

Chapter VII

Science in the Service of Man

Research in agriculture and related areas is essential for continued advancement of American agriculture and for all people of this nation. The Federal and State research institutions and facilities have served well our American society. Scientists, program administrators, industrialists, and other leaders of the entire world carefully scrutinize the work, trends, and progress of American agricultural research. New disciplines are emerging. Educational and research institutions are growing; new economic and social problems and goals are on the horizon. Our agriculture requires a system of research through which science and technology continually advance and a system of education through which these advances are continually brought within the reach of individual family farmers. Our progress is fed by a vast reservoir of cumulative agricultural research. Research provides the tools that make disease and pest eradication or better control possible. In more recent years it is also studying problems arising from an increasingly urban society, with more and more attention being given to economic research or evaluation. Research is a key to providing systematic direction for our rapidly growing nation.

Although only a small percentage of the Department's expenditures are for research and only about 17 percent of its personnel are engaged in research, it is basic to all other programs. Scientific research is

administered primarily by the Agricultural Research Service; economic research by the Economic Research Service; and statistical research by the Statistical Reporting Service. More specialized research is conducted by the Forest Service. The Cooperative State Research Service serves as a coordinating unit for the various types of research carried on at the State Agricultural Experiment Stations, forestry schools, and other institutions under Federal grants. The research conducted may be a joint effort with one of the agencies in Washington and any one or a grouping of the State Stations; or it may involve these agencies and action agencies, other Departments, independent offices, or private industry. Thus there is a great pooling of resources that contribute to action programs, including regulatory functions.

Research Administration

Budget Limitations. President Johnson, soon after he took the oath as Chief Executive, notified the Departments that he intended:

To examine agency budget requests with the determination to hold the 1965 Budget to the barest minimum consistent with efficient discharge of our domestic and foreign responsibility. 1/

The President's annual message to Congress on January 8, 1964, with its emphasis on the war on poverty, foreshadowed changing directions for research and educational activities in the Department. 2/

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. I, p. 17.

2/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. I, p. 14.

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About a year after he took office, President Johnson indicated that a frugal budget should not be a stagnant one. Rather it should allow for new programs to meet the "aspirations of the American people." He objected to superfluous employees, outmoded public services, and obsolete installations. The President asked his cabinet officers to look sharply at their operations for areas that could be cut. 1/

The Secretary advised the President on December 31, 1964, of proposed actions, which included closing 20 small research stations and eliminating complete lines of research at 28 other locations. On January 28, 1965, the President again pointed out that the key to an attack on waste was the reduction of excessive personnel, and the elimination of obsolete installations and outmoded services. In February 1965, the Secretary informed the President that any action on closing research stations must be taken quickly, because of Congressional opposition. Congress held hearings and drew up its list of essential activities that the Department had proposed to eliminate. As soon as this report was out, Secretary Freeman wrote to Senator Spessard L. Holland objecting to continuing low priority research. In fact, he said that some could be continued by private business. He carried his

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. II, p. 1599.

complaint also to the White House and urged prompt action to prevent continued delay that would end in inaction. 1/

The action of the President in the reduction of research activities so aroused members of Congress that the Agricultural Appropriation Act for 1967 included a provision that restricted his authority in proposing a financial plan for agricultural research in the next budget through transferring "Section 32" funds. Although he signed it, the President objected on the grounds that this was an invasion of the "Executive function of preparing the annual budget." He went on to say that he intended to propose an agricultural research program designed and financed to make the best possible use of the available resources. 2/

In August 1967, before the next Appropriation Act had been approved, the President was again asking Cabinet Members to review all programs for possible cutbacks and was proposing the 10 percent income tax surcharge. 3/

1/ Orville L. Freeman to the President, Dec. 31, 1964 and Feb. 5, 1965; Orville L. Freeman to Spessard L. Holland, Apr. 21, 1965; Orville L. Freeman to the President, Apr. 22, 1965, Freeman Chronological File, Lyndon B. Johnson Library; U. S. Congress, House Committee on Appropriations, Hearings... Proposed Reductions in Agricultural Research, 89th Cong., 1st Sess.; U. S. Congress, Report on the Proposed Elimination of Agricultural Research Stations and Lines of Research, 89th Cong., 1st Sess., Senate Report No. 156, 21 pp.; Public Papers of the Presidents, Lyndon B. Johnson, 1965, Vol. I, p. 108; U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriation, 1967, pp. 293-294.

2/ Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. II, pp. 980-81.

3/ 3 Weekly Comp. Pres. Doc., (31), 1087.

Limitations were established on spending of fiscal year year 1968 funds that meant a reduction of about \$25 million for Agricultural Research Service. This meant a cutback on grants, contracts, cooperative agreements, the reduction or termination of lines of work, and closing out some projects and field stations. It also meant a deferral of obligating funds appropriated for planning and construction. 1/

When Congress acted on the appropriations for the 1969 fiscal year, it shifted its position from one of defending its rights against Presidential cuts of appropriated funds to requiring that the President make cuts.

The emphasis on economy has been accompanied by a process of evaluation of various aspects of research. This has also meant some administrative reorganization to reflect redirection of work.

Direction and Evaluation. Approximately a decade after the Agricultural Research Service was established to provide for more coordinated programs of scientific research, another change was made. On December 11, 1963, Nyle C. Brady was appointed Director of Science and Education and was directed to coordinate research activities throughout the Department. He was to have immediate supervision over the Agricultural Research Service, the Cooperative State Research Service, the Federal Extension Service, and the National Agricultural Library. Brady continued in the position until he returned to Cornell University

1/ U. S. Agricultural Research Service, Administrator's Letter, Jan. 5, 1968.

in September 1965. Soon after this, Assistant Secretary George L. Mehren was also assigned the responsibility of Director of Science and Education, particularly for the USDA-State Agricultural Experiment Stations Long-Range Study of Agricultural Research. He resigned June 1, 1968. Ned D. Bayley was appointed as Director of Science and Education to succeed him. 1/

Dr. Brady began the realignment of some functions formerly under the jurisdiction of the Agricultural Research Service to give offices a broader scope. In April 1964, he transferred the secretariat serving the research advisory committees, the Central Project Office, and the Agricultural Research Service Deputy Administrator responsible for coordination and participation in interdepartmental research activities to his office. A further step at coordinating activities was taken in 1964 with appointment of W. C. Shaw as Pesticides Coordinator, a position he held for about 15 months. During the discussion of the problem of coordination in this area, Brady suggested to the Secretary that an overall unit be established to bring together the scientist-oriented areas, the administration-oriented area, and the organized special-interest area. 2/

On September 24, 1964, the Secretary approved the establishment of the Research Program Development and Evaluation Staff. The Staff was to

1/ U. S. Department of Agriculture, Secretary's Memoranda 1548, Dec. 11, 1963; 1586, Oct. 5, 1965; U. S. Department of Agriculture Press Release 1865-68.

2/ N. C. Brady to the Secretary, July 10, Sept. 28, 1964, Secretary's Files, U. S. Department of Agriculture.

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provide overall planning and evaluation of Departmental research goals, policies, and programs. It was also to coordinate Departmental research with that of State experiment stations and other public and private agencies. In connection with these assignments, the Staff has continued the record of current research programs, provides a secretariat for the extensive system of research advisory committees, and prepares an annual report on Departmental research, and interagency reports for Congress, the scientific community, and the general public on the scope and content of ongoing research. 1/

In 1966, when there was agitation for a government-wide reporting system for science and technology, the Department of Agriculture was developing plans to up-date its system. On February 9, 1967, Assistant Secretary Mehren assigned responsibility for the coordination of the Current Research Information System (CRIS) to RPDES. The new automatic data processing operation was to provide a mutual exchange of scientific information and a more complete knowledge on research under way in the Department, the State experiment stations, and other cooperating State agencies. 2/

1/ Memoranda, George L. Mehren to Joseph M. Robertson, Feb. 16, 1967; N.C. Brady to the Secretary, Sept. 23, 1964, Secretary's Files, U. S. Department of Agriculture.

2/ James Turnbull to George L. Mehren and others, Jan. 6, 1967; George L. Mehren to H. C. Graumann, Feb. 9, 1967; Memorandum of agreement on cooperation in CRIS, Mar. 14, 1967, Secretary's Files, U. S. Department of Agriculture.

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For some time, the Agricultural Research Planning Committee, established on July 24, 1964, had been assisting in planning and coordinating agricultural research and determining the areas of Federal and State responsibilities. It was made up of representatives from the Department, the land grant universities, the National Academy of Science, and the Office of Science and Technology. 1/

The Committee on Agricultural Science, established April 16, 1962, with an eminent scientific membership, continued to evaluate scientific research from the viewpoint of the scientist. It is also concerned with the role of the scientist, the climate in which he works, and his academic freedom. 2/

Agencies engaged in research have periodically reappraised their research and methods of research to evaluate effectiveness. Research has been redirected as a result of such examination and organizational structure changed. This has been achieved through the media of work groups and such committees in the Economic Research Service as the Committee on Automatic Data Processing, established April 12, 1965; the Committee on Resource Use and Institutions, established February 11, 1966; and the Committee on Economic Projections, reestablished August 2, 1966. In the Statistical Reporting Service, its Program Planning Committee,

1/ U. S. Department of Agriculture, Secretary's Memorandum 1561.

2/ U. S. Department of Agriculture, Secretary's Memorandum 1498, Apr. 16, 1962, Sup. 1, June 12, 1962; Telephone Conversation, Vivian Wiser with Max Hinds, Oct. 1, 1968.

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established June 6, 1962, has continued its activities in reviewing, evaluating, and recommending improvements to the Administrator of the Service. 1/

Meanwhile, to supplement these internal examinations, the Economic Research Service engaged James H. Shaffer, on leave from Michigan State University, to study research in agricultural marketing for United States commercial agriculture. His carefully prepared report with its broad interpretation of agricultural marketing has stimulated a great deal of thinking about the entire field of economic research. Among the elements under discussion are: timeliness of research; organization of research to emphasize a team or task force approach; political pressures and ways of meeting them by use of consortia or commissions; role of the computer; and the culmination of research in policy recommendations. 2/

Changes were also being made to strengthen the research program and bring it closer to the needs of our citizens. The Department, in line with Executive Order 11007 dated February 26, 1963, realigned its Research and Marketing Act advisory committees, designating chairmen at the Assistant Secretary level and vice-chairmen at the Assistant or Deputy Administrator level. Provision was made for special public

1/ U. S. Economic Research Service, General Memoranda 34 (Apr. 12, 1965), 40 (Aug. 13, 1965), 47 (Dec. 15, 1965), 49 (Feb. 11, 1966), 52 (Aug. 2, 1966).

2/ John H. Shaffer, "A Working Paper Concerning Publicly Supported Economic Research in Agricultural Marketing," 1968. Copy in Files, Agricultural History Branch, U. S. Department of Agriculture.

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sessions for presentation of research needs by persons or organizations not represented on the committees. Currently, the work of the committees is under the jurisdiction of the Research Program Development and Evaluation Staff. The new procedure has made for greater public involvement in agricultural research planning, policy, and implementation.

As Congressmen saw cuts made in research, they felt the long-term program in the Department and the State experiment stations was being emasculated. To guard against this, they asked for its re-evaluation. On August 7, 1964, the Senate Appropriations Committee directed the Department to review its research on livestock and to make recommendations for future needs, "by objective and by location." A task force of 33 representatives from the State agricultural experiment stations, the Cooperative State Research Service, and Departmental research divisions approached the problem critically. Almost as soon as the report was prepared, there was a feeling that the entire subject of research should be considered and that a long-range program should be drafted. Early in 1965 research of the Economic Research Service was also being reappraised, in order to give greater attention to the war on poverty and to long-term potential outlets for farm products in world markets. 1/

1/ U. S. Department of Agriculture, Research Program Development and Evaluation Staff, "Livestock Research Program of State Agricultural Experiment Stations and Agencies of the U.S. Department of Agriculture," Jan. 7, 1965, RPDES; U. S. Congress, Senate Committee on Appropriations, Department of Agriculture Appropriation, 1965, Senate Report 1331, Aug. 7, 1964; U.S. Department of Agriculture, Secretary's Memorandum 1544, Aug. 26, 1963; Charles L. Grant to Joseph Robertson, July 12, 1963, Secretary's Files, U.S. Department of Agriculture.

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On April 9, 1965, the Senate Committee on Appropriations asked the Secretary to appoint a "Research Review Committee" composed of an equal number of representatives of the Department, experiment stations, producer organizations, and industry representatives. The study was undertaken as a joint project of the Department and the land grant colleges. N. C. Brady, as Director of Science and Education, took a leading part in getting the work started. The report, A National Program of Research for Agriculture, was submitted to Congress in October 1966 after George Mehren had taken over responsibility for scientific research. It has been said that it represented the thinking of more than 500 people, many of them from the research agencies of the Department of Agriculture, who carried on basic work for the committee. As the group set the long-term goals for research by the State Agricultural Experiment Stations and the U. S. Department of Agriculture, it estimated the necessary increase in scientific man-years. 1/

To accomplish the goals, the committee recommended that certain changes be made in organization and research policy:

1. The Congress should enact legislation establishing an additional Assistant Secretary position in USDA for Science and Education.
2. A more systematic and continuing mechanism should be established to facilitate joint research program planning, evaluation, and coordination.

