Chapter 14

Agricultural Valuation

In 1974, the State Legislature amended the Rule of Uniform Taxation in the Wisconsin Constitution to permit the preferential treatment of agricultural land. The 1995-97 Budget Act changed the standard for assessing farmland in Wisconsin. The goal of this legislation, known as use-value assessment, is to protect Wisconsin's farm economy and curb urban sprawl by taxing farmland based upon its agricultural productivity, rather than its potential for development.

Specifically, the value of agricultural land for assessment purposes was changed from market value to use-value. In a use-value assessment system, an agricultural property's use is the most important factor in determining its assessment classification.

The International Association of Assessing Officers (IAAO) textbook, *Property Appraisal and Assessment Administration*, defines "use-value" as "the value of a property for a specific use." In other words, the use-value of a particular parcel of real estate is directly related to the contributory value of the enterprise located upon it. The use-value legislation passed in 1995 requires that the assessed value of farmland be based on the income that could be generated from its rental for agricultural use. The income and rental from farming of comparable land are a function of its agricultural capability. Because any land could theoretically be used for agricultural purposes, statutes and administrative rules limit the benefit of use-value assessment to only those lands that qualify as "land devoted primarily to agricultural use."

The following discussion highlights the law changes relating to the assessment of agricultural land.

Statutory Changes

It is important for assessors to remember that the assessment process is an evolving activity. Statutory changes are made often. At times the statutory changes may be in conflict with The Wisconsin Administrative Rules. In cases of conflict the assessor must follow the state statutes.

Just such a conflict exists with the inclusion of short rotation woody crops in the agricultural class. 2009 Wisconsin Act 401 created sec. 70.32(2)(c)1i, Wis. Stats., which states, "'Agricultural use' means agricultural use as defined by the department of revenue by rule and includes the growing of short rotation woody crops, including poplars and willows, using agronomic practices." Act 401 also created sec. 70.32(2)(c)1k, which states, "'Agronomic practices' means agricultural practices generally associated with field crop production, including soil management, cultivation, and row cropping."

Wisconsin Administrative Rules Tax Chapter 18 specifically excludes short rotation woody crops from the agricultural class.

Sec. 70.32(2)(c)1d, Wis. Stats., which defines the Agricultural Forest class of property, was amended by 2003 Wisconsin Act 230 and was effective January 1, 2005.

Agricultural Forest is "land that is producing or is capable of producing commercial forest products, if the land satisfies any of the following conditions:

a. It is contiguous to a parcel that has been classified in whole as agricultural land under this subsection, if the contiguous parcel is owned by the same person that owns the land that is producing or is capable of producing commercial forest products. In this subdivision, 'contiguous' includes separated only by a road.
b. It is located on a parcel that contains land that is classified as agricultural land in the property tax assessment on January 1, 2004, and on January 1 of the year of assessment.
c. It is located on a parcel at least 50 percent of which, by acreage, was converted to land that is classified as agricultural land in the property tax assessment on January 1, 2005, or thereafter."

The assessor should refer to the 2004 assessment roll, which is available from the municipality, to determine if a parcel contained agricultural land on January 1, 2004. "Agricultural forest" classification examples are provided in Appendix 11-D, Agricultural Forest.

Sec. 70.32(4), Wis. Stats., specifies how Agricultural Forest is valued for assessment purposes. Sec. 70.32(4), Wis. Stats., states, "Beginning with the assessments as of January 1, 2004, agricultural forest shall be assessed at 50% of its full value, as determined under sub. (1) …"

After determining the full value of the Agricultural Forest land in accordance with sec. 70.32(1), Wis. Stats., state case law, and professionally accepted appraisal practices, the value is reduced by 50% under sec. 70.32(4), Wis. Stats.

The eight classes of real property as of January 1, 2004 are:

1 – Residential	3 – Manufacturing	5 – Undeveloped land	6 – Productive Forest Land
2 – Commercial	4 – Agricultural	5m – Agricultural Forest	7 – Other

Farmland Advisory Council

The legislation authorizing use-value assessment provided for the creation of a Farmland Advisory Council. The Secretary of Revenue chairs the ten member council and its other members represent agricultural, financial, academic, assessment, environmental, and governmental interests. Section 73.03(49), Wis. Stats., outlines the duties of the farmland advisory council. The law directs the council to perform the following:

- advise DOR on the rules and guidelines for the *Wisconsin Property Assessment Manual* regarding implementation of use-value assessment of agricultural land.
- recommend to the legislature a penalty for converting agricultural land to another use.
- annually report to the legislature on the effectiveness of use-value assessment as a way to preserve agricultural land and reduce its conversion to other uses.
- recommend a method of adjusting the shared revenue formula and other formulas using equalized values to compensate taxing jurisdictions adversely affected by use-value assessment.
- calculate the federal land bank's 5-year average capitalization rate and per-acre values for agricultural land based on estimated income from rental for agricultural use.
- work cooperatively with the Governor's Interagency Land Use Council.

Charge for Converting Use

When land that is classified as agricultural under sec. 70.32(2r), Wis. Stats., sells and remains in an agricultural use as defined by rule, there is no fee. When land that is classified as agricultural under sec. 70.32(2r), Wis. Stats., changes use and is no longer eligible for agricultural classification the property owner is subject to a conversion charge under sec. 74.485, Wis. Stats. Land changing from Agricultural (class 4) to Undeveloped (class 5), Agricultural Forest (class 5m), Productive Forest Land (class 6), or Other (class 7) is not subject to a conversion charge. Under sec. 74.485(9), Wis. Stats., the county administers the penalty.

Assessors must use caution when removing lands from the agricultural classification if the properties are experiencing either drought or flooding. The assessor should look at the history of the property, the intent of the property owner and the conditions of nature when determining whether the property should be removed from the agricultural classification. For example, if historically the property owner removed hay from the land, but due to a drought or flooding was unable to cut hay on the property for one year, the assessor should take this into consideration before deciding if they should remove the property from agricultural classification.

Scenario 1 – 2014 Assessment

- 120 acres is compatible with agricultural use on the 2014 assessment date, 1/1/14
- The 120 acres has been historically devoted primarily to a qualifying agricultural use
- 50 acres of the 120 was flooded during the spring of 2013
- The 50 acres was not able to be devoted primarily to a qualifying agricultural use during the 2013 production season due to the flooded conditions
- The remaining 70 acres were devoted primarily to a qualifying agricultural use
- The 50 acres as well as the 70 acres are all intended to be devoted primarily to a qualifying agricultural use for the 2014 production year

DOR recommends the assessor maintain the 50 acres as agricultural for 2014. The assessor needs to review during 2014 for the 2015 assessment as part of the required annual classification determination process.

Scenario 2 – 2014 Assessment

- 120 acres is compatible with agricultural use on the 2014 assessment date, 1/1/14
- The 120 acres has been not been historically devoted primarily to a qualifying agricultural use. The 120 acres has had agricultural and undeveloped classifications. Agricultural classification applied when the land was devoted primarily to a qualifying agricultural use during the production season. Undeveloped classification applied when the land was not devoted primarily to a qualifying agricultural use.
- 50 acres of the 120 was flooded during the spring of 2013
- The 50 acres was not able to be devoted primarily to a qualifying agricultural use during the 2013 production season due to the flooded conditions
- The remaining 70 acres were devoted primarily to a qualifying agricultural use
- The intended use for the 2014 production year is not certain for all 120 acres

DOR recommends the assessor classify the 70 acres as agricultural and the 50 acres according to the provisions in Chapter 7. The assessor needs to review during 2014 for the 2015 assessment as part of the required annual classification determination process.

Conversion Charge Calculation

The charge for a change in use is provided under sec. 74.485(2), Wis. Stats.

Assessors shall inform the county treasurer and the real property lister of all sales of agricultural land located in the county. No later than 15 days after the BOR has adjourned, the assessor shall also deliver to the county treasurer all information necessary to compute the conversion charges. The county treasurer will compute the conversion charge based on the formula listed below.

Number of acres converted	X	The County's prior year average fair market value of an acre of agricultural land	Minus	The County's prior year average Equalized Value (use value)* of an acre of agricultural land	X	5% if >30 acres or 7.5% if 10 – 30 acres or 10% if <10 acres

*Provided by the Department of Revenue

DOR has computed the dollar per acre charge for each county. The Agricultural Land Conversion Chart is available on the DOR website. The chart can be used to estimate the amount of a conversion charge if a property owner desires to do so.

Conversion Charge Payment

Payment of the conversion charge is provided under sec. 74.485(5), Wis. Stats. The charge is paid to the county treasurer where the property is located no later than 30 days after the assessment of the charge. One percent interest per month is added to conversion charges that are not paid timely. The county collects unpaid charges as a special charge against the land.

Exceptions

Sec. 74.485(4)(a), Wis. Stats., states that payment is not required when the calculated penalty amounts to less than $25 per acre. Additionally, the owner is not penalized when land has been valued under sec. 70.32(2r), Wis. Stats., and is converted to the following uses:

- Under sec. 70.32(2)(a), Wis. Stats., 5 Undeveloped Land
- Under sec. 70.32(2)(a), Wis. Stats., 5m Agricultural Forest
- Under sec. 70.32(2)(a), Wis. Stats., 6 Productive Forest Land
- Under sec. 70.32(2)(a), Wis. Stats., 7 Other

Deferral

Sec. 74.485(4)(b), Wis. Stats., provides for deferral of the conversion charge. If a conversion charge is due under sec. 74.485(2), Wis. Stats., the county treasurer where the property is located may defer the payment if the land will be used as agricultural under sec. 70.32(2)(c)1g, Wis. Stats., in the succeeding tax year. If the land is devoted primarily to an agricultural use in the succeeding tax year no conversion charge is due. However, if the land

is not in an agricultural use in the succeeding tax year, the owner who received a deferral shall pay the conversion charge plus one percent interest per month from the date of deferral to the date of payment.

Notice by Seller

When selling land classified as agricultural, the seller must inform the buyer of the following under sec. 74.485(7), Wis. Stats.

- The land has been assessed as agricultural under sec. 70.32(2r), Wis. Stats.
- If conversion charge has been imposed upon the person selling the land.
- If a conversion charge payment deferral has been granted to the person selling the land.

Appeal of Conversion Charge

Section 74.485, Wis. Stats., did not address the issue of the property owner's ability to appeal the conversion charge once it is issued. Assessors are required to include the Agricultural Land Conversion Charge notice, PR-298, with the Notice of Changed Assessment if they reclassify agricultural land to a class that does not qualify for use value.

If the property owner does not agree with the change in classification, they must contact the assessor, attend open book, or appeal the classification at BOR. Note: 2017 Wisconsin Act 68, effective November 27, 2017, requires a 7 day period between open book and board of review. Section 70.47(1), Wis. Stats., states in pertinent part: *The board of review shall met annually at any time during the 45-day period beginning on the 4th Monday of April, but no sooner than 7 days after the last day on which the assessment roll is open for examination under s. 70.45.*

This is the only time the property owner will be able to appeal the conversion charge. The Agricultural Land Conversion Charge notice is available on the DOR website.

Distribution

The county where the property is located administers the penalty for conversion of agricultural land. Sec. 74.485(6), Wis. Stats., provides specification on the distribution of the conversion charge. The county that collects the charge distributes 50% of the charge to the taxation district where the property is located. When land subject to a conversion charge is located in two or more taxation districts, the county distributes 50% of the charge to the taxation districts based upon the equalized value of the land subject to the charge. If the land was annexed into an adjoining taxation district during the two years preceding the conversion charge, each taxation district receives 50% of the 50% from the county.

Role of the Municipal Assessor

During the annual assessment process, the assessor should be aware of changes in the use of agricultural land. As provided by sec. 74.485, Wis. Stats., lands changing from an agricultural use to residential, commercial, manufacturing, or exempt is subject to penalty. After the Board of Review is complete, the municipal assessor is responsible for providing the information necessary for the County Treasurer to issue the conversion charge, including conversions to manufacturing use. When a sale of land in an agricultural use occurs, the

assessor should note if a change in use occurs and who changes the use, the grantor or the grantee. The following information should be provided by the assessor to the County Treasurer:

- Provide the name of the property owner at the time the change in use occurred.
- When available, provide the mailing address of the property owner who changed the use of the land.
- Provide the current use (classification) of the acres previously devoted to agricultural use.
- Provide the parcel number.
- Provide the number of acres no longer in an agricultural use.

DOR provides a form for sending conversion charge information to the County Treasurer. Additional information is provided in Appendix 11-C, Use-Value Penalty.

The following Dane County example is for illustrative purposes only.

Example

July 1, 2002	January 1, 2003	May 1, 2003	July 1, 2003	January 1, 2004	October 2004
• 50 acres of land in Dane County is primarily devoted to an agricultural use (sec. 70.32(2)(c)1g, Wis. Stats., & Tax 18.05) during the production season.	• The 50 acres of land is not in a use incompatible with agricultural use on the assessment date. • The land was in an agricultural use during the prior production season. • The land is classified agricultural and assessed at its use-value for the 2003 assessment year.	• The 50 acres of land sells.	• The 50 acres of land is excavated for commercial development • The land is no longer primarily devoted to an agricultural use.	• The land is in a use incompatible with agricultural use on the assessment date. • The land is assessed at its market value and classified as commercial. • A penalty is due under sec. 74.485(2), Wis. Stats.	• The municipal Board of Review is complete. • The following information is provided by the assessor to the County Treasurer. • Parcel number • Owner's name and mailing address at time of conversion • Number of converted acres (excluding conversions to class 5, 5m, 6 & 7) • The County Treasurer issues the penalty.

According to DOR, the 2004 charge for converting more than 30 acres in Dane County is $181 per acre. Penalty = 50 acres @ $181/acre = $9,050. According to sec. 74.485(5), Wis. Stats., the penalty is due to the county 30 days from issuance. Unpaid conversion charges are added to the property tax bill as a special charge.

Full Valuation Compliance

Sec. 70.05, Wis. Stats., describes the full valuation compliance requirements by which assessors must perform their work. Sec. 70.05(5)(a)1m, Wis. Stats., was changed to redefine "class of property" to agree with the changes made to sec. 70.32(2)(a), Wis. Stats., previously described. For the purposes of monitoring assessor compliance with full value requirements under sec. 70.05, Wis. Stats., agricultural land is not considered in compliance measurements. Compliance is measured using the following classes of property only: (1) residential, (2) commercial, (3) the sum of undeveloped land, agricultural forest, productive forest and other, and (4) personal property.

Assessment of Agricultural Property Beginning in 2000

For the 2000 assessment year and beyond, the assessment of agricultural property will be performed according to the statutory provisions in sec. 70.32(2r)(c), Wis. Stats. All parcels of agricultural land shall be assessed at full use value. Chapter Tax 18 - Subchapter II establishes the definitions and provides the criteria to implement the assessment of agricultural land. The following definitions will guide the assessor in the creation of an assessment roll.

Definitions

Please see Chapter Tax 18 for relevant definitions to use in concert with applicable statutes.

Classification

Under Wisconsin's agricultural assessment law and the passage of Act 33, the classification of a property can affect its assessed value. Therefore, assessors must carefully review the classification of all property to assure that land classified agricultural conforms to sec. 70.32(2)(c)1g, Wis. Stats., and the definitions in Chapter Tax 18. Any factor or use that prevents land from being placed in an agricultural use (cropland or pasture) precludes its classification as class 4 (agricultural) land. For example, land left fallow or unpastured in the prior production season is not "land devoted primarily to agricultural use" (Ch. Tax 18.05(4)) and should be classified according to sec. 70.32(2), Wis. Stats. as undeveloped (class 5), agricultural forest (class 5m) or productive forest land (class 6).

Agricultural - Class 4

Chapter Tax 18.06 (1) offers assessors the following guidance to assist with the general classification of agricultural land:

> "An assessor shall classify as agricultural land devoted primarily to agricultural use. Land devoted primarily to agricultural use shall typically bear physical evidence of agricultural use, such as furrows, crops, fencing or livestock, appropriate to the production season. If physical evidence of agricultural use is not sufficient to determine agricultural use, the assessor may request of the owner or agent of the owner such information as is necessary to determine if the land is devoted primarily to agricultural use."

Assessors should carefully consider all relevant factors and definitions when determining land classification.

Class 4 agricultural includes all unimproved property used for farming. Agricultural land includes land that produces a crop or supports livestock. When evaluating a farm, assessors will first need to identify agricultural land. To be classified as agricultural land (Class 4), a parcel must be "devoted primarily to agricultural use." An "agricultural use," as defined in

Chapter Tax 18.05(1), includes any activity listed under the North American Industrial Classification System subsector 111 Crop Production and 112 Animal Production, growing Christmas trees or ginseng, and land eligible for enrollment in specific federal agricultural programs. It is not necessary for a parcel to be zoned as agricultural in order to be classified as agricultural for assessment purposes. Municipal zoning is not an adequate reason to deny the agricultural classification. Determination of agricultural status is based solely on whether use of the parcel is agricultural in nature.

Agricultural Classification Using NAICS

For land to be eligible for classification as "Agricultural," the activities and use of the property must fit within the definitions contained in Chapter Tax 18.05. Usually, the agricultural use of a property will be obvious.

Chapter Tax 18.05 refers to subsectors 111 & 112 of the North American Industry Classification System (NAICS) of the U.S. Office of Management & Budget for defining most of the "agricultural uses" that may make land eligible for classification as "agricultural" land for assessment purposes. Consulting the NAICS manual definitions will assist the assessor in determining whether a particular use is an "agricultural use" and whether the property has "land devoted primarily to agricultural use."

Under the NAICS an "establishment" is described as "a single physical location, where business is conducted or where services or industrial operations are performed...." Agricultural establishments within NAICS Sector 11--Agriculture, Forestry, Fishing, and Hunting, include those primarily engaged in agricultural production. Farms are the establishment units used for the industrial classification of agricultural production. A farm may consist of a single tract of land or several separate tracts that may be owned or leased by one or more persons, or a partnership, corporation or other type of organization. Each operating establishment is assigned an industry code based on the primary product or group of products produced.

The NAICS Manual classifies establishments primarily engaged in crop (subsector 111) or livestock and livestock product (subsector 112) production when production accounts for 50 percent or more of the total value of sales for its agricultural products. Establishments with 50 percent or more crop or animal production with no one product or family of productions of an industry accounting for 50 percent of the establishment's agricultural production are treated as general combination crop farming classified in Industry 11199 "All Other Crop Farming," or Industry 11299 "All Other Animal Production."

The NAICS classifies maple sap gathering, Industry #111998, a crop industry. Use value applies to maple sap gathering acres when the producer practices the maple sap industry standard of tapping all qualifying acres every year. In accordance with Chapter Tax 18.05, the producer needs to be actively tapping and gathering sap in the prior production year. The number of trees tapped in a given area needs to be extensive enough such that the acreage is considered primarily engaged in maple sap gathering. Land devoted primarily to maple sap gathering is categorized according to the soil type.

Establishments engaged in raising ducks, geese, pheasants, and quails are included in Industry #112390 "Other Poultry Production." Establishments in industry #112390 raise or fatten these domesticated animals for the sale of the animals or the products they produce. Poultry, like other farm animals, are confined in buildings and within fenced areas. Land devoted primarily to the keeping and grazing of poultry is considered an agricultural use. Please view the pasture section later in this chapter for more information. Land devoted primarily to poultry production is categorized according to the soil type.

Several uses of land may seem agricultural on the surface, but fail to meet the definitions in Chapter Tax 18.05 and, thus, are not eligible for classification as "agricultural" land. Some examples of uses that are not "agricultural uses" include those listed in the following NAICS sector and subsector groups:

Sector 11. – Agriculture, Forestry, Fishing, and Hunting

- Timber tract operations (for sale of timber), (113110)
- Forest nurseries (for reforestation) and gathering of forest products (barks, needles, moss, etc.), (113210)
- Fishing preserves (114210)
- Game preserves (114210)
- Hunting preserves (114210)
- Game propagation (114210)
- Support activities for animal production (115210)
  - boarding horses
  - training horses
- Support Activities for Forestry (115310)

Sector 54. – Professional, Scientific, & Technical Services

- Animal hospitals & shelters (541940)

Sector 61. – Educational Services

- Riding instruction academies & schools (611620)

Sector 71. – Arts, Entertaining, and Recreation

- Racetrack operation: e.g., horse, dog (711212)
- Horses, race: training (711219)
- Racing stables, operation of (711219)
- Fishing piers & lakes, operation of (713990)
- Rental of saddle horses (713990)
- Riding stables (713990)

Sector 81. – Other Services

- Boarding kennels (812910)
- Training animals (812910)

The aforementioned activities are those of commercial, rather than agricultural establishments. The important distinction is that land used for any of these activities is not used for the production of crops, livestock or livestock products.

