949) did a content analysis of mass periodical fiction in an effort to examine values conveyed/supported in the stories. Other examples could be cited but they signal the same conclusion: no single approach to studying values is evidenced in the past research record.

Broadly speaking, the approaches that have been used for researching values can be divided into two major types. In the first of these, values are treated as something not greatly different from other kinds of information sought by standard survey research techniques. Data are gathered by having respondents react to (i.e., answer) direct questions. The other approach requires the researcher to infer values from various sorts of archival materials.

Studies which question subjects directly have several advantages in researching values (as well as other substantive areas). Generally speaking, concepts are readily operationalized into questions to be put to subjects, and responses can be easily coded into relevant categories. The computer makes data handling routine and accepted statistical techniques are available for use in analysis. Moreover, procedures have been developed and proven in use, for helping to ease problems of sampling bias and non-response by subjects (Dillman, 1978).

On the other hand, direct measurement of subjects has various drawbacks. Despite the advances made in meeting the problem, non-response can still pose threats to the reliability of data and subsequent conclusions drawn from it. Again, most survey-type research, or that involving projective type methods in quasi-experimental situations, is expensive to conduct. In no small part this occurs because it is often time consuming moving from conceptualization and instrument design through data collection to coding and analysis.

But perhaps the most potentially damaging criticism of trying to directly elicit values is that, by its very nature, this type of research is obtrusive -- the subject knows he/she is being studied. This fact has the potential for biasing results where and when subjects alter their responses because of the obvious attention given to them by the researcher. That is, respondents may give incorrect information out of whatever

spiteful motives that are involved or, contrarily, may attempt to compliantly give the researcher "what he/she wants" (cf., Bealer 1983; 1987). Either way, invalidity is entered in the researcher's data.

The limitation centered on obtrusiveness just noted is especially important for studying values. No matter how this idea is otherwise variously treated, there is an aspect of "oughtness" involved in just about everyone's notion of what values entail. The "ought" element suggests bias may be particularly prone to creep into values research if an obtrusive research method is used. "Ought" entails a normativeness to which people are not likely to readily react with indifference.

There is another, related reason why obtrusive measurement might not be best suited for studying values. While it need not always be the case, there seems to be a trade-off between the richness one finds in sociological data and the objectivity of the techniques with which it was gathered. Directly confrontive questions, while they can be high on objectivity, tend to be restrictive in the range of information elicited. Pointed questions are just that -- pointed. They prompt a subject to think (look, feel, remember) in a certain direction -- which increases the likelihood of not thinking (looking, feeling, remembering) in other directions. Thus, the complex and diverse world of social reality is likely to be compressed and perhaps misrepresented by most sets of confrontive questions [3].

Where a large amount of information is already available, using reactive techniques can make much sense. With a large base of experience and knowledge, the researcher can have a good sense of what types of responses are likely to be forthcoming and so frame pointed questions that incorporate this information as the answer categories used in the questions asked. But where the researcher is necessarily more, rather than less, ignorant of the substantive area -- the case currently for the sociological understanding of organic farming in America -- the anticipation of respondents' responses is highly problematic. Using a reactive device is not especially reasonable when one is trying to explore new territory and gain insight into the scope and range of the reality involved.

In light of the foregoing discussion, unobtrusive methods of getting at values were commended for the present study. As already implied, archival-type data sources (such as public records, magazines, books, or newspapers) offer at least one advantage over methods which deal directly with subjects, namely, the elimination of testing effects.

The problem of testing effects can be put as a simple question: can the act of measurement itself affect or change the thing being measured; will the object(s) at issue be altered as a result of the researcher's attention? Clearly, the content of archival records <u>cannot</u> be affected by their being subjected to examination. They are what they are. There is no chance for reactivity from the researcher paying attention to them.

Among the wide array of unobtrusive research techniques available (Webb, et al., 1981), content analysis was the one chosen for use in the study upon which we report.

A number of researchers in the past have used content analysis to examine values. Among the archival types of media used have been: stage plays (Lee, 1955); third grade readers of public schools (Foster, 1956); articles in a widely circulated, mass-audience magazine, the Ladies Home Journal (Dornbusch and Hickman, 1957); books that were "best sellers" (Kangieser, 1957); religious literature (Schneider and Dornbusch, 1957); and Hollywood-type films (Wolfenstein and Leites, 1950). Whatever specific faults any of these studies have, they all share the important advantage that their data sources were immutable; testing effects could not contaminate their data.

## WHAT IS CONTENT ANALYSIS?

Many definitions exist which purport to delineate what, exactly, content analysis involves. A sample of these provide a convenient starting point for elaboration:

> Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication (Berelson, 1952:18).
>
> Content analysis is a research technique for making replicable and valid inferences from data to their context (Krippendorff, 1980:2).
>
> Content analysis is any research technique for making inferences by systematically and objectively identifying specified characters within text (Stone, et al., 1966:5).
>
> [Content analysis is] a research technique used to describe and analyze objectively, systematically, and quantitatively the content of written, spoken, or pictorial communications such as novels, editorials, movies, comic books, and public speeches (Theodorson and Theodorson, 1969:75).

In each of these definitions, one can start to get the general sense of what is entailed by the technique; only the last fully notes the range of possible applications for content analysis. As seen in the research record [4], most content analysis involves the examination of written text. This is the application area for the present study, and so the discussion will focus on the coding of written text. Generally, though, the methodological issues relating to content analysis of text are little different from those when invoking the technique in regard to other forms of communication, such as films or pictures.

The technique involves the task of counting the number of times certain content categories appear in samples of text. The units which are

coded can include words, sentences, paragraphs, themes, or the whole texts (Weber, 1985). Then, from the patterns observed in the data collected, inferences are made "about the sender(s) of [the] message, the message itself, or the audience of the message" (Weber, 1985:9). The present study used content analysis to make inferences about the audiences (labelled conventional and organic farmers) toward whom certain messages are directed.

In using content analysis the researcher (implicitly or explicitly) is making certain assumptions. As put by Berelson (1952:18-20), these include:

1) Content analysis assumes that inferences about the relationship between intent and content or between content and effect can validly be made.

2) Content analysis assumes that the study of the manifest content is meaningful. This assumption requires that the content be accepted as a "common meeting-ground" for the communicator, the audience, and the analyst... in other words, the assumption is that there is a common universe of discourse among the relevant parties, so that the manifest content can be taken as a valid unit of study [5].

3) Content analysis assumes that the quantitative description of communication content is meaningful. This assumption implies that the frequency of occurrence of various characteristics of the content is itself an important factor in the communication process, under specific conditions.

These assumptions underlie the application of the method, which generally involves four basic steps.

The first of these entails the selection of the textual material to be examined. The determination is guided by theoretical and substantive considerations, i.e., given the substantive problem at issue, what data sources are likely to shed light on the problem?

Weber (1985:42) suggests that three sampling populations or levels for making decisions about inclusion exist and need attention. He calls them communication sources, documents, and text within documents. "Communication sources" might be -- as examples -- newspapers or political speeches; "documents" refers to such things as editorials or advertisements within a newspaper; and "text within documents" are, completing the example, the paragraphs or sentences of this or that ad or editorial. Obviously, to get textual material one must ultimately specify what text within which documents of what communication source will be used [6].

Delineation of content categories is the second step. Analyzing text within documents is a worthy goal, but the text must be reducible to a series of categories. These categories may enumerate words, phrases, ideas, or whatever thematic content is deemed substantively important by the researcher. Development of relevant coding categories requires the

specification of inclusion rules for the textual samples the researcher has decided upon.

Simply put, step two requires the researcher to specify what "counts" and what does not as the coding of text takes place. The best sense of what is entailed here is to recognize that many words, phrases, or sentences taken out of context can lose their original intent. As a vivid example, suppose a researcher intended to code references to the possessive pronoun "mine." Without rules as to when the word "counts" and when it does not, mere word coding would produce positive "counts" even when the word at issue is actually describing underground diggings!

This type of problem plagues researchers trying to use computer programs to analyze text. While improvements have been made, computers can readily miscode items because they are taken out of context. The use of human coders can often ameliorate this difficulty. Andren and associates contend that (1979:15), "reliability as well as validity can be increased by letting the [human] coder consciously carry out his interpretations in accordance with definite instructions."

The third basic step in content analysis involves the actual coding of text, using the output of step two. Depending on resources, a researcher might employ few or many human coders or, when appropriate, submit text to a computer program for analysis. Once the coding scheme is developed and used, it must be checked for reliability. Content analysis, to pass muster as scientifically useful, must demonstrate the capability for replicability of the data generated.

The final basic step is that of any scientific study, namely, the analysis of the generated data. This analysis may employ crosstabulations or frequency counts, factor analysis, or structural equation models. Of itself, content analysis generated data pose no restrictions on what statistical techniques to employ. Content analysis is basically only a data collection technique, albeit an unusual one. The resulting data from a content analysis may be subjected to statistical analysis similar to that from more conventional surveys.

At heart, content analysis is merely a survey of text rather than of people. So stated, however, content analysis does not lose its unique character. As Maroff and colleagues (1974:7) wryly observe "there are particularities to content analysis, just as there are to any methodological technique." Content analysis is one of many instruments in the sociologist's bag of research tools.

The foregoing discussion of content analysis should imply a fundamental point cogently put by Weber (1985:13):

> There is no simple <u>right way</u> to do content analysis. Instead, each investigator must judge what methods are appropriate for his or her substantive problem.

This statement is borne out by an examination of the content analysis literature. A variety of content analytic studies exist in the literature [7]. In the broad outline of basic steps just noted, the studies are similar; yet, each one is also different. No one set of iron-clad rules works in every situation!

In the sections that follow the methods used one study (Dalecki, 1986) are more fully described. Four general areas are explicated. First, the question of what should be sampled is considered. Farm magazines representing both conventional and organic methods were chosen as the communication source to be analyzed. The issues involved here are detailed in the section "What to Sample?" Next, the identification of appropriate content structures within these materials is considered. Advertisements are the chosen units; the rationale and procedures involved in this decision are detailed in the section on "Content Structures." Third, the development of a scheme to use in counting the analysis units is described in the section titled, "Generation of Coding Categories." Finally, the acutal data collection is presented and evaluated.

## WHAT TO SAMPLE?

Given the virtues of unobtrusive methods to study values generally, the use of content analysis seemed particularly appropriate to examine values as aspects of the philosophies of organic and conventional farming. But what exactly to sample in using content analysis became, not inconsequently, a matter of what materials were available [8].

Various of the more regularly used archival information sources used in the past for content analysis did not present themselves with great advantage. For example, few are the movies centered on agriculture -- conventional or organic. So, too, is the situation with popular songs, plays, or fiction. However, one of the phenomena of our present era is the existence of magazines and journals geared quite pointedly toward specialized clienteles. Agriculture in the United States is no exception to having such publications.

