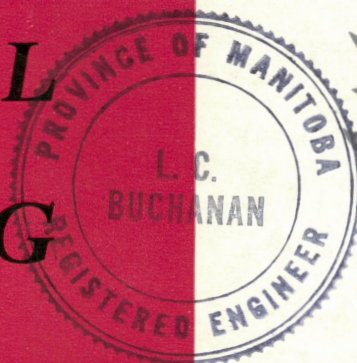


CANADIAN AGRICULTURAL ENGINEERING



The Journal of The Canadian Society of Agricultural Engineering

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**AGRICULTURAL ENGINEERING
AND EXTENSION**

by
B. T. Stephanson
Member C.S.A.E.

The Agricultural Institute of Canada, of which the Canadian Society of Agricultural Engineering is an affiliate, chose as the central theme for the 1959 convention at Guelph the topic of Agricultural Extension for specific study.

The C.S.A.E., in turn, devoted one of their sessions to this matter of how information can be transmitted from the researcher to the man on the land. This was appropriate and served a worthwhile purpose. For this discussion, extension is considered to be much more encompassing than simply supplying the farmer with information.

Agricultural Engineers have a unique role to fill. They must have some background in the biological sciences in order to be able to intelligently apply engineering principles and practices to the problems of agriculture. They must be by necessity more diversified in their engineering activities than electrical, chemical, mechanical or civil engineers, and because of their prominent extension role, agricultural engineers must be more fluent in the written and spoken language.

These are rigorous requirements. In order to determine whether he is qualified to meet these requirements a close look at the college curriculum is in order. Such a scrutiny would indicate that there are, in general, two extremes involved, each equally lacking in balance.

The first extreme is where the major emphasis is placed on courses in engineering with lesser emphasis on engineering science and engineering practice.

The other extreme is where the major emphasis is on biological science with lesser emphasis on engineering science and engineering practice.

The graduates from both of these programs soon become outdated because of their common lack of fundamental engineering science.

It is being more and more realized that a strong background in engineering science with a limited amount of concentrated experience in analysis and design, together with some fundamental biological science, represents the most desirable curriculum for agricultural engineers. Colleges might well scrutinize their programs to see if in fact they are offering the most suitable preparation for agricultural engineers.

It would appear from this that a lack of balance in the curriculum may result in the agricultural engineer not being able to satisfy the demanding requirements of extension.

Where the major emphasis has been on biological science with insufficient engineering science or practice the extension tends to become very practical and mainly that of a technician.

Where the engineer has a concentrated background in specialized engineering practice, he is unlikely to be able to adapt to engineering science progress and quickly becomes out of date.

Even with the suggested proper balance there is no guarantee that the graduate of this curriculum will be a top extension man. It takes more than exposure to a good curriculum however, to be a good extension man. It takes humility, and the ability to talk in the language of the general extension worker, farmer, or other client.

In as much as a great deal of agricultural engineering is intimately involved with extension in its broadest sense, it would seem appropriate that these extension requirements receive due weight in the shaping of the agricultural engineer.

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NOTE:

Papers included were presented at the Annual meeting of the Society held at Guelph, Ontario June 1960, except those marked with *.

SYMPOSIUM ON EXTENSION IN AGRICULTURAL ENGINEERING

In keeping with the theme of the Agricultural Institute Convention — "Extension", the C.S.A.E. devoted one full session to this subject, and had a second paper presented at a second session. The following are the papers presented, some of them as papers, and some of them as demonstrations. It is possible that the full paper could be obtained by writing to the author.

"The Tools of a Commercial Extension Worker". Jacques A. Choiniere, MacMillan, Bloedel and Powel River (Quebec) Ltd., Montreal.

"Reading" by J. E. Brubaker, Agricultural Engineering Extension Specialist, Ontario Department of Agriculture, St. Thomas, Ontario.

"The Partnership Between Agricultural Engineers and Farm Writers". Don Barron, Eastern Field Editor, The Country Guide, Winnipeg, Manitoba.

"Arithmetic in Agricultural Engineering Extension". Ronald L. Robinson, Field Representative, Plywood Manufacturers of British Columbia, Winnipeg, Manitoba.