The industries in subsector 114, (Fishing, Hunting and Trapping), harvest fish and other wild animals from their natural habitats. These industries are dependent upon a continued supply of the natural resource. Included in this subsector are game preserves, hunting preserves, and game propagation. These are commercial establishments and typically have to be licensed through the DNR as a Game Farm. These establishments are not agricultural.

Hobby farms are another operation that may appear to be agricultural on the surface, but fails to meet the definitions in Chapter Tax 18.05 and, thus, are not eligible for classification as "agricultural" land. In order to qualify as agricultural the property must be primarily devoted to agricultural use. A hobby farm is generally devoted to residential use, with an incidental agricultural use. As such, hobby farms should be classified as residential. Any forest land should be classified as forest, any undeveloped land, should be classified accordingly.

Categories of Agricultural Land

Chapter Tax 18.06 (2) specifies five categories of agricultural land that assessors will use to describe the makeup of all parcels of agricultural land:

> "For each legal description of property that includes a parcel of agricultural land, the assessor shall indicate on the property record card, by acreage, the category of agricultural land. Categories of agricultural land are the following:
>
> a. First grade tillable cropland.
> b. Second grade tillable cropland.
> c. Third grade tillable cropland.
> d. Pasture.
> e. Specialty land.

Within the agricultural class, land is typically divided into two broad categories, cropland and pasture. Typically, the physical qualities of the underlying soil affect its potential uses. Except for tillable lands used for rotational grazing, the actual use of the land will support a general categorization as cropland or pasture. For croplands, the soil's characteristics and agricultural capabilities will guide the assessor to an accurate grade categorization. Assessors should categorize agricultural land uniformly throughout the municipality.

When discovering land in an agricultural use during the production season for the prior year and not in a use contrary to agricultural on the following January 1, the assessor determines the number of acres in each category(s) of agricultural land on the parcel. Categories of agricultural land – tillable grade 1, tillable grade 2, tillable grade 3 or pasture – are based on soil productivity (yield in terms of corn). The soil productivity rating considers slope and erosion. Yield in terms of corn is a major determinant of land rent for agricultural purposes. Regardless of the crop grown, the method of valuation remains the same. It should be noted that the classification of land capable of being tilled but used as pasture is a function of

capability and not use. For example, grade 2 tillable land may be used for growing corn, beans, potatoes, or grasses. Nevertheless, it remains grade 2 tillable based upon its capability to grow corn.

Land productivity varies depending on soil texture, soil structure, complement of plant nutrients, contour, water resources, moisture retention qualities and climate. The capability of some land may be insufficient to consistently produce an income to its owner. Due to variability in productivity, the assessor should grade agricultural cropland using information available from the USDA Natural Resource Conservation Service (formerly the Soil Conservation Service). The grading of soils should suggest the differential and measurable qualities that exist between soils. Appraisals of agricultural land are often based on a land grading system. A step-by-step outline for grading agricultural land can be found later in this chapter under Grading of Agricultural Land.

In Wisconsin, assessors should divide agricultural lands into five categories on the property record card (PA-500): 1st grade, 2nd grade, 3rd grade, pasture, and specialty (see Figure 14-1). At this time, only cranberry beds and fish ponds are identified as specialty lands. The PA-500 form has been revised and now includes a line for specialty land.

Figure 14-1

CLASS		YEAR				
		NO AC	PER AC	LAND	IMPTS.	TOTAL
4	1st Gr. Tillable				X X X X	X X X X
	2nd Gr. Tillable				X X X X	X X X X
	3rd Gr. Tillable				X X X X	X X X X
	Pasture				X X X X	X X X X
	Specialty				X X X X	X X X X

Cropland

Generally, cropland is tilled land used for cultivating plants or agricultural produce, such as grain, vegetables, or fruit. It not only includes plowed land, but land in tame hay, marsh hay or in federal programs. Tillable land which is used for rotational grazing should be classified as the appropriate grade of tillable land.

An agricultural property's greatest asset is its soil. The soil makeup in an area usually determines the type of farming. The soil conditions of a farm often dictate the amount and kind of soil management necessary to produce a crop. Soils play such an important part in rural agricultural valuation that it is essential to have a sound knowledge of soil makeup and productivity. Tillable cropland is differentiated into three categories or grades based on soil survey production capabilities, slope, and erosion ratings. These three categories of agricultural land are listed in Chapter Tax 18.06(2)(a), (b), and (c).

1st Grade Tillable

This category includes lands that are tilled or otherwise planted and used for farm purposes. Grade 1 soils consist of those soil series and types shown on the county soil survey as possessing the best production capabilities with suitable slope and erosion ratings. It can include land planted in tame hay which is harvested for use on the farm or for sale and land enrolled in federal programs.

2nd Grade Tillable

This category includes those lands used for farm purposes that are tilled or otherwise planted and made up of the soil series and types shown on the county soil survey as having a lesser production capability than 1st grade soils. It also includes lands consisting of those soil types with the best production capability but whose poorer slopes and erosion ratings exclude them from being classed as 1st grade. Based on the predominant soil types found under irrigation across the state, all irrigated lands should be placed in this category unless the soil type is more appropriately categorized as 1st or 3rd grade tillable.

3rd Grade Tillable

This category includes those lands used for farm purposes that are tilled or otherwise planted and made up of the soil series and types with the poorest productivity rating or those soils of higher productivity with the poorest slope and erosion ratings that prevent them from being classed in a higher grade. Marsh or other wild land that has never been cultivated, but from which grass is cut each production season for use on the farm or for sale, is included in this category. Land entered into federal conservation programs is typically marginal (third grade tillable) cropland.

Pasture

Pasture includes open pasture, cut-over land, wooded pasture, and wetland pasture (this does not include tillable land used for rotational grazing). This category includes land devoted to agricultural use, specifically the keeping, grazing or feeding of livestock for the sale of livestock or livestock products. Most pastureland has poor soil characteristics in terms of such characteristics such as productivity, slope, drainage, erosion, or rockiness that prevent its use as tillable cropland. Distinct areas where livestock do not enter because of such things as slope, rocks, water, or natural boundaries should be classified as undeveloped land or forest land. Open pasture land with 1st, 2nd, or 3rd grade soil productivity ratings should be categorized as such.

Open Pasture and Cut-Over Land

Open pasture should only be classified as pasture if the soil is such that it could never be tilled due to poor soil conditions.

Cut-over land includes land which timber has been removed and its current predominant use is pasture.

Wooded and Wetland Pasture

Active grazing keeps the undergrowth in check. This condition is apparent when one compares wooded or wetland pasture with unpastured woodland or wetland. This comparison is best made during the growing season. The undergrowth in wooded pasture will be grazed down allowing the livestock to roam freely under the tree canopy. Woodland that is not grazed upon will have much thicker undergrowth.

A few paths through a wooded area is not convincing evidence that the wooded area is being pastured. Also, periodic use of wooded areas is not convincing evidence that wooded areas are being pastured. The assessor should consider if the predominant use of woodland or wetland is pasture. The land should be pastured daily or on a reasonably periodic basis.

Marshland used for pasture should not be classified as undeveloped land (Class 5). If pastured marshland is cultivated, it should be categorized as first, second, or third grade tillable cropland.

Pasture Eligibility

To be eligible as pastureland, the land must comply with the definition in Chapter Tax 18. Also, the land must meet all of the following requirements. The land must:

- Be *primarily used for keeping, grazing, or feeding livestock*
- Never have been successfully plowed or if it has been plowed, cultivation has been abandoned due to poor soil characteristics
- Be devoted *primarily* to and
- Be predominantly *used* as pasture
- Be *substantially* grazed by the livestock
- Be fenced to adequately prevent animals from straying

Short Rotation Woody Crops

As of January 1, 2011 short rotation woody crops (SRWC) can be classified as agricultural. SRWC are generally grown to supply the Biofuel industry. The species most often grown are poplar and willow. The rotation length for SRWC is 3 to 12 years, depending on species, spacing, growing conditions, and desired tree size. Growing and harvesting SRWC is similar to agricultural crops, and conventional farming equipment can be used to cultivate and harvest SRWC, especially if a short rotation is used. Normally, after three rotations, productivity is lost and plantations need to be re-established. Depending on the intensity of management, this time frame could take 30 to 60 years.

Poplar is a general term and includes species of cottonwoods and aspens. Unmanaged stands of cottonwoods on good sites can yield 24 cords of pulpwood per acre (53 tons) at 10 years. Intensively managed plantations of genetically improved cottonwoods on the best sites will produce an average yield of 5 dry tons/acre/year. In just six growing seasons, hybrid poplars can reach 60 feet or more in height.

Willows in natural stands, and on preferred sites, can average 50 feet tall and 5.6 inches in diameter in just 10 years. On such sites, trees self-prune very well. If fertilized and irrigated, yields of 3-year old rotations have exceeded 10.8 dry tons/acre/year.

Sources of additional information:

- USDA Forest Service: Opportunities for Growing Short-Rotation Woody Crops in Agroforestry Practices, May, 1998
- University of Tennessee: Short Rotation Woody Crops for Biofuel, December, 2007.
- T. A. Volk, State University of New York: The sustainability of Short-Rotation Willow Biomass Crops.

11199 All Other Crop Farming

111998 Maple Sap Gathering

Assessors will need to view a maple sap gathering operation to determine if the acreage covered by a stand of maple trees will qualify for use value assessment. It is important to conduct an on-site inspection to obtain the information needed to make a determination. Do not rely on producers photographs to make your determination. While production documentation is important to the operations legitimacy, use value demands USE; therefore the taps per acre are the determining factor. Assessors should also understand that maple sap gathering is weather dependent; therefore, production is not an indicator of effort.

The North American Industry Classification System manual defines US industry standards for tree sap collection and is used to determine if a property qualifies for use value assessment. This manual is published by the US Office of Management and Budget. The table below provides the details needed to determine eligibility.

		Plantation	Natural Stands		
Acres	DBH	Trees per acre	Trees per acre	Taps per acre	Taps per tree
1	10"	70	80	50	1
2	10 to 12"	70	55-60	50	1
3	18"	30	35	35-50	2
4	24"	30	35	35-50	3
5	N/A	30	35	35-50	3
6-10	N/A	30	35	35-50	3
11-15	N/A	30	35	35-50	3
16-40	N/A	30	35	35-50	3
Information obtained from A Guide to Sugarbush Stocking by H. Clay Smith and Carter B. Gibbs, USDA Forest Service Research Paper NE-171, 1970					

The number of trees tapped in a given area needs to be extensive enough such that the acreage is considered primarily engaged in maple sap gathering. Assessors should inspect the operation during the harvest season, which general is between February and April. During the harvest season, the taps, lines and collection barrels or buckets will be visible,

and it will be much easier to identify the number of taps in each tree. Outside of the harvest season, the tapping scars on the trees will be the only evidence of maple sap gathering.

When contacted by a property owner that may have a maple sap gathering operation and is not currently receiving use value assessment, an on-site inspection will be necessary to determine if a classification change is warranted. This will also provide the necessary documentation to defend the decision at Board of Review if agricultural classification is denied and the classification is appealed.

The main factors used to determine eligibility are:

- The producer must have actively gathered sap in the previous production year.
- Tree size, which is the diameter of the trunk at breast height or DBH.
- The minimum number of taps per acre, which varies from 35 to 50 depending on tree diameter.

Large, well established maple groves tend to have fewer and larger trees. The industry standard for larger trees is three taps per tree and a minimum of 35 taps per acre.

Smaller, younger trees can only support one tap and grow closer together. For smaller, younger trees the industry standard requires a minimum of 50 taps per acre.

It is the producer's responsibility to provide evidence of the DBH, number taps per tree, and the number of taps per acre. It is acceptable for the producer to have more than the minimum number of taps per tree and acre.

Assessors may encounter an operation that does not meet the taps per acre minimum on some of the acreage; but, when looked at as a whole, the taps per acre meets the minimum industry standards. For example, a producer owns 40 acres with maple trees. On three of the acres they are not able to show that they have the minimum number of taps per acre; however, when the total number of taps divided by 40 acres meets the minimum industry standards, the entire 40 acres is eligible for use value.

Another scenario exists when a parcel partially qualifies for use value. A producer has a 40 acre parcel containing maple trees. Only 25 acres of the parcel meet the minimum industry standards of trees per acre. The producer is able to prove they meet the minimum number of taps per acre on the 25 acres. In this scenario only the 25 acres would qualify for use value. The remaining 15 acres of forest would be classified as agricultural forest and valued at 50% of market value.

A typical maple sap gathering operation will have standard equipment on site including:

- Line networks connecting trees to buckets or collection centers
- A "Sugar Shack" with storage containers, firewood and an evaporator or pan
- Materials and equipment used for tapping
    - Drills and drill bits
    - Taps per spigots on hand
    - Buckets on site or in storage
    - Lines on site or in storage – adequate lineal feet
    - Connectors and wire

- Collection barrels
- Burner, evaporator or kettle
- Thermometer
- Filter, defoamer or hydrometer
- Draw off faucets
- Stove pipe
- Structure components

Typical operation documentation would include:

- Sales receipts
- Income tax information
- Permits
- Contracts or agreements
- Membership in a professional organization such as Wisconsin Maple Syrup Producers may also be provided

Upon making a determination that the forested land is eligible for use value, soils maps should be used to determine the proper grade or grades.

Additional efforts should be made by the assessor to review all classifications of wooded property where maple sap gathering is made. It is likely various classifications are more apparent on these parcels since a degree of scrutiny is used to establish use value classification on maple forests. Be diligent and utilize county GIS WEB applications, review air photos of the site prior to inspections, and look for classification distinctions present on these air photos. Undeveloped classifications, such as swamps and areas subject to inundation, often accompany maple forests where found in the state.

Bees and Grazing Land

NAICS, 1997 refers to bee and bee products in the following agricultural references:

1129 Other Animal Production

112910 Apiculture

This industry comprises establishments primarily engaged in raising bees. These establishments may collect and gather honey; and/or sell queen bees, packages of bees, royal jelly, bees' wax, propolis, venom, and/or other bee products.

Beekeepers in the United States range from hobbyists, to sideliners, to commercial operators. Hobbyists maintain 1 to 2 hives, sideliners maintain up to 500 hives, and commercial beekeepers operate 1,500 to 2,500 hives of bees. A commercial beekeeper derives their main source of income from beekeeping. One colony contains 20,000 to 30,000 bees. A typical colony gathers nectar in a 40 square mile area (25,600 acres). A bee can travel 3.5 miles from the colony on a single flight at speeds reaching 15 miles per hour. While on these journeys a bee will come in contact with 50 to 100 flowers, returning to the hive carrying half their weight in pollen and nectar.

A typical Wisconsin beekeeper maintains 150-200 hives and generally has other sources of income. Hobbyists in Wisconsin maintain 1 to 2 hives, while sideliners in Wisconsin maintain up to 50 hives. Southern U.S. beekeepers are able to maintain higher numbers of hives due to the warmer climate and longer growing season. Many beekeepers in Wisconsin transport their bees south when the local growing season and pollination need is complete.

After becoming familiar with the area around the hive, bees travel further and at higher speeds and will cover any area that requires pollination.

The WPAM uses the North American Industry Classification System for bees as described above. Use Value would apply to land associated with beekeeping if it can be demonstrated that the crops are for the consumption of the bees. Use Value would not apply to persons involved in the practice of beekeeping that are considered hobbyists or sideliners by bee industry standards in Wisconsin.

Pasture is land devoted to the keeping, grazing, or feeding of livestock for the sale of livestock or livestock products. Although honey is a livestock product, the following issues make it difficult to identify land as unique to "bee grazing land." Bees are:

- not generally "fenced" into a particular area. Unless substantial measures are taken to confine bees, they travel to other surrounding fields,
- often moved to different lands to take advantage of flavored honey crops and the need for pollination (e.g. clover, cranberries)

Oftentimes, the lands upon which bees graze are already considered agricultural as they produce a hay or fruit crop such as clover or cranberries. These lands are eligible for use-value given their land-based crop so the issue of bee use is moot.

Lands that are used to graze bees without producing a vegetable or grain crop would have to be evaluated by the assessor to determine if the use of the land was adequately dedicated as a commercial operation for the production of bee products as defined in NAICS above.

As part of the evaluation the assessor should obtain information from the property owner as to the density of the primary plants/trees that are present, the suitability of the plants/trees for bees collecting nectar, the time frame of the plant/trees availability for nectar collection (blooming time). The information required would be similar to the information necessary for maple sap collection.

Questionable Classification Claims

Although the key to classification is actual use, the assessor should be aware of questionable classification claims. Examples include conditions where:

- animals are placed in an area for a short time to give the impression of use as pasture
- large acreage is claimed as pasture when only a few animals or animal paths are present
- foliage and plant growth is severely limited or does not exist on the land
- conditions would be unhealthy for pasturing animals
- gardens are cultivated in urban areas
- gardens are cultivated in rural areas for personal consumption

When these and other questionable classification claims arise the assessor should develop a comparative analysis of the standard agricultural production practices with the land in question. Publications from area universities, the United States Department of Agriculture, Wisconsin Agricultural Statistics Service, and the Wisconsin Department of Agriculture will specify the standard crop and animal production practices for Wisconsin and the Midwest. Generally, a single violation of an industry standard should not automatically preclude the land from agricultural classification. However, an assessor should analyze a trend of several instances that are inconsistent with the industry standards and employ the information to develop and defend a land classification determination.

As an example, consider walnut production, NAICS industry 111335. Since walnut trees do not produce walnuts until 10 years of age and maximum production does not occur until 20 to 30 years of age, there may be instances where agricultural use is questionable. If a stand of walnut trees is in its early stages of development and not producing walnuts, the assessor should evaluate if the number of walnut trees is sufficient enough such that it represents the land's primary use. Additionally, the assessor should determine if there is adherence to the walnut industry standards. The following questions should assist an assessor in determining adherence to the walnut industry standards. Please note: This should not be construed as an all-inclusive list.

- What is the number of walnut trees per acre?
- Are there other types of trees intermixed with the walnut trees? And to what extent?
- What is the spacing between the trees?
- Were the trees thinned?
- Are the soil types conducive to walnut production?
- Are the site characteristics conducive to walnut production?
- Have measures been taken to ensure proper tree growth, which can include tree pruning, weed control, animal control, etc.?
- If the trees are producing walnuts, are the walnuts being harvested?

Similarly, an assessor can develop a series of questions for an animal production industry. The following is an example of questions that can assist in determining adherence to aquaculture industry standards, NAICS industry 11251. When discovering a pond that raises fish, it is important to note the fish species and fish age as these factors will play a role in comparing the pond's characteristics to the industry standards. As previously stated, this should not be construed as an all-inclusive list.

- Is the pond registered with the Wisconsin Department of Agriculture?
- Is the pond an appropriate shape?
- Is the pond an appropriate depth?
- Is the pond an appropriate temperature?
- Is the pond monitored for proper oxygen content?
- Is the pond monitored for proper acidity levels (pH)?
- Is there periodic pond maintenance, which can include plant control and pond clearing in winter months to ensure sunlight access?
- Is the pond completely drained once every several years and allowed to remain dry for a period of time?
- Is there a record of fish statistics that includes number, size, and age by species?
- Are there measures taken to ensure fertilizers, herbicides, insecticides, organic run-off, etc. do not enter the pond?

Specialty Land

Specialty land is land devoted primarily to an agricultural use that is unable to support typical crops or the pasturing of livestock. Two types of agricultural land that should be categorized as specialty land are lands dedicated to cranberry beds and aquaculture ponds.

Cranberry beds are usually located on low wetlands that are not generally adaptable to other agricultural endeavors. Therefore, they should be categorized as specialty land. Cranberries have been grown commercially in Wisconsin for more than 100 years. Early harvesting was confined to wild and natural uncultivated areas. However, over the years, the culture of cranberries has become a very specialized and technical agribusiness.

Aquaculture, also known as fish-farming, is a growing agribusiness in Wisconsin. As wild fish stocks diminish and regulations to prevent overharvest are placed upon them, the domestic raising and harvesting of fish has increased. Ponds used to raise fish are analogous to the fields and pastures that support production of crops and livestock.

More information on the assessment of cranberry farms and ponds used for aquaculture can be found in a section near the end of this chapter entitled Special Purpose Agricultural Land Valuation.