The study of magazine content offers an archival source with both ready availability and enough frequency of issue to meet the data needs of the study. It is a central presumption here that, by studying magazines ostensibly catering to farmers of one or the other of the two farm management philosophies at issue -- the so-called organic and conventional modes -- the values believed to be associated with each can be better understood [9].

Magazines were used as sources of content structures for the analysis for several reasons. First, reasonable criteria were available (as will be discussed) for differentiating them as to their conventional or organic focus. This was no small consideration in light of the difficultures inherent in operationalizing "organic" (Dalecki, 1983). Second, the magazines were readily available from library sources, the publishers, and local individuals. No major problems were involved in locating and

accumulating them. Third, it was not clear what other sources of archival data were available which would allow comparison of organic types with conventional types.

Given the rather small constituency of organic farmers in this country, other archival-type efforts to reach and communicate with them are relatively few. The major sources of information for so-called conventional farmers have traditionally been the Land-Grant System, Extension, and agribusiness sales efforts (see, Bealer et al., 1982). These channels are decidedly not oriented toward providing information and help to organic farmers, if for no other reason than, again, their small constituency. Information and support structures for organic farm operators have thus come largely from magazines, private research efforts, and other philosophical peers (see, Harwood, 1983). The support structures for organic and conventional philosophies operate in relatively different planes. About the only place they intersect is in the existence of magazines as advice and information sources.

## Choice of Publications

The decision of publication choice involved two things. Not only did there have to be criteria for deciding what philosophical position a given magazine caters to but steps had to be taken to ensure the greatest likelihood of generalizability of the study results [10].

Information on the number and types of farm periodicals available was obtained using the Standard Rate and Data Service (SRDS) volume of Consumer Magazine and Farm Publication Rates and Data (1982). This trade source of information is published monthly and reports data of interest to advertisers, such as rates, total circulation, geographical distribution, and similar material.

Farm publications are classified by SRDS according to certain categories detailing the main focus of the publication, for example dairy, beef, swine, and diversified farming and farm home. Inasmuch as the research problem was defined in terms of a national focus, the use of specialized publications (like dairy or beef) was inappropriate; the specialized publications are generally concentrated in limited geographical locations. By contrast, the "diversified farming and farm home" category was general enough to exclude very specialized publications. As such, it was used as the initial source for candidate publications.

Five periodical publications were chosen as reasonable candidates for inclusion in the study. Presumed as appealing largely to the organic farming segment of the agricultural population were The New Farm and Acres, USA. Categorized as primarily catering to the so-called conventionally oriented farm manager were Farm Journal, Progressive Farmer, and Successful Farming.

While these five are not the only candidates which could have been used, the chosen publications satisfied best several screens used to assess

their appropriateness. The screens through which candidate publications had to pass included total circulation, geographic dispersion of subscribers, identifiability of the magazines as catering to either organic or conventional farming audiences and, in the case of the organic magazines, actual use by a sample of organic farmers.

The three largest circulating farm publications in the U.S. are Farm Journal (1,014,284 circulation in 1983), Successful Farming (582,205 circulation in 1983), and Progressive Farmer (623,906 circulation in 1983). All of these have been around several decades. On the other hand, organic farming magazines are a fairly recent phenomenon [11]. It seemed reasonable to assume that the named conventional magazines would not be strongly oriented to organic precepts. It would entail a major dislocation of direction. Moreover, even the most generous estimate of the number of farmers presently engaged in organic farming in this country is placed at no more than 50,000 (Dalecki and Bealer, 1984). It is reasonable to assume therefore that these publications are not strongly espousing organic philosophy and ideas, given the small target population on the one hand and their large circulation on the other.

The information contained within the SRDS publication includes geographical distributions of each magazine's subscribers. Table 1 shows the breakdown of circulation in percentages by census region for Farm Journal, Successful Farming, and Progressive Farmer. Also shown are percentage figures for each region with total farms in the United States as a base, taken from 1982 Census of Agriculture figures.

One can see from the table that Farm Journal's regional circulation corresponds quite well to the regional distribution of farms. The same, however, cannot be said for Successful Farming or Progressive Farmer. In fact, the two highest percentage circulation regions for Successful Farming do not overlap at all with the three highest percentage circulation regions for Progressive Farmer. Over 85 percent of Successful Farming's circulation is concentrated in two northern regions (east north central and west north central), while over 89 percent of Progressive Farmer's circulation is concentrated in the three southern regions (south Atlantic, east south central, and west south central). Thus, neither of the latter two publications alone could completely satisfy the desirable characteristic of widespread geographical distribution.

Table 1. Circulation Figures for Selected American Farm Publications and their Geological Distribution.

| U.S. Commercial Farms | | Farm Journal | Successful Farming | Progressive Farmer | The New Farm | Acres, U.S.A. | Countryside |
|---|---|---|---|---|---|---|---|
| N: | 1,953,801 | 1,014,284 | 581,205 | 623,906 | 75,229 | 14,500** | 27,316 |
| Date: | 1982 | March 1983 | Sept. 1983 | Sept. 1983 | Nov./Dec. 1983 | April 1984 | July 27, 1982 |
| Census Region | Percent of Total | | | | | | |
| New England | .01 | Less than .01 | Less than .01 | None | .04 | Uncertain | .06 |
| Middle Atlantic | .05 | .06 | .05 | None | .12 | Uncertain | .13 |
| E. N. Central | .18 | .25 | .35 | .04 | .21 | .16 | .24 |
| W. N. Central | .26 | .34 | .52 | .05 | .16 | .34 | .11 |
| S. Atlantic | .12 | .10 | .01 | .33 | .14 | Uncertain | .09 |
| E. S. Central | .12 | .06 | Less than .01 | .25 | .06 | Uncertain | .03 |
| W. S. Central | .15 | .08 | .01 | .31 | .10 | Uncertain | .07 |
| Mountain | .05 | .06 | .05 | .02 | .05 | Uncertain | .07 |
| Pacific | .06 | .05 | .02 | Less than .01 | .12 | Uncertain | .20 |

*Source: Standard Rate and Data Service, Consumer Magazine and Agri-Media Rates and Data, March 27, 1984. Vol. 66, No. 3. With exceptions, as noted.

**Phone call, estimate.

However, taking Farm Journal as the exclusive representative of conventional farm publications could occasion validity problems. Patterns discerned through the use of a single publication would not be separable from alternative explanations arising from the possible uniqueness of Farm Journal. Thus, it was desirable to include other "conventional" publications. It should be noted that a certain complementarity of coverage exists between Progressive Farmer and Successful Farming. The former's readership is concentrated in three regions which contain 39 percent of U.S. farms as defined by the Census Bureau. Successful Farming is concentrated in two regions which contain 44 percent of U.S. farms. Taken together, these five regions cover over 83 percent of total U.S. farms. And their circulation figures rank them as the second (Progressive Farmer) and third (Successful Farming) largest circulation farm publications in the United States. Thus, despite their relative (to Farm Journal) lack of geographical diversification, these two publications do target a significant proportion of U.S. farmers who, by previous logical deduction, are probably "conventional".

The use of The New Farm and Acres, USA as representatives of publications catering to "organic" farming philosophies can be justified on several counts.

The New Farm bills itself on the front cover as the "Magazine of Regenerative Agriculture" [12]. Regenerative is a term which recently has come into some favor as an alternative descriptor to "organic," though it is often intended as a somewhat broader classification. Regenerative relates to the improvement of soil fertility and of farm health, whereas "organic" is seen as a set of techniques contained within the broader goals of regeneration.

The New Farm began as an offshoot of Organic Farming and Gardening, published by Rodale Press. Following the birth of The New Farm in 1979, the mother publication became, simply, Organic Gardening. The organic leaning of its immediate lineage is still very much evident. For instance, the publisher's editorial profile included with other data in the January 27, 1980 edition of SRDS's Consumer Magazine and Farm Publication Rates and Data (1980:587) states, in part, that The New Farm: "focuses on ideas and techniques to help manage the land with a maximum of productivity and fertility while minimizing dependence on costly fossil fuel and harsh chemicals."

The May-June 1984 issue of The New Farm (p. 49) reinforced this statement:

> Most farm magazines just try to sell you things. Especially the notion that you have to spend more and more to raise bigger and bigger crops --that sell for less and less. The New Farm has a different approach. Many New Farm readers have minimized, even eliminated the use of hazardous and costly products. They've replaced farm chemicals with better management. A new self reliance. The result is good yields that cost less to produce. A lot less.

Dalecki (1983) found that most researchers, in attempting to operationalize "organic," used a definition similar to this. Thus, The New Farm can be seen as appealing to readers with a predisposition toward "organic" methods, or more simply, toward "organic" farmers.

Finally, it may be noted that in a survey of The New Farm readers, 330 of 349 farmers responding reported themselves as either employing organic precepts entirely, or using a mix of organic and conventional methods (Dalecki and Bealer, 1984).

Two bits of evidence support the classification of Acres, USA as an "organic" publication. First, on the masthead of a recent (April, 1984) issue one finds the quote "To be economical, agriculture has to be ecological." Ecological means, in part, that the system at reference must take into account the relationship between organisms and their environment. This is what one could also call an "organic" orientation in that, as previously discussed, organic in reference to farming implies working with the forces of nature as much as possible, rather than against them. Second, in the survey of The New Farm readership cited above, one question asked respondents to list any farm magazines they would turn to if they wanted advice on organic farming methods. Of the 330 organically inclined respondents, 35 (10.6%) listed Acres, USA (see Table 2), a rather large percentage relative to other choices, especially given the small overall circulation for this publication [13].

Table 1 also contains figures for the geographical distribution of both The New Farm and Acres, USA. The former enjoys a relatively widespread geographical distribution, although it does not correspond quite as well to the national distribution of farms as does, say, Farm Journal. A matching might be expected only if one assumed that the geographic distribution of farmers with organic leanings approximates the distribution of farms in general. There is no a priori reason, however, for such an expectation.

Table 2. Number and Percentage of Organic and Mixed-Technique Farmers Reporting Various Farm Publications Used as Sources of Advice on Organic Farming Techniques (N=330).

| Farm Publication | N* | % of Total |
|---|---|---|
| Acres, USA | 35 | 10.6 |
| Countryside | 9 | 2.7 |
| Tilth | 18 | 5.5 |
| The New Farm | 180 | 54.5 |
| Farm Journal | 2 | .6 |
| Successful Farming | 3 | .9 |
| Organic Gardening and Farming | 78 | 23.6 |

*Respondents could specify more than one source.

The circulation figures for Acres, USA were not available via SRDS and so they were acquired through a telephone conversation with the Acres office. As such, the data here should be considered as approximations. One can still see that Acres, USA does not have a subscribership as geographically dispersed as that of The New Farm. However, approximately 50 percent of its circulation is concentrated in the same two midwestern regions as Successful Farming, regions containing about 44 percent of all U.S. farms. The remainder of Acres, USA circulation is scattered among the remaining seven census regions, for which exact figures were unavailable.

