

# THE SIGNIFICANCE OF THE CONSERVATION OF LAND RESOURCES

BY

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In these days of much publicized apparent surpluses of some farm products it may seem inappropriate to even suggest, let alone discuss, the significance of the conservation of land resources. On the contrary, such a discussion seems to me to be all the more necessary because of the likelihood of the public in general obtaining erroneous ideas concerning the real situation. It is obvious that it will be quite impossible in the brief time at my disposal to give this important subject adequate consideration.

I shall be forced to make some rather sweeping statements without the opportunity of fortifying these statements with adequate supporting evidence. I must ask my hearers, therefore, to be charitable enough to accept such statements as may be made on the assumption that there is in existence sufficient supporting evidence to warrant them.

There are a few general propositions which may be briefly, and I trust profitably, discussed. They are:

- 1) That there is not a surplus of fertile land suitable for cropping purposes;
- 2) that through the processes of nature and the ravages of man, the extent and quality of these lands are rapidly declining;
- 3) that in the main good lands are perhaps the most valuable basic natural resource that this country, and particularly this State, possesses;
- 4) that methods have been developed through investigation and research whereby these good lands may be so utilized that they will remain indefinitely a continuing source of wealth; and
- 5) that the trend is strongly toward depreciation and waste of our land resources and that unless there is a rather speedy change in our practice relating to land use, we shall bequeath to our descendants an unwelcome heritage.

*No surplus of fertile lands.*—It is generally recognized that the margin of profit in farming under normal conditions is relatively small. Obviously, the less fertile the land, the smaller the margin of profit. The areas of fertile land are relatively small.

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*The processes of nature and the ravages of man are rapidly reducing the extent of such land.*—Let me remind you that there was a time, and not so many years ago, when it was mistakenly believed that the fertility of Illinois soils was so great that it was inexhaustible. Fortunately, the State has been saved the disaster that would have been inevitable had this mistaken belief prevailed for long. The Experiment Station of the University of Illinois has shown that far from being inexhaustible, the fertility of Illinois soils is rapidly destroyed by unbalanced cropping systems and by erosion. When we think of soil conservation, it is well to recall, too, the report of scientists with respect to the havoc brought by soil erosion in Illinois and throughout the Nation. Their findings show that erosion alone is washing away the farm fields of the United States at the rate of 3 billion tons of soil material a year, that there are in this country 35 million acres of what was once mostly good land which is now waste in so far as crop use is concerned because its top soil has been washed away by erosion. In some systems of faulty cropping, as in straight corn farming, the 7 inches of top soil on a slope as slight as 4 per cent can be destroyed in as short a time as 24 years. Repairing soil damage as serious as this requires between 2,000 and 3,000 years, because it takes nature about 400 years to build a single inch of productive, top soil from raw sub-soil clay.

In the midst of our seeming abundance, it is well to recall that history has recorded how vast tracts of land already have had to be abandoned because they were so badly eroded and otherwise so mistreated that they would no longer support life. If the final pages of history do not record the abandonment of vast additional tracts and an ever-increasing threat of a food supply shortage, it will be because of the type of service which the University of Illinois and similar institutions elsewhere are rendering in soil conservation.

These are times when national and international plans for agriculture are being much discussed. No matter what policy is adopted, if the soils of our farms are not cared for and conserved they will become impoverished, and a successful agriculture and a prosperous nation can not be built on impoverished soils.

From the soil fertility viewpoint, the history of American agriculture to date has been one of exploitation. Several years ago a point was passed unobserved by the general public and by farmers themselves, when further exploitation of the land meant exploitation of the people on the land. I am not blaming farmers for exploiting the land. Neither am I blaming other groups for exploiting the farmers, nor the farmers for permitting themselves to be exploited. Much of this has been more or less unconscious. Only where it has been conscious and

preventable is it inexcusable. It is not my purpose to attempt to fix the blame or responsibility. It is much more important to recognize the fact and leave to agricultural education and research the determination of the extent and effect of these conditions, and the methods of ameliorating them. The exploitation of the soil comes mainly from three groups: first, those efficient and intelligent producers who willfully neglect the fertility of their soils for the sake of immediate gain; second, those who are inefficient producers and either know no better, or knowing, are too indifferent to care; and third, those who care and know how, but can not figure how they can maintain the fertility of the soils of their farms and survive financially. Perhaps if we should attempt to classify farmers with reference to these groups, we might learn something of real value.

