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regain its lost freedoms, thereby exemplifying the dictum that press freedom is concomitant with political freedom.

Because the new martial law regime under Yahya, which came to power after Ayub's exit in March 1969, has set returning the country to a popularly elected civilian government as its chief task, it has generally followed a positive and progressive policy toward the press. This has enabled the press to revert to its erstwhile professionalism and to performing its information role—that is, providing a free market place of ideas and discussing freely and frankly political controversies, thereby helping the nation toward consensus on constitutional issues. This has also meant a return of the Pakistan press to its erstwhile libertarian traditions.

Circulars for Informing Poorly Literate Farmers

*By Arturo Vasquez S.,
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and Richard D. Powers*

► The problem of the peasant farmer's low capacity to read has long plagued communicators in developing nations. The usual type of information circular has not proved very useful. In addition, such circulars are expensive to produce and often contain much information that is not directly relevant to specialized local areas. Thus printed bulletins have usually been considered low priority items in agricultural communication programs in developing areas.

In addition, the printed word in general has not been much used because access to newspapers is hard to get, and in truth, most peasant farm-

ers cannot afford to buy newspapers, even if they found them relevant and easy to read. In most developing countries, farm magazines are not available to subsistence farmers. Where they do exist they suffer from the same difficulties as newspapers and bulletins—too expensive and difficult to make locally relevant.

Radio has some promise and a little more use. But in developing areas, as elsewhere, information diffused by radio is ephemeral and may not be sufficiently comprehended or remembered; thus in most developing countries radio used for agricultural information diffusion is largely a notification device—normally used to interest the farmers in a program which is generally carried out by personal contacts of technicians with individuals or groups. Reliance on technicians to deliver personally farming information, while effective, is a luxury a developing nation with few technicians cannot afford. A printed medium to multiply the technician's effectiveness is badly needed.

Methodology

Studies in Chile, by Marion R. Brown,¹ have shown that even illiterate farmers can get rather astounding knowledge gains from mimeographed information sheets (circular letters) which contain nothing but information known to be relevant to a specific area. These are different from the usual information circular in several respects: they are much cheaper to produce, they are addressed to the farmer individually, delivered to him via

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¹ Marion R. Brown. "Communications and Agricultural Development: A Field Experiment." Paper read at the annual meeting of the Association for Education in Journalism, Berkeley, Calif., August, 1969. See also Brown's article with the same title in *JOURNALISM QUARTERLY* 47:4 (Winter 1970) pp. 725-34.

	t_1	t_2	t_3	t_4	t_5	t_6	
P_1	M	X	M	—	—	—	group 1
P_1	M	X	X	M	—	—	group 2
P_1	M	X	X	X	X	M	group 3
P_1	M	—	—	—	M	—	control group
P_1	—	X	M	—	—	—	pretest control group

mail or local cooperators such as extension workers, and they concern only a small aspect of what would normally appear in a circular. For example, a circular letter might describe how to fertilize corn at the second cultivation, instead of everything about corn growing within the same covers.

Brown sent some 32 weekly one-page circulars of simply-written locally relevant farming information to 41 Chilean farmers, with a pre-test and post-test of their knowledge of the themes treated in the circulars. The circulars were appreciated and used by almost all. An important finding was that illiterate and poorly literate farmers gained a great deal of knowledge from the circulars. They all found someone who could read to them, usually a member of their family. The illiterate farmers were able to answer 46% of the questions correctly on the pre-test, compared with 58% on the post-test after eight months of the weekly service—a statistically significant increase.

Thus Brown's research indicated that the short circular letter is a potentially useful and feasible communication technique for subsistence farmers in a developing area. The purpose of the study reported here was to replicate Brown's study in another population of peasant farmers, and further to investigate if the length of the circulars and the frequency with which they were sent had an important influence.

The subjects were 100 small-acreage Mexican farmers living in five communities around Texcoco in the state of Mexico.² Though this location is near the National School of Agriculture, the selected communities were

not involved in the school's agricultural development program. Farmers within these communities were selected at random from municipal population lists. The research design was a Solomon 2-control-group, with three experimental treatments. In the terminology developed by Haskins³ this would be sketched as shown above.

In other words, this design basically involved a pretest (M) at time 1, followed by treatments (X), and a post-test (M). One control group was not pretested, to determine the effect of the pre-test on knowledge gains, and the other group did not receive any treatment. The groups were all considered samples of the same population.

All treatment groups received the same amount of information. The 1-circular treatment (group 1 and the pretest control group) was a two-page circular with four major sections. For the 2-circular treatment (group 2) two of these sections were included in the first letter and two in the second. For the 4-circular treatment (group 3) each letter contained a single section of the information. One week elapsed between time periods in the design.

The subjects of the circulars were how to obtain the proper density of plants per acre and how to fertilize properly at the time of seeding and at the second cultivation. The statistical tests used were analysis of variance and covariance.