Clearly, the criterion of large circulation figures is not reached in the case of either The New Farm and Acres, USA -- large, that is, relative to those for the so-called conventional agriculture magazines. Given the small population of organic farmers, however, the circulation figures are not unreasonable. Moreover, the alternatives are even worse on other counts.

Countryside and Tilth are two other farm journals with an apparent organic leaning. However, although Countyside has a reasonable national distribution of subscribers (see Table 1), it does not have the same visibility as the "organic" magazines selected. Despite its avowed organic leaning, less than three percent of respondents to the survey noted above listed Countryside as an advice source. This contrasts with 10.6 percent for Acres, USA, a comparison made especially enlightening when one considers that Countryside has twice the circulation of Acres, USA. The failure to have much apparent impact on the organic scene was corroborated when two faculty members actively involved in research on organic farming at Penn State professed ignorance of the magazine's very existence! This evidence suggests that, at least currently, Countryside is either not highly regarded or simply not well read in organic farm circles. Tilth was mentioned only slightly more often than Countryside and, in addition differed from the other candidates in not carrying advertising [14].

Choice of Years

Two years were chosen for the examination of the selected magazines: 1981 and 1982.

Several factors contributed to this choice. First, the use of only one year seemed inadvisable since episodic events, such as drought, might unduly influence the advertising content of the journals. The use of consecutive years allowed some protection against this type of occurrence.

Second, the years chosen are an attempt to get a recent period of "relatively" normal agricultural production and conditions, as compared to, say, the drought and floods of 1983. Also, the two years selected are prior to a government policy change, the Payment-in-Kind (PIK) program initiated in 1983. Examination of conventional farm journals during this period revealed an apparent increase in advertising for products which contribute to techniques that might be otherwise interpretable as organically inclined, e.g., rotation into legume crops or

letting land lie fallow. The 1981-82 time period precedes this event, eliminating some possible confounded results in the analysis.

Finally, it can be noted that The New Farm commenced operation in 1979. Beginning the analysis two years from its inception allowed for the magazine to become established and known to advertisers. Conclusions drawn from earlier editions of The New Farm might have been suspect given the possible uncertainty among advertisers as to the success of the venture and the makeup of the readership.

The three conventional magazines used in this study produce various editions which are enterprise (crop-type) or region specific. Initially an attempt was made to obtain from the publishers only non-regional, non-crop-specific editions of their magazines, so that one might be able to generalize to the U.S. as a whole without confounded results arising from region- or crop-specific edition idiosyncracies. Such editions were not available from Farm Journal. Copies of the "general" type editions were obtained from Progressive Farmer and Successful Farming. However, the generic nature of these publications was such that they were nearly devoid of advertising, especially when compared to the regional- and crop-specific editions. With this the case, the publishers were recontacted and asked to send a mixture of regional and crop-specific editions so that enough material could be obtained to do a reliable analysis.

An incomplete number of editions was obtained from Farm Journal and Successful Farming. Missing editions were filled in from the Penn State Library Archives. All editions of Progressive Farmer were obtained directly from the publisher, as no library editions were available.

Acres, USA could not supply copies of their back issues but did provide the name of a subscriber living in the State College area. This person was able to supply the investigator with most of the needed issues of the magazine. However, the subscriber was unable to locate four of the 24 monthly editions of Acres, USA ideally desired. Examination of the available months suggested that the missing issues would not likely have changed the results appreciably; there appears to be a great deal of continuity in the publication's features and content from issue to issue.

The necessary editions of The New Farm save one, which was borrowed from a friend, came from the researcher's own library holdings. The New Farm and Acres, USA do not have regional or crop-specific editions. One version of each edition was used for all subscribers.

## CONTENT STRUCTURES

What should be examined in the farm magazines to try and infer the presumed values being expounded?

Different ways of structuring messages occur in magazines. There may be editorial pages, short articles, long ones, regular feature columns, letters from readers, fiction stories, news reports, and so on. Examination

of the five farm magazines showed a variety of such structures in use. And, while there was some similarity across the five, there was also a lot of dissimilarity. To get parallel structures across different farm magazines for comparing values is an important methodological consideraiton. If the structures used are not reasonably identical, then any differences between them that might be found may be due to either differences in content or differences in structures, or both.

There is one structure which is present in virtually all farm publications purchased through subscription: advertising. Using these, the researcher can get reasonable similarity of message or communication structures across different farm magazines. Equally important, however, advertisements may well be as sensitive a venue for exploring values as one can find.

Advertising as an Index to Values

What are advertisements? What is intended by them? How are they constructed? Answering these questions can place one in a better position to appreciate magazine advertisements as a particularly sensitive index to presumed readership values.

Advertisements are familiar to most everyone as commercial breaks on television or radio, the stuff which fills space between articles in newspapers or magazines, occupiers of billboards along roads and highways; in general, the ubiquitous pleas to consumers to "buy"! More formally put, ads are "any form of paid public announcement intended to aid directly or indirectly in the sale of a commodity or service" (Dirksen et al., 1977:3).

Advertisements are, in many ways, responsible for the large volume of communication available to consumers. Free television or radio, for example, is generally funded not by the consumers of such fare, but by advertisers who pay the station for the privilege of including their messages along with programming. The consumer, in essence, gets his/her programming "free," only in exchange for being exposed to advertisements.

Advertisements are intended to do one thing -- sell products and services. They can do this directly (e.g., "Buy our automobile -- it gets great gas mileage") or indirectly (e.g., "Corporation X is interested in your health"). Ads are used to inform consumers of a product's existence, discuss its features relative to some standard or a competitor's product, and create goodwill toward a company which will (hopefully!) pay off when future purchases are contemplated.

Advertisements sell by transmitting information to potential consumers of the product or service. Advertisements "sell" in the same sense that a pitchman "hawks" his product. Whether an advertisement consummates a sale or not is immaterial -- the attempt is still there. Ads try to do their work by a factual transfer of information (e.g., 23 miles per gallon), or by using words, pictures, and symbols to point out hidden qualities of the product or service which are not otherwise obvious (e.g., using a product endorsed by a famous person can make a consumer feel he/she is more discriminating, if the famous person is generally viewed also as discriminating). Whether these qualities actually are true is not crucial. What is important is that the advertiser tries to convince the consumer that purchase of the product will help the consumer to realize the values or qualities associated with the product.

Advertisements are attempts to persuade consumers to buy certain products or services. Sandage and Fryburger (1975:73) note that:

> Persuasion...involves a recognition or belief on the part of the reader or listener that the advertised product will satisfy a need or desire. When the person is already clearly conscious of some need or want, and a product exists which will satisfy that need or want, it requires very little in the way of advertising to persuade the person to buy. Under such conditions, about all an advertisement needs is an announcement of the product's existence, its price, and where it can be bought...When consumers are not conscious of specific needs or wants or when the qualities of a product are not clearly observable, it then becomes the task of advertising to interpret the hidden qualities of the product in terms of basic human desires.

Given such a scenario, it becomes the job of the advertiser (or, the copywriters at an ad agency hired by the advertiser) to make clear to the potential consumer the qualities of the product, hidden or otherwise; the product must be shown to satisfy the consumer's needs, wants, and desires.

In making a pitch to consumers, the advertiser tries to appeal to something within that consumer which will predispose him/her to purchase the product. In other words, in connecting the product (via the advertisement) to certain values, the advertiser hopes to create "oughtness": the consumer ought to want to buy and use the product. Certainly this is not all that is involved in the decision making processes of a consumer (cf., Smith et al., 1962). Some preconditions are necessary before any serious contemplation of purchase can take place. Regardless of the desire for a product, sometimes sheer cost stands in the way of purchase. Or, in spite of certain predispositions toward the product, need simply cannot be convincingly demonstrated -- try selling cotton pickers to corn growers. Not withstanding the many things that may intrude between a message to buy and actually getting a sale, the attempt to connect ad and sale is everpresent.

Advertising is big business:

> The American marketing community bombarded consumers in this country with approximately $80 billion worth of sales messages last year [1983], a promotional expenditure that exceeded the entire gross national product of oil-rich Saudi Arabia (Meyers, 1984:4; emphasis added).

A lot of money is expended on the part of advertisers to get their message out, i.e., that consumers should purchase their product or service. The May 27, 1985 volume of Consumer Magazine and Agri-Media Rates and Data (Standard Rates and Data Service, 1985) indicated that a single page color advertisement in Farm Journal cost $28,550, and as much as $39,965 when it occupied the back cover of the magazine. This is a lot of money to spend for nothing if an ad has been ill-conceived. In the competitive world of business, it is unlikely that such voluminous expenditures are undertaken without careful preparation, including some understanding of what motivates the consumer.

Meyers (1984) documents the activity at Philip Morris, a major "player" in U.S. advertising. He details the activity of researchers at the company as they vigilantly try to observe the American public's changing tastes and values. In this context Meyers notes that Madison Avenue, a euphemism for the advertising industry, has adopted "psychographics," a takeoff on demographics, which documents the psychological profiles -- attitudes and beliefs -- of different segments of the population. These profiles are used by advertisers as they try to position their products to satisfy the wants, need, or desires of a specific population segment. By using more than one advertising strategy, products can be positioned for multiple segments.

The development of consumer psychological profiles bespeaks an attention to detail consonant with the costs of advertising. When it costs so much to speak to consumers, it is rational for the ad buyer to want to make sure that what comes out is likely to be heard and understood.

It would be most useful if the actual decision making processes of advertising creators could be examined to see what role the anticipation of consumer values actually plays in creating ads. Unfortunately, this is not readily possible. However, some bit of light may be shone upon the process by looking at how creators of advertising are trained.

In his popular book Advertising Copywriting (the 4th edition), Burton discusses the use of appeals to basic human interests:

> Every copywriter hopes that his copy can trigger the proper stimuli that lead to buying action, and [he/she draws] upon his understanding of human appeals to accomplish this (1978:16).

What are the appeals about which Burton is talking? Among those he lists are comfort, convenience, egotism, family affection, fear, health, and pleasure. Whether these specific "appeals" are complete is not as

important as the fact of the instruction to use them. Burton recognizes this (1978:18):

> Copywriters are not limited in their appeals to the truly basic, or primary, appeals of hunger, thirst, and the sex drive...He uses these and many others. How many appeals he utilizes depends on what list he cares to use as a guide. When trying to determine a definitive list of basic human appeals, it is too limiting to utilize only the truly basic, or primarly, appeals. On the other hand, some authorities offer lists of twenty-four such appeals or more...It may be understood, therefor, that no one list of basic human appeals has been agreed upon by everyone.

There are many lists of so-called values. Among those reviewed, the range is from as few as seven (Johns-Heine and Gerth, 1949) to an many as 36 (Rokeach, 1973). There is relatively little overall agreement among value researchers and theorists as to the exact parameters of what values encompass as substance. That Burton's list of "appeals" does not completely enumerate all "values" from the Kluckhohn and Strodtbeck or Rokeach schemes is thus not surprising. This is a difference at the level of particulars rather than a negation of the underlying idea. To the extent that authorities like Burton get used in the training of copywriters, values are promoted as appeals copywriters can (and should!) include in the construction of ads.

