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## The Income Approach to the Valuation of a Lee County Iowa Grain Farm

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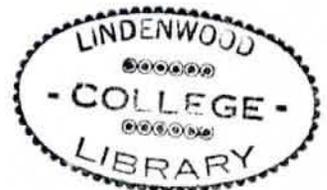
THE INCOME APPROACH TO THE VALUATION OF A LEE COUNTY  
IOWA GRAIN FARM

Steven A. Haage, SRPA, ASA

A Culminating Project Presented to the Faculty of the  
Graduate School of Lindenwood College in Partial Ful-  
fillment of the requirements for the Degree of Master  
of Science

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Valuation Science July 25, 1989

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The Income Approach in the Valuation of a Lee County  
Iowa Grain Farm

INTRODUCTION

The recent downturn in the value of many agricultural properties, and the closing of many rural banks, came the cry of faulty, or defective or imperfect, appraisals from virtually every sector. The questions many have asked were, was the huge losses incurred by many lenders the cause of imperfect appraisers; or perhaps could it have been because of an erroneous appraisal process; or was it, as many appraisers would claim, attributable to forces beyond the control of the appraiser? Unfortunately, I believe that the answer was "Yes" to all the above. Appraisers don't like to admit it, but not all the appraisers are honest or competent. We also all know that some of the blame lies in lenders themselves, along with government policies and changes in the market for farm land and the inputs that go into estimating income. I also believe that there are flaws in the appraisal process in the valuation of agricultural properties. While it would appear that there is enough blame for all the parties to share, I would like to focus in this paper on but a small part of the appraisal process used in valuing agricultural properties, that being the Income Approach. I chose the Income Approach because there

appears to be a perception by buyers, sellers, and lenders that it does not apply in the valuation of agricultural properties.

#### THESIS STATEMENT

Based upon a review of the literature, numerous interviews with lenders, buyers, and sellers; and my experience with valuing farm properties, the thesis of this paper is that the Income Approach can provide an accurate and reliable measurement of the value of a grain farm in Lee County, Iowa. It would also be my view, that when properly applied, the Income Approach can be equally accurate and reliable in other locations as well. I chose a grain farm for study, as opposed to a livestock operation because grain farms are predominant in Lee County.

#### SCOPE OF THE INVESTIGATION

Throughout this paper, I will be using a small data sample, along with supporting data obtained through Iowa State University Extension services. Twenty-three agricultural farm sales that place in 1988 in Lee County. After confirmation with people involved in those sales, I considered 10 sales as being arm's length transactions, for use in this paper. The Dictionary of Real Estate Appraisal, defines an Arm's Length Transaction as, "A transaction derived at by

unrelated parties under no duress." The supporting data obtained from Iowa State University Extension covered the same period as the sales data, and will be considered a stabilizing factor in the analysis used.

#### GRAIN FARM DIFFERENTIATED

A grain farm is differentiated from other types of farms in that the production of grain for sale in the marketplace is the primary source of income. In Iowa, the predominant grains are corn, soybeans, and wheat. Other cash crops may be used in rotation, but are generally of lesser importance.

#### WHY DID THE QUESTION NEED TO BE ANSWERED

From early in my practice, I felt that the Income Approach was not being given very much weight in the valuation process. Most of the appraisals that I saw did not even include an Income Approach. To my amazement, many end users of appraisals would come and say that the approach was not applicable in the valuation of agricultural properties. This sort of ran contrary to my training, since I looked at a farm as a business. After all, did not a business exist to produce income, and was not the value of most businesses based upon the anticipated income that the business could produce? Surely, the income must have some sort of relationship to value.

## HISTORY AND REVIEW OF THE LITERATURE

### THE CYCLICAL USE OF THE INCOME APPROACH

The Income Approach has not always been considered an independent approach to value in agricultural properties. According to early writings, it was used with the other approaches in estimating the value of the land. The use of the Income Approach has been somewhat cyclical, coming in and out of style, based upon the general condition of the agricultural economy. At times the Income Approach was considered important, and at other times, not. Its importance has generally been greater when there was a period of recession or depression in the agricultural industry that resulted in poorer cash flows. The opposite was generally true during periods of prosperity, when farm incomes were high. It is the opinion of this writer that the Income Approach can be an important indication of the value of agricultural properties most of the time.

### EARLY BACKGROUND

The history of farm land values in the United States suggests that during periods of prosperity farm land prices and presumably farm land values advanced rapidly. During depressions, few sales were made, and until the Great Depression started in 1929, there does

not appear to have been any great recession in farmland values in the United States at any time. Accordingly, mortgage companies, insurance companies, Federal Land Banks, and others making loans on farm lands did so upon the assumption that farm lands had increased in value since the settlement of the country and therefore would continue to increase in value. Loans on farm land were made upon this assumption, and in many instances, they were made without proper appraisals of the land on which the loan was based. Even today, many lenders fail to consider the value of the real estate used to secure the loan adequately. If the land was appraised at all, the appraiser often used rules of thumb, and concentrated more on filling out the appraisal form rather than taking the time to soundly investigate and consider all the facts necessary to prepare a defensible value estimate. This practice tended to make the appraisal of farm lands a matter of routine; no appraisal standards had been established, and none had been attempted. This situation ended very quickly when the flood of farm lands came into the possession of the mortgagees with the Great Depression, that started in 1929. A similar situation recurred in the early 1980's, when lenders again made routine appraisals, under the false assumption that land values would always be increasing. Many lenders again

had the feeling that the appraisal report was a document used to satisfy the bank examiners, and not an important underwriting tool.

Very little writing has been found to exist prior to 1916 about farm valuation. D. Howard Doane in 1916 started a study, which attempted to systematize rural appraising. His firm's research led to the creation of a system of making appraisals to be used in making farm loans. The group that located and organized the Federal Farm Loan Banks in 1916 and 1917, indicated that this was the only study that was found to exist in the United States, that appeared to offer facts about the valuation of rural properties. It was the Doane system that was prominent during the period from 1916 to 1932, and even today it dominates the appraisal of rural land in many locations. I can recall that on the first appraisal assignment request that I had to do on a farm property in Lee County, the client referred to the appraisal as a "Doane Appraisal" instead of as a narrative appraisal.

Before the Great Depression, the appraisal of rural agricultural property was considered unsystematic. Hudson Burr, in an article published in 1935 believed that, "rural appraisers were not as well developed as their counterparts in the urban field." He described the appraisals as simply, "a by guess and

by God procedure." He went even farther in describing rural appraisers, "as those who could stand in a field, allow a number of factors, the number of which was not known, to flow through his head, and then in a comparatively short manner of time stop the flow and write down the value of the land and buildings." The appraisers of the day were believed to know what farm values were.

#### REVIEW OF THE APPROACHES

For years, even before the Great Depression, appraisers traditionally used the three approaches to estimating the value of real estate. There was nothing new in the three approaches to value. They had been used, not under the name of the "three approaches" but in principle, from time immemorial, by every competent real estate broker and appraiser, even though many appraisers lack a clear understanding of why there are three approaches. These three approaches are based upon the principle that the buyer has three choices. He may chose to buy similar land and build new comparable improvements (The Cost Approach). He may also choose to purchase an already existing similar property (The Direct Sales Comparison Approach), or to rent a similar property with a similar income stream (The Income Approach). While the appraisal estimates reached by the application of these three approaches

may show a considerable difference in amount during booms or depressions, there may be very little variation, and theoretically perhaps none, during periods of economic stability. If all three approaches to value are used in the appraisal of any particular piece of real estate, the value indicated by the approach that most nearly conforms to all the conditions surrounding the parcel of real estate under consideration should be chosen as the appraisal estimate. I believe that it will be evident shortly that each approach was believed to be generally applicable only to estimating a portion of the property's value, with the various portions then added together. In the Cost Approach, sometimes called the "Inventory Approach," the value is based upon the sum of the values contributed by the various components, whether they be land and/or improvements. Since you cannot manufacture, or build raw land, the Cost Approach was not, and is generally not today considered an appropriate method of estimating the value of the land when vacant. In the Cost Approach, the land is generally always valued by use of the Direct Sales Comparison Approach. In some cases a Land Residual or an Income Capitalization method may be employed.

In the Direct Sales Comparison Approach, sometimes called the "Market Data Approach" the value is based upon the prices paid for other similar properties located in the same area, and that have recently sold. These comparisons generally result in adjustments made to the comparable sales for differences, both positive and negative. This approach is generally most reliable when there are few dissimilarities in the properties analyzed.

The third approach is the Income Approach, sometimes called the "Earnings Approach" where the value is based upon the annual income stream that the property is most likely to produce soon. While appraisers are generally more concerned with net Income attributed to the real estate, gross income may also give a significant indication of a property's value.

While the professional appraiser typically attempts to use all three approaches to value, during various periods in the past the agricultural appraiser often emphasized different approaches during different economic periods. Thus, it appears that the reliance upon the Earnings Approach in estimating the value of farm properties has somewhat gone in and out of style, as economic cycles changed. I believe that this reliance is based upon the perception of risk in loss

of value of the land in the future. During periods of inflation, the risk of value loss diminished, and the reliance on the Income Approach was less. However, during periods of recession, or depression, the reliance on the Income Approach is greater.

#### THE NATIONAL JOINT COMMITTEE

In 1932 the foundation was laid for the organization of the National Joint Committee on Rural Credits, which was made up of: the Life Insurance Farm Conference, the Federal Land Banks, the Joint Stock Land Banks, the American Society of Farm Managers, the American Farm Economic Association, the American Farm Bureau Federation, the American Agricultural Editors Association, and the National Grange. The committee set up sub-committees to study various areas, including rural appraising.

