

LAND UTILIZATION IN THE ILLINOIS RIVER BASIN

BY

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The Illinois River system serves as an outlet for an entire area of 26 Illinois counties containing nearly nine million (8,747,520) acres, and for parts of 27 additional counties. In those 27 counties more than 6½ million (6,695,680) acres are estimated to be drained by Illinois River and its tributaries. The 15½ million acres in the 53 counties of Illinois which send their water to Illinois River constitute all but 14 per cent of the total area drained by this river and its tributaries. Nine counties in Indiana and four in Wisconsin also contribute, the former through the Kankakee and Iroquois, the latter through the Fox and Des Plaines rivers. The total area drained through the Illinois River system is equal to 50 per cent of the 35,867,520 acres of land in Illinois. Illinois River drains 43 per cent of the State and the area in all counties drained entirely by the Illinois River system is 25 per cent of the State.

Nine main tributaries empty directly into Illinois River. These are the Kankakee, Des Plaines, Fox, Vermilion, Mackinaw, Sangamon, and Spoon rivers and Crooked and Macoupin creeks each of which drains more than a half million acres. Two of them, in their turn, have large tributaries—the Kankakee has the Iroquois River, and the Sangamon has its South Fork and Salt Creek. Counting these tributaries the Kankakee and Sangamon each drain more than 3¼ million acres.

In addition to the nine main streams feeding directly into the Illinois there are many small ones. The amount of land served by this immediate drainage is 7,055 square miles, which is nearly one-third of the Illinois area served by the river.

With this background, we may turn toward some of the questions of land utilization in the watershed of Illinois River with its outreach into the heart of one of the nation's most important agricultural regions. According to computations based on the 1930 census figures which have become available for the first time within the past ten days, the 26 counties dependent entirely upon Illinois River drainage had 95.4 per cent of their land area in farms. It would be difficult to find a more complete utilization of land in agriculture than in some of these counties.

Using as our basis all land in farms, it appears that 73.5 per cent of it was crop land in 1929, 22.2 per cent pasture land, 1.1 per cent woodland not pasture, and 3.2 per cent all other farm land. Taking the 6 million (6,155,190) acres of crop land by itself, 94.3 per cent was harvested in 1929, 2.8 per cent had crop failure, and 2.9 per cent was idle. For so large an area as a whole, less idle or failure land could hardly be expected in that year of considerable overflow.

The 1929 ratios of crop land which were classified as failure and idle land were larger in the lowland counties. Counties in which more than 5 per cent of the crop land was classified as having crop failure that year were as follows: Cass, 8.1; Logan, 7.5; Schuyler, 6.9; Mason, 6.3; Fulton, 5.4; and Menard, 5.0 per cent. Idle crop land was similarly prominent in Green, 10.6; Scott, 8.3; Cass, 7.2; Schuyler, 6.5; Brown, 5.8; and McDonough, 5.5 per cent. When both types are added together, Cass with 15.3; Greene, 14.6; Schuyler, 13.4; and Scott, 11.9 per cent take the lead.

Taking the nearly two million (1,843,761) acres of pasture land by itself, 45.5 per cent was plowable, 33.7 per cent was woodland, and 20.8 per cent was neither woodland nor plowable. Of the 7½ million (7,524,726) acres of pasture in Illinois as a whole, 55.5 per cent was plowable, 26.5 per cent was woodland, and 18.0 per cent was other pasture land. Woodland occupied a larger relative place in the 26 counties than in the rest of the state, this being due in considerable measure to the fact that land broken by streams normally carries a larger proportion of woodland.

For the period 1925 to 1930, the trends in land use in the 26 counties may be summarized as follows:

Area of all land in farms increased 2.0 per cent in the basin and decreased 0.1 per cent in the state as a whole.

Harvested crop land decreased 0.2 per cent in the basin and 4.4 per cent in the state.

Crop failure land increased in both basin and state, 6.0 and 13.0 per cent, respectively.

The same was true of idle land, but increases were much more marked, being more than 340 per cent in the basin and nearly 70 per cent in the state.

Woods pasture was increased 3.0 and 5.0 per cent, respectively, in both basin and state; plowable pasture increased in the basin 3.5 per cent but decreased 0.2 per cent in the state; other pasture increased 7.0 per cent in the basin and 10 per cent in the state. The fact that this permanent pasture on non-tillable land increased in the basin more markedly than did both plowable and woodland pasture, and that all

pasture increased 4 per cent in those counties is all the more significant when viewed in the light of reduced acreage of land in harvested crops. It is only as the increased area of crop failure and idle crop land is included that it is possible to say that the area of crop land was increased in the basin.

