



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

PROCEEDINGS
OF THE
SECOND INTERNATIONAL CONFERENCE
OF
AGRICULTURAL ECONOMISTS

HELD AT
CORNELL UNIVERSITY,
ITHACA; NEW YORK,
AUGUST 18 TO AUGUST 29, 1930

The Collegiate Press
GEORGE BANTA PUBLISHING COMPANY
MENASHA, WISCONSIN

1930

Indexed

3 cards

Agricultural policies

till

OBJECTIVES AND METHODS IN THE LOCAL
DEFINITION OF THE EXTENSIVE
MARGIN IN AGRICULTURE

L. C. GRAY

BUREAU OF AGRICULTURAL ECONOMICS, WASHINGTON, D.C.

THE answer to the question as to what lands are suitable for agricultural occupancy has been left hitherto largely to private initiative, not only in the United States, but in most other countries of the world. In the older European countries where agricultural expansion is negligible and land utilization has been worked out on the basis of centuries of experience, the question is not especially vital. Again, the importance of attempting to define the agricultural margin is perhaps more apparent in the United States than in younger countries, such as Canada, Australia, and Argentina, where need for expansion and growth appears to justify giving more or less free play to the individualistic impulses that motivate expansion. Even in such countries, however, a definition of the agricultural margin would aid in avoiding the heavy penalties which we in the United States have incurred by reason of our *laissez faire* attitude toward land utilization.

In this country, there has been some indirect public influence on the course of land utilization through reservations of public land, and a relatively small amount of acquisition of lands, mainly for public forests and parks. A certain amount of necessary land classification has occurred under such legislation as the Desert Homestead Act, the Timber and Stone Act, the Forest Homestead Act, and particularly the Grazing Homestead Act, which specifically excludes from occupancy, lands suitable for cropping, and lands incapable of maintaining a family on 640 acres from the proceeds of grazing only. These policies, however, have applied to public lands.

The definition of the margin discussed in this paper is of significance mainly in regard to lands in private ownership, which in this country now include practically all that are suitable for farming, interspersed with large areas economically unsuited for that purpose. While a few states have attempted to influence the course of settlement by supplying prospective settlers with helpful information, passing "blue-sky" laws, or regulating real estate practices, on the whole there has been but little public activity that

has notably affected in practice the location of the agricultural margin on lands in private ownership.

What are the considerations of public interest that appear to justify so extreme a departure from established policies and points of view as would be involved in an attempt to define and determine the location of the agricultural margin and to influence the course of utilization accordingly, as distinguished from leaving it to the free play of individual initiative?

The first consideration is that private initiative in the selection of land, especially in a relatively new country, results in a very large aggregate of uneconomical land utilization. Even for the expert, equipped with a special knowledge of soils, climate, and other physical conditions, the physical and economic requirements of crops and livestock, facilities of transport and markets, and the long-time outlook for prices and costs, the problem of determining what lands are economically adapted to utilization for farming is one of great difficulty. For the new settler the problem is frequently complicated, not only by a large degree of ignorance on such points, but also by the psychological pressure exerted by land-selling agencies. The continued occupancy of land submarginal for agriculture is frequently prolonged by reason of the persistence of non-commercial standards of living, especially in mountain regions; by low racial standards, as among southern negro tenants; or by economic and psychological inertia.

The occupancy and utilization of land for agriculture resulting from these mistakes are matters of public concern for many reasons. They represent a low efficiency in the employment of human resources and capital, leading in many cases to unwholesome conditions of living, the frustration and disappointment of numerous families, and an aggravation of agrarian discontent. They involve an uneconomic use of natural resources that might be more effectively employed for other purposes. The utilization of lands submarginal for agriculture contributes to the agricultural surplus and magnifies the difficulty of estimating prospective increases in production through new expansion. The vagueness of public opinion with reference to what lands are best adapted to private or to public reforestation tends to delay adequate provision for meeting our future needs for timber or providing for the recreational, scenic, and other advantages that are incident to the utilization of land for forests. The sparse and sometimes transitory

occupancy of land economically unsuited to farming imposes on the public unnecessary burdens for maintaining local utilities, such as schools, roads, telephone and electric power lines. Vagueness as to the future use of land complicates the development of long-time programs for the development of such utilities.