In "The Appraisal of Farm Real Estate" by Robert C. Suter, several statements were made. He states that in the system developed as the American Rural Appraisal System, by the National Joint Committee on Rural Credits, that it "disapproved of those persons who generally professed to know land values and began to replace them with appraisers who were able to arrive at land values by means of analysis and reason."

While today we would question perhaps the reasoning and analysis used, at least a system was at last in place, subject to public scrutiny and critical assessment. As a result of the National Joint Committee on Rural Credits, in 1934, an outline of Rural Appraising was published, which divided the appraisal process into three divisions:

1. Materials, or the technical division, which was concerned with the physical aspects of the property, soils, drainage, topography, crops, and improvements.
2. Methods, or technique, which is concerned with analytical tools, used to put the report together.
3. Ethics, which deals with the integrity of the preparer. It was pointed out that regardless of the quality of the material used, or the technical analysis that is involved in the appraisal, that there is little value to a report that is prepared dishonestly, or unethically.

While greater emphasis was placed upon the physical aspects than before, for the first time considerable emphasis in the appraisal industry was now being placed upon ethical conduct of appraisers. This emphasis on ethics was indicated by this quotation, from an article in the Appraisal Journal, (Doane, 47):

"An appraisal, then, to command respect must be made by a man who knows the elements that go to make up rural values; who knows how they are assembled, weighted and coordinated; and then who adds to all an honest personality, for the end product is but the reflection of his opinion."

## THE INTRODUCTION OF THE TERM BASIC VALUE

One prevalent idea of the day was that the kind of appraisal that was being sought determined the value that was to be sought. Today we concentrate more on the definition of value to be sought, rather than the kind of appraisal being sought, even though the kind of appraisal desired often dictates the definition of value to be used. During this early period, it was believed that value flowed from three sources, i.e. earnings, location, and home use. It is these combined uses that produced what was called, "Basic Value." If a specialized value was desired, the "Basic Value" was first estimated and recorded. It was then adjusted or modified to reach the desired value for special purposes such as, condemnation, tax assessment, or sale purposes. Most appraisals stopped at "Basic Value." It was recognized that a major portion of the value of the property was in its earning capacity.

## TECHNOLOGICAL ADVANCES

Shortly after the Great Depression, the government and private enterprise took steps to improve the technical information used by appraisers. Part of the problem with establishing the relationship of income to value was the lack of supporting technical data. Before the Great Depression, the appraiser had to rely upon personal observation and experience. Most farmers kept poor records of earnings and expenses. Yield data

was incomplete at best, and varied from planting season to planting season, and from farm to farm. Quite honestly, no one cared, since the value of farm land had continually increased in value every since the founding of the country. Even today, with the recent dramatic drops in land values, which were as high as 30.2 percent in Iowa in 1985, the average change in farm land value over the last 20 years in Iowa has been at the rate of 4.6% per annum. With the Great Depression came the demand for more supporting data. It was felt that the single most important factor in determining what the anticipated income could be was a comprehensive look at the make-up of the soil.

To help appraisers in identifying soils, in 1934, major insurance companies published handbooks that indexed various soils, as they were located within the various states. In Iowa, for instance there were 265 soil types indexed and described. Under the leadership of the United States Department of Agriculture these soils were rated from 1 to 10, with a rating of 1 being the most productive, and a rating of 10 being least productive. The appraiser was expected to use these descriptions and ratings in describing the productive capacity of the subject property in the descriptive portion of the appraisal report, also in his description of the comparable properties

(Estimating the Value of Farm Lands, 1936). These handbooks included maps, which outlined the location of various soil types. The indexes in the handbooks would identify the soil type, note its color and texture, discuss its topography, and rate the soil. More recent additions of Comprehensive Soil Surveys go into much greater depth, and include chemical composition, slopes, estimated crop yields for various crops, and soil suitabilities and limitations.

Today this writer might refute the opinion that no man can assume to be an accurate rural appraiser unless he has a workable knowledge of soils. That was an early view. With the more modern surveys, it is now possible for the appraiser to rate an entire farm, without being a soil expert. Today most counties have comprehensive surveys, and with the emphasis on government Crop Reduction Programs, many rural counties are updating these studies. Lee County's Comprehensive Soil Survey was published in 1976.

#### THE INTRODUCTION OF THE TERM EARNINGS VALUE

As we have indicated, most appraisers before and after the Great Depression capitalized the Net Income into what was called the property's "Earnings Value." In an article in 1938, Ralph V. Field took issue with the process of capitalizing of Net Income, then

adjusting the result, "Earnings Value," to get "Basis Value." He pointed out that there was a split of opinion. One group of appraisers held the opinion that building values are not set out in the appraisal, and that the value of the buildings are shown in the income for the pasture. Believing that the value of the buildings are fundamental, those appraisers felt that more consideration should be made of their presence. Further, he emphasized that in the valuation of income-producing properties, whether it be a farm, or some other parcel of income producing real estate, when the net income of the property is established and the amount of the net income capitalized at the appropriate rate, then the result is an indicated value for the entire property. There is nothing to be added to or subtracted from the indicated value.

True Morse in 1938 defended the "The American Rural Appraisal System" stating the system was based upon the number of opinions offered in the appraisal by the preparer. He believed that the appraiser uses a hundred or more expressions of opinion about soils, crops, acreages, yields, prices, and expense items in arriving at an estimate of future net annual income. He contrasts this with other appraisal methods where the appraiser, after viewing the property, records one "Lump Sum" opinion of value. He felt that appraisers tend to neutralize their errors in thus building an

appraisal value from some one-hundred opinions. The laws of averages tend to operate. He states that if there is a serious error on one or more factors out of a total of one hundred, the error may not greatly affect the final value. On the other hand, he states that if the value is set by the "lump sum" method and there is an error in that single expression of opinion, there are no offsetting corrective factors. Today, we generally take the view that in any of the approaches to value used, many judgments must be made by the appraiser. The prevailing view is that more adjustments simply represent more opportunities to make a mistake.

The comparative approach is a more indirect method than that of income capitalization, but it is equally important. It was the process by which farm land appraisers, for years, have been setting values on land. By this method alone, and without recognizing just what they were doing and how they were doing it, farm appraisers before the Great Depression made land appraisals upon a purely comparative basis. It was felt that the comparative approach should not be used independent of the income capitalization value. It was felt that comparisons show only the value influences not already reflected in the "Earnings Value." It was this point of view that led to the use of adjustments,

based upon sales comparisons, to the Earnings Value found through the capitalization of net income. No consideration was given to the effect on income or expenses that were the result of improvements.

Early appraisers felt the cost approach should be given less emphasis in rural appraising. This was because the value of the land in a farm normally far overshadows the value of the improvements. In The Appraisal Journal (Davis 358) W.D. Davis stated that buildings and other comparable improvements are appraised upon the basis of reproduction cost new less observed depreciation and obsolescence. The use of the Cost Approach, with such fractional information, should only be used for the supporting of values found in the other approaches used. The author felt that appraisers must think of farms as a unit and subject to valuation only as units. The author felt that the old summation method had totally been discredited. It was not considered practical or sound to value land and improvements separately and to the total as the value of the property as a whole.

#### THE EARNINGS STATEMENT

By 1936, it was believed that an earnings statement must be included in the appraisal report. In the earnings statement, the appraiser used the crop

yields provided by the owner. Only after reviewing the average yields for similar properties within the county that the property was located could the appraiser rely on the owner's statements. The price used for the crops was based upon 5 or 10 year averages. The owner's share of the income was determined on a rental basis regardless of whether the farm was tenant-occupied or not. Under the expenses the actual annual tax was used if it was not abnormal at the time of the appraisal. Other expenses included all items that an owner would have to pay to receive the rent share and give the property typical maintenance. Management was considered a normal expense and deducted whether it was furnished by the owner or not. The net income was then capitalized at what was perceived to be an appropriate rate, with the result being the "Earnings Value." To determine the effect that the other two sources of value have on the farm, it was found practical to deal with them in the form of adjustments in the "Earnings Value." After the "Earnings Value" has been adjusted for location and home use, the result was "Basic Value." Again, the contribution to earnings for the improvements was not considered in the income to be capitalized.

In 1938, Ralph V. Fields, questioned whether the so called "adjustments" in connection with the "Basic Value" appraisal of farm lands even have a place in the appraisal. He pointed out that each of the approaches covers the entire field of adjustments. Certainly the reproduction cost approach covers it when the value of the land is determined; all adjustments for good or poor location, for nuisances, for good or bad roads, etc. enter into the land value and are then properly discounted.

It is certain that the value by comparative sales normally covers all adjustments fully and completely. Some felt that the rate used in capitalizing the net income should be selected and determined after giving full consideration to all items that add or detract from value. So the debate went on, should the Earnings Value be adjusted, or should it not.

Another view expressed, but apparently not given much weight, was the relationship of Gross Earnings to Price or Value, commonly called Gross Income Multipliers. In 1939, Charles L. Stewart described the use of Gross earnings as a guide to the valuation of farm properties. Mr. Stewart believed that the use of Gross Earnings is important for long-time accuracy and soundness in relation to other pieces of property. Mr. Stewart also pointed out that once a farm has been

reviewed from the physical aspects, an understanding of the economic impact of the property must be considered. A full review of the accounting records, for the subject and the comparables must be considered. The relationship of Gross Earnings, with various costs must be considered. Where there is sufficient statistical data to obtain a ratio of expense to gross income for a farm properly classified, the problem would remain to obtain an accurate picture of the Gross Income for the individual farm.