In addition to the papers listed above there was a very good demonstration of the effective and ineffective ways to approach an interview on Radio or T.V.

Following is a review of the important points brought out in the papers.

EXTENSION WORKER'S TOOLS

Mr. Choiniere pointed out that extension workers in his company make use of the following extension methods:

1. Person to person contact.
2. Small group meetings.
3. Field trips.
4. Building demonstrations.
5. Articles for builder and farm magazines.
6. Lectures and presentations to farmers' groups, agriculturalist groups, contractor groups, etc.
7. Radio interviews.
8. T.V. appearances.

For the most effective development of each of these methods certain tools are needed. Mr. Choiniere lists the following as necessary:

1. High quality 35 mm camera for coloured slides.
2. A good light meter.
3. A black and white camera.
4. A 500-Watt projector and large screen.
5. Flash attachment which will work on either camera.
6. Small battery operated viewer.
7. Slide library, books, tools, films.
8. Folding easel with writing pads and pencil markers.

A few comments are appropriate respecting the above. Both colour and black and white pictures are useful, colour for projection and black and white for publications and articles. When coloured pictures are taken it is preferable and cheaper to take two or three exposures of the same picture, than to rely on having duplicates made, as duplicates are seldom as good as originals and are more expensive. A light meter is essential if consistently good pictures are to be produced. For many kinds of work a flash attachment is desirable, and one can be used for both coloured and black and white cameras.

The slide library is highly desirable. The really efficient one makes it possible to view the slides for identification, and to judge of their suitability for showing to a particular audience. Mr. Choiniere recommends the "Polycotton Slide Wallets" for this purpose. These holders are about 12" x 22" when opened out and each holder has 40 individual pockets for storing slides. The wallets can be hung in front of a light or window, and the slides examined, or they can be folded and stored in a suitable cabinet, plans for which can be obtained from Mr. Choiniere's company.

Mr. Choiniere and his associates place great importance on writing equipment by which large sized drawings or sketches may be done, or displayed in front of an audience. Suitable easels are available for holding easel pads, 27½" x 31". Plans for a plywood easel are available from Mr. Choiniere's company.

Mr. Choiniere also points out that scale models of his buildings are very

valuable in extension work. This implies that any worker who could produce scale models of the objects or articles he is promoting, can make good use of this device.

Reading

In his paper on "Reading" Mr. Brubaker pointed out that the Extension Agricultural Engineer must read a great deal to keep up with the times, and to broaden horizons. Reading should be organized so that it covers all phases of the work. Much reading can be "skim reading" by which you glance through a paragraph, a page or an article to extract a few "meaty" ideas. At the same time it can be decided whether the article warrants further study.

"Study reading" requires concentration. According to Mr. Brubaker this requires that the reader (1) have a purpose for the study reading; (2) overcome "inner conflicts" which divert attention and result in the reading of *words* rather than *thoughts*; (3) "schedule reading time" to concentrate on it and (4) pinpoint our attention by jotting down key thoughts or underlining important passages.

Reading, however, is not enough. Some systematic filing of information is desirable. This can take two forms.

Information obtained from expendable publications — newspapers and the like — in the form of paragraphs or short articles, can be cut out and placed in a suitable file folder. Very small slips of paper extracted thus should be pasted to larger sheets, and a single sheet can thus hold quite a number of small paragraphs to save them from loss or damage.

Useful articles in technical magazines — publications that are kept in their entirety — or bulletins can be recorded under suitable headings in a book kept for the purpose. Occasionally it may be helpful to abstract an article for this book, if the original is not in the magazines filed by the reader. The record should show the name of the article, the authors, their official positions (as this lends authority to the article), the name, number, volume and page of the publication, and such other information — perhaps a comment on the article, as may be desired. The publication can then be filed in its assigned place.

