

# Extensions Of Extension: Socialization And Credibility Constraints On Private Crop Production Advisors

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A study of private crop production information sources finds the analytical frameworks underlying their recommendations to clients are much narrower than the available range of analyses. A lay-epistemological interpretation highlights two factors, both related to construct accessibility, that encourage private advisors to base recommendations on land grant university-recommended data and analyses and exclude crop production solutions from other sources. The analysis suggests that the major difference among many agricultural information sources may not be content-related, and suggests a need for more diffuse epistemic authority in agricultural information systems.

## Introduction

Significant numbers of farmers turn to private professionals — farm supply dealers, crop consultants, financial advisors, veterinarians, and the like — for information for making production and management decisions (e.g., see Ford and Babb, 1989; Turpin and Maxwell, 1976). Current trends suggest these private, non-mass media sources may become even more central in many farmers' production information systems. Increasing scale and specialization of commercial farms continues to fuel demand for highly-specialized,

site-specific information (Bonnen, 1988). Farmers developing more sustainable agricultural production systems will likely need even greater amounts of detailed information to better fit production practices to their physical, economic, and social environments (Jackson, 1984; NRC, 1989; Reber, 1989).

For farmer and agricultural communicator alike, interpersonal channels may be the preferred way to communicate this "micro-management" information. Holt and School (1985), for example, claim that "one-to-one communication,

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dealing with specific opportunities and problems relevant to the client's needs, is the most effective form of Extension" (p. 247). Gerber (1989) likewise suggests that technology maintenance "implies close personal relationships between the professional and the client" (p. 416). Although cooperative Extension once provided such one-to-one contact, a local agent's knowledge base is often no longer relevant for highly specialized agricultural operations (Gerber, 1989); a recent Extension self-assessment concludes that "the expectation that county-level personnel may serve as technical experts for the range of needs of today's clientele is unrealistic" (ECOP, 1987, p. 12). Consequently, private consultants, dealers, and others with regular direct contact with farmers may well assume an expanded role in creating and disseminating agricultural information.

Yet unanswered is the question of whether a shift toward private, and often personalized, information sources would constitute a real change in the decision-making information available to farmers. Do private consultants, for example, offer farmers different advice than local Extension agents might? Gerbner (1967) claims the form and content of a communicator's messages are shaped by an array of environmental constraints, including social norms, prevailing production technologies, and relationships with clients, sponsors, and regulatory agencies; Hirsch (1972), Turow (1984), Rothenbuhler and Dimmick (1982), and Gallagher (1982) have illustrated how technology, politics, social relations, and ideology influence message form and content in non-agricultural mass media. Few if any studies, however, have examined how such constraints affect the way pri-

vate, non-mass media agricultural information providers construct their information products.

This article presents results of a study of the message production processes of two types of private, non-mass media sources of crop production information for Wisconsin farmers, independent crop consultants, and retail fertilizer and chemical dealers.<sup>1</sup> While these two groups form a narrow segment of the larger agricultural information system, the constraints they face in gathering and disseminating information typify those confronting many other private agricultural information services. This article analyzes the influence of three interrelated factors; construct accessibility, epistemic authority, and the need for credibility, on the way these private agricultural advisors choose the information content they offer.

### **Construct Accessibility and Epistemic Authority**

Construct accessibility refers to the relative ease with which a particular concept or set of concepts (i.e., a social-psychological construct) can be called forth from memory to help interpret observed data. Cognitive psychologists have observed that the concepts or conceptual frameworks an individual has used often or recently tend to be more accessible, and hence more likely to be used, for selecting, organizing, and interpreting new information (Kahneman and Tversky, 1973; Wyer and Srull, 1981). Kruglanski (1989) cites as an example the driver of a car stalled on the highway who, generally unfamiliar with automobiles but having recently read a magazine article about carburetors, tends to infer first that the carburetor has caused the stall. Because the carburetor hypothesis is the most acces-

sible cognitive structure available to explain the event, the driver will consider it valid until experience, or perhaps another individual, offers a superior alternative.

For the individual, an inference is valid if it offers an interpretation of a given set of data that is sufficiently plausible in terms of what he or she already believes to be true (Kruglanski, 1980); among individuals, validity is a collective acknowledgment of an inference's fit with currently accepted knowledge (Kruglanski, 1989). The logic of construct accessibility suggests that people are more confident of the validity of inferences generated from more accessible conceptual frameworks (Fiske and Taylor, 1984; Higgins and King, 1981; Higgins et al., 1982; Kruglanski and Freund 1983). Hence if data, analyses, or interpretations produced in an information system are to be treated as valid, they must offer a plausible fit with some generally accepted and available analytical framework.