The predominant view in early writings was that appraisers should estimate the income produced by the various crops on the property, similar to what we find in Table 1.

TABLE 1

| Crop  | #Acres | Yield | X Price | = Gross Income | X Owners Share | = Owners Part |
|-------|--------|-------|---------|----------------|----------------|---------------|
| Corn  | 60     | 110   | \$2.30  | \$15,180       | .50            | \$7,590       |
| Beans | 25     | 35    | \$6.00  | \$ 5,250       | .50            | \$2,625       |

The crop and the number of acres were based upon what was typical in the market, as opposed to what was actually being cropped at the time of the inspection. Likewise, the yields were what could be reasonably anticipated under normal management, and not what was experienced under actual management. The price represented the 10 year average price at the farmer's

selling point. While the above procedure was considered most appropriate, other methods of deriving Gross Income, attributable to the real estate, were acceptable, whether they be actual farm receipts, share rents, or cash rents.

In the early formats, the expenses were subtracted from the owner's share. It was recognized that the following expenses were deducted for the Gross Income: Real Estate Taxes, Insurance, Maintenance, Seed, and Management. The result was the Net Farm Income to the owner. These figures would be the same, whether the farm was operated by the owner, or rented. If capitalized, this Net Farm Income would represent the Basic Earnings Value of the farm.

As suggested earlier, the Basic Earnings Value was adjusted for features other than those that affect earnings. The appraiser might adjust for the location, home features, pests, and hazards. The result was what was defined as the "Basic Value" of the farm. The National Joint Committee on Rural Credits felt that all appraisers could follow the same procedures. Since this was a common point in the appraisal process where all appraisers should be together, it was called the "Basic Value."

From this Basic Value, each kind of appraisal might be adjusted still further to make the kind desired. For instance under condemnation appraisals, the values were presumed to be on a "Highest and Best Use" basis. Therefore, when one was setting a condemnation value, he would add to the basic value an amount that the appraiser felt represented all facts and conditions of the appraisal. On the other hand, one desiring to estimate the assessed value for tax purposes, would probably subtract from the determined Basic Value.

When it came to estimating the value of the buildings, they were appraised at replacement cost less observed depreciation and obsolescence. There was no agreement on whether the buildings added to or subtracted from the basic value. One group felt that income for buildings is shown in income from pastures and building rent, and costs against them were shown in taxes, insurance, and maintenance, and hence they are fully accounted for in the final basic value.

Others said that they were not adequately accounted for and would add to the basic value the appraised value of buildings up to the value of an adequate set. Still others felt that to obtain the loan value on land alone, the value of the buildings must be subtracted from basic value. It has been

suggested that the real problem is the small or unmeasurable income good that farm improvements return. It was not uncommon in the 1930's or today for that matter for unimproved farms to sell or rent for as much or more than improved farms. It was found that the renter or buyer of the unimproved farm, would have the use of improvements on other farms.

Many early appraisers believed that taxes were a confiscation of the value of land. "In spite of the fact that authority does not permit confiscation, taxes often do just that very thing," suggested D. Howard Doane in the Appraisal Journal, article Rural Appraising, in October 1934. "Much criticism has been justly voiced against confiscatory government taxes that wholly or in part remove the value of rural land," said True D. Morse in another article in the Appraisal Journal, "The influence of Special Assessments on Farm Values," in July 1935.

These early writers felt that special assessments should not be handled in the appraisal, but rather should be an underwriting decision of the lender. Two methods were generally employed.

1. The appraiser arrived at the value without regard to the bonded indebtedness. The entire balance of the bonded indebtedness was deducted from the value, and the loan was based upon the remaining value.
2. This approach, which was considered more conservative, and promulgated by the Federal Land Banks, was to find the value of the property without regard to the bonded indebtedness, then figure the amount of the loan based upon this figure. But, it was then that the bonded indebtedness was subtracted from the loan figure as if there was not any bonded indebtedness. The principle involved the fact that the indebtedness was superior to the loan, no matter when it is filed, and that the value of the land was therefore being taxed away.

True D. Morse even suggested that the best way to handle special assessments were by entering the average cost of the special assessments as one of the expenses to be deducted from gross income in arriving at the "earnings" portion of the value of land. If the assessment was for a short period of time, then the present amount that would be necessary to pay off the assessment should be obtained from the taxing district. If this was less than the calculated "present worth" figure, then this figure should be used.

In all the early writings, the writers implied that the application of the Income Approach involved the use of the appropriate rate. True D. Morse, in the Appraisal Journal, (Morse 161) suggested that the appropriate rate was the rate furnished by the home office. I am not aware of any other writings, other

than textbooks, that even discussed how to estimate the appropriate rate before 1980. Robert Suter The Appraisal of Farm Real Estate, tied the Capitalization Rate to the Opportunity Cost of Money. The American Institute of Real Estate Appraiser's new text Estimating the Value of Rural Property, 1983, refers to Direct Capitalization only.

#### CONCLUSIONS ABOUT EARLY WRITINGS

I am really amazed at how little has been written about the Income Approach in the valuation of agricultural property. This is particularly true in relationship to the amount of writing that has been done about the use of the Income Approach in the valuation of other income-producing properties. What writing that has been done, dealt mostly with income and expenses, and very little about developing Capitalization Rates. Even the writer's that were concerned about income and expenses failed to consider more than one years income. It seems that most of the writer's felt that the Income Approach was necessary, but really didn't understand why.

## THE INCOME APPROACH METHOD OF VALUATION

### INTRODUCTION

It is the view of the writer that many of the problems today with farm valuations are tied to the lack of sound appraisal methods, and not necessarily because of poor appraisers. There is probably no sector of real estate more difficult to appraise than the family farm. When properly applied, the Income Approach can provide a significant indication of the value of a farm property.

The valuation of a farm by the income approach is similar to that used to estimate the value of most other types of income-producing real estate. The Income Approach to value assumes that there is a relationship between income and value. This is based upon the principle of substitution, which states that no prudent purchaser would pay more for the subject than the present value of another property offering a similar income stream, coupled with similar benefits of ownership. Like most other applications of the Income Approach, the appraiser is concerned with estimating the Net Operating Income.

Some appraisers, when there is adequate data, use Cash Rents, paid for similar properties, after adjustment for taxes as the estimated Net Operating Income. During the late 70's and early 80's, this was

a popular practice, because there were a lot of Cash Rents being paid. Since 1982 fewer farmers have been willing to pay cash rents, and have instead opted for renting farm properties with crop shared rents. Under crop shared rents, all direct costs (seed, fertilizer, and insecticide) are paid by the property owner. The crop itself is then split between the owner of the property and the tenant equally. The tenant's share represents labor and machinery costs. For the appraiser, if cash rents are not being used, the first step in the capitalization process is to estimate the Gross Potential Annual Income.

#### POTENTIAL GROSS INCOME

The Potential Annual Gross Income is composed of the income that is derived from the production of grain, combined with the potential income that the owner might receive from any improvements. The appraiser must first estimate the Anticipated Gross Income from grain production. There are several ways that this can be done. First, the appraiser can multiply the anticipated long-term yield average, times the anticipated long-term average commodity price for a singular crop. A long-term average is preferable over a short term average, because of annual fluctuations generally found in both commodity price and yields. For example, suppose that we are appraising a property

with 100 acres of corn, which we estimate would produce 110 bushels of corn to the acre at harvest time. Let's further suppose that we estimate at harvest we can anticipate selling the corn for \$2.30 per bushel. Table 2 shows an illustration of the calculations based upon these sample assumptions.

TABLE 2

| AVERAGE CROP | YIELD | X | PRICE  | = | GROSS INCOME | X | # OF ACRES | = | POTENTIAL INCOME |
|--------------|-------|---|--------|---|--------------|---|------------|---|------------------|
| Corn         | 110   | X | \$2.30 | = | \$253/acre   | X | 100        | = | \$2,530.00       |

A second method sometimes used is similar, but the appraiser goes through an additional step of estimating the portion of the property typically planted in various crops, as opposed to using a singular assumed crop. To be eligible for government programs, farmers report to the Agricultural Soil and Conservation Services what and how much they plant of various crops. For instance a property with 100 acres, might have what is called a corn base of 50 acres, which means that if all the property were tillable, that generally 50 acres are planted in corn, or put in set-aside. The failure to report may make the farmer ineligible for deficiency payments. The acres that are not a portion of the base, whether it be corn, oats, or wheat, are generally planted in soybeans. In Lee County, wheat and oats are

generally planted in semi-erodible and pasture areas. Corn and soybeans are generally planted on the tillable acres. Table 3 shows the same sample tract used in Table 2, except it makes the assumption that 50% of the example property is planted in corn, and 50% is planted in soybeans.

TABLE 3

| CROP     | AVERAGE YIELD | PERCENT OF WHOLE | X | PRICE  | =   | GROSS INCOME        |
|----------|---------------|------------------|---|--------|-----|---------------------|
| Corn     | 110           | 50%              | X | \$2.30 | =   | \$127/acre          |
| Soybeans | 35            | 50%              | X | \$6.00 | = + | \$105/acre          |
|          |               |                  |   |        |     | -----<br>\$232/acre |

While the second method has a lower Potential Gross Income, some of this differential is compensated for in expenses. Whichever method is employed, the same method should be used in analyzing comparable sales. Consistency is more important than method, even though the second method would be preferable.

An agricultural property, and specifically a grain farm, is a special purpose property, which, usually offers amenity ownership along with income producing benefits. Where many appraisers make the mistake, is that they fail to consider the true contribution of the amenity ownership in the income stream.