This comparative stability in the utilization of the land in the parts of Illinois referred to may be somewhat surprising in the light of the subsidence of land valuations. In 1930 the estimated value of the average acre of farm land, excluding buildings, in the 26 counties was less than that of 1920 by 46 per cent. In the state as a whole the decline was nearly 50 per cent. Almost exactly half of it occurred between 1925 and 1930.

This decline was not confined to any part of the basin territory. Only one county, DuPage, failed to show a decrease. Counties of lowest valuations in 1920, such as Brown, Greene, Schuyler, Mason, Scott, Cass, and Fulton, had rates of decrease somewhat smaller than counties having high valuations in 1920. The decreases in counties such as McLean, Livingston, DeWitt, Woodford, Logan, and LaSalle, ranged from \$145 to \$182 per acre. Decreases in lowland counties were about \$100 less per acre. This was probably a result of a tendency for the upland counties to be vastly overvalued in 1920, a condition which applied to limited portions of the lowland counties, also. The land especially suited to corn and wheat, whether in the reclaimed areas or in the uplands, was outstandingly overvalued in 1920. Township figures on Illinois farm land valuations have been published for 1920 for only the counties near Chicago, but figures for 1930 will shortly be available for the entire state. Although no such comparisons with 1920 figures will probably be available for most of the 26 counties included here, there is little doubt that shrinkages in valuation in drainage townships have in many cases been very severe.

The valuation of buildings on the farms of the 26 counties, as in the state as a whole, held their own from 1920 to 1930. In 1930, for the first time we are able to know the valuation of farm dwellings apart from the barns and other buildings. Farm dwellings averaged \$2,185.50 per farm in the 26 counties, an amount larger by \$391.30, or 18 per cent, than in the state as a whole. In general, the other buildings had a valuation as large or slightly larger than that of the dwellings.

It has been suggested that the valuation of farm real estate had much to do with the proportion of farm land that found its way into tenant operation. Farm tenants were found operating a larger proportion of the farms where acre valuations were high and this is the present situation to a considerable degree. The percentage of farms oper-

ated by tenants in the 26 counties in 1930 ranged from 36 in Brown to 67 in Grundy. In 14 of the counties more than 50 per cent of the farms were tenant operated. In four of them, Grundy, Logan, Livingston and McLean, the percentage exceeded 60. Outside of the United Kingdom there is probably no other equally large area in which, in the absence of differences in race or cast, such large proportions of the farm real estate are in tenant hands. It is precisely in the counties of most valuable real estate that tenant operations have reached largest prominence.

The decline in land valuations has not brought a decline in prominence of tenancy. In fact, decline in proportion of farms rented, from 1920 to 1930, was found only in Fulton, Mason, Peoria, Morgan, and Livingston counties. The largest change was less than 2 percentage points in any of these five counties. The 21 counties showing increase in tenancy also showed relatively small changes in most instances.

Information as to land mortgage indebtedness on farms is not yet available from the 1930 census, but it is probable that a larger proportion of owner farmers have mortgages and that the ratio of mortgage debt to real estate valuation is higher than at previous census dates.

Land tax delinquency for 1929 has been ascertained in 10 of the 26 counties. The amount of taxes on land sold in 1930 for 1929 general taxes ranged from \$1,484.58 in Menard County to \$42,428.19 in Schuyler, the total being \$104,851. This was 81 per cent more than the corresponding figures of three years before.

The land in drainage enterprises comes in for special attention in any study of land utilization in watersheds. The 1930 census includes information for 22 of the 26 counties in a form comparable to that collected in 1920. The acreage reported in 1930 was 994,327, an increase of nearly 30 per cent over the 771,312 acres reported in 1920. This is a rate of increase slightly in excess of that shown for the state as a whole. It indicates little in the opinion of the writer, inasmuch as the more accurate survey of 1928 made by Professor G. W. Pickels and associates at the University of Illinois, showed 10 per cent more land in active drainage enterprises than even the 1930 census shows.

The fact that only one-fifth of the drainage district land of the state is in the 26 counties may seem strange. One of the counties which drains partly into the Sangamon, namely Champaign county, has nearly half as much acreage in drainage districts as the entire 26 counties.

In the case of the land served by both drainage ditches and dikes, or levees, the situation is more critical. Testifying before the Committee on Irrigation and Reclamation, U. S. House of Representatives, in April, 1930, there were few officials of state associations of drainage

and levee districts who painted a more dismal picture than did President J. P. Kerr, of Illinois. He pointed out that:

"In the first place agriculture has not been a paying business. This has been especially burdensome on drainage district farms. * * * Since 1920 until the present year, there have been storms and floods, wet seasons on such a scale and to such an extent never before equalled in the history of the state. * * * These flood conditions, as they have continued year after year during the last decade, have greatly weakened, and in many cases destroyed, original levee works, and have caused a vast acreage of land inside levee districts to be unproductive because of water-soaked soils.