Which data or inferences the system deems relevant or plausible in turn largely hinges on the epistemic authority of their source, or the degree to which the source is considered likely to be authoritative on the topic in question (Kruglanski, 1989). An important contextual (as opposed to personality-related) component of source credibility (Delia, 1976), epistemic authority is typically presumed to derive from use of particular methods of data collection and inference (e.g., see Campbell and Stanley, 1966). Kruglanski (1989), however, suggests that construct accessibility may better explain why some sources possess greater authority while the inferences drawn by others are discounted. Conceptual frameworks appearing in prestigious media, taught to a majority of

system members, or consistent with current ideological fashion are more accessible than those lacking access to a dissemination network or from obscure origins (Kuhn, 1970; Mulkay, 1979; Mullins, 1973). More accessible frameworks, those more easily operationalized or published, tend eventually to become "official" methodologies, invested with privileged epistemic authority (for examples in agricultural science, see Busch and Lacy, 1983 and Kloppenburg, 1988).

### **Epistemic Authority and the Need for Credibility**

Because the value of information generally can be accurately known only after it is purchased and put to use, a purchaser's decision to buy (or to incur other costs) rests on expectations that the information will prove sufficiently valuable; all else equal, these expectations must be based largely on the credibility of the source (Riemenschneider, 1980). Credibility, then, is vital for anyone in the business of selling information.

Credibility derives from a reputation for, or demonstration of, expertise in a given context or domain, from personality or other traits that engender perceptions of trustworthiness, or from affiliation with or sanction by some other credible authority (Berlo et al., 1970; Delia, 1976). The first and last of these directly involve epistemic authority: to be credible (personality traits aside), an information seller must have epistemic authority, use authoritative methods of gathering and interpreting data, (those that produce plausible inferences), or sell information obtained from epistemic authorities. In each case, the need for credibility is likely to encourage communication of information produced by "official" methodologies and

broadly accessible analytical frameworks.

When the study reported here was conducted, crop consulting was a relatively new phenomenon in Wisconsin, and most of the consultants had been serving clients for less than five years. Hence the way they operate their information services could be expected to reflect their need to establish their credibility with current and potential clientele. Most dealers, on the other hand, had been in operation for many years and likely had well-established reputations as information sources. As newcomers to crop consulting, and as retailers who could increase their profits by recommending particular products or practices, however, they also have a considerable need to establish and maintain credibility with customers.

### Methods

Selection of study participants followed a "problematizing" strategy (Felstehausen, 1982) designed to yield the fullest feasible range of sentiments, opinions, and experiences. Initial selection drew names

from trade association mailing lists, referrals by Extension agents, and meeting agendas; these participants named others believed to have different, exemplary, or otherwise remarkable opinions or ways of doing business. Participants were selected from geographic regions with different cropping patterns and distances from land grant universities, and from subpopulations with different enterprise structures and, in the case of consultants, levels of experience (Table 1). Selection closed when participants' accounts converged to suggest relatively thorough coverage of the range of views and practices, yielding 13 independent crop consultants and 12 dealers.<sup>2</sup> No one contacted refused to participate in the study.

The author interviewed each participant during spring and summer of 1988; most of the one-to-three-hour, open-ended interviews were done in the participant's home or place of business. The interview protocol covered participants' data sources, information service content, clientele recruitment, training and professional socialization, and rela-

**Table 1: Selection matrix for study participants**

Category/Subcategory	Number
Independent crop consultants	13
Southern Wisconsin	7
Northwestern Wisconsin	3
Northeastern Wisconsin	3
Individual	10
Multi-consultant franchise	3
New (in business less than two years)	4
Established	9
Fertilizer and chemical dealers	12
Southern Wisconsin	7
Northwestern Wisconsin	2
Northeastern Wisconsin	3
Independent	6
Cooperative	6

tions with land grant universities<sup>3</sup> (LGU).

## Findings

**Message production.** All the independent crop consultants interviewed contracted with individual farmers to provide crop rotation planning, pest scouting, and soil amendment (fertility) and chemical treatment recommendations. At winter planning sessions, they matched management practices with field data e.g., soil fertility, cropping history, and client goals and abilities. During the growing season, they based chemical treatment recommendations on crop scouting data and client preferences. Several distributed selected Extension publications to their clients. Dealers' information services vary from fertility recommendations alone to services modeled on those of independent consultants.