Other - Class 7

Section 70.32(2)(c)1m, Wis. Stats. defines "Other" as, "… buildings and improvements; including any residence for the farm operator's spouse, children, parents, or grandparents; and the land necessary for the location and convenience of those buildings and improvements."

Section 70.32(2)(c)1m, Wis. Stats. provides that residences located directly on land that is part of the farm operator's land are classed as "Other". Residences of the farm operator's spouse, children, parents or grandparents are eligible. Land and improvements classified "Other" are assessed at their market value.

Farm Set

Agricultural buildings and improvements and the land necessary for their location and convenience is referred to as a "farm set." A "farm set" is a collection of agricultural buildings with intrinsic land. Once an assessor determines that a collection of improvements is a "farm set," it should be classified as "Other". The actual acreage devoted to the farm set should be accurately determined and will vary depending on the location of the home and other improvements. The assessor should consider each parcel of improved property individually.

It is important to remember that "agricultural" land cannot include any buildings or improvements. Only unimproved land may be classified as "agricultural." However, minor auxiliary improvements such as an irrigation well or shed that are not part of the farm set may not justify any land allocation to "Other". The critical factor defining "Other" property is its actual use supporting a farm enterprise. If an assessor obtains verifiable evidence that buildings on a farm are used for agricultural purposes, they qualify as "Other".

Another key characteristic that qualifies a group of buildings as "Other" is their ability to support farming. Put into the context of highest and best use analysis, the property can be classified as "Other" if the improvements meet the following criteria:

1. Agricultural use is reasonably probable.
   - Is this a farm set?
   - Are the improvements agricultural in nature, such as a barn, shed, or silo?
2. Agricultural use is legally permissible.
   - Is the land zoned agricultural?
   - Is farming or raising livestock permitted?
3. Agricultural use is physically possible and appropriately supported.
   - Is there adequate access to cropland and/or pasture?
4. Agricultural use is financially feasible.
   - Would an agricultural use adequately support the farm set?

For example, a house, barn, silos, and sheds are situated on 3 acres of an operating 40 acre farm. The farm set is used in agriculture and meets all of the highest and best use criteria. Therefore, this farm set should be classified as "Other" (Class 7).

In contrast, consider a 40 acre parcel of which 38 acres that the new owner rents to a farmer for an agricultural use. A house and garage are built on the other 2 acres. The house and garage are not used in agriculture. For purposes of this example, the house is not the residence of the farm operator's spouse, children, parents, or grandparents. In addition, the highest and best use of the house and garage by themselves cannot be agricultural as they could not support a farming operation. Therefore, the house and garage cannot be classified "Other" (Class 7) and should be classified as residential (Class 1). However, the remaining 38 acres are in agricultural use and qualify as agricultural (Class 4) land. Highest and best use analysis is discussed in WPAM Chapter 9. Highest and best use is also discussed in great detail in many other appraisal and assessment texts.

Classification Examples

The following examples illustrate the considerations necessary to properly classify properties containing agricultural land.

Agricultural, Other and Undeveloped Land

A farm consisting of a full quarter-quarter section (40 acres) includes an area in the southeast corner of the parcel where the house, barn, silos and auxiliary agricultural buildings are found (the building site or farm set). The parcel has 1,320 feet of road frontage on one side. The farmer owns the land to the center of the roadway. The road right-of-way extends 33 feet from the center of the road to each side. No area within the right-of-way is farmed. The building site is 2.0 acres (130' x 650') with shade trees, an evergreen windbreak, and a maintained lawn.

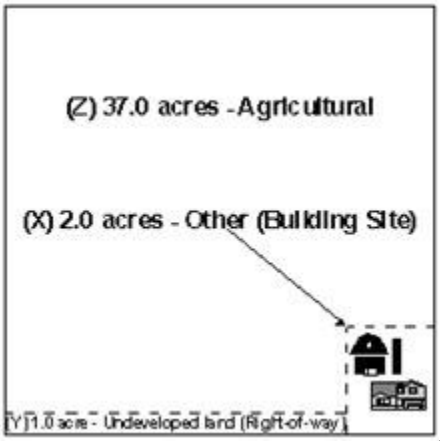
When considering the classification of this parcel, the assessor should identify improvements and land that qualify as “Other.” In Figure 14-2, 2.0 acres around the house and other improvements (X) are “necessary for their location and convenience.” The farmer also

maintains a lawn around the house. The lawn is "Other" as it is "in a use that is incompatible with agricultural use."

Rural parcels frequently include land under a public roadway subject to a right-of-way easement. Areas not "devoted primarily to agricultural use" and subject to right-of-way easement should be classified as undeveloped land (Class 5) only when they border a "parcel of agricultural land." Land under right-of way easements fronting non-agricultural lands should be classified according to the adjacent use (e.g., other, forest, commercial, residential). If a farmer tills or uses land subject to a right-of-way as pasture, it should be classified as Agricultural (Class 4).

In this example, the area under the right-of-way (Y) fronting the building site should be classified "Other." This arrangement is depicted in Figure 14-2.

Figure 14-2



In the example (Figure 14-2), an assessor would measure and classify this parcel as follows:

<u>Undeveloped (Class 5) Y</u>

Road right of way:	1,320' x 33'	=	43,560 sq. ft.
Less building site road frontage	130' x 33'	=	- 4,290 sq. ft.
Total Undeveloped			39,270 sq. ft.

or 0.920 acre Rounded to 1.0 acre

<u>Other (Class 7) X</u>

Building Site	130' x 650'	=	84,500 sq. ft.
Total Other			84,500 sq. ft.

Or 1.940 acres Rounded to 2.0 acres

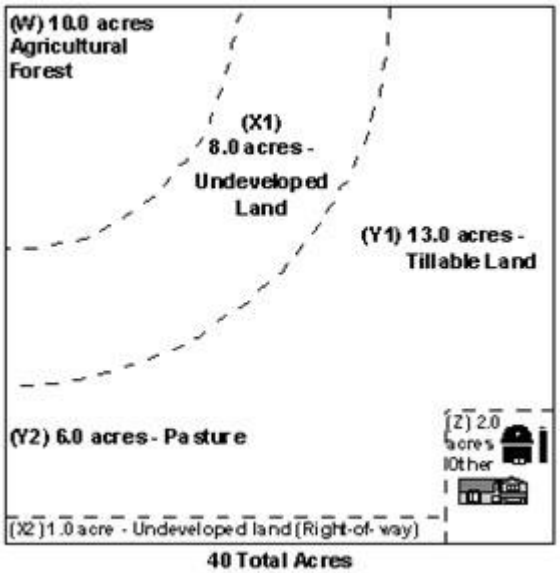
<u>Agricultural (Class 4) Z</u>

Total parcel acreage	40.0	acres
Less Undeveloped	- 1.0	acre
Less Other	-2.0	acres
Total Agricultural	37.0	acres

Land With Several Classifications

The following example illustrates a 40-acre parcel that has land of several different classifications. The area within each class has been rounded to the nearest acre. This parcel contains 10 acres of agricultural forest land next to a low, swampy area bordering a small stream. This area of forest is eligible for agricultural forest classification since it is located on a parcel with land that was classified as agricultural on January 1, 2004 and on January 1 of the assessment year. The parcel's remaining acreage includes pasture, tillable cropland and a 2 acre building site. The parcel includes a 33' wide road right-of-way of nearly one acre that fronts the building site, pasture, and tillable land. Figure 14-3 shows this arrangement.

Figure 14-3



An assessor would classify the parcel in Fig. 11-3 as follows:

Agricultural forest (W)		10 acres
Undeveloped land (X)		9 acres
Lowland (X1 – swamp)	8 acres	
Right-of-way (X2)	1 acre	
Agricultural (Y)		19 acres
Tillable (Y1)	13 acres	
Pasture (Y2)	6 acres	
Other – Building site (Z)		2 acres

Only the 13 acres of tillable cropland (Y1) and the 6 acres of pasture (Y2) are devoted primarily to agricultural use and are classified as agricultural land (Class 4).

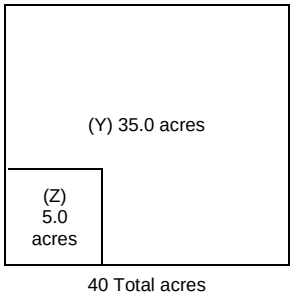
Undeveloped land (Class 5) is a residual land class that may include bog, marsh, lowland brush, idle cropland and pasture, and other non-productive lands not elsewhere classified. Road right-of-way fronting a parcel of agricultural land is undeveloped land if it is not used in agriculture. It is unlikely that all undeveloped land has the same market value. For example, the property in Figure 14-3 has two areas of undeveloped land totaling 13 acres. The one acre of land found within the road right-of-way and fronting the agricultural land

(X2) is not used for agriculture and has limited value to the titleholder. Therefore, the assessor should assign it a nominal value. The other parcel of undeveloped land (X1) may have greater market value for its potential recreational use (fishing, hunting, etc.).

Lot Sale and Leaseback

Last spring a farmer sold 5 acres out of a 40 acre legal description. The 5 acre parcel was recorded with a new legal description. The farmer leased the 5 acre lot back from the new owner and continued planting the entire 40 acres in corn. See Figure 14-4.

Figure 14-4

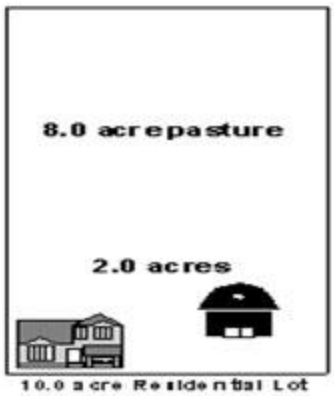


In Figure 14-4, the 35 acres owned and 5 acres leased by the farmer comprise the economic unit, or establishment, engaged in the agricultural activity of corn farming (NAICS Industry Number 111150). Parcel (Y) meets the definition of agricultural land and should be classified as such. Parcel (Z) is also a "parcel of agricultural land" because it is devoted primarily to agricultural use and contains no buildings or improvements.

Residence With Stable and Horse Pasture

Figure 14-5 depicts a house on a 10-acre parcel that was classified residential in 1995. The owners have a small outbuilding used as a stable for two horses and devote 8 acres of their property to pasturing the horses.

Figure 14-5



Although the owners use 8 acres to pasture their horses, this is not an "agricultural use" as they are not primarily engaged in the production of horses for sale. Therefore, the 8 acre pasture is not "devoted primarily to agricultural use" and cannot be classified as a parcel of agricultural land. The predominant use of the property is residential and it should be classified as such (Class 1).

Land Held for Future Development

A real estate developer purchases a 40 acre parcel of agricultural land for future development. The developer leases the 40 acres (one legal description) back to the farmer and the entire forty acres remains in agricultural production. The 40 acres continue to be a "parcel of agricultural land" as long as it remains in agricultural production.

Valuation

Beginning with the 2000 assessment, all agricultural land should be valued at their use value. The phase-in of use value assessment that began with the 1998 assessment was terminated by the Farmland Advisory Council in October 1999.

The Farmland Advisory Council annually adopts guideline use values (per acre) for each category of agricultural land for every municipality in the state. Use value is determined annually by estimating the net rental income per acre from agricultural use for each category in every municipality and dividing by a localized municipal capitalization rate. Chapter Tax 18.07(1) specifies the method and data sources for determining use value. Although guideline use value estimates will be produced and published annually by the DOR (Chapter Tax 18.07(2)), assessors should become familiar with the valuation method as described in Chapter Tax 18. Appendix 11-B contains a short paper detailing the Farmland Advisory Council's recommended method for estimating use value.

Chapter Tax 18.07(3) directs the assessor to determine the use value of each parcel of agricultural land in their municipality based on the published guideline use values and make one or both of the following adjustments if necessary:

1. Tax 18.07(3)(a) allows the assessor to adjust the guideline use values to more accurately reflect the use value of the parcel of agricultural land.
2. To ensure equity between classes of property, Chapter Tax 18.07(3)(b) states that "assessors shall equate the use value of each parcel of agricultural land to the general level of assessment in the taxation district in which that parcel of agricultural land is located."

Valuation of Other

Agricultural building sites (farm sets) and residences of the farm operator's spouse, children, parents, or grandparents, now classified as "Other", should be assessed at market value according to sec. 70.32(1), Wis. Stats. The assessor should apply generally acceptable appraisal practices when valuing "Other" property.

The valuation of farm sets present a unique appraisal problem to the assessor. Traditionally, the best evidence of a property's market value comes from the sale of other reasonably comparable properties. A farm set, however, is part of an enterprise, a farm, and does not sell without agricultural land.

The principle of highest and best use will guide the assessor to the appropriate approach to value. For example, using residential lot sales to value "Other" land where restrictive agricultural zoning would prohibit residential development would be inappropriate. In this case, the assessor needs to recognize the farm set as an integral part of the farm enterprise.

Analyzing agricultural sales will yield information about the market value of agricultural land and improvements that the assessor might use to determine the contributory value a farm set. The second part of this chapter discusses traditional agricultural methodology that could help the assessor in valuing the non-agricultural areas of a farm.

Rural Farm Valuation Example

Chapter Tax 18 contains instructions for calculating the use value of parcels of agricultural land. The following steps outline one possible application of the instructions:

1. Equate the municipal guideline use values per acre to the general level of assessment by multiplying the published guideline use value for each category of agricultural land by the estimated general level of assessment in the community for the current year. Be sure to document how the ratio was estimated.
2. If necessary, adjust the municipal equated use values per acre to reflect more accurately the use value of agricultural land in the municipality. For example, where the distribution of acres among the categories of agricultural land varies significantly between the municipality and the county, a community wide adjustment to the equated use values may be warranted. Again, be sure to document the rationale used to adjust the equated use values.
3. Apply the equated/adjusted municipal use values per acre to each parcel of agricultural land. Multiply the equated/adjusted use value per acre for each specific category of land by the current number of acres in each category. If affected by a specific condition that varies from that generally found in the municipality, adjust the use values to more accurately reflect the condition's effect on use value. Sum the value of all categories to get the total agricultural parcel use value.
4. Calculate the parcel's total current assessment by adding the value of all non-agricultural classifications to the use value of the agricultural parcel calculated in step

Calculating Municipal Use Values

The following example illustrates the valuation process for a parcel of agricultural land. The guideline use values published for the municipality are:

Category	Guideline value/Acre
1st grade tillable	$513
2nd grade tillable	$431
3rd grade tillable	$315
Pasture	$126

The assessor needs to estimate what the overall level of assessment of the municipality will be for the current year. Assessment/sales ratio analysis is an important tool for measuring assessment performance including the level of assessment. Assessment/sales ratio analysis can help the assessor establish the trend in real estate market values that could be used to predict the current year's level of assessment. "Other" potential sources of data are Equalization's Sales Analysis and Major Class Comparison reports for the municipality. For more information on these reports and estimating the general level of assessment, contact your District Supervisor of Equalization. See WPAM Chapter 10 for an in-depth discussion of assessment/sales ratio analysis.

In our example, through a sales analysis the assessor establishes that the general level of assessment has dropped an average of 5 percent each year since the last revaluation. Last year the overall assessment ratio was 85%. Given the recent trend, the assessor estimates that the overall assessment level of the community this year will be 80%.

Multiplying each guideline use value by 0.80 gives the assessor equated guideline use values of:

Category	Equated value/Acre
1st grade tillable	$410
2nd grade tillable	$345
3rd grade tillable	$242
Pasture	$101

Calculating the Agricultural Parcel Use Value

For each parcel of agricultural land, multiply the current number of acres by the equated/adjusted municipal use value for each category of agricultural land. In our example, the use value of the parcel of agricultural land is:

Category	Acres	Municipal value/Acre	Use value
1st grade tillable	20	$410	$8,200
2nd grade tillable	21	$345	$7,245
3rd grade tillable	12	$252	$3,024
Pasture	15	$101	$1,515
Total for parcel of agricultural land			$19,984

NOTE: The second section of this chapter examines some traditional assessment practices used in agricultural valuation before use value legislation was passed in Act 27. We provide it for reference. It will be of value to the assessor when classifying and valuing land on a farm. In addition, the section on analyzing arm's-length sales of multi-class agricultural properties will provide useful information about the market value of their non-agricultural components (land and improvements).

Traditional Agricultural Valuation

Rural agricultural lands are defined as areas in open country and are distinguished from urban agricultural lands in or near cities and villages or other densely populated areas. Rural agricultural lands are usually large tracts used for producing crops and raising livestock and

whose principle value arises out of such use. Lands used for agricultural purposes in urban areas may have a market value that is influenced to a large extent by factors other than the capability of raising crops. Not all rural lands are suitable for agricultural use but may be more suitable for the raising of timber and other commercial forest products. Such lands as well as undeveloped lands are called residual lands and are discussed in WPAM Chapter 15.

An agricultural property's greatest asset is its soil. An area's soil make-up usually determines the type of farming. The soil conditions on a farm often dictate the amount and kind of soil management necessary to produce a crop. Soils play such an important part in rural agricultural valuation that it is essential to have a sound knowledge of soil make-up and productivity.

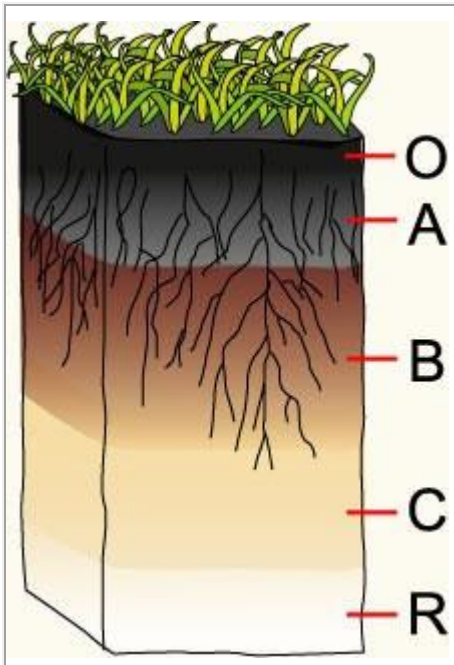
It is also important to understand how climatic conditions affect soils and land values. Climatic influence on yields is not likely to vary within a farm, but the affect between farms is often of consequence and, over a wide territory, may be decisive. Climate affects land use, and land management through limiting the kinds and yields of crops that can be produced on certain types of soil. Climate includes many items: precipitation, evaporation, sunshine, length of day, length of frost-free season, temperature, hail, and winds. All of these factors affect different soils in different ways. The assessor should be aware of how these factors affect the soils in the assessment district, the crops that can be grown, the expected yields, and thus, the agricultural use-value. Information on weather records can be obtained by contacting the USDA or the United States Weather Service.

Soil Surveys

County-wide soil surveys have been made in many counties by the Soil Conservation Service of the U.S. Department of Agriculture. The purpose of these surveys is to identify the kinds of soils in the county, where they are located, and how they can best be used. Soil surveys are planned to eventually be made for every county in the state. The assessor may use the soil survey to grade land in those counties where the survey is available. The soil survey provides important information on the capabilities and characteristics of soils. The use of this information will help the assessor grade the soil in a consistent and uniform manner. (An in-depth analysis on soils, their uses, characteristics, and capabilities can be found in all soil surveys.)

A soil survey is made by examining the soil from borings made in a systematic coverage of all the land in the county. The borings are done with an auger or spade and allow the professional soil scientist to analyze the soil make up. Detailed examination of the soil is done by examining, and describing when necessary, the soil profile. A soil profile is a vertical cross section in sequence of natural layers (called horizons) from the surface of the soil (surface layer or topsoil) down through the subsoil and into the underlying parent material. In some places, bedrock is encountered within the five foot depth that most soils are examined (see Figure 14-6).

Figure 14-6



O Horizon	If this layer is present then it will contain organic materials, such as leaves and branches, at various levels of decomposition.
A Horizon(Topsoil)	This is a surface mineral layer containing some organic material. It is usually darker than lower layers. The minerals that make up this layer are in the form of soil particles that can range from fine clay or silt to a coarser mix of sand or gravel. The size of the particles determines the texture of the soil.
B Horizon(Subsoil)	The makeup of this layer will vary according to the amount of clay, iron and aluminum it contains. Its strong coloring, such as reds or yellows, often identifies this layer.
C Horizon	This layer is characterized by partly weathered or decomposed rock.
R Horizon	This is the solid rock layer from which the layers above develop

Soils that have similar lower horizons make up a soil series. The surface texture may differ within a series and will be a phase within a series. Except for different texture in the surface layer, all of the soils of one series have major horizons that are similar in thickness, arrangement, and other characteristics. Soil scientists then classify and name the soil series based on the morphological characteristics (color, texture, structure, consistence) and the arrangement of the various soil horizons present. Many times the name given a soil series relates to the location near where the soil was first examined, described, and mapped with sufficient acreage. For example, the Kewaunee soil series includes soils with similar profiles and is prevalent in northeastern Wisconsin especially around the City of Kewaunee.