What copywriters might be instructed to do, and what they actually do, can be different things. Conceivably such instruction might be considered a rite of passage, and once free to ply their craft, copywriters break free of instructional constraints and omit values from their universe of possible appeals. However, the strategy of including values as selling points in advertising is reiterated in many sources: Sandage and Fryburger (1975), Meyers (1984), Pollay (1983), Burton (1978), Burton and Ryan (1980), and Dirksen et al. (1977). All contend, in one form or another, that values must be, will be, are an integral part of advertising content. It seems unlikely that such texts, devoted to advertising theory and practice and each gone through multiple editions connoting successful adoption by students, could see those repeated iterations if the advice contained within them were nonsensical, utopian, and generally ignored by practicing copywriters. In brief, Pollay (1983:75) is quite correct in noting:

> Advertising works to draw attention to values inherent in the product, to point to values that may be realized by the purchaser via consumption of the product, and at times invokes values so that they become cognitively associated with the product, brand, or corporate identity -- part of its image. Different ads, therefore, vary in the manner in which values are utilized just as much as they vary in terms of which values get utilized.

The argument might be made that advertisements, rather than being attempts at appealing to the in-situ values of those to whom they are directed, are instead instruments actively used to create in consumers

values consonant with the needs the advertiser's product satisfies. Certainly this may sometimes be the case but the point is moot. Whether certain values were there to begin with, or whether an advertiser "put them there," doesn't change the advertiser's efforts to appeal to them. Inasmuch as this study is concerned with what those values might be, rather than how they got there, such an argument has little relevance here.

The position this study takes in regard to advertising is the view of Sandage and Fryburger (1975:232) that:

> Advertising is a "two-way flow," that it is an interaction between the audience and the message. It is not so much a matter of what the message brings to the audience, but more a matter of what the audience brings to the message. Instead of the message forcing a response, it elicits responses the audience was predisposed to make before the encounter. In other words, the audiences' attitudes, beliefs, values, goals, etc. govern whether the message will be seen, heard, believed, remembered, or acted upon.

Moreover, as stated by Fox (1984:330):

> The people who have created modern advertising are not hidden persuaders pushing our buttons in the service of some malevolent purpose. They are just producing an especially visible manifestation, good and bad, of the American way of life.

It is this manifestation that the present study seeks to examine via content analysis of advertisements.

Sampling of Ads

Two alternatives were available for choosing the ads to be analyzed: 1) one could sample a relatively smaller number of cases and subject those to a more intensive scrutiny; or, 2) enumerate all the ads in the defined universe (subject to certain exclusions) and subject them to a somewhat less intensive examination. Several factors led to the choice of the latter as the preferred -- or, perhaps better put, necessary -- route.

For one thing, it was not exactly clear how one might go about the task of randomizing the ads comprising the population so as to give each an equally likely chance of being chosen in whatever sampling procedure was used. Since content analysis is not particularly widely employed nor protocols published on the exact "how-to" of sampling, getting access to relevant methological advice was not readily given. By going to essentially a census, of course, one avoids the pitfalls of poor sampling -- and the headaches of making a multitude of decisions necessarily involved in any sampling procedure.

Moreover, at the outset it was clear that monetary resources for doing the research would be limited. The opportunity to hire a large number of coders to replicate the intensive examination of relatively fewer ads was

precluded. This left the coding basically up to a single person -- the lead author in doing his dissertation.

Sampling is always a shortcut to a census, a convenience that can save on resources and keep the researcher from working as hard as might otherwise be the case. Because of the ubiquity of sampling in sociology it is easy to forget that of itself the procedure offers no advantage on getting valid scientific information. Indeed, if the sampling is done incorrectly, that blundering puts misinformation into one's results and errs by contrast with a well-done census. Sampling cannot enhance validity but it may decrease it.

In the nature of the present case, two things determined the choice to not sample ads. On the one hand, as outlined above, it was not clear how to go about adequately sampling magazine ads. On the other hand, a census forced the researcher to become more saturated in his data than would have been true with the smaller slice of reality that is, by definition, a sample. At the outset of inquiry into an area, when little rather than much is known, saturation commends itself. The best course of action realistically available to follow was followed, i.e., coding was done by the writer.

Exclusion of Certain Ads

Not all ads in the magazines were included in the final count. Ads were excluded if they: were not of a minimum size; resided in certain sections of a magazine such as the "country living" or "sportsman's" features; or advertised products which were not farming related. The rationale for these exclusions will be each taken in turn.

During the coding process ads were ignored if they fell below a certain minimum size. A 1/6 standard magazine page criterion was originally chosen for the cutoff -- in part -- because it was an easily recognizable size which eliminated the necessity of actually measuring each individual ad.

A standard magazine page is usually divided into three vertical columns when text or a combination of ads or pictures is displayed. Thus, 1/2 a vertical 1/3 column was easily recognizable as 1/6 page. A 1/6 page ad translates into approximately 5-3/8 inches by 2-3/4 inches, or a total of about 14-3/4 square inches. Acres, USA has newspaper format rather than that of a magazine, with pages double the size of the other magazines used. Thus, a 1/6 page ad in Acres, USA is actually twice the size of a 1/6 page ad in the other magazines. To make the ad areas consistent, only the total space criterion (14-3/4 square inches) was used as the cutoff point for an ad's inclusion (or not) in the data set for Acres, USA.

It was initially hypothesized (and later empirically demonstrated) that the number of category mentions contained within an ad would be positively related to its size. Everything else being equal, you can get more messages -- expressing values -- in a larger space than you can in a smaller one. The inclusion of many small ads could bolster the universe of

ads without a corresponding great increase in usable data. Moreover, there is reason to believe that small ads and larger ones are not a homogeneous pool.

The larger the ad in a magazine, the greater the cost. The greater the cost of advertising, the more likely the advertiser will have the interest, concern, and resources to research (or pay for information on) target populations. Smaller advertisers would have to, more likely, rely on their own hunches and intuition in writing their ad copy. While such work might prove to be highly accurate, stimulating, and successful on occasion, in the aggregate, it seems reasonable to suppose it would also be quite variable -- producing a different kind of copy than that developed by the commercial advertising media.

The number of ads appearing in The New Farm by invoking the 1/6 page rule was so small -- relative to the other magazines used -- that a lowering of the minimum adsize for those from The New Farm was necessary. The New Farm is unquestionably the bellwether of the organic agricultural position in the U.S. Using a 1/6 page criterion would have muted its voice beyond what seemed reasonable. Therefore, ad size in The New Farm was moved from 1/6 to 1/12 of a page. This boosted the final number of ads coded in The New Farm 29 percent; an increase in number from 344 to 443. Even after the relaxing of standards for The New Farm the number of ads in the magazine totalled only 10 percent of the final 4,437. The magazine with the next lowest number was Acres, USA with 808, or 18.2 percent. Thus, going with a small number of The New Farm ads would have had the effect of making Acres, USA the overwhelming representative of the organic philosophy, a not sage outcome.

Ads were also ignored during the coding process if they fell within certain sections of the magazine. These were: the country living or family living sections, containing general interest articles, recipes, and the like; sportsman sections, containing material on hunting, fishing, and related topics; the classified or country shopper section, containing many ads per page among no articles, many of which fell below the minimum adsize of 1/6 page; and, crop-specific sections oriented solely to corn, beef, hogs, soybeans, or other enterprises.

The exclusions were an attempt to limit the universe of ads to those contained in the more general farm article sections of the magazines.

It is reasonable to suppose that there may be idiosyncracies in the kind or number of ads found in any given sector of a magazine where there is a sharp delimitation of focus -- as in catering to a specific commodity. Grain farmers are not likely to be interested in feed additives, weaning devices, or milking equipment. Put otherwise, there very well can be an effect on farm magazine ads reflecting commodity specialization. To control on this, the purposive sampling noted was used.

Using the general farm sections of the conventionally oriented magazines also was commended on another count. Organic type philosophies are ideologically disposed to stress integration and

diversity of farm enterprises; they do not find great favor with the high specialization of monoculture agriculture. To minimize the likelihood of finding differences between the two philosophical positions at issue, it was desirable to look to that situation where maximal compatibility might hold. Hence, utilization of the nonspecialized sections in the conventionally-oriented magazines was chosen.

Advertising is ubiquitous, aimed at influencing nearly all aspects of a person's life in American society. To try discerning advertising's niche in such a wide compass, however, is costly and not really germane to the present research problem. The concern is with farmers in their occupational roles, in other words, in being farmers. Thus, it was reasonable to look only at those ads which apply directly to farming.

Some ads were excluded at the time of coding. Included here were those announcing an event like a fair or exposition; ads conveying general information such as the manufacturer's announcement of a factory recall of possibly defective gas water heater valves were also excluded at the outset. All in all, the number of exclusions was not large.

## GENERATION OF CODING CATEGORIES

The background for generating the "things to be counted," the specifics within the text of ads that were to be the focus of the content analysis is a long story of itself (see, Dalecki 1986:23-58). It involves the history of sociological theory and significant metasociological choices about how we can as social scientists best study human behavior. For purposes of this monograph, it may be sufficient to note only that special import was given to the prior work of Kluckhohn and Strodtbeck (1961), in their classical book on "value orientations."

### Kluckhohn and Strodtbeck Value Categories

These authors identified five major value "orientations" which they insist are endemic to all societies because they refer to philosophical issues which human intercourse cannot avoid. Kluckhohn and Strodtbeck (1961) believe that the value orientations they delineated are the broad but finite range of "answers" which can be given to the fundamental questions at focus.

Human Nature Orientation deals with the question, "what is the character of innate human nature?" (1961:11). The answer to the question, according to Kluckhohn and Strodtbeck, is that humans are taken to be: 1) Evil; 2) Good and Evil; or, 3) Good. A society would be classified, in this context, according to its prevailing view of human nature.

Man-Nature Orientation refers to the manner of relationship between humans and what we in the West might call "the gods." Kluckhohn and

Strodtbeck specify three types of orientation: Subjugation-to-Nature; Harmony-with-Nature; and, Mastery-over-Nature. This orientation is basically a society's view of its place in the cosmos, i.e., whether it is simply caught in the way of nature's vagaries, a part of nature and thus able to "go with the flow," or as essentially distinct from nature and believing itself able to control and direct a significant portion of nature's forces.

Time Orientation is split into the three seemingly universal senses recognized the world over: Past; Present; and Future. An emphasis on the Past time orientation means that a society places importance on "the maintenance, or the restoration, of the traditions of the past" (1961:14). A Present time orientation is one of rather timeless, traditionless, and future-ignoring emphasis. A Future orientation would place emphasis on change, and the hope and desire of better things to come. Kluckhohn and Strodtbeck take pains to point out that societies do not simply have one time orientation to the exclusion of the others. Rather, the time orientations are seen as rank-ordered in importance for a society, and that rank-order is an important characteristic directing actors' attention -- generally -- forward, backward, or to the present.

