Evaluation of Backyard Poultry Farm School on All India Radio

P.V.K. Sasidhar 1, Murari Suvedi2, K. Vijayaraghavan3 and Baldeo Singh4

Abstract

Bennett’s hierarchy reinforced with case studies was used to evaluate the radio farm school on backyard poultry. The data were collected from 74 participants and 60 non-participants of the farm school. Key evaluation questions were on the inputs used, activities carried out, outputs obtained, and reactions of the participants in listening behavior, opinion, knowledge, attitude, adoption of changes and SWOT parameters. Overall, the evaluation found that a farm school on radio with registered participants can have a major impact, creating awareness, knowledge and change in attitude, and involving end users in extension. The related implications for harnessing radio to disseminate outreach information are discussed.

Introduction

All India Radio (AIR) has been the most important medium for communicating with the rural population in India. When India attained independence in 1947, AIR had a network of six stations and 18 transmitters. The coverage was 2.5 percent of the area and just 11% of the population. AIR today has 215 broadcasting centers, covering 91.42 percent of the area and serving 99.13 percent of the people in the country with clear objectives to inform, educate and entertain the masses (AIR, 2006). India’s post independence experiments during Green and White Revolution periods successfully used radio for disseminating outreach information to farmers (Maru, 2003). In spite of its proven role, India has not truly used the full potential of radio for extension activities. Similarly, research and outreach information can play a role in improving rural living standards and bringing affordable plant / animal food to all, yet the full potential of such research is not being realized because communication between scientists, extension staff members, and farmers is weak. To bridge this gap, the Central Avian Research Institute (CARI), Izatnagar, initiated the Farm School on All India Radio (FS-AIR) program in an effort to support researchers in working together with radio broadcasters and rural poultry farmers.

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Program design Six FS-AIR programs were completed by CARI in collaboration with AIR Rampur and Bareilly stations. The sixth program, “Gramin Anchal Mein Labhprad Desi Murgi Palan” (“Profitable Backyard Poultry Farming in Rural Areas”), was broadcast by AIR Rampur between April 6 and June 29, 2005. CARI registered 1,040 interested farmers from Uttar Pradesh and Uttrakhand states. Scientists of CARI prepared a detailed program with 13 serialized sessions on various aspects of backyard poultry. These sessions were aired weekly for 13 weeks. At the end of each session, three questions related to that topic were asked, and the participants responded by postal cards. A total of 169 registered listeners sent responses to questions from one or all of the 13 sessions. These were evaluated and 15 prizes were distributed to the participants with highest marks. The lecture notes on the 13 broadcast topics were compiled, published and distributed to all the participants at the end of the program.

Scope of the present evaluation study

Even after broadcasting six FS-AIR programs, no empirical information on these programs is available. Therefore, the present evaluative study, besides providing information on the usefulness and impact of the FS-AIR program on poultry farmers, is also of utmost utility to the researchers, broadcasters and extension functionaries seeking to make further improvements in the program.

Objectives of the evaluation

• To evaluate the listening behavior of registered farmers

• To determine the impact of FS-AIR on knowledge, opinion, attitude and adoption of changes.

• To find out the SWOT parameters and further improvements required in FS-AIR

Methodology

The evaluation study used the hierarchy of evidence evaluation framework (Bennett, 1976) as shown in Table 1. This framework has been extensively used by extension practitioners for planning and evaluation of extension programs. The hierarchy describes a series of stepstair levels of evidence of program impacts, beginning at the bottom step with "inputs" (allocation of resources to a program) and progressing to the top, "end result" (measuring impacts of a program on long-term goals or conditions) (Morford, et. al., 2006).
Table 1. Hierarchy of evidence applied to evaluation of FS-AIR.

<table>
<thead>
<tr>
<th>Evaluation hierarchy</th>
<th>Measurement in the present study</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 7 (End results)</td>
<td>Usefulness of farm school and further changes required in the program</td>
<td>Economic, social, nutritional and gender empowerment benefits, SWOT parameters and case studies.</td>
</tr>
<tr>
<td>Level 6 (Practice change)</td>
<td>Change in behavior</td>
<td>Level of adoption</td>
</tr>
<tr>
<td>Level 5 (KOSA change)</td>
<td>Opinion, knowledge and attitude of participants</td>
<td>Change in opinion, knowledge and attitude</td>
</tr>
<tr>
<td>Level 4 (Reactions)</td>
<td>Perceptions of participants</td>
<td>Listening behavior, liking of broadcast formats, time of broadcast, time interval between broadcasts and preferred topics for next farm school</td>
</tr>
<tr>
<td>Level 3 (Outputs)</td>
<td>Activities completed and products developed</td>
<td>Activities performed by key stakeholders, number of participants, their profile and publications released</td>
</tr>
<tr>
<td>Level 2 (Activities)</td>
<td>What FS-AIR offered or did</td>
<td>Assigned activities of key stakeholders</td>
</tr>
<tr>
<td>Level 1 (Inputs)</td>
<td>Resources used</td>
<td>Total money spent, number of researchers, broadcasters and listeners involved</td>
</tr>
</tbody>
</table>

Though this model is useful for assessing input, activities, outputs, reactions, and knowledge, opinion, skill and attitude (KOSA) changes (level 1-5), it is not rigorous enough to assess practice change and end results, if any. Therefore, strengths, weaknesses, opportunities and threats (SWOT) analysis and two case studies were conducted. The survey was conducted in eight villages- four villages (Loha, Bakania, Rajpura and Gadaya) from Rampur and four villages (Agras, Girdharpur, Kargaina and Kilvipur) from Bareilly districts of Uttar Pradesh- using a semi-structured interview schedule. The important variables and their measurement are detailed below.