Other features, such as slope, degree of erosion, depth, stoniness, substratum features, and flooding are the basis for other kinds of phases besides surface textures. These kinds of features, either individually or in combination affect use and management of the soil. Table 14-1 shows the Kewaunee series separated into soil phases.

Table 14-1

Phase	Slope
Kewaunee loam	2 to 6 percent
Kewaunee loam	6 to 12 percent eroded
Kewaunee loam, gravelly substratum	2 to 6 percent
Kewaunee silt loam	2 to 6 percent
Kewaunee silty clay loam	6 to 12 percent severely eroded

During soil mapping the soil scientist examines the soil properties, as discussed previously, and draws lines and places symbols on an aerial photograph to identify and locate the different phases that he has separated in the landscape as shown in Figure 14-7.

Figure 14-7

Mapping Units

The black lines on the aerial photo field sheet are the boundary lines between the different kinds of soils. The area enclosed by a soil line with its symbol is termed a mapping unit. Within one of the mapping units on the map in Figure 14-7 you will find the field symbol 92B1. This identifies the mapping unit by soil phase, slope, and degree of erosion in that order. In published soil survey reports, the soil phase is identified by letters rather than numbers, for example Ke. A table of these symbols is provided in each survey.

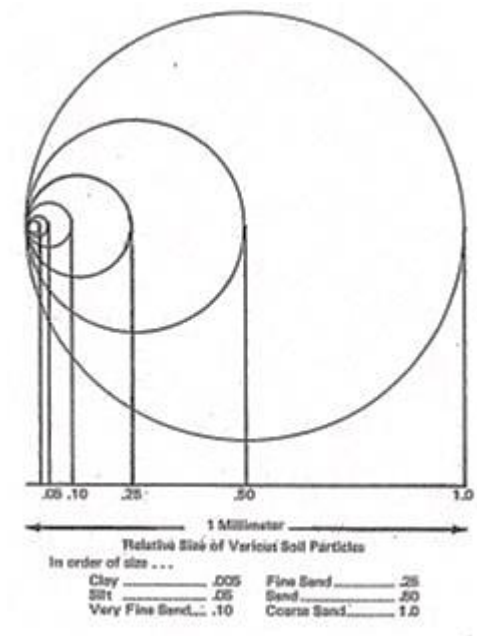
Mapping Unit Name

The number "92" in the previous example is the symbol for the soil phase, in this case, Kewaunee silt loam. The letter "B" represents the slope class. The symbol "1" is the degree of erosion. The complete symbol 92B1 translates into the mapping unit name of "Kewaunee silt loam, 2 to 6 percent slope, slightly eroded". In recent years, the "slightly eroded" has not been included in the name but the degree of erosion is understood to be this condition, thus the published symbol would be KeB. In the following paragraphs, soil texture, slope, and degree of erosion are explained more fully.

Soil Texture

Determination of the soil texture in a soil series is based on the different sized particles in the soil. The Soil Conservation Service groups soil particles into standard categories as defined in Figure 14-8.

Figure 14-8



An obvious observation from Figure 14-8 is that the sand particles are the largest, silt particles medium-sized, and clay particles the smallest. One method soil scientists employ in measuring the diameters of the particles involves using a series of sieves with screen openings equal to size limits. After dividing a soil into its various particle sizes, the percentage of each size fraction by weight may be calculated and applied to a Soil Conservation Service soil textural triangle in order to determine the soil textural class. Let's use the following example of soils A and B in order to illustrate the proper use of a soil textural triangle. (The Soil Textural Triangle is shown in Figure 14-9).

	Soil A
Size fraction	**percentage of soil by weight**
Sand	20%
Silt	60%
Clay	20%

	Soil B
Size fraction	**percentage of soil by weight**
Sand	20%
Silt	10%
Clay	70%

Figure 14-9 shows each side of the soil textural triangle is designed specifically for the percentages of either the sand, silt, or clay size particles. The soil textural class may be determined by extending lines from each side of the triangle at the proper percentage points and locating the intersection. Intersection of the three lines for soil A indicates that the textural class should be a silt loam while soil B falls within the clay region. It seems logical that soil B was determined to be a clay since 70% of the particles by weight are clay size.

Soil texture is a significant characteristic, it relates to the soil's ability to drain or retain water, ability to retain plant nutrients, potential to erosion, and potential to swell on wetting.

Figure 14-9

Slope

As previously mentioned, the capital letter in the map unit symbol indicates the slope class. Standard slope classes according to the Soil Conservation Service are listed in Table 14-2. Slope range is given in percentages, rather than degrees, and represents the fall per hundred feet or the difference in elevation between two points 100 feet apart on which the soil occurs. In the example, the letter "B" represents a range of slope between 2 and 6 percent. This means that on the less sloping end of this range there is a drop of 2 feet for each 100 feet and on the more sloping end a drop of 6 feet for each 100 feet. Terminology for simple and complex slopes are also given in Table 14-2. Simple slopes are most common while complex slope terminology is most often used for describing morainic areas, dunes, or other extremely irregular land forms where slope changes frequently over short distances.

Table 14-2

Simple Slopes			Complex Slopes		
Class Symbol	**Range in %**	**Slope Description**	**Class Symbol**	**Range in %**	**Slope Description**
A	0-2%	Level	M	0-6%	Undulating
B	2-6%	Gently Sloping	CK	6-12%	Rolling
C	6-12%	Sloping	DK	12-18%	Hilly
D	12-20%	Moderately Sloping	EK	18-30%	Steep
E	20-30%	Steep	FK	Over 30%	Very Steep
F	Over 30%	Very Steep			

Slopes, depending upon the severity, may affect the type or size of improvements constructed, the building of roads or highways, the types of on-site waste disposal system allowed, the species of trees and crops grown, and the productivity of the crops presently grown.

Degree of Erosion

As previously explained under "Mapping Unit Name", the third and last figure in the map unit symbol, which is a number, indicates the degree of erosion. The estimated amount of topsoil that has been removed since the soil originally formed determines the degree of erosion that is used. Very brief standard Soil Conservation Service definitions for degree of erosion are given in Table 14-3. In recent years, the "1" used to denote slightly eroded has not been used with the map unit symbol but the degree of erosion is still understood to be slight.

Table 14-3

Erosion status	Condition of topsoil
+ (not used in more recent surveys)	Deposition (Soil being deposited)
1 (not used in more recent surveys)	Slight (less than 1/3 of original topsoil gone)
2	Moderate (1/3 to 2/3 of original topsoil gone)
3	Severe (2/3 or more of original topsoil gone)

Kinds of Soil Maps

There are numerous kinds of soil maps presently available in Wisconsin with new and updated maps being produced continuously. Most soil maps may be obtained from the United States Department of Agriculture - Soil Conservation Service county office, the Soil Science Department at the University of Wisconsin, or the University Extension Services county office. Four of the most commonly used and readily available maps include the old (pre 1950) surveys, soil association maps, field sheets of on-going soil surveys, and final published (modern detailed soil surveys).

Old (Pre-1950) Surveys

Soil maps published by the United States Department of Agriculture prior to 1950 were generally produced at a scale of 1 inch equals 1 mile and might properly be called semi-detailed. Produced on a county basis for approximately 75 percent of the Wisconsin counties, they may become the best information available in counties that don't presently have the modern detailed soil survey completed. This type of map usually shows the pattern of individual sections of land; more detailed maps or on-site viewings are required for separate parcels of property. Map units for these surveys are a combination of outdated soil phases, currently recognized soil phases and miscellaneous land types all with little reference to slope or erosion.

General Soil Maps

General soil maps show soil associations for the area designated. A general soil map for the state is available from the University of Wisconsin Geological and Natural History Survey at a scale of 1:250,000. Published soil survey reports contain a general soil map for the county at a scale between 1:126,720 to 1:253,440. The general soil map should be used for the

analysis of large land areas and not for individual parcels. This is because of the general nature of the map. The mapping units for these kinds of maps are known as soil associations. An association consists of one or more major soils and some minor soils; however it is named for the major soils. For example, an association of Fox-Casco-Matherton contains each of the three soils listed in the name. The soil association shown on the county maps are represented by a number and those on the state map are represented by a letter. With the county general soil maps a percentage is given for the area each soil occupies within the association. Table 14-4 shows soil association 2 (Fox-Casco-Matherton) with the corresponding percentages for each soil and for minor soils.

Table 14-4

Map symbol	Soil name	Percent of soil association
2	Fox silt loam	26%
	Casco loam	12%
	Matherton silt loam	12%
	Minor soils	50%

On-Going Soil Surveys

Soil surveys in various stages of completion in a county are also a source of soil information prior to the publication of the survey. The survey is mapped on a photobase of either 1:20,000 or 1:15,840. Mapping symbols consist of a number for the kind of soil, a letter for the slope and numbers for the degree of erosion (refer to "Degree of Erosion" for further explanation). Upon publication of the soil map, the number for the kind of soil becomes a pair of letters, but the notation for slope and erosion remains the same. During the course of the survey the field sheets are subject to change until the final correlation processes are completed. This should be kept in mind when using soil maps from an on-going soil survey. The soil survey party leader should be contacted for first- hand information regarding information about the soils in the county. Figure 14-10 is an example of a quarter section on a field sheet from the Kewaunee County soil survey with some explanation of a few map symbols. This particular field sheet has not gone through the correlation process and some map symbols and soil lines may change before publication.

Figure 14-10

Kewaunee County, Town of Casco
T24N R24E, Section 35, NE 1/4 1:15, 840

Map symbol	Soil type	Slope	Erosion
02	Carbondale Muck	2 – 6%	Slight
391B	Zurich silt loam	2 – 6%	Slight
223C	Hortonville silt loam	6 -12%	Moderate

Final Published Surveys (Modern Detailed Soil Surveys)

Modern detailed soil surveys are produced by the Soil Conservation Service on a county basis usually at scales of 1:20,000 or 1:15,840. Presently 46 counties in Wisconsin have modern detailed soil surveys available while the remaining counties are either in the process of being surveyed or are in the planning stages. See Figure 14-11 for the soil survey status of the various counties.

After all correlation and compilation procedures are completed, the final published survey is printed and made publicly available. Soil boundaries and symbols are subject to change up to the time of publication. Normally there is little change other than the conversion of field symbols to publication symbols. The new map symbol will have a group of letters designating the soil type instead of numbers while slope class and erosion status retain the same code format. All map symbols used in the county are included in a soil legend for each on-going soil survey and final published survey.

All soil series correlated in the county will be listed and described in the survey. The procedure for finding sections and towns is listed in the front of the book. A table of contents and description on how the survey was made are also in the book.

Figure 14-11

Status of Soil Survey

A color map is available at the website -

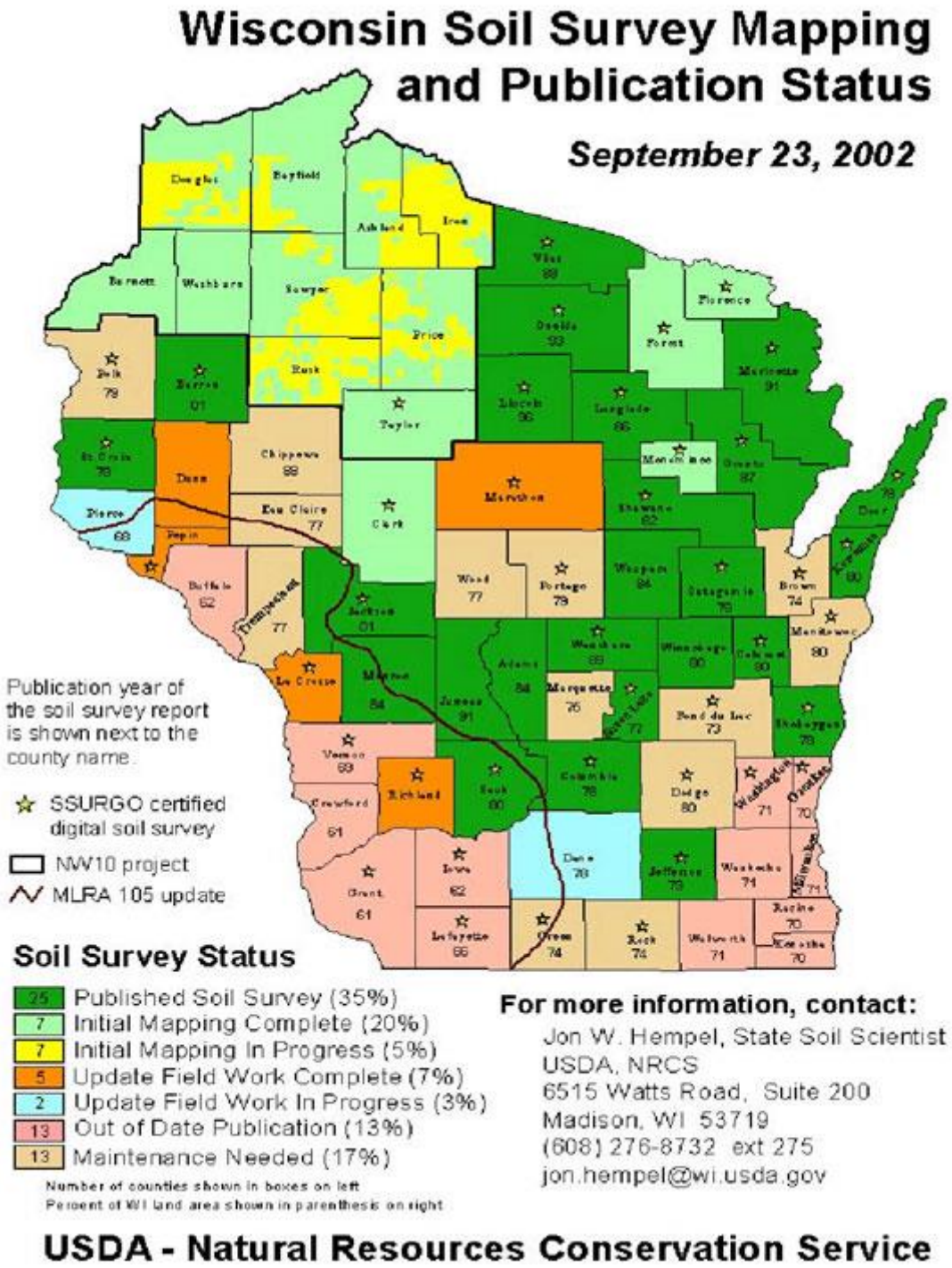

Wisconsin Soil Survey Mapping and Publication Status
September 23, 2002
Publication year of the soil survey report is shown next to the county name.
SSURGO certified digital soil survey
NW10 project
MLRA 105 update
Soil Survey Status
25 Published Soil Survey (35%)
7 Initial Mapping Complete (20%)
7 Initial Mapping In Progress (5%)
5 Update Field Work Complete (7%)
2 Update Field Work In Progress (3%)
13 Out of Date Publication (13%)
13 Maintenance Needed (17%)
Number of counties shown in boxes on left
Percent of WI land area shown in parenthesis on right
For more information, contact:
Jon W. Hempel, State Soil Scientist
USDA, NRCS
6515 Watts Road, Suite 200
Madison, WI 53719
(608) 276-8732 ext 275
jon.hempel@wi.usda.gov
USDA - Natural Resources Conservation Service

Figure 14-12 is an illustration from the Door County final published survey. It shows a quarter section of the map and typical map symbols. An explanation of the map symbols is found below the quarter section.

Figure 14-12

Door County, Town of Sevastopol
T28N R28E, Section 20, NE ¼ 1:15, 840

Map symbol	Soil type	Slope	Erosion status
Bp	Bonduel wet variant loam	0%	Slight
EmC2	Emmet sandy loam	6 – 12%	Moderate
LoB	Longrie loam	2 – 6%	Slight

Information Contained in the Survey

Drainage (Natural and Artificial)

Natural soil drainage may be defined as the ability of the soil to accept water at the ground surface and allow it to pass through the soil profile. Soil drainage can directly affect crop production, construction of buildings and roads, and suitability for septic systems. The Soil Conservation Service recognizes seven classes of natural drainage: excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained.

Artificial drainage improves the soil's ability to drain the excess water from its profile, which in turn increases its utility. One method known as artificial surface drainage, may be accomplished by forming the land into a system of shallow field ditches which empty into larger ditches and extend to a suitable point of release for the water. A subsurface drainage system, consisting of a series of tile (cement, clay, or plastic) laid at a specific depth and grade, aids the removal of excess water.

Since soil drainage either by natural or artificial means frequently dictates the suitability of potential land uses, it does affect the land value. Because soil drainage is a significant soil characteristic, the assessor must consider it when estimating use-value.

Septic System Suitabilities

The conventional septic tank soil absorption system when properly installed on suitable soils is a satisfactory method of household waste disposal. It works on the premise that after the solids settle out in the septic tank and the effluent or tank overflow is released into the soil, the effluent percolating or slowly draining through the soil profile results in purification. Many Wisconsin soils do not contain the proper characteristics or depth in order to accept and purify septic tank effluent efficiently. To use this system the soil in which it is installed must have the following characteristics as described in the Wisconsin Administrative Code:

a. a percolation rate faster than 60 minutes/inch (percolation is defined in the glossary)
b. a depth of 5 feet or more to high groundwater or bedrock
c. a surface slope less than 10-20% (exact percentage depends upon the percolation rate)
d. a location outside a flood plain (for definition of flood plain see the glossary)

Detailed soil surveys rate each soil as having either a slight, moderate, severe, or very severe degree of limitation for a septic tank absorption system. Alternate systems such as a mound system, which raises the absorption system above the natural soil surface into a filled area, or a holding tank system that simply stores the waste, are two possible ways to overcome the soil limitations. Contact your county zoning administrator or sanitarian to determine county rules, regulations, and procedures about on-site waste disposal. Assessors should become aware of the septic tank suitability ratings of properties in their municipalities since the future land use, and ultimately the land value, may be dependent upon these ratings.

Land Capability Classification

The capability classification is a grouping of the soils into capability units based upon the most suitable usage for each soil phase. In this system all the kinds of soil are grouped at three levels: the capability class, subclass, and unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII (See Table 14-5). In Class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used, while soils in higher classes have progressively greater limitations. In Class VIII are soils and land forms so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops, forage, or wood products. The subclasses indicating major kinds of limitations within the classes are illustrated by adding a small letter e, w, s, or c to the class numeral, for example, IIe. The letter e shows that the main limitation is risk of erosion, w means that water in or on the soil interferes with cultivation, s indicates that the soil is limited mainly because it is shallow, droughty, or stony, and c refers to climate as the chief limitation. Within the subclasses are the capability units; groups of soils enough alike to be suited to the same crops, to require similar management, and to have similar responses to management. Capability units are normally identified by numbers assigned locally, for example, IIe-1 or IIIe-4.

Predicted Yields

The modern detailed survey usually includes a list of the predicted yields for principal crops grown in the county. Recently, surveys have been listing productivities solely for a high level of management while older detailed surveys might show both an average and high management level figure. Principal crops contained in the survey commonly are corn for grain, corn for silage, oats, alfalfa, brome hay, and pasture (mainly bluegrass).

Table 14-5

Major Land Use Suitability	Land Capability Class (Degree of Limitations)	Major Soil Limitations with Management Practices if Applicable
Suited for Cultivation	I Few limitations. Very good land from every stand-point.	
	II Moderate limitations or risks of damage when used for crops.	**e** Contouring, contour strip cropping, terraces, waterways. **s** Protect from flooding, drainage. **w** Maintain good soil structure.
	III Moderate to severe risk of damage, or limitations. Regular cultivation possible if limitations are observed.	**e** Contouring, contour strip cropping, terraces, diversions **w** surface and/or tile drainage, diversions. **s** Wind erosion control, irrigation, moisture conserving practices
	IV Severe limitations. Can be cultivated with special management	**e** Contour strip cropping, diversions, renovation or top-dressing, woodland **w** Protect from flooding, surface drainage. **s** Moisture conserving practices, wind erosion control.
		Adapted to:
Not Suited for Cultivation	V Not suited for cultivation because of wetness, stones, overflows, etc.	Grazing or forestry
	VI Too steep, stony, wet, or droughty for cultivation. Moderate limitations for grazing or forestry.	Grazing or forestry
	VII Very steep, rough, wet, or sandy. Severe limitations for grazing or forestry.	Grazing or forestry
	VIII Extremely rough, swampy, etc.	Wildlife, watershed protection, recreation.

