

Secretary Hyde Stresses Need for Research

On following pages is presented an article by Hon. Arthur M. Hyde, Secretary of Agriculture, showing the need for increased research in agriculture. The article is reprinted from *The Country Gentleman*. Although the Secretary discusses research in relation to general agricultural problems, his deductions apply equally well to turf problems. The method of "trying this and trying that," which he points out as a costly burden on agriculture, is undoubtedly far more costly to golf courses, for in the latter case there are frequently enormous financial resources at the disposal of amateur "experimenters" without the economic barrier which limits to some extent the farmer's experimenting. The Green Section, with its limited support, is attempting for golf courses the research work which Secretary Hyde points out as essential for progress in agriculture as well as in other fields. The changing demands for golf course turf in recent years have made men who are interested in turf production realize all too well the shortcomings in the basic knowledge of turf problems.

Agriculture Needs Strengthened Research

By Arthur M. Hyde, Secretary of Agriculture

For the last decade or more the Department of Agriculture has emphasized the economic side of agriculture. With the enactment of the farm bill the Federal Farm Board will deal primarily with the economics of agriculture aided, of course, by the present resources of the Department of Agriculture. To a larger extent, the attention of this administration will be directed to strengthening and fostering basic research. We hope thereby to give the American farmer directly and quickly all that the highly organized divisions of modern science can devise for his benefit, and at the same time study more closely the natural laws pertaining to living forms.

Agricultural research, in the broad meaning of the term, has in no wise kept pace with the amply financed search for new facts and principles which has been the basis of modern invention and development in the chemical, electrical, engineering and other industrial fields. The research which has been the foundation for vast profitable expansion in these industries has been carried out by corporations amply able to finance such studies. Agriculture, divided into more than 6,000,000 farm units, is obviously unable, through its own resources, to establish and maintain institutions able to pursue elaborate technical studies. The benefits to be gained thereby are nation-wide in scope.

One of the heaviest charges on agriculture today—and it is a charge in large measure passed on to the consumer—is for individual farm experiments. Trying this, and trying that, groping blindly for a better way, has been conservatively estimated to mount up to \$100 per farm. Governmental agencies adequately financed to study farm problems could bring more effective results at a small per cent of the cost.

The department heretofore has encountered one serious difficulty in its effort to put fundamental farm research on a par with research for industry. This difficulty lies in the fact that our technical men

have not been allowed to make their own program. Item by item the department's proposed expenditures must be explained to the Budget Bureau committee and to the Appropriations Committees in the Congress. Since it is impossible to forecast the results of any particular research problem, details can not be furnished in advance. It is difficult therefore to convince the lay mind of the fact that such studies are indispensable prerequisites to the practical values which flow therefrom.

A lump sum appropriated for fundamental research, available until expended, would solve this difficulty. It would also allow a line of study to go forward uninterrupted even though radical changes of plans in the pursuit of the study became necessary. Under the present item-by-item appropriation system more than 12 months must elapse between the drawing up of a proposed plan of research attack and the funds becoming available for the pursuit of the work. A radical shift in attack brings on another long delay. Such lack of elasticity exerts a crippling effect on the efficiency of our personnel, causes delay, and injuriously affects research methods.

Agriculture is entitled to a research institution in keeping with its \$50,000,000,000 investment in farm lands and equipment. Such an institution, properly financed and adequately manned could confidently be expected to contribute as largely to agricultural progress as similar research has done in industrial fields.

Money is essential to the pursuit of technical studies by the elaborate and concise modern methods which science has developed. Nevertheless all science, and particularly the research side of science, is based on creative imagination. In an extended research program, therefore, much stress should be placed on assembling the most brilliantly imaginative group of men available and creating conditions under which their full ability can be exercised.

A research program should include general basic principles in the sciences underlying agriculture. Thus we should be able not only to cope with threatening pests, but to go forward toward greater efficiency in the utilization of land and labor. Another group of studies would be directed to the matter of maintaining a better regional balance under changing conditions of production. Nothing is more tragic or devastating in its economic effect than the turn of circumstances which disrupts the long established and normal procedure of a vast countryside. Alternative production programs should be ready in advance in order that such upheavals may not nullify property values and disrupt society.

The agriculture of the nation is replete with examples illustrating the need of this sort of intensive regional study. Just now the corn borer threatens the primary product of the great group of upper Mississippi Valley states. These states have long reigned supreme in producing the meat for the nation. The borer damage would not have to mount to great height and the cost of producing pork would not have to be increased to a very high figure before other sections would be fighting for this market.

