

# THE COUNCIL FOR AGRICULTURAL SCIENCE AND TECHNOLOGY (CAST)

by B.P. Cardon

I am going to speak about CAST because it was created to furnish a single voice for scientific agriculture, and it has been extremely effective. It is easy to trace the series of events and meetings in the immediate past that led to the formation of CAST, but that does not tell the true story. The initiation of the need for CAST was probably synonymous with the development of technical agriculture.

Let's review that for a moment. Go back to the development of agriculture, starting with the mythical first man who dropped a seed in a hole, kicked soil over it and waited for growth. Man is a curious animal. He strives to do things better and also has an innate curiosity to learn why the new way is better. "How" and "why" have played a key role in agricultural development. The "how" man, the producer, figured out a better way to do something. The researcher told him "why." From that analysis a better "how" was developed, which then led to a more complete "why." You can see that the key to this type of interaction required close and continuing communications.

Initially, production and research functions were embodied in the same individual. But as knowledge and sophistication increased, the two functions separated, and gradually producer and researcher groups developed.

The Hatch Act was passed in 1887. Previous to that, the State of Connecticut had established a state Experiment Station. The purpose of the Hatch Act was "to establish Agriculture Experiment Stations in connection with the colleges established in several states under the provision of the Land Grant Act passed in 1862." Following the enactment of this law, an Experiment Station was eventually organized in each state.

Why so many Experiment Stations? Why not concentrate research at a few locations and then disseminate the information developed into other areas? The answer to these questions, I feel, gave unique structure to the Experiment Station con-

cept and explains its amazing success.

I like to think that the development of the Experiment Station concept was in recognition of the need for close communication between research and production. To get that communication an organization and operating structure needed to be developed so that interaction and communication would be assured. Although a few large research stations would increase technical knowledge, they would not serve the need in each area for close interaction between the "how" and the "why" groups.

As agriculture developed, it inevitably became more complex. When we say scientific agriculture, we truly mean just that. Scientific disciplines developed, and the science of agriculture became compartmentalized. Today no one does research in general agriculture. A researcher is an agronomist, a horticulturist, an agricultural engineer, an economist, or an animal nutritionist. Currently there are over twenty scientific societies in agriculture, and the list will continue to grow.

The structure of the Experiment Station established almost one hundred years ago permitted communication among these technical groups and between them and the producer. However, as this communication increased and intensified, we gradually lost communication with the nonagricultural public.

This then was the background of scientific development that spawned the need for an organization like CAST. Perhaps the best summary of this need was that as science developed there was no single voice for agriculture. When the public asked a question, they got answers depending upon the technology contacted. It is not difficult to recognize why we have a problem today when one considers the impact of these diverse voices on legislative and public questions about agriculture. The inevitable result was that the scientists were gradually by-passed in these

discussions and decisions. The public and the politician turned to groups or interests that spoke with a single voice.

We can be more specific about the immediate events leading to the formation of CAST. Dr. Nyle C. Brady, Chairman of the Agricultural Board of the National Academy of Sciences, appointed a task force that met in Washington in December of 1970 to evaluate the problem I have just described and to develop ideas for its solution. In the task force were representatives from twelve agricultural science societies and two agricultural agencies. At the conclusion of this meeting, at which various alternatives were discussed and the *operational limitations of the Agricultural Board* were explained, Dr. Brady appointed a committee to continue the discussion and to take action as was considered appropriate. He asked Dr. Charles Black of Iowa State University to serve as chairman.

The committee, acting as an organizing group independent of the Agricultural Board and the National Academy of Sciences, met immediately following the task force meeting to draft articles of incorporation and bylaws for a new organization that could serve as a vehicle through which agricultural science as a whole could address the national information needs in agriculture. The work of the committee was continued by mail, and their proposals for an organization of agricultural science societies were sent to the presidents of the societies early in 1971.