Productivities listed in surveys published some years back might seem unrealistically low due to the many recent technological advances in the agricultural field. These outdated yield figures remain useful on an individual soil comparison basis because the most and least productive soils in each municipality may still be determined. Muck soils, normally existing in the environment as a non-productive entity, should be dealt with cautiously since they become extremely productive under a high level of management (e.g. artificial drainage).

Figure 14-13 shows Kewaunee silt loam soil. This report lists the yield estimates for crops best suited for each capability unit under high level management conditions. An example of high level management conditions would be contour strip-cropping where clean-tilled crops (e.g. corn) are grown in alternating strips with close growing crops (e.g. alfalfa) to reduce soil erosion. Use capability classification information from the soil survey to develop land unit values by analyzing farms that sell in the district. The land unit values can then be used in valuing all agricultural lands in the district on a uniform basis.

Figure 14-13 (Page 1 of 2)

WI0075
REV. FLA. 5-84
TYPIC HAPLUDALFS, FINE, MIXED, MESIC

SOIL INTERPRETATIONS RECORD

KEWAUNEE SERIES
WELL DRAINED

The Kewaunee series, well drained, consists of well drained soils formed in a thin mantle of loess or loamy deposits and moderately fine and fine textured glacial till on uplands. The surface layer is very dark grayish brown silt loam 8 inches thick. The subsurface layer is brown silt loam 2 inches thick. The subsoil is dark brown silty clay loam in the upper 3 inches and reddish brown clay in lower 16 inches. The substratum is reddish brown silty clay loam. Slopes range from 0 to 45 percent. Most areas are used for cropland.

Estimated Soil Properties (A)

Depth (In.)	USDA Texture	Unified	AASHTO	Fract >3 in (Pct.)	Percent of Material Less Than 3" Passing Sieve No.				Liquid Limit	Plasticity Index
					4	10	40	200		
0 – 10	SI, L	CL, CL–ML	A-4, A-6	0 – 5	95 – 100	95 – 100	80 – 100	50 – 90	20 – 30	6 – 11
0 – 10	SL	SM–SC	A-4, A-2, A-6	0 – 5	95 – 100	95 – 100	55 – 70	25 – 40	20 – 30	4 – 11
0 – 10	STCL, C, SIC	CL, CH	A-7	0 – 5	95 – 100	95 – 100	90 – 100	70 – 95	40 – 65	20 – 45
10 – 29	C, SIC, SICL	CL, CH	A-7	0 – 5	85 – 100	85 – 100	75 – 100	60 – 95	40 – 70	25 – 50
29 – 60	SICL, SIC, C	CL, CH	A-7	0 – 5	85 – 100	85 – 100	75 – 100	60 – 95	40 – 75	15 – 45

Depth (In.)	Clay (Pct.)	Moist Bulk Density (G/CM3)	Perme-ability (In/Hr.)	Available Water Capacity (In/In)	Soil Reaction (PH)	Salinity (MMHOS/CM)	Shrink-Swell Potential	Erosion Factors		Wind Erod. Group	Organic Matter (Pct.)	Corrosivity	
								K	T			Steel	Concrete
0 – 10	12 – 20	1.35–.55	0.6–2.0	0.19–0.24	5.6–7.3	—	Low	.37	3	5	1-3	High	Low
0 – 10	10 – 20	1.40–1.70	0.6–2.0	0.16–0.24	5.6–7.3	—	Low	.24	3	3	1-3		
0 – 10	30 – 50	1.35–1.65	0.2–0.6	0.10–0.23	5.6–7.3	—	Moderate	.37	3	4	1-2		
10 – 29	35 – 60	1.45–1.85	0.06–0.6	0.07–0.20	5.6–7.8	—	High	.37					
29 – 60	35 - 60	1.55–1.95	0.06–0.6	0.06–0.20	7.4–8.4	—	Moderate	.37					

Flooding			High Water Table			Cemented Pan		Bedrock		Subsidence		Hyd Grp	Potential Frost
Frequency	Duration	Months	Depth (Ft.)	Kind	Months	Depth (In.)	Hardness	Depth (In.)	Hardness	Int. (In.)	Total (In.)		
None			>6.0			—		>60		—		C	Moderate

Sanitary Facilities		Construction Material	
Septic Tank Absorption Fields	0-15%: Severe – percs slowly 15+%: Severe – percs slowly, slope	Roadfill	0-25%: Poor – Low strength 25+%: Poor – Low strength, slope
Sewage Lagoon Area	0-2%: Slight 2-7%: Moderate – Slope 7+%: Severe – Slope	Sand	Improbable – Excess fines
Sanitary Landfill (Trench)	0-15%: Severe – Too clayey 15+%: Severe – Slope, too clayey	Gravel	Improbable – Excess fines
Sanitary Landfill (Area)	0-8%: Slight 8-15%: Moderate – Slope 15+%: Severe – Slope	Topsoil	SIL, L, SL, SICL: Poor – Area reclaim C, SIC: Poor – Area reclaim too clayey
Daily Cover For Landfill	0-15%: Poor – Too clayey, hard to pack 15+%: Poor – Too Clayey, hard to pack, slope	**Water Management**	
		Pond Reservoir Area	0-3%: Slight 3-8%: Moderate – Slope 8+%: Severe – Slope
Building Site Development			
Shallow Excavations	0-8%: Moderate – Too clayey, dense layer 8-15%: Moderate – Too clayey, dense layer, slope 15+%: Severe – Slope	Embankments, Dikes, and Levees	Severe – Hard to pack
Dwellings Without Basements	0-15%: Severe – Shrink – swell 15+%: Severe – Shrink – swell, slope	Excavated Ponds, Aquifer Fed	Severe – No water
Dwellings With Basements	0-8%: Moderate – Shrink- swell 8-15%: Moderate – Shrink – swell, slope 15+%: Severe – Slope	Drainage	Deep to water
Small Commercial Buildings	0-8%: Severe – Shrink – swell 8+%: Severe – Shrink – swell	Irrigation	SIL, L: Percs slowly, footing depth SL, SICL, C, SIC: Droughty, percs slowly, footing depth
Local Roads and Streets	0-15%: Severe – Low strength, shrink-swell 15+%: Severe – Low strength, shrink-swell, slope	Terraces and Diversions	0-8% SIL, L, SICL, C, SIC: Percs slowly 8+% SIL, L, SICL, C, SIC: Percs slowly, slope 0-8% SL: Soil blowing, percs slowly 8+% SL: Soil blowing, percs slowly, slope
Lawns, Landscaping, and Golf Fairways	0-8% SIL, L, SL, SICL: Slight 8-15% SIL, L, SL, SICL: Moderate – Slope 15+% SIL, L, SL, SICL: Severe – Slope 0-15% C, SIC: Severe – Too clayey 15+% C, SIC: Severe – Too clayey, slope	Grassed Waterways	0-8%: Percs slowly 8+%: Percs slowly, slope
Regional Interpretations			

Figure 14-13 (Page 2 of 2)

KEWAUNEE SERIES
WELL DRAINED

WI0075

Recreational Development

Camp Areas	0-8% SIL, L, SL, SICL: Slight 8-15% SIL, L, SL, SICL: Moderate – Slope 15+% SIL, L, SL, SICL: Severe – Slope 0-15% C, SIC: Severe – Too clayey 15+% C, SIC: Severe – Too clayey, slope	Playgrounds	0-2% SIL, L, SL, SICL: Slight 2-6% SIL, L, SL, SICL: Moderate – Slope 6+% SIL, L, SL, SICL: Severe – Slope 0-6% C, SIC: Severe – Too clayey 6+% C, SIC: Severe – Too clayey, slope
Picnic Areas	0-8% SIL, L, SL, SICL: Slight 8-15% SIL, L, SL, SICL: Moderate – Slope 15+% SIL, L, SL, SICL: Severe – Slope 0-15% C, SIC: Severe – Too clayey 15+% C, SIC: Severe – Too clayey, slope	Paths and Trails	0-15% SIL, L, SL, SICL: Slight 15-25% SIL, L, SL, SICL: Moderate – Slope 25+% SIL, L, SL, SICL: Severe – Slope 0-25% C, SIC: Severe – Too clayey 25+% C, SIC: Severe – Too clayey, slope

Capability and Yields Per Acre of Crops and Pasture (High Level Management) (B)

Class-Determining Phase	Capability		Corn (BU)		Corn Silage (Tons)		Oats		Grass – Legume Hay (Tons)		Kentucky Bluegrass (AUM)		Soybeans (BU)			
	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR	NIRR	IRR
0-2%																
2-6%	2S		100		16		80		5.0		4.3		34			
2-6% Eroded	2E		95		15		80		5.0		4.1		30			
6-12%	2E		92		15		78		5.0		3.9		28			
6-12% Eroded	3E		85		14		75		5.0		3.7		25			
12-20%	3E		80		13		70		4.8		3.6		23			
12-20%	4E		75		12		60		4.5		3.5		—			
Eroded	4E		65		11		55		4.1		3.4		—			
20-30%	6E		—		—		40		3.7		3.3		—			
20-30%																
Eroded	3E		85		14		65		3.9		3.3		25			
2-6% Sev Er	4E		65		11		55		3.7		3.3		20			
6-12% Sev Er	6E		—		—		40		3.2		3.0		—			
12-20% Sev Er																

Woodland Suitability

Class – Determining Phase	Ord Sym	Management Problems					Potential Productivity		Trees to Plant
		Erosion Hazard	Equip. Limit	Seedling Mort'y	Windth. Hazard	Plant Compet.	Common Trees	Site Index	
0-12%	3C	Slight	Slight	Moderate	Moderate	Moderate	Northern Red Oak	62	Eastern White Pine
12-30% North	3R	Moderate	Moderate	Moderate	Moderate	Moderate	Sugar Maple	57	White Spruce
12-30% South	3R	Moderate	Moderate	Moderate	Moderate	Moderate	White Ash	—	
30+%	3R	Severe	Severe	Severe	Moderate	Moderate	American Basswood	—	

Windbreaks (C)

Class Determining Phase	Species	HT	Species	HT	Species	HT	Species	HT
All	Eastern White Pine Northern White – Cedar White Ash	30 15 30	Red Pine Lilac Red Maple	30 10 30	White Spruce Silky Dogwood Amer Cranberry bush	20 8 10	Amur Maple Alternate Leaf Dogwood Gray Dogwood	10 8 8

Wildlife Habitat Stability

Class – Determining Phase	Potential For Habitat Elements								Potential As Habitat For:			
	Grain & Seed	Grass & Legume	Wild Herb.	Hardwood Trees	Conifer Plants	Shrubs	Wetland Plants	Shallow Water	Openland Wildlife	Woodland Wildlife	Wetland Wildlife	Rangeland Wildlife
0-2%	Good	Good	Good	Good	Good	—	Fair	Fair	Good	Good	Fair	—
2-12%	Good	Good	Good	Good	Good	—	Poor	V. Poor	Good	Good	V. Poor	—
12-20%	Fair	Good	Good	Good	Good	—	V. Poor	V. Poor	Good	Good	V. Poor	—
20+%	V. Poor	Fair	Good	Good	Good	—	V. Poor	V. Poor	Fair	Good	V. Poor	—

Potential Native Plant Community (Rangeland or Forest Understory Vegetation)

Common Plant Name	Plant Symbol (NLSPN)	Percentage Composition (Dry Weight) By Class Determining Phase				
Sweet Cicely Common Mayapple Spotted Geranium Feather Solomon – Plume Sharplobe Hepatica Catchweed Bedstraw Wild Leek	OSCL POPE GEMA SNPA HEACZ GAAP2 ALTR3					
Potential Production (Lbs./Ac. Dry Wt.):						
	Favorable Years Normal Years Unfavorable Years					

Footnotes

A Estimates of engineering properties based partially on Highway Dept. test data of 13 pedons and NSSL data.
B Grass-Legume Hay yields are for Brome Grass – Alfalfa mixture.
C Windbreak group 4L.

Other Uses of the Soil Survey

Additional information generally included in the survey may be significant to the assessor. The assessor can use this information to estimate the potential and probable uses for a specific parcel. The additional information includes:

1. **Woodland groups** – (soils grouped according to their suitability for producing various species of woodland shrubs and trees)
2. **Wildlife habitat groups** – (soils categorized on the basis of their suitability for producing elements of wildlife habitat)
3. **Soil suitability ratings** – (soils rated on the basis of their suitability as a source of topsoil, sand, gravel, and highway fill)
4. **Soil limitation ratings** – the estimated degree and kind of soil limitations for various recreational uses, residential development, commercial and light industrial development, agricultural drainage, irrigation, construction of highways, streets, railroads, airports, buildings, and unique purposes like sanitary landfills, sewage lagoons disposal systems, corrosion potential for conduits, reservoir areas, embankments, terraces, diversions, and grassed waterways.)

An assessor can also use the soil survey to grade class 4 tillable land. Slope, capability classification, and predicted yields will assist in the rating of tillable lands. The grading of agricultural land is discussed in more detail later in this chapter.

Limitations of the Detailed Survey

The smallest area shown on the maps is approximately five acres. Individual parcel analysis would have to be performed on site for properties containing less than five acres. The scale of the maps is four inches to the mile. Enlarging the maps to eight inches to the mile would make them easier to read but does not improve the accuracy or detail. The soil survey may be outdated. Landscape changes and alterations will not be reflected on the survey if they occur after the survey publishing date.

The soil survey is not exact. Users of the soil survey must realize that in a natural landscape the pattern of soils is such that one kind of soil grades into another kind and that soils don't end abruptly and another begin exactly where the boundary line is drawn. Soil boundaries are actually transitional zones where soils gradually change in characteristics; these zones may range from a few feet to several yards wide. Up to 15% of the phase or map unit may consist of different soils than the one indicated by the map symbol simply because the smallest area shown is about five acres in size.

Soil Survey Availability

An assessor should contact the county office of the Soil Conservation Service for information about the availability of soil surveys. In those counties where maps and survey publications have been available for a long period of time, a check should be made to see if changes have been made.

Other Assessment Aids

Maps

Maps provide comprehensive information on the existence, location, height, land form, and distances between ground features such as:

1. Populated areas
2. Routes of travel
3. Parcel shapes and sizes
4. Vegetation cover
5. Buildings
6. Natural features

Locating real property is one of the major steps in the assessment process. Maps are a fine resource for locating and analyzing property. A map is defined as a mathematically determined representation of a portion of the earth's surface systematically plotted to scale upon a plane surface. All information for reading a map is given on the outer edges of the map. Since all maps are different, both in subject and scale, it is essential for the marginal information to be examined prior to reading the map.

Many different types of maps have been made to depict the different features of any geographical area. All geographical features cannot be legibly placed on one map, so numerous maps are necessary. Maps which provide helpful information are:

1. **Plat Maps** – (Comprised of all civil townships within a county. Contains: name of property **owner**, acreage, roadways, sets or buildings, alphabetical property owner index, rivers, lakes, sections, town, ranges, outer corporate boundaries of villages and cities, railroad lines, and cemeteries.)
2. **City and village plat Maps** – (Contain information on subdivisions, parcel size and number, and a cross reference to the property owner.)
3. **Topographic Maps** – (These maps show the relief and vegetation cover for a geographical area. They show the location and shape of the mountains, valleys, and plains. The maps also show the network of streams, rivers, lakes, the principal works of man, and the vegetation cover.)
4. **Certified Survey Maps** – These are maps which show an area of land that has been surveyed. Once surveyed, the parcel is drawn on a sheet of paper which also contains: a known point; the name, seal, and signature of the surveyor; the date when the survey was done; the inclusion of any roads that the parcel fronts; the position of any structures on the parcel; and a metes and bounds description of the parcel. The map is recorded at the county Register of Deeds Office and is assigned a map number and document number. Once assigned these numbers, the parcel may be legally described by listing the map or document number.
5. **Floodplain and Shoreland Mapping** – These are maps that show the topography of floodplain and shoreland areas. The maps also delineate floodplain and floodway boundaries, in order to assist in the establishment and administration of floodplain and shoreland ordinances. This mapping program is administered by the Department of Natural Resources (DNR) and assistance to counties and municipalities is handled by the DNR. (sec. 87.31, Wis. Stats.)
6. **Agricultural Maps** – These are maps that locate lands in the state which should be considered for preservation because of their agricultural significance. Maps will be prepared first for those portions of the state where the need for agricultural preservation is of the highest priority. The maps are based upon data such as: soil surveys, aerial photography interpretation, existing agricultural zoning, surveys, and may be

supplemented by on-site surveys and other studies. The maps are prepared and the program is administered by the Department of Agriculture, Trade, and Consumer Protection and the Department of Local Affairs and Development (sec. 91.05, Wis. Stats.)

7. **Wetland Maps** – These are maps that show the locations of wetlands as defined and mapped by the Wisconsin DNR.

Plat books are usually published by the county or on occasion by local banks or businesses that use them for advertising purposes. The county clerk's office usually has a supply. The plats often become outdated as they are published every 2 to 5 years. However, the real property lister usually has an up-to-date map.

City and village plats may be found in different locations such as:

- City or village hall
- Assessor's office
- Register of Deeds office
- Municipal engineer's office
- Real property lister's office

Topographic maps are available in areas which have been surveyed by the U.S. Geological Survey. The source for these maps in Wisconsin is the Geological and Natural History Survey, Mapping Section, 1815 University Avenue, Madison, Wisconsin, 53706.

Aerial Photographs

Aerial photographs show the actual countryside as it is. Aerials come in different scales. The most common scales are 1" = 660', which portrays one section per 9" x 9" sheet, or 1" = 1,320', which portrays four sections per 9" x 9" sheet. An assessor should choose the scale which is most appropriate for that assessment district. Aerials become very valuable in agricultural valuation as they can aid in the classifying and grading of land. Classes and grades of land can be estimated by analyzing the photographs. The following items can help in this analysis:

1. The tones, relief, and vegetation cover (Can indicate that the property is in the agricultural class and help identify first, second and third grade tillable land and pasture)
2. The presence of trees (Can indicate forest class)
3. The system of roads, railroads, and presence of structures, subdivisions or industrial parks (Can indicate other, residential, commercial, or industrial class)
4. The presence of constantly wet soil or cliffs and rock outcroppings (Can indicate the undeveloped land class)

Aerial photos are taken every few years by the Federal government and are available from many federal, state, and local agencies, as well as commercial firms. The County Agricultural Stabilization and Conservation Service office has a county photo (or key) showing the flight pattern, date, and time each photo was taken. The photos may be purchased from the A.S.C.S. office or the U.S.D.A. Aerial photos are also taken as a cooperative effort of the State Department of Administration (DOA), DNR, Department of Transportation (DOT) and the state cartographer. These agencies may also consult with other potential users of the aerials to determine the scope and character of the flights flown. The most recent flight flown may be obtained from the DOT by writing to: The Special Services Unit, Department of Transportation, Room 5B, P.O. Box 7916, 4802 Sheboygan Avenue, Madison, Wisconsin, 53707.

It is recommended that a tracing of each aerial photograph be made so that all notations can be made on the tracing rather than on the aerial photograph itself. If this is done the aerial photograph will always remain clear and untouched for reference, and fine detail will not be obliterated by ownership lines and other notations. The tracing, along with the aerial photograph, can then be mounted in a ring binder so that they face one another and are both visible when the ring binder is opened.

On the tracing, all roads, streams, wooded areas, and other geographical features should be noted. In addition, property ownership lines should be drawn in accordance with the legal description found in the prior assessment roll or as corrected from the owner's actual deed of record. Occasionally outright errors in the former legal description will be found as well as errors in the total acreage. Such errors should be corrected in the assessor's file. Legal action by the owner is necessary to correct the deed.

The assessor should keep in mind that ownership lines run to the center of all roads except those highways actually owned in fee by the State of Wisconsin, the county, or the municipality. A right-of-way should have the same classification as the land which it adjoins except in the case of agricultural land. Right of ways adjoining agricultural lands should be classified as 'undeveloped' except where the right-of-way land is being tilled or used as pasture. When tilled or used as pasture, the right-of-way is considered Class 4 agricultural. Right-of-way ownership can be verified in the office of the Register of Deeds or by the district office of the Division of Highways of the Wisconsin DOT. Counties are also now purchasing county highway lands in fee and their ownership may also be verified in the Register of Deeds Office or in the highway department of the county. In the absence of outright ownership by the municipalities, acreage should include that area covered by the roads (Class 5).