"In years past drainage bonds sold at a premium and promptly. Today such bonds will not sell at all, or only in very rare cases, where they will sell at a high rate of interest."

The distinction between upland drainage districts and lowland drainage districts becomes important at this point.

The capital invested in drainage enterprises, as reported by the census of 1920 was \$43,595,069. In 1930 the aggregate is given as \$74,333,065. The average per acre was about \$11 in 1920 and nearly \$15 in 1930. In upland counties such as Champaign or Ford the capital invested per acre has been below these averages. In some of the lowland counties, however, the amounts run several times as high. In Peoria county, for example, 6,446 acres in drainage enterprises were credited with a capital investment of \$484,935. Where the reclamation outlay has been so large, it is only in the rarest instances that carrying charges have been easily met.

Data supplied in tabular form to Congressional committees last year may be summarized as follows for the 15 drainage and land districts included along Illinois River from Hennepin to Grafton:

Number of land owners.....	1,164
Acres in districts	99,319
Acres in cultivation	94,936
Acres cleared, not cultivated in 1930.....	1,775
Assessed valuation	\$3,872,174.00
State and county taxes, 1930.....	\$82,793.80
Drainage taxes, 1930	\$331,340.24
All other taxes, 1930	\$35,000.00
Acres delinquent, 1930	5,529
Drainage bonds outstanding	\$2,437,164.87

Of the land in the Illinois Valley levee and drainage districts included here, 95 per cent was in cultivation. In 20 other districts for which information was given in the House hearings, only about 20 per cent was in cultivation. Even so \$4.50 an acre taxes on land producing staple farm products has been an enormous load in periods of low prices and high costs.

It is evident that these lowland drainage districts represent for the most part investments which reflect agricultural hopes of the period before 1920 rather than realizations of the period since. A post-war land utilization reversal has struck many of these enterprises a staggering blow.

Suggestions that a cleaned river will mean the reappearance of new uses for the flood plain areas are all about us. Will restored lakes in some cases afford the quiet waters needed by young fish when inland fisheries again become prominent on Illinois River? Will recreational uses, private, commercial, and public, take in some of this area to the relief of the drainage farmers? Will a rewriting of the bonded indebtedness on a basis of slower amortization and a tempered interest rate help to stabilize the situation for existing owners and operators of drainage land?

Whatever the answers to these questions may be, five points seem to the writer to be worth the serious attention of our students of theoretical and applied economics.

(1) The river drainage basin as a differential area in land utilization studies, although less significant in the heart of the corn belt than in many other regions, may, nevertheless, be recognized as having an economic as well as legal unity, the importance of which is to be noted especially when the dominant upland portions of the basin throw their run-off upon the servient lowland portions with exceptionally widespread damage in flood-plains of the river itself and of its principal tributaries.

(2) The economic relation of dominant to servient areas presents more acute problems in the valleys of the Mississippi and its tributaries, most of them notably muddy rivers, than in the valleys of the clear rivers of England, with respect to which the common law conceptions which we inherited were developed. With our more spasmodic climate, with flat areas provided with tile and ditch drainage, and with the removal of forest and other cover which might delay the run-off of rain and melted snow, the servient areas are called upon to aid the dominant areas in a degree beyond that of earlier years. This relationship holds to some extent in the more outlying watersheds and to an especially marked degree in the downstream areas. It is difficult to base State and Federal participation in the cost of river control upon a formula expressing indisputable equities, but a considerable degree of such participation is ordinarily justified.

(3) Shifts in prices, without corresponding changes in drainage, levee, and general property taxes and in interest charges have placed former overflow land at a comparative disadvantage, so that in utiliza-

tion they can not compete equally with lands having better natural drainage.

(4) Districts overwhelmed by delinquencies might in some cases be taken over advantageously for purposes of general river conservation.

(5) A comprehensive study of the situation in the original floodplain of the Illinois and some of the tributaries to the end that an adequate public policy may be formulated is plainly needed. Data concerning land utilization, land valuations, and some other subjects will shortly be available not merely on the county basis, which only crudely fits the need of the problem, but also on the basis of townships. With 1930 census results analyzed for the 1860 or more minor civil divisions of the state—without expense so far as many of the more important lines of information are concerned—and with additional information as to soils, drainage, and other problems already assembled in the Agricultural and Engineering Experiment Stations, in the State Geological, Natural History, and Water Surveys, the State Departments of Agriculture and Conservation, and elsewhere in the various state institutions and administrative agencies, the informational basis for a replanned use of the troubled lands and water should be laid readily and well. The return of a clean river, with increased flow of water at least in all but flood periods, may open the way for a utilization less wasteful, less competitive with agriculture in the uplands, and better adjusted to the needs of the state.