Radio listening behavior: It was measured by four subcomponents- listening frequency, listening style, listening pattern and listening response. Listening frequency is the number of farm school sessions listened to by the participant. A score of one for each session listened to was assigned, and the participants were categorized into three groups- “listened to all 13 sessions”, “six to 12 sessions” and “fewer than six sessions”. Listening style is the preference of listeners to listen to the session alone or with others. Scores of 1 to 4, respectively, were given to “listening alone”, “with family members”, “with friends” and “mixed listening”. Listening
pattern is the attentiveness and sincerity of listeners while listening to the farm school. Scores of 1 to 4, respectively, were given to “listening and simultaneously doing some work”, “only listening”, “listening and taking notes” and “recording”. “Listening response” relates to the activities performed after listening the session. Scores of 1 to 4, respectively, were given to “only listening”, “discussion with family members”, “discussion with friends” and “seeking additional information from AIR/CARI”. The overall radio listening behavior score was obtained by summing up the four subcomponents, and participants were categorized into low (mean-SD), medium (mean ± SD) and high (mean +SD) categories.

Opinion: Opinions of the participants on the farm school was obtained on six subcomponents, speed of presentation, relevance, audio quality, treatment of the message, adequacy of the content and usefulness of the content. “Speed of presentation” refers to the number of words broadcast per minute in each session. Scores of 1, 2 and 3 for “slow”, “fast” and “appropriate” speeds were assigned. “Relevance” refers to the applicability of contents of the session. Scores of 1, 2 and 3 for “irrelevant”, “somewhat relevant” and “highly relevant” were assigned. “Audio quality” is the understandability and comprehensiveness of the message of the session. Scores of 1, 2 and 3 for “poor”, “fair” and “good” were assigned. “Treatment of the message” refers to the modification of the content into the local language with low use of technical terms for better comprehension by and convenience to the audience. Scores of 1, 2 and 3 for “high”, “moderate” and “few” technical words were assigned. “Adequacy of the content” refers to the ability of the session to provide all the necessary information. Scores of 1, 2 and 3 for “inadequate”, “somewhat adequate” and “adequate” were assigned. “Usefulness of the content” is the worth/value of the sessions. Scores of 1, 2, 3 and 4 for “very little”, “little”, “much” and “very much” were assigned. The overall opinion score was obtained by summing up the scores of the six subcomponents and the participants were categorized into low (mean-SD), medium (mean ± SD) and high (mean +SD) opinion categories.

Knowledge: It was operationalized as knowledge gained by participants on various aspects of backyard poultry through the farm school sessions. Knowledge of participants and non-participants of the program was measured by asking 39 questions broadcast during 13 sessions. A score of one for each correct answer was assigned to categorize respondents into low (answered up to 13 of 39 questions correctly), medium (answered between 14 and 26 out of 39 questions correctly) and high (answered 27 or more of 39 questions correctly) knowledge.
groups. To see the difference in knowledge of participants and non-participants a t-test was applied.

**Attitude:** Attitude was operationalized as the degree of positive or negative feelings of participants and non-participants of the farm school toward backyard poultry farming. It was measured by using the scale developed by Rajkamal (1996). The scale consists of eight statements (four positive and four negative) and applied on a five-point continuum ranging from strongly agree to strongly disagree with weightage of 5, 4, 3, 2 and 1 for positive and 1, 2, 3, 4 and 5 scores for negative statements. On the basis of scores, respondents were categorized into unfavorable (mean-SD), neutral (mean ± SD) and favorable (mean +SD) attitude groups. To see the difference in attitude of participants and non-participants a t-test was applied.

**Adoption:** This refers to the adoption level of backyard poultry before / after farm school. On the basis of their responses, participants were categorized under three groups-“no plans to start backyard poultry”, “rearing backyard poultry before hearing FS-AIR”, and “started rearing backyard poultry after hearing FS-AIR”.

**Adoption of the tips:** This is the adoption of tips after hearing the farm school by participants who were rearing backyard poultry. On the basis of their responses, they were categorized into four groups- “practicing prior to FS-AIR”, “began practicing after FS-AIR”, “intend to practice in the future” and “no plans to adopt”.

