

# How Much Information Is Enough? Comparing Agricultural Teletext With Other Media

by Hernando Gonzalez

*The question, "How much information is enough?" has received little research attention. Many researchers have encouraged more information for the "media poor" but have not examined how the "media rich" cope with ever-increasing amounts of media and messages, particularly when they need periodic updates of information. A five-month agricultural teletext field study by the University of Wisconsin-Extension identified, on a preliminary basis, what contents farmers and agribusiness people may be interested in, and how this electronic magazine compared with other agricultural mass media. These two audiences, who need periodically updated information as part of their work, read weather and market stories the most. They also rated teletext better or the same as other media in terms of convenience, timeliness and completeness.*

While some researchers argue that in so-called "media poor" societies, more is better (Chaffee and Izcaray, 1975; Chaffee and Wilson, 1977), there seems to be little thought given to information flow when "media rich" societies get too much of a good thing. While there is an occasional outcry against "information overload," little research has been done to find out how various audience segments, which require periodically updated information, cope with the increasing number of media and messages.

Between May and October 1985, the University of Wisconsin-Extension (UWEX) conducted a teletext field trial to obtain a preliminary measure of the following: (1) what type of teletext content would be of interest among those who need periodically updated agricultural information as part of their work, and (2) how different types of teletext content compared with other agricultural mass media in terms of timeliness, convenience and completeness. A total of 52 farmers and 16 agribusiness people participated in the study by watching an agricultural electronic magazine called *Infotext*. Participants were loaned a teletext decoder and a keypad for one month so they could receive *Infotext* on their TV sets at home or in the office.

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*Infotext* had certain "active" user features compared to the older, completely passive teletext format. It gave viewers the ability to select the pages that they wanted to read, skip around the magazine or "freeze" a page on screen to be able to read it at their own pace. In the "passive teletext" format, viewers could not select specific content—such as weather reports—and had to watch the whole magazine scroll on screen in 15-minute cycles. If viewers missed certain information that they wanted to see, they had to wait until the magazine showed that section again 15 minutes later.

Teletext is broadcast "piggyback" on an ordinary television signal. However, it cannot be seen without attaching special decoding equipment to a television set. It makes use of the vertical blanking interval, which is the black bar that viewers see when the TV picture is out of alignment. Teletext broadcasts a number of "pages" in sequence every few seconds. The number is limited by the length of time which the sequence takes to repeat itself, as well as the time the viewer is willing to wait to get a page displayed on a TV screen (Paisley and Chen, 1984, p. 10). *Infotext* was piggybacked onto the Wisconsin Public Television signal. It carried about 40 pages or screens of information. Among viewers who flipped "pages" of the magazine, the waiting period between page changes was 15 seconds or less.

Compared to other new media, the "active teletext" format is still at the low technology end of the communication spectrum. Unlike videotex, it cannot provide interactive communication nor respond to specific requests from users (Rogers, 1986; Weaver, 1982). On the other hand, this low technology attribute appears to be an advantage among the audience segments that *Infotext* is designed to serve. Since the public television signal is already paid for, the magazine is a relatively low-cost operation. Its major expenses concerned newswire service fees and editorial work. The magazine was provided to viewers for free. In contrast, subscribers to agricultural videotex pay a fixed membership fee aside from variable fees depending on the amount and type of information they use.

## **Methodology**

Participants in the field study were asked to try out the teletext decoder and keypad at home or in their office for one month. The keypad was similar to the remote control device used for TV or VCRs. Various functions were clearly labelled. At the end of the trial, participants were interviewed by phone about their uses of *Infotext* and how they compared it to other mass media on the basis of agricultural information provided. A total of 68 farmers and agribusiness people participated in the study. There were 52 farmers, 19 percent (N = 10) of whom were women.

The majority of participants (60%) learned about the field study through *Infotext* exhibits in farm shows throughout Wisconsin. Others learned about it through public service announcements (10%) on Wisconsin public TV, through extension agents (9%) and miscellaneous sources.

As in previous teletext and videotex field trials (Ettema, 1984; Paisley, 1983; Rice and Paisley, 1982), participants were *not* expected to be representative of the farming or agribusiness communities. Instead, they tended to have characteristics more often associated with the early adopters of an innovation (Rice and Rogers, 1984, p. 85). While the field study was somewhat weak in generalization or external validity, it seemed to present a stronger case in terms of internal validity, with its highly motivated participants.

## Media Use

Participants appeared to be heavy consumers of specialized agricultural media. Almost 60% subscribed to agricultural newsletters, which provide agribusiness news and analysis. About 12% subscribed to *AgriData*, a nationwide agricultural videotex service. Half of all respondents owned a personal computer, with nearly 60% owning PCs for 2 years or more.

Participants also subscribed to one daily newspaper, one weekly newspaper and four magazines on the average. In addition, they received three complimentary magazines through agricultural companies and publishers with controlled circulations. They listened to radio nearly every day (6.5 days a week) and watched television 5.5 days a week. From this description, it appears that participants in the field study were among Wisconsin's "media rich."