1/ U. S. Congress, Report on the Proposed Elimination of Agricultural Research Stations and Lines of Research, 89th Congress, 1st Sess., Senate Report 156; Memorandum, N.C. Brady to the Secretary, Apr. 30, 1965; Memorandum, N. C. Brady to J. A. Schmittker and Joseph Robertson, May 14, 1965, Schmittker Files, Lyndon B. Johnson Library.

Scientist-man-years in SAES-USDA Program by Research Goal for
FY 1965 and Recommended for FY 1972 and 1977

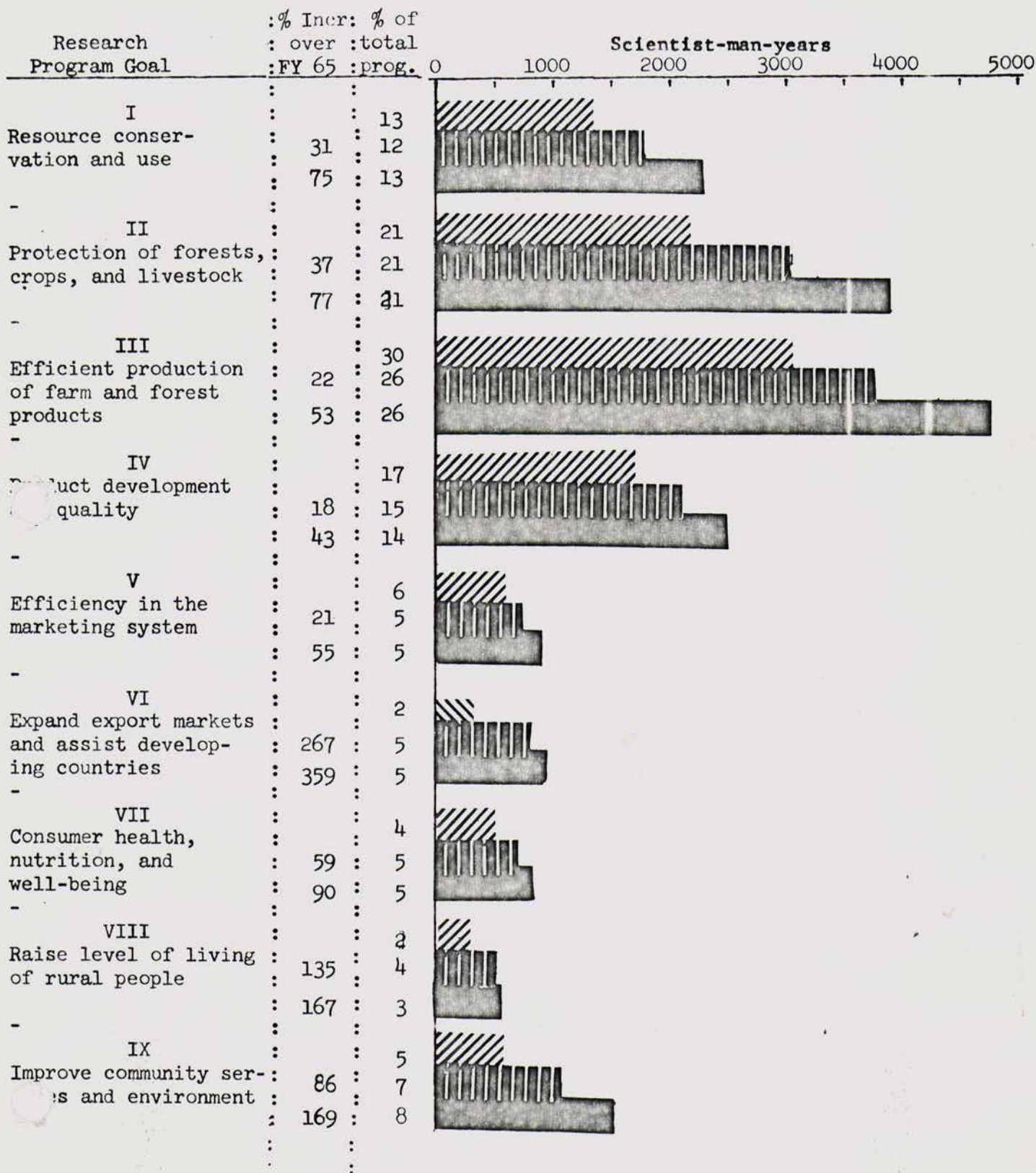
FY 1965



FY 1972



FY 1977



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3. The research inventory should be continued on an annual basis as a joint SAES-USDA activity.
4. The USDA should enunciate and pursue a policy of broadening application of grant and contract programs.
5. Increase concentration and specialization at certain locations.
6. Develop more effective research-extension education programs.
7. Major regional or national laboratories should be jointly planned by USDA-SAES administrators.
8. Organize program advisory committees so that they serve both State and USDA groups in advising on research program orientation.
9. The Federal government and the State give appropriate consideration on a continuing basis to a desirable balance of Federal and State contributions to agricultural research in order that the objectives of this report be effectively achieved.
10. Research support for action programs should be extended.

Two years later, Secretary Freeman appointed a Joint Ad Hoc Task Force on Federal-State Experiment Station Relations in Agricultural Research to review organizational problems and make recommendations to strengthen the cooperative research program and activities. It completed its work in October 1968. Its report listed 16 recommendations, including the appointment of an Assistant Secretary for Science and Education in the Department of Agriculture. 1/

1/ U. S. Department of Agriculture, Secretary's Memorandum 1638, Aug. 5, 1968; Ad Hoc Task Force on Federal-State Experiment Station Relations in Agricultural Research, Federal-State Experiment Station Relations in Agricultural Research, Oct. 1968. In Files, Agricultural History Branch, U. S. Department of Agriculture.

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In essence, the Cooperative State Research Service serves as a coordinating center for the activities of the State experiment stations. The work has been strengthened by the enactment of new legislation by Congress. On July 22, 1963, funds were appropriated for building new research facilities or renovating old. Much progress has been made. Other funds became available in 1965 for research which would further the programs of the Department. 1/

The research that the Service coordinates runs the whole gamut of scientific, economic, and social areas. It relates to specific areas, States, or regions. Frequently, one or more of the Federal research agencies cooperate in the project. The results may be published by the Department or by the State.

Under authority of the McIntire-Stennis Act, approved in December 1963, the Cooperative State Research Service has assisted the States in forestry research and in expanding their training of scientists in forestry. Although the number of advanced degrees granted by educational institutions has increased, the number so trained is still below that needed. 2/

Research Methodology

The expanding field of research in an ever expanding society has meant not only constant attention to evaluation, but also a program to improve research methods and efficiency. The computer has become an

1/ U. S. Congress, House Committee on Appropriations, Hearings...Department of Agriculture Appropriations, 1968, p. 376; 79 Stat. 731.

2/ U. S. Congress, House Committee on Appropriations, Hearings...Department of Agriculture Appropriations, 1967, pp. 566-578.

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increasingly important element in the operations of the Department of Agriculture. It has streamlined many operations, enabling the Department to carry on its activities more efficiently at the same time that its functions increased service to the public. The Statistical Reporting Service, charged with the development of statistical methodology, has overall responsibility for the electronic data processing function. In fiscal years 1966 and 1967, it spent about \$1,300,000 of appropriated funds on computer programming and conversion.

The Scientist in the Agricultural Research Service has found that the computer enables him to speed up research processes. For example, six months were required for one energy metabolism trial. In an energy laboratory equipped with computers, 189 trials were made in one year, a process that would have taken 98 years to complete by manual processes. 1/

A new development by the Statistical Reporting Service has been the probability sample. In this operation an electronic computer enables the Crop Reporting Board to determine when the sample does not measure up to the prescribed precision. Then corrective adjustments may be made.

As the agency responsible for statistical research in the Department, the Statistical Reporting Service is in charge of the Washington Data Processing Center. This Center, with its facilities for modern research with electronic data processing equipment, carries on work for other parts of the Department of Agriculture and other Governmental agencies.

1/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1967, pp. 358-384.

Scientific Research

Much of scientific knowledge is cumulative, with each discovery based on an earlier one and serving as a foundation for further advance. The advent of the space age has emphasized the importance of scientific knowledge. Though less glamorous than other phases, importance of the achievements in the agricultural sciences are being recognized as we become one of the best-fed nations in history.

The scientists in the Department of Agriculture stand ready to cooperate with those in the States, in industry, in private foundations, and in other countries to help shape the future for the benefit of all people everywhere.

Plant Research. The Department's scientists have continued to work on the breeding of improved plants and seeds to develop insect or disease resistance or increased yield. A new variety of hard red winter wheat, Parker, was developed for use in 1967, by the Agricultural Research Service, in cooperation with the Kansas and Missouri State Experiment Stations. The variety is a series of crosses between Quivera, Kanred, Hard Federation, Prelude, Kaurvale, Marquillo, and Temmark. It is early maturing, has short stiff straw, and is resistant to leaf rust and the Hessian Fly. Wauseon, a new potato variety developed cooperatively by scientists in the Agricultural Research Service and the New York Agricultural Experiment Station, is resistant to the golden nematode, a worm-like soil inhibiting pest of potatoes. An unreleased seedling and the Katahdin were crossed to produce Wauseon. Its timely

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release in 1968 will provide a means of meeting the threat of new outbreaks of the golden nematode, a serious potato pest. After 20 years of research, the Department and the Tennessee Experiment Station developed "Burley 49," a disease resistant strain of tobacco. 1/

The development of hybrid barley seed, "Henbar," in Arizona by a Department scientist, represents a breakthrough in the development of hybrid seed for small grains, promising higher yields per acre. The scientist used a "balanced tertiary trisomic" breeding method, using a genetic male-sterile gene--a gene to permit seed sorting and an extra translocated chromosome made up of parts of two different chromosomes. 2/

Although the Department's plant explorers have roamed the globe for seventy years, the 6-week trip of J. L. Creech to Taiwan yielded about 150 exotic ornamentals. Taiwan's tropical location with its high mountains provides a wide range of plants. 3/

The Department became involved in another project of wide interest, the relation of cancer and tobacco. For years, Department scientists had been breeding tobacco plants for higher nicotine to be used in insecticides. Following the release of the Surgeon General's

1/ U. S. Department of Agriculture, Press Release 315-67, Jan. 30, 1967; 442-68, Feb. 8, 1968; U. S. Congress, House Appropriations Committee, Hearings... Department of Agriculture Appropriations, 1967, p. 358.

2/ U. S. Department of Agriculture, Agricultural Research, Sept. 1968.

3/ U. S. Department of Agriculture, Agricultural Research, Apr. 1968.

report on smoking and health in 1964, the chairman of the Agricultural Committee of the United States House of Representatives called a meeting of his committee. It was apparent that further research was necessary. 1/

The Department had a dual responsibility, to producers and consumers. It has cooperated to use its research facilities to promote health safeguards and its scientists are cooperating with scientists at the University of Kentucky, working on breeding plants with lower nicotine content, determining the chemical and physical properties of the leaf, the culture of tobacco to influence the quality of the leaf, etc. The Economic Research Service has conducted research on the impact of the health issue and its future implications.

Agricultural Research Service botanists have also been collecting and analyzing the world's plant resources in search for anti-cancer substances. In 1967 they discovered that extracts of the bark of the camptotheca acuminata (a tree that originates in China) destroyed cancer tumors. 2/

Departmental scientists have been leaders in investigations of phytochrome, which they discovered and named in 1959. They found that this governed many plant processes such as plant flowering, stem **elongation** pigmentation, etc. They have determined that this protein molecule is

1/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1969, p. 221.

2/ U. S. Department of Agriculture, Secretary's Annual Report, 1967, p. 81.

activated or inactivated by chromophore, a light absorbing bile pigment. Present work indicates that these studies may be applied to weed control. 1/

In 1965, a team of ARS and Cornell University scientists determined the molecular structure of two of the RNA's (ribonucleic acid), and thus we are a step closer toward understanding how plant and animal cells manufacture protein. Protein synthesis is the process by which living cells convert food into new cell-building material. The kind of cells built determines what the organism will be, plant, animal, or human. 2/

Animal Husbandry, Insect and Disease Control. The dairy herd improvement program, established about sixty years ago, has been attracting more dairymen as it continues to prove its effectiveness and assists the modern dairy producer in competing in an increasingly difficult market. Records are kept of bulls and the milk production records of their heifer progeny. These have shown that breeding with "proved sires" has increased the farmer's milk production as his herd has been upgraded. The number of cow records increased from 1.08 million in 1962 to 1.85 million in 1967. The number of bulls whose progenies' records were summerized, increased from 18,882 in 1962 to 38,103 in 1967. Similarly, the number of cows enrolled in testing rose from 2.73 million or 14.8 percent of all cows in 1962 to 3.03 million or 22 percent of all cows in 1967.