Activity Orientation is "the nature of man's mode of self expression in activity" (1961:16). It is also divided into three categories: 1) Being; 2) Being-in-Becoming; and, 3) Doing. The Being orientation can be described as an activity which is the expression of impulses and desires in the human personality. A general paraphrasing of this view of human activity is "letting it all hang out." The Being-in-Becoming value "emphasizes that kind of activity which has as its goal the development of all aspects of the self as an integrated whole" (1961:17). In the Doing orientation, the "most distinctive feature is a demand for the kind of activity which results in accomplishments that are measurable by standards conceived to be external to the acting individual" (1961:17).

A Relational Orientation is specified by Kluckhohn and Strodtbeck as 3 categories: 1) Lineal; 2) Collateral; and, 3) Individualistic. A Lineal orientation places emphasis on group goals which center on continuity through time, both of the group and the goals. Collateral relations emphasize laterally extended relationships, and while group goals still have some primacy, allegiance may be changed from one group to another. The Individual orientation refers to the level of individual autonomy present in a society.

The prime appeal of the Kluckhohn and Strodtbeck work is that their delineated "value orientations" can be readily translated into relevance for the issue of accepting organic agriculture precepts. It is not too difficult to see, in particular, how the value orientations those authors specify as "Man-Nature," "Time," and "Activity" might impact on the structure of agriculture, as well as on the decision-making processes and resulting choices of individual farmers. For example, a Time orientation in the Past would imply that farming techniques would tend to be traditional; a Mastery-over-Nature orientation would imply a "power" method of farming, or one in which technology and energy are used to control the

forces of nature. A Being-in Becoming orientation would treat farming as more of an end in itself; a Doing orientation would treat farming as simply a means to an end.

Inductive Procedures

The process of generating coding categories was begun by specifying the three value orientations of Kluckhohn and Strodtbeck: Man-Nature Orientation; Time Orientation; and Activity Orientation. Beyond these a priori -- that is, theoretical -- infusions, the work was inductive.

A browsing of farm magazines, including the type to be in the sample, was undertaken. This nonsystematic, random perusal of advertisements enabled the generation of statements, phrases, and ideas reflecting the sense of meaning being attached to each category.

The inductive sifting went on in a series of several iterations of trial and elaboration. The concern was to get a set of categories that fairly well encompassed the full range of messages being directed at readers in the sections of the magazines used, and which seemed like possible differentiating items for identifying organic and/or conventional agricultural philosophies.

Being largely the result of an inductive operation, the coding categories generated -- see Figure 1 -- could not be readily legitimized short of use and the opportunity to see what they might produce. Put otherwise, the final set of categories derived were heuristically intended.

Figure 1. List of Coding Categories Generated for the Study.

| | |
|---|---|
| Harmony with nature | Science |
| Subjugation to nature | University |
| Mastery over nature | Yield |
| Conservation | New, modern |
| Tradition | Cut costs (inputs) |
| Short-term focus | Efficiency |
| Long-term focus | Simply, easy, convenient |
| Years of service | Save time |
| Farming as a way of life | Environment |
| Independence | Supplier recommended |
| Being in Control | Quality of crop |
| Doing (visibility) | Concern for soil |
| Profit | Rotation (of crops) |
| Farming as risk | Biological |
| Ecology | Organic |
| Health | Natural |
| Safety | Non-chemical |
| Non-toxic | Integrated pest management |

Once a set of coding categories were derived, two major problems remained. The first was the specification of an operationalization scheme which would be reproducible. The second was the development of a method to reduce the ads themselves to data.

The operationalization problem was addressed by first producing a short statement (or set of statements) which succinctly summarized the intended meaning attached to each coding category. These statements were placed on index cards and organized in a 3-ring binder. The space remaining on each card was then used for recording the variety of literal phrases and statements encountered in ads pertaining to the presence or absence of the category within them. Since the coding scheme allowed for various wordings to constitute the presence of the same value category, the recording of statements similar in presumed meaning was helpful to getting consistency across time. The coding operation began in July, 1984 and was completed in December, 1984. Recording specific statements (or, appeals) allowed evaluation of later encountered ads to be done in the (hopefully) same context as earlier ones.

The Coding Categories

The following is the list of coding categories which were used. Each category label is followed by a description of the heuristic meaning which was used to specify what each category means. Actual examples from ads are included where appropriate to help further specify the meanings intended.

Man-Nature (Supernature) Orientation. This is composed of three parts: Subjugation-to-Nature; Harmony-with-Nature; and, Mastery-over-Nature. This led to, naturally, three coding categories. Additionally, the category "Conservation" is included due to its innate relationship to the use of nature's resources. It is not necessarily translatable into any one of the three categories, but nonetheless is related to a view of nature.

"Subjugation-to Nature." The key question to be asked about ads in coding this category is whether the ad presents man's place in the cosmos as that of being subjugated to nature. Similarly, nature may be seen as the oppressor in a battle between humans and nature, or presented as a villain which the farmer is fighting. Alternatively, nature might also be seen as a sinister force in competition with the farmer.

Examples: "Weeds that rob your yields"
"At the mercy of the weather"

"Harmony-With-Nature." The appeals in this category are intended to record relate to the idea of working with the forces of nature, rather than against them. The idea is that a farmer with this value orientation would try to integrate his farm into the processes of nature, with as little disturbance of these processes as feasible.

Examples: "Work with nature, not against her"
"Farmers...you are working with nature"

"Mastery-over-Nature." Does the ad make a claim for its product which can be interpreted as helping the farmer achieve a position of mastery over nature or, does the ad depict this as being a desirable state of affairs? Phrases which capture the meaning attached to this category include "beating nature", "winning the battle", and man-nature competition with humans "coming out on top."

Examples: "Pour on the power"
"Victory on the Hidden Battlefield"

"Conservation." Does the ad speak of concern for conservation of stewardship, of humankind's need to relate nonexploitively to natural resources?

Examples: "Conservation tillage"
"Stewards of the land"

Time Orientation. The time orientation is broken into three categories by Kluckhohn and Strodtbeck: Past (Traditional); Present (Short-term focus); and, Future (Long-term focus). A fourth category, years of service, was included under the general time orientation classification because it appeared often in ads and cannot be readily translated into any one of the three referents delineated by Kluckhohn and Strodtbeck. Years of service is a fact of the past but strongly implies the future; contrast long-term service with a fly-by-night operation.

"Past--Traditional." Positive references to tradition are the themes which this category documents. This includes references to doing things the traditional way, or mentioning the number of generations a family has used a certain product. Reference to the number of generations which have simply farmed the same land is not considered to be part of this category.

Examples: "Still made where Dr. Pfieffer developed it"
"Includes our old favorites"

"Present--Short-Term Focus." Does the ad place an emphasis on the short-term aspects of farming? In other words, does the ad specifically mention the short-term as something to focus on, such as in the statement, "planning for the future is hard when you don't know if you can make the next payment or not"? A functional equivalent is a situaiton where, explicitly, short-term decision making takes precedence over long-term decision making

Example: "And right now, you have to make every dollar count"

"Future--Long-Term Focus." Does the ad discuss the long-range consequences of the use of the product, or deal with long-term consequences in other ways? In this context, long-term is defined as three years or more from the present, if a number of years was mentioned. A statement which would count might be similar to "Years from now, you'll be glad you used our product."

Examples: "Farming as if the future mattered"
"So you can continue farming in the years ahead"

"Past--Years of Service." Does the ad mention the number of years the company has been in business, or some other mention of the company's longevity? The number of years mentioned (or indirectly mentioned via a statement like "since 1952") is recorded, and in the absence of this, an indication of long-time service (or stability) without a mention of years.

Activity Orientation. The activity orientation contains three parts: Being; Being-in-Becoming; and, Doing. Five of the coding categories presented here are multiple attempts to operationalize these three classificaitons. Recall that "Being" activity is that which is done (and enjoyable) for its own sake; "Being-in-Becoming" activity is that which is done in hopes of increasing Being activity; and, "Doing" activity is that which may be judged in terms of objective measures of its consequences, and is done specifically for attainment of those consequences. Related to this is the fourth category, Profit, which is another form of objectively measuring the consequences of activity, and the fifth category, Being-in-Control, which is another type of Being-in-Becoming category. The sixth category presented under this section, Farming as Risk, relates to Activity in its focus on the farming occupation and the risk involved in it. Thus, avoidance of risk is the underlying theme being considered.

"Being--Farming as a Way of Life." Does the ad speak of farming as an intrinsically desirable and advantageous activity, as an avocation as well as an occupation? A functional equivalent would see the ad speaking of some intangible benefits of farming.

Examples: "When you make the land your life"
"Still in touch with the land"

"Being-in-becoming--Independence." The Being-in Becoming category is seen by Kluckhohn and Strodtbeck as an orientation whereby the people (or person at reference) are structuring their lives such that the being orientation is essentially more achievable. Thus, references toindependence of the farmer and his farm operation as a desirable state of affairs are what this coding category tabulates. By being independent, the farmer is presumably more able to weather supply interruptions or vagaries of loan officers, and thus be more able to continue farming. Functional equivalents for this idea include "cutting loose" from suppliers, or reducing dependence on outside sources of feed, fuel, or chemicals.

Examples: "Reduce dependence on outside sources"
"Be self-sufficient"

"Being-in-becoming--Being in Control." Does the ad make reference to the virtue of the farmer "being in control" over what happens in his farm operation? Functional equivalents would be testimonial from someone who likes to "call the shots" or text which describes Being-in-Control as desirable. This is different from the Mastery-Over-Nature category cited above. Mastery-Over-Nature is a category which measures the idea that human's place should be that of domineering nature. The Being-in-Control category is a classification more related to the style of farm management used. Using Rokeach's value scheme, Being-in-Control is an instrumental value, while Mastery-Over-Nature is viewed here as a terminal one.

Examples: "You're in charge"
"Total command of the tractor, implement, and the job"

"Doing---Visibility in Activities." Does the ad see success in farming as something which is observable by outsiders, such as neighbors? Are there references to techniques which the ad associates with being a "good" farmer, such as having a weed-free field, or employing management practices such as irrigating against drought?

Examples: "Your neighbors might laugh..."
"A more prefessional-looking crop"

"Profit--Farming as Business." Does the ad speak to the goal of producing, maintaining, or increasing profit? Is making money viewed as a goal?

Examples: "The moneymaking choice"
"Abandon unprofitable chemical practices"

"Risk, Gamble, Gambling." Does the ad refer to farming as a risk or gamble, or as an act of gambling? The risk or gamble is related to farming as an enterprise, not risk in trying a particular farm product.

Examples: "Make your one chance count"
"Why take chances by not spraying?"

