Appraisal of farm real estate. The previous chapter stressed the theory of land value and difficulties in fixing values. This one has a more practical approach to methods of estimating farm productivity and value as a basis for farm loans, tax assessments, farm ratings in Government programs, land classification, and the purchase, sale, and condemnation of farms. The major techniques involved in two of many methods of appraisal, which may be varied with the purpose, are cited. By William G. Murray, Department of Agricultural Economics and Rural Sociology, Iowa State College, and Joseph Ackerman, managing director, Farm Foundation.

A farm can be appraised in many ways, but the more important methods can all be reduced to two—comparisons of income and sale value.

A physical inventory is the first step in both. It gives a detailed picture of the farm to be appraised.

To clarify the procedure, we list each of the inventory items covered in an actual appraisal. Individual appraisals vary in the emphasis they place on the different items. For example, a description of fruit trees and irrigation works may be required in an orchard area, but not in a Corn Belt farming area.

Legal description is the first step in a systematic appraisal. This identification should be established beyond any doubt by the use of maps and the exact wording of the legal description.

County plat books or similar local maps provide quick reference guides for locating the farm to be appraised with regard to towns, roads, schools, and other local features. The plat book generally shows farm boundaries and the name of the owner at the time the plat map was prepared. If the farm boundaries are not clear—as in instances where fractional tracts or irregular boundaries occur—you can get accurate information from the county office where the official county plats are kept.

Each tract of land has its own legal description, which distinguishes it from all other land. It is the legal description that appears on the deed of transfer. Since this subject is discussed in a later chapter (page 206), we mention here only the special concern of the appraiser.

The two major systems in the United States are metes and bounds on the one hand, and rectangular survey on the other. The appraiser's task in both instances is to make sure that the legal description fits the boundaries of the farm exactly.

A good practice to follow in reading rectangular survey descriptions is to work backward, starting at the end and taking individually each unit separated by the word “and.”

Here, for example, is a legal description: NE 1/4 NE 1/4 NE 1/4 of Section 10 and NW 1/4 and N 1/2 SW 1/4 of Section 11 in Township 23 North, Range 24 West of the 5th Principal Meridian.

It would be handled as follows: The location of township and range and sections would be noted first. In Section 11 the SW 1/4 would be located and
the north one-half of this unit would be outlined as part of the farm. Then the NW 1/4 of Section 11 would be outlined, and so on. The total acreage of this farm should be 250 acres, more or less.

As a test of your ability in this respect, you may want to check this acreage for yourself and at the same time draw the boundaries of the farm.

An appraisal map is a common part of a detailed appraisal. The preparation of this map, which one sketches in roughly as he makes a systematic trip over the entire farm, calls for a ready knowledge of the soils of the area. The objective is to provide a picture of the soils on the farm so that someone who has not seen the farm can visualize it.

The appraisal map should show the area of different soils which vary in their producing ability. For example, if roughly 35 acres are sandy, droughty soil, they should be shown; if 80 acres are highly productive silt loam soil, the areas where this soil occurs should be mapped.

Abbreviations or legends are used commonly in detailed appraisal maps to indicate the name of the soil, its surface soil depth, and the percentage of slope.

Drainage, permanent pasture, orchards, timber, farmstead, and other features of the landscape are included on the appraisal map. In fact, any important physical factor that affects the value of the farm should be noted on the map in order to make the inventory complete and authoritative.

Aerial maps save time in preparing appraisal maps. An aerial map in appropriate scale, usually available at the local ASC office, can be traced to get the major outline of the appraisal map. The details can then be filled in as one systematically walks over and inspects the farm.

A soil auger or spade should be used on this trip to test the depth of the surface soil and the quality of the subsoil. Depth, the third dimension of the land, is frequently overlooked, but it is often the most important factor in determining the productivity and value of a farm.