In the period of time directly after the Great Depression, appraisers were taught to Capitalize the income stream of the farm operation, to find "Earnings Value," then adjust that value for the amenities, with the result being "Basic Value." A more appropriate method would be for the appraiser to estimate the affect of the amenity on the income stream. Let's say that a property had a grain bin no other improvement, just a grain bin. Does that grain bin contribute directly to the income stream? What is the grain bin's purpose and function? Grain bins are acquired to allow the farmer to store grain on a grain farm so that he can choose when he can sell his crop. He can also go to the elevator and acquire the same storage capacity, but there he would have to pay for that storage capacity, which would result in a reduction of his Potential Gross Income, and a later loss in value for the property. If the property was improved with a residential dwelling, a similar analysis might be considered. What is the purpose and function of the dwelling? How does the presence of the dwelling impact upon the income stream? The purpose is to provide shelter for the farm family. Its impact can result in lower labor costs, or additional rental income to the property owner, in much the same way that a housing allowance might impact on labor costs. As an owner operator, I don't pay any rent, but the fact that I own the property means that I don't have to pay rent

someplace else. The question becomes one of contribution, the fact that a dwelling is present or not should have a bearing upon the anticipated income stream, even though it may be very small. Remember that the principle of Contribution states that the value of a particular component is measured in terms of its contribution to the value of the whole, or by how much that part's absence detracts from the value of the whole. The presence or absence of the grain bin can impact on storage costs, just as the presence or absence of the residence, impacts on labor costs, or rental income.

In estimating the Potential Gross Income, one should only consider those factors that add to the value of the property, and not any overcapacity, or superadequacy. Let us say that instead of a singular grain bin, our property had several, with 50,000 bushels of grain storage. Further, let's suppose that the bins, were all in good condition, with little physical depreciation. Now, let's also suppose that the owner of the property being appraised owned several additional properties, but that the property where the bins were located had only 120 tillable acres. Those 120 acres being appraised had an estimated average yield of 120 bushels of corn per acre. The total amount of production that could reasonably be

anticipated during a typical growing season would be 14,400 bushels (120 acres X 120 average yield). If our investigation of the market revealed that typical on-farm grain storage was equal to one year's crop, then in this example, the property has a superadequacy or excess capacity of (50,000 - 14,400) 35,600 bushels. From a depreciated cost approach, the overcapacity might be missed, and an over-valuation of contributory value the grain storage might result. You might say that you have the capacity to store more than one year's crop, and as a matter of fact you would, but then the benefit of this storage over time, would have to be discounted, and further consideration would have to be given to the deterioration of the grain over the storage period. Another possibility was that the buyer had other farm properties and needed the extra grain storage area to compensate for the lack of storage capacity on other properties that he owned or rented. In reality, the buyer would be acquiring a superadequacy on the subject property to compensate for an inadequacy on another property. From the lender's point of view, should he assume that if he had to liquidate the property the typical buyer would be looking at the subject to compensate for an inadequacy found in other properties that he owned or rented? I do not believe that the typical prudent buyer would want to find himself in this position, and that as an appraiser you must consider the value of the property

based upon what is present or inherent within the property, and not based upon factors that might be present outside the property.

My point is that the value of the improvements must reflect their contribution to the value of the whole property, and that contribution is measurable usually based upon the impact to the income stream that presents of, or the lack of, that the particular improvement has. The Principle of Contribution is a consequence of the Principle of Marginal Productivity, which is the principle of increasing and decreasing returns applied to a portion or portions of real property (Appraising the Single Family Residence, 26) The Principle of Contribution is defined as "a valuation principle that states that the value of an agent of production or of a component part of a property depends upon how much it contributes to the value of the whole; or how much its absence detracts from the value of the whole" (Real Estate Appraisal Terminology, 59). I cannot find anywhere in the American Institute of Real Estate Appraiser's text on rural valuation, "The Appraisal of Rural Property," or any other popular text, any consideration for the improvements, or their affect on the income stream, in the estimation of the Net Operating Income. I believe that instead of adjusting the "Earnings Value," by use

of the Cost Approach or Direct Sales Comparison Approach, it would be more appropriate to adjust the Potential Gross Income to reflect the affect that the improvements have on the Potential Gross Income.

In our example, let's assume that our subject has a residence, which has a market rent of \$150 per month, or \$1,800 annually, and three bins with 12,000 bushels of storage capacity. Comparable storage rents or \$1,440 per year. The result is a substantially higher Potential Gross Income, that reflects the earning capacity of the property, along with the benefits of amenity ownership. Estimating the market rent for improvements is difficult, but may be possible through the use of land and building residuals, or comparable rental data. In Table 4 we have added the impact of improvements to the earnings estimate of our example used in Table 3.

TABLE 4

| CROP                      | AVERAGE<br>YIELD | PERCENT<br>OF WHOLE | X | PRICE =    | GROSS<br>INCOME     |
|---------------------------|------------------|---------------------|---|------------|---------------------|
| Corn                      | 110              | 50%                 | X | \$2.30 =   | \$127/acre          |
| Soybeans                  | 35               | 50%                 | X | \$6.00 = + | \$105/acre          |
|                           |                  |                     |   |            | -----<br>\$232/acre |
| \$232/acres X 100 acres = |                  |                     |   |            | \$23,200            |
| Residential Income =      |                  |                     |   |            | \$ 1,800            |
| Grain Bin benefit = +     |                  |                     |   |            | \$ 1,440            |
|                           |                  |                     |   |            | -----               |
| Potential Gross Income =  |                  |                     |   |            | \$26,440            |

## OPERATING EXPENSES

After determining the Potential Gross Anticipated Income, the appraiser must subtract the Operating Expenses to find the Potential Net Operating Income. In the appraisal of agricultural properties, as in all other income-producing properties, a part of the appraiser's responsibility is to reconcile the Actual Net Operating Income of the property, with the anticipated Stabilized Net Operating Income. The Stabilized Net Operating Income is differentiated from Actual Net Operating Income by a reasonable test of both the income and expenses. It is this Stabilized Net Operating Income that is eventually capitalized into a value estimate. To stabilize the income portion of the equation, the appraiser investigates anticipated income levels from the marketplace. This can be accomplished by personal interviews, or from published studies. In agriculture, like no other type of real estate investment, the anticipated income changes almost continually. In the grain farm, the product is grain that is sold in an unpredictable fluctuating world market. The appraiser has to stabilize this fluctuating income, for a predictable period into the future. In Iowa, Iowa State University's Cooperative Extension Service publishes several reports annually. Included in these reports are annual averages for various commodity prices. Similar data is available from local grain dealers, from local newspapers, or

trade publications. Of course, one must consider the method used in the preparation of those reports, and the relationship of their findings pertaining to the subject of the appraisal report. For this paper, we are making the assumption that the findings of the Iowa State Studies represent typical market behavior.

Appraisers typically use a long-term average of both commodity prices, and annual yields in estimating the value of farm properties. These averages have a tendency to level out the affects of fluctuations in prices and yields brought about by those factors outside of the control of the farmer, such as weather and the affects of trade policies. Table 5 is a summary of the commodity prices for the last 7 years. Note the wide fluctuations from year to year. Those fluctuations were the result of a glut of grain on the market from 1986 through 1987, which drove down commodity prices. On the other hand, the drought of 1988, coupled with CRP (Crop Reduction Program) reduced the glut, forcing prices to rise again.

Looking at the daily fluctuations of commodity prices, one can see marked changes, sometimes based upon how much rain fell, or news of large purchases of grain by foreign countries. It would be an error for a prudent buyer to assume that prices and yields will

not fluctuate. Most appraisers base their estimates of Potential Gross Income and Operating Expenses on 7 to 10 year averages.

TABLE 5

| YEAR                | CORN       | SOYBEANS   |
|---------------------|------------|------------|
| 1982                | \$2.29/bu. | \$5.68/bu. |
| 1983                | \$2.91/bu. | \$6.63/bu. |
| 1984                | \$2.97/bu. | \$6.95/bu. |
| 1985                | \$2.41/bu. | \$5.33/bu. |
| 1986                | \$1.83/bu. | \$4.90/bu. |
| 1987                | \$1.46/bu. | \$4.97/bu. |
| 1988                | \$2.19/bu. | \$7.13/bu. |
| MEAN:               | \$2.29/bu. | \$5.94/bu. |
| MEDIAN:             | \$2.29/bu. | \$5.68/bu. |
| STANDARD DEVIATION: | .50309     | .87623     |

Source: Iowa Agricultural Statistics

While it may be possible to use actual income figures, care should be taken that those figures are representative of typical market expectations. Those figures should represent actual income, over the typical holding period, which for agricultural properties, should be 5 years or longer. Knowing the anticipated price of the commodity is not enough. Not only do you have to consider the price for the product, but how much of the product can the subject be reasonably expected to produce, or yield.

## PRODUCTIVITY RATINGS

Farm properties, like most other real estate properties, are full of dissimilarities. Farm property values, like most other income-producing properties, are highly dependent upon their ability to produce income to the owner or investor. This producing ability is called productivity. Productivity is measured in physical terms of crops that have economic value (Rural Appraisal Manual 5th Edition, 14). The appraiser has to be able to evaluate productive capacity of not only the subject, but also of comparable properties. Therefore, a logical system of estimating productivity must be developed.