For primary data collection, 169 program participants were considered as respondents. All the eight villages were visited once to collect primary data by the personal interview method, but data were collected from only 42 participants out of 169 because all participants were not available at the time of data collection. Therefore, interview questions in the local language were sent with stamped reply envelopes to the remaining 127 participants. 32 (25.2 percent) responded. Thus the final sample size for registered participants was 74. Another 60 non-participants from the eight villages were interviewed for comparison. Data were also collected from 13 scientists of CARI (by drop-up survey) and two broadcasters of AIR-Rampur (by postal survey) on strengths, weaknesses, opportunities and threats (SWOT) of the farm school (Box 1). Two case studies were conducted to assess practice change brought about by the program. Secondary data on inputs (financial and human resources), activities of key stakeholders of the program and publications were collected from office records.
Results and Discussion

Level 1 - Inputs

The total money spent on the farm school was Rs 1.03 lakhs. Total human resources involved in the program were 1,058-13 scientists from CARI, two broadcasters of AIR-Rampur, three technical persons from CARI and AIR-Rampur, and 1,040 registered participants. The value of the time spent by the human resources was not included here.

Table 2. Financial and human resources involved in the program.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item</th>
<th>Rs / Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Financial resources spent*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fee paid to AIR Rampur by CARI</td>
<td>Rs 26,790</td>
</tr>
<tr>
<td></td>
<td>Honorarium to speakers @700 x 13</td>
<td>Rs 9,100</td>
</tr>
<tr>
<td></td>
<td>Prizes to the winners</td>
<td>Rs 23,000</td>
</tr>
<tr>
<td></td>
<td>Publication of the broadcast topics (250 copies)</td>
<td>Rs 35,000</td>
</tr>
<tr>
<td></td>
<td>Vehicle POL charges</td>
<td>Rs 10,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>Rs 1,03,890</strong></td>
</tr>
<tr>
<td>2</td>
<td>Human resources involved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of scientists</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Number of radio broadcasters</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Technical persons involved</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Number of registered participants</td>
<td>1,040</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1,058</strong></td>
</tr>
</tbody>
</table>

* Excluding time value of human resources.

Levels 2 & 3-activities of key stakeholders of the program and products developed

a) Scientists: The 13 scientists prepared radio scripts, delivered the talks on AIR-Rampur and evaluated the responses sent by the registered listeners. A total of 1,781 postal responses (each containing answers to three questions) were evaluated by the 13 scientists.

b) Radio broadcasters: The broadcasters advised the farm school 20 times, and recorded and broadcast the 13 sessions.

c) Technical persons: The technical persons handled correspondence, registration of the participants, allocation of topics to the researchers, the recording of sessions, receipt of responses sent by listeners to the questions, getting evaluation of responses from respective sessions’ speakers, record keeping for every participant, tabulation of marks obtained, publication of the compendium and other miscellaneous tasks.
d) Registered listeners: The activities of listeners during the program registered with CARI as participants in the farm school, listened to the broadcast sessions and sent answers to the questions asked at the end of each session.

e) Response: Out of 1,040 registered listeners, 169 responded to one or all 13 sessions of the farm school. Out of these, 69 (40.83 percent) responded to all 13 sessions, 21 (12.43 percent) responded to 12 sessions and 79 (46.74 percent) responded to fewer than 12 sessions. More listeners can be motivated to participate in farm school program by assessing their perceived needs and broadcasting on those topics.

f) Participants’ backgrounds: The majority of them (63.51 percent) were middle-aged, males (75.7 percent) belonging to backward (47.3 percent) and schedule caste/tribes (31.1 percent). The majority (66.2 percent) of participants belong to nuclear families and their occupations were largely agriculture (44.6 percent) followed by livestock rearing (28.4 percent). All of them were educated, and the majority (74.3 percent) studied up to middle school or above.

Table 3. Participants’ backgrounds (N=74)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categorization</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Young</td>
<td>14</td>
<td>18.92</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>47</td>
<td>63.51</td>
</tr>
<tr>
<td></td>
<td>Old</td>
<td>13</td>
<td>17.57</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>56</td>
<td>75.7</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>18</td>
<td>24.3</td>
</tr>
<tr>
<td>Caste</td>
<td>General</td>
<td>16</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>Other backward caste (OBC)</td>
<td>35</td>
<td>47.3</td>
</tr>
<tr>
<td></td>
<td>Schedule castes/schedule tribes (SC/ST)</td>
<td>23</td>
<td>31.1</td>
</tr>
<tr>
<td>Family type</td>
<td>Nuclear</td>
<td>49</td>
<td>66.2</td>
</tr>
<tr>
<td></td>
<td>Joint</td>
<td>25</td>
<td>33.8</td>
</tr>
<tr>
<td>Occupation</td>
<td>Agriculture</td>
<td>33</td>
<td>44.6</td>
</tr>
<tr>
<td></td>
<td>Livestock</td>
<td>21</td>
<td>28.4</td>
</tr>
<tr>
<td></td>
<td>Livestock + agriculture</td>
<td>12</td>
<td>16.2</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>8</td>
<td>10.8</td>
</tr>
<tr>
<td>Education</td>
<td>Can read and write</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>Primary schooling</td>
<td>14</td>
<td>18.9</td>
</tr>
<tr>
<td></td>
<td>Middle schooling</td>
<td>31</td>
<td>41.9</td>
</tr>
<tr>
<td></td>
<td>High schooling</td>
<td>16</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>Graduate and above</td>
<td>8</td>
<td>10.8</td>
</tr>
</tbody>
</table>
g) Publications released: For the benefit of registered participants, the 13 sessions of the broadcast were compiled and 250 copies were published with the title “Gramin Anchal mein Labhprad Desi Murgi Palan” (Profitable Backyard Poultry Farming in Rural Areas”. The copies of the publication were sent to all participants at the end of the program.