The new mechanics of wheat production in the Plains states raises the problem of profitable land utilization in eastern areas. Eastern areas now producing small grain must meet this competition. They must increase their efficiency of production and lower their costs of production, or they must be provided with an alternative

program. Thus occasionally some cause far beyond the farmers' control confiscates values and breaks up homes and farms. Research for new methods, or new crops, or new uses of old crops, becomes vitally necessary either to meet the result of a pest here, or some great invention or discovery there. It is a penalty we pay for our highly organized and commercialized age. There exists a clear duty to foresee and meet or ameliorate these crises. Had we been organized on this basis 20 years ago, the shock which the Old South took on the coming of the boll weevil might in large degree have been avoided. Intense research concerning animal health and concerning the development of crops to effect soil improvement and provide forage and grain might have saved a couple of decades of distress.

Regional study is the only insurance against economic upsets as outlined. It also has an important national aspect. It figures in our balance of trade. Our great southern product, cotton, with its exportable surplus ranging in value far above a half billion dollars annually, serves in large degree in keeping our trade balance on the right side of the ledger. There is reason to fear that America can not hope to retain indefinitely this enviable position. There are other countries where vastly enlarged cotton production is possible. We can hope to hold or enlarge our present advantage only by developing methods of producing a high-quality product profitably at a price which a newly established industry in other lands can not match. This means more than a pest-fighting program. A comprehensive research development for the cotton region is imperative. A high-grade standardized seed supply must be developed. The world today is requiring a higher-quality fiber than ever before. The welfare of the entire South is bound up in a program which shall help to keep cotton costs below the reach of competition, or that failing, to provide an alternative program for southern farmers.

Any such program should, of course, be carried out in conjunction with the agricultural schools, field laboratories and experimental grounds of the states. Thus the program would reach all the definite agricultural areas of the nation.

Such regional work, operated in close cooperation with the neighboring states, would serve also as a clearing house through which the workers in a region might coordinate their efforts.

Maintaining a central research program for agriculture would constitute a sound investment. Dominance in world markets can be achieved or maintained only by such efficiency as will enable us to produce for the world market at a profit, yet at a price which tends to shrivel rather than encourage competition from other quarters of the globe. There exists no other sound basis for holding or expanding world trade than that of such efficiency in production as will merit dominance.

Nothing is more obvious in modern life than that science has been the progenitor of industry. The colossal expansion in useful productiveness, and the development of ever-widening groups of alternative tasks in which labor may engage, and thus keep employment at a high ebb, tie on to science. Just as knowledge of the nature of the forces with which we have to deal determines the efficiency with which we can work, it also determines the latitude of our operations. Agriculture today suffers intensely through inability rapidly to adjust itself to competition coming from new areas of production and

new methods developed by competitive regions within as well as without our own boundaries. With research given a clear field much of this type of distress can be obviated, and old regions kept on an even keel.

In a large degree the national research program in agriculture has been the product of circumstance rather than of design. It has been built in large measure around emergency situations, a hurried defense, in fact, against the ever increasing onslaught of insect and disease menaces. This sort of battle line study must be continued and enlarged. It would be no part of wisdom to economize here. Such studies as will bear on these problems should, in fact, be vastly enlarged. But it is conceded freely by every well informed scientific worker that these crises which occur when an insect threatens here or a disease there can be met rationally and economically only by a vast amount of accumulation of forehanded knowledge concerning basic principles in the great mysterious field of biology.

And it is in this field of pure science which lies back of such understanding as is necessary for any sort of human advancement, that the nation has allowed the Department of Agriculture to continue relatively weak.

The country should demand the correction of this situation by the development in the Department of Agriculture of an adequate program of research expansion. Such a program should touch and enrich the life of the nation many fold for every dollar expended. It should be the great bulwark of defense of our agriculture against competition from other lands.

It was Pasteur who wrote in the last century, "In our century science is the soul of the prosperity of the nations and the living source of all progress." He might equally have written this line about the twentieth century, and perhaps still more fittingly about the coming ages which we can not yet envisage.

In developing this expanded research program for agriculture the administration is seeking suggestions and advice from the most distinguished national leaders in research science. Not only should the leaders in the agricultural field be consulted, but those outstanding men of science whose epochal achievements have been the basis of our remarkable industrial expansion, should be asked to contribute suggestions. Agricultural research can lose nothing by contact with that resistless spirit of study which characterizes the research departments of our great corporations—a spirit which never takes no for an answer.

Hawks and owls are not without value. In the spring of 1927 the game commission of Yakima County, Wash., established a bounty on various creatures supposed to be destructive to useful birds, especially upland game birds. The stomachs of 121 hawks and owls killed in the county and presented for bounty were forwarded to the Bureau of Biological Survey for study. Examinations by the bureau disclosed that all the birds had been preying chiefly upon ground squirrels, rabbits, and mice—species so destructive in the western states that the Federal and state governments have been cooperating for years in campaigns to control them. As a result of the discovery that hawks and owls are really a protection rather than a menace to useful species, bounties are no longer paid on them in Yakima County.