The reasons that might be regarded as justifying public agencies in undertaking to define the agricultural margin have been given vastly greater emphasis as a result of the abnormal conditions affecting American agriculture during the past decade. These abnormal conditions have disturbed to an extreme degree, the established modes of land utilization and have caused large areas to fall below the margin of profitable cultivation. A special monograph would be necessary to present adequately these far-reaching dislocations. I can only touch upon them briefly.

First, here as in other countries of the world, agriculture in the older regions has been profoundly affected by the expansion into semi-arid regions, made possible by new technical developments, which has continued persistently in spite of a decade of depression.

In the United States the effect of this new competition has been seconded by a steady progress in technique, resulting not only in great economies in the use of human labor but also in a larger product per unit of crop land due to increased efficiency in cropping and greater economies in utilizing feed and forage in livestock production. On the other hand, there have been certain changes in consumption that have tended to economize in per capita land requirements—notably the saving in feed of horses through substituting tractors, increased per capita consumption of sugar at the expense of the cereals, a decrease in the per capita consumption of mutton and lamb over the past decade, and recently of beef, offset in part by an increased per capita consumption of milk and pork. Until the decline in beef consumption began two or three years ago, the net result of the above changes since the years just preceding the World War did not alter materially the per capita land requirements, but they did involve the necessity for material changes in the scope and character of agriculture in particular regions.

The expansion in semi-arid regions together with the slowness of contraction in areas where agriculture has become unprofitable, and the changes in efficiency in the use of land already mentioned, have caused agriculture not only to become unprofitable over wide

areas but to yield less in the areas where it is expanding than the special advantages of the new areas appear to justify.

Another circumstance that is profoundly affecting American agriculture is the spread of pecuniary standards of consumption and urban standards of wages into areas long accustomed to frontier methods of existence, notably in mountain and other backwoods regions. Many of our older agricultural regions find themselves handicapped in meeting the new conditions of competition on account of impaired soil fertility or the disappearance of timber resources which formerly supplemented the other sources of farm income.

While extensive areas have fallen below the margin of profitable agriculture or have become newly conscious of their submarginality, the nation is confronted with a serious prospective shortage of timber a few decades hence.

OBJECTIVES IN ACTION BASED ON DEFINITION AND DETERMINATION OF THE AGRICULTURAL MARGIN

Recognizing, then, a public interest in the definition of the agricultural margin, what advantageous lines of public action would be made possible as a result of the definition of the margin in particular localities?

The most positive form of action would consist in the public acquisition of lands considered submarginal for agriculture, whether now operated or not operated. Such a proposal is sometimes urged on the basis of the need for increasing the national supply of growing timber. It should be clear, however, that this aim alone is not sufficient justification. Enormous areas of submarginal land are incapable of growing trees. In wooded regions the acquisition of occupied farms is an expensive method of acquiring land for reforestation, and scarcely justified when extensive areas of cut-over land can be purchased in large tracts at far less cost than would be involved in purchasing an equivalent area consisting of small farms, even though essentially submarginal.

Except as a means of consolidating and rounding out a forest area by eliminating a few interspersed farms, the public acquisition of submarginal farms by purchase would have to be justified, if at all, largely as an agricultural, rather than as a forestry, policy. The public acquisition of submarginal farms has been proposed as a method of dealing with the so-called "surplus" problem; but

in view of the international scope of the market for important farm crops, it would probably prove a futile, as well as an extremely costly attempt at a solution. In wooded regions, particularly, where the amount of crop land is frequently a small proportion of the entire farm area, it would be necessary to acquire a large acreage to eliminate a relatively small acreage of crop land. Thus, in two West Virginia counties the land we have classified as submarginal for farming and which is likely during the next twenty years to be allowed to grow up to timber, will increase the existing forest area of the two counties by less than 5 per cent.

