Sources of Information and Channels of Communication used in Transfer of Gardening Technologies

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Summary. This study revealed that cooperative extension education usually requires a combination of communication channels or teaching methods. One channel or method supplements and complements another. It is the cumulative effect on people of repeated exposure to an innovation that results in action. The differential adoption behavior of the gardeners in relation to 10 gardening technologies suggests that the adoption of one technology does not depend on another. Adoption of a gardening technology is a major consequence of communication. Furthermore, the relative influence of sources and channels decreased with the increase in the number of technologies adopted.

One measure of an extension agent's success is his/her ability to influence clients to act on new knowledge (Rutgers Univ., 1979). This ability to influence others depends on proper technology and effective communication skills. Research results indicate that fact sheets and pamphlets help extension agents update their knowledge through the extension information delivery system (Bay, 1980). A prerequisite to effective communication is a thorough knowledge of information sources and channels and their nature and role in the communication process.

This paper identifies the role of various information sources and communication channels in influencing clients to learn and adopt recommended gardening technologies. The data were derived from interviews with a stratified random sample of 133 respondent gardeners from Newark, N.J., and surrounding communities (Rutgers Univ. Cooperative Extension, 1989). These gardeners were city residents enrolled in the Urban Gardening Program (UGP). They used various sources of information and channels of communication for learning and adopting 10 gardening technologies (see Table 1).

For the remainder of this paper, the word "source" is defined as any individual (e.g., a county agricultural agent or other cooperative extension personnel, a neighbor, friend, relative, or fellow gardener) who communicates information to gardeners. The word "channel" describes any oral,

written, or visual device that facilitates the flow of information between two individuals, such as an extension agent and a gardener.

The gardeners learned and adopted a wide range of gardening technologies (Table 1). The majority of them adopted eight of the 10 technologies; three-fourths adopted the three most popular technologies: insect pest and disease control, fertilizers, and raised bed gardening; and one-third adopted transplant production in their own gardens. Home transplant production is healthy and desirable because good-quality transplants contribute significantly to increasing crop yields but are expensive when purchased at nurseries or garden centers.

In evaluating the sources and channels of gardening information, the data indicated that "one-on-one" conversation with UGP staff (UGPS) was the most common source in all cases; the second most common source was "other"; friends and relatives (FR) was the second most frequent source in only two cases and tied with "other" for second in one case; printed media (PM) was the second most common source in only one case and tied with FR for third in one case. These findings indicate that there was a two-step flow of information for gardening technologies from extension agents to gardeners. First, a few gardeners in a community learned about new technologies from extension agents and the PM, and, subsequently, they conveyed information to fellow gardeners. Learning how to enact new technologies is a task-oriented function. We expected, therefore, that this role is performed best by sources with technical knowledge and effective communication skills. Of all sources and channels, agricultural extension agents most effectively communicated these skills. It is not sufficient to use PM or to rely on FR to disseminate information about new farm technologies. PM has played an important supportive role, however, and will continue to perform a similar role in the future.

To determine the cumulative impact of the use of information sources and communication channels, the gar-

Table 1. Information sources and communication channels used in adopting gardening technologies.^a

Gardening technology	No. respondents				Total (n = 133)	
	UGPS	FR	PM	Other	No.	%
Insect pest and disease control	69	12	16	19	116	87
Organic fertilizer	51	19	22	14	106	80
Raised bed gardening	62	10	1	27	100	75
Chemical fertilizer	36	26	11	24	97	73
Trellising	51	8	8	36	93	70
Mulching	48	14	6	18	86	65
Composting	52	10	2	12	76	57
Soil testing	60	7	2	2	71	53
Cover cropping	21	8	4	12	45	34
Transplant production	31	5	3	5	44	33

^aUGPS = Urban Gardening Program staff; FR = friends, relatives, neighbors; PM = printed media (newspapers, newsletters, fact sheets, flyers, signboards, slides, posters, pictures, and brochures); other = demonstration gardens, clinics, workshops, gardening school, seedling give-aways, group meetings, garden tours, harvest festival.

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Table 2. *The sources and channels used and the gardening technologies adopted by the gardeners.*

No. technologies	No. adopters	Total no. sources/ channels used	Avg no. sources/ channels used per adopter
9	1	23	23.0
8	27	390	14.4
7	22	135	6.1
6	51	211	4.1
5	22	59	2.7
4	9	19	2.1
3	1	3	3.0
Total	133	840	6.3

deners were asked to state the various sources and channels they used in learning gardening technologies. A total of 840 information sources and communication channels were used by 133 gardeners, averaging 6.3 sources and channels per gardener (Table 2). This data indicates that repetition of information is important. The data further reveal that the use of sources and channels decreased with the number of technologies adopted. This relationship suggests that the greater the contact with information sources and communication channels, the greater the adoption of gardening technologies. It could also mean that adopting more technologies takes more information. Further, the average number of sources and channels used per gardener decreased more rapidly than the decrease in the number of technologies adopted. This trend indicates that the relative impact of sources and channels decreased with an increase in the number of technologies adopted. Thus, every available means of communicating information about gardening practices should be emphasized to ensure their adoption.

Extension has led the way in helping the farming community produce food for the nation. This same leadership could help city residents produce fresh nutritious food inexpensively in vacant city lots close to their homes. Future implications of UGP are unlimited.

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