While appraisers used to have little data to work from, and often either had to be an expert on soils and productivity, or had to contract for expert assistance, today, in most areas, there is substantial supporting data for the appraiser to consider. As occurs with the use of other published reports, the appraiser must be familiar with the methods used and the limitations of any published report. In Lee County, Iowa, a Comprehensive Soil Survey was published in 1979. These, and similar studies, can be very helpful in estimating the productive capacity of property, whether it be the subject, or a comparable property that has recently sold. Whatever source the appraiser uses in estimating the productive capacity of the subject

property should also be used in estimating the productive capacity of the comparables used. It would be inconsistent for the appraiser to use one source in estimating the productive capacity of the subject, then another source for the comparables.

To be reliable, the appraiser must depend on data and resources available from a variety of sources. I often interview neighbors, brokers, buyers, and sellers. Because of preliminary research on the subject being appraised, I am generally able to talk informatively about various sales, while also asking questions that usually are designed to get the most information from the person being interviewed. On many occasions, I would ask those interviewed what characteristics they felt contributed most to the value of a property? Two major factors were often mentioned as being major contributing factors: the ratio of tillable land to non-tillable land was stressed, and the ability of the land to produce, or productivity.

To reflect this market activity, the appraiser can estimate the productive capacity, by estimating the number of productive units that a property can be anticipated to produce. These productive units can be in the form of bushels, pounds, tons, or animal units. Usually in grain farms we use bushels.

Not all soils have the same productive capacity, nor do the same soils always have the same productive capacity in different locations. Of major consideration in estimating the productive capacity are soil drainage, soil fertility, and soil tilth.

Soil drainage is a major management problem in Lee County. Properties that are flat often become wet, and on occasion this wetness damages the crops produced. Some soils may have natural drainage, but still tend to dry slowly after heavy rains. Artificial drainage may be beneficial in these areas.

We generally think of fertility as being the quality of the soil that enables a soil to provide plant nutrients, in adequate amounts and in proper balance as to allow for the growth of specific plants, when light, moisture, temperature, tilth, and other growth factors are favorable. Because of extensive farming, most properties require that these nutrients be replenished artificially.

We generally think of a soil's tilth as being the condition of the soil, or the soil structure, as it relates to crop production. The soil's tilth is an important factor in the germination of seeds and in the

permeating of water into the soil from the surface layer. Soils that have good tilth are granular and porous.

Of particular concern to the appraiser, is having the ability to judge the productive capacity of the various soils found, whether it be the subject, or comparable properties. It generally is accepted that "Productivity ratings are essential to the appraisal of rural property" (Appraisal of Rural Property 72). If we are valuing range land, we might be concerned about Animal Units (AUs); if we are valuing timber land we might be concerned with Thousand Board Feet (MBF); and then again in the corn belt of the Midwest, we need to know the Productive Capacity. The assessor compares the Corn Suitability Rating (CSR). While some appraisers estimate the value of agricultural properties based upon a price per CSR, this may be hazardous, if the appraiser does not measure the number of CSR's independently. Therefore, most appraisers estimate what I call productive units, which are similar to CSR's. These productive units are based upon the specific soil itself, and the factors that form the soil. There are five major factors of soil formation. While storms and wind are not included, they are caused by the balance of moisture and temperature.

- (1) Parent Material, which is the unconsolidated mass of soil material from which a soil forms. This soil mass determines the mineral composition of soil. This we have called tilth.
- (2) Climate, which might be said to relate the balance between temperature and precipitation.
- (3) Living Organisms, include plants, animals, insects, bacteria and fungi. Generally, in the Midwest, soils are formed under either prairie grasses or trees. Soils formed under prairie grasses are generally darker and have thicker surface layers. Soils formed under trees are lighter in color, have more acid, and have a thinner surface layer. This we have called the soil's fertility.
- (4) Topography is the relief or lay of the land. The topography influences water run-off, erosion, It is both the gradient and the direction of the slope that influence the temperature of the soil. The slopes that face to the south thaw earlier in the spring and cool earlier in the fall. Well drained soils also warm up earlier. The topography is a major factor in the soil's drainage.
- (5) Time is required for the formation of soils. The length of time that the parent material is in place reflect directly in the soil profile.

The factors of soil formation are closely interrelated. For example, climate and living organisms, over time, act on parent material to change that material into a soil that contains genetically-related layers. The parent material determines to a great extent the physical and chemical composition of the soil, but the chemical composition is also influenced by climate, topography, living organisms, and length of time (Scotland County Soil Survey, 39).

The steps in this analysis are: first determine the type of soils on the property, then estimate the extent of each soil type, and finally estimate the typical yield of each soil type. I must repeat, that it is important to use the same source for the subject as you would use for each of the comparables. Don't take the yields provided by the owner in one case, and the yields provided by the Soil Survey for another. With the use of a planimeter, it is possible to measure the amount of each soil type that a property has. It is sometimes possible to estimate adequately what percent of a property is of a specific soil type without the aid of a planimeter.

In those locations where a Comprehensive Soil Survey is available, soils are classified and mapped in considerable more detail. For instance in Lee County, Iowa, the land is classified in 124 classifications, or series. A series is a group of soils that have the same or similar layers. Alpha-numeric symbols are used to describe the soil. The symbols consist of a combination of numbers that designate the kind of soil, followed by a letter that indicates the class of the slope, followed by an additional number that indicates whether the soil is erodible. In the example in Table 6, the soil is of the Arispe Association, with 5 to 9% slopes, and moderately eroded. These soils are

moderately slowly permeable and generally have high available water capacity. The subsurface layer is low in available phosphorus and low in available potassium. The surface layer generally requires lime, and natural fertility is medium, and Organic content is generally considered moderate.

**TABLE 6**

EXAMPLE:

23C2 = 23 {Soil kind or land type (Arispe)}  
C {Indicates the class of slope  
(5-9% slopes)}  
2 {Indicates the potential  
erosion (Moderately eroded)}

Soils without an alphabetical symbol are considered to be flat. The soils are classified based upon the Soil Survey Manual of the United States Department of Agriculture (1952). Included within the soil survey is a table of anticipated yields based upon plot experiments and farm field records (Lee County Soil Survey, 3). The soil maps are overlaid over aerial photographs. This enables the appraiser to locate the subject and all the comparables rather easily, and to ascertain the topography, soil types, and anticipated yields as well. A planimeter can be used to measure the number of acres in each classification.

Soil surveys should always be used with personal observation of the properties, interviews with buyers, sellers, and brokers. Personally, I seek a breakdown of the property crops and yields, and copies of the tax returns for the last three years at a minimum. Additional data is gathered from the Soil Conservation Service, the Assessor, and Soil Services, when available. I try to reconcile any differences between what my inspection and interview discover, with data already collected.

If we make the assumption that we have collected all the data that is available, interviewed the principals (at least one for each transaction), and inspected all the comparable properties. We are now ready to enter into the analysis phase of solving the problem of estimating the productive capacity of the property.

Since we are now able to estimate the type of soil for the particular property, and its quantity, we now can go to the Comprehensive Soil Survey, or other reliable source and compute the Productive Capacity of the property. The first step in this analysis is to compute the weighted average of the entire property. This is done by multiplying the anticipated yield per acre times the percent of the total property made up of a particular soil type.

The second step is to add up the weighted average for each soil type, into a rating for the entire property. For example, let's suppose that we are asked to value a 100 acre tract of land, of which 30% is of the Colo Association, 15% is of the Sparta Association, 40% is of the Weller Association, and the remaining 15% was of the Belinda Association. According to the soil survey, Colo has a typical yield of 104 bushels, Sparta has a typical yield of 63 bushels, Weller has a typical yield of 95 bushels, and Belinda has a typical yield of 87 bushels to the acre. Whenever it is possible, yields from published sources should be verified and adjusted to current expectations. For instance we have found that current yields run about 7% higher than those published. Table 7 illustrates how the example's published yields can be adjusted to reflect more accurately current yields.

TABLE 7

| SOIL TYPE   | NUMBER OF ACRES | ANTICIPATED YIELD/ACRE | ADJUST.       | % OF TOTAL | WEIGHTED AVERAGE |
|-------------|-----------------|------------------------|---------------|------------|------------------|
| 133 Colo    | 30              | 104                    | X 1.07=111.28 | 30%        | 33.38            |
| 140 Sparta  | 15              | 63                     | X 1.07= 67.41 | 15%        | 10.11            |
| 132B Weller | 40              | 95                     | X 1.07=101.65 | 40%        | 40.66            |
| 130 Belinda | 15              | 87                     | X 1.07= 93.09 | 15%        | 13.96            |
| TOTALS      | 100             |                        |               | 100%       | 98.11            |

In the example used in Table 7, the average yield for the entire property, or Productive Units, is 98.11. If you were to interview the owners, which you should do, they would probably recite their highest yield, and fail to disclose the poor years. The yields found in most soil surveys are based upon normal management, over a long period of time, and not just the high or low years. With this calculation, we now have the data necessary to estimate the Gross Annual Income for the property. We simply have to multiply the 98.11 productive units times the anticipated price per bushel of, say \$2.00 per bushel. As I indicated earlier, some appraisers go a step farther and multiply the number of acres planted in each crop, times the anticipated price per bushel for each crop. I have found that the results are similar in either case, which makes this additional step of minimal value.

While appraisers generally are hesitant to use averages, this is not the only time that a weighted average is used in estimating the value of a property. Estimating the Overall Rate by the use of the Band of Investment, or Mortgage Equity are also applications of weighted averages as well, as illustrated in Table 8.