1/ U. S. Department of Agriculture, Agricultural Research, July 1965, Jan. 1968, Feb. 1968.

2/ U. S. Department of Agriculture, Agricultural Research, June 1965, Ernest G. Moore, The Agricultural Research Service, pp. 128-29; U. S. Department of Agriculture, Annual Report of the Secretary, 1967, pp. 73-74.

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The effect of the improved breeding is reflected in the statistics of production for participating and non-participating cows. In 1962, cows in the program averaged 11,032 pounds of milk while the national average for all cows was 7,496 pounds. In 1967, average production had increased to 12,307 and 8,840 pounds per cow. 1/

Sheep men stand to benefit from other research. A substance in the poisonous weed, false hellebore or skunk cabbage, has been isolated as causing ewes to produce deformed or "monkey faced" lambs. This teratogenic compound is being further purified and studied to determine more about its effect on unborn lambs. Locoweed also has been identified as having a monster-producing agent. 2/

Among the spectacular achievements in this period is the use of sterilized insects in disease and pest control. The screwworm, that once cost livestock producers in the South \$100 million a year in losses, has been virtually wiped out by sterilizing and releasing large numbers of male flies. This is based upon proposals in 1938 of Edward F. Knipling, that in 1966 won for him the National Medal of Science.

In April 1964, Charles Murphy, the Under Secretary of Agriculture, reported to the President that an effective program for eradication of the screwworm had been carried on for three years in Texas and other Southwestern States, financed by Federal and State funds. He recommended the

1/ Telephone conversation of Vivian Wiser with Robert H. Miller, ARS, Sept. 4, 1968.

2/ U. S. Department of Agriculture, Agricultural Research, Aug. 1964, Jan. 1966; U. S. Agricultural Research Service, Administrator's Letter, Apr. 7, 1967.

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establishment of a barrier zone between Mexico and the United States. In 1965, the livestock producers on both sides of the border requested the extension of the barrier. On July 27, 1966 the President signed legislation providing for United States cooperation in screwworm eradication in Mexico. 1/

The use of sterilized male disease carriers or pests was applied to other pests. In 1967, sterilized male gypsy moths were released during the summer in New York and Pennsylvania in an attempt to control that pest. Then in 1968, the same technique was applied on a pilot project in the San Joaquin Valley of California to control the pink bollworm. Sterile moths, in small cardboard cylinders, have been released from low flying aircraft in the four infested areas near Bakersfield, beginning in April. 2/

One of the problems in this type of insect control has been the slow process of securing sterile male moths, flies, or insects. Research is under way on the use of black light in cages to lure them to chemicals that sterilize the males, but no safe process has yet been developed. 3/

1/ 80 Stat. 330; Memorandum, Charles Murphy to the President, Apr. 8, 1964, Secretary's Files, U. S. Department of Agriculture; Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. I, p. 788.

2/ U. S. Department of Agriculture, Press Release 557-68, Feb. 16, 1968; U. S. Agricultural Research Service, Administrator's Letter, July 7, 1967.

3/ U. S. Department of Agriculture, Agricultural Research, May 1966.

The cooperation between the United States and Mexico has attracted the attention of other Latin American countries. On July 6, 1968, the Secretary of Agriculture was authorized to cooperate with Central American governments in prevention, control, and eradication of foot-and-mouth disease--an attempt to prevent its spread from South America. 1/

Pollution and Research. Pollution and its control have been receiving increasing attention. Secretary Freeman in a speech before the Natural Resources Committees of the United States Chamber of Commerce on February 2, 1968, said: "It is no secret that we are facing an environmental crisis. It affects every one of the basic elements... air, earth and water, and every one of us." He went on to say: "Agriculture is both sinner--and sinned against--in this matter. Last year, crop damage from air pollution alone was nearly half a billion dollars." 2/

Much of the responsibility for aspects of pollution research has been delegated to other Departments. Nevertheless, the Department of Agriculture has been vitally concerned about and engaged in research to determine the extent and the effect of various types of pollution on agricultural production and forestry, the pollution that results from farming, and finally, pollution caused by agricultural processing plants. Preventative measures and remedial steps have been in operation for varying

1/ 82 Stat. 294; U. S. Congress, Cooperation with Central American Countries to Control Foot-and-Mouth Disease and Rinderpest, 90th Cong., 2d Sess., Senate Rept. 1273.

2/ U. S. Department of Agriculture Press Release, Feb. 2, 1968.

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lengths of time. The work has been carried on in cooperation with other Federal agencies and State experiment stations. 1/

Economic aspects of the problem have been studied by the Economic Research Service. Surveys were made of pollution from pesticides, animal waste, sedimentation, erosion, fertilizers, and the like; some recommendations for possible solutions have been made. 2/

Air pollution in recent years has been receiving increasing attention from the President. Secretary Freeman has utilized the resources in his Department in response. The Agricultural Research Service, the Forest Service and the State experiment stations have been working on the effect of air pollution on plant life and trees. Surveys have been made in urban areas to determine the extent of damage and the tolerance of varieties. Some experiments have also been conducted in greenhouses to ascertain the effect of pollution on growth. Breeding for resistance seems to be the best means of minimizing air pollution damage to economic crops. But further pollution may more than counteract this advantage. 3/

1/ Orville L. Freeman to the President, May 11, 1967, Secretary's Files, U. S. Department of Agriculture.

2/ U. S. Economic Research Service, "Selected Illustrative Cases of Agriculture Related Pollution," [1964]. In: Files, Agricultural History Branch, U. S. Department of Agriculture.

3/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, p. 397; Public Papers of the Presidents, Lyndon B. Johnson, 1965, Vol. II, p. 1101; Orville L. Freeman to the President, May 11, 1967, Secretary's Files, U. S. Department of Agriculture.

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In addition to air pollution over which agriculture has no control, there are other forms of air pollution that may be caused by agriculture. Solutions are being sought and implemented to resolve problems resulting from dust storms and blowing dust from inadequately protected cropland. This calls for the cooperation of the Agricultural Research Service, the Soil Conservation Service, and the Extension Service. 1/

In his 1966 State of the Union Message, President Johnson redirected attention to an age-old problem when he said: "We must undertake a cooperative effort to end pollution... to make the waters of entire river systems clean." He had already directed Federal agencies to study their own operations and take remedial measures. Soil scientists, geologists, and engineers at the Agricultural Research Service Sedimentation Laboratory at Oxford, Mississippi, have been working on sedimentation as a source of pollution. 2/

Then early in 1968, the President directed the establishment of an interdepartmental group to review the area of agricultural pollution. Pollutants under consideration included: sediments, animal waste, processing plant waste, plant nutrients, crop and forest residues, inorganic salts and minerals, and pesticides. The second half of the study, air pollutants, was to be handled by the Department of Health,

1/ U. S. Agricultural Research Service, Agricultural Research, Sept. 1968.

2/ Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. I, p. 6; Executive Order 11258, Nov. 17, 1965.

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Education and Welfare. The committee was to develop proposals for action which were agreeable to the agencies concerned and would meet the problem. The Department of Agriculture has taken an active part in the work of this group. 1/

Rachel Carson's book The Silent Spring, published in 1962, stirred up heated public discussion on the impact of pesticides on American life. The President's Science Advisory Committee's report, released in May 1963, stressed the dangers involved. President Johnson advocated that additional funds be available for research on the effect of pesticides on our environment. At the same time, he stated that the Federal Government's use of such materials was being reviewed to assure that all possible safeguards were applied. 2/

To close a loophole, the Federal Insecticide, Fungicide and Rodenticide Act was amended on May 12, 1964 to require the complete registration with the Secretary of Agriculture of such materials entering into interstate commerce. The ensuing months saw the confiscation of many shipments either not registered or improperly described. 3/

1/ Memorandum, Donald F. Hornig, Office of Science and Technology to Secretary of Agriculture, Feb. 2, 1968; Background of the Committee, Feb. 20, 1968, Files of Max Hinds, Research Program Development and Evaluation Staff, U. S. Department of Agriculture.

2/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. I, p. 281.

3/ 78 Stat. 190.

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Both the Department and Congress held hearings on the problem. Out of these came an increased interest in a more aggressive governmental policy. In August 1964, the Federal Pest Control Review Board was reconstituted with new responsibilities as the Federal Committee on Pest Control. Then in October, coordinators were appointed in several Departments to hasten the work. W. C. Shaw, who served in this capacity from October 1964 until January 1966, was in charge of coordinating the intensified program in the Department with that of other agencies. On February 6, 1965, an Executive Committee on Pesticides, composed of members from the Agricultural Research Service, the Forest Service, the Cooperative State Research Service, and the Federal Extension Service, was appointed by the Director of Science and Education. Subsequently, the committee was enlarged as the Department Committee on Pesticides. 1/

Meanwhile, on November 2, 1964, President Johnson had announced an expanded program of research and education in the control and elimination of cotton insect pests. He recognized the double nature of the question, when he said: "Our need for pesticide chemicals will not disappear. On the contrary, we must push the search for new more specifically acting and less persistent chemicals." The use of

1/ Telephone Conversation, Vivian Wiser with W. C. Shaw, Aug. 29, 1968; Federal Committee on Pest Control, FCPC: What It Is and What It Does; Feb. 1967; Memorandum, N. C. Brady to Heads of Agencies, Feb. 6, 1965; George Mehren to Heads of Agencies, Dec. 3, 1965. Files of U. S. Agricultural Research Service; U. S. Congress, House Committee on Appropriations, Hearings... Appropriations for the Department of Agriculture, 1967, pp. 414-27.

pesticides continued to expand as the pesticide situation report of the Agricultural Stabilization Service showed. 1/

Increased funds were made available in 1964 to the Department for research on the use of pesticides in agriculture. A statement of Departmental policy on insecticides was issued on December 23, 1964. "Research, education and regulatory programs are expected to make continuing progress in the never-ending struggle to protect man, his food and fiber supplies, and his forests from the ravages of pests." 2/

The Economic Research Service, in cooperation with the Statistical Reporting Service, the Agricultural Research Service, and the Agricultural Stabilization and Conservation Service, undertook a nationwide sample survey of farmers early in 1965, measuring pesticide use and its effect on farm production. In 1967 this survey was repeated on an expanded basis. 3/

The Department has prepared a handbook, "The Safe Use of Agricultural and Household Pesticides" as part of the continuing program to encourage the safe use of pesticides everywhere. In addition, a number

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. II, p. 1570; U. S. Agricultural Stabilization and Conservation Service, The Pesticide Review, 1966 and 1967.

2/ U. S. Department of Agriculture, Secretary's Memorandum 1565.

3/ 78 Stat. 862; U. S. Economic Research Service, Quantities of Pesticides Used by Farmers in 1964, Agricultural Economic Report 131; Jan. 1968; Farmers' Expenditures for Pesticides in 1964, Agricultural Economic Report 106, Jan. 1967; Telephone Conversation, Vivian Wiser with Theodore Eichlers, Aug. 30, 1968.

of other bulletins have been published. By contract service, a practical portable pesticide residue analysis unit has been developed that could be used by food inspectors and graders as well as processors, producers, and handlers for on-site determination of pesticide residue. This mobile unit may be used in the field as well as in the processing plant. 1/

The volume of consumption has continued to increase. Meanwhile, one means of offsetting the increased use of pesticides has been the development of low volume spraying of insecticides. While stronger solutions were used, the method developed required a smaller dosage and left less residue. In 1963, Agricultural Research Service scientists, proved the effectiveness of the method, using malathion sprayed by aircraft, that had long been used in dusting crops. Then an inexpensive ground sprayer was developed. In 1965 and 1966, these were used to spray about 170,000 acres to control the bollworm in the High Plains area. 2/

In 1964, the Department of Agriculture, with the cooperation of other Federal and State agencies, undertook a monitoring program to determine pesticide levels in crops, soils, and water. By the end of 1966, 55 sites had been established with one-third in areas of high

1/ USDA Press Release 322-67, Jan. 31, 1967.

2/ U. S. Department of Agriculture Press Releases 3072-65, 3772-65, 4135-65, 19-7, Ernest G. Moore, The Agricultural Research Service, pp. 141-42; U. S. Department of Agriculture, Agricultural Research, Aug. 1968.