The dealers' and consultants' primary data bases are soil samples and scouting reports; to gather and interpret this data, all but one (an alternative products dealer) use fertility maintenance and integrated pest management (IPM) recommendations developed at midwestern land grant universities, usually University of Wisconsin-Madison (UW). Their chemical application advice generally conforms to rates on product labels and recommendations from Extension specialists and LGU research. Most consultants test alternative practices and application rates in clients' fields; dealers, usually in cooperation with a local Extension agent or forage council, use field trials chiefly to compare products and, less often, rates.<sup>4</sup>

The consultants called Extension specialists their chief source of basic agronomic information, and farm magazines, their major source for

knowledge of practice and product innovations. They communicate little with local Extension agents, manufacturers, or dealers, though multi-consultant franchises have regular visits with agrichemical firms' technical representatives. The dealers reported more exposure to private-sector research results, publications, and sales representatives; local co-operatives also receive research reports and occasional training from regional parent organizations. Dealers also talk more often with local Extension agents, but have little face-to-face contact with researchers outside annual Extension-sponsored dealer meetings.<sup>5</sup> Like the consultants, they read farm and trade magazines to keep abreast of technological and policy developments.

While the dealers and consultants monitor multiple information sources, however, their comments suggest that they seldom draw from the entire pool of available approaches to crop production problems when making recommendations for their clients and customers. Instead, they base their information products almost exclusively on analytical techniques developed at UW and other LGUs. Some offer more elaborate or more sales-oriented services, but all use or refer to UW fertility standards, scouting procedures, and product evaluations to the point of excluding other frameworks for defining appropriate field data and translating them into recommendations. The result is a relative homogeneity among their information products, not in the actual recommendations they offer individual clients, but in the way they approach each one's crop production problems.

For example, reliance on UW-certified soil analyses effectively standardizes both analytical tech-

niques and reporting formats, and deviations from the recommendations that accompany each analysis are rare. The LGU-promulgated IPM procedures similarly guide the participants' approaches to crop protection. Though crop advisors frequently "shortcut" published scouting procedures to reduce labor and travel expenses e.g., by sweeping fields less frequently or less thoroughly, they rarely deviate from recommended treatment thresholds and pest management regimes. Hence, their crop protection recommendations are virtually identical to those clients would receive (given the same field data) from a local Extension agent, state specialist, or other consultant.

**Sources of homogeneity.** The participants' use of LGU-promulgated approaches to fertility maintenance and crop protection does not appear to stem from particularly strong beliefs in the absolute superiority of those approaches. Many consultants, for example, said the universities' recommendations tend to be too conservative and often lag behind the changes in crop production technology. And other frameworks for fertility and crop protection recommendations are available. The alternative products dealer said he often refers to non-LGU fertility standards (most of which are available to other participants) because the UW-certified analysis fails to include trace minerals he considers important for subsequent feed quality and animal health. All the other study participants, however, generally question the validity of non-LGU analyses, sometimes on methodological grounds but more often because they either are not widely known or are simply "non-standard."

Their criticisms of LGU specialists and research notwithstanding, the dealers and consultants (except

for the dealer<sup>6</sup> just mentioned) tend ultimately to grant their university sources a preeminent epistemic authority in defining both the range of relevant crop production and protection questions and the range of acceptable ways to answer those questions. Analysis of their message production processes suggests two important sources for the analytical homogeneity in their recommendations to clients: professional socialization experiences that enhance the cognitive accessibility of LGU-derived analyses, and a need for credibility that is most easily satisfied by appropriating or affiliating with the LGUs' epistemic authority.

**Professional socialization.** All but one consultant interviewed have bachelor's or advanced degrees in agricultural sciences from land grant colleges; two are former Extension specialists. Several have regular contact with former teachers, and all 13 generally turn first to UW faculty if they need help interpreting field data. Attendance at Extension-sponsored forage production, fertilizer, crop production, and field-day meetings was termed "mandatory" or "very important," and individual consultants reported few continuing education activities in which Extension specialists were not involved. Virtually all non-business presentations at the first three general meetings of WAPAC (a consultants' organization) were made by UW researchers or administrators; two UW specialists sit on WAPAC's executive board, and the organization has a UW-Madison mailing address.

Nine of the 12 dealers interviewed also have land grant college training in agribusiness management or crop sciences; the others have technical school training in agribusiness management. Most attend annual Extension-sponsored forage, produc-

tion, and dealers' meetings, plus product update sessions with manufacturers' or regional cooperatives' sales and technical representatives. Consultants at two dealerships get special training from their regional cooperative that often includes sessions with Extension; at two dealerships, a local Extension agent trains summer scout interns and helped design forms for gathering field data.