Level 4- Reactions of participants, listening behavior, liking of broadcast formats and usefulness of the program

Listening behavior: About 51.4 percent of participants listened to six to 12 sessions; 36.5 percent of participants listened to fewer than six sessions (Table 4). A majority of the participants (56.8 percent) listened to the sessions along with family members or with friends (33.8 percent). “Listening and simultaneously doing some work” was the listening pattern reported by 51.4 percent of the participants. “Listening and taking notes” and “recording” were reported by 12.2 percent and 5.4 percent of the participants respectively. “Only listening” and “discussion with family members” were the listening responses reported by 48.6 percent and 32.4 percent of participants respectively. Only 2.7 percent of participants sought additional information from AIR/CARI. Overall, slightly more than half (56.76 percent) of participants reported medium listening behaviors, followed by low (29.72 percent) and high (13.52 percent) listening behaviors. The wide variation in listening behavior is reflected in high standard deviations and range values as well. While listening, generally radio listeners do other thing, such as working in the field, traveling, driving, washing clothes, etc. One drawback of this is that the audience may be only half listening, and much of the message of the farm school could be missed, ignored or misunderstood. The session speaker cannot command full attention from a listener. This could be the possible reason for the finding of medium listening behavior of participants.
Table 4. Listening behavior of the registered participants (N=74)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categorization</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Listening frequency</td>
<td>Listened to all 13 sessions</td>
<td>9</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Listened to 6-12 sessions</td>
<td>38</td>
<td>51.4</td>
</tr>
<tr>
<td></td>
<td>Listened to fewer than 6 sessions</td>
<td>27</td>
<td>36.5</td>
</tr>
<tr>
<td>b) Listening style</td>
<td>Alone</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>With family members</td>
<td>42</td>
<td>56.8</td>
</tr>
<tr>
<td></td>
<td>With friends</td>
<td>25</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>Mixed</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td>c) Listening pattern</td>
<td>Listening and simultaneously doing some work</td>
<td>38</td>
<td>51.4</td>
</tr>
<tr>
<td></td>
<td>Only listening</td>
<td>23</td>
<td>31.1</td>
</tr>
<tr>
<td></td>
<td>Listening and taking notes</td>
<td>9</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Recording</td>
<td>4</td>
<td>5.4</td>
</tr>
<tr>
<td>d) Listening response</td>
<td>Only listening</td>
<td>36</td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>Discussion with family members</td>
<td>24</td>
<td>32.4</td>
</tr>
<tr>
<td></td>
<td>Discussion with friends</td>
<td>12</td>
<td>16.2</td>
</tr>
<tr>
<td></td>
<td>Seeking additional information from AIR/CARI</td>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>Overall listening behavior (Total score = a+b+c+d)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean: 12.18 ; SD: 4.21; range: 6-23</td>
<td>Low (mean –SD)</td>
<td>22</td>
<td>29.72</td>
</tr>
<tr>
<td></td>
<td>Medium (mean ± SD)</td>
<td>42</td>
<td>56.76</td>
</tr>
<tr>
<td></td>
<td>High (mean +SD)</td>
<td>10</td>
<td>13.52</td>
</tr>
</tbody>
</table>

Liking of broadcast formats: Drama and playlet, interview and answering questions from the audience were the broadcast formats liked by 29.7, 27 and 25.7 percent of participants, respectively (Table 5). Out of 13 sessions broadcast in the farm school, eight were in interview and five were in straight talk formats. The listening behavior of the participants can be increased by broadcasting in drama and playlet formats, which create interest and attract large sections of audience. Interview and answering questions from the audience formats sustain the interest of the participants with an assumption that the next question could be related to their concern or a question sent by them.

Table 5. Liking of broadcast formats by participants (N=74)

<table>
<thead>
<tr>
<th>Format</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight talk</td>
<td>6</td>
<td>8.1</td>
</tr>
<tr>
<td>Discussion</td>
<td>7</td>
<td>9.5</td>
</tr>
<tr>
<td>Interview</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Answering questions from audience</td>
<td>19</td>
<td>25.7</td>
</tr>
<tr>
<td>Drama and playlet</td>
<td>22</td>
<td>29.7</td>
</tr>
</tbody>
</table>
Time of broadcast of session: The broadcast time of the sessions was reported as convenient and most convenient by 54.1 percent and 23 percent of participants, respectively. The present time interval of seven days between broadcasts was reported as inappropriate by two-thirds of participants. The preferred time intervals were two to three days (40.8 percent), every day (38.8 percent) and four to five days (20.4 percent). All the participants were willing to hear another farm school through CARI. Quail farming was the topic preferred by 37.8 percent of participants, followed by broiler (21.6 percent) and duck farming (16.2 percent).