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pesticide usage, one-third of low usage, and one-third using no pesticides. In 1967, the system was changed to give greater, yet more inclusive, coverage. The new plan was based on the 1957 soil survey of the Soil Conservation Service that included a 2 percent sample of all land in the United States. By August 1968, 3,916 sites had been selected in 20 States by computers and were operating. Eventually all States will be included. The sites will cover 0.25 percent of the lands included as cropland and 0.0025 percent of the non-cropland in the 1957 survey. One-fourth of the sites will be sampled each year, with eventually 10,000 reports coming from cropland and 5,000 from non-cropland. Inspectors will check the usage and new sites will be selected in the same area, when usage has changed since the 1957 survey. Not only will the amount of pesticides in the soil and water be studied, but also the effect of pesticides on soil characteristics. 1/

A pesticides information center was established in the National Agricultural Library on March 29, 1965, as part of the Department's expanded program in the field of pest control research, regulation, surveillance, information, and education. It inventories domestic and foreign literature on all aspects of pest control and distributes this

1/ Telephone conversations, Vivian Wiser with Leo G. K. Iverson and Dudley A. Raine, Agricultural Research Service, Aug. 21, 1968; U. S. Department of Agriculture, Agricultural Research, Mar. 1965, Jan. 1966.

information to interested persons in the Federal and State agencies, private educational and research institutions, and industrial organizations. 1/

Nutrition Research. The importance of nutrition research was highlighted when the results of the food consumption survey conducted in 1965 by nutritionists of the Agricultural Research Service were analyzed. These showed that in an era of comparative prosperity high income in itself did not necessarily insure good diets. Almost one-tenth of the households with incomes of \$10,000 and over had poor diets. More than one-third of the households with incomes under \$3,000 had poor diets. The study also revealed a wealth of information on food costs, food habits, dietary levels, and the need for an educational program. This survey continued to provide data for other studies. 2/

When the Task Force on Agriculture and Rural Life made its report to the President on October 4, 1965, it acknowledged that strides had been made in discovering nutritional needs. It urged that nutrition research be stepped-up and that more effort was needed to bridge the gap between research and its application. 3/

1/ Narrative Report prepared by National Agricultural Library, July 22, 1968. In: Files, Agricultural History Branch, U. S. Department of Agriculture.

2/ U. S. Agricultural Research Service, Food Consumption of Households in the United States, Spring 1965, Pts. 1-5, 1968; Dietary Levels of Households in the United States, Spring 1965, 1968; Agricultural Research, May 1968.

3/ U. S. Department of Agriculture, "Task Force Report on Agriculture and Rural Life," Oct. 4, 1965, John A. Schnittker Chronological File, Lyndon B. Johnson Library.

The question also received the attention of the representatives of the Department and the land grant college association as they reviewed agricultural research at this time. The report, A National Program for Research for Agriculture, discussed the research in consumer health, nutrition, and well-being and recommended that it be increased from 441 man-years in 1965 to 700 in 1970 and 840 in 1977.

President Johnson gave further impetus to nutrition research in his Special Message to Congress on Domestic Health and Education on March 1, 1966 when he said:

I am directing the Secretary of Health, Education and Welfare, in cooperation with the Secretary of Agriculture and the Director of the Office of Economic Opportunity, to examine means by which the benefits of sound nutrition can be extended to every child who needs our help. 1/

Nutritionists and food economists had been working together in research that they used in developing food plans at four different cost levels, economy, low cost, moderate cost, and liberal cost. These plans have been used by welfare agencies and social workers, by farm families, by economists in estimating potential demand for agricultural products, and in counseling programs and teaching food management. And they were again valuable. 2/

The physical approach to nutritional problems was exemplified by the study of the Agricultural Research Service and the Consumer and

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. I, p. 243.

2/ U. S. Department of Agriculture, Agricultural Research, Apr. 1964.

Marketing Service to promote efficiency in school lunch kitchens.

Detailed recommendations were made on size of operations, construction features, layouts, equipment, labor requirements and many other topics. 1/

Nutrition research has also worked toward solving problems of hunger abroad. Scientists of the Department of Agriculture, in cooperation with the milling industry and AID, have developed a multipurpose food blend, CSM, with major ingredients from corn, soybeans, and milk. Large quantities have been shipped to meet urgent needs in more than 90 developing countries. A high protein flour from low-cost by-products of the milling industry has also been developed. Thus, research in the nutrition is applied or becomes a facilitating element in other Departmental programs. 2/

The increasing incidence of food poisoning in humans has directed more attention to research in Salmonella, a group of organisms that cause some forms of poisoning. This will continue to furnish valuable guidance in protecting the food supply from contamination and safeguarding the nation's health. Food products made from poultry and animal products have long been suspect. Some trouble has been traced to animal feed.

1/ Layouts, Equipment, and Work Methods for School Lunch Kitchens and Serving Lines, Marketing Research Report 753, 1967.

2/ U. S. Department of Agriculture Press Release 661-68, Feb. 27, 1968; 742-68, Mar. 6, 1968.

In 1966, the Agricultural Research Service was authorized to make a 26 State survey to determine the source of Salmonella and the amount of animal feed contaminated by it. The Service checked mills, rendering plants, dairy herds, vehicles transporting animal by-products, feed lots, swine herds, etc. Guidelines for sanitary handling were drawn up for food processors to aid in its control. 1/

In 1967, the Service expanded to 41 States a pilot project that the rendering industry had initiated to eliminate Salmonella by in-plant inspection and product testing. Then the Department gave Salmonella diagnostic laboratory training to its personnel and State people conducting such tests. 2/

Salmonella has had a great impact on poultry producers. Losses for poultry alone were reported for 1967 to have been \$17 million. Some achievements have been made here. A process for the pasteurization of egg whites was developed at the Western Utilization Laboratory at Albany, California. Beginning on January 1, 1966, pasteurization was required for egg whites or products in which they were used when these entered interstate commerce. A new technique has been developed that

1/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1967, pp. 454-57; 1968, p. 319.

2/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, p. 138; 1969, p. 128.

speeds up the testing of pasteurized eggs for possible contamination. Recently a "mini" pasteurizer and process has been developed for low volume producers in the liquid egg industry, thereby enabling the small plants to take part in interstate commerce. 1/

The research will continue to add safeguards to the nation's health.

Utilization Research. Utilization research aims at improving quality, developing new uses for agricultural commodities, new products from old, and at recapturing old markets or gaining new. Thus, research on cotton and wool aid those natural fibers in meeting the competition of synthetic fibers through processes which add wash and wear or permanent press or pleating qualities to their fiber materials. Increasing interest in this type of research led to the appropriation by Congress in 1964 of funds for a fifth utilization laboratory at Athens, Georgia.

Scientists of the Department have cooperated with the milling industry in working out new techniques for extracting protein from milling by-products. These were used historically for low cost protein for livestock feed or for breakfast food. The protein concentrate is

1/ Ernest G. Moore, The Agricultural Research Service, p. 210; U. S. Congress, House Committee on Appropriations, Hearings...Department of Agriculture Appropriations, 1967, p. 457; 1969, p. 139; U. S. Agricultural Research Service, Agricultural Research, Aug. 1967, Sept. 1968.

used to fortify wheat flour being shipped to developing countries under the Food for Freedom Program. 1/

A chemist at the Western Utilization Laboratory in Albany, California has developed a risk-free and highly specific test for human allergy, in connection with the broad program to build a self-sufficient castorbean industry in the United States. This test has far reaching implications for future medical practice and research. The Albany laboratory has also developed the Wurlan treatment of wool. This makes it machine washable. The treated fiber may be combined with other textiles. 2/

Scientists at the Eastern Utilization Research Laboratory, near Philadelphia, Pennsylvania have developed a new explosion puffing process to dehydrate fruits and vegetables. The process makes it possible for the housewife to cook the products in 5 or 6 minutes. 3/

A Meat Animal Research Center was established in 1967 near Hastings, Nebraska, to carry on research in waste reduction through improved breeding and feeding of cattle, sheep and hogs. It is working

1/ U. S. Department of Agriculture Press Release 2486-68, Aug. 2, 1968.

2/ U. S. Department of Agriculture, Agricultural Research, July 1968, pp. 4-5; U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, pp. 258-60.

3/ U. S. Department of Agriculture, Agricultural Research, Apr. 1964.

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on a project to reduce losses in young livestock, as well as raising them to marketable size more quickly and cheaply. Farmers are saving many more farrowed pigs by a simple method of mouth-to-mouth resuscitation that revives up to two-thirds of apparently stillborn baby pigs. 1/

Non-agricultural technological changes have affected agricultural research through adaptation. The laser beam and remote sensing are examples.

The laser beam is essentially the culminated beam of light that can be very highly concentrated, so that even at 1500 feet it is only about three-eighths of an inch in diameter. Agricultural engineers have applied the laser beam in rapidly and accurately installing subsurface drains, constructing open ditches and leveling land. This beam is projected at the desired grade and an earth moving machine, equipped with a detector, is locked on to the laser beam. The detector is adjusted so that the machine moves forward when the beam hits the exact center of the photocells. If it does not hit the center, an electronic impulse **signals** the raising or lowering of the cutting part of the machine to the grade set by the light. 2/

1/ U. S. Department of Agriculture. Annual Report of the Secretary, 1966, p. 18; U. S. Department of Agriculture Press Release 942-67, Mar. 23, 1967.

2/ U. S. Congress, House Committee on Agriculture, Hearings... Department of Agriculture Appropriations, 1969, pp. 64-65.

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Man has recently acquired ability to place instrument-carrying vehicles in orbit around the earth, providing a new vantage point for "remote sensing" of the earth's surface. Aerial photography has long been used in connection with Department of Agriculture research or programs. The traditional photographic techniques are being expanded with specialized imagery. Experiments with infrared photography indicate that this method can aid materially in estimating crop production; evaluating crop response to fertilizers or pesticides; and in detecting weed or disease growth. Remote sensing involves detecting energy moving at the velocity of light by aerial photography. It may be recorded on photographic film or on magnetic tape. A recent exhibit of the Department has shown practicability of its use in crop estimating, locating disease in forest trees, and the identification of forest fires. An infrared scanning technique that can detect forest fires has become operational in 1968, after tests in 1967 under authority of the National Aeronautics and Space Administration Act. 1/

Forestry Research

A sound program in forestry research influences the degree to which future supplies of timber, water, range forage, wildlife, and recreation will effectively meet the future needs of the American people.

1/ H. Thomas Frey, Agricultural Application of Remote Sensing--The Potential from Space Platforms; Agricultural Information Bulletin 328. Sept. 1967; 81 Stat. 168.

In his first message to Congress on agriculture, on January 31, 1964, President Johnson indicated his concern for our forest resources and for forestry research. He said: "I am directing the Department of Agriculture... to accelerate forest research to find new methods of wood utilization, better timber management, improved fire protection, and more effective use of forest ranges." 1/

There was already a project under way to evaluate the research activities of the Forest Service with a view to improving their effectiveness. In submitting a report on this appraisal, on April 15, 1964, Secretary Freeman stressed its timeliness because of the President's interest. A National Forestry Research Program sought to develop a firm scientific base and technical support for the rapid advancement of programs aimed at increased forest resource management, protection, and utilization. Specific proposals were developed for an initial 10-year period, with long-range objectives for forest development programs necessary to produce the wealth of renewable forest resources needed by the year 2000. The Secretary indicated that he intended to accomplish these goals within the framework of the existing appropriations. 2/

In the report of October 1966, A National Program of Research for Agriculture, representatives of the Association of State Universities

1/ Congressional Record, Jan. 31, 1964, 88th Cong.

2/ U. S. Forest Service, A National Forestry Research Program, Miscellaneous Publication No. 965, May 1964.

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and Land Grant Colleges and of the Department of Agriculture suggested that existent forest technology, if fully applied, would fail to meet needs within a few years. A task force was established, composed of representatives of the land grant colleges and the Department, to develop a comprehensive and coordinated research program. The new National Program of Research for Forestry was released in July 1967. It set forth the research needs for the next decade and the goals to be achieved in forestry research. 1/

Forestry research and educational activities are carried on by divisions of the Department of Agriculture's Forest Service, its forest and range experiment stations, its national Forest Products Laboratory, and by work carried on in the States through funds available under the McIntire-Stennis Act of 1962 and other legislation. On July 23, 1963, Secretary Freeman announced the appointment of a Cooperative Research Advisory Board to advise the Department on the apportionment of McIntire-Stennis funds among the States. Subsequently, the Secretary appointed an Advisory Committee, composed of representatives of forest industry, and of Federal and State institutions, to give advice and guidance in the development of a cooperative program.

Research in forestry has made significant advances since 1963. Some examples follow. The Forest Products Laboratory at Madison, Wisconsin, further modified the semi-chemical pulping process to help

1/ 76 Stat. 806; U. S. Department of Agriculture, Secretary's Memorandum 1542, July 26, 1963; Memorandum, J. D. Sullivan to Vivian Wiser, Sept. 27, 1968. In: Files, Agricultural History Branch, U.S. Department of Agriculture.