The average use of *Infotext* was about five days a week. Almost 75% read the magazine on weekdays, with the remainder using it on both weekdays and weekends. About half of all participants (54.4%) watched it with others, with an average of 2.5 additional viewers per participant. Nearly one-third of all respondents (32.4%) reported watching *Infotext* with spouses.

*Infotext* was broadcast between 7:00 and midnight every day. In spite of competition from other media and ongoing farm or office work, the magazine had about 40% viewership or better between 7:00 and 9:00. The period between 12:01 noon and 3:00 had the highest viewership with 56%, followed by the period between 9:01 to 12 noon with 51%. The lowest viewership was between 9:01 PM and midnight, with about 20%. During this daypart, participants also used other media, such as newspapers, magazines and regular TV. In addition, many farmers retired early in the evening to get ready for the following workday, which usually began at 4:00 AM. The novelty of *In-*

*Infotext*, coupled with the short-term loan of decoding equipment, may have inflated its use among participants (cf. Elton and Carey, 1983, p. 165). On the other hand, these farmer and agribusiness segments appeared to be heavy users of the mass media. They may have "carried-over" their media behavior to *Infotext* as well. Whether this usage rate can be maintained can be answered only after active *Infotext* becomes available on a regular basis.

## Contents

*Infotext* had four major content categories:

(1) Markets, consisting of reports from the Chicago Board of Trade, the Chicago Mercantile Exchange and the Wisconsin and U.S. Departments of Agriculture;

(2) Weather, with national, state, and local weather reports and maps from the National Weather Service and the Wisconsin state climatologist;

(3) Agricultural news, with bulletins and advice from UWEX;

(4) General news and sports, using the Associated Press (AP) newswire.

Market reports were updated every 20 minutes. General and sports news were updated by AP several times daily. Weather was monitored constantly, with hourly updates on some items. Agricultural bulletins and advisories from UWEX were revised or replaced every few days. Since these stories emphasized utility over timeliness, they had much longer "shelf lives."

The Weather category had the highest viewership, with 98% of all respondents watching its reports and maps at one time or another. Most items in this category rated 4 or better on a 5-point rating scale, with No. 1 being "Not useful at all" and No. 5 being "Very useful." These items included the state forecast (4.1), extended forecast (4.1), agricultural weather forecast (4.2), severe weather forecast (4), regional zone forecast in the respondent's area (4.1) and state weather maps (4.3). Items with low ratings were state fruit frost warnings (1.9) and regional zone forecasts outside the respondent's area (2.7).

The very low probability of fruit frost in summertime may explain the low rating this item received during the field study. This item also included bog reports, mainly of interest to cranberry growers—who were not well represented in the survey. Physical proximity may also explain why weather reports in the respondent's own area were considered more important than those reports outside their area. In previous research, physical proximity, as a measure of newsworthiness, explained why some news items had a better chance of being read or seen by media consumers in different communities (Hiebert et al., 1985, pp. 498-499; Stephens and Lanson, 1986, p. 69).

Cash Grain Markets, a subtopic under the Market category, had the next highest viewership with 91%. This was followed by the Chicago Board of Trade reports with 88%. Reports from the Chicago Mercantile Exchange placed a somewhat distant fourth, with 71%. The Chicago Board of Trade reports included updates on corn, oats, soybean, and wheat, while the Chicago Mercantile reports featured price updates on live cattle and hogs, among other items. These items were consulted several times a day by participants engaged in commodity trading, as well as in managing day-to-day operations.

### Delays Are Tolerated

Most respondents did *not* seem to mind the 20-minute delay between the Chicago Board of Trade and the Chicago Mercantile Exchange updates, as reflected in their highly favorable ratings of items under both subtopics, as well as their response to a direct question on this matter. This time delay is a major difference between *Infotext* and agricultural videotex services. While ag videotex services provide up-to-the-minute information on markets and commodities, *Infotext* broadcasts timely, but *not* necessarily, the latest information.

Would-be *Infotext* adopters seemed to have different information needs from agricultural videotex subscribers. While those subscribing to *AgriData* wanted the most current information available, such as ongoing market developments, those interested in the *Infotext* magazine were satisfied with timely, but not necessarily up-to-the-minute, reports. This difference seems to suggest that those interested in this relatively "low tech" medium belonged to another ag-information-user niche compared to videotex subscribers.

The General News category, using the Associated Press newswire, reported 81% viewership for news and about 60% for sports. A number of respondents also expressed satisfaction on having a news feature in the *Infotext* magazine, which was updated several times in the course of the day.

About two-thirds of all respondents also viewed other Market subtopics. More than 66% consulted Livestock Markets and about 65% read Pest Management Updates prepared by UWEX. About one-third (32%) consulted items under the Dairy Markets topic.

Items in the Agricultural News category were asked individually. Its overall viewership, taken as a mean of responses to each item under this category, was 95%, second only to the Weather category. This figure should be read with caution, however, since respondents were not pre-screened with the question—as in the other content categories: "Did you watch (category name)?"

