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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

PROTECTING CONSUMERS THROUGH RESEARCH

Talk by Dr. Robert J. Anderson
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I am very pleased to have an opportunity to talk to Extension specialists on the subject of consumer protection, and to explain some of the things that scientists in the Department of Agriculture are doing to safeguard the Nation's food supply. I know that you are genuinely concerned about consumer welfare; what's more, you are in a unique position to put research findings to work for the consumer.

The story of our progress in consumer protection is a story common to many scientific endeavors. We have come a long way. We have learned a great deal. But we find that the more we learn, the more we need to know.

Salmonella is a case in point. This troublesome organism has for years been recognized as a common cause of food poisoning. Historically, poultry products have been especially vulnerable to contamination. So we have devoted a great deal of effort to helping the poultry industry overcome the problem. We developed simplified laboratory tests for detecting salmonella. We devised methods for pasteurizing dried eggs, egg whites, and whole eggs. In 1966, we made pasteurization mandatory for all egg products moving in interstate commerce.

Poultry processors, for their part, have sought to reduce contamination by using filtered air in their plants and by minimizing exposure of products to plant workers.

These efforts have helped hold down salmonella contamination, but we are going to have to expand our attack. The problem is larger than we realized. Salmonella organisms are pervasive throughout nature; they are carried by man, animals, birds, even insects. It is extremely doubtful that we will ever be able to remove them from the environment entirely.

Our best bet, then probably lies in establishment of a salmonella-free pathway from farm to market to consumer. We will

have to find new and better ways of breaking the cycle by which salmonella organisms perpetuate themselves.

During studies conducted last year in cooperation with the feed industry, we confirmed that animal feeds often are contaminated with salmonella. Feeds containing animal byproducts are especially likely to be contaminated. You can see how this leads to a continuous cycle of infection. Animals carrying salmonella organisms in their intestines are sent to slaughter. The intestines and other unused parts, still carrying salmonella organisms, are sent to a rendering plant. Then they are added to feed and sold to the grower, who feeds them to other animals. If the rendered products are not completely free of salmonella, the disease chain is kept alive.

The Department is currently inspecting rendering plants in various States. Soon we will issue standards for feeds and feed ingredients, recommending sanitary procedures and requiring product testing for rendering and feed-processing plants. We hope that eventually all such establishments will qualify as producers of salmonella-free products.

Our Department and the Department of Health, Education, and Welfare have joined in asking the National Academy of Sciences-National Research Council to conduct a thorough study of all aspects of the salmonella situation. Researchers working on the study will try to determine the economic significance of salmonella, in terms of animal and human health; the principal carriers of salmonella; and new methods of preventing contamination.

As of now, careful inspection is one of the chief reasons that you seldom hear of a case of food poisoning. Poultry inspection for wholesomeness has increased rapidly over the past few years. Inspection of broiler carcasses, for example, rose by about 300 million in the period 1964-66. However, a comprehensive effort to reduce the incidence of salmonella in the environment would make inspection a less difficult job and would add a degree of improvement to our overall health standard.

Another animal health problem that is causing increasing concern is avian leukosis. Leukosis infections in the Nation's poultry flocks have been creeping steadily upward. In past months, our inspectors in the big poultry producing regions of the southeast have had to condemn more than 3 percent of the birds sent to market. Avian leukosis accounted for about one-fourth the total.

These condemnations represent a tremendous loss to poultrymen, but they are also of interest to protectors of human health. Avian leukosis is a form of cancer. It is not a form of

cancer that can be transmitted to man. Federal regulations require that birds infected with any kind of disease be kept off the market, and present condemnations are being made on that basis, not because of the nature of the disease.

What interests medical researchers about our studies of avian leukosis is that we have proved that it is caused by a virus. Our investigators at the Poultry Research Laboratory, East Lansing, Michigan, have spotted causative viruses under the electron microscope and have followed their progress from cell to cell in infected chickens. As you know, there is strong circumstantial evidence to support the theory that viruses also cause human cancer. Indeed, one of the most recent major efforts of cancer research has been to try to trace the different types of cancer tumors to specific viruses.

In our studies on avian leukosis, therefore, we hope not only to reduce losses to the poultry industry but also to supply some of the answers needed by scientists working on a cure for cancer.

Still another area of Department research that affects consumers is our work on mycotoxins. Mycotoxins are poisons produced by molds. No one paid a great deal of attention to them until 6 years ago, when a shipment of moldy peanut meal was fed to turkeys in England, and about 100,000 of the birds died. We now know that mycotoxins are poisonous if taken in large enough amounts, and that they cause cancer tumors if taken over a period of time even in small amounts.

Mycotoxins have been detected on many crops, but most frequently on peanuts. Because the peanut in various forms is a popular food item among humans, we have taken extra care to make sure that it is absolutely safe. USDA, the Food and Drug Administration, and the peanut industry have collaborated to develop methods for detecting toxic peanuts and diverting them from use as food or feed.