Extension and other LGU personnel's involvement in the vast majority of these professional training and continuing education activities enhances the likelihood that their preferred approaches to crop production will be relatively more accessible in dealers' and consultants' cognitive structures. They and the dealers also establish networks of professional contacts during training and socialization that may encourage them to look first to LGU-system sources for answers to extraordinary questions.

**Need for credibility.** Virtually all the participants, without prompting, called reputation their primary source of credibility. Certification, employment experience, and other credentials are important for establishing credibility with peers, university scientists, and the Extension service, most said, but of these only experience is of much consequence to most clientele. The participants view reputation as a combination of demonstrated efficacy and unbiasedness; recruiting and maintaining a client or customer base demands both a record of preserving or increasing crop yields and independence from other commercial interests.

The "independent" designation is crucial for individual consultants; all said their ability to recruit and keep clients would be seriously com-

promised if clients believed their recommendations benefited a specific supplier or yielded any financial consideration from commercial interests. All said basing their recommendations on LGU-sanctioned soil analyses, field trial reports, and IPM procedures helps assure clients their advice is both unbiased and of proven quality. For most, other information, including their own trial results, only finds its way into their recommendations if corroborated by findings or procedures from LGU sources.

Dealers appropriate LGU credibility in similar ways. Each said use of UW fertility recommendations reduces customers' perceptions of self-interest. Two dealers with crop scouting services reproduce Extension publications on their scouting forms and use crop scouts trained by a local Extension agent; others said their customers show more interest in product demonstrations if they are conducted with local Extension agent cooperation. Many product claims that dealers rely on to help sell specific fertilizer and chemical products refer to field trial results from public universities.

Only the alternative products dealer suggested that association with public university personnel or analyses did not enhance his own credibility. His clients, he said, do not believe LGU research is independent of commercial interests, so he depends entirely on reputation and local product demonstrations to establish his credibility.

The private advisors in effect appropriate the university's credibility to establish their own. While they could defend their recommendations with readily accessible and methodologically sound information from manufacturers, regional cooperatives, and their own field trials, they rely instead on a source per-

ceived as unbiased and, therefore, more credible. A lack of affordable errors and omissions insurance further forces consultants and dealers to minimize their liability exposure by relying on practices tested or supported by land grant universities as "the best available information."<sup>7</sup>

**Summary Observations.** The study participants described an information system in which land grant university-produced frameworks for gathering and interpreting crop production data have pre-eminent epistemic authority. They often couched their reasons for their reliance on UW soil analyses and IPM procedures in terms of credibility needs and superior construct accessibility. In fact, a majority of the independent consultants, noting their close ties with UW specialists, like to voluntarily characterize themselves as "extensions of Extension." While most consider LGU recommendations less innovative and immediately useful than findings from their own field experiments, they nevertheless rely on LGU information when client confidence or their own credibility is in question.

For many of the participants, university-based information is no more physically accessible than that from commercial sources. Its favored status derives instead from its use of definitions of relevant data, decision-making goals, and analytical techniques that are cognitively most accessible to consultants and dealers trained in or by land grant colleges of agriculture. In this sense, the notion of construct accessibility may begin to explain the mechanism by which socialization and culture influence the content of communications within a system. Insofar as it reinforces some sources' epistemic authority relative to others, it may

help explain the structure of information systems as well. For example, LGU dominance in many spheres of agricultural information, certainly not present in the 19th century, may be attributable not only to scientific progress but also to the increasing proportion of present-day farmers whose knowledge of agricultural practice derives as much from an agricultural college education as from traditional sources.

The participants' accounts also describe how LGUs' greater epistemic authority impedes the flow of other knowledge into the larger agricultural information system. While the private advisors in this study rarely question the validity of information from university sources, they as a rule insist on validating non-LGU production research and recommendations (including their own field-trial findings) with university research or researchers before recommending full-scale application in clients' fields. This imbalance also characterizes LGU-advisor relationships; consultants and dealers alike complained of specialists' tendency to discount or dismiss out of hand their findings from field trials with clients. This authority-based exclusion of "outside" views further limits the range of analytical perspectives that are brought to bear in defining and solving crop production problems and, hence, the range of analyses private advisory services make accessible to farmers.

The epistemic hegemony of LGU crop production information is not absolute. Consultants scout fields according to time and travel constraints rather than the published recommended frequency, for example, and occasionally prescribe "sub-optimal" management regimes if they fit a client's current needs. However, only the alternative prod-

ucts dealer reported basing recommendations on production parameters other than those in LGU information products.