Table 6. Perceptions of participants on farm school session broadcasts (N=74)* [???]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categorization</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of broadcast of session</td>
<td>Least convenient</td>
<td>9</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td>Less convenient</td>
<td>8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Convenient</td>
<td>40</td>
<td>54.1</td>
</tr>
<tr>
<td></td>
<td>Most convenient</td>
<td>17</td>
<td>23.0</td>
</tr>
<tr>
<td>Present time interval of 7 days between broadcasts</td>
<td>Appropriate</td>
<td>25</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>Inappropriate</td>
<td>49</td>
<td>66.2</td>
</tr>
<tr>
<td>Preferred time interval between broadcasts (N= 49)*</td>
<td>Every day</td>
<td>19</td>
<td>38.8</td>
</tr>
<tr>
<td></td>
<td>With 2-3 days gap</td>
<td>20</td>
<td>40.8</td>
</tr>
<tr>
<td></td>
<td>With 4-5 days gap</td>
<td>10</td>
<td>20.4</td>
</tr>
<tr>
<td>Would like to hear another FS-AIR</td>
<td>Yes</td>
<td>74</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Preferred topic for next farm school</td>
<td>Broiler farming</td>
<td>16</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>Layer farming</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Backyard poultry farming</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>Quail farming</td>
<td>28</td>
<td>37.8</td>
</tr>
<tr>
<td></td>
<td>Turkey farming</td>
<td>8</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>Guinea fowl farming</td>
<td>6</td>
<td>8.1</td>
</tr>
<tr>
<td></td>
<td>Duck farming</td>
<td>12</td>
<td>16.2</td>
</tr>
</tbody>
</table>

* Responses from 49 participants who felt the present time interval was inappropriate.

The present time of the broadcast i.e. 7:30 to 8 p.m.--is convenient to the participants because they have no farming or livestock-related tasks during that time. Reducing the time interval between broadcasts to less than seven days may not be possible because the radio station has to broadcast other programs and CARI requires a time interval of seven days minimum to receive and evaluate the responses to each session.

Level 5- Opinion, knowledge and attitude of participants
<table>
<thead>
<tr>
<th>Variable</th>
<th>Categorization</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Speed of presentation</td>
<td>Slow</td>
<td>5</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>Fast</td>
<td>41</td>
<td>55.4</td>
</tr>
<tr>
<td></td>
<td>Appropriate</td>
<td>28</td>
<td>37.8</td>
</tr>
<tr>
<td>b) Relevance</td>
<td>Irrelevant</td>
<td>26</td>
<td>35.1</td>
</tr>
<tr>
<td></td>
<td>Somewhat relevant</td>
<td>36</td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>Highly relevant</td>
<td>12</td>
<td>16.2</td>
</tr>
<tr>
<td>c) Audio quality</td>
<td>Poor</td>
<td>21</td>
<td>28.4</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>40</td>
<td>54.1</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>13</td>
<td>17.6</td>
</tr>
<tr>
<td>d) Treatment of the message</td>
<td>High use of technical words</td>
<td>29</td>
<td>39.2</td>
</tr>
<tr>
<td></td>
<td>Moderate use of technical words</td>
<td>32</td>
<td>43.2</td>
</tr>
<tr>
<td></td>
<td>Low use of technical words</td>
<td>13</td>
<td>17.6</td>
</tr>
<tr>
<td>e) Adequacy of the content</td>
<td>Inadequate</td>
<td>36</td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>Somewhat adequate</td>
<td>25</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>Adequate</td>
<td>13</td>
<td>17.6</td>
</tr>
<tr>
<td>f) Usefulness of the content</td>
<td>Very little</td>
<td>22</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>Little</td>
<td>37</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Much</td>
<td>11</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Very much</td>
<td>4</td>
<td>5.4</td>
</tr>
<tr>
<td>Overall opinion (a+b+c+d+e+f)</td>
<td>Low (mean –SD)</td>
<td>9</td>
<td>12.2</td>
</tr>
<tr>
<td>(mean: 11.44; SD: 1.66; range: 8-16)</td>
<td>Medium (mean ± SD)</td>
<td>57</td>
<td>77.0</td>
</tr>
<tr>
<td></td>
<td>High (mean +SD)</td>
<td>8</td>
<td>10.8</td>
</tr>
</tbody>
</table>

**Opinion:** Over half (55.4 percent) of the participants reported the speed of the farm school sessions was fast. Nearly half (48.6 percent) of the participants reported the contents of the farm school as somewhat relevant. Audio quality was reported as fair by 54.1 percent participants. Moderate and high use of technical words in the sessions, were reported by 43.2 percent and 39.2 percent of participants, respectively. Inadequacy of the content of the sessions was reported by 48.6 percent of participants, and little usefulness of the contents for starting backyard poultry was reported by half of the participants. Overall 77 percent of the participants had a medium opinion on the farm school, 12.2 percent low opinion and 10.8 percent a high opinion.