TABLE 8

$$\begin{array}{rcl}
 \text{PERCENT OF} & \text{MORTGAGE} & \text{WEIGHTED} \\
 \text{MORTGAGE} & \times \text{ CONSTANT} & = \text{AVERAGE} \\
 \\ 
 \text{PERCENT OF} & \text{EQUITY} & \text{WEIGHTED} \\
 + \text{EQUITY} & \times \text{YIELD RATE} & = \text{AVERAGE} \\
 & & \text{-----} \\
 & & \text{OVERALL RATE}
 \end{array}$$

Even the adjustments for Equity Buildup and for any anticipated Appreciation or Depreciation are a weighted average (Friedman, 129). A weighted average is an average in which each component is adjusted by a factor, here the percent of the whole, which reflects the relative importance the component has to the whole. With the ability to estimate both price and yield, then potential Gross Income is a simple case of multiplication.

#### ESTIMATING THE NET OPERATING INCOME

The next step in the capitalization process is estimating the Net Operating Income. The typical farm property, like most other forms of income-producing properties, has expenses. These expenses must be deducted from the anticipated Gross Income, before any attempt at being capitalized. The appraiser must be able to develop a consensus of what the reasonable expenses would be, and as would be the case with other types of income producing properties, the appraiser must carefully weight the owners statements with those

of similar owners, or published studies. Table 9 is a summary of the Production Cost Report for 1988, which is published by Iowa State University Extension. This report separates the fixed and the variable expenses, with the costs being on a per acre basis.

The appropriate source for those expenses may be the owner's actual expenses, but again it should be the average for a similar period as was used in estimating the anticipated Gross Income. If the owner's statements are considered, then they should be compared with other similar properties in the area of the subject. One of the problems encountered in using the owner's statement may be the influence of above average, or below average management. Management should be typical, for the type of property being appraised.

It would be inappropriate to use one year's expense as a deduction from a five or ten-year average on yields and commodity price. Just as commodity and yields change from period to period, so do the expenses. In Lee County, the seed and chemical costs are deducted from the Gross Income before the income from the crop being split into shares. In addition, the owner has to pay the property taxes from his share. Should it be typical in the area for the expenses to be



handled differently, then the appraiser should handle the expenses the same way. While the appraiser should test published reports with actual experience, consistency is far more important in many cases than a precisely defined number. Unfortunately, many appraisers spend countless hours finding a number, only to be inconsistent in its application.

TABLE 9

CORN FOLLOWING CORN PRODUCTION

| OPERATING EXPENSES:       | FIXED    | VARIABLE  |
|---------------------------|----------|-----------|
| -----                     | -----    | -----     |
| PREHARVEST MACHINERY:     | \$ 23.25 | \$ 12.85  |
| SEED AND CHEMICAL:        |          |           |
| SEED                      |          | \$ 19.55  |
| NITROGEN                  |          | \$ 25.20  |
| PHOSPHATE                 |          | \$ 11.25  |
| POTASH                    |          | \$ 5.95   |
| LIME                      |          | \$ 6.00   |
| HERBICIDE                 |          | \$ 17.35  |
| INSECTICIDE               |          | \$ 8.45   |
| CROP INSURANCE            |          | \$ 5.25   |
| MISCELLANEOUS             |          | \$ 9.00   |
| INTEREST ON PREHARVEST    |          | \$ 9.67   |
|                           |          | -----     |
| TOTAL:                    |          | \$ 117.67 |
| HARVEST MACHINERY:        |          |           |
| COMBINE                   | \$ 13.20 | \$ 13.85  |
| HAULING                   | \$ 3.22  | \$ 3.22   |
| DRYING                    | \$ 5.00  | \$ 8.95   |
| HANDLING                  | \$ 1.55  | \$ .65    |
|                           | -----    | -----     |
| TOTAL:                    | \$ 22.97 | \$ 26.67  |
| LABOR:                    |          |           |
| 3.4 Hours @ \$6.00/hour   | \$ 20.40 |           |
| TOTAL FIXED AND VARIABLE: | -----    | -----     |
| PER ACRE:                 | \$ 66.62 | \$ 157.19 |
| PER BUSHEL:               | \$ .58   | \$ 1.37   |
| =====                     | =====    | =====     |
| TOTAL COST PER ACRE:      |          | \$ 223.81 |
| TOTAL COST PER BUSHEL:    |          | \$ 1.95   |

Table 10 is a summary, again provided by Iowa State University Extension, which lumps those same expenses found in Table 9 into three categories: Machinery, Seed and Chemicals, and Labor. Table 10 also compares these costs for a five-year period. You will note that there is a fluctuation in the assumed yield from year to year, which is due to climatic variations during the growing season which altered the yields.

**TABLE 10**

ESTIMATED CROP PRODUCTION COSTS IN IOWA, 1985 - 1989

| YEAR             | 1985     | 1986     | 1987     | 1988     | 1989     |
|------------------|----------|----------|----------|----------|----------|
| MACHINERY        | \$ 82.55 | \$ 82.55 | \$ 77.25 | \$ 77.60 | \$ 85.69 |
| SEED, CHEM. ETC. | \$124.80 | \$115.05 | \$105.05 | \$108.05 | \$117.67 |
| LABOR            | \$ 21.60 | \$ 21.60 | \$ 21.60 | \$ 20.40 | \$ 20.40 |
| TOTAL \$/ACRE    | \$228.95 | \$219.20 | \$203.90 | \$206.85 | \$223.76 |
| ASSUMED YIELD    | 115 bu.  | 110 bu.  | 110 bu.  | 115 bu.  | 115 bu.  |
| TOTAL COST/BU.   | \$ 1.99  | \$ 1.99  | \$ 1.85  | \$ 1.80  | \$ 1.94  |

It has been my experience that property owners are generally very reluctant to disclose specifics, unless their property is the subject of the appraisal. This reluctance is often overcome by not asking for information that is too specific. Lets suppose that we convert our data into a ratio. Table 11 is a reconstruction of Table 10, with the various categories being converted to ratios of total expenses.

TABLE 11

| YEAR             | 1985 | 1986 | 1987 | 1988 | 1989 |
|------------------|------|------|------|------|------|
| MACHINERY        | 36%  | 38%  | 38%  | 38%  | 38%  |
| SEED, CHEM. ETC. | 55%  | 52%  | 52%  | 53%  | 52%  |
| LABOR            | 9%   | 10%  | 11%  | 10%  | 9%   |
| TOTAL \$/ACRE    | 100% | 100% | 100% | 100% | 100% |

To be useful, the appraiser would also have to find out the ratio of Total Costs per Acre, to Gross Income. One will note that the ratio of the various costs to total costs have remained rather constant, with only minor fluctuations. However, if we compare the total costs to the total income, we can see it is the income side of the ratio, that has been in a state of flux. It is the income side of the equation that is outside of the control of the agricultural owner/operator. The Federal Government, has sought to stabilize the income side with government programs, such as deficiency payments for various crops. In 1988 this deficiency represented \$.88 per bushel to the corn producer. Since it is the seed and chemical cost that are deducted from Gross Income, it would be more helpful to determine the ratio of these costs to Gross Income. Table 12 takes the same information found in Table 11 and converts it into an Income and Expense ratio.

TABLE 12

## DIRECT COST RATIO IN IOWA, 1985 - 1988

| YEAR               | 1985    | 1986    | 1987    | 1988    |
|--------------------|---------|---------|---------|---------|
| TOTAL INC/BU.      | \$ 2.41 | \$ 1.83 | \$ 1.46 | \$ 2.19 |
| DIRECT COST/BU.    | \$ 1.08 | \$ 1.04 | \$ .96  | \$ .94  |
| ASSUMED YIELD      | 115 bu. | 110 bu. | 110 bu. | 115 bu. |
| DIRECT COST RATIO  | .4481   | .5683   | .6575   | .4292   |
| INC. & EXP. RATIO: | .826    | <.918>  | <.787>  | .821    |

Table 12 decidedly points out why one year's income might lead the appraiser to an erroneous conclusion. Note the losses incurred in 1986 and 1987. These losses were attributable to the decline in commodity prices, brought about by the glut of commodities being on the market. A portion of the higher expenses in 1986 and 1987 can be attributed to higher interest. For our purposes in the example, we will consider the Direct Costs to be 45% of Anticipated Gross Income, for the crops only.

After having considered the Direct Costs, the appraiser must also deduct from income real estate taxes, which can generally be determined from actual tax receipts, on public record. The actual taxes paid can be obtained from the Treasurers Office for not only the subject, but also for the comparable properties used. We are now able to estimate the Net Operating Income attributed to the real estate for the subject, and for

the comparable properties. In our example, we will consider the real estate taxes to be \$1,400. Bringing our example forward, Table 13 is a summary of the Anticipated Net Operating Income for our example. In this example, we are assuming that we have 100 acres. All of the acres are considered tillable, which in actuality seldom occurs. We are also assuming that our property is improved with a residential dwelling and grain bin. Most properties of this size in Lee County also are improved with machinery storage and maintenance facilities. It would also be common for there to be other outbuildings used for livestock production either in the present, or in the past.