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eliminate stream pollutants. The low-cost process recovered 90 percent of the pulping chemical with little drop in pulp yield. A new system of snow measurement, using a nuclear gauge to permit accurate measurement of changes in the snowpack and lead to better forecasts of streamflow, was adapted and tested by Forest Service scientists in cooperation with the Atomic Energy Commission. A team of California scientists, working under contract for the Forest Service, synthesized an attractant to lure one type of bark beetle, a pest of western pine. This was a major step towards eliminating widespread use of toxic sprays. As a result of research studies with sycamore, yields of wood fiber equivalent to 4-5 cords of pulpwood per acre per year may be possible. Other Forest Service scientists have developed an electronic system that automatically pinpoints small fire locations from fast, high-flying aircraft. The system, called fire scan, uses a target discrimination module which flashes a warning when an infrared scanner picks up a "hot" target and automatically marks its location on processed film. Simultaneously, the location of the aircraft is determined by a Doppler radar linked to a small computer. 1/

1/ U. S. Forest Service, "Forest Service History-Johnson Administration," Aug. 30, 1968. In: Files, Agricultural History Branch, U. S. Department of Agriculture.

Overseas Research

Under funds available from the operations of Public Law 480, research has been sponsored in a number of countries receiving American food. Scientists, agricultural economists, and other specialists have guided or assisted in projects covering a broad spectrum of scientific and economic subjects. Grants have been made to universities and research institutions. Much of the work benefits United States agriculture as well as that of the country in which it is carried on. 1/

Scientists are searching out and testing new parasites and predators that may be used in more effective control of pests, such as the sugarcane borer, the corn earworm, the gypsy moth and the balsam aphid. Since 1965, research has been under way in the application of biological means, sterile male insects, to the control of the tsetse fly--a major hindrance to economic development in Africa. Marketing research has received less attention, but under it significant advances are being made. Israeli scientists, for example, isolated an attractant for detecting the khapra beetle in grain. Research in Japan found American soybeans superior in making Japanese food, thereby improving the market for American producers. 2/

1/ Ernest G. Moore, The Agricultural Research Service, pp. 172-74.

2/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, pp. 287-90, 337-41; 1969, 332-59.

This research, however, was sure to be affected by the drastic reduction in funds authorized for expenditure by the Department Appropriation Act approved by the President on August 8, 1968. Under this legislation, authorized funds were to be cut from \$8.5 million to \$4.5 million. 1/

Economic Research

The Economic Research Service has been called the economic intelligence arm of the Department. It has, as its name indicates, responsibility for economic studies of the broad scope of the rural economy. The staff has conducted and cooperated in many studies used in policy determination or evaluations of Departmental programs. Under authority of the Agricultural Act of 1964, the Department has accelerated its economic studies of cotton, giving special attention to reducing the cost of producing and improving the market for upland cotton. 2/

Marketing research, one phase of economic research, is also interrelated with scientific research. This research has proven of great importance to the producer, the marketing agent, and the consumer. The Agricultural Research Service specialists work on the physical or

1/ Public Law 90-463.

2/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1967, pp. 92-93; 78 Stat. 174.

biological aspects, while the Economic Research Service staff study the economic and social sectors. Marketing research is geared at developing methods of cutting costs to farmers and consumers and keeping the public informed of changes taking place.

The problems of city marketing have been studied by the United States Department of Agriculture for over fifty years. However, in an ever changing urban environment the problems have again become complicated. Economic studies of wholesale fruit and vegetable markets in a number of cities have been carefully researched. Other marketing specialists have drawn up plans for up-to-date wholesale distribution centers for cities including Chicago; New York; Oakland, California; Huntington, West Virginia; and Hawaii. Alternative plans have been presented to over thirty cities to improve such facilities. The Department also has awarded a contract to an architectural firm to develop plans and specifications for four multiple-occupancy buildings, determine construction costs, and provide data on costs and efficient installation lines and equipment. 1/

1/ Alden C. Manchester, Dorothy Lundquist, and James Dumas, The Organization of Wholesale Fruit and Vegetable Markets in Chicago, Lincoln, Los Angeles, Louisville, Milwaukee, New Orleans, Oklahoma City, Omaha, San Francisco-Oakland, Tulsa, and Wichita, U. S. Economic Research Service, ERS/63, July 1964; U. S. Department of Agriculture Press Releases 1051-67, Apr. 3, 1967; 517-68, Feb. 14, 1968; 2078-68, June 27, 1968; 2375-68, July 24, 1968; U. S. Agricultural Research Service, Administrator's Letter, Mar. 18, 1966.

Agricultural Markets in Change gives a broad view of trends, prospects, and impacts of agricultural marketing in the mid-1960's-- changed by stimuli from within or outside the system. Studies of marketing margins and price spreads that had been under discussion for a long time were continued. 1/

Other examples of marketing research concerned the school lunch program, promotional activities to increase consumption, transportation of farm products to large markets (including air shipments), demand for manufactured foods, and area or local marketing problems. 2/

1/ U. S. Economic Research Service, Agricultural Markets in Change, Agricultural Economic Report 95, July 1966.

2/ Robert B. Reese, Establishing Central School Kitchens in Urban Areas: Problems and Costs, U. S. Economic Research Service, Agricultural Economics Report 72, May 1965; Martin Kriesberg, The Market for Food in the Nation's Schools, U. S. Economic Research Service, Marketing Research Report 702, Apr. 1965; Carl Twining and Peter L. Henderson, Promotional Activities of Agricultural Groups, U. S. Economic Research Service, Marketing Research Report 742, Dec. 1965; U. S. Economic Research Service, Evaluation of a Special Promotional Campaign for Frozen Concentrated Orange Juice, Marketing Research Report 693, Feb. 1965; Ivan Ulrey, Fresh Potato Transportation to Large Markets from Five Major Producing Areas, U. S. Economic Research Service, Marketing Research Report 687, Nov. 1964; Mildred DeWolfe, Recent Trends and Prospective Developments in Air Shipments of Agricultural Commodities, U. S. Economic Research Service Report 278, Feb. 1966; William H. Waldorf, Demand for Manufactured Foods, Manufacturers' Services, and Farm Products in Manufacturing, U. S. Department of Agriculture, Technical Bulletin 1317, Dec. 1964.

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One research project that will facilitate the movement of perishable farm products from processing plants to overseas location involves the development of container vans. In September 1965, the first such full-scale test shipment to West Germany was made without unloading the commodities. The research has proved valuable to the Defense Department in shipping supplies to troops in Europe and the Far East. Strawberries have been sent to Europe in such vans in the off-season when they could receive premium prices. 1/

Research in the area of rural poverty and development is a graphic example of the necessity for such studies in formulating policy and implementing action programs in the Department. While the Economic Research Service had been making some such surveys for several years, it has given greater emphasis to the subject in the past five years. It has furnished economic intelligence to its own Department, the Office of Economic Opportunity, and the Economic Development Administration of the Department of Commerce. Research results are frequently used long before reports on it are published. 2/

1/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, pp. 283-84; U. S. Agricultural Research Service, Administrator's Letters, Feb. 4, 1966, Nov. 3, 1967.

2/ U. S. Economic Research Service, Rural People in the American Economy, Agricultural Economic Report 101, Oct. 1966, reprinted in President's National Advisory Commission on Rural Poverty, Rural Poverty in the United States, May 1968; Alan Bird, Poverty in Rural Areas of the United States, Agricultural Economic Report 63, Nov. 1964; E. J. Moore, E. L. Baum, and R. B. Glasgow, Economic Factors Influencing Educational Attainments and Aspirations of Farm Youth, Agricultural Economic Report 51, Apr. 1964; Frederick D. Stocker, The Role of Local Government in Economic Development of Rural Areas, Agricultural Economic Report 94, Jul 1966.

President Johnson's announcement, on January 8, 1964, that his administration was declaring an "unconditional war on poverty in America" that "must be won in the field, in every private home, in every public office, from the courthouse to the White House," was wide reaching in its effect. With more than four million of the families to be reached in rural areas, the Department's involvement was a matter of course. The interlocking relationship with the State extension services and experiment stations indicated that they also would play an important role. The Director of Science and Education, N. C. Brady, soon appealed to the deans of the colleges of agriculture who generally direct the extension work and experiment station research in the States. 1/

Various proposals were drawn up within the Department to outline the direction of the studies needed. On September 28, 1964, Nathan Koffsky, Administrator of the Economic Research Service, wrote that "to deal with rural poverty and its basic conditions requires a broader fundamental knowledge of conditions than that now available." He saw four major areas of research: (1) delineation and classification of rural poverty; (2) data analysis and situation studies; (3) a survey of attitudes, values, and goals; and (4) studies of the impact of various programs and policies. 2/

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. I, p. 91; N. C. Brady to Deans of Colleges of Agriculture, Land Grant Universities, Feb. 20, 1964, Agricultural History Branch, U. S. Department of Agriculture.

2/ Nathan Koffsky to Mr. Boone, OEO, Sept. 28, 1964, Agricultural History Branch, U. S. Department of Agriculture.

A great deal of emphasis in research on rural poverty has been given to studies of the Appalachian area. Early in 1964, President Johnson had sent a draft of an Appalachian development bill to Congress when he transmitted the report of the President's Appalachian Regional Commission. Later, in October, he announced the establishment of the Federal Development Planning Committee for Appalachia to provide for continued coordination of Federal and State planning and cooperation in the area. The Department was represented on this committee. 1/

Then on March 9, 1965, President Johnson approved the Appalachian Rural Development Act to establish a framework for joint Federal-State efforts through the establishment of the Appalachian Regional Commission. Four days later, N. C. Brady, Director of Science and Education and John Schnittker, Director of Agricultural Economics, announced the establishment, within the Department of Agriculture, of the interagency "Program Work Group on Rural Poverty Research and Education." It was to review and evaluate Federal-State research programs relating to rural poverty and to make recommendations for their improvement. 2/

This work group, drawing on resource people in the Department, brought together a number of analytical papers. On the basis of these,

1/ Executive Order 11186, Oct. 25, 1964, in Public Papers of the Presidents, Lyndon B. Johnson, 1963-64, Vol. II, pp. 1433-34; also Vol. I, p. 586.

2/ 79 Stat. 5; Nyle C. Brady and John A. Schnittker to George Tolley and others, Mar. 12, 1965, Agricultural History Branch, U. S. Department of Agriculture.

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an ambitious program was drawn up. While it has not been fully implemented, the work of the group has served as a basis for further research and for the educational activities of the Extension Service in the area. The Secretary also appointed the USDA Committee for Appalachian Development to work with the Federal Development Committee in drawing up agricultural programs for the area on July 8, 1965. 1/

Meanwhile, the Economic Research Service continued studies undertaken earlier. When additional funds were available late in the 1965 fiscal year, these were expanded. This redirection of work within the Economic Research Service was reflected by the establishment of the Economic Development Division on August 13, 1965. 2/

The Economic Research Service has not confined its research on rural poverty to the Appalachian Area. It has also studied problems of other low income areas such as the upper Lake States and the Ozark region. 3/

1/ U. S. Department of Agriculture, Secretary's Memorandum 1579, July 8, 1965.

2/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1967, pp. 36, 39, 100; Theodore E. Fuller and E. L. Baum, Employment, Unemployment, and Low Incomes in Appalachia, Agricultural Economic Report 73, May 1965; U. S. Economic Research Service; R. I. Coltrane and E. L. Baum, An Economic Survey of the Appalachian Region, with Special Reference to Agriculture, Agricultural Economic Report 69, Apr. 1965, U. S. Economic Research Service; U. S. Economic Research Service, ERS General Memorandum 40, Aug. 13, 1965.

3/ Max F. Jordan and Lloyd D. Bender, An Economic Survey of the Ozark Region, Agricultural Economic Report 97, 1966.

With so many agencies working on development planning, the economy-minded President, on September 2, 1966, asked a number of Cabinet members and others to work with the Bureau of the Budget in coordinating programs. Again, the Economic Research Service was represented on the committee appointed by the Secretary. 1/

The Economic Research Service has undertaken studies for other Departmental agencies, sometimes furnishing information, rather than preparing formal reports. On December 9, 1964, the Secretary directed the Service to furnish the Foreign Agricultural Service information on domestic production of specified meats and official trade statistics on the importation of such meat, in connection with the implementation of meat import quotas under Public Law 88-482, approved August 22, 1964. 2/

Some economic studies have been undertaken at the direct request of Congress. In accordance with Section 705 of the Food and Agriculture Act of 1965, the Service made a study of the parity returns position of farmers, that is, the equivalent returns that labor and capital employed in farming might have received if they had been employed elsewhere in the economy. Here again, agricultural economists in the land grant colleges were consulted in the preparation of this approach to a parity formula. 3/

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. II, p. 941; U. S. Department of Agriculture, Secretary's Memorandum 1579, Rev., May 9, 1967.