Estimating soil productivity is the next step. The appraisal map can be used to estimate the number of acres of different kinds of soil. Then the yielding ability of these different soils can be estimated for the major crops grown on that soil. If we are appraising rangeland, the carrying capacity of different types of range can be estimated.

This estimation of productivity is a difficult step, but it is essential because differences in productive capacity provide the main basis for determining the final appraisal values. Information as to yield by counties and for different types of soil is becoming more readily available. Soil survey publications of the Department of Agriculture and the State agricultural experiment stations are invaluable.

The appraiser must be able to recognize differences in productive characteristics. In the cotton territory, he has to be able to identify high, medium, and low cotton-producing land; in the Corn Belt, high, medium, and low corn-producing land; and in range areas, high, medium, and low carrying-capacity range. The use of benchmark yields for certain soils and constant observation and comparisons with reported yields help one to acquire this ability.

CROPPING SYSTEM AND MANAGEMENT can be estimated with the information available on soil productivity. For general farming areas, this step calls for an average rotation with estimated crop yields. Estimates in range areas would be made on total carrying capacity of the ranch. The likely production would be estimated on an annual basis in areas that produce fruit and vegetables.

A danger in this procedure is failure to make proper allowance for management and the use of fertilizer. A poor soil may produce well in the hands of a top operator who uses ample fertilizer. An excellent soil may produce low yields in the hands of an inept
A rod is $16\frac{1}{2}$ feet.
A chain is 66 feet or 4 rods.
A mile is 320 rods, 80 chains or 5,280 feet.
A square rod is $272\frac{1}{4}$ square feet.
An acre contains 43,560 square feet.
An acre contains 160 square rods.
An acre is about $208\frac{3}{4}$ feet square.
An acre is 8 rods wide by 20 rods long, or any two numbers (of rods) whose product is 160.
50 x 150 feet equals .1722 of an acre

A section of land—640 acres.

Buildings, including both the dwelling and all other farm buildings and improvements attached to the land, have to be inventoried in a detailed appraisal. We include only buildings attached to the land with a foundation or other means that make them part of the farm real estate.

At this stage we are interested only in the physical aspect of the buildings—not their dollar value. We are concerned with measurements and a description of their condition, capacity, adaptability, and arrangement.

Just as we inventoried the soil to determine what it could produce, so also we want to estimate what the buildings will contribute. We want to know, for example, how much grain storage is available on a grain-producing farm and the condition of the storage facilities. In this inventory, buildings should be studied from the standpoint of their usefulness. What is the present and likely utility of an old horsebarn?
Classification of the farm or of the land by itself completes the physical inventory. In this step we assign to the farm or land a class number or letter that conveys to the reader the kind of a producing unit it is. All of the various physical aspects are summed up in one number or letter in this classifying process. For example, if we have 5 classes, A through E, and the farm we appraise is assigned the letter "B," this denotes a definite quality of physical assets, which will be described in a legend or scale accompanying the classification rating.

The classification process is explained in the chapter on page 362.

The income method can be used for valuation after the physical production estimates for a farm or tract of land have been made. The process of arriving at an income value involves three important steps or techniques. These are estimating gross income, estimating expenses, and capitalizing net income to obtain what is called income value.

Gross income can be estimated under a landlord-tenant situation or under owner operation. Income is estimated by both methods in some appraisals. In localities where renting is not common, the owner-operation method is usually preferred.

The landlord-share method is desirable in places where renting is common.

The landlord-share method has the advantage, other things being equal, because fewer expense items need to be estimated. It also provides a preliminary basis for land valuation, because the rent represents the annual value of the land—that is, the value for the use of the farm for a year. This rental value for a year is a gross figure, from which estimated landlord expenses have to be deducted to arrive at the annual net income value.

Income items that should be considered in a farm appraisal are shown in appraisals of the Federal Land Bank and the Farmers Home Administration.

The Federal Land Bank appraisal gives estimates for both owner operation and landlord-tenant arrangements.