It appears probable, then, that public acquisition of submarginal farms by purchase must be justified only incidentally as a means of reducing the surplus and of adding in some regions to the area available for reforestation, but rather must it be justified to a large extent on specific local benefits, such as reducing public expenditures for roads, schools, mail delivery, and telephones. Another social benefit arises through eliminating poverty areas and areas where the community life lacks compactness and coherence, and preventing the prolongation of these conditions by the re-sale of submarginal farms to unwary purchasers. Incidentally, in some submarginal regions, large areas are coming back to the states by reason of tax delinquency, and the purchase of a certain amount of land would be economical merely to consolidate public holdings. An important need is to modify the established policy of redistributing tax delinquent lands, by creating a definite recognition that they are frequently submarginal for agriculture and should not be again disposed of to prospective farmers.

A second line of action following the definition of the agricultural margin, would be the development of an energetic extension program to acquaint the public with the facts. The adequate presentation of the fact of submarginality, frequently not consciously recognized by the occupants, may be found a potent method of stimulating abandonment, preventing the tragic mistakes made by new settlers in selecting land, and elevating the level of real estate practice.

A third form of action would consist in promoting agricultural reorganization of those areas which are submarginal under present systems of organization, but which might be economical under an extensive scheme of reorganization.

Fourth, as already suggested, there should ensue the reformulation of plans for local utilities, in line with the revised outlook for land utilization.

THEORETICAL CRITERIA IN THE DEFINITION OF THE AGRICULTURAL MARGIN CONSIDERED FROM THE STANDPOINT OF PUBLIC POLICY

What criteria determine the extensive agricultural margin? The classical definition, namely, the land where returns tend to equal expenses, is an explanation of what the self-interest of the individual should lead him to do in occupying land for agricultural use. From being an explanation of what the individual should do it is often employed to indicate what he will do.

But even if it were a reasonably correct interpretation of what occurs in practice (and it is not) it does not follow that such a margin would coincide with the line which, in the interest of public policy, should be drawn between lands to be used for agriculture and lands to be used for other purposes. A margin to serve as an explanation of individual conduct may be quite different from a line which subserves the interests of public policy. I have already referred to the difficulties encountered by the individual in determining what land it will pay to use, the numerous mistakes that result, and the tendency for these mistakes to be multiplied through the influence of high-pressure real estate salesmanship. In practice, wage levels and costs of capital are widely different for long periods as between various regions. In mountain and other regions, as Richard Jones brought out just a century ago in his discussion of peasant rents, a rural economy largely non-commercial frequently prevails, giving rise to the utilization of lands that would be considered below the margin in a system of commercial agriculture. As Marshall and others have pointed out, the speculative interest frequently causes the occupation and utilization of lands below the margin. Moreover, after occupancy has been established, even by commercial farmers, both economic and psychological inertia delay removal; for, until improvements wear out, until other alternatives are found, and until hardship creates a willingness to break established social connections, people cling to land even though it is submarginal. Furthermore, many people are carrying on a certain amount of farming on poor land in connection with other occupations, such as mining, lumbering,

or urban employments, making a reasonably good living out of the combination. Finally, there are submarginal people who, by reason of age or infirmities, may be able to exist, frequently by the aid of pensions or contributions from relatives, more cheaply and securely on poor but cheap land than they could live in commercial areas of high priced land.

In the formulation of a public policy of land utilization for a given area, many of these special conditions must be taken into account. Such a policy should not adhere rigidly to a single formula as a basis for designating lands as non-agricultural.

It is probably well, however, to apply a formula as a starting point, and the formula should be one which assumes the point of view of a commercial agriculture. Stated briefly and abstractly, it would be well to determine whether the particular classes of land under consideration can be expected to yield a return equivalent to what the requisite labor and capital can command in alternative employments and leave enough for the land to equal at least what it would earn in the next most advantageous use, say grazing or timber growing.

I need not elaborate at this time the difficulties in applying such a formula which will occur to all of you. One must first face the problem of determining what the land can earn in the most advantageous agricultural uses. This implies not merely ascertaining the probable returns under existing uses, which may not involve the methods or systems of organization that would be most advantageous, but also implies attempting to determine what methods of agricultural organization and practice would be best adapted to the conditions of the area. In such an undertaking, one must take the risks of unpredictable changes in technical methods, prices, and costs. One must decide also, how far he will go in including income from outside employments which may be justifiable, at least in the case of activities which are economically complementary and supplementary to the labors of the farm. There is another set of difficulties in determining what net return the land would earn under alternative uses, such as forestry or grazing, and still another group of problems in deciding what alternative returns for the labor and capital employed should be used as criteria in measuring the adequacy of the returns from the agricultural use of the land. In the case of wages, for instance, what occupations should we select and in what localities? Shall we adopt the interest

rate on first mortgages prevailing in the region as a criterion of the cost of capital or the more favorable rates of other areas?