Arithmetic

Mr. Robinson's paper on "Arithmetic in Agricultural Engineering Extension" stressed the fact that a good working knowledge of mathematics was not enough. Too many engineers are content to accept the most obvious solution to a problem. This weakness he illustrated by a spider and fly problem. (Room 12' x 30' with a spider and a fly each on the corresponding centre lines of opposite ends of the room, and each one foot from diagonally opposite corners. To reach the fly the spider, following the most obvious route, must travel 42 ft. It can be shown that, by successively moving on 5 of the 6 surfaces of the room the distance can be cut to 40 ft.) For each problem there are usually 2 or more solutions and one of these is likely to be better than any other for reasons of economy, security, or for some other consideration.

The new tool of the mathematician, the computer, gives promise of reducing the amount of time required for solving long and involved problems. Hence, the engineer must know how to program the device, but the proper programming can result in great economies of time. Generally, however, it is not applicable to the majority of problems confronting the extension engineer.

"Most of the routine problems he faces can be solved by geometry, trigonometry and arithmetic. With these tools he must be able to work quickly and accurately. He must be able to use engineering formulas and equations with understanding and adroitness. In doing so he is applying his mathematics to the job at hand, and this is where he differs from the extension worker who is not an engineer."

Writing

In dealing with the subject "Writing", Mr. Don Barron stressed the partnership between research scientists and farm writers. It was his contention that a research project was never complete until the results were in the hands of someone who could make use of them. Stories relating to research may be described to farm writers who will develop them, or stories may be developed by the research worker himself. However, it was Mr. Barron's contention that research workers do not produce the most readable stories of their work, and that professional writers, trained to bring out the important parts of a story, can do a more effectual job.

Mr. Barron claimed that technology was advancing so rapidly that results

of research should be in the hands of farmers as soon as possible if they are to reap the benefits of such research.

It was his recommendation that a worker should not withhold a story from the farm press simply because it hadn't been published in a professional journal, or withhold it until it was published. The story that would interest farmers is unlikely to spoil the scientific paper even if the farm story appears considerably ahead of the scientific publication. "Your scientific paper will include details of the experiment which won't concern farmers."

Mr. Barron made the following suggestions. "Get to know farm reporters personally. If you are breaking big news in a speech, prepare a manuscript early and see that it is distributed to the Farm Press. If you work for any organization which has an information service be sure to co-operate with that service."

Radio and T.V.

The demonstration of effective and ineffective ways to approach a Radio or T.V. interview was very well done by George Atkins of CBC, and Vaughan Douglas of CKNX, Wingham, Ontario. As an additional help for the members of the audience they prepared a list of important points brought out in the demonstrations. These follow in an abbreviated form.

Important Points to Remember When Being Interviewed on Radio or T.V.

1. Present your business card or provide interviewer with a sheet with this information typed or plainly written, and
2. Provide a biographical sketch on another sheet if possible. (Use different coloured sheets for different materials.)
3. Put some time into preparation before you go to the Radio or T.V. studio.
4. Remember the broadcaster is extremely busy and always has an "absolute" deadline to meet. Do not waste time. Arrange to arrive at the time requested and leave when it's over unless he specifically invites you to stay.
5. Your interviewer will appreciate a sheet with suggested questions because he may be quite unfamiliar with your subject.
6. On the air, be friendly and sincere. Remember that on Radio or T.V. you are entering the privacy of people's homes as a guest.

If you keep your mind on the subject on which you are the expert, you should not be too nervous.

7. Try to co-operate in the studio by doing what you are asked to do and by sticking to the time.
8. When you're in front of a microphone, don't rattle papers, drum on the table, or fiddle with things that will be heard over the air. On T.V., don't do anything to distract your audience.
9. If your interviewer wants you to call him by his first name, please co-operate with him.
10. If he's a good broadcaster he shouldn't ask you a question that can be answered by "yes" or "no". However, he's not after long and drawn out statements — they should be concise and well stated.
11. Make notes on what you are going to say and use them to aid from, but don't read script.
12. By all means refrain from big words and long sentences. This kind of thing doesn't impress anybody.
13. In your interview, select three or four things to put across and be satisfied with that.
14. A little list of additional topics that you could discuss on other occasions is a welcome parting gesture.
15. On T.V., your presentation should be supported by simple visual material. Remember, whatever charts you may have are reduced to a mighty small size by the time they are seen in the viewer's home on a 16" television screen. If you bring along pictures, or slides, make your selection of the three or four you'll use on the air before turning up at the studio, and also remember vertical pictures don't look well in a horizontal frame.
16. If you're going to appear on T.V., don't wear a white shirt or flashy tie clasp that will reflect the light. Clothing can be any colour, but not white.
17. When you are "on camera", look at the camera lens, your interviewer or your props.
18. If you have small "props" to display for a close-up shot, hold them still and don't cover them with your hand.
19. When you move, move deliberately so the camera can follow you — also for television, you should speak more slowly than on radio.