Figures 14-14 and 14-15 are an illustration of an aerial photograph and a tracing of it with appropriate notations and land classification.

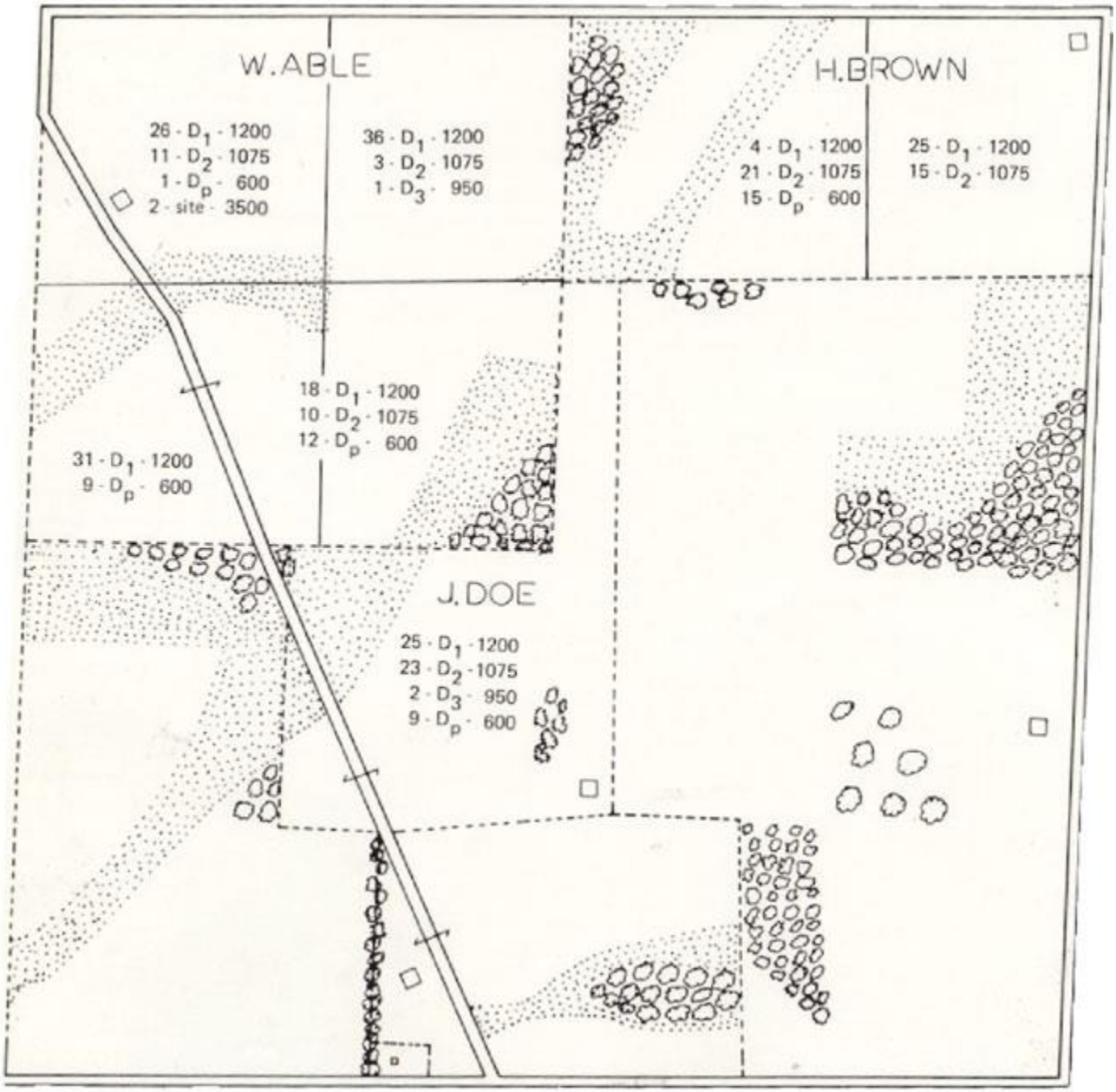
Figure 14-14

Aerial Photograph of a "Section" of Land

Figure 14-15

Tracing of Aerial Photograph with Notations

Sec 15 T 4N R 3E



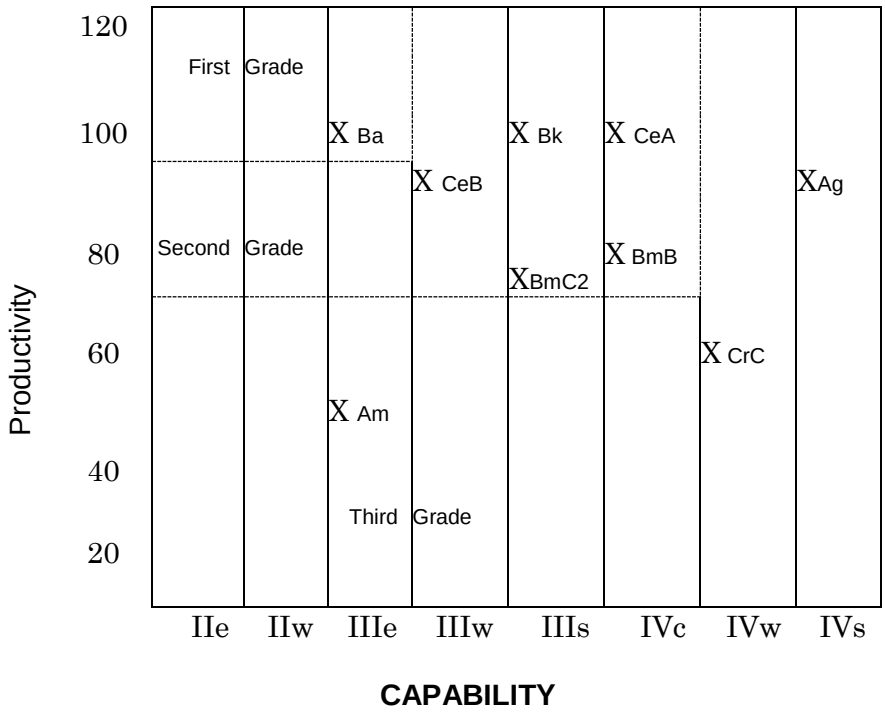
Grading of Agricultural Land

Aerial photographs and soil surveys are valuable aids in the grading of agricultural lands. Aerial photographs show tones, relief, vegetation cover, and topography. Soil surveys provide information on slope, capability classification, and productivity. All of this information is useful when rating and grading agricultural land.

The following is a brief step-by-step outline that the assessor should follow when grading agricultural land:

1. Become familiar with DOR's land classification system as described in Chapter 7 as well as the sub-classes of agricultural land described previously in this chapter under Categories of Agricultural Land.
2. Obtain a set of current aerial photographs for the municipality.
3. Obtain a copy of the county's detailed soil survey (46 of the state's counties have published detailed soil surveys). A soil association map or interior report should be available in those counties without detailed soil surveys. The local office of the Soil Conservation Service should be contacted to determine whether a soil survey has been published for the county.
4. Read and understand the following areas of the soil survey report:
   a. General nature of the area
   b. How the survey was made
   c. Actual map and location of sections on the map
   d. Soil descriptions (including productivity and septic limitations)
   e. Use and management of the soils
   f. Formation and classification of the soils
   g. Glossary
   h. Guide to the mapping units
5. Use the soil survey to determine the kinds of soils found in the municipality and list them.
6. After listing each of the soils found in the municipality, look up the capability classification in the soil survey for each soil and record it next to each soil phase. Capability classifications rate soils on their suitability for most kinds of farming; therefore, soils with suitable capability classifications should be rated or graded higher than soils with severe limitations. (See table 14-5 for a capability classification example)
7. Next, find the alphabetical listing of all soils in the county which shows productivity ratings for each soil phase (as shown in table 14-6). Record the productivity of each soil phase in the municipality on the list prepared in steps 5 and 6 above. Productivity is measured in terms of predicted yields for principal crops in the area; therefore, soils with better yields would be graded higher than soils with lesser productivity. Note: The productivity ratings shown in the soil survey should be used as a guide only. Depending upon the year of the soil survey, the range of productivity for each grade of land will fluctuate. For example, a soil survey published in 1965 may show productivity ratings lower than the actual productivity today. For this reason, it is important to meet with the County Soils Agent to discuss the data found in the soil survey.
8. Draw a graph as shown in figure 14-16 whose y-axis represents productivity rating and whose x-axis represents capability rating. Using the data collected in steps 5 through 7 above, chart all of the soils for the municipality on the graph.

Figure 14-16



9. Determine at what productivity and capability levels soils should be classified as 1st, 2nd, or 3rd grade soils (e.g., establish the break-off points for each grade). Use the graph as a guideline and consult with the County Soils Agent for interpretation of soils and to aid in determining the break-off points for each grade of agricultural land. It is important for the assessor to discuss specific soil capability questions with the County Soil Conservation Service and maintain good communications with the district Supervisor of Equalization. This will help the assessor to be more accurate in grading soils and keep DOR updated on the municipality's land base.

Table 14-6

Soil Survey

Predicted Average Yields Per Acre of Principal Crops

Yields are those obtained under improved, or high level, management. Absence of a yield figure indicates that the crop is not suited to the soil or is not ordinarily grown on the soil. Only arable soils are listed.

Map Symbol	Soil Name	Corn		Oats	Grass-legume hay
		Grain Bu	Silage Tons	Bu	Tons
Ag	Adrian muck	90	15	50	-------
Ak	Adrian-Granby-Oakville complex				
	Adrian soil	90	15	50	-------
	Granby soil	60	10	50	3.00
	Oakville soil	50	8	40	2.50
Am	Alluvial land	50	8	40	2.25
Ba	Barry silt loam	110	18	95	4.80
Be	Bellevue silt loam	100	17	75	4.50
Bf	Bellevue fine sandy loam, sandy subsoil variant	60	10	45	2.50
Bk	Boots muck	100	16	65	3.00
BmB	Boyer loamy sand, 2 to 6 percent slopes	80	13	60	3.40
BmC2	Boyer loamy sand, 6 to 12 percent slopes, eroded	75	12	55	2.80
CeA	Casco loam, 0 to 2 percent slopes	95	16	80	5.10
CeB	Casco loam, 2 to 6 percent slopes	90	15	75	4.70
CeC2	Casco loam, 6 to 12 percent slopes, eroded	80	13	65	4.00
CrC	Casco-Rodman Complex, 6 to 12 percent slopes	65	10	65	4.00
CrD2	Casco-Rodman Complex, 12 to 20 percent slopes, eroded	-------	-------	55	3.50
CrE	Casco-Rodman Complex, 20 to 30 percent slopes	-------	-------	-------	1.25

10. Using the chart as a guide, list all soils in the municipality in alphabetical order by grade.
11. Having determined the phases of soils that constitute each grade of agricultural land, the next step is to proceed with the grading of all the agricultural land in the municipality. In conjunction with the soil survey data, the assessor should also use aerial photos, available maps, and woodland tax, forest crop, and managed forest orders as aids in grading land. These tools help to identify just which acres of land are agricultural and need to be graded vs. the non-agricultural land (i.e., residential or commercial parcels, forest and undeveloped lands, or forest crop, woodland tax, and managed forest lands).

    When developing tentative grading for agricultural land, the assessor uses a template, which is placed on aerial photos to measure the acreage of each of the various soil phases in the municipality. This is done by looking individually at each quarter-quarter section (40 acres). Be sure that the scale of the template used matches the scale of the aerial photos being used. When measuring the acreage of each soil phase, the tentative grading of the various soils which was compiled in steps 5-10 is referred to determine the grade of that land. As each "40" is examined, it is outlined on an overlay or tracing, which is placed over the aerial photo, noting the acreage of each grade of agricultural land as well as the acreage of each class of nonagricultural land.

Aerial photographs and soil surveys provide a good indication of property classes and grades. An assessor may walk the land, if proper notice is met under state law (see Chapter 5-10), making notations as necessary on the tracing of the aerial photograph regarding any differences between what is shown on the aerial photos and what actually exists. When viewing the land the assessor must determine whether the preliminary grading is accurate in relation to what actually exists in the field and in relation to other parcels. When discrepancies are found to exist, it will be necessary to make adjustments to the land grading.

The combined information of various types of maps simplifies the job of the assessor. Plat maps, road maps, topographic maps, soil maps, and aerial photos can all be used to grade and value land within a district. These maps should be an integral part of the assessment process as they show the property to be assessed in its proper setting with reference to surrounding farms and territories.

Techniques for Valuing Other, Forest, and Undeveloped Land

The purpose of this section is to give the assessor guidance in valuing the non-agricultural property on a farm. The examples show how to derive values for building sites and improvements. The same techniques can be used to derive values for undeveloped land, forest, and any "other" class of property present on a farm.

Comparable Sales Approach

The basis of this approach is the analysis of property that has been sold. The assessor should be familiar with the geographical, political, social, and economic influences found in the municipality. This will help the assessor make an accurate field investigation and analysis of all agricultural sales. Because various circumstances surround each sale, it is necessary to analyze and weigh each transaction before accepting it as evidence of ordinary market value. The Wisconsin Statutes require the consideration of all sales made under other than normal market conditions, except sales to holders of a mortgage on the land, and to judgment creditors or to lienholders. The land and buildings sold should be viewed in their entirety and, whenever possible, selling price and other details should be verified by personal interview. Other details include such items as total acreage; acreage tillable; acreage not tillable; inclusion of livestock; machinery, or any other personal property in the selling price; additions or alterations to the property that may have taken place since the date of the sale; financing terms that may be abnormal; length of time that the property was on the market; reasons why the grantor was selling the property; and the general condition of the property (for example, the age and condition of the well and septic system). This information will help the assessor in analyzing the sale and determining its validity.

Chapter 10 explains that some sales which are unusable for sales ratio analysis are useable for market analysis (unit value projection). An example of this is a sale of a property lying in two separate assessment jurisdictions. Since each assessment jurisdiction generally has a different level of assessment, the two separate parcel assessments cannot be added together and compared to the sale price. The ratio that would be generated would not be a true indicator of the assessment to sale relationship for either jurisdiction. However, if the sale is an arm's-length transaction the sale price can be used as an indicator of market value for both jurisdictions.

Analyzing sales is a skill which the assessor needs to acquire. An assessor with this skill will be able to spot market trends, develop the municipality's current level of assessment, develop class ratios, develop unit values, and identify market factors which affect various property classes differently. The understanding of this information is particularly important to the equitable assessment of new construction.

The assessor must analyze all sales. A sale cannot be rejected for being too high or too low until the assessor has analyzed all the sales. This will allow the value established in the region to be determined by buyer and seller interaction rather than the personal feelings of the assessor. Markets are regional. It is necessary for the assessor to become aware of the regional sales patterns, as well as perform the detailed analysis of all sales within the assessment jurisdiction.

Because of the wide range of soil productivity and the wide range of land use, the assessor needs a range of values to make a fair and equal assessment on all classes of farm land and other lands.

It is suggested that the assessor keep a legible and systematic record of the findings and notes regarding each sale investigated in the field. It is also advised that standard ranges of values per acre used in making the assessment be established only after all sales have been viewed in the field and all findings thoroughly correlated and analyzed. Each year's sales must be analyzed to maintain knowledge of current market conditions.
The basic purposes in analyzing sales are:

1. To separate useable sales from those that are not arm's-length transactions. (See Chapter 10)
2. To separate those portions of selling price that are attributable to the land and to the improvements.
3. To break down the land into the various classes and subclasses from actual view and to apply trial unit values per acre to each to reconcile the amount of selling price attributable to each.
4. To measure the total accrued depreciation as evidenced by the difference between the cost of replacement new and the selling price attributable to the improvements.
5. To develop a legible and systematic record of the findings regarding each sale investigated.
6. To develop standard ranges of value per acre to be used in making the assessment after all sales have been viewed in the field and all findings thoroughly correlated and analyzed.
7. To establish a comparable sales file for valuation of similar properties.
8. To determine which market factors affect land values and to what degree.

The following illustrations develop some of the considerations necessary in the field sales analysis and give indication of the type of information summaries that can be developed.

Illustration of Fielding Agricultural Sales

1. Become aware that a sale has occurred. An assessor should set up a Real Estate Transfer Return delivery schedule with the District Property Assessment office (See Chapter 8).
2. Plot the sales on a map. It is suggested that the sales be plotted on copies of the plat map.
3. Verify the sales information at the county Register of Deeds Office. A volume and page number is recorded on each real estate transfer return (See Chapter 8).
4. Physically view the property that has sold. Consider:
   a. Property location
   b. Highest and best use of the property
   c. Quality of soil

   d. Topography
   e. Condition and size of buildings
   f. Condition and amount of personal property (if any was included in the sale)
5. Sale date
   a. Validity of sale (See Chapter 10)
   b. Selling price
   c. Number of acres (type and number of sub-classes)
   d. Condition of well and septic
6. Estimate the acreage in each grade of land. Actually viewing the land will determine what the class and sub-class acreage breakdown will be. Aerial photographs and soil surveys can be helpful. The agricultural land should be broken down as follows:
   1st Grade Tillable
   2nd Grade Tillable
   3rd Grade Tillable
   Pasture

   Building Site ("Other")–In addition to the four grades of agricultural land listed above, that acreage containing the farm buildings and house should be broken out as building site acreage. The number of acres allocated to the building site will depend upon the number of acres actually necessary for the location and convenience of those buildings. The value attributable to the building site should be based upon what is found in the market and will vary depending upon the location of the farm, the location and arrangement of buildings, landscaping, and other factors. Remember, the well and septic, driveway, retaining walls, and other man-made improvements are valued with the improvements and should not be included in the building site land value.

   Forest/Undeveloped land/Residential/Commercial – any non-agricultural acreage should also be broken out into the appropriate class.

7. Formulate an estimate of the unit values for the various grades and classes of land.

NOTE: An analysis of sales should always begin with the sales of vacant land (Assuming that there are vacant land sales in the assessment jurisdiction). This will allow the assessor to get a feel for the value per acre of the various grades and classes. A guide which the assessor can use in analyzing sales is that the unit values of the various grades and classes usually have a fairly fixed relationship (e.g., The per acre difference in dollar value between 1st and 2nd grade land will be somewhat constant from one sale to the next).

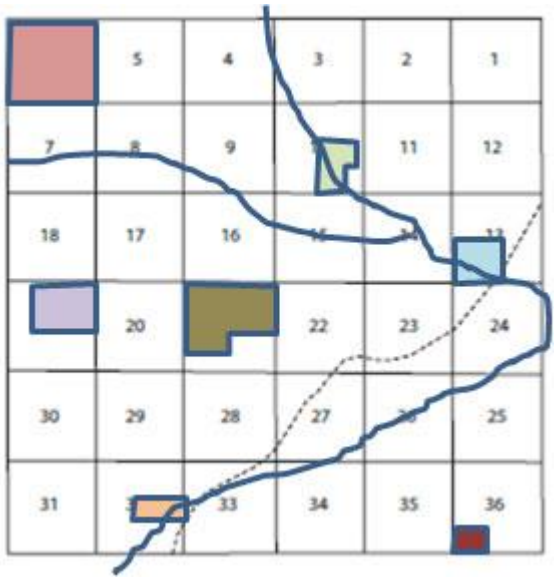
Example of Developing Unit Values

The following examples are for illustration only. The per-acre dollar values are not meant to be standard or average values. The soil types used were picked at random and have no relationship to the per-acre dollar values.

The sales are identified on a copy of the township plat map as shown in Figure 14-17.

Town of Anytown - Sales for 2011

Figure 14-17 **T 20 N, R 1 W**



Sale #1: N 1/2 SE 1/4, Sect. 32, T20N, R6W, 80 acres.
Sale #2: W 1/2 SW 1/4, and W 1/4 E 1/2 SW 1/4, Sect. 13, T20N, R1W, 100 acres.
Sale #3: NE 1/4, and E 25 acres NE 1/4 NW 1/4, Sect. 19, T20N, R1W, 185 acres.
Sale #4: SW 1/4 SW 1/4, Sect. 36, T20N, R1W, 40 acres.
Sale #5: NW 1/4, Sect. 6, T20N, R1W, 148 acres.
Sale #6: W 1/2 SE 1/4, and W 10 acres NE 1/4 SE 1/4, Sect. 10, T20N, R1W, 90 acres.
Sale # 7: NE 1/4, NW 1/4, and NW 1/4 SE 1/4, Sect. 21, T20N, R1W, 360 acres.