In May of 1971 a meeting of the organizing committee with representatives of interested societies was held in Chicago. It was at this time that the name, Council for Agricultural Science and Technology, was adopted. July 1, 1972, was set as the target date for interested societies to make a commitment to become a part of the new organization. Another meeting was held in Chicago in March of 1972, and at this meeting the organizing committee was replaced by an interim board of directors. Dr. Black was elected the chairman of the board.

By the time of the next meeting of the board on January 16, 1973, the Council for Agricultural Science and Technology had been incorporated in the State of Iowa and had obtained classification

as a nonprofit, tax-exempt, scientific and educational organization under Section 501(c)(3) of the Internal Revenue Code. At the January, 1973, meeting, Dr. Black was elected president. By the close of the meeting there were nine member societies.

Since that date CAST has grown to include eighteen scientific societies, with thirty-eight scientists from these societies serving on its Board of Directors.

CAST is not itself a scientific society, and it functions differently from the scientific societies that are members. First, it is a multidisciplinary organization. Its reports cover subjects that cross the various disciplinary lines. When a topic is selected for evaluation, representatives of the scientific societies concerned are invited to serve on a task force to issue a "consensus statement" on that subject. The final report is truly the responsibility of this group of scientists.

Since May of 1973, the date of the first task force report, CAST has produced almost eighty reports and has approximately a half-dozen more in preparation. Along with this, they have conducted five "Telephone Dialogues." This is truly a monumental achievement in such a short time. The task forces assembled were multidisciplinary groups. They contained the best scientists available to participate from all the technical disciplines involved. This is the unique character of CAST and its unique capability — to cut across the disciplinary lines, develop a consensus report on a subject, and truly speak with one voice for scientific agriculture.

Obviously CAST is no stronger and has no more than the strength of its member scientific societies and the qualifications of the individual scientists participating. But it does have the capability of marshalling the best qualified people from these societies to participate in an evaluation of the particular problem in question.

Who speaks for CAST? Who enunciates the answers to the questions CAST addresses? CAST is different from the organizations most of you will know about. In CAST is it not the officers who speak. It is the scientists who comprise the task forces. Once the task force is formed, the chairman selected for that task force is responsi-

ble for the conduct of their deliberations, and the final report produced and released to the public is the responsibility of that task force. CAST does not influence the content of the report except to edit the final copy.

Those of us involved in the operation of CAST are very concerned about how we conduct our affairs and communicate with the public. I feel that these concerns could be expressed as follows:

1. To develop credible multidisciplinary answers to questions of public concern, CAST must truly represent scientific agriculture. This is accomplished by the unique organizational structure of CAST, as well as the method used in forming a task force to consider a particular problem. This places great responsibility on board members representing the particular societies, and the societies endeavor to get the very best men available to represent them on the board of directors.
2. We are continually concerned with maintaining our credibility. To do this we must have the best and most qualified people to serve on the task force and represent their particular discipline. I suspect that this has been the most gratifying and outstanding result of the first three years of operation of CAST. Truly the best scientists in the United States have volunteered their time to serve on these task forces. Another point of concern is that all relevant disciplines be considered for each question addressed. It is important that all facets of the problem be considered in the consensus report rendered.
3. Reports are technical in nature. Although some simplification of the language can be made when the reports are transmitted to the general public, these reports deal with scientific problems, and a certain amount of scientific language is necessary for accuracy. This creates a real problem of communication with the general public. We often hear the statement "that the public wants headlines and will make up their minds about the subject based on headlines." Unfortunately, agriculture is a complex and technical business. There is a limit to which

the language can be simplified to explain the technology and complexity. I believe that communication is a two-way street. If members of the public feel that they can understand agriculture by reading only headlines, society is in serious trouble. Scientists must simplify their language wherever possible, but it is still the responsibility of the public to read, listen and study. If they do not do this, communication will never be established.