The Farmers Home Administration appraisal contains a detailed estimate of owner-operator income because the loan based on one of these FHA appraisals may represent a large percentage of the farm value and accordingly must be tied closely to the specific income potentialities of the applicant for the loan.

Selection of prices received for farm products is an important and difficult step in the income estimating procedure. The choice of price levels—whether it be 20-cent, 25-cent, or 30-cent cotton, or corn at $1, $1.25, or $1.50 dollars a bushel, for example—sets the general level for income, expenses, and land values. The major requirement in the selection is a clear recognition of what is being done—namely, making an estimate of what is likely to be the price level in the years ahead, with declining emphasis on the years progressively farther in the future.

Some appraisers and appraisal agencies prefer to use an average of some recent period as their estimate of the future, say the past 10, 15, or 20 years. This procedure, applied mechanically, sometimes produces strange results. More common is the selection of price estimates which, although roughly in line with recent price levels, are the best judgment of the appraiser or appraisal agency regarding what is likely to occur in the next few years. The prices used in the Federal Land Bank and Farmers Home Administration appraisals can be noted as an example of this type of estimate.

The American Society of Farm Managers and Rural Appraisers in cooperation with the Doane Agricultural Service since 1950 has issued a series of standard prices which they recommend for use in estimates of income. These standard prices are selected by a committee of appraisers and agricultural economists after reviewing all available information. The committee,
for example, set a corn price of 88 cents a bushel in 1950, 1.04 dollars in 1951, 1.10 dollars in 1952, and 1.15 dollars in 1956. A similar committee in Canada recommends grain prices for use in farm appraisals in Canada.

The estimated prices, once they have been selected, can be applied easily to the expected physical production to obtain the total estimated gross income. This gross income includes all livestock sales as well as crop sales in owner operation.

Expenses are troublesome because they usually are more numerous and their total is higher than would appear at first glance. The first expense item is the total property tax on land and buildings. The actual taxes paid can be obtained directly from courthouse records. A better estimate of future taxes can be made by examining the records for a number of years to determine the trend.

Information should be obtained on school building projects and other plans that may have an important bearing on future property tax levies. Special levies, such as those for drainage ditches, also should be checked at the courthouse or wherever the tax or drainage district records are kept.

Improvements, repairs, maintenance, and depreciation are the next major items of expense. Here the inexperienced appraiser may be lost, because the cost of keeping up and replacing buildings, fences, water systems, tile drains, and other improvements can amount to a sizable figure.

Observation and familiarity with actual expenditures for insurance, building repairs, and the like are helpful in making reliable estimates. Farm management records, which may be available at the State agricultural experiment stations, usually indicate actual amounts spent for repairs and replacements. Figures like these provide good benchmarks for the appraiser.

Other expenses include seed, fertilizer, and such miscellaneous items as management expense on rented farms. Many other important farm operating expenses have to be estimated on owner-operated farms. They include costs of machinery, fuel and oil, feed, livestock, veterinary help, and the like. The appraisal of the Farmers Home Administration is especially helpful in showing the list of expenses of the owner-operator.

When the expenses are all added and the resulting total is subtracted from the gross income, we have the estimated annual net land income of the farm. This net income can be considered as a total for the farm, or the total can be divided by the number of acres to obtain an estimated annual net income per acre—a figure that commonly is used when farms are quoted as worth so many dollars an acre.

Capitalization of the net income is the next step we follow when we want a capitalized value. Not all appraisers or appraisal agencies take this step. Some agencies, like the Federal land banks and the Farmers Home Administration, use estimated annual net income as a check on their appraisal of land value but do not capitalize this net income into value.

The capitalization process is a division of the income estimate by an interest or capitalization rate estimate to obtain a capitalized value. It is indicated by the formula $V = \frac{a}{r}$. If our estimated annual income is 7.50 dollars an acre and our estimated interest or capitalization rate is 5 percent, the resulting value is 150 dollars an acre. An alternative, such as the farm mortgage interest rate or one slightly higher (to reflect the additional risk in the whole farm value), often is used in selecting a capitalization rate.