A very practical hindrance to the general adoption of programs of soil maintenance is the fact that as long as fertile lands exist here or elsewhere, there will be plenty of men who will exploit them. As long as men exploit them, the products of such lands will come into competition with the products of farms operated with the high purpose of husbanding the resources of the land for posterity.

*Good lands, the most valuable basic natural resource of the State.* They may be conserved indefinitely as a continuing source of wealth. So far as the future of Illinois is concerned, there is no more valuable and enduring asset than the 30 $\frac{1}{2}$  million acres in its farms, which comprise 35.6 per cent of its land. This natively fertile soil is perhaps the one major natural resource of the State which may be continued unimpaired for future generations by the application of knowledge which has been and can be worked out through investigation and research.

The most striking evidence of these principles has been obtained on the Morrow plots, America's oldest soil experimental plots, located on the University grounds at Urbana. Three different cropping systems have been practiced uninterruptedly for 57 years, and three soil treatment systems have been practiced for 29 years.

Continuous corn culture, representing the old belief that the fertility of Illinois soils is inexhaustible, has so undermined the land that the yield of corn has dropped to less than 20 bushels an acre. In contrast, a system of crop rotation combined with simple soil treatment, has maintained and built up the fertility of the soil to the point where it is yielding approximately 70 bushels of corn an acre.

The soil on the different plots was all equal when the experiment started 57 years ago. Today, on the basis of profitable crop production, the land on the plot where a crop rotation of corn, oats, and clover has been combined with simple soil treatment is worth 4 $\frac{1}{2}$  times as much as the land where corn has been grown continuously without treatment.

It is worth twice as much as the land where continuous corn has been grown with simple soil treatment. It is worth  $2\frac{1}{3}$  times as much as the land where an inferior rotation of corn and oats has been practiced without soil treatment. It is worth  $1\frac{1}{3}$  times as much as the land where the corn and oats rotation has been combined with simple soil treatment. It is worth  $1\frac{1}{3}$  times as much as the land where a rotation of corn, oats, and clover has been practiced without soil treatment.

*Trend toward depreciation and waste.*—Ex-Governor Lowden, recognized as a thoughtful student of agriculture, in a published interview, is quoted as making some observations that may well form the basis for serious deliberation. In speaking of the tremendous loss of fertility in the Mississippi valley from erosion, he asks, "How long can the land stand this? - - - And while Nature is thus hammering away at our land, we, ourselves, go on speeding up the process of destruction by incessant cropping."

This important question is a challenge to our present generation. I do not wish to leave the impression that nothing is being done to change the trend. As a matter of fact, at no time in the history of our country have well-informed people been more conscious of the need for more attention being given to conservation of our land resources, and it is an encouraging sign.

The authorities following me on this program will presumably bring out more clearly and definitely some of the matters I have but briefly referred to here. The National Government is attacking this problem most vigorously, particularly from the standpoint of submarginal lands and the attempt to crystalize public sentiment on the disastrous facts of erosion and the possibilities of its intelligent control. Such constructive policies should be aided in every proper way by scientific societies of this nature.

May I quote here, in closing, from Liberty Hyde Bailey's *The Holy Earth*:

"So BOUNTIFUL hath been the earth and so securely have we drawn from it our substance, that we have taken it all for granted as if it were only a gift, and with little care or conscious thought of the consequences of our use of it; nor have we very much considered the essential relation that we bear to it as living parts in the vast creation. - - - Most of our difficulty with the earth lies in the effort to do what perhaps ought not to be done. Not even all the land is fit to be farmed. A good part of agriculture is to learn how to adapt one's work to nature, to fit the crop-scheme to the climate and to the soil and the facilities. To live in right relation with his natural conditions is one of the first lessons that a wise farmer or any other wise man learns. We are at pains to stress the importance of conduct; very well: conduct toward the earth is an essential part of it."