2/ 78 Stat. 594; U. S. Department of Agriculture, Secretary's Memorandum 1564.

3/ U. S. Economic Research Service, Parity Returns Position of Farmers, U. S. Senate Doc. No. 44, 90th Cong., 1st Sess., 1967; 79 Stat. 1187.

Other research has been a part of the assistance given to various specialized groups studying agriculture. Information or assistance has been furnished to the 1965 Task Force on Agriculture and Rural Life, the National Advisory Commission on Food and Fiber, the National Commission on Food Marketing; the President's National Advisory Commission on Rural Poverty, contributing five parts to its Rural Poverty in the United States; and other similar groups. It has also cooperated with other Departmental agencies in the preparation of studies such as the World Food Budget, 1970, published in October 1964. Other types of research that evaluate long term programs are exemplified in The Land Utilization Program, 1934 to 1964 and Food Consumption; Prices, and Expenditures. 1/

While the research programs were expanding, a constant effort was under way to maintain a balance between the Federal and State sectors. Congressmen critically question Departmental officials about possible encroachment by the Federal government. Representatives from the land grant college association continued to serve as a bridge in this difficult area, frequently as members of committees or task forces on work of the Department of Agriculture.

1/ U. S. Economic Research Service, Agricultural Economic Report 85, Aug. 1965; Agricultural Economic Report 138, July 1968.

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The early emphasis of President Johnson on "consensus" was to ease this situation. He urged greater involvement of the "grass roots" in program and policy development. On November 11, 1966, the Chief Executive wrote to heads of Departments and agencies stressing the need for a "creative federalism." They were to give representatives of State and local governments the opportunity to advise and consult in the development of programs directly affecting State and local matters. 1/

"Operation Outreach" was launched the following year at the direction of the President to take the approximately 90 Federal programs to rural people for whom they were intended. Existing field offices were to be utilized as channels of information and coordination for agencies having the primary responsibility. In his message on "Prosperity and Progress for the Farmer and Rural America," February 27, 1968, the President commended the efforts of the Department and the Technical Action Panels, organized at the regional, State, district, and county level for assuring that the programs were turning into effective action for the people. And one of the agencies having primary responsibility was the Federal Extension Service. 2/

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1966, Vol. II, pp. 1366-67.

2/ U. S. Department of Agriculture, Secretary's Memorandum 1610, Feb. 27, 1967; 4 Weekly Comp. Pres. Doc., 9, 372.

Agricultural Education

Educational activities have long been part of the life of the Department, from the publications of the early days to the broad programs of the 1960's. Presidents and Congress have endorsed them and seen them as a means of transferring the findings of research to the people of the country. President Johnson has endorsed the program of the Federal Extension Service in his speeches and by receiving delegations from the 4-H Clubs at the White House. In his agricultural message to Congress, February 4, 1965, he emphasized the importance of programs reaching rural people not affected by existing programs. He continued: "I have requested funds in the 1966 budget... to strengthen the capacity of the Cooperative Federal-State Extension Service to assist rural communities in forming strong and active development organizations." A few days later, he indicated another avenue for extension work when he said:

I am asking the Secretary of Agriculture to work with State and local organizations in developing a cooperative program for improving the beauty of the privately owned rural lands which comprise three-fourths of the Nation's area. Much can be done within existing Department of Agriculture programs without adding to cost. 1/

1/ Public Papers of the Presidents, Lyndon B. Johnson, 1965, Vol. I, pp. 143, 158.

Again, in his budget message, January 29, 1968, submitting the budget for 1969 fiscal year, the President pointed to the fact that: "The Secretary of Agriculture is working with other Federal agencies and local groups to help more rural people participate in Federal programs that provide increased economic opportunities and improved living conditions." The increasing unrest in urban centers had already highlighted the necessity for a stepped-up program to make rural life more attractive and for maximizing the benefits from Federal programs. 1/

The Smith-Lever Act, passed in 1914, formalized extension work as a joint undertaking between the Department of Agriculture and the Land-Grant Colleges. This legislative authority underlies most of the Department's direct involvement in the area of education. This educational work is designed to help people make practical use of research results and scientific advancement in their day-to-day operations. As Secretary Freeman viewed the extension activities of the Department in December 1963, he saw a new use:

There is a real place for Extension in our poverty programs as we have discussed, to wit, teaching people in the very low income groups how to live. There is a broad area in giving leadership, in rural area development work in general, specifically in such things as training rural people in new enterprises such as recreation. 2/

1/ 4 Weekly Comp.Pres. Doc. 158; Memorandum, Orville L. Freeman to Lloyd Davis and Nyle C. Brady, Dec. 23, 1963; Memorandum, Orville L. Freeman to Richard N. Goodwin, White House, Aug. 13, 1964, Freeman Chronological File, Lyndon B. Johnson Library.

2/ Memorandum, Orville L. Freeman to Lloyd Davis and Nyle C. Brady, Dec. 23, 1963. Freeman Chronological File, Lyndon B. Johnson Library.

Extension education programs are carried out everywhere in the United States. Educational work with America's youth through 4-H Clubs involves $3\frac{1}{4}$ million boys and girls ages 9 to 19. Career exploration, both as a project and a part of formal school activities, is emphasized as it is estimated about 90 percent of the farm youth will need to seek jobs in the nonfarm labor market.

Education work in home economics is directed to families. It includes broad areas of subject matter such as nutrition, housing, home management, purchasing, storing and using of food, the use and care of household equipment, family survival in the nuclear age, and money management, as well as homemakers' skills essential to the science of homemaking. Extension home economics now reaches more than 10 million homes annually with educational programs. Emphasis is directed to the urgent needs of young families and to those with low income.

Progress has been made in more effectively extending the home economics work to low-income, hard-to-reach families. Pilot projects in rural areas, public housing developments and other low-income areas, have been used to develop more effective methods and approaches. Program aides, frequently low-income people themselves, are being trained to take an important role in this work, for they have the confidence of the people to be reached. The Extension

Service has also prepared simplified publications for those unable to use the existing ones on food, child care, clothing, and housekeeping subjects. 1/

Special reports from Extension home agents in counties with donated food and food stamp programs show that they spent more than 19,000 days in 1967 helping families to use these programs. The Extension agents helped acquaint eligible people with the programs, demonstrated, and helped aides demonstrate, and provided simple instructions on selection and use of the available food.

Along with the added assistance to low-income families has come increasing requests to provide more specialized in-depth Extension help to other families and consumers generally. More effective teaching methods have been developed to meet these needs, including specially packaged material for local leader and home study use, correspondence courses, educational television programs, in-depth training sessions, and greater use of direct mail letters and leaflets to very specific audience groups. Extension home economic workers in 1967, for example, reported sending over 88 million copies of 2,854,000 direct mail or circular letters to specific homemaker groups over the country.

1/ U. S. Extension Service, "Cooperative Extension Service, 1963-1968," July 1968, copy in Agricultural History Branch, U. S. Economic Research Service; U. S. Congress, House Appropriations Committee, Hearings... Department of Agriculture Appropriations, 1968, p. 447.

These years have brought with them a major shift to more highly trained area agents and specialists. Area agents work with farmers in several counties on highly specialized commodities, area development, and other problems. They strengthen the effectiveness of the county agent by their more specialized technical help.

The Extension Service has also cooperated in the rural development program. About 18 percent of total cooperative (Federal-State-County) funds are now budgeted for community resource development. A more specialized staff of 351 full-time resource development workers has been added, and almost half of them are working on a multicounty basis.

During the last half of 1967, Extension agents worked with over 17,000 county and area development committees and organizations. This included a wide range of activities aimed at helping the local people organize for action, analyze their situation and alternatives, and understand how to use assistance available from the various agencies and other sources.

Projects and activities have helped to bring in new industry, launch job training, provide needed public facilities, improve education, recreation, housing, and other living facilities, increase farm income, and develop natural resources.

The "extension" concept has been carried overseas as farmers and United States Government specialists have offered technical advice

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and guidance to other Governments. They have taken with them the idea of working with youth as well as adults, and about 80 countries have 4-H type organizations. The program, initiated in 1966 in the Virgin Islands, a United States possession, represents an expansion of the concept also. 1/

In its capacity as the educational coordinator of the Department, the Federal Extension Service with its network of State and county cooperative personnel has close working relationships with other agencies of the Department and with other Departments. As a cooperative Federal-State organization, it has at times been criticized for its ties to the Department and to State agencies and local groups. The most publicized examples are found in the 1965 report of the United States Commission on Civil Rights, Equal Opportunity in Farm Programs, and the 1967 report of the President's National Advisory Commission on Rural Poverty, The People Left Behind. Substantial progress has been made in this difficult area. Now Negro and white Extension workers have combined offices, are making combined work plans, and work progresses on a more equitable basis. 2/

As functions were expanded, a number of informal meetings were held to develop a survey to evaluate utilization of extension

1/ U. S. Congress, House Committee on Appropriations, Hearings... Department of Agriculture Appropriations, 1968, p. 441.

2/ U. S. Extension Service, "Cooperative Extension Service, 1963-1968," copy in Agricultural History Branch, U. S. Economic Research Service.

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resources in meeting its many responsibilities. A task force was appointed to determine further action. In mid-1965, N. C. Brady suggested that a thorough evaluation be made, with the cooperation of the National Association of State Universities and Land Grant Colleges. On October 5, 1966, the Secretary appointed the Joint Committee to Study the Cooperative Extension Service, composed of representatives of the Association, the Department, and the general public. When available in late 1968, the report will serve as a major guideline for future action. 1/

While primary responsibility for education activities of the Department of Agriculture is delegated to the Federal Extension Service, many other agencies have some responsibilities for instruction. Each prepares informational materials explaining or reporting on its programs and work. The Office of Information serves as a producing as well as coordinating agent for the Department as a whole. It is also responsible for the preparation of the ever-popular Yearbook of Agriculture.

The Department reaches the public through its current information program, its visual presentation, and its publications. Press releases, newsletters and notes report on up-to-date news. Radio and television programs are produced by the Office of Information with

1/ Memoranda, N. C. Brady to T. C. Byerly, Nathan M. Koffsky, and Harry C. Trelogan, Jan. 16, 1965; N. C. Brady to the Secretary, July 14, 1965, Chronological File of John Baker, Lyndon B. Johnson Library; Secretary's Memorandum 1601, Oct. 5, 1966.

the cooperation of the various agencies. Publications of the agencies, ranging from highly technical scientific works to simple graphic presentations, are cleared and distributed through this central coordinating agency. Approximately 100 motion pictures are produced every year. In addition, many film strips are made and exhibits are sent throughout the country. These various materials are used by the Department in its operations; some are distributed free; others are distributed free; others are sold to the public.

On December 28, 1966, Secretary Freeman appointed a USDA Committee on a Long-Range Information Program. This was to "provide a more effective Departmentwide approach to information support for Department programs goals, and to help develop a clear and sympathetic understanding of the meaning and impact of fast-moving changes in agriculture...." The goals were expressed in a series of speeches by Secretary Freeman, published as Agriculture/2000. The chapters covered income and abundance, communities of tomorrow, resources in action, growing nations, science in the service of man, and knowledge for living. 1/

Increased mobility of our population has had a tremendous impact on regulatory and insect control work. The large number of men coming from Vietnam has meant the importation of plant and animal

1/ U. S. Department of Agriculture, Secretary's Memorandum 1608, Dec. 28, 1966.

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diseases and pests. Similarly, increased tourism, especially by air, has brought added problems. All of this has entailed a program to alert travelers to the critical situations they may unknowingly create by bringing in pests or diseases harmful to American agriculture. The Agricultural Research Service has worked on movies and exhibits to highlight the dangers. The Department has enlisted the cooperation of travel agencies, airlines, and steamship companies in publicizing these by such pamphlets as "Don't Bring Your Enemy Home," or "Among Your Souvenirs." The Agricultural Research Service has an exhibit featuring a four foot cutout, "Pestina" that has been shown throughout the United States. Other brochures with cartoons such as "Agricultural Inspectors Outwit Foreign Pests" are given wide circulation.

Recently the Department has reached another disadvantaged group. At the National Arboretum in Washington, the first "touch and see" nature trail for the blind was dedicated on July 15, 1968. The 1,600 foot trail with roadside descriptions in Braille was planned by the Agricultural Research Service and the Columbia Lighthouse for the Blind. The only other nature trail for the blind in the United States is the 600-foot Roaring Fork Blind Trail operated by the United States Forest Service in the White River National Forest in Colorado.

Other blind people have access to some publications of the Department that are printed in Braille by the Library of Congress as part of the service to the blind. 1/

The National Agricultural Library also serves in an educational capacity. Its Bibliography of Agriculture continues as a major service. The Library's Pesticides Information Center is responsible for collecting, indexing and analyzing pest control information. It also publishes the Pesticides Documentation Bulletin and in March 1968 the Center assumed literature research responsibility for the International Tree Disease Register System for Literature Retrieval in Forest Pathology (INTREDIS).