EDITORIAL POLICY FOR CANADIAN AGRICULTURAL ENGINEERING JOURNAL

Papers for publication in the Journal, Canadian Agricultural Engineering must be of an engineering nature with direct or potential application in an agricultural field and fit into one of the following classifications:

1. A scientific paper based on research conducted by the author or authors.

2. A technical paper based on development, design, testing, or analysis of machines, equipment, structures, processes, practices, etc., carried out by the author or authors.

3. A general paper on:

(a) Education relative to curricula, philosophy or trends in science and engineering education in general and agricultural engineering in particular.

(b) A report of a survey or investigation on some phase of research or research methods, on extension or extension methods.

Class 1 and 2 have equal priority in publication but at least one paper in class 3 should be included in each journal issue.

Articles of a promotional or descriptive nature of a type normally published in the Farm Press or Popular Trade magazines are not acceptable.

Editorial Committee and Responsibility

1. The Editorial Committee appointed by the C.S.A.E. Executive will evaluate papers presented at the National meetings or prepared expressly for C.S.A.E. and advise on their suitability for publication in:

(a) Canadian Agricultural Engineering under category 1, 2 or 3.

(b) Other media of publication such as the A.I.C. Review, the Canadian Journals of Animal, Plant and Soil Science, the Journal or Transactions of the American Society of Agricultural Engineers, the Journal or Transactions of the Engineering Institute of Canada, or others where it feels the paper will receive widest readership interest and best promote the interest of agriculture and the profession.

2. The Committee may use one or more reviewers to assess suitability and other detail regarding publication in Canadian Agricultural Engineering. Comments will be kept in confidence and the committee will submit criticisms, suggestions, and comments to the authors. The Review will insure that:

(a) A research paper does represent a piece of research carried to a well defined stage of advancement and that the conclusions are adequately supported by the experimental results.

(b) A technical paper presents a clear, concise, and factual outline and interpretation of the development, design, test or analysis under consideration, and that it is a contribution in the field of agricultural engineering.

(c) A general paper on education, research or extension is pertinent to major changes in curricula, research or extension or to forward looking developments in these areas.

3. Papers must be clear, concise and written in the impersonal tense.

4. Major headings should be used to designate important aspects of the paper with minor headings for sub sections.

5. One or more illustrations are desirable. They must be clearly identi-

fied on the back in pencil and must be either black and white lined drawings for charts, graphs, plans, etc., or glossy black and white prints approximately 5 x 7 inches for other types of illustrations. A maximum of 6 illustrations may be used if required.

6. Papers should not exceed 2,400 words in length. Some consideration may be given to papers in Class 1. Three copies of manuscript are required by Editorial Committee. They should be typed, double spaced with margins not less than 1¼ inches. (Manuscript paper with numbered lines is preferable, if available.)

7. References cited in the paper should be listed at the end alphabetically by author.

8. Technical and detail information should be included in only one fashion — either by description, by graph, by table, etc.

9. Papers submitted for publication must be originals and must not have been published elsewhere or copyrighted.

10. Papers published in the Journal may be quoted in whole or in part provided that credit is given to the author and to the journal.

11. The C.S.A.E. is not responsible for opinions expressed in the papers published. Such opinions are the responsibility of the author.

12. The Committee may publish abstracts of papers published in other media or technical reports or research reports available from authors or other sources. It may also publish interesting and important news items of members or developments in Agricultural Engineering.



The Canadian Society of
Agricultural Engineering