These difficulties and others that might be enumerated are formidable, but many of them need be encountered only in the case of types of land falling within the twilight zone of uncertainty. For large areas the utilization possibilities are likely to be obvious. A large porportion will be clearly non-agricultural, and the problem will be merely one of determining whether it should be employed for extensive grazing or for forests, and in the latter case, whether by private or by public enterprise. Much other land will be readily recognized as clearly agricultural. In the initial stages of his inquiry the investigator will accomplish much by determining and mapping these fairly obvious distinctions.

As already indicated, the application of the above formula in defining the margin of agricultural utilization will comprise merely a point of departure in the development of public policy. In some cases, for instance, it will be well to eliminate from farming certain classes of land which are clearly supermarginal. I have in mind a type of soil in the counties included in our West Virginia studies. It is capable of a good return per acre, but it is scattered in small tracts in the midst of extensive areas of submarginal land. It is difficult to find enough in one tract to make up a farm of adequate size, and it is clearly uneconomical to maintain schools and roads for such widely scattered farm units. It will frequently be found wise to encourage the continued occupancy of land otherwise submarginal, so long as existing improvements are capable of use. Again, it might be an unwise policy to encourage the evacuation of a submarginal area occupied by a population that is reasonably contented. The interpenetration of modern standards of living and of wages is likely soon enough to disturb the existing stability. One would hesitate to displace an old or infirm occupant who can exist better where he is than elsewhere, unless perchance his removal may appear essential to the larger aims of public policy. In general, a program of encouraging farm abandonment should be justified only by fairly definite prospects that the people can make a better living in a more wholesome environment elsewhere, either as farmers in other localities, or in other occupations.

TYPES OF RESEARCH INVOLVED IN DEFINING THE MARGIN

The interest in attaining a better understanding as to the present and prospective location of the agricultural margin gives rise to a number of different kinds of projects varying greatly in the scope of their respective objectives.

1. For certain purposes it is desirable to know merely whether expansion or contraction is likely to be justified for the nation as a whole, and approximately how much, without attempting to determine in what regions or on what classes of land it is likely to occur. Such a generalized statistical outlook throws light on such questions as the desirability of further land reclamation, and other policies, private or public, involving expansion or contraction in the farming area. In the Division of Land Economics we have made some attempts at this kind of long-time forecasting, considering such items as population trends, modifications in consumption, improvements in production, and trends in imports and exports as they appear to affect the land requirements of the nation. There are many obscure elements in such an undertaking. For instance, we are woefully ignorant as to the probable magnitude of the expansion likely to occur in the next decade in countries having large undeveloped areas of semi-arid land.

2. Related to the above, but somewhat more specific, is the attempt to determine the prospective expansion over a period of years for particular crops and kinds of livestock.

3. A third type of project of a general character is to take note of the geographic tendencies in expansion—for agriculture as a whole, and for particular enterprises. It is fruitful to note current changes, but it would be far more fruitful if we could undertake to determine, for instance, the probable magnitude of the prospective expansion of wheat or cotton in the western Great Plains; is it likely to be 2,000,000 acres or 20,000,000 acres? Even rough estimates, though not involving detailed land classification, would be of great assistance to those responsible for the formulation of agricultural policies.

4. A somewhat similar class of project is involved in estimating statistically the area of potential agricultural, forest, and grazing land in the United States and various subdivisions thereof, basing the estimates largely on a study of the relationship of census tabulations by townships to available maps and descriptive data with reference to geology, topography, soils, and rainfall.

5. All of these more extensive types of studies provide a helpful background for the intensive definition and localization of the agricultural margin.

METHODS IN THE LOCALIZATION OF THE MARGIN

Time will permit only a rough itemization of a number of the steps in such a project, some of which will be synchronous and others successive.

1. An inventory of the physical conditions is a prerequisite, including a study of the various conditions in their interrelationships.