In accordance with President Johnson's recent emphasis on the development of a worldwide network for the distribution of knowledge, the National Agricultural Library has taken preliminary steps toward such an agricultural network. It has contracted for a survey of service relationships in the agricultural library community. It has also set up an arrangement for instant facsimile interchange of information between the Pennsylvania State University and the Library. It is serving as liaison center for Federal Libraries in the Washington metropolitan area for an air-transported "flying books" loan service

1/ U. S. Department of Agriculture Press Release 2259-68; U. S. Agricultural Research Service, Administrator's Letter, Feb. 3, 1967; Telephone Conversation, Vivian Wiser with Charles Gallozzi, Library of Congress, Aug. 27, 1968.

to Pennsylvania State University, that provides service within 24 hours after the request is made. 1/

The Graduate School, U. S. Department of Agriculture, has been expanding its program since its establishment in 1921. Its evening and other classes by 1967 were reaching nearly 20,000 career employees in sessions held in over fifty government buildings. 2/

Courses are planned to meet changing needs. It has continued its cooperation, begun in 1961, in training of foreign nationals, most recently to prepare for the 1970 World Census of Agriculture. To meet other demands it has added courses on such vital areas as poverty and civil rights. In 1967, the increased importance of the area of computer science was reflected in the development of a program for a Certified Statement of Accomplishment in Computer Science.

The total outreach of the Graduate School includes much more. In the 1967-68 year, the Special (day) Program reached over 4,500 people in 240 classes--some done under contract for various agencies. At the same time, the correspondence courses enlisted 4,262 active students. Its first educational TV course, "Success in Supervision"

1/ U. S. National Agricultural Library, Narrative Statement, Aug. 1968. In: Files, Agricultural History Branch, U. S. Department of Agriculture.

2/ Graduate School, United States Department of Agriculture, Annual Report, 1967-68; Orville L. Freeman to the President, July 10, 1968, Secretary's Files, U. S. Department of Agriculture.

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that was introduced in 1964 was made into a motion picture in 1967. Ground work was laid for an expanded educational television training system, in cooperation with the Civil Service Commission. 1/

While the Graduate School has provided an extensive teaching program, many employees have not used its resources. A concern for those that were not broadening or continuing their professional improvement was highlighted in 1964.

The Higher Education Facilities Act of 1963 was approved two days after N. C. Brady was appointed Director of Science and Education. Under his leadership research and education units made preliminary studies of the training of research people in the Department. At his request, Secretary Freeman established the Task Force to Study the Training and Scientific Environment of the Departments Research and Education Personnel on April 14, 1964. They evaluated the training of scientists and the intellectual and scientific environment of the Department to determine how to develop a Department-wide training program. Brady sought the cooperation of the land-grant colleges, indicating to them the advantages that would accrue to them. The group interviewed research employees at 37 field locations throughout the country. He hoped that the recommendations of the

1/ Graduate School, United States Department of Agriculture, Annual Report, 1964, 1968.

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task force would be adopted on a division by division basis, inaugurating an intensified training program, and that cooperative arrangements with the land-grant colleges would result. 1/

The Life Sciences Panel of the President's Science Advisory Committee and the Committee on Agricultural Science had strongly recommended expanded training opportunities for the Departments' research personnel. The Federal Council for Science and Technology had also been concerned about the situation. Therefore, on June 30, 1964, the energetic Director of Science and Education asked "Research and Education Unit Administrators to accelerate the existing training program, by submitting to his office by August 1 specific plans." 2/

The report of the Task Force highlighted the fact that in many instances the professional employees were not profiting from provisions of the Government Employees Training Act of 1958. In response to its recommendation, the Secretary issued a statement of "Policy on Employee Training," and a questionnaire was sent to all scientific

1/ Orville L. Freeman to Secretary's Staff and Agency Heads, Apr. 14, 1964; N. C. Brady to H. V. Smith, Auburn University, Apr. 22, 1964; N. C. Brady to W. M. Myers, May 1, 1964; Secretary's Files, U. S. Department of Agriculture.

2/ N. C. Brady to Donald Hornig, Office of Science and Technology, Apr. 22, 1964; N. C. Brady to Research and Education Unit Administrators, June 30, 1964.

and educational employees to survey skills and outline a proposed training program. The increased emphasis on economy, however, precluded any widespread implementation of these individual training proposals. 1/

Science in the service of man, as exemplified in the research and educational activities of the Department of Agriculture, has moved on an upward path to benefit citizens across the nation. When Lyndon Baines Johnson sent his first message on agriculture to Congress on January 31, 1964, an American farmer was providing 29 consumers with their total food and agricultural fiber needs. By August 1968, through research and technology, his output had increased to the point where he was producing enough agricultural products for 43 consumers.

1/ U. S. Department of Agriculture, Progress Report, Task Force to Study the Training and Scientific Environment of the Department's Research and Education Personnel, Sept. 1964; Marion W. Parker to N. C. Brady, Oct. 26, 1964; Orville L. Freeman to Heads of Department Agencies, Nov. 30, 1964; N. C. Brady to M. W. Parker, Dec. 2, 1964, Secretary's Files, U. S. Department of Agriculture; U. S. Economic Research Service, General Memoranda 37 and 48, May 12 and Dec. 27, 1965.

Appendix B

Job Corps Conservation Centers

The world image of the United States is one of great wealth and prosperity. This picture is true because economically, we are the richest nation in the world, but within this "land of milk and honey" there is poverty. There are young people who cannot read and write well enough to find a job. These people are unemployed and the door to opportunity for work, and a chance to live a decent life is closed to them. With the establishment of the Job Corps, through the Office of Economic Opportunity, these neglected individuals were given a chance to rise up and become productive individuals, good for themselves, and good for their country.

The Job Corps Civilian Conservation program, for the Department of Agriculture was headed by the Forest Service, descended from the Civilian Conservation Corps (CCC) of the 1930's. The CCC was part of Roosevelt's New Deal Program to reduce unemployment during the depression. The CCC was very successful, but was eliminated during the war years.

Since the CCC, there have been several attempts to start programs like it. Finally, under President Johnson's "War on Poverty" program, the Job Corps was created.

The President signed the Economic Opportunity Act on August 20, 1964. 1/ Under this Act, the Forest Service of the Department of Agriculture undertook a major responsibility for organizing and operating

1/ 78 Stat. 508-534; Economic Opportunity Act of 1964, August 20, 1964. In: Files, Agriculture History Branch, Economic Research Service U. S. Department of Agriculture.

many of the Job Corps Conservation Centers. 1/ As stated on January 15, 1965 in the initial agreement between the Director of the Office of Economic Opportunity, Sargent Shriver and the Secretary of Agriculture, Orville Freeman, the centers which the Department of Agriculture were responsible for were to be on lands under the jurisdiction of the Department and were for development of a program for enrollee work experience activities.

In early 1964, months before the President signed the Act that created the Job Corps, the Forest Service had been planning for the Job Corps and after the Act was signed, the activities were greatly accelerated and the entire agency's resources put into action. There followed a massive impact of activities such as personnel actions, training, center announcements, community relations programs, engineering, contracting, construction, procurement, supply, program development, interagency liaison and meetings. The frustrations and problems caused by this sudden increase in workload were immense, but were overcome by the challenge and excitement caused by the pioneering nature of the operation. 2/

1/ Memorandum to Edward P. Cliff, Director of Forest Service, to all Regional Foresters, Directors, and Washington Office Staff, August 17, 1964. In: Files, Agriculture History Branch, Economic Research Service.

2/ F.A. Dorrell, "Contributions of LBJ Administration to USDA, Forest Service, Job Corps, Civilian Conservation Centers", September 24, 1968. In: Files, Agriculture History Branch, Economic Research Service.

The first Job Corps Center was opened on January 15, 1965, at Camp Catoctin, Maryland where the first thirty young men started their Job Corps training. 1/

In the beginning of the program, some confusion of duties, responsibilities, and policies were present, but in a memo of February 5, 1965, Chief of the Forest Service, Edward P. Cliff outlined to all regional Foresters and directors the initial agreement between OEO and the Department of Agriculture.

One problem outlined was the responsibility of the Center Director. He was responsible to the Forest Supervisor for the work program and center operations, but was responsible to OEO for education and other enrollee-oriented activities. 2/

The Job Corps administration and organization was composed of three government organizations; Office of Economic Opportunity, Department ^{the} of/Interior and the Forest Service of the Department of Agriculture. With three organizations involved in the Job Corps operation, problems were sure to arise. There was a slight feeling of distrust between the agencies, but they realized only by working together as close-knit members of the same team could they achieve the overall goal -- program success. 3/ On July 1, 1967, the revised Agreement between

1/ David Gottlieb, "The First Thirty", report of the Program Development and Analysis Division, Job Corps, January 27, 1965; p. In: Files Agriculture History Branch, Economic Research Service.

2/ Memorandum of Edward P. Cliff, Chief of Forest Service to Regional Foresters and Directors, February 5, 1965. In: Files, Agriculture History Branch, Economic Research Service.

3/ Memorandum to Otis A. Singletary, Director Job Corps, OEO from Clare Hendee, Deputy Chief, April 30, 1965. In: Files Agriculture History Branch, Economic Research Service.

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O.E.O. and Agriculture became effective. It gave greater responsibility for the Civilian Conservation Center to the Forest Service and eliminated the dual supervision of Center Directors by O.E.O. and Forest Service. Center Directors, then, reported solely to the Forest Supervisor. 1/ Through the revised agreement and other understandings between Agriculture and Interior, cooperation between agencies prevailed. Chief Cliff summed it up best when he said, "We are all working to meet the same objectives and a team spirit should prevail." 2/

The prime responsibility of the Forest Service was the conservation centers. These centers were renamed Civilian Conservation Centers by the new Economic Opportunity Act of 1967. 3/ Only the name changed, their basic purpose was still preparing young men in working skills, primarily conservation and natural resource work.

The basic purpose of the Job Corps was a mission of human renewal. The Job Corps was a chance for disadvantaged youth to break the chain of failure and poverty. The Job Corps served the disadvantaged youth by enrolling them in residential programs, preparing them for the responsibilities of citizenship and increasing the employability of

1/ Memorandum to Regional Foresters, Directors and Area Directors, from Hendee May 17, 1967. In: Files Agriculture History Branch, Economic Research Service.

2/ Memorandum to Regional Foresters and Directors from Edward P. Cliff, February 5, 1965. In: Files Agriculture History Branch, Economic Research Service.

3/ Memorandum from Vernon O. Hamre, Director, Division of Job Corps Administration, March 14, 1968. In: Files Agricultural History Branch Economic Research Service.

out-of-school, out-of-work young men and women from 16-22 years of age to the point that they could at least reach the first rung on the exit ladder from poverty -- a return to school, a training program for a skilled job, or a permanent unskilled/with decent pay and with a reasonably predictable future.

Secretary of Agriculture Freeman stated the purpose and value of Job Corps camps when he said they, " will help make sure that more young people get a decent break and a fair chance to make good. They will be of enormous value in bringing new opportunity to many rural and urban youngsters." 1/

Freeman again stated the purpose of the Job Corps before Congress, saying, "the educational enrichment programs... and the Job Corps work-training programs, and the work study program... will be of enormous value in bringing new opportunity to rural children who will never get that opportunity otherwise." 2/

Besides reestablishing human resources through human renewal, the Job Corps Conservation Camps served the nation through conservation and development of natural resources. The conservation camp program was designed to achieve a degree of employability through a blending of work experience and basic education. The work experience included road construction, construction of camp sites and recreation areas, planting trees and cleaning debris and other fire hazards from

1/ U.S. Department of Agriculture Press Release No. 2809-64, Washington, D. C., August 19, 1964 by Secretary Freeman. In: Files Agriculture History Branch, Economic Research Service.

2/ U. S. Congress, 88th, 2nd Sess., House of Representatives, Committee on Education and Labor, Hearings. . . on the War on Poverty Program, p. 248.

forest areas. Another major work experience in which Job Corps enrollees have participated is the fighting of forest fires.

Through the conservation program, the Job Corps has improved the range, wildlife, soil and water resources of our forest land.

In addition to conservation projects, the Job Corps enrollees in Forest Service Projects have learned to operate heavy equipment, learned carpentry, masonry, pipefitting, and plumbing, and gained a knowledge of basic surveying and mechanics, learned something about forestry and entomology and wildlife management and worked and gained some proficiency at record keeping and other types of clerical work. 1/

While Job Corps training touched education, vocation and conservation, the Job Corps enrollee became an economically healthy product of the Job Corps.