About 38% of the farmers in the

² The communities were Santa Cruz Arriba, San Juan Tezontla, Tequexquinahuac, San Salvador Los Reyes, and Pentecostes.

³ Jack Haskins, *How to Evaluate Mass Communications: The Controlled Field Experiment* (New York: Advertising Research Foundation, 1969).

TABLE 1

Scores on Knowledge Test about Plant Density

	Source	SS	df	MS	F	Sig.
<i>Before:</i>	Total	2832.4	99			
	Treatments	150.1	4	37.5	1.3	NS
	Error	2682.3	95	28.2		
<i>After:</i>	Total	31181.0	99			
	Treatments	12733.5	4	3183.3	16.3	VHS
	Error	18447.5	95	194.1		

TABLE 2

Scores on Knowledge Test about Proper Fertilization

	Source	SS	df	MS	F	Sig.
<i>Before:</i>	Total	13251.5	99			
	Treatments	3527.9	4	881.9	8.6	VHS
	Error	9723.5	95	102.3		
<i>After:</i>	Total	54387.2	99			
	Treatment	29287.2	4	7321.8	27.7	VHS
	Error	25100.0	95	264.2		
<i>Adjusted After:</i>	Total	46613.6	98			
	Treatment	25377.3	4	6344.3	28.0	VHS
	Error	21236.3	94	225.9		

sample were illiterate or poorly literate. None of them had attended school past the sixth grade. Mass media use was very low. Some 93% never listened to agricultural programs on the radio, none had ever seen an agricultural program on television, 90% didn't read farm magazines, and 95% had never read agricultural information circulars. Some 74% read newspapers, but only around 20% read them as frequently as once each week.

Corn yields were very low—averaging around 765 kilograms per hectare in the favorable year of 1968 and around 250 kilograms per hectare in the dry year of 1969. Average size of holding was 1.25 hectares, but almost three-fourths planted one hectare or less to corn. The largest corn acreage was less than 4 hectares.

Thus these farmers were rather representative of subsistence corn farmers in Mexico. They certainly were not accustomed to using mass media.

Results

An analysis of covariance (Table 1) showed that the groups did not differ in their knowledge of facts about how to obtain the proper density of plants per hectare before the experiment. They scored between 7.75 and 10 in a test with a maximum score of 50 points. The groups differed significantly before the experiment in their knowledge of how to fertilize (Table 2) with scores ranging from 37.45 to 54.05 on a test with a maximum score of 100. This called for an adjustment of the post-test means for the test on fertilization.

After the experiment, groups which received circular letters didn't differ among themselves in knowledge of plant density or fertilization, but differed significantly from the group which did not get the letters. The group which was not pre-tested but which received the letters did not differ from

TABLE 3

Analysis of Variance on Gain Scores

	Source	SS	df	MS	F	Sig.
Plant	Total	70368.5	99			
	Density					
	Treatments	52074.9	4	13018.7	67.6	VHS
	Error	18293.5	95	192.5		
Fertilization	Total	110727.7	99			
	Treatments	85504.0	4	21376.0	80.5	VHS
	Error	25223.7	95	265.5		

Mean change scores:

	density	fertilizing
Control group	1.0 a	.7 a
No pre-test, 1 letter*	26.9 b	37.6 b
1 letter	30.3 b	34.4 b
2 letters	27.0 b	42.7 b
4 letters	30.3 b	30.0 b

* Means followed by the same letter are not significantly different; gain estimated from the mean of other groups before the experiment.

TABLE 4
Mean Gain Scores for Three
Experimental Groups

	Density	Fertilization
<i>Literacy:</i>		
Literate	31.4	37.9
Poorly literate	26.3	32.5
F	< 1	1.7
<i>Age:</i>		
Under 40	32.4	37.7
40-59	28.9	36.5
60 or over	24.5	30.5
F	< 1	1.1
<i>Newspaper reader:</i>		
Frequently	40.4	34.2
Occasionally	36.7	29.4
Never	31.6	25.3
F	< 1	1.3
<i>TV Viewing/week:</i>		
31 hours or more	28.5	38.0
11-30 hours	23.3	41.0
1-10 hours	35.9	35.9
None	27.3	33.6
F	< 1	1.9

the others which received the letters, which would indicate that the pretest had no influence on the results of the experiment with the circular letters.

The analysis of gain scores (Table 3) shows a very highly significant increase in knowledge of both subjects for those who received circular letters (increases of 27 to 43 points on the test), with very little change in the control group.

Table 4 shows that knowledge gains for literates were not significantly higher than gains for the poorly literate farmers. There was a difference of around 6 points on the test, but this was far from being significant.

Thus the conclusion is that circular letters seem to be an excellent teaching device for diffusing agricultural technology, but we have no evidence that shorter, more frequent letters do a better job than longer ones sent less frequently.

<i>Radio listening/week:</i>		
91 hours or more	31.3	36.7
31-90 hours	28.5	35.5
1-30 hours	25.0	35.0
None	30.0	40.0
F	< 1	< 1