

# News of Science

## Congress Studies Research Programs To Develop Industrial Uses for Agricultural Products

In the present session of Congress, 25 "utilization research" bills have been introduced so far, five in the Senate and 20 in the House. Utilization research is the organized effort, through science and technology, to develop new uses for agricultural products, particularly uses in industry. It is offered as one solution to this country's continuing surplus of agricultural commodities. An example of effective utilization research is the development that occurred when detergents first replaced soap. A way was found to use the resulting surplus of animal fats by converting the fats into chemical compounds useful as plasticizers in vinyl plastics. Now 40 million pounds of animal fats are sold each year to make shower curtains, raincoats, garden hose, floor tile, and so forth.

Senator Homer Capehart (R-Ind.) led the way in proposing utilization research legislation in March 1956 when, joined by 30 of his colleagues, he introduced S.3503, the first of the current series of bills on the subject. In his proposed legislation, which he described in 1956 as the most important program he had ever sponsored in his tenure in the Senate, Capehart suggested the formation in the executive branch of the government of an Industrial Agricultural Products Administration. Many other plans have been offered since. At present, the two leading proposals are (i) the establishment of a new research agency within the Department of Agriculture and (ii) the creation of an advisory commission in the government's executive branch.

Capehart's original measure required a supporting appropriation of \$100 million a year. He defended the amount by pointing out that despite the billions in federal funds being spent in price-support buying and in paying the farmer to reduce his acreage, the huge surplus was continuing to accumulate. What Capehart said in 1956 is still true today; yet

only now, 4 years later, is a congressional proposal even approaching legislative sanction.

### Bipartisan Commission Findings

In fact, the only constructive measure that has been passed was Public Law 540, under which the 84th Congress established a five-man bipartisan Commission on Increased Industrial Use of Agricultural Products. Employing 18 task groups to consider all the agricultural products useful or potentially useful to industry, the commission prepared a detailed report and submitted it to Congress in June 1957.

The commission concluded emphatically, that the United States economy can develop profitable industrial markets capable of absorbing enough of the excess farm production "to minimize, possibly even to eliminate, the need for costly restrictions, supports, and surplus-disposing operations." However, the report pointed out that four main needs must be met before such a development can be brought about. These were described as follows:

"The first [need] is a sufficiently sharp sense—lacking so far—of the importance, the possibilities, and the urgency of the industrial utilization approach to farm surplus problems.

"The second need is a greatly expanded program of fundamental and applied research—physical, chemical, biological, economic—to learn far more about the nature of agricultural raw materials and to determine what existing or new industrial products and processes might profitably use them . . . The research and development program would mobilize the efforts of many scientific institutions—private, public, State, Federal and perhaps even some in other countries. . . .

"The third need is to insure, through fellowships, scholarships, grants, and other means, that much more scientific talent is trained for and channeled into this neglected field of farm product research and development than it has engaged so far.

"The fourth need is to provide, in certain cases, suitable financial incentives during a temporary trial or development period—for example, new products or processes that are expensive to launch or that seem less promising than alternative uses of risk capital, or that might lead to especially rapid disposal of surpluses."

### Present Program

At present the Department of Agriculture operates four regional utilization research laboratories, one in each major farm-producing area. These regional laboratories, which were established in 1938, are headquarters for the four Utilization Research and Development divisions of the Agricultural Research Service. Each division, including a number of associated field stations, conducts research on problems of national scope, with special emphasis on utilization of farm commodities important in its particular region.

The Northern Division, at Peoria, Ill., conducts research on corn, wheat, and other grains. The Eastern Division, at Wyndmoor, Pa., does work primarily on livestock and dairy products, fruits and vegetables, tobacco, and honey and maple products. The Southern Division, at New Orleans, La., conducts research on cotton, rice, sweet potatoes, sugar cane, peanuts, and so on. The Western Division, at Albany, Calif., investigates wheat, barley, poultry and eggs, sugar beets, wool, and alfalfa and other forage crops. Each of the laboratories has a staff of from 350 to 400 people, of whom about half are scientists. In fiscal year 1959 the four units spent \$16,067,000.