Analysis of the broadcast speed of the sessions (Table 8) clearly supports the participants’ views. The speed of sessions ranged from 96 to 298 words with an average speed of 208 words per minute. The desired speed of radio talk is 125 to 150 words per minute (Louie Tabing, 2002). Out of 13 sessions broadcast, six were fast, three were slow and only four sessions maintained the
desired broadcast speed. The speed of the speech is very essential to the clarity and understandability of the sound. Rural audiences lacking understanding of the subject need accurate and controlled speed of the speech to understand the subject.

Table 8. Speed of the broadcast sessions of the farm school*

<table>
<thead>
<tr>
<th>Session No</th>
<th>Number of words broadcast in 10-minute talk/interview</th>
<th>Speed in words/minute</th>
<th>Desired speed of words/minute</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1409</td>
<td>141</td>
<td>125-150</td>
<td>Appropriate</td>
</tr>
<tr>
<td>2</td>
<td>1279</td>
<td>128</td>
<td>125-150</td>
<td>Appropriate</td>
</tr>
<tr>
<td>3</td>
<td>2313</td>
<td>231</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>4</td>
<td>961</td>
<td>96</td>
<td>125-150</td>
<td>Slow</td>
</tr>
<tr>
<td>5</td>
<td>1501</td>
<td>130</td>
<td>125-150</td>
<td>Appropriate</td>
</tr>
<tr>
<td>6</td>
<td>1530</td>
<td>153</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>7</td>
<td>1753</td>
<td>175</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>8</td>
<td>1942</td>
<td>194</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>9</td>
<td>1290</td>
<td>129</td>
<td>125-150</td>
<td>Appropriate</td>
</tr>
<tr>
<td>10</td>
<td>1641</td>
<td>164</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>11</td>
<td>2984</td>
<td>298</td>
<td>125-150</td>
<td>Fast</td>
</tr>
<tr>
<td>12</td>
<td>1026</td>
<td>103</td>
<td>125-150</td>
<td>Slow</td>
</tr>
<tr>
<td>13</td>
<td>1158</td>
<td>116</td>
<td>125-150</td>
<td>Slow</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,787</strong></td>
<td><strong>208</strong></td>
<td><strong>125-150</strong></td>
<td><strong>Fast</strong></td>
</tr>
</tbody>
</table>

*Calculated by content analysis of radio scripts of the farm school.

Good quality audio increases understandability and comprehension of the message. This will be reversed if the broadcast topic contains high use of technical words. Therefore, before presenting any information, particularly to a rural audience, it is necessary to treat or modify the message as per the local language or convenience of the listeners. In rating adequacy and usefulness and in overall opinion on the sessions more than three-fourths of the participants are leaning toward the negative side. Sessions which don’t provide full information about the topic are not useful for the audience. Therefore, messages broadcast through the farm school should provide all the necessary information related to the topic. **Knowledge:** Perusal of data presented in Table 9 reveals that half (50 percent) of participants gained a moderate amount of knowledge (answered 14 to 26 of 39 questions correctly), 25.68 percent gained a high amount of knowledge (answered 27 or more of 39 questions correctly) and 24.32 percent low knowledge (answered fewer than 13 of 39 questions correctly). The corresponding knowledge levels for non-participants were 36.49 percent, 24.32 percent and
39.19 percent, respectively. The mean knowledge and range of scores of farm school participants were higher than those of the non-participants group, and the ‘t’ value revealed significant (P<0.01) difference between them. Therefore, it is concluded that participants gained significant knowledge on backyard poultry farming through the farm school.

Table 9. Knowledge level of participants and non-participants in FS-AIR

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Participants (N=74)</th>
<th>Non-participants (N=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency %</td>
<td>Frequency %</td>
</tr>
<tr>
<td>Low knowledge (answered up to 13 of 39 questions correctly)</td>
<td>18 24.32</td>
<td>53 71.6</td>
</tr>
<tr>
<td>Moderate knowledge (answered between 14 to 26 of 39 questions correctly)</td>
<td>37 50.00</td>
<td>21 28.4</td>
</tr>
<tr>
<td>High knowledge (answered 27 or more of 39 questions correctly)</td>
<td>19 25.68</td>
<td>0 0.0</td>
</tr>
<tr>
<td>Mean</td>
<td>20.7</td>
<td>11.2</td>
</tr>
<tr>
<td>SD</td>
<td>7.9</td>
<td>5.2</td>
</tr>
<tr>
<td>Range</td>
<td>6-36</td>
<td>1-25</td>
</tr>
<tr>
<td>‘t’ value</td>
<td>14.9**</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

Attitude: About 56.76 percent of the participants had a neutral attitude, followed by unfavorable (25.68 percent) and favorable (17.56 percent) attitudes toward backyard poultry farming (Table 10). The corresponding figures for non-participants were 63.51 percent, 20.27 percent and 16.22 percent, respectively. The mean attitude score of farm school participants was higher than that of the non-participants group. The ‘t’ value the between two groups also reveals a significant (P<0.01) difference in attitude. Therefore, it is concluded that farm school participants benefited by a positive change in attitude on backyard poultry farming.