The recruiting program of the Job Corps was extensive and was controlled by OEO. The largest part of the recruiting in urban areas was carried out by interested individuals and agencies, such as the U.S. Employment Service Offices, churches, schools, settlement houses, public and private welfare agencies, boys' clubs, selective service boards and others. Their recruiting was concentrated in the ghetto areas of the cities.

1/ Ibid., p. 250.

The Job Corps rural recruiting program has brought over 35,000 rural youths into the program. Assistance has come from migrant labor groups, AFL-CIO Appalachian Council, the Department of Agriculture, National Indian Congress, mobile screening teams, rural community groups, radio advertising and Civilian Conservation Center's staff. 1/

If a youth had not been helped by these organizations, he needed only to write to the Job Corps office and they assisted him.

The screening process selected only one applicant for every seven that applied to the program. 2/ The ones not selected were usually referred to jobs or other training programs.

The youth counselors checked the applicants age. He had to be between 16 and 22 years old. He had to be a drop out of school and certify that he lacked the skills to hold a useful job. Home life was checked to see if it hindered his progress to develop. The family income had to be below a level OEO had set. His behavior record was checked through police and court records. No youths with criminal records, or serious negative behavior patterns were accepted. The health of the applicant was checked. Parents had to give their consent to have a youth enrolled in the program.

After the program was established and functioning, it was discovered that applicants were below the standards the original program had established. The screening procedure was modified to accept the lower type applicant. An example to show the flexibility of the program

1/ "Job Corps Reports," by Office of Economic Opportunity, April 1968, p. 17. In: Files Agriculture History Branch, Economic Research Service.

2/ Ibid., p. 119.

was the evolvement of a more thorough screening process based on past experiences. This helped to cut the drop out rate which was very high in the beginning. In 1968 it had leveled off to between 18 and 20 percent. 1/

The look at a typical Job Corps enrollee showed he was seventeen and a half years old, with an education level of ninth grade but a reading and math level of third grade. Twenty-five percent of the enrollees were from rural areas, while 47 percent were from small towns, and 28 percent were from metropolitan areas. Racially, 70 percent were from minority groups. The youths were unemployed or unskilled and unable to be employed. Looking further, we see he had had poor health care and his family background was one of a broken home (60 percent), with a low amount of education in the family and unemployed parents. 2/ With all these facts going against the youths, we now see why the Job Corps had to help the youth break the chain of poverty and ignorance.

The Job Corps training centers were of two types, the urban centers and the Civilian Conservation Centers operated by the Department of the Interior and the Forest Service for the Department of Agriculture. There were 32 urban centers with a capacity for 24,794. 3/ These were located in cities or a close proximity to them. The enrollees in the urban centers were from the area and were taught vocational skills.

1/ F. A. Dorrell, in a discussion, October 7, 1968.
2/ "Job Corps Reports," by Office of Economic Opportunity, April 1968, p. 23. In: Files Agriculture History Branch, Economic Research Service.
3/ Ibid., p. 94.

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These include automotive mechanics, selling, business machine repair, and accounting. The women were taught health and first aid, office and clerical skills and household duties.

Rural Centers, or Civilian Conservation Centers were administered by the Forest Service for the Department of Agriculture and the conservation agencies of the Department of the Interior.

The chart shows the growth of the Forest Service Civilian Conservation Centers. 1/

Date	Number	Size of Enrollment
June 30, 1965	22	2,941
June 30, 1966	46	8,211
June 30, 1967	47	8,435
June 30, 1968	45	8,083

The drop in 1968 presented an overall financial readjustment of the poverty program by OEO. Of the 16 centers closed, only two were Forest Service operated. 2/ The central objective of the Civilian Conservation Centers was emphasis on education and training while conservation improvement was a byproduct. This would overcome poverty and ignorance, making the people employable.

1/ F. A. Dorrell, "Contributions of LBJ Administration to USDA, Forest Service, Job Corps, Civilian Conservation Centers," September 24, 1968. In: Files, Agriculture History Branch, Economic Research Service.

2/ U. S. Department of Agriculture, Forest Service, Friday Newsletter, 1630, February 2, 1968. In: Files, Agriculture History Branch, Economic Research Service.

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Originally the daily program at a Civilian Conservation Center was divided into^{two} classifications. One was the educational day while other was the work day. The educational day stressed such academics as reading, language and study skills, mathematics, health education and first aid, vocational training, driver education and physical activities. Work days included campground construction, road and trail construction, range improvement, watershed improvement, tree thinning and center operation. Each day was followed up with intramural sports and arts and crafts. 1/ After the centers had been in operation for a while, it was soon evident that this strict schedule was impractical. The individual Corpsmen differed too much to have a set daily program. Finally the program was reoriented to the individual needs and requirements. The Corpsman received the same training but in the proportion each needed.

Each 100-man camp had a staff of 32 men, and 200-men camps had staffs of 52 men. These administrative staffs kept the camps functioning in an organized manner. The breakdown of the staffs includes the camp director who was a career Forest Service employee. Most directors had over 10 years of service in the Forest Service and they had background experience in administrative, educational and social work. Other staff members were master teachers, the Deputy Director for Education and Recreation, the Recreation-Medical Assistant, the Deputy Director for work programs, work foremen, a Deputy Director for Administration, cooks, clerks and tutor-counselors. Organization of the staff was broken down into three phases: work programs, administrative duties and education and recreation.

1/ "Job Corps Reports" by Office of Economic Opportunity, April 1968, p. 33.
In: Files, Agriculture History Branch, Economic Research Service.

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Teachers and tutors were recruited from universities and colleges. VISTA and other organizations of this type also supplied staff personnel voluntarily. Administration and work programs were carried out by career Forest Service employees. Racially, the staff was composed of 10 percent from minority groups. 1/

Each Job Corps camp was run independently of each other, except for the following certain organizational policies set forth by OEO and the Forest Service. This camp independence was followed because each different group of enrollees presents different problems and each director had his own most effective way of administering discipline. In all camps, however, camp directors were judged on their ability to develop responsibility. The Job Corps life for the enrollee was a progressively democratic experience. From the beginning, camp enrollees were told what decisions they could make immediately, what decisions they could make in the future and just how much control of these decisions the staff would have. This policy helped the individual become strong by instilling within him a feeling of responsibility and an ability to make decisions.

The success of the Job Corps program depended on how well the program created a unique educational and work experience for the enrollee. 2/ This was accomplished through vocational training and educational training.

The vocational training program was largely designed to develop entry-level skills in a number of vocations with a future. Along with

1/ F. A. Dorrell, in a discussion, October 7, 1968.

2/ Memorandum of Otis A. Singletary, OEO to Clare Hendee, Deputy Chief, Forest Service, January 5, 1965. In: Files, Agriculture History Branch, Economic Research Service.

the knowledge of work, promptness, neatness, and teamwork was stressed, also pride in a job well done.

The unique aspect of conservation work at the Centers was the intergradation of vocational training, productive work, and basic education. The courses necessary to obtain entry-level competence in selected vocations were part of the curriculum.

These curriculums guided the work supervisor in analyzing the actual conservation work projects to identify the vocational skills to be found in them. The curriculums also served as checklists for each Corpsman to be sure he was exposed to the various skills needed to advance within his selected vocation or vocations. In this way productive work under actual working conditions was meaningful to the enrollee and was found it could be related to his own advancement. The educational skills the enrollee needed were also identified and included in the program.

The work projects and the service jobs at the centers were selected on the basis of the skill necessary to perform the job. Corpsmen were assigned to conservation work projects which contained work skills which they needed in their vocation.

The enrollees' progress in completing the tasks and skills of individual vocational programs were recorded, given recognition and used to motivate the individual.

Enrollment in individual curriculums would depend on the interest of the Corpsman and the availability of the curriculum at the Center to which he was assigned. 1/

1/ "Job Corps Conservation Centers Program," Job Corps, 1967, p. 5.
In: Files, Agriculture History Branch, Economic Research Service.

The education system was aimed at disadvantaged youths. Some of the youth were dropouts, others had reached a certain grade level but their skills were far below that level. Some were eager to learn, others were poorly motivated. Some had a wide basic knowledge, others had a limited background. The Job Corps basic education program was aimed at improving reading and arithmetic skills. A set of placement tests were used to indicate a starting point for the enrollee. His progress was evaluated at each step. The reading program was designed to improve the reading performance of Corpsmen to a level at which he could use a library and read the average book, magazine, newspaper and vocational training material.

The minimum terminal goal of the reading program was to have trainees read at least between the seventh and eight grade levels. The program was also aimed at creating independent readers who would continue to use the library to raise their reading level. For individuals who already read well, the program was designed to provide the stimulus to carry them well beyond the eight grade level.

The mathematics curriculum had been designed to teach the basic skills required in many vocations. The curriculum was designed to develop an understanding of the basic operations. After the basics were covered, the Corpsmen could proceed to higher math.

The trainees' progress was checked throughout the course, showing his weaknesses and where his concentration should have been.

After a youth had successfully completed his Job Corps training, he was better prepared to face the world, as a contribution to our society. The training had been successful because he was prepared to enter the job market with the basic skills to be competitive. Unions came in to help train enrollees providing them with immediate useful skills. 1/ New vocational doors, once shut, were now open to him. His educational skills also would aid him to find employment and to continue his education. After Job Corps training, seventy-six percent of the unemployed or under-employed youths had jobs. 2/

One of the major aims of the Job Corps was to make the youths employable and according to employers, the Job Corps was rated a success. "The U. S. Chamber of Commerce survey revealed 76% formerly unemployed or under-employed youths have been gainfully employed after Job Corps. 81% of employers rate skills as 'satisfactory to excellent.' 80% of employers rate training as 'satisfactory to excellent.'"

The Wall Street Journal reported that most Federal training programs were not rated very high by employers, but the controversial Job Corps got suprisingly high marks. Sixty percent rated them as satisfactory workers. 3/

1/ U. S. Department of Agriculture Press release No. 1292-68, Washington, D. C., April 22, 1968. In: Files Agriculture History Branch, Economic Research Service.

2/ "Job Corps Reports" Office of Economic Opportunity, April, 1968, p. 143. In: Files, Agriculture History Branch, Economic Research Service.

3/ "Job Corps Reports," April 1968, Office of Economic Opportunity, p. 143. In: Files, Agriculture History Branch, Economic Research Service.

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A Chrysler Motor Company executive stated, "Chrysler's experience with the Job Corps has been beneficial. . . . We have found them to be a reliable source of employees. . . ." 1/

Through the vocational and educational training, a feeling of responsibility was instilled in the trainees. Some of them had never earned money and in the Job Corps they received this experience and the responsibility that goes with it. Originally the enrollees received \$30.00 a month spending money. When they graduated from the Job Corps, they received a terminal payment of \$50.00 for every month they had spent in the Corps and up to \$25.00 of this amount could be sent home and the Job Corps would match the allotment with an equal amount. But in 1967 an economy drive left the Corpsmen receiving only the \$30.00.

With all the accomplishments and success the Job Corps had had in its short history, there had been a chance the size and effectiveness of it may be reduced. Like the termination of CCC, the Job Corps had already felt the effects of the Vietnam war. With a cutback on poverty funds and the reallocating of money for the war, OEO was forced to close sixteen Job Corps Centers in 1968. Four were men's and women's urban centers, 10 were USDI Conservation Centers and only two were Civilian Conservation Centers operated by the Forest Service for the Department of Agriculture. This was truly a compliment to the effectiveness of the Forest Service. 2/

1/ Ibid., p. 153.

2/ Forest Service, U. S. Department of Agriculture, Friday Newsletter 1630, February 2, 1968. In: Files, Agriculture History Branch, Economic Research Service.

The Act that created the Job Corps was amended in 1967, but there was little change in the efficient operation of the Forest Service Civilian Conservation Centers. Total Job Corps enrollees had to be twenty-five percent women by June 30, 1968, and a target of fifty percent women at a later date.

The Forest Service Conservation Centers was renamed Civilian Conservation Centers. Changing the name did not change the function. Community relations and participation of Job Corps with the community was stressed. Councils for joint discussion of common problems and program planning were established.

The cost of Center operations could not exceed \$6,900 per enrollee in Centers which had been in operation 9 months or more. The Forest Service had been operating very effectively below this level.

Amendments passed also covered readjustment allowances for former enrollees who had not found work and the Director of OEO could settle any damage claim up to \$500.00. All these amendments were for improvement of an already smooth-running operation. 1/

The Job Corps is a "last chance" opportunity for youngsters of poverty. It is a chance for them to break the chain of failure and ignorance. The Job Corps had made people who were economic liabilities of this country into economic assets by providing them with education and working skills. The Job Corps had improved our natural resources and our human resources. They had made poverty youths into productive, responsible young adults, a credit to the Job Corps program, a credit to our nation.

1/ 81 Stat. 672; Amendments to Economic Opportunity Act of 1964, December 23, 1967. In: Files, Agriculture History Branch, Economic Research Service.