### Senate Proposes New Agency

Last month the Senate passed S.690, "To provide for the increased use of agricultural products for industrial purposes." This bill is identical to S.4100, which was passed last year too late for House action. The present bill, sponsored by senators Johnston, Proxmire, Humphrey, Talmadge, and Yarborough, would establish a new independent agency in the Department of Agriculture, to be known as the Agricultural Research and Industrial Administration, which would coordinate and expedite efforts to develop new uses for farm products, new crops to replace those in surplus, and additional means of disposing of surplus commodities in government inventory. The agency would be headed by an administrator under the general direction and supervision of the Secre-

tary of Agriculture and would hire up to ten scientists and technicians at rates higher than those allowed by the Classification Act.

To accomplish the objectives of the bill, the new agency would be empowered to utilize existing facilities and authorities; make research grants; use foreign currencies accumulated under Public Law 83-480 (the over-seas farm-surplus disposal program that has resulted in the accumulation of billions of dollars in unused funds abroad); enter into contracts or cooperative arrangements; make incentive payments; make Commodity Credit Corporation stocks available; provide for private operation of government facilities; assist in the acquisition or expansion of facilities by persons contracting or cooperating in research and development; grant exclusive licenses to use patents under the control of the Department of Agriculture; build, maintain, and operate manufacturing facilities; and provide for graduate scholarships and fellowships.

The authority granted the new agency would supplement, particularly with respect to putting research findings to industrial use, the broad powers already vested in the Department of Agriculture under the Research and Marketing Act of August 1946 and other statutes. The provisions granting the agency authority relative to grants, fellowships, scholarships, incentives for farmers and industry, and so on stem from recommendations of the Commission on Increased Industrial Use of Agricultural Products.

#### House Committee Favors Commission

The leading utilization research legislation in the House is quite different from that in the Senate, for it recommends the formation of an Agricultural Research and Development Commission as an independent organization in the executive branch. This suggestion, which was introduced in June as H.R.7576 (Abernethy), is the strongest House proposal on the subject. On 12 August the House Committee on Agriculture, having considered both H.R.7576 and Senator Johnston's bill for the creation of a new agency in the Department of Agriculture, ordered a moderately amended version of H.R.7576 reported out. The new version was reintroduced the same day by Abernethy (H.R.8639) and Dixon (H.R.8640).

The Agricultural Research and Development Commission would have seven members appointed by the President and confirmed by the Senate—four from ag-

riculture and three from industry. Its responsibilities would be investigative and advisory. It would appraise agriculture's research needs and develop authoritative recommendations—that is, it would propose the initiation, expansion, termination, or redirection of agricultural and forestry research, with emphasis on utilization research. Its activities would include a review of the organizational structure of the Department of Agriculture's research program in order to make recommendations to the Secretary of Agriculture.

The commission would have whatever funds were necessary to conduct its work. It would meet at least four times a year, and it would issue detailed reports, including an annual one to the Secretary of Agriculture and to Congress. The executive director of the commission would be appointed by the Secretary of Agriculture from among persons nominated by the proposed commission.

A special section of the Abernethy-Dixon measure provides, further, that the Secretary of Agriculture be given certain additional powers in making grants and contracts for research intended to carry out the purposes of the new act.

#### Other Measures Introduced

The establishment of a new agency in the Department of Agriculture is the significant provision of ten of the 25 bills before the current session of Congress; in addition to Johnston's S.690, these are S.43, Mundt; S.74, Curtis; S.1124, Capehart *et al.*; S.1722, Title III, Capehart; H.R.2970, Brock; H.R.4167, Hemphill; H.R.7245, Wampler; H.R.7402, Flynn; and H.R.5234, Berry. The second largest group of bills is composed of the eight that recommend the expansion of utilization research under the Secretary of Agriculture within the existing organization: H.R.2380, Albert; H.R.2718, Abernethy; H.R.2719, Dixon; H.R.2720, McIntire; H.R.2766, Hoeven; H.R.2803, Steed; H.R.2880, Jennings; and H.R.5441, Schwengel. These bills have had the strong support of the land-grant colleges, which would like to receive much larger research and equipment grants in order to greatly increase work in this field.

A third group, four bills, proposes the formation of an Agricultural Research and Industrial Board in the executive branch to coordinate and expedite utilization research: H.R.127, Kee; H.R.309, Abernethy; H.R.2881, Jennings;

and H.R.3070, Saund. Establishment of this board was another of the recommendations of the Commission on Increased Industrial Uses; it would have five members appointed by the President and confirmed by the Senate, one of whom must be an Assistant Secretary of Agriculture.