Table 10. Attitude toward backyard poultry farming before and after listening to the farm school

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Participants (N=74)</th>
<th>Non-participants (N=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency Percentage</td>
<td>Frequency Percentage</td>
</tr>
<tr>
<td>Unfavorable (mean-SD)</td>
<td>19 25.68</td>
<td>15 20.27</td>
</tr>
<tr>
<td>Neutral (mean ± SD)</td>
<td>42 56.76</td>
<td>47 63.51</td>
</tr>
<tr>
<td>Favorable (mean+SD)</td>
<td>13 17.56</td>
<td>12 16.22</td>
</tr>
<tr>
<td>Mean</td>
<td>29.08</td>
<td>25.03</td>
</tr>
<tr>
<td>SD</td>
<td>6.33</td>
<td>7.4</td>
</tr>
<tr>
<td>‘t’ value</td>
<td>6.83**</td>
<td></td>
</tr>
<tr>
<td>Significance</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

Level 6 - Practice change (level of adoption)
Perusal of data presented in Table 11 indicates that no participant has started backyard poultry farming after listening to the farm school. Three-fourth of them have no plans to start backyard poultry in the near future. Twenty-seven percent of them were already rearing backyard poultry before hearing the program. This clearly indicates that a radio program can create awareness and knowledge and change attitude, but it is difficult to change practice. To change practice and promote poultry farming, relevant training interventions to impart skill components need to be undertaken immediately after the farm school.

Table 11. Adoption of backyard poultry farming after farm school (N=74)

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No plans to start backyard poultry</td>
<td>54</td>
<td>73</td>
</tr>
<tr>
<td>Rearing backyard poultry before hearing farm school</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Started rearing backyard poultry after hearing farm school</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Data presented in Table 12 show that the farm school had some impact on participants who were rearing poultry before listening to the farm school. Participants began shelter construction, supplementary feeding, regular egg collection, vaccination, natural hatching at home and monitoring for disease symptoms on a regular basis after listening to the farm school.

Table 12. Adoption level of the tips given by the farm school (N= 20)
SWOT analysis of farm school: SWOT parameters indicated certain benefits as well as measures to improve the program. The farm school experience of CARI suggests that with the available radio infrastructure in India, radio can play a crucial role in disseminating outreach information and bridge the digital divide to a considerable extent. There is scope for increasing interactivity through radio phone-in programs, inviting queries from farmers on the previous session and answering them in the subsequent sessions. The lack of permanence weakness reported in SWOT analysis can be solved to some extent through the publication supplied at the end of the farm school. Participants can read and review sessions. Farm schools on radio are expensive to manage, and one must have sufficient finances to run this kind of serial broadcasting. A farm school is challenging and time-consuming, especially when people who are working on the
program have no training in communication. The scientific terminology is sometimes very difficult to interpret. Therefore translating messages into the local language with minimal use of technical words needs people well-versed in the language. A lot of training has to be undertaken, and this requires financial facilitation. To overcome threats and to attract rural masses to farm schools, entertainment and education programs are to be carefully mixed.

Case Study 1: Earning through Poultry Farm Schools without Poultry Farming: Loha village in Milak Tahasil of the Rampur district seems the most unlikely place to meet someone who won four times Rs. 5000/- cash as first prize in farm schools broadcast by CARI. Yet in Loha village lives Mr. Surendra Kumar Saxena, a graduate and progressive farmer known for his innovativeness in establishing a “radio club” along with his friends. Besides agriculture, his hobby over the past four years has been the careful listening to and participation in farm schools. In the farm school on backyard poultry, he scored marks of 93.46 percent and secured first place. Saxena, 34, may be mistaken for a poultry farmer with his knowledge of various aspects of poultry farming. But he never practiced poultry farming before or after