Another way to explain the capitalization rate is to state the situation in reverse. If farms are currently selling for 150 dollars an acre and the prevailing annual net income per acre is 7.50 dollars, the rate of return is 5 percent.

One of the dangers connected with capitalization, emphasized by critics of the process, is the ease with which estimates in the income, expense, or capitalization rate can be changed slightly.
to obtain the desired capital value. By reducing expenses 50 cents an acre, the value in the foregoing example can be increased 10 dollars an acre or to a total of 160 dollars an acre. If the capitalization rate is raised to 6 percent in the same example, the resulting capitalized value is reduced by 25 dollars, and the total is lowered to 125 dollars. Those who use the capitalization process have to be consistent in their estimates in order to avoid these pitfalls.

Nonincome or intangible features exist on most farms. It is hard to place a value on them because we cannot measure physically the influence of location, highways, schools, churches, distance to town, and similar factors.

Even more difficult to determine are the intangible influences of attractiveness of farm home. Valuation of these features has to be conducted almost entirely by comparisons of sale values.

Comparisons of sale value are basically a method of appraisal in which farms sold recently are analyzed and compared with the farm that is being appraised.

A scale of sale values for farms of different quality is established in the appraiser's mind, and when the quality of the farm in question has been measured, its appropriate sale value is evident from the sale-value scale.

An example: If an average farm in a given community is selling for 200 dollars an acre and if the farm being appraised is considered (after a physical appraisal inspection) to be slightly lower than the average for the community, its appraisal value will be fixed at slightly below the average, or at, say, 190 dollars an acre.

The appraiser's chief problem in using the sales-comparison approach is to obtain reliable sales information. A growing body of useful data is being accumulated in that field. First, on a State and national scale are the index figures issued by the Department of Agriculture for three different dates each year—March 1, July 1, and November 1—in the publication, Current Developments in the Real Estate Market.

A more detailed explanation of these figures is given in the chapter on land valuation, which precedes this one.

The second source of estimates of value is the Bureau of the Census, which issues figures for all States and counties every 10 years and at 5-year intervals in between. The latest was in November 1954. These census-value figures are especially helpful in establishing benchmarks. For example, the county values can be traced from census to census and can be compared with the overall State or national trend. In one State, for example, counties in one area had the same census values in 1950 that they had in 1910, while in another area of the State, where drainage and other improvements had been made, the census values in 1950 were almost three times the 1910 values.

Additional information is available in some States from the State agricultural experiment stations. In Iowa and Minnesota, for example, annual averages are obtained from surveys by real-estate brokers for different parts of the State and for different qualities of land.

Actual sales prices of farms are collected and analyzed in some States, notably Kansas and Nebraska, in connection with assessment-sale ratio studies. In these studies, as with all surveys of actual sales, care should be taken to determine how closely the sales represent an average of the farms in the county. In some instances, the number of poor farms sold is proportionately higher than for better farms in the area. The reverse situation may hold in other instances.

The appraiser's duty is first to collect and analyze the available sales data. With them he can formulate an accurate estimate of sale value for different qualities of land in a given area. In the appraisal of an individual farm he will be able to use nearby actual sales as basic evidence in establishing his estimated sale price of the farm.
A comparison of sale value and appraisal estimates of income value provides evidence on the nonincome or intangible features of a farm. Before making the comparison, the sale values must be adjusted to put them on the same level with the estimates of prices of farm products, or the product-price estimates must be brought in line with the sale values. When these adjustments have been made, the excess of sale value over income value equals the value of the nonincome features. The appraiser can divide this amount and attribute what he thinks is appropriate to such factors as location, attractiveness of buildings, and the like.

Buildings and land we have treated thus far as a unit in the appraisal. This is the proper approach in the main because the farm is usually sold as a unit. But some appraisals, especially tax assessments, call for separate appraisal of land and buildings.