#### Department of Agriculture Views

The Department of Agriculture supports the Abernethy-Dixon legislation for an executive branch commission (H.R. 8639-40), maintaining that, with enough money and the appropriate authorizations, it can carry out the necessary program within its present organization. When asked to comment, a department spokesman said: "We can live with this one. With S.690, Sen. Johnston's bill, it would be difficult." He then emphasized that the House proposal established a group to aid the Secretary of Agriculture, a review body to determine what is needed, whereas S.690 creates a new administrative agency that would actually conduct utilization research, which would lead to a "complete shake-up—and what good would that do?" He pointed out that it would cost a great deal more to put the Senate proposal into effect, for presumably all of the department's established bodies would be transferred to the new agency. Furthermore, he added, under S.690 major problems would arise in the coordination of research programs and in competition for personnel.

These same views were expressed by Assistant Secretary of Agriculture E. L. Peterson when he testified this spring at hearings before the House Committee on Agriculture's Subcommittee on Research and Extension, which was considering 16 of the current bills. Peterson said:

"We opposed S.4100 [last year's identical predecessor of S.690] because it would have created an unnecessary agency to parallel and duplicate an already well-organized and well-established program in operation as a part of the total agricultural research effort. We believe that the present organization is fully capable of carrying out any expanded research program the Congress may authorize. . . .

"Research on the development of new uses for agricultural products is now conducted in a separate unit in the Department of Agriculture. This unit has no other responsibilities. The utilization research unit is separately budgeted and separately directed, but its efforts are

coordinated with all other research in the Department through the Administrator of the Agricultural Research Service and an Assistant Secretary of Agriculture."

#### Senate Attitude

Senator Capehart referred to the role of this "unit," the four regional laboratories, when he testified last year before the Senate Committee on Agriculture and Forestry on the six Senate bills on utilization research then pending. His remarks reflect the Senate opinion that a very large and spectacular separate program is the solution to the utilization research problem. Capehart said:

"Now you will have people who will testify here that the Department of Agriculture now has four laboratories . . . doing this work, and I agree that they are doing a good job. But it is not good enough in my opinion . . . We must move faster, appropriate more money, and have more people do this work . . . This year it is costing the taxpayer approximately \$4 billion to support farm prices. It is costing another \$365 million a year, a million dollars a day, to store the surplus."

This view was reconfirmed on 19 August by Secretary of Agriculture Ezra Taft Benson when he reported to the President that the mounting wheat surplus would increase the federal government's investment in that commodity to \$3.5 billion next year. In July there was a wheat surplus of 1.3 billion bushels, and this amount is expected to increase. The cost to the government was reported to be \$1.5 million a day for interest, storage, handling charges, and transportation. Although Benson presented these figures in support of a new economic program for agriculture, they constitute equally effective support for a utilization research program.

In the past 4 years of utilization research discussion, a frequently used device for emphasizing the urgency of the matter has been a comparison of the amounts industry and agriculture spend for research. Industry invests approximately \$3 billion a year in research, 3 percent of gross sales. Agriculture invests some \$375 million in research, about 1 percent of gross sales—and most of this is used to increase production. Federal and state governments spend \$190 million of the total, of which no more than \$18 million goes for utilization research.

Nearly half the market for natural fibers—cotton, wool, flax, silk—has been

taken over by synthetic fibers. Two out of three pairs of shoes are now made partly or wholly of leather substitutes. As the Commission on Increased Industrial Use of Agricultural Products put it, "in recent years, agriculture has been researched out of a good part of its natural markets." The question is whether Congress will move this year—and, if so, in what direction—to increase the amount the government spends on utilization research for farm products.

#### Modern Methods Used to Test an Ancient Device

The Indian Government's Central Road Research Institute has developed a wheel tester, shown here, for studying

the efficiency and durability of bullock-cart wheel-axis systems. The irregular lower wheel recreates road conditions by reproducing bumps and abrasions for the upper wheel, which is being tested.

The institute has a modern headquarters building in New Delhi that contains up-to-date research laboratories and facilities for developing and testing equipment. The organization has a wide range of activities, including the following: fundamental research on road-construction materials; soil mechanics studies; the development of standards and specifications for roads and road-building machinery; the design of road-testing instruments; the investigation of road characteristics under various traffic conditions; and surveys of accident rates, traffic volume, and so forth.



Old meets new: a modern efficiency test for an Indian bullock-cart wheel.