4. Our final concern is that agricultural scientists do not have adequate input at the present time into legislative and regulatory agency activities. It is hoped that through the action of CAST, through the creation of a single-voice consensus approach to monumental questions facing legislators and regulatory agencies, this essential input can be achieved.

What CAST has done, and hopefully will continue to do, has been outstanding, but it is not enough. Since we are a minority, all of agriculture must organize to present its case. In animal agriculture, this includes everything from the agronomist to the cow-calf operator through the feedlot, the packing house, and even the food distributor. We must be an organized minority if our voice is to be heard today.

There are many facets to the problem. I would like to use an example that may be somewhat different from those with which you are familiar. Modern agriculture is the application of science — science generated by a large group of researchers. I am sure you know that all scientists don't agree. Here I am not speaking of the average technical worker but of truly great scientists. For instance, consider ten researchers working on cancer. If one questioned these ten researchers about the cause of cancer, one would get almost ten different viewpoints. The differences in viewpoints may not be great, but they are real. How can and, in the past, how have these differences in viewpoint been resolved? This obviously has been done by more research.

In one sense, science polices itself. Understandably this is not a perfect method, and mistakes are made. But in general if two scientists

disagree, they, and often a third party, through further research eventually resolve these disagreements. This method of policing has gone on since the beginning of science, and the net result has been modern society and the abundance of life we have today.

Consider many of the current food and dietary laws listed on the books today. The basic intent of these laws is good, but unfortunately they are written and administered in a way that permits, and even requires, the legal arm of our society to rule on scientific controversy.

Here is one case in point. You are familiar with the controversy over the use of many pesticides, herbicides and feed additives that at some concentration are suspected of being carcinogens. Last year the legal staff of the Environmental Protection Agency examined the testimony presented in hearings on certain pesticides and, from an analysis of this evidence, developed seventeen principles which they proposed as a legal basis for determining whether a chemical is a carcinogen.

Do you realize the relationship between law and regulation as they are currently developed by our government? In 1974 the Congress of the United States passed 404 laws. These laws have been published in two volumes. A recent issue of "Industry Week" reported that from these laws there have been over 7,000 regulations developed to date. These regulations have been compiled into 38 volumes, and we can expect additional ones in the future coming from the laws passed in 1974. More specifically, Public Law 92-500, which is the basic law establishing water quality goals and which was passed in 1972, is 89 pages long. Recently, officials from the Environmental Protection Agency estimated that before this law is fully implemented, the regulations coming from it could well comprise many volumes.

The basic law designed to protect the public against harm from pesticides was good. But note that the rules promulgated to implement the law require that the legal fraternity now evaluate scientific controversy. This was not part of the law but was the legal interpretation placed on the law. In a sense, such rules tend to freeze the relevant science at its present state and discourage further research and development.

A somewhat analogous situation occurred years ago in Russia, when Dr. Lysenko proposed his somatic theory of inheritance. Lysenko's theory, because he was in political favor, was officially adopted by the USSR government, and this stifled genetic research in Russia for many years. Dr. Borlaug has stated that this single action undoubtedly contributed to the grain shortage experienced these last few years in Russia.

CAST's involvement and aggressive reaction to pronouncements that are scientifically ridiculous do help. An aggressive response by CAST to the Environmental Protection Agency's principles of carcinogenicity has probably been a factor in EPA's retreat from that position. I am sure the new regulations coming from EPA in this area will be much sounder from a scientific point of view.

Victor Hugo, writing during the nineteenth century, stated, "Stronger than all the armies is an idea whose time has come." Hugo was talking about the French Revolution, but I feel his idea has fundamental application. CAST was an idea "whose time had come." I feel the same basic need is facing all of agriculture. It's time for us to unify and organize to meet this need.

*For more information about CAST, including the current list of publications, membership applications, current list of institutional members, and sample copies of documents, call 555-294-2036 or 2903 or write to: CAST, 250 Memorial Union, Ames, Iowa 50011.*