Further research efforts are being devoted to reclaiming any peanut products that might become contaminated, so that the food would not be wasted. In one experiment, for example, scientists added a harmless bacteria to a batch of purposely contaminated peanut butter. The bacteria detoxified the peanut butter without altering its taste. Similar results are being achieved with certain types of solvents that dissolve the toxic organisms. And other experiments are aimed at finding better methods of harvesting peanuts, so that the moisture content of the crop can be held down and molds can be kept from getting started in the first place.

So much for the pitfalls that nature prepares for us. Now I would like to mention a couple of manmade health hazards. One that we've all heard about is pesticides.

The immediate problems associated with pesticide use are now generally understood. But less is known about the long-term effects, if any, on the environment and people. We are now working to fill that gap in knowledge -- to substitute well-documented facts for speculation on the possible adverse effects from long-time use.

An English scientist, writing in a recent issue of the British Food Journal, ventured this opinion on pesticides:

"It is impossible to foresee the pressures that might develop for the use of available food supplies and it may become essential to deny the insect and rodent pests any fraction of the amount they now take."

"Higher levels of pesticides may well have to be accepted."

Whether or not this assessment of the food situation ever proves valid in our own country, there can be little question that pesticides are here to stay. Consequently, as guardians of consumer welfare, our goal must be nothing less than absolute protection from harmful pesticide contamination and total elimination of pesticide accidents.

One way we help ensure pesticide safety is through registration of pesticides. All pesticides sold across State lines must be registered with the Department. This regulation requires that manufacturers prove the safety and worth of a material before it is ever marketed.

USDA also oversees labeling of pesticide products. Recent improvements in the labeling regulations stipulate that warning and caution statements be prominently placed on the front panel of the labels, be printed in specified type sizes, and be written in language that is easy to understand. The amended regulations also require that labels bear the USDA registration number, so that the buyer can tell whether he's getting a federally regulated product. These revised labeling regulations became effective one year ago. Since then, all of the thousands of labels requiring USDA sanction have been reviewed.

The Department of Agriculture took the lead in coordinating Federal efforts through creation of what is now the Federal Committee on Pest Control. This committee reviews the pest-control plans of all Federal agencies, including our own cooperative programs, to

make sure the methods used are safe and effective.

One result of this cooperation is more complete reporting and investigation of accidents involving pesticides. The resulting pool of data helps identify weaknesses in research and educational programs.

Considerable progress has been made in reducing the need for persistent pesticides. We believe that their use should now be reviewed by disinterested scientists of the highest competence. At our request, the National Academy of Sciences-National Research Council has agreed to conduct such a review. We think the results will be extremely valuable.

Another environmental problem that will soon require action is the accumulation of animal wastes around large feedlots and dairy operations. Besides giving off offensive odors and causing stream pollution, these wastes may be reaching ground water supplies. The problem is partly economic, because large feeding operations are necessary to maintain our plentiful supply of meat. Department scientists are studying the extent of the problem and hope to find answers that will satisfy both the feedlot operator and his neighbors.

One of the oldest forms of consumer protection in this country is meat inspection. Recently, it has once again become the subject of lively discussion. The Federal Meat Inspection Act, as you know, was passed in 1906 following publication of Upton Sinclair's novel, "The Jungle," an account of working conditions in the Chicago packing houses. (This was the book that was aimed at the Nation's heart and struck it in the stomach, according to phrasemakers of the time.)

Federal meat inspection insures the wholesomeness of meat shipped in interstate commerce. This includes 85 percent of the meat consumed annually. The remaining 15 percent is processed and sold within State lines; it is not subject to Federal inspection. Many States have no inspection program of their own. Thus, standards of purity and cleanliness vary considerably from State to State and from one intrastate packing plant to another. USDA's 60 years of experience in meat inspection can be put to good use as the States move to standardize meatpacking procedures within their own borders.

You may have gathered from my earlier remarks that the Department of Agriculture frequently collaborates with other agencies of the Government on projects involving human health. These relationships have always been rather informal. Now, however, we have proposed that the Department of Agriculture,

the Department of the Interior, and the Department of Health, Education, and Welfare establish a Federal Committee on Food Safety, with joint responsibility for the wholesomeness of the Nation's food.

If this committee is approved, we hope that it will review and make recommendations on present problems, and anticipate future ones; that it will speed up exchange of information between the Departments, and encourage further exchange among international, Federal, and State agencies. The committee could well become a clearing house for such problems as bacterial contamination, chemical residues in foods, and environmental pollution affecting food and feed.

As we lay our plans for future research in consumer protection, we know that we can depend on the Extension specialist's traditional expertise as intermediary between science and the public.