When buildings are valued separately, the cost of replacement less depreciation is usually the method followed to set the top limit on value, with special attention to economic obsolescence or lack of usefulness.

Many farm buildings, such as horsebarns, no longer have much value because of changes in farm production methods. Some buildings, especially grain storage bins and certain livestock buildings, have a definite earning value, and this value shows up in the sale value estimates of the farm. The same is true of dwellings.

An important check of separate land and building values is a comparison of their combined total with the estimated value of the farm as a whole as determined by a sale value and net income appraisal. An appraiser frequently will find that the total of his separate figures for buildings and land amounts to more than his appraisal for the farm as a whole.

The type or purpose of appraisal largely determines the specific form of the appraisal report. The main types are loan, purchase and sale, tax assessment, and condemnation.

Loan appraisals include a great deal of income information, especially on detailed physical inventories of the soil and crop producing features of the land. The purpose of the appraisal is to provide a reliable index of how much income the farm can produce over the period of the loan. This information enables the loan agency to determine the expected yearly income, which in turn indicates the owner’s ability to pay interest and the appropriate size of the loan. Because loans are made for long periods, the emphasis in the appraisal is on long-run estimates of probable net returns, with special notations on such hazards as erosion.

Purchase-and-sale appraisals should include most of the income detail of the loan appraisal, but the main emphasis is on the current sale-price situation. Nonincome features usually receive much more attention than in a loan appraisal. Any special aspects of the surrounding land-value market, such as demand by neighboring farmers for unimproved land to add to their farms, are important. Sometimes it may pay the seller to dispose of his farm in three or four units to competing nearby farm owners rather than to sell his farm as a single unit.

An appraisal for a buyer may involve a special survey of alternative farm purchases in several communities. The appraiser may need to compare the land market in these different communities as well as the quality of the individual farms available to give the buyer an indication of the relative advantages of buying farms in the different communities.

Tax assessments are a special type of mass appraisal in which the major objective is uniformity between individual tracts. The chief problem is not to establish the exact sale price but to place each landownership unit in its proper value relationship to every other unit in the tax district. If one land tract is worth twice as much as a second land tract, the tax assessment of the first
should be twice that of the second. The resulting tax levies in this situation will then be equitable. Too often the tendency has been for assessors to conform too closely to the average—the low-value properties are overassessed and the high-value properties are underassessed.

Condemnation appraisals require strict adherence to legal procedure and correctness because they may become the center of a court battle. The major objective is a value that compensates the owner for the property being taken. In ruling on this difficult term, "compensation," the courts have usually agreed that it means the fair market price—that is, a price that enables the owner to obtain an equivalent place.

If a farm is condemned for an airstrip or highway, the compensation value will be what it would cost the owner to buy an equivalent farm. When only a part of a farm is taken, the compensation should include damages that represent the difference between the value of the present farm and its value after the portion is taken. These damages should include the loss the owner might incur in having his farm reduced in size below that which is the most profitable to operate.

Another problem in condemnation cases is changing price levels for real estate. If the owner whose farm is taken does not immediately purchase another farm, he may find his compensation inadequate to buy an equivalent farm if the price level of farms should rise. The courts cannot help in such situations because the value fixed for compensation is the fair market value at the time of the taking.

The appraiser in preparing any appraisal report, whether it be for a loan, purchase, sale, or condemnation, will want to examine his report carefully; make certain the legal description is accurate; verify soil, crop yield, and production figures, income items, expenses, and sale value information; and check income against sale value.

If the appraisal report is in order in every detail, the appraiser should insert the date of inspecting the farm and certify to the correctness of the information he has included in the appraisal by affixing his signature.

Changes in dollar value of farmland.

percentages, November 1953 to March 1957

Changes based on index numbers of value per acre, including improvements

INCREASE

DECREASE

UNITED STATES INCREASE 15%
United States average value was at post-Korean low in November 1953