A field analysis of the sales reveals the following:

Sale 1

N 1/2 SE 1/4, Sect. 32, T20N, R6W, 80 acres.
Grantor: Randall and Gretchen Green
Grantee: Charles and Carol Smith
Sale Date: April 15, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $440,000

- Information Regarding the Property: The property is unimproved. The land is nearly level and growing corn. Mr. Smith, a nearby farmer, stated the land would be used for agriculture. A soil survey shows the property contains many soil. Some are the following:
  - Downs silt loam, Judson silt loam, Chaseburg silt loam, Betrand silt loam, and Lawson silt loam.
- Classification of Land: 2 ac Res. Site; 56 ac No. 1; 14 ac No. 2; 2 ac Swamp; 6 ac Forest

First Trial of Unit Values:

2 ac Res. Site	@	$ 25,000	=	$ 50,000
56 ac No. 1	@	$ 5,400	=	$302,400
1	@	$ 5,200	=	$291,200
14 ac No. 2	@	$ 5000	=	$ 70,000
2 ac Swamp	@	$ 1,700	=	$ 3,400
6 ac Forest	@	$ 4,500	=	$ 27,000
First Trial Total			=	$452,800

(First trial total exceeds the sale value.)

Second Trial of Unit Values:

2 ac Res. Site	@	$ 25,000	=	$ 50,000
56		ac		No.
14 ac No. 2	@	$ 4,900	=	$ 68,600
2 ac Swamp	@	$ 1,600	=	$ 3,200
6 ac Forest	@	$ 4,500	=	$ 27,000
Second Trial Total			=	$440,000

(The second trial total indicates what bare land is selling for per subclass.)

Sale 2

W 1/2 SW 1/4, and W 1/4 E 1/2 SW 1/4, Sect. 13, T20N, R1W, 100 acres.
Grantor: Charles and Jill Wagon
Grantee: James and Sue Madison
Sale Date: December 22, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $500,000

- Information Regarding the Property: The property is unimproved. The land is characterized as sloping. Corn is planted in 84 acres. This cropland is similar to that found in sale 1. An analysis of the soil survey shows that the land is mainly comprised of:
- Tillable. Arenzville silt loam, Jackson silt loam, Downs silt loam, Chaseburg silt loam, Lawson silt loam, Judson silt loam, Hixton fine sandy loam, and Norden fine sandy loam.
- Classification of Land: 43 ac No. 1; 28 ac No. 2; 13 ac No. 3; 3 ac Pasture; 6 ac Swamp; 10 ac Forest

First Trial of Unit Values:					**Second Trial of Unit Values:**				
43 ac No. 1	@	$ 5,300	=	$227,900	43	ac			No.
1	@	$ 5,400	=	$232,200					
25 ac No. 2	@	$ 4,700	=	$117,500	25	ac			No.
2	@	$ 5,300	=	$132,500					
13 ac No. 3	@	$ 4,200	=	$ 54,600	13 ac No. 3	@	$ 5,200	=	$ 67,600
3 ac Pasture	@	$ 2,300	=	$ 6,900	3 ac Pasture	@	$ 2,800	=	$ 8,400
6 ac Swamp	@	$ 1,800	=	$ 10,800	6 ac Swamp	@	$ 1,875	=	$ 11,250
10 ac Forest	@	$ 4,600	=	$ 46,000	10 ac Forest	@	$ 4,800	=	$ 48,000
First Trial Total			=	$463,700	**Second Trial Total**			=	$499,950

(First trial total does not reach sale value.)
(The higher dollar value per acre is an indication of the size factor in market sales. Size of a parcel usually influences the unit value. Large farms have some tendency to sell for a lower price per acre and small farms have a tendency to sell for a higher price per acre.)
This tendency can be partially related to two factors:

1. A larger number of people are capable of bidding on the small farm versus the large farm. This drives the price of the small farm up.
2. The residence or home on the larger farm contributes a smaller portion of the total value of the property and its value is spread over a larger number of acres. This causes the per acre value to be smaller than that found on small farms.

Sale 3

NE 1/4, and E 25 acres NE 1/4 NW 1/4, Sect. 19, T20N, R1W, 185 acres.
Grantor: Robert and Rita Brown
Grantee: William and Mary Glass
Sale Date: April 5, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $1,100,000

- Information Regarding the Property: An interview with Mr. and Mrs. Glass indicated that three adjoining farmers were interested in buying this parcel of land. This interest in the parcel caused spirited bidding. Mr. Glass said that the location of the subject parcel was such that they could make better use of it than the other farmers. A check of the township

plat map revealed this statement to be true. (The circumstances surrounding this sale should indicate to the assessor that this sale's value could be accepted as the upper limit of "ordinary market value.")

- The property is unimproved. The land is slightly rolling and has a couple of low spots. The land is planted in corn and is some of the better cropland in the township. The prominent soil types are: Chaseburg silt loam, Down's silt loam, Jackson silt loam, and Lawson silt loam. Mr. Glass stated that most of the parcel was tillable. The aerial photograph, soil survey, and on-site viewing confirmed this.
- Classification of Land: 89 ac No. 1; 67 ac of No. 2; 31 ac No. 3; 2 ac Swamp; 6 ac Forest

First Trial of Unit Values:

87 ac No. 1	@	$ 5,100	=	$	443,700
63 ac No. 2	@	$ 4,500	=	$	283,500
27 ac No. 3	@	$ 4,200	=	$	113,400
2 ac Swamp	@	$ 1,700	=	$	3,400
6 ac Forest	@	$ 4,400	=	$	26,400
First Trial Total			=	$	870,400

(First trial total does not reach the sale value.)

Second Trial of Unit Values:

87 ac No. 1	@	$ 6,200	=	$	539,400
63 ac No. 2	@	$ 6,100	=	$	384,300
27 ac No. 3	@	$ 6,000	=	$	162,000
2 ac Swamp	@	$ 2,200	=	$	4,400
6 ac Forest	@	$ 5,000	=	$	30,000
Second Trial Total			=	$	1,120,100

(Second trial total exceeds sale value.)

Third Trial of Unit Values:

87 ac No. 1	@	$ 6,200	=	$	539,400
63 ac No. 2	@	$ 5,900	=	$	371,700
27 ac No. 3	@	$ 5,800	=	$	156,600
2 ac Swamp	@	$ 1,900	=	$	3,800
6 ac Forest	@	$ 4,750	=	$	28,500
Third Trial Total			=	$	1,100,000

Sale 4

SW 1/4 SW 1/4, Sect. 36, T20N, R1W, 40 acres.
Grantor: Jack and Ruth Smith
Grantee: Sam and Sally Hanson
Type of Conveyance: Warranty Deed
Sale Date: July 30, 2011
Total Sale Price: $215,000

- Information Regarding the Property: The property contains an old bank barn and small pole frame building that are in complete disrepair and of little or no value. There are no other improvements on this property. No positive or negative value will be assigned to the buildings as they sit on pasture land and do affect the tillable property. They are not used for storage. Mr. Hanson stated that he will have the buildings torn down by a local contractor. The contractor will do this for the lumber involved. No building value will be assigned in this sale. The Hansons plan on building a home on the property.
- The land contains more of a mixture of sloping and level land than the first two sales. An analysis of the soil survey shows that the land contains many of the soils identified in sales 1 and 2. The land classification breakdown is based upon actual observation, Mr. Hanson's evaluation, and an aerial photograph and soil survey analysis.
- Classification of Land: 2 ac Res. Site; 12 ac No. 1; 8 ac No. 2; 3 ac No.3; 5 ac Pasture; 2 ac Swamp; 8 ac Forest

First Trial of Unit Values:

2 ac Res. Site	@	$	25,000	=	$ 50,000
12 ac No. 1	@	$	5,500	=	$ 66,000
8 ac No. 2	@	$	5,200	=	$ 41,600
3 ac No. 3	@	$	5,000	=	$ 15,000
5 ac Pasture	@	$	2,600	=	$ 13,000
2 ac Swamp	@	$	1,800	=	$ 3,600
8 ac Forest	@	$	4,800	=	$ 38,400
First Trial Total				=	$ 227,600

(First trial exceeds sale total.)

Second Trial of Unit Values:

2 ac Res. Site	@	$	25,000	=	$ 50,000
12 ac No. 1	@	$	5,050	=	$ 60,600
8 ac No. 2	@	$	4,950	=	$ 39,600
3 ac No. 3	@	$	4,850	=	$ 14,550
5 ac Pasture	@	$	2,500	=	$ 12,500
2 ac Swamp	@	$	1,675	=	$ 3,350
8 ac Forest	@	$	4,300	=	$ 34,400
Second Trial Total				=	$ 215,000

Table 14-7

Bare Land Classification Sales Analysis

From Sales 1-4	Indicated Sales Value Range Per Acre	Acres Sold	Average Sales Value Per Acre
1st Grade Tillable	$5,050 - $6,200	198	$5,674
2nd Grade Tillable	$4,900 - $5,900	110	$5,567
3rd Grade Tillable	$4,850 - $5,800	43	$5,552
Pasture	$2,500 - $2,800	8	2,613
Swamp/Waste	$1,600 - $1,900	12	$1,800
Forest	$4,300 - $4,800	30	$4,597

Sale 5

NW 1/4, Sect. 6, T20N, R1W, 148 acres.
Grantor: Frank and Ellen Badger
Grantee: George and Helen Gray
Sale Date: December 15, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $1,120,000

- Information Regarding the Property: The property is improved. The buildings located on the property are:
  1. 2 story wood frame house (Grade-C, CDU-Fair, See Volume II for explanation)
  2. General purpose flat barn (Grade C, See Volume II for explanation)
  3. Attached concrete block milkhouse
  4. Wood pole frame building
  5. 2 steel grain bins
  6. 1 concrete stave silo
- The building site has no unusual landscaping or other noteworthy features. The house has some landscaping. The house and outbuildings are in average condition. No personal property was included in the sale, confirmed by reviewing the transfer documents. The land is generally rolling. The soil survey shows the land has silt and fine sandy loams. Mr. Gray stated that 142 acres were tillable, the majority is in corn and there are a few acres of oats. The soil survey, aerial photograph, and on-site viewing establish the following breakdown:
- Classification of Land: 82 ac No. 1; 43 ac No. 2; 17 ac No. 3; 3 ac Forest; 3 ac Building Site
- Assigning Values to the Land Classifications and Improvements: The most important factor determining the type of crops grown, the amount of farm management needed, and to a large extent, the real estate values generated, is the soil or land on a farm. Old buildings can be remodeled and needed structures can be built, but it is very difficult to add new land or to significantly alter the present land. The farm manager can gradually change a soil's productive capacity by adding chemicals and crop rotation, but changing slopes, erosion factors, and other physical soil characteristics which also affect productivity are difficult and very expensive. Analyzing a sale by looking at the land value first and then the building value is called the building residual approach (see Chapter 13). Fielding vacant land sales first provides a range of values and per acre value averages for land. An assessor can assign these land values to an improved sale to derive the total land value. This total land value is subtracted from the sale price and the remaining amount is allocated to the improvements. This amount must be closely analyzed. Each set of farm improvements varies in the extent that they contribute to a farm's market value. As an analysis is made of farm improvements, the assessor should consider:
  1. How much the buyer wants or needs the improvements.
  2. If the existing improvements are in balance with the acreage purchased.
  3. If the improvements can be adapted to the use desired by the buyer.
- The assessor should also be aware of current trends in the agricultural market. These trends will affect land values and improvement values. Items the assessor should watch for are:
  1. New technology affecting the size and type of machinery and equipment. (Many machine sheds were built 30 to 50 years ago. These sheds may be too small to house the machinery being used today. This reduces their value. New technologies have also led to more efficient methods of handling grain and feeding livestock.)

2. Farm changeover from dairy to cash crop. When this occurs the value of improvements used for dairy purposes will be affected. (Two improvements which would not be as vital in a cash crop operation would be the dairy barn and the milkhouse.)
3. The size and number of farms. The trend today is toward fewer farms, increased farm size, and the consolidation of farm units. (This has resulted in many leftover farmsteads and farm buildings.)
4. The commodity markets. The commodity markets greatly influence real estate values.

- The assessor determines that the land in sale 5 is similar to that found in sale 3. The soil survey indicates that the overall productivity rating is slightly higher in sale 5 than in sale 3.

Analysis of Sale 5

82 ac	No. 1	@	$ 5,800	=	$ 475,600
43 ac	No. 2	@	$ 5,700	=	$ 245,100
17 ac	No. 3	@	$ 5,600	=	$ 95,200
3 ac	Forest	@	$ 4,600	=	$ 13,800
3 ac	Building Site	@	$ 25,000	=	$ 75,000
Value Attributable to land					$ 904,700

Total Sale Price		$ 1,120,000
Value Attributable to land	–	$ 904,700
Value Attributable to Improvements		$ 215,300

Improvements percentage contribution to total sale price: 19%

(The above ratio, together with others similarly calculated, may prove helpful in estimating the contributory value of farm improvements to land where there are no comparable sales. This ratio may vary greatly depending upon the size of the farm, the number, quality and type of improvements, and the type of farm operation. Improvements on a dairy farm usually have more contributory value than improvements on a cash crop operation.)

Sale 6

W 1/2 SE 1/4, and W 10 acres NE 1/4 SE 1/4, Sect. 10, T20N, R1W, 90 acres.
Grantor: Charles and Eleanor Samuelson
Grantee: Derek and Melinda Gregory
Sale Date: August 26, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $718,000

- Information Regarding the Property: The property is improved. The buildings on the property are:
  1. 2 story wood frame house (Grade B, CDU Average)
  2. Wood frame ranch house (Grade D, CDU Poor)
  3. General purpose flat barn (Grade C)
  4. Steel machine shed
  5. Wood frame corn crib
  6. Concrete stave silo
  7. 2 steel grain bins
- The main building site is near the forested area of the property. Another building site is in the forested area. The home is in poor condition. Mr. Gregory stated they will remodel

the home for his mother-in-law. A creek cuts diagonally across the corner of the property. The forest is on one side of the creek and the tillable land and building site are located on the other side. The main buildings are in need of some repair, but are structurally sound. The soil is similar to those listed in sale 2. The land is nearly level and presently planted in corn. The soil survey, aerial photograph, and on-site viewing establish the following breakdown:

- Classification of Land: 1 ac Res Site; 36 ac No. 1; 21 ac No. 2; 12 ac No. 3; 3 ac Swamp; 15 ac Forest; 2 ac Building Site
- Assigning Values to the Land Classifications and Improvements
- Analysis of Sale 6: the land found in this sale is very similar to that found in sale 2.

1 ac	Res. Site	@	$ 25,000	=	$	25,000
36 ac	No. 1	@	$ 5,400	=	$	194,400
21 ac	No. 2	@	$ 5,300	=	$	111,300
12 ac	No. 3	@	$ 5,200	=	$	62,400
3 ac	Swamp	@	$ 1,800	=	$	5,400
15 ac	Forest	@	$ 4,600	=	$	69,000
2 ac	Building Site	@	$ 25,000	=	$	50,000
Value Attributable to land					$	517,500
Total Sale Price					$	718,000
Value Attributable to Land				–	$	517,500
Value Attributable to Improvements					$	200,500

Improvements percentage contribution to total sale price: 28%

Sale 7

NE 1/4, NW 1/4, and NW 1/4 SE 1/4, Sect. 21, T20N, R1W, 360 acres.
Grantor: Gary and Amy Little
Grantee: Roger and Mabel Black
Sale Date: Nov. 6, 2011
Type of Conveyance: Warranty Deed
Total Sale Price: $2,235,000

Information Regarding the Property:
The property is improved. The buildings located on the property are:

1. 2 story wood frame house (Grade B, CDU Good)
2. Special purpose dairy barn (Grade B)
3. Attached milk house (Concrete Block)
4. 2 steel machine sheds
5. 1 wood pole frame building
6. Cattle feed bunk (concrete)
7. 3 steel grain bins
8. 2 Harvestore silos
9. 1 concrete stave silo
10. 1 wood frame corn crib
11. 1 granary

The building site is one of the better developed sites in the township. Extensive landscaping has been done along the road frontage, the paved drive, and around all the improvements. Mr. Black stated that the landscaping did influence him to pay a slightly higher price for the

property. The house and outbuildings are in good condition. There was some personal property included in the sale. Mr. Black valued the personal property at $800 This value was confirmed by reviewing recent auction transactions on similar personal property. (Personal property is to be subtracted from the total sales price.) The land is fairly level and is growing corn and oats. Mr. Black stated that approximately 330 acres are tillable. The soil survey, aerial photograph and physical viewing reveal the following breakdown:

- Classification of Land: 300 ac No. 1; 25 ac No. 2; 14 ac No. 3; 6 ac Pasture; 2 ac Swamp; 9 ac Forest; 4 ac Building Site
- NOTE: The estimated value added to the building site due to the extensive landscaping is $3,500.
- Assigning Values to the Land Classifications and Improvements
- Analysis of Sale 7: The land found in this sale is very similar to that found in sale 5. The size of the sale reduces the dollar value per acre and this is reflected in the breakdown.

300 ac	No. 1	@	$ 4,900	=		$1,470,000
25 ac	No. 2	@	$ 4,600	=		$ 115,000
14 ac	No. 3	@	$ 4,400	=		$ 61,600
6 ac	Pasture	@	$ 2,500	=		$ 15,000
2 ac	Swamp	@	$ 1,600	=		$ 3,200
9 ac	Forest	@	$ 4,200	=		$ 37,800
4 ac	Building Site.	@	$ 25,000	=	$ 100,000	
Plus Landscaping				@	$ 3,500	
Total Building Site				=		$ 103,500
Value Attributable to land				=		$1,802,600
Total Sale Price					$ 2,235,000	
Less Personal Property					– $ 800	
Value Attributable to Land					– $ 1,802,600	
Value Attributable to Improvements					$ 431,600	

Improvement percentage contribution to total sale price: 19%

Summary

Sales 1 through 7 have been analyzed by "fielding the sales." The principals involved in each transaction were contacted and it was established that the values are the result of arm's-length transactions. All of the property was physically viewed by the assessor and field notes were verified by making use of:

1. The Register of Deeds office
2. A soil survey
3. A plat map
4. An aerial photograph
5. Any other sources needed such as the A.S.C.S. office, town officials, or a topography map

The assessor analyzed vacant land sales first (see Table 14-7). The unit values indicated were used on the improved sales. The results of the assessor's work produced a range of values.

Range of Values Indicated by Analysis of Seven Sales

- No. 1 land $4,900 - $6,200
- No. 2 land $4,600 - $5,900
- No. 3 land $4,400 - $5,800
- Pasture $2,500 - $2,800
- Swamp $1,600 - $1,900
- Forest $4,200 - $4,800

Work forms for recording data for each sale analyzed and for correlating the price data from the sales for the various grades of croplands and other classes of land are shown in Figures 14-18 through 14-24. These work forms are recommended. Assessors can use these or create other forms. The important thing is to collect the data and maintain it in a summary format. This will provide the assessor with a means of systematically analyzing the sales and obtaining market value knowledge. The assessor can use this knowledge to equitably assess swamp and waste, and forest lands. The forms will also be a ready source of written information for the assessor to use in explaining and defending assessments, when necessary.

NOTE: The procedures illustrated for analyzing sales are similar to those utilized by the DOR in their Fielded Sales Analysis System. The sales information generated by this system is available to assessors in the DOR Equalization District Offices.

Use of Sales to Develop an Agricultural Market Grid Analysis

Application of the market grid valuation technique as explained in WPAM Chapter 9 can be used in swamp and waste and forest lands assessment. This technique uses the information shown in the fielded sales analysis example. The market grid analysis can be used when the subject property has not sold but comparable properties in the same area have. The sales information used should be no older than three years from the date of appraisal.

