

EXTENSION ASPECTS

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It is believed a paper of this nature should include a background with respect to those engaged in the extension field and although most of the remarks presented will apply to extension generally, they will also apply to Agricultural Engineering Extension.

Agricultural Extension, in its many forms, was designed and has been developed in the last 50 years to carry to farmers the new findings of science and farm practice. Most farmers have benefited greatly by these activities and it would not be difficult to picture the plight of Agriculture today had this assistance not been available.

The basic objective of Extension is to promote "Better Farming for Better Living" and the extension worker is little different than any other type of salesman, for he must take the information "manufactured" by the research worker and "sell" it to the farmer. Those responsible for policies in research and extension play an important role in the success of the extension program.

The Extension approach is three fold:—

1. *Education*—the interpretation and dissemination, to the farmer, of the results of research.
2. *Inspiration*—Extension should result in an action program which will pay dividends. The education phase must provide sufficient inspiration to assure application.
3. *Assistance*—If inspiration and assistance are necessary to make education effective, they must become an integral part of extension.

The question has often been asked "What makes an Extension Man?" There is always speculation as to whether an Extension man is "made" or "born" and it will probably be concluded that there is an element of both involved.

Whether inherent or acquired, there are some attributes which are essential for success in the Extension field. Without going into detail these may be listed as follows: A "Crusader spirit", persistence and originality. The extension worker must also be able to speak the farmer's language, the background for which is usually best acquired from early life on the farm.

The job of the extension worker is made difficult by the fact that the farmer's problems are extremely complex and involve all the known sciences, not only individually but in co-ordination. This complexity is perhaps what causes some scientists to withdraw to the laboratory, taking the line of least resistance, to proceed along one specialist line. Top calibre men are as essential in extension work as in research and it is not easy to keep them from seeking the seclusion of the ivory tower.

The report on Professional Personnel in Agriculture, 1954 indicates the number of Agricultural Professionals in Canada to be 2882. Of this number, 259 are listed as specializing in Agricultural Engineering work. No specific information indicates the numbers engaged in extension, research, teaching or industry. Of the 259, 30% are Agricultural Engineering or other engineering faculty graduates and 70% are Agricultural graduates specializing in agricultural engineering.

An attempt was made to determine the number of professional agriculturalists engaged in Agricultural engineering extension across Canada by Provinces.

This was expressed as a percent of the number of Professional Agriculturists in each province and varied from a low of 0.6% in British Columbia to a high of 8.7% in New Brunswick. The overall average was slightly less than 3%.

In those Provinces which indicated a well organized agricultural engineering extension program, practically all workers were agricultural graduates with specialization in agricultural engineering.

Reports from several Provinces where graduate Agricultural Engineers engaged primarily in teaching or research with some additional responsibility for extension, indicated this type of set-up to be extremely unsatisfactory both to the worker and the program.

It is apparent, from information received that there is no direct correlation between the method of approach used to promote agricultural engineering extension in the various Provinces across Canada. Some Provinces

have a distinct and separate department for this purpose. Several have extension being promoted by two separate groups within the Province with little or no co-operation between the two. At least one Province has agricultural engineering extension carried out by men working under other divisions, e.g. Farm buildings under Animal Husbandry division. It would appear that a Canadian Society of Agricultural Engineering could well consider this situation as one of the first problems of concern.

Scope of Agricultural Engineering Extension.

Farm Buildings:—All Provinces* reported activity in this field with the Canadian Farm Building Plan Service playing a prominent part. Work covered a wide range of buildings and dealt with remodelling old or establishing new buildings.

Drainage and Land Development:—All Provinces carry out extensive extension work in this field and indications are that this is the field of greatest activity. The emphasis varies from Province to Province according to conditions. Land clearing, land rehabilitation or reclamation, surface and underdrainage and a limited amount of irrigation work are the main fields of activity.

Rural Electrification:—Only a limited amount of extension work in this field. Most activity is carried out by various power companies.

Farm Power and Machinery:—Some activity in most Provinces in the form of field days, short courses, farm safety demonstrations, driving competitions, 4-H Tractor Clubs, bulletins and reports.

Other Activities:—Most Provinces reported working with other Departments. A few sponsored welding and plumbing short courses and some work in rural water supply and sewage disposal.

*—No report from Prince Edward Island or Newfoundland. Partial report from Quebec.

It is realized that Agricultural Engineering Extension, in varying forms, is carried on by many individuals in industry and various governmental agencies but it did not appear possible to obtain sufficient information

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relative to these activities to warrant their inclusion in this paper.

Without adequate extension the

work of education, research and to a lesser degree, industry, loses much of its value insofar as benefits to the Agriculture of Canada is concerned. Those charged with the responsibility

of directing education have a heavy responsibility to assure that top calibre men are available for the field of Agricultural Engineering Extension as well as for Research and Industry.

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Summary

In review, we find that the following programs are offered across Canada:

(1) Farm Mechanics major in College of Agriculture—offered by Macdonald College, Ontario Agricultural College, Universities of Manitoba, Saskatchewan and British Columbia.

(2) Agricultural Engineering degree in College of Engineering—offered by Universities of Saskatchewan and British Columbia.

(3) Other Engineering degrees, where the degree is other than Agricultural Engineering but the background is certainly Agriculture—Civil and Mechanical Engineering degree offered jointly by Ontario Agricul-

tural College and University of Toronto.

(4) Industrial Agricultural major in Agriculture—offered by University of Alberta. Here the field of Industrial Engineering has been transposed to Agriculture and the course of studies has been called, tentatively at least, Industrial Agriculture.

Conclusion

A reference to the Gordon Royal Commission will point out that Agricultural output is expected to expand with an accompanying decrease in farm population.

This indicates the increased importance of well-engineered farm enterprises for the future. As capital investment in farms increases, so does the responsibility of the agricultural

engineer who will be increasingly called upon to advise on decisions involving outlay and layout.

As an example, a mistake in designing a ventilation system for a poultry house to hold 50 birds is less easy to detect and produces less severe repercussions than a similar mistake in a house to hold 5,000 birds.

Also, with the continuing cost price squeeze, production methods and techniques assume much greater significance.

Based upon these considerations, educational programs for the future must provide:

(1) Sound fundamentals in engineering theory and

(2) Increased appreciation of the economic factors relating to agricultural production.

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laboration between Sciences.

C—Determine technical inter-relationship of a farm enterprise as a production process.

D—Consider welfare of farmer as an individual in the community.

E—Other problems—Low cost buildings, feed handling, labor efficiency, farm safety and optimum investment in machines.

In an economic problem many factors are related and evaluated to ob-

tain a practical solution. Several economists suggested that it would be desirable for Agricultural Engineers to consider the broad implications of a problem when determining the solution, in an effort to evaluate the effect on the farm enterprise.

Conclusions

While there are individual problems that can be handled by Agricultural Engineers alone, there are many more problems that should be attack-

ed with the co-operation of other research fields. Co-operative projects will no doubt increase as research workers realize that the complete solution of a problem involves many related operations.

As a result of more co-operative research projects, the Agricultural Engineers would be able to concentrate on the basic engineering phase of research. Engineers would be expected to accept greater responsibility in pure engineering research as an integral part of a co-operative project.



CANADIAN AGRICULTURAL ENGINEERING SOCIETY