Other Value Categories: Undifferentiated. Other value categories were coded which, while not necessarily related to the Kluckhohn and Strodtbeck scheme, were considered as possibly important referent areas for indicating valued phenomena. Given the earlier elaboration of how ad writers presumably generate such copy, it was assumed that if certain kinds and combinations of words and/or ideas appeared in the universe of material under consideration, then they might be reasonably taken as a useful signal of things of value to/for/by farmers. A priori, it is not intended to rationalize each; a heuristic approach requires use, then judgment. Here,

the authors want only to give the reader a better sense of what was coded under each heading. These categories were generated inductively, but many occupy places on various lists of values generated as "theory."

"Ecological." Does the ad identify as desirable farming in an ecologically sound manner with regard for environmental consequences? To maintain the objectivity of the coding scheme, the word "ecological" had to be specifically used, or its root, "eco."

Examples: "Products for ecological farming"
"Ecological products"

"Health Promoting." Does the ad or ad product promote the idea of improved health, either of livestock or people? Functional equivalents include increasing vitality.

Examples: "Healthy soil grows healthy roots"
"...for healthy roots"

"Safe." Does the ad claim its product to be safe, safer, less injurious to crops, etc.?

Examples: "Maxicrop is safe..."
"Enclosed tines for safety"

"Non-Toxic." Does the ad claim its product to be non-toxic or non-poisonous?

Examples: "Non-toxic and slow release nitrogen"
"Non-poisonous"

"Scientific Support--Tests, Trials." Does the ad involve scientific support for the use of the product? Were tests done to show the advantages of using the product?

Examples: "Tests showed higher yields with..."
"The scientific breakthrough..."

"University Documented." Does the ad use university tests as support for its argument? This is an addendum classification to "Scientific Support" -- a positive answer to the "University Tested" classification means that the "Scientific Support" category should also be checked. Is other "university" support used?

Examples: "University tests confirm"
"...tests conducted at 18 universities..."

"Increased Yields." Does the product advertised purport to increase yields or does the ad view increased yields as a desirable goal?

Examples: "Harvest a better yield"
"Produce more meat/milk per acre"

"New, Modern, State-of-the Art." Is the ad's product referred to as modern, the State-of-the-art, newest, etc.?

Examples: "New"
"Our newest"

"Cuts Cost, Saves Money." Does the product supposedly help the farmer cut costs (aside from increasing efficiency)? Does the ad appeal to cost cutting as a viable, valid strategy? Products advertised as being cheaper than competitors are not considered part of this category unless the argument is made in an overall context of cutting costs or saving money. It was hoped that this category would get at the idea of reducing inputs into the farm operation. A product advertised as being cheaper might save a farmer money, but if the same amount were used, the quality of the inputs has not changed.

Examples: "Uses less fuel"
"Saves money"

"Efficient, Efficiently." Does the ad's product purport to increase efficiency? Is efficiency depicted as desirable? Note that efficiency can be inferred from statements not directly employing the word "efficiency," such as "get increased yields for the same cost." A statement such as this would manifest itself in the coding scheme as both "efficiency" and "increased yields."

Examples: "Increased efficiency"
"10 percent more gain on 8 percent less feed"

"Simple, Easy, Convenient." Is the ad's product or system portrayed as being simple, simpler, easy, easier, convenient, more convenient, etc.?

Examples: "Easy to use"
"No more cranks or wrenches to turn"

"Saves Time." Does the ad speak to the advantage of saving time, either as a goal or as something the product does?

Examples: "It will save you time"
"Results in fewer trips over the field"

"Reliability." Does the ad claim the product to be reliable? Functional equivalents include less downtime, reduced repairs, etc. As other positive references to reliability made?

Examples: "Consistent performance"
"Reliable"
"Dependable"

"Comfort." Does the ad claim that the product will contribute to increased comfort of the farmer, or comfort in using the product?

Examples: "Luxury seating"
"Our Acousta cab makes a long day short"

"Environment." Does the ad claim the product to be good or better for the environment? Does the ad speak to environmental concern?

Examples: "The gift of...a healthier environment"
"A livable environment"

"Supplies Recommendation." Does the ad suggest the farmer let the dealer or supplier tell him what he needs?

Examples: "See your dealer for specific recommendations"
"Your dealer...will know which is best for you and your fields"

"Crop Quality." Does the ad's product contribute to improved quality of crops grown in conjunction with it? Is improved or high quality a goal?

Examples: "Get better quality fruits and vegetables"
"Better crops, better grain and produce"

Other Value Categories: Differentiated to Organic Precepts. The remaining categories are other descriptors of products or strategies found within ads identified, in one way or another, largely with organic farming. Their inclusion is a result of the inductive nature of category generation.

"Concern for Soil." Does the ad claim the product to be beneficial to the soil? Is soil improvement labelled a concern?

Examples: "The soil builder"
"Improves the soil"

"Rotation." Does the ad talk about crop rotation in a positive light, or as something the product gives you the option to do?

Examples: "...gives you the freedom to rotate"
"...substituting intensive rotations..."

"Biological." Does the ad talk about the biological aspects of farming? Is the product described as biological, or is it described as contributing to biological functioning? As in the Ecology category, words containing the root "Bio" count towards this category.

Examples: "Biodynamic"
"Biological farming"

"Organic." Does the ad treat positively the concept of "organic," organic farming, farming organically, etc? The word must appear in the text, and be used in the context of "farming organically," not as in a statement like "Here is a test to measure organic matter within your soil."

Examples: "Organically grown"
"Organic"

"Natural." Does the ad treat as positive the idea of doing things the "natural" way, or doing things "naturally"? While specific mention of the words "natural" or "naturally" is necessary to involve this coding category, a usage such as "Naturally (of course) you would want to increase your acreage" would not count as satisfying the criteria of doing things "Naturally."

Examples: "All natural"
"Natural fertilizer"

"Without Chemicals." Does the ad identify positively strategies for farming which reduce or eliminate entirely the use of synthetic chemicals or poisons such as ammonia fertilizer, herbicides, or insecticides?

Examples: "Let's kick the chemical habit"
"The non-chemical point of view"

"Integrated Pest Management." Is the ad's product used for integrated pest management, or is IPM seen as a desirable mode?

Examples: "Integrated Pest Management"
"Biological Pest Management"

Randomization of Magazine Issues for Coding

To compensate for possible gradual (unconscious) changes in the coding scheme as the coding progressed over a series of weeks and months, a random ordering was given to the months of the two years. A single month was sampled and all magazines from the month would be coded. The intent was to remove any researcher-introduced bias resulting from change in the coding instrument being correlated with possible seasonal variation in advertising content. In other words, this was done to guard against interaction of possible seasonal variation in ad content with possible changes in the coding scheme. The magazines within each month were alternated (conventional and organic) so as to avoid getting in a "rut" from consecutively coding many issues of one type of magazine.

In the case of The New Farm, there are seven editions per year. A "double month" issue, such as the May/June one, would be coded when either of the two months first appeared in the monthly sampling scheme. The summer, double month editions of Successful Farming and Farm Journal were dealt with in the same way.

Table 3 shows the original and revised coding order of the months. Originally, the coding order was developed using a random number table. However, as coding progressed it became clear that an unbaised sampling order was not obtained in spite of the use of random ordering. Specifically, the summer months were more likely to be coded late in the process. The coding order was thus revised to compensate for this problem. Randomization with only a few cases at issue may not get the results the process is geared toward. Human thought, therefore, was allowed to usurp a mechanical process.

Table 3. Initial and Revised Coding Order for Magazines.

| Month of Publication | 1981 | | 1982 | |
|---|---|---|---|---|
| | Initial | Revised | Initial | Revised |
| January | 7 | 7 | 1 | 1 |
| February | 2 | 2 | 6 | 6 |
| March | 9 | 9 | 14 | 16 |
| April | 8 | 8 | 5 | 5 |
| May | 12 | 12 | 23 | 23 |
| June | 22 | 14 | 17 | 11 |
| July | 16 | 22 | 24 | 24 |
| August | 3 | 3 | 11 | 17 |
| September | 18 | 18 | 13 | 13 |
| October | 19 | 19 | 4 | 4 |
| November | 10 | 10 | 20 | 20 |
| December | 21 | 21 | 15 | 15 |

## DATA COLLECTION SYSTEM

The data collection problem was addressed by coding information from each ad on a scan sheet from which the data would be directly read into a computer file. This coding sheet included a place to record an ad number (consecutively from the first ad in each magazine) for identification purposes, ad size, whether the ad was in color or not, a mention of product size if there was one (such as a "mid-sized" tractor), the adjudged presence or absence in the ad of each of the 38 possible appeals just noted; type of product (such as herbicide, tractors, seed, or fencing), name of product; name of advertiser; and what year, month, and magazine the ad came from [15].

Only the (presumed or adjudged) presence of a category in a particular or given ad was noted on the scan sheet. If a category was not present in the ad, the corresponding column on the scan sheet was left blank.

The scan sheets were read into a computer file containing one record per ad. Consequently, the unit of analysis in this study is a single ad.

Before looking at the reliability of the content analysis performed, it is pertinent to consider an aspect of the research strategy not otherwise discussed. The issue is latency in ad messages.

## Latency in Ad Messages

Human language is often more complicated than the mere counting of words and ideas might indicate. The messages are not always unambiguous. Such ambiguity can be a result of: allusion, metaphor, parable, allegory, simile, analogy, colloquialism, and the like. Furthermore, communicaiton is not always limited to words; pictures and illustrations can often convey major messages which are less amenable to objective coding. These two aspects of latency, i.e., hidden messages and pictures or illustrations, are important factors for the content analyst to consider.

The latter aspect of latency, i.e., the content of pictures or illustrations, was one which could not be adequately addressed by the research. Mainly, this was due to the relatively few pictures or illustrations appearing in organic ads, compared to conventional ads. Thus, any results obtained could be due to differences in values between magazines, or to differences in the prevalence of illustrations or pictures. Therefore, the conscious choice was made to forgo analysis of pictures and illustrations.

The other aspect of latency involves the interpretation of the actual text used. To be concerned about latency in words is commendable, however, in actual practice it is much harder to deal with. Since the researchers had already made a conscious decision to code only the manifest content of text, it seemed to needlesesly complicate the task to include "latent" messages, if they indeed could be reliably coded at all. Given that the manifest messages themselves were adequate to indicate values, latent messages were ignored.

## Reliability

Krippendorff (1980) distinguishes among three aspects of reliability: stability; reproducibility; and accuracy. He elaborates the three as follows (1980:130-131):

> Stability is the degree to which a process is invariant of unchanging over time...Reproducibility is the degree to which a process can be re-created under varying circumstances, at different locations, using different coders...Accuracy is the degree to which a process functionally conforms to a known standard, or yields what it is designed to yield.

Accuracy as a criterion for reliability requires a standard against which to compare one's results. It is most meaningfully invoked when, as an example, a presumed random sample of respondents meant to be representative of the country as a whole is shown to be in conformity to the population's characteristics as these are revealed in census data.

Unfortunately, there simply is no known standard of this type against which to gauge the coding in this study.