TABLE 13

| CROP     | AVERAGE<br>YIELD | PERCENT<br>OF WHOLE | X | PRICE  | = GROSS<br>INCOME                  |
|----------|------------------|---------------------|---|--------|------------------------------------|
| Corn     | 110              | 50%                 | X | \$2.30 | = \$127/acre                       |
| Soybeans | 35               | 50%                 | X | \$6.00 | = \$105/acre                       |
|          |                  |                     |   |        | -----<br>\$232/acre                |
|          |                  |                     |   |        |                                    |
|          |                  |                     |   |        | \$232/acres X 100 acres = \$23,200 |
|          |                  |                     |   |        | Residential Income = \$ 1,800      |
|          |                  |                     |   |        | Grain Bin benefit = + \$ 1,440     |
|          |                  |                     |   |        | -----                              |
|          |                  |                     |   |        | Potential Gross Income = \$26,440  |
|          |                  |                     |   |        | Less Direct Costs - \$11,898       |
|          |                  |                     |   |        | (26,440 X .45)                     |
|          |                  |                     |   |        | -----<br>\$14,542                  |
|          |                  |                     |   |        |                                    |
|          |                  |                     |   |        | Owner's share of rent \$ 7,271     |
|          |                  |                     |   |        | (\$14,542 / 2)                     |
|          |                  |                     |   |        | Less Real Estate Taxes - \$ 1,400  |
|          |                  |                     |   |        | -----                              |
|          |                  |                     |   |        | Net Operating Income \$ 5,871      |

## ESTIMATING THE CAPITALIZATION RATE

Many rural appraisers forget that the Capitalization Rate, is not a yield rate, but only a ratio of the Stabilized Net Operating Income to Price or Value. In Table 14, we have the indicated Capitalization Rate based upon state averages found for the State of Iowa. Because of the negative cash flow for the years 1986 and 1987, no estimate was given for those two years. While it is uncommon for there to be a negative cash flow, it is not uncommon for there to be an after income tax loss. According to the Lee County Soil Survey, and supported by the writer's experience, it can reasonably be anticipated for 4 crop years in 10 to result in below average yields.

TABLE 14

| YEAR | AVERAGE/AC.<br>VALUE | AVERAGE/AC.<br>INCOME | GIM  | EXP.<br>RATIO | IND.<br>NOI | CAP.<br>RATE |
|------|----------------------|-----------------------|------|---------------|-------------|--------------|
| 1985 | \$ 984               | \$277.15              | 3.55 | .826          | \$48.22     | .0490        |
| 1986 | \$ 787               | \$201.30              | 3.91 | <.918>        |             |              |
| 1987 | \$ 875               | \$160.60              | 5.45 | <.787>        |             |              |
| 1988 | \$1,054              | \$251.85              | 4.19 | .821          | \$45.08     | .0428        |

Table 16 is a summary of 10 sales, all from Lee County in 1988. These 10 sales were considered the only arms-length transactions out of a total of 23 that took place in 1988. In Table 16, you will find each sale summarized and analyzed, in the same sequence and

logic used in our example. There are five Units of Comparison demonstrated. Units of comparison represent the reduction in price or value, by units by which properties are actually sold, rented, or valued. Table 15 is a statistical summary of those units of comparison for the 10-sale sample found in Table 16.

TABLE 15

|               | SALE PRICE<br>PER ACRE     | OVERALL RATE<br>WITH TAXES | OVERALL RATE<br>WITHOUT TAXES |
|---------------|----------------------------|----------------------------|-------------------------------|
| RANGE         | 286 - 1,093                | .0548 - .1707              | .0611 - .1991                 |
| MEAN          | 662.7                      | .0913                      | .1052                         |
| STANDARD DEV. | 243.497                    | .032223                    | .036865                       |
| VARIANCE      | 36% OF MEAN                | 35.3% OF MEAN              | 35% OF MEAN                   |
|               | GROSS INCOME<br>MULTIPLIER | SALE PRICE<br>PROD. UNIT   | SALE PRICE<br>PER TILL.ACRE   |
| RANGE         | 1.38 - 6.44                | 3.18 - 16.57               | 437 - 2,742                   |
| MEAN          | 4.48                       | 10.468                     | 1,279.50                      |
| STANDARD DEV. | 1.5079                     | 3.7369                     | 695.9553                      |
| VARIANCE      | 33.7% OF MEAN              | 35.7% OF MEAN              | 54.4% OF MEAN                 |

The Capitalization Rate is a unit of comparison, and is found by dividing the Sale Price, by the Stabilized Net Operating Income. In our data sample, the range is from a low of .03138 to a high of .1707, or a spread of 544%. Sales 2 and 3 appear to be outside what is typical, and if those sales are excluded, the range is from a low of .03138 to a high of .05956, or a spread of 189%. This is not to suggest that just because the rates are outside of the

normal range that they should not be considered. There are perhaps reasons for them being outside the range of normal sales. They may represent an uninformed buyer or seller, they may result from non-typical property management, or property features. Thorough investigation should be made of all sales before they are discarded.

#### UNITS OF COMPARISON

The Gross Income Multiplier is also a unit of comparison, and is found by dividing the Sale Price by the Anticipated Gross Income. In our data sample, the range is from a low of 1.58 to a high of 6.44, or a spread of 407%. Sales 2 and 3 are again lower than what appears to be typical, and again, if we exclude those sales from the sample, the range will be from a low of 3.65 to a high of 6.44, or a 176% spread. Both the Capitalization of Income and the Gross Income Multiplier are considered Income Approaches. It does appear that there is a more predominant central tendency under Income Capitalization, than under the Gross Income Multiplier, even though the total spread is lower under the Gross Income Multiplier.

SALES ANALYSIS GRID AND OVERALL RATE

|     | CECIL<br>1 | KROGMEIER<br>2 | KLEISS<br>3 | HOSKINS<br>4 | HUNOLD<br>5 | FREITAG<br>6 | FAETH<br>7 | LANDWEHR<br>8 | BROWER<br>9 | CESSFORD<br>10 |
|-----|------------|----------------|-------------|--------------|-------------|--------------|------------|---------------|-------------|----------------|
|     | 154.21     | 103.18         | 35.00       | 70.00        | 117.50      | 72.15        | 127.57     | 58.00         | 640.17      | 170.65         |
|     | 137.10     | 65.00          | 22.90       | 33.00        | 109.50      | 19.00        | 63.78      | 51.20         | 447.00      | 34.50          |
|     | N/A        | 52             | N/A         | N/A          | N/A         | N/A          | N/A        | 18.2          | 277.5       | 6.4            |
| N)  | 92.35      | 63.99          | 89.94       | 41.08        | 93.69       | 52.53        | 60.03      | 66.53         | 80.04       | 33.45          |
| NS) | 35.09      | 24.32          | 34.18       | 15.61        | 35.60       | 19.96        | 22.81      | 25.28         | 30.42       | 12.71          |
|     | \$ 32,754  | \$ 15,186      | \$ 7,240    | \$ 6,614     | \$ 25,320   | \$ 8,717     | \$ 17,613  | \$ 8,875      | \$117,850   | \$ 13,129      |
| .   | \$ 32,470  | \$ 15,054      | \$ 7,177    | \$ 6,556     | \$ 25,100   | \$ 8,641     | \$ 17,460  | \$ 8,798      | \$116,825   | \$ 13,015      |
|     | \$ 32,754  | \$ 15,186      | \$ 7,240    | \$ 6,614     | \$ 25,320   | \$ 8,717     | \$ 17,613  | \$ 8,875      | \$117,850   | \$ 13,129      |
| -   | \$ 14,739  | \$ 6,834       | \$ 3,258    | \$ 2,976     | \$ 11,394   | \$ 3,926     | \$ 7,926   | \$ 3,994      | \$ 53,033   | \$ 5,908       |
|     | \$ 18,015  | \$ 8,352       | \$ 3,982    | \$ 3,638     | \$ 13,926   | \$ 4,791     | \$ 9,687   | \$ 4,881      | \$ 64,817   | \$ 7,221       |
|     | \$ 9,008   | \$ 4,176       | \$ 1,991    | \$ 1,819     | \$ 6,963    | \$ 2,396     | \$ 4,844   | \$ 2,441      | \$ 32,409   | \$ 3,610       |
| -   | \$ 1,890   | \$ 844         | \$ 284      | \$ 188       | \$ 2,192    | \$ 240       | \$ 1,070   | \$ 715        | \$ 25,905   | \$ 622         |
|     | \$ 7,118   | \$ 3,332       | \$ 1,707    | \$ 1,535     | \$ 4,771    | \$ 2,156     | \$ 3,774   | \$ 1,726      | \$102,478   | \$ 2,988       |
|     | \$119,500  | \$ 40,000      | \$ 10,000   | \$ 29,750    | \$128,400   | \$ 44,011    | \$100,000  | \$ 55,000     | \$490,000   | \$ 94,600      |
|     | .05956     | .08330         | .17070      | .05160       | .03715      | .04899       | .03774     | \$.03138      | .05287      | .03159         |
|     | 3.65       | 2.63           | 1.38        | 4.50         | 5.07        | 5.05         | 5.68       | 6.20          | 4.16        | 6.44           |
|     | \$ 775     | \$ 388         | \$ 286      | \$ 425       | \$ 1,093    | \$ 609       | \$ 784     | \$ 948        | \$ 765      | \$ 554         |
|     | \$ 8.33    | \$ 6.05        | \$ 3.18     | \$ 10.35     | \$ 11.66    | \$ 11.61     | \$ 13.06   | \$ 14.25      | \$ 9.56     | \$ 16.57       |
|     | \$ 872     | \$ 615         | \$ 437      | \$ 902       | \$ 1,173    | \$ 2,316     | \$ 1,568   | \$ 1,074      | \$ 1,096    | \$ 2,742       |

Under the Price per acre, unit of comparison, the range is from a low of \$286 per acre to a high of \$1,093, or a 382% spread. There would appear to be a central tendency around \$775 per acre. Under the Value Per Productive Unit, unit of comparison, the range is from a low of \$3.18 to a high of 14.25, or a 448% spread. The last unit of comparison that was considered is the Price Per Tillable Acre, which ranged from a low of \$432 per acre to a high of \$2,742, or a spread of 635%. When we look at the standard deviation, we find that variance from the mean is less in the Gross Income multiplier, followed next by the Overall Rate Without Taxes, then the Overall Rate With Taxes, then the Sale Price Per Productive Unit, Price Per Acre, and then finally Price Per tillable Acre. From this limited analysis, it would appear that the central tendency is generally comparable in the Income Approaches, to that found in the other approaches. When selecting the most appropriate rate for our example, we would have to consider those sales that were most comparable to the subject being appraised. Of those sales considered, Sale #5 might be considered the most comparable. Sales #3 and #5 were both similar in size, but Sale #5 was more similar in the ratio of tillable acres to total acres, and was also more similar productively. With the high ratio of tillable to total acres, and the generally higher than average anticipated yields, it would seem logical that

there would be less risk of financial loss than would be anticipated in most of the other sales considered. It would follow that we would anticipate that the appropriate Capitalization Rate would be near the low end of the range, which would be considered supportive of considering Sale #5 as most indicative. Without considering other factors, we might estimate the appropriate rate at .037.