In any case, about half of the items in this category received a rating of 3 or better, with No. 1 being "Not useful at all" and No. 5 being "Very useful." The other half may need some revision or replacement.

More than any other content category in *Infotext*, the items under "Agricultural News" represented an attempt to introduce new content into a new mass medium. While information in the other categories may be found in other media, many items originated by UWEX for this category could only be found in *Infotext*. About half of these items rated 3 or better, which appeared to be a fair showing for untried media content.

### Comparison with other Media

Three content categories in *Infotext* were compared with other mass media on a 5-point scale in terms of convenience, timeliness and "subjective completeness." These categories were: Market Information, Weather Information and Agricultural News (Tables 1 through 3). To rate convenience, No. 1 stood for "Not convenient at all;" while No. 5 stood for "Very convenient" compared to "medium." Similar statements were used for timeliness and completeness.

*Infotext* was compared to radio, television, farm magazines, agricultural newsletters and on-line agricultural services, which includes agricultural videotex. Only those participants subscribing to agricultural newsletters (N = 40) and to on-line agricultural services (N = 8) responded to questions related to ag newsletters and on-line services.

"Subjective completeness" was operationalized as "all the information the respondent needed on a content category," such as weather (or any other content category). In other words, it measured how much information in *Infotext* was enough from the respondent's point of view.

**Table 1. Market information on Infotext compared to other media (Mean scores)**

Medium	Convenience	Timeliness	Completeness
Radio	4.1	4.2	4.2
TV	4.5	4.6	4.5
Farm magazines	4.3	4.6	4.1
Ag newsletters	3.7	4.1	3.6
On-line media	4.2	3.2	3.4

On market information (Table 1), *Infotext* averaged 4 or better when compared to radio, television and farm magazines. It was perceived as better than agricultural newsletters in terms of

timeliness of market information, although it was about the same in terms of convenience and subjective completeness.

When compared to on-line agricultural services, *Infotext* was about the same in terms of timeliness and subjective completeness but was better than on-line services in terms of convenience. Unlike ag videotex, which required certain access protocols, *Infotext* was almost as easy to operate as a remote control device for TV. The keypad was clearly labelled according to function, supported by onscreen prompts. Learning of new behavior was very minimal.

**Table 2. Weather reports on Infotext compared to other media (Mean scores)**

Medium	Convenience	Timeliness	Completeness
Radio	3.7	3.8	4.0
TV	4.2	4.2	3.9
Farm magazines	4.5	4.7	4.5
Ag newsletters	4.3	4.5	4.5
On-line media	4.4	4.0	4.0

On weather information (Table 2), *Infotext* averaged 4 or better in terms of farm magazines, agricultural newsletters and on-line agricultural services. However, it was perceived as about the same as radio on weather information in terms of convenience and timeliness. It was also seen as better in terms of subjective completeness. *Infotext* was better than TV on all three dimensions, with ratings of 3.9 or higher.

**Table 3. Agricultural news on Infotext compared to other media (Mean scores)**

Medium	Convenience	Timeliness	Completeness
Radio	4.0	4.0	3.7
TV	4.3	4.3	4.2
Farm magazines	3.7	4.2	3.4
Ag newsletters	3.7	3.9	3.4
On-line media	4.2	3.4	3.4

On agricultural news (Table3), *Infotext* was rated better than radio and TV on convenience, timeliness and subjective completeness. It was perceived as better than farm magazines and agricultural newsletters in terms of convenience and timeliness and about the same in subjective completeness. *Infotext* was about the same as agricultural newsletters and on-line

agricultural services in terms of subjective completeness. However, *Infotext* was seen as more convenient (4.2) than on-line services.

## Discussion

*Infotext* stories were shorter in absolute length than most print and broadcast stories on markets, weather or agricultural news. However, most participants seemed to perceive that *Infotext* provided them with "all the information they needed" on each of these categories, even when compared with print media. In other words, they found this amount of information, however limited, as "enough" for their own needs.

This finding suggests that a "headline service," at least for these story categories, may be sufficient as far as this type of media consumers is concerned. It seems that a small amount of information would suffice for each update, building on the audience member's previous knowledge. Each update is "sharpened" (Allport and Postman, 1946) to focus only on very specific points of inquiry. In a "media rich" environment, this sharpening strategy seems to be one way some media consumers cope with an ever-increasing information load.

Although findings in this field study are somewhat preliminary, they suggest directions for future work. Stories on the weather and the commodity markets had the highest readership, as other field studies also have found (Clearfield and Warner, 1984; Paisley, 1983; Rice et al., 1984). This type of content seems to match the information needs of certain agricultural audiences. Would-be teletext adopters appeared to represent a different audience segment from videotex users. They were content with current but not necessarily up-to-the minute information. As an electronic magazine, *Infotext* was also perceived as better than or equal to other agricultural mass media in terms of timeliness, convenience and completeness. It suggests that for certain audiences of periodically updated information, teletext could provide potentially strong competition.

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