Stability, as an aspect of reliability, is much more amenable to use because it refers to processes within a data set itself. The issue in terms of coding is whether a person produces similar results at different points in time. Stability can be checked by some test-retest procedure. But this manner of information is not especially relevant for the case at hand. A high test-retest reliability may show nothing more than that a single coder can get things consistently wrong! Of greater pertinence is the reliability that may exist among different persons assigned to coding essentially the same thing.

Krippendorff's reproducibility is the measure of reliability most relevant to this study. Reproducibility involves the comparison of results across two or more coders.

In order to test the reproducibility of the coding scheme, two graduate student colleagues in rural sociology at Penn State were persuaded to code a limited number of ads. Recall that a major reason for a single coder being used in the first place was the limited resources available for application to the research. Given the tedium involved in coding ads and the inability to remunerate the replicative coders except with personal gratitude, a smaller rather than a larger sample of ads for replication coding recommended itself. A sample of 50 ads was felt to be large enough to permit a reasonable test of reliability and yet not so large as to outstrip the willingness of unpaid labor to do the work.

The sample chosen for checking reproducibility was drawn from the first third of the ads which were coded. Twenty-five ads were selected (five from each magazine type) without regard to content -- the code sheets already completed for each magazine were placed in a stack, and ads taken out of it at approximately 1/5 stack height intervals. This was done on the stack of code sheets for each magazine, five ads for each magazine type.

These 25 ads were intended to be reasonably representative of a random sample or, at least, they had no bias intentionally introduced in the sampling process.

The remaining half of the replicative sample ads were picked so as to fill gaps in coding categories not represented (or barely found) in the other 25 ads. These fill-in cases were intended to compensate for the problem of getting relatively infrequently occurring categories from the population of ads to appear in a small sample. To test inter-coder reliability it was important to see how plural persons handled, not some, but the entire range of categories. Certain coding categories seemed less unambiguous than did some others. Whatever the reliability results, they would be more meaningful knowing that they were fashioned by the coders handling both "easy" and "difficult" categories.

When the 50 ads were coded by the replicators, they were compared to the researcher's original coding [16]. This was done on a per-item basis. There were 37 categories which were used for the replication [17]. This meant that there were 1,859 (37 x 50) data pairs for comparison purposes between any two coders, or 1,859 data triads for comparison among all three. The results of the comparison were examined in a cross-tabular framework, with the presence of a category coded as "1," and absence coded as "0".

Two comparisons were made because two sets of data were generated. One can be called "original" or "uncorrected" while the other is labelled "corrected." The latter type refers to the fact that the tedium involved in keeping track of 37 separate and distinct coding categories might -- for the replicators -- result in some omission of categories for some ads.

Thus, following the initial coding by the replicators, the researcher satdown with these persons and went over all the ads to examine disparities in coding between their work and his. Thus was created a set of "corrected" data for each replicative coder, with alteration occurring only in those instances where a replicator agreed that they had "missed" using a code [18]. All codes where disagreement was not due to simple omission were left unchanged for the computation of reliability coefficients.

In more general terms the issue is this. That coders might miss a category now and again (because of the tedium involved in the coding process) is not an indictment necessarily of the coding scheme's validity; and yet, without a correction factor, the reliability coefficients generated might suggest otherwise. Because of the functional niche the replicators were operating in, they were in a position to introduce a certain amount of "noise" to the data set as a result of boredom and tedium in coding. The idea of correcting the data is to attenuate the irrelevancy.

It should be clear that the need for attenuating the kind of noise here at focus is not some idiosyncracy of the particular research being done. Roth (1966) has noted some of the difficulties for sociology <u>generally</u> in doing what he termed "hired hand research." He observed that it is <u>always</u> difficult, at best, to get from hired workers (including coders) the kind of attention to detail and duty in doing research that one could ideally wish. In the present study, where remuneration was not possible, and thanks in the form of a dinner was the only reward for the replicators, it is not unreasonable to expect some degree of flagging attention during the coding process.

This is not to suggest that boredom and tedium did not affect the researcher during the coding of 4437 ads. It is hard to argue that what is boring and tedious for two replicative coders would be absent for the researcher. But, three things did mitigate the problem of tedium for the researcher.

First, as cited above, the magazines were sampled one-at-a-time for coding, from which all applicable ads were processed. This allowed for

built-in restive breaks during the coding, since the "goal" of a coding session was only to code one magazine's worth of ads, or for large issues, to break the coding into two sessions. Thus, by being broken into a series of smaller tasks, the tedium factor was reduced.

Second, and without question, the researcher was more experienced in the process of coding than were the persons doing the replicative work. This made it much less difficult for him to remember all the categories which were coded, reducing the tedium factor.

Finally, it should be obvious that the researcher was very interested in the research problem, and, by turn, the data which was collected to address it. This resulted in an attention to detail which could not be expected of the replicative coders.

There are many measures which could be used to summarize reliability. A method used by various content analysts in past research examines the number of all agreed choices (both agreed present and agreed absent) as a proportion of total decisions. This measure can be calculated for all possible pairs of coders, or as a grand total for all coders as a set.

Tables 4 and 5 contain data showing all possible two-coder combinations of agreement/disagreement, put in a crosstabular framework. Table 4 contains the original material as produced by all three coders. Table 5 shows the results following revision of Coder A and Coder B's original data. "R" designates the researcher; "A" and "B" are the replicative coders. The zero and one categories in each table denote the coder's judgment as to the presence or absence of a particular category in a particular ad. Agreements are those numbers in the 0,0 and 1,1 cells. Below each cross-tabulation is a series of reliability and proportion coefficients intended to summarize the internal consistency (reliability) of the data.

The first coefficient below each table is the proportion of total agreements between the two coders. In all cases with the uncorrected data considerable concurrence in judgment was manifest; proportional agreement ranged from a high of .950 [(1623+135)/1850] between coders R and B, to a low of .937 between coders R and A. While these figures in all instances are more than high enough to warrant satisfaction with the coding task as being reliably done (Carmines and Zeller, 1979:51), the use of proportion of agreement overstates the case for reliability.

The sense of this overstatement is tied to the underlying distribution of judgment pairs, which are highly skewed. When a large number of categories are used to describe an ad (or any object) in terms of presence or not of a characteristic, most characteristics are likely to be absent. Sloppiness, omission, inattention, and various related forms of the replicative coders' inability to do the task and/or random behavior -- to the extent these led to not putting check marks down on the coding sheets -- would only add a judgment of agreement via a signal of "not present." Put another way, with the underlying distribution of agreement pairs skewed

Table 4. Two-Coder Reliability for Uncorrected Data.

| | | Coder A 0 | Coder A 1 | |
|---|---|---|---|---|
| Coder R | 0 | 1606 | 52 | 1658 |
| | 1 | 65 | 127 | 192 |
| | | 1671 | 179 | |

| | | Coder B 0 | Coder B 1 | |
|---|---|---|---|---|
| Coder R | 0 | 1623 | 35 | 1658 |
| | 1 | 57 | 135 | 192 |
| | | 1680 | 170 | |

| | |
|---|---|
| Proportion Agreement | .937 |
| Krippendorff Coefficient | .650 |
| North Coefficient | .685 |
| Phi (Pearson r) | .650 |
| Proportion of Agreed Positives | .661 |

| | | Coder B 0 | Coder B 1 | |
|---|---|---|---|---|
| Coder A | 0 | 1624 | 47 | 1671 |
| | 1 | 56 | 123 | 179 |
| | | 1680 | 170 | |

| | |
|---|---|
| Proportion Agreement | .944 |
| Krippendorff Coefficient | .674 |
| North Coefficient | .705 |
| Phi (Pearson r) | .674 |

Table 5. Two-Coder Reliability for Corrected Data.

| | | Coder A | | |
|---|---|---|---|---|
| | | 0 | 1 | |
| Coder R | 0 | 1625 | 33 | 1658 |
| | 1 | 19 | 173 | 192 |
| | | 1644 | 206 | |

| | | Coder B | | |
|---|---|---|---|---|
| | | 0 | 1 | |
| Coder R | 0 | 1626 | 32 | 1658 |
| | 1 | 18 | 174 | 192 |
| | | 1644 | 206 | |

| | | |
|---|---|---|
| Proportion Agreement | .972 | .973 |
| Krippendorff Coefficient | .854 | .859 |
| North Coefficient | .869 | .874 |
| Phi (Pearson r) | .854 | .860 |
| Proportion of Agreed Positives | .901 | .906 |

| | | Coder B | | |
|---|---|---|---|---|
| | | 0 | 1 | |
| Coder A | 0 | 1612 | 32 | 1644 |
| | 1 | 32 | 174 | 206 |
| | | 1644 | 206 | |

| | |
|---|---|
| Proportion Agreement | .965 |
| Krippendorff Coefficient | .825 |
| North Coefficient | .845 |
| Phi (Pearson r) | .825 |

heavily toward the "absent" set, agreement between two coders that a characteristic is absent tends to be unremarkable.

It can be thought of this way. Suppose two coders each agree that 10 percent of some categories are present and 90 percent are absent, proportions approximating those in Tables 4 and 5. If these judgments were applied merely randomly to all units, one would still expect that any two coders applying random judgments would agree that 81 percent (.9 x .9) of the categories were absent, and about one percent (.1 x .1) of the categories were present. This would produce an agreement proportion of .82, a figure likely to be taken as an acceptable level of reliability by most people. Yet, there is no concurrence here above that which could be expected were answers assumed to be only randomly distributed!

Other measures of reliability exist which are less influenced by chance agreement. Still, as a consequence of their diversity, it is not clear from past research experience why one coefficient ought to be inevitably chosen over another. Thus, several different coefficients were utilized to further assess the reliability of the thesis data set. Measures suggested by Krippendorff (1980), and by North et al., (1963) are included, as well as PHI, the generalized form of the Pearson Product-Moment Correlation (Cohen and Cohen, 1983). Included also is a figure representing the proportion of "present" categories identified by Coder R which were also identified by the other coders.

All four measures of reliability showed the same pattern. As one would expect, all the reliability coefficient were higher in the corrected data. Except for the Proportion Agreement coefficient (which, as stated above, is an inflated measure of agreement), the coefficients range in value from .650 to .906.

Are these figures "high enough" that one may feel comfortable about the reliability of the data, that it is indeed reproducible "...under varying circumstances, at different locations, using different coders?" (Krippendorff, 1980:131). Unfortunately, answering the question is not a straightforward matter.

Krippendorff (1980) points out that there is no set answer to the question of coefficient size in regard to an adequate measure of reliability. Similarly, Holsti (1969:142) observes that there is no single, absolute solution to the problem of deciding how high is high enough. He does not specify a rule of thumb, noting instead that a content analyst should be concerned about the tradeoff between reliability and relevance of categories. He is more interested in the relevance of categories than in a schema which produces high levels of reliability through the use of categories which compromise relevance for reliability. Carmines and Zeller (1979:51) concur that, "it is difficult to specify a single level that should apply in all situations."