The consistency of the case-study accounts strongly suggests the conditions and processes they describe pervade the larger populations of consultants and dealers. However, the selection process could have omitted some whose information services appeal to different epistemic authorities. Certainly, the alternative products dealer's analyses often departs from those of other participants, and he ascribes high epistemic authority to very different information sources. He nonetheless faces similar construct accessibility and credibility constraints; by his own account, his credibility often hinges on demonstrating his products' efficacy according to criteria developed by UW specialists.

Crop consulting's relative novelty in Wisconsin may limit the findings' generalizability to areas where private consulting has a longer history. Wisconsin consultants had just begun sharing field trial findings and other experiences and hence may have been more reliant on the university than those where established communication networks circulate information from a broader range of sources. Similarly, in areas where growers are more familiar with IPM and consulting, private advisors may have less need to appropriate LGU credibility. A national organization's positions on LGU research funding and cooperation with Extension (Henry, 1985) suggest reliance on public research is common across the country, however.

The study findings have at least two practical implications for the study and design of agricultural information systems. First, they sug-

gest that inventories of farmers' use of information sources may not necessarily illustrate meaningful differences in message content. On topics where LGUs have dominant expertise, farmers may well be using information derived from identical analytical frameworks, or even identical information content, whether their source is an Extension agent, a private advisor, or a farm magazine. Even personal information sources, presumably the most likely to customize their advice, find it difficult to deviate from "official" interpretive frameworks. Further study is needed to specify the circumstances under which such sources can or will deviate from the official interpretation, and to examine their message production processes in novel or changing situations where no pre-eminent epistemic authority exists.

Researchers also need to examine the differential social relations involved in information source choices, including their distributive effects on access to information. There may, for example, be status-related differences in communication between farmer and county agent versus farmer and private advisor. Likewise, private advisors, like modern farm magazines, might for various reasons be inclined to serve some clients and not others, or to provide different levels of service. If public Extension services curtail their own information activities, some clientele could become information poor. Research also might look for differences in source-associated learning processes e.g., whether paying for information increases cognitive involvement and retention (Petty et al., 1981), as well as relationships between information sources and farming practice, whether, for example, farmers change crop production

practices when they hire private consultants.

Second, increasing the circulation of "alternative" data and solutions to production and management problems — one aim of those promoting a more sustainable agriculture — may require some decentralization of epistemic authority in existing agricultural information systems. Simply expanding farmers' information source choices would probably do relatively little to make alternative interpretive frameworks more accessible; on the other hand, improving circulation, via credible communication networks, of private on-farm study results to researchers, extensionists, private professionals, and producers might. University cooperation with producer-led organizations who design and evaluate off-campus (and off the experimental farm) studies of production practices moves in this direction, without seriously challenging the university's own epistemic authority, enabling farmers and professionals to disseminate their own findings to wider audiences.

## Notes

1. The findings are drawn from a larger study (Walter, 1989) that also included agrichemical manufacturers' sales representatives and four sources of farm financial management advice. The sales representatives were not included in this analysis because they rarely convey site-specific crop production recommendations to farmers.
2. Secondary sources put the number of independent crop consultants and retail chemical dealers in Wisconsin at approximately 40 and 200, respectively.
3. The author also accompanied two consultants on farm visits and attended three dealer sponsored

grower meetings and three meetings of the Wisconsin Association of Professional Agricultural Consultants (WAPAC).

4. Representative comments from consultants: "We do a lot [of test plots] on individual farms, trying one product against another. But repetitions year after year for four or five years we just can't do." "We do a limited amount of our own research, if the farmer's willing to split a field with two different treatments." From a dealer: "I do research all the time on the farms I work with. It's not exactly research, since there are so many variables, ... but I can still suggest things to farmers."
5. Consultants: "Extension is definitely the primary source of my information. Every client gets the latest pest management bulletins, soybean and alfalfa trials, and things like that." "Basically, you're utilizing all kinds of knowledge that comes out of the land grant system. Ninety percent of the information I use is derived from them." Dealers: "We get a lot of information mailed to us from anywhere and everywhere, from professional societies, the university, other states, from fertilizer and chemical companies. "We get a lot of our information from our regional co-op. They have their own newsletter for dealers that comes out pretty much when necessary. It's written by the people there, and most of it refers to some university piece that might have just been released."
6. One independent dealer uses analyses provided by his primary fertilizer supplier.
7. Consultant: "Liability insurance isn't quite here yet, so I use Extension materials as somewhat the same thing.... I pretty much have to protect myself by sticking to label, and I back up my recommendations with extension's recommendations where I can."

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