| Box 1. SWOT analysis of farm school |
| Strengths | Illiteracy, lack of access to newspaper and television plus the digital divide increased the importance of the farm school. |
|           | Powerful, cost-effective, easy and simple means of disseminating of poultry information. |
|           | Increased in an organized manner the participation and involvement of the end users in poultry extension. |
|           | Farm school as a mass media can be effectively used for creating awareness on poultry farming |
|           | Participation of scientists allows sharing of research findings across long distances to a wide range of stakeholders. |
| Opportunities | With the available infrastructure and radio network in the country, poultry and other outreach programs can reach down to the grass-roots level through farm schools. |
|            | Through farm schools, relations between rural radio broadcasters, farmers and researchers can be strengthened. |
|            | Follow-up programs after farm schools such as training and demonstrations to impart a skill component for poultry farming. |
|            | Incentives for active participation. |
| Weaknesses | Farm school lacks much interactivity in the present form. |
|            | Farm school lacks permanence- audience can not read and reread messages as in the print press. |
|            | Consumes much time of scientists in preparing radio scripts, preparing for talks, traveling to the radio station and evaluating responses. |
|            | Financial and human resource constraints |
|            | Coverage area capacity of radio transmission is limited. |
| Threats | A majority of listeners accept radio as a means of entertainment rather than as a source of education. |
|          | Advanced ICT tools such as television and the Internet are attracting the traditional radio audience. |
listening to the farm schools. The reason is that he earns sufficient money through agriculture. "I was taught farming by my parents the way students are taught by their teachers," he said. But how does this farmer manage time with farming and listening to farm school sessions? Saxena said that he plans his farm and other activities before each farm school session starts. His friends are also very supportive in recording farm school sessions and sending responses. Saxena had listened to all the previous farm schools and gained valuable knowledge. He listened to all 13 sessions of the backyard poultry farm school along with his friends, recorded them and discussed thoroughly with them before sending responses. He likes the interview format of the session and considers the broadcasting time and time interval between broadcasts appropriate. He said the speed of presentation is fast, with moderate use of technical words, and said the voices of some of the speakers aren’t suited for radio broadcast. He said that for better comprehension, radio scripts written by scientists should be recorded by regular radio announcers. He opined that the contents of the sessions hardly support establishing a poultry farm. He said further training is required to gain skill and confidence to practice. Though he possessed good knowledge and a favorable attitude toward backyard poultry, he has no plans to start backyard poultry farming. When asked about his chances of winning the next farm school prize he said, “people are telling me that I will win, but I don’t know.” Asked the reasons why he participates in poultry farm schools, a smiling Saxena said, “To win prize money.”

Case study 2: Kamalesh Kumari and her Backyard Poultry:
Smt. Kamalesh Kumari, a 38-year-old housewife, studied up to high school and is a member of a self-help group in Girdharpur village. Her husband possessed a small patch of land and was struggling to make a living from it. She scarcely had enough money to cover her household expenses. When a block officer encouraged her, she became a member of a women’s self-help group two years ago and purchased 15 improved backyard poultry chicks. She reared them carefully and earned some subsidiary income. She recycled her birds five to six times and to date she is maintaining a small flock of six adult birds and nine chicks. A single hen lays an average of 12 to 15 eggs a month, and she earns Rs 3/- on each egg—double the price of commercial eggs. She said “on an average, I sell 20 to 30 eggs per week and earn Rs 300/- per month.” The remaining eggs are used for hatching and household consumption. Kumari’s life improved with the birds, and she now has eggs and chicken often to sell and to nourish her two sons and one daughter. She started supplementary feeding and vaccination of her chicks after
listening to the farm school. She says that she opted for poultry to get subsidiary income and a continuous food supply for her family. “Buying chicken and eggs with my husband’s earning is difficult, so I wanted to rear birds in order to get some money, eggs and chicken,” she said. Though she started backyard poultry before listening to the farm school, she said, “I have learnt good information from farm school.”

The case studies of Mr. Saxena and Mrs. Kamala Kumari indicate the knowledge gain, economic, social, nutritional, and gender empowerment benefits of disseminating outreach information through farm schools. To persuade participants such as Mr. Saxena to start poultry farming, training programs related to the broadcast sessions with hands-on experience and to be conducted. Training programs impart a skill component in addition to knowledge gained by participants in farm schools and may motivate participants like Mr. Saxena to start poultry farming. Establishment of radio clubs in rural areas at the community level, like the one in Mr. Saxena’s case, are to be encouraged. Recording the scripts supplied by scientists with the voices of radio announcers, as suggested by Mr. Saxena is a good idea for the straight talk mode of broadcast. This will improve the broadcast clarity and reduce the time wastage by scientists to travel to the radio station and record the sessions. Incentives to winners in the form of a chick supply in place of a cash prize will encourage poultry farming by participants like Mr. Saxena. The case of Mrs. Kamala Kumari is a good example of how backyard poultry benefits a rural family with subsistence income. The economic, nutritional and gender empowerment benefits to her are substantial. She benefited by following some of the tips given in the farm school. If other women in rural areas are also motivated to follow Mrs. Kamala Kumari, the nutritional, economic and empowerment benefits will be spectacular.

**Conclusion**

The CARI experience with farm schools shows that the use of radio has been the most powerful means of increasing the participation and involvement of the end users in extension. This has also been shown to be a much easier and simpler means of disseminating information and enabling farmers’ participation in an organized manner. The available infrastructure, with vast numbers of radio stations in the country, has potential to take up farm school initiatives on a large scale. On the basis of the backyard poultry farm school experience on radio with registered
participants, it could be concluded that radio contributes to creating awareness and knowledge, changing attitude, mobilizing a community - to adopt best practices, simplifying research findings by translating them into user language, and linking extension educators and researchers to farmers. The findings that emerged in this evaluation suggest that future farm school programs need to be carefully identified, pragmatically planned and realistically broadcast in view of the unique features and SWOT parameters associated with disseminating outreach information through radio.

References