Given that any reliability level which is chosen will be arbitrary, one still needs some baseline to get a feel for the data produced in this

study. Perhaps the best way to do this is to see what level of reliability has been deemed acceptable by others, and use these for comparison.

Kerlinger (1973:452) describes an instrument producing a reliability coefficient of .71 as "evidently fairly accurate." Nunnally (1978:245) suggests that "increasing reliabilities much beyond .80 is often wasteful of time and funds. At that level, correlations are attenuated very little by measurement error. Similarly, Carmines and Zeller (1979:51) come out against making much attempt to boost reliability coefficients beyond the .80 level, especially as "it is often costly in terms of time and money to try to obtain a higher reliability coefficient." Overall, in past research, reliability coefficients in the range of .6 to .8 are usual and deemed adequate.

From Tables 4 and 5 one can see that all the calculated reliability coefficients, whether using the original or "corrected" data, are of the same general magnitude as the levels cited above. From this, it is reasonable and not unconventional to conclude that the data obtained in the study is sufficiently reproducible (reliable) to warrant analysis.

It should be noted that the coefficients reported in Tables 4 and 5 examine only all of the possible pairwise comparisions between coders. None assess the agreement among all three coders simultaneously. Material for that is contained in Table 6.

It can be seen that, before revision, all three coders agreed on 1587 absent categories, while 107 categories were agreed by all as present. This yields a proportion of agreement figure of .916. The Krippendorff coefficient of agreement among more than two coders, is .681. In the corrected data, the proprotion of agreement rises to .955 and Krippendorff's coefficient rises to .846. Either way the measures are within the range of deemed acceptability.

## Validity

A procedure of eliciting data or a way of measuring some phenomenon which gets the same or reasonably similar answers in repeated use or observations is reliable. It has just been shown that the elicitation of presumed value designations in the magazine ads examined can be supported as having reliability. But this is not the end of pertinent questions; one normally wishes, also, to ask about validity.

Krippendorff (1980:157-158) distinguished among five testable sub-types of validity:

> Semantical validity assesses the degree to which a method is sensitive to the symbolic meanings that are relevant within a given context...

Table 6. Three-Coder Reliability for Uncorrected and Corrected Data.

Uncorrected Data

Coder A=0

| Coder B \ Coder R | 0 | 1 |
|---|---|---|
| 0 | 1587 | 37 |
| 1 | 19 | 28 |

Coder A=1

| Coder B \ Coder R | 0 | 1 |
|---|---|---|
| 0 | 36 | 20 |
| 1 | 16 | 107 |

Proportion Agreement .916

Krippendorff Coefficient .681

Corrected Data

Coder A=0

| Coder B \ Coder R | 0 | 1 |
|---|---|---|
| 0 | 1607 | 5 |
| 1 | 18 | 14 |

Coder A=1

| Coder B \ Coder R | 0 | 1 |
|---|---|---|
| 0 | 19 | 13 |
| 1 | 14 | 160 |

Proportion Agreement .955

Krippendorff Coefficient .846

> Sampling validity assesses the degree to which available data are either an unbiased sample from a universe of interest or sufficiently similar to another sample from the same universe so that data can be taken as statistically representative of that universe...
>
> Correlational validity is the degree to which findings obtained by one method correlate with findings obtained by another, and thus justify their substitutability...
>
> Predictive validity is the degree to which predictions obtained by one method agree with directly observed facts...
>
> Process-oriented validity assesses the degree to which an analytical procedure models, mimics, or functionally represents relations in the context of data. . .process-oriented validity [is also know as] construct validity.

Two of these sub-types -- correlational and predictive -- can be set aside at this point as inapplicable. They are matters that reasonably become part of the analysis itself, as when one asks if the magazines presumably representative of different agricultural philosophies, in fact, show different patterns of invoked values. Clearly, this is an implicit "prediction" of the study. Whether it is found is something that must await the data analysis. Similarly, how the findings of the study correlate with extant research must also await the analysis of the presently generated data.

The question of sampling validity is a moot point. Subject to certain exclusions, every ad in each issue of five farm magazines during two consecutive years were analyzed. The process involved a total enumeration. By this act, sampling is ruled out as an issue. Of course, one could question whether the enumerated universe is a fair slice of some yet higher level of abstraction, a more inclusive set. This matter was discussed earlier in making clear the bases of the original selection of magazines.

The two remaining sub-types of validity -- semantic and construct -- have, in principle, some pre-analysis significance. Each, to some degree, points the researcher toward colleages or peers and what they have done in prior research and thinking. In the present study, however, that avenue is pretty much closed. The sociological study of organic farming is a relatively new phenomenon, even if organic farming is not. Unfortunately, little has been done in the area; interest in and research on farming philosophies and values are even less evident in the past research record.

In coming to the problem, assuredly, the path followed was to not deliberately be autistic. Exactly how sensitive the research is to symbolic meanings relevant to the current problem, or how semantically valid it might be is hardly the province for the authors to venture a final judgment. Who would deliberately choose to call oneself blundering or insensitive? This has to be the judgment of others. The best we can do is

be as clear as possible at every juncture of the problem's construction to let the reader know what has (and has not) gone into the data generation at reference. Then, while a reader may not wish to agree necessarily with every choice made, at least it should be readily apparent where divergence exists. In a multiparadigm field like rural sociology (Bealer, 1975; Fliegel, 1983), can one ask for more than this?

## REPRISE

This publication has been concerned with explicating the many decisions -- large and small -- going into a content analysis of the ads directed at the readers of farm magazines. The intent of the content analysis was to show the differences and/or similarities in the "values" expressed via the ads. Having this information in hand, one can then be in a position to gauge what direction(s) American agricultural farm managers might be headed.

We have not delved that specific substantive issue in this monograph, but it is pertinent. We noted at the outset that there are no ironclad rules for declaring a way to partition text and make substantive sense of it. Rather, content analysis is a heuristic road. The "proof" of any specific trial is what comes out and how useful it might be. In this regard, the reader may wish to check on the outcome to the foregoing methodological adventure. Thus, see Dalecki and Bealer, 1987.

## NOTES

1. This section was originally published in Bealer and Tallichet (1985). We appreciate the willingness of The Rural Sociologist and the Rural Sociological Society to reprint it here.

2. The substantive significance of this interest area is readily apparent to anyone even faintly aware of American agriculture, its structure, and the problems posed under the rubric of environmental degradation. For an appropriate elaboration, however, see Bealer and Dalecki, 1985 or Dalecki, 1986:1-14.

3. One way around this limitation is to use an open-ended question format. If great skill is invoked by interviewers in the process of using such kinds of questions, the data richness sought by the present study might be available. However, this manner of data gathering as an option presupposes: 1.) the ready identification of respondents to be interviewed using an open-ended questions; and, 2.) the considerable wherewithal needed to go the expensive route of interviewing. For the study at reference, neither of these two restrictions could be lifted. Moreover, in using open-ended questions, one would still be left with the painstaking task of making sense of the variety of response normally expected -- and often elicited -- by this type of format. In other words, some manner of

content analysis would be required. Content analysis is what this monogragh is all about!

4. Woodrum (1984) notes that content analysis has existed since at least the 18th century, where it was used to examine hymns to see if they were "carriers of dangerous ideas" (Krippendorff, 1980:13). Political scientist Harold Lasswell (1949) headed a research project during World War II where content analysis was used extensively in evaluating enemy propaganda. Content analysis has also been employed in examining media coverage of the civil rights riots in the U.S. during the 1960's; indeed, Woodrum (1984) contends that the methodological development of content analysis often has been spurred by applied problems.

5. Woodrum (1984) observes that manifest materials may also be used to examine latent content and structure. This option and the problems involved with it will be considered presently.

6. Wherever possible, Weber (1985) suggests that complete enumeration of text within documents is preferable; analysis of isolated items, such as paragraphs or sentences may take them out of context and alter their meaning dramatically, leading, of course, to invalidity.

7. Among recent works which examine content analysis and report on its use are Woodrum (1984), Maroff et al. (1974), Krippendorff (1980), Weber (1985), Andren, et al. (1979), and Kasserjian (1977).

8. Archival records generally as a form of nonreactive data sources have the problem of perhaps not containing the sort of information needed by a particular substantive interest or question the researcher may have. By contrast, reactive techniques can be aimed in almost any direction -- limited only by the researcher's wits, sense of decorum, and sheer gall. But nonreactive devices and means also show breadth and flair (Webb et al., 1981). Archival records -- such as already published ads -- are not the only form of nonreactive measures.

9. The presumption is an affirmative support for unobtrusive measures but it is, also, a matter partly of reacting to the disadvantages of possible alternatives. A critical problem which has plagued researchers in the study of organic farmers is the delineation of the population of study. No central list or other enumeration separates them from their conventional counterparts. The present study sidesteps this research difficulty by examining magazines catering to the two types of farmer, rather than examining the farmers directly.

10. Generalizability is important since the issues associated with organic agriculture are national ones. Agriculture is a phenomenon with national import; a study narrow in scope would not address the larger substantive question, i.e., what is the likelihood of wholesale adoption of organic techniques by American farmers?

11. Organic farming is not really a "new" style of farming. It engenders techniques which have proven themselves over decades of use. Harwood (1983) notes that organic precepts are rooted in work done during the early 1900's, and even before.

12. Currently, The New Farm is in fact the official magazine of the Regenerative Agricultural Society.

13. Another interesting bit of data may be gleaned from Table 2. Less than one percent of the respondents listed either Farm Journal or Successful Farming as a magazine they would turn to for advice on organic farming methods. This is further support for the classification of Farm Journal and Successful Farming as conventional. Progressive Farmer was not listed as an advice source at all, a result probably due as much to lack of survey respondents in Progressive Farmer's high circulation areas as to its conventional focus.

14. As will be noted shortly, the content structures chosen for analysis within the magazines themselves were advertisements. Thus, publications containing no advertising could not reasonably be considered for inclusion.

15. Not all of the information recorded was used. To the extent that post-hoc outcomes suggested that some of the recorded information might be useful (which happened), it was better to have recorded the information and not have needed it than vice versa.

16. One replicator was used to check for reliability following the coding of the first 1/3 of the ads. Were reliability examined only following the coding of the entire sample, and the coding scheme found to be nonreproducible, a great deal of work would have gone for naught. The second replicator performed his task after the researcher's coding was completed.

17. The 38th category, years of service, was not used in the replication since it was so easy to identify that its inclusion in the replication process would have tended to unfairly boost the apparent reliability observed. Thus, it was not included in the replication effort.

18. Among strategies which could be used that might reduce coder error is one which treats the list of coding categories in the same way as a pilot would handle a pre-flight checklist. While a systematic way of going about the coding of ad content, this procedure is also hugely taxing. The repeated reading of each ad 37 times would have made a tedious task even more so. To some extent, the researcher used such a device, and suggested the replicators might wish to use it as well. It was not insisted upon, however.

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