



PERSPECTIVE...

Public-Supported Research in Agriculture

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ONE MUST, I think, conclude from the available evidence that research in agriculture has yielded and continues to yield great benefits to the general public and that these benefits are widely dispersed over the whole of the economy.

It is well known that production of agricultural products in the U. S. takes place on a very large number of separately owned and operated farms, and that only a few of these farms are large enough to secure a profit from research expenditures chargeable directly against the farm. According to the 1950 Census there are 3,706,000 commercial farms in the U. S. Of these, only 103,000 farms produced in 1949 a gross income of more than \$25,000 each. 3,603,000 farms produced a gross income of less than \$25,000 each. It is clear, therefore, that farming in the U. S. is not concentrated in the hands of a few giant corporations. In this respect primary production of food and fiber is in marked contrast to the production of many manufactured products. According to a report of the Federal Trade Commission, 46% of the total net capital assets (property, plant, and equipment) of all corporate and noncorporate manufacturing firms in this country in 1947 was owned by the 113 largest manufacturing companies. It would not be far off, therefore, to conclude that the 113 largest manufacturing companies in this country produce around 46% of the nation's output of manufactured goods. In contrast it takes about 400,000 of the largest farms in the country to produce 46% of the nation's output of agricultural products. There is a vast difference between 113 and 400,000.

While few individual farmers operate large enough enterprises to warrant the undertaking of a research program on their own account, it does not necessarily follow that all research related to agriculture must be

financed by the Government. In this country, in fact, considerable research relating to agriculture is done by firms engaged in manufacturing materials and equipment used on the farm. Such research is, in my judgment, all to the good. I hope that it will be expanded.

It must be recognized, however, that many of the research needs in agriculture are not being met by private firms. Research by private firms must, in the long run, yield a profit to those firms; research expenditures must eventually result either in lower costs to the firm or in larger markets for the firm. Also, it must be recognized that, in the main, only large and well-financed companies can afford to engage in research. They must be large so as to be able to spread the cost of research over many units, and they must be well financed in order to pay for the many duds which even the most brilliant research scientists continually produce. These two requirements limit the amount and kind of research which private firms can afford to undertake at their own expense. Thus, a large area of research of great potential benefit to the public falls outside the scope of private enterprise. Such research, if undertaken at all, must be financed from government revenues. This is especially true of much of the research in agriculture.

In conclusion, it seems to me that research in agriculture meets remarkably well the two conditions which Adam Smith laid down 179 years ago for an activity to qualify for government financing. There is abundant evidence to support the thesis that research in agriculture is "in the highest degree advantageous to a great Society," and that much of it is "of such a nature that the profit could never repay the expense to any individual or small number of individuals." (*From an address before the American Society of Agronomy, Davis, Calif., Aug. 15, 1955*)