2. A study of significant facts, made available by scientific research or local experience, as to the characteristics of specific soil types, their adaptability to various uses, and their peculiarities affecting use under existing conditions of rainfall, temperature, and topography.

3. A mapping of roads, railway lines, centers of population, and other elements of the culture.

4. A mapping of present uses of land as related to physical conditions and culture of the area. This will include a mapping of forest cover and, in the case of extensive range areas, of types of forage.

5. A division of the area into significant land-character units for purposes of further study, such units representing complexes of associated physical and cultural conditions which appear to give rise to important distinctions in methods of utilization.

6. A historical study of the changes in utilization in such land-character units. Since such units do not usually correspond with customary units of census tabulation, it will be necessary to reconstruct the recent history of the respective land-character units in various ways, including a regrouping and retabulation of census schedules, studies of assessors' reports and tax lists, inquiry as to the recent history of individual farms and forest tracts. Such a historical analysis is likely to reveal a number of significant, though possibly not conclusive, indices as to the prospective utilization of particular land-character units, as, for instance, tendencies with respect to tax delinquency and gradual or sudden abandonment of the land, consolidations or subdivisions of farms, activity in the making of improvements or the lack of it, and so forth.

7. A further step will be an analysis of current or recent economic experience in the utilization of the different land-character

units. Obviously, the methods of analysis will depend on whether the predominant use is for farms, forest, or range grazing.

In the case of farming, much of the data included in the ordinary farm management survey will be found serviceable, including quantities produced, gross receipts classified by source, family consumption of farm products, the usual inventories and lists of expenses. Particular consideration must be given to determine how representative the figures for the particular year are of normal experience. This will involve attention to yields and expenses over a period of years. Data should be obtained on amounts and sources of outside income. The economic history of the occupant of the farm, and particularly his financial progress or lack of progress on his farm, will furnish significant indications.

In the analysis of these data, it will be helpful to undertake a series of residual imputations of income to each of the three factors, land, labor, and capital, based on assumptions as to the opportunity cost of each of the other factors. While such approximations are subject to all the limitations of the assumptions themselves, they are of assistance in appraising the economic results of the existing method of utilizing each land-character unit.

It is also important not to form judgments based too largely on averages. It is possible that a half dozen persons out of fifty in a given land-character unit may have effected an adjustment which permits a reasonable measure of prosperity, although the other forty-four exhibit indications of economic deterioration. Exceptional cases may indicate successful methods of organization and practice capable of being followed by the ordinary run of farmers or on the contrary, merely the inexplicable combination of individual ability, special advantages, and good fortune, which the ordinary man can scarcely hope to duplicate.

8. The above procedure is predicated on the assumption that each land-character unit contains one or more farms. This is the case in some regions, as, for instance, in the areas studied in West Virginia. On the other hand, it sometimes happens that the individual farm contains a number of land-character units in various combinations and proportions. In such a case total gross and net income alone become less significant indices. It may be found desirable to analyze each farm into its land-character units to determine the inputs and outputs, and finally, to correlate the net returns by land-character units with net income from the farm

as a whole, in order to determine what combinations of land-character units, if any, promise to be effectual in yielding a super-marginal income.

9. I have already indicated the importance of adopting a criterion of marginality in income under conditions of commercial farming. Thus far we have not gone farther in this direction than to average the net incomes earned by tenant farmers in various parts of the United States believed to be capable of maintaining a permanent agriculture.

10. Before reaching conclusions, the investigator will take into account the general long-time outlook for the important crops of the region of study, new technical developments and any other predictable developments that may affect his conclusions.

Since this discussion is devoted to the definition of the agricultural margin, I shall not undertake to outline the methods of analyzing the probable economic results of utilization for forests or for range grazing, which are frequently essential elements in a land utilization project. Lack of time forces me also to ignore the discussion of the information necessary to the consideration of readjustments of public policy in relation to tendencies in land utilization. Such information will comprise data on the institutions and public facilities of the area and various significant sociological facts necessary to the formulation of well considered judgments concerning public policy.

The various processes outlined will be given different emphasis in some regions than in others. In some regions the available inventories of physical data are more adequate than in others. At best we must rely on indications rather than on absolute judgments, and our present problem is to determine what is a reasonably safe minimum in the accumulation of indices of the location of the agricultural margin.