One might argue that the variations in the other approaches are reduced through the adjustment process. Adjustments should also be considered in the Income Approach. Adjustments should be considered for any factor not already considered in the computation of the Overall Rate. It is the writer's view that the major factor not understood in the above analysis is the market's perception of risk. We typically would not adjust separately for risk, in that it is included in the Overall Rate computation. In the typical appraisal, we would select comparables that were reasonably comparable to the subject, with similar risks. In our sample we made such a selection. All sales, over a select period were considered, with each sale representing different risk or valuing factors. For instance Sale 3 was a 35-acre tract, that would have a completely different market than would Sale 9 of 640 acres. The motivation forces are entirely

different. In an actual appraisal assignment, the appraiser would select the sales that were considered most comparable, make adjustments in both the Anticipated Income and Anticipated Expenses that reflect specific property value factors, a process that is beyond the scope of this paper.

#### THE PHENOMENON OF LOW CAPITALIZATION RATES

Low capitalization rates are quite common in the valuation of agricultural properties, and uncommon with most other types of income-producing properties. It almost defies logic. You would anticipate that the lower the rate, the safer the investment. Risk is defined as, "the probability that foreseen events will not occur" (The Appraisal of Real Estate, 9th Ed., 1987, 606). Most would agree that farming is one of the most risky occupations that there is.

While most investors do desire to obtain a return on their investment, most are concerned with the risk that is involved in the return of the capital investment. To understand this phenomena, one must consider the probability that agricultural land will decline in value over the anticipated holding period. Agricultural purchasers are generally owner operators, who are long-term investors, with many holding on to the property from generation to generation. Therefore,

the holding period that must be considered is not 6 to 10 years, as might be typical in other income producing properties, but is more apt to be 20 years or better. Table 17 is a summary of the annual changes in farmland values for the State of Iowa, over the past 20 years.

TABLE 17

| YEAR | VALUE<br>PER ACRE | DOLLAR<br>CHANGE | PERCENTAGE<br>CHANGE |
|------|-------------------|------------------|----------------------|
| 1968 | \$ 408            | \$ 12            | 3.0                  |
| 1969 | \$ 419            | \$ 10            | 2.5                  |
| 1970 | \$ 419            | \$ -0-           | 0.0                  |
| 1971 | \$ 430            | \$ 11            | 2.6                  |
| 1972 | \$ 482            | \$ 52            | 12.0                 |
| 1973 | \$ 635            | \$154            | 31.9                 |
| 1974 | \$ 834            | \$199            | 31.3                 |
| 1975 | \$1,095           | \$261            | 31.3                 |
| 1976 | \$1,368           | \$273            | 24.9                 |
| 1977 | \$1,450           | \$ 82            | 6.0                  |
| 1978 | \$1,646           | \$196            | 13.5                 |
| 1979 | \$1,958           | \$312            | 19.0                 |
| 1980 | \$2,066           | \$108            | 5.5                  |
| 1981 | \$2,147           | \$ 82            | 3.9                  |
| 1982 | \$1,801           | -\$346           | -16.1                |
| 1983 | \$1,691           | -\$110           | - 6.1                |
| 1984 | \$1,347           | -\$334           | -19.8                |
| 1985 | \$ 948            | -\$409           | -30.2                |
| 1986 | \$ 787            | -\$161           | -17.0                |
| 1987 | \$ 875            | \$ 88            | 11.2                 |
| 1988 | \$1,054           | \$179            | 20.4                 |

Despite the recession of the mid 1980's, when farm land values plummeted, over the past 20 years, farm land values have had an average increase in value of 4.86% per year. For the period from 1968 to 1981, the average rate of increase per year was 13.62%. It would appear that farm purchasers are willing to accept a

lower current rate of return. This is reflected in the lower Capitalization Rates, for what the market perceives to be anticipated future growth of capital value, in the form of deferred yield, and amenity ownership.

#### REPUDIATION OF OTHER METHODS

The appraiser must always keep in mind why we have three basic approaches to value. The three approaches are founded on the concept that in the market place a buyer has three courses of action. His three choices are to build a property to suit his needs (The Cost Approach), buy an already existing property that will suit his needs (The Direct Sales Comparison Approach), or to lease a property which offers a similar return (The Income Approach). Therefore, the appraiser is actually looking at the value of the property being appraised from the point of view of these three participants in the market place. A failure to consider one of the approaches, is to fail to include an important segment of the market, as if they never existed. I would also like to suggest that all three participants are not always present in every market. Therefore, since we cannot theoretically construct land, only expose and relocate it, the Cost Approach is not a viable method of estimating the value of land when vacant and unimproved. The assertion by some that you can estimate the value of vacant and unimproved

land by adding the estimated value of soils of various classifications together and call that a Cost Approach is totally in error. Just as the presence of the front yard effects the back yard of a residential property, so does the presence of pasture ground effect the nearby tillable ground.

The Income Approach makes the assumption that there is a relationship between value and income. If we were to use a Gross Income Multiplier, we would be saying that the relationship is between Gross Income and value. If, on the other hand we were to use Income Capitalization, then we would be saying that the relationship is between Net Operating Income and Value. I believe that this assumption must clearly understood before we can even begin to consider methodology.

To assert, as the early writer's did that value is an assemblage the approaches into one value I believe is in error. While the approaches are independent, they are related. Data in one approach may be used to support or estimate adjustments in another approach, but each approach should take into consideration the entire property from the viewpoint of that market participant. Generally, only in the Cost Approach do we combine values found in two approaches into a singular value estimate. In that approach, we combine the estimated value of the land, typically derived by

the Direct Sales Comparison Approach, with the estimated Depreciated Value of the Improvements, to form a final value estimate by the Cost Approach.

The view that the appraiser should adjust the "Earnings Value" based upon comparisons used in the Direct Sales Comparison Approach, I believe is also in error. This is similar to what I would call a "Back Door Approach", where the appraiser estimates the value by the Direct Sales Comparison Approach, then in order to make the Income Approach come out close to The Direct Sales Comparison Approach, allocates the difference to everything not previously explained. Under this concept, the Income Approach is virtually worthless. It is the view of the writer, that for the Income Approach to be meaningful, that the appraiser must adjust only the Income, or the Capitalization Rate. The Income should be adjusted to reflect market perceived effects on income and expenses, and the Capitalization Rate should be adjusted to reflect the markets perception of risk associated with the improvements or factor previously not considered.

I believe that the predominant reason that the Income Approach is not relied upon more often and consistantly, is due to the rapidly fluctuating income streams and the low Capitalization Rates. As would be

the case with other income-producing types of properties, the income and expenses need to be stabilized to reflect reasonable market expectations over the typical life of the investment. No singular year's income and expenses can reasonably be anticipated to reflect the future. Long term averages as far as crop yields, commodity prices, and operating expenses are much more reliable.

Low Capitalization Rates reflect a market perception of low risk in the return of capital. In the case of farm land, it would appear that the market perceives vacant land to be very low in risk. The higher the ratio of tillable to non-tillable the lower the rate of risk, and the higher the productivity rating the lower the risk.

To further clarify risk, let's compare land to what is generally considered the safest investment, money. History has proven that due to inflation, money left in one's pocket declines in value constantly. That is because money is considered the store-house of purchasing power, and inflation takes away purchasing power. Unlike land, money has no utilitarian purpose other than to transfer this purchasing power from one individual to another. Land on the other hand can be transferred from one individual to another, but also has the ability to produce a necessity, food. Money,

unlike land, can be lost or stolen. All of these factors, and many more, need to be considered in the evaluation of risk, and it would appear that the market perceives there to be generally low risk in land as an investment.

Is the Income Approach a meaningful indication of value? I believe that the data would suggest that when it is properly and consistently done, that the Income Approach is just as reliable as either of the other two approaches, providing there is comparable quantity and quality of data.

#### SUMMARY AND CONCLUSIONS

In summary, we suggested that when properly considered and applied that the Income Approach can give a significant indication of the value of a grain farm in Lee County, Iowa. Historically, appraisers have failed to consider properly the relationship of the approaches to each other, and have often failed to properly consider what the Capitalization Rate and Gross Income Multiplier actually meant. It was not our position that the Income Approach was the most reliable, but merely that it offers a significant indication of the value of the property. The statistical analysis given supports the conclusion that its reliability is equal to that of other units of comparison often used, with comparable central

tendencies. The reliability of the approach is dependent upon the amount of data, the comparability of the properties considered, and the quality of the data used, as would be the case with the other approaches.

I believe that the data also supports the contention that the method of analysis, while important, is not as important as the consistency of its application between the property being appraised and the comparables used. Appraisers commonly try to outsmart the market with sophisticated mathematical models, and in the process miss the market entirely. Any analytical process used in estimating market value is only of value if it reflects current market thinking.

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