Figure 14-18

Worksheet – Fielded Sales

District: County: Year:

Sales Identification Conveyance Date_____ LC_____ WD_____ Fielded Date_____ By_____	Sales Identification Conveyance Date_____ LC_____ WD_____ Fielded Date_____ By_____
Grantor:	Grantor:
Grantee:	Grantee:
Legal Description or Location	Legal Description or Location
____Ac Res. @ $_____ = _____ Consideration $_____ ____Ac No. 1 @ $_____ = _____ Adjustment $_____ ____Ac No. 2 @ $_____ = _____ $_____ ____Ac No. 3 @ $_____ = _____ Net $_____ ____Ac P @ $_____ = _____ ____Ac 5 @ $_____ = _____ ____Ac 6 @ $_____ = _____ ____Ac 7 @ $_____ = _____ _____TOTAL ACRES = _____ BUILDING RESIDUAL $_____	____Ac Res. @ $_____ = _____ Consideration $_____ ____Ac No. 1 @ $_____ = _____ Adjustment $_____ ____Ac No. 2 @ $_____ = _____ $_____ ____Ac No. 3 @ $_____ = _____ Net $_____ ____Ac P @ $_____ = _____ ____Ac 5 @ $_____ = _____ ____Ac 6 @ $_____ = _____ ____Ac 7 @ $_____ = _____ _____TOTAL ACRES = _____ BUILDING RESIDUAL $_____

Sales Identification Conveyance Date_____ LC_____ WD_____ Fielded Date_____ By_____	Sales Identification Conveyance Date_____ LC_____ WD_____ Fielded Date_____ By_____
Grantor:	Grantor:
Grantee:	Grantee:
Legal Description or Location	Legal Description or Location
____Ac Res. @ $_____ = _____ Consideration $_____ ____Ac No. 1 @ $_____ = _____ Adjustment $_____ ____Ac No. 2 @ $_____ = _____ $_____ ____Ac No. 3 @ $_____ = _____ Net $_____ ____Ac P @ $_____ = _____ ____Ac 5 @ $_____ = _____ ____Ac 6 @ $_____ = _____ ____Ac 7 @ $_____ = _____ _____TOTAL ACRES = _____ BUILDING RESIDUAL $_____	____Ac Res. @ $_____ = _____ Consideration $_____ ____Ac No. 1 @ $_____ = _____ Adjustment $_____ ____Ac No. 2 @ $_____ = _____ $_____ ____Ac No. 3 @ $_____ = _____ Net $_____ ____Ac P @ $_____ = _____ ____Ac 5 @ $_____ = _____ ____Ac 6 @ $_____ = _____ ____Ac 7 @ $_____ = _____ _____TOTAL ACRES = _____ BUILDING RESIDUAL $_____

Figure 14-19

Worksheet – Fielded Sales

District: Anytown County: Badger Year: 2012

Sales Identification Conveyance # 1

Date 4/15/11 LC_____ WD X
Fielded
Date 3/20/12 By JMS

Grantor: Green, Randall & Gretchen

Grantee: Smith, Jack & Carol

Legal Description or Location
N 1/2 SE 1/4, Sect. 32, T20N, R6W
80 acres

2 Ac Res.	@ $25000 = 50000	Consideration	$ 440,000
56 Ac No. 1	@ $ 5200 = 291200	Adjustment	$_____
14 Ac No. 2	@ $ 4900 = 68600		$_____
____Ac No. 3	@ $_____ = _____	Net	$ 440,000
____Ac P	@ $_____ = _____		
2 Ac 5	@ $ 1600 = 3200		
6 Ac 6	@ $ 4500 = 27000		
____Ac 7	@ $_____ = _____		
80 TOTAL ACRES = $440,000		BUILDING RESIDUAL $_____	

Sales Identification Conveyance # 2

Date 12/22/11 LC_____ WD X
Fielded
Date 3/23/11 By JMS

Grantor: Wagon, Charles & Jill

Grantee: Madison, James & Sue

Legal Description or Location
W 1/2 SW 1/4 & W 1/4 E 1/2 SW 1/4, Sect. 13, T20N, R6W
100 acres

____Ac Res.	@ $_____ = _____	Consideration	$ 500,000
43 Ac No. 1	@ $ 5400 = 232200	Adjustment	$_____
25 Ac No. 2	@ $ 5300 = 132500		$_____
13 Ac No. 3	@ $ 5200 = 67600	Net	$ 500,000
3 Ac P	@ $ 2800 = 8400		
6 Ac 5	@ $ 1875 = 11250		
10 Ac 6	@ $ 4800 = 48000		
____Ac 7	@ $_____ = _____		
100 TOTAL ACRES = $499,950		BUILDING RESIDUAL $_____	

Sales Identification Conveyance # 3

Date 4/5/11 LC_____ WD X
Fielded
Date 3/28/11 By JMS

Grantor: Brown, Robert & Rita

Grantee: Glass, William & Mary

Legal Description or Location
N 1/4 & E 25 acres NE 1/4 NW 1/4, Sect. 19, T20N, R6W
185 acres

____Ac Res.	@ $_____ = _____	Consideration	$ 1,100,000
87 Ac No. 1	@ $ 6200 = 539400	Adjustment	$_____
63 Ac No. 2	@ $ 5900 = 371700		$_____
27 Ac No. 3	@ $ 5800 = 156600	Net	$ 1,100,000
____Ac P	@ $_____ = _____		
2 Ac 5	@ $ 1900 = 3800		
6 Ac 6	@ $ 4500 = 28500		
____Ac 7	@ $_____ = _____		
185 TOTAL ACRES = $1,100,000		BUILDING RESIDUAL $_____	

Sales Identification Conveyance # 4

Date 7/30/11 LC_____ WD X
Fielded
Date 4/4/12 By JMS

Grantor: Smith, Jack & Ruth

Grantee: Hanson, Sam & Sally

Legal Description or Location
SW 1/4 SW 1/4, Sect. 36, T20N, R6W
40 acres

2 Ac Res.	@ $25000 = 50000	Consideration	$ 215,000
12 Ac No. 1	@ $ 5050 = 66000	Adjustment	$_____
8 Ac No. 2	@ $ 4950 = 41600		$_____
3 Ac No. 3	@ $ 4850 = 15000	Net	$ 215,000
5 Ac P	@ $ 2500 = 13000		
2 Ac 5	@ $ 1675 = 3600		
8 Ac 6	@ $ 4300 = 38400		
____Ac 7	@ $_____ = _____		
40 TOTAL ACRES = $ 215,000		BUILDING RESIDUAL $_____	

Figure 14-20

Worksheet – Fielded Sales

District: Anytown County: Badger Year: 2012

Sales Identification Conveyance # 5

Date 12/15/11 LC_____ WD X
Fielded
Date 4/12/12 By JMS

Grantor: Badger, Frank & Ellen

Grantee: Gray, George & Helen

Legal Description or Location
NW 1/4, Sect. 6, T20N, R6W
148 acres

____Ac Res.	@ $_____ = _____	Consideration	$ 1,120,000	
82 Ac No. 1	@ $ 5800 = 475600	Adjustment	$_____	
43 Ac No. 2	@ $ 5700 = 245100		$_____	
17 Ac No. 3	@ $ 5600 = 95200	Net	$ 1,120,000	
____Ac P	@ $_____ = _____			
____Ac 5	@ $_____ = _____			
3 Ac 6	@ $ 4600 = 13800			
3 Ac 7	@ $25000 = 75000			
148 TOTAL ACRES = 904,700		BUILDING RESIDUAL	$ 215,300	

Sales Identification Conveyance # 6

Date 8/26/11 LC_____ WD X
Fielded
Date 4/12/12 By JMS

Grantor: Samuelson, Charles & Eleanor

Grantee: Gregory, Derek & Melinda

Legal Description or Location
W 1/2 SE 1/4 & W 10 acres NE 1/4 SE 1/4, Sect. 10, T20N, R6W
90 acres

1 Ac Res.	@ $25000 = 25000	Consideration	$ 718,000	
36 Ac No. 1	@ $ 5400 = 194400	Adjustment	$_____	
21 Ac No. 2	@ $ 5300 = 111300		$_____	
12 Ac No. 3	@ $ 5200 = 62400	Net	$ 718,000	
____Ac P	@ $_____ = _____			
3 Ac 5	@ $ 1900 = 5400			
15 Ac 6	@ $ 4600 = 69000			
2 Ac 7	@ $25000 = 50000			
90 TOTAL ACRES = 517,500		BUILDING RESIDUAL	$200,500	

Sales Identification Conveyance # 7

Date 11/6/11 LC_____ WD X
Fielded
Date 4/13/12 By JMS

Grantor: Little, Gary & Amy

Grantee: Black, Roger & Mabel

Legal Description or Location
NE 1/4, NW 1/4, & NW 1/4 SE 1/4, Sect. 21, T20N, R6W
360 acres

____Ac Res.	@ $_____ = _____	Consideration	$_____	
300 Ac No. 1	@ $ 4900 =1470000	Adjustment	$_____	
25 Ac No. 2	@ $ 4600 = 115000		$_____	
14 Ac No. 3	@ $ 4400 = 61600	Net	$_____	
6 Ac P	@ $ 2500 = 15000			
2 Ac 5	@ $ 1600 = 3200			
9 Ac 6	@ $ 4200 = 37800			
4 Ac 7	@ $25000 = 100000 + landscaping 3500			
360 TOTAL ACRES = $ 1,802,600		BUILDING RESIDUAL	$431600	

Sales Identification Conveyance

Date_____ LC_____ WD_____
Fielded
Date_____ By_____

Grantor:

Grantee:

Legal Description or Location

____Ac Res.	@ $_____ = _____	Consideration	$_____	
____Ac No. 1	@ $_____ = _____	Adjustment	$_____	
____Ac No. 2	@ $_____ = _____		$_____	
____Ac No. 3	@ $_____ = _____	Net	$_____	
____Ac P	@ $_____ = _____			
____Ac 5	@ $_____ = _____			
____Ac 6	@ $_____ = _____			
____Ac 7	@ $_____ = _____			
_____TOTAL ACRES = _____		BUILDING RESIDUAL	$_____	

Figure 14-21

SUMMARY ANALYSIS OF FIELDED SALES

County:	1. List sales in monthly order 2. Attach individual worksheets 3. Attach plat map showing location of sales 4. Enter additional remarks on reverse side 5. Enter sales information on the property record card	Assessor:
District:		Summary Date:

Sale		Sales Price	Residential		Sub Classes						Total Tillable		P		Total 4		5		6		7		Total Residential, 4, 5, 5m, 6 & 7		Improvements	Field Total	Improvements Contributory Percentage
					1st		2nd		3rd																		
No.	Date		Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac			
Total Acres																											
Total Value																											
Avg./Acre or Unit																											
Range per Acre		Min																									
		Max																									

Figure 14-22

SUMMARY ANALYSIS OF FIELDED SALES

County: Badger

District: Anytown

1. List sales in monthly order
2. Attach individual worksheets
3. Attach plat map showing location of sales
4. Enter additional remarks on reverse side
5. Enter sales information on the property record card

Assessor: John Smith

Summary Date: 1/1/12

Sale		Sales Price	Residential		Sub Classes						Total Tillable		P		Total 4		5		6		7		Total Residential, 4, 5, 5m, 6 & 7		Improvements	Field Total	Improvements Contributory Percentage
					1st		2nd		3rd																		
No.	Date		Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac	Ac	$/Ac			
3	4/5/11	1,100,000			87	6,200	63	5,900	27	5,800	177	6,032			177	6,032	2	1,900	6	4,750			185	5,946		1,100,000	
1	4/15/11	440,000	2	25,000	56	5,200	14	4,900			70	5,140			70	5,140	2	1,600	6	4,500			80	5,500		440,000	
4	7/30/11	215,000	2	25,000	12	5,050	8	4,950	3	4,850	23	4,989	5	2,500	28	4,545	2	1,675	8	4,300			40	5,375		215,000	
6	8/26/11	718,000	1	25,000	36	5,400	21	5,300	12	5,200	69	5,335			69	5,335	3	1,800	15	4,600	2	25,000	90	5,750	200,500	718,000	28%
7	11/6/11	2,235,000			300	4,900	25	4,600	14	4,400	339	4,857	6	2,500	345	4,816	2	1,600	9	4,200	4	25,000	360	5,007	432,400	2,235,000	19%
5	12/15/11	1,120,000			82	5,800	43	5,700	17	5,600	142	5,746			142	5,746			3	4,600	3	25,000	148	6,113	215,300	1,120,000	19%
2	12/22/11	500,000			43	5,400	25	5,300	13	5,200	81	5,337	3	2,800	84	5,246	6	1,875	10	4,800			100	5,000		499,950	
Total Acres		1,003	5		616		199		86		901		14		915		17		57		9		1,003		3	1,003	
Total Value		6,328,000	125,000		3,263,400		1,083,800		457,950		4,805,150		35,900		4,841,050		30,200		258,500		225,000		5,479,750		848,200	6,327,950	
Avg./Acre or Unit		6,309	25,000		5,298		5,446		5,325		5,333		2,564		5,291		1,776		4,535		25,000		5,463		282,733	6,309	
Range per Acre	Min		25,000		4,900		4,600		4,400		4,857		2,500		4,545		1,600		4,200		25,000		5,000				
	Max		25,000		6,200		5,900		5,800		6,032		2,800		6,032		1,900		4,800		25,000		6,113				

The following example uses sales information for the last three years in the town of XYZ. The subject property is an improved parcel so all of the comparables chosen are also improved. Through an analysis of the market the following information has been developed and displayed in Figure 14-23.

Figure 14-23

Market Grid Analysis Plus and Minus Dollars Per Acre

(The subject property is a 160 acre improved farm with 60 percent of the land being level plowground, 25 percent rolling plowground and the remainder is pasture. Three-fourths of the mineral interest is included with the tract and the farm is located one mile from a paved highway. The legal description is the SE 1/4 of Sec 35 T 20 N R 6 W.)

The analysis includes arm's-length transactions of comparable properties during the last three years in XYZ Township.

Valuation Date January 1, 2012. Comparison with subject property as to adjustments for:

Sale	A	B	C	D	E
Sale Price	$975,000	237,000	469,200	1,425,000	1,690,000
Date of Sale	4/24/09	3/6/10	11/2/10	1/12/11	7/29/09
Acres	170	40	80	260	300
$ per Acre	5,735	5,925	5,865	5,481	5633
Time Adjustment	(- .96%) - $55	(- .66%) - $39	(- .42%) - $25	(- .36%) - $20	(- .87%) - $49
Size	—	- $140	-$80	+$80	+$110
Location	+ $20	- $30	—	+ $20	- $20
Land Quality	+ $25	+ $50	- $125	+ $75	+ $200
Buildings	—	- $30	+ $20	- $50	- $40
Minerals	- $25	+ $150	—	- $25	- $50
Net Adjustment	- $ 35	- $39	- $210	+ $80	+ $151
Adjusted value per acre	**$5,700**	**$5,886**	**$5,655**	**$5,561**	**$5,784**

Range Indicated $5,561/acre to $5,886/acre.

Time adjustments–Land values of property similar to the subject have been increasing approximately 5% annually until mid-2010, when the market started a downward trend.

Size adjustments–On the average, farms over 300 acres sell for $110/acre less than 160 acre farms; farms 220 acre and over sell for $80/acre less than 160 acre farms; 80 acre farms sell for $80/acre more than 160 acre tracts, and 40 acre farms sell for $140/acre more than 160 acre tracts.

Location adjustments–Sales on paved or blacktopped highways sell for $50/acre more than tracts located two miles from the highway; $30/acre more than those located one mile from the highway, and $10/acre more than those located 1/2 mile from the highway.

Land Quality–Measured in productivity and carrying capacity. Typical rental rate is $500/acre for level plow ground; $275/acre for rolling plow-ground; and $200/acre for pasture land

Buildings–Typical improvements similar to the subject improvements contribute from $350/acre to $800/acre depending upon the size, age, and condition of the improvements.

Minerals–Some extraction of minerals is done in this region. Mineral rights are valued at $45/acre and adjustments are made according to the acres of minerals conveyed.

The assessor should choose the sale property which is most comparable to the subject property. The per acre indicated value of that property could then be applied against the subject's total acreage, and an estimated market value could be derived.

Cost Approach

The basic principles and theories of the cost approach to value are discussed in WPAM Chapter 9. The cost approach is often called the inventory or summation approach because it requires the assessor to classify the various resources which make up a given farm property. The farm property resources requiring inventory are the various types of land, buildings, and improvements. Once inventoried, the assessor must measure the value of each type of land against comparable sales in the municipality and weigh the value of buildings and improvements with the knowledge of their present day replacement cost and its contribution to the market value of the property.

The cost approach is one in which the assessor values the land separately and then values the buildings separately. The values placed on each of the parts are then added together to get the total value of the farm.

The value assigned to the land will be estimated in the same way as in the sales comparison approach. Since this method has been discussed earlier, the remainder of this section will deal with estimating the value of the improvements.

Improvement Analysis

If all the buildings, including the dwelling, are used entirely for agricultural purposes, they are to be classified as agricultural improvements ("Other"). Buildings or other improvements on a farm are worth only what they add to the value of the bare land on which they are located, regardless of what they cost to erect. They should be valued in conjunction with the farm lands on which they are located. The reason for this is apparent. After the land has been valued and the two totals combined, it may result in an amount that does not represent what the property would ordinarily sell for as a whole. In such cases it becomes necessary to review the assessment in order to determine whether any value considerations have been omitted and to adjust the land or improvement values accordingly.

While the assessment placed on improvements must correspond to what those improvements add to the value of the bare land, no proper valuation of buildings for the district as a whole can be made without some knowledge of the cost of replacement and depreciation. Such knowledge allows the assessor to compare improvements and use the values obtained from buildings which have sold to estimate the value of buildings which have not sold.

Developing Improvement Cost Information

This discussion will deal with the replacement cost of farm improvements. (Please note that there is a marked difference between replacement and reproduction cost. This difference is discussed in WPAM, Volume II on pages 1-4.) The replacement cost includes the total cost of construction incurred by the builder whether preliminary to, during the course of, or after completion of the construction of a particular building. Among these costs are: material, labor, all subcontracts, builder's overhead and profit, architectural and engineering fees, consulting fees, survey and permit fees, legal fees, taxes, insurance, and the cost of interim financing.

Estimating Replacement Cost

There are various methods that may be used to estimate replacement cost new. The methods often used are the quantity-survey method, the unit-in-place or component part-in-place method, and the model method. The first two methods identify itemized costs and apply these costs against the quantity of the item found in the structure. The third method develops structures which serve as models for actual buildings found in the market. The models have costs per square foot and with some adjustments these costs are applied to the number of square feet found in the actual improvement. (For further information on these three methods read WPAM Chapter 9 or the Real Property Valuation section in Volume II.)

Volume II of the WPAM provides model cost tables for agricultural property in the state. Volume II is part of the WPAM referred to in sec. 70.32(1), Wis. Stats. The volume explains the codes used in the tables and lists the most common structure types found in Wisconsin agriculture today. There are 43 pages of cost tables with corresponding photographs and diagrams. The volume also includes depreciation tables that can serve as a guide for the assessor. Volume II costs are updated on a yearly basis. The yearly update is a result of cost information recorded from sixteen separate cost districts in the state. The information is then compiled and local time and place modifiers are issued for the sixteen districts. The modifiers and the assessor's own local cost surveys will allow the assessor to calculate the most up-to-date cost information available. These costs can then be applied to the agricultural improvements in the assessment district.

The cost information found in Volume II can be "fine-tuned" by contacting individuals in the local market involved in the construction industry.

Once the replacement cost is estimated, the assessor must then estimate the depreciation of each building.

Estimating Depreciation

Simply stated, depreciation can be defined as "a loss in value from all causes." As applied to real estate, it represents the loss in value between market value and the sum of the replacement cost new of the improvements plus the land value at a given time. The causes of depreciation have been discussed in WPAM Chapter 9.

An estimate of depreciation represents an opinion of the assessor as to the degree that the present and future appeal of a property has been diminished by deterioration and obsolescence. What the assessor is really striving for is an estimate of the present day remaining value which the buildings and improvements can contribute to the market value of the farm. The process used to determine depreciation is one that requires a considerable amount of judgment on the part of the assessor.

There are several items which may or may not affect the contributory value of farm buildings. Some of these items are: the age of the buildings, use of the buildings, the location, the changing technology of farming, and the current purchasing trends.

New methods of farming and an increase in the size of farming equipment have greatly affected the size, type, construction, and arrangement of farm buildings. An increased size in tractors and harvesters has made it necessary to increase the size of machine sheds. Many older machine sheds suffer functional obsolescence because they are too small to house today's modern equipment. New dairy barns and other specialized farm buildings may add a different value to the total farming operation which is greater than the typical contributory value of barns and other outbuildings. New special purpose barns that allow the operator to make better use of the land may indicate a higher contributory value to the overall value. Specialized farming operations such as the raising of feeder pigs, veal calves, and replacement dairy cattle have created farm building and equipment cost returns in sales that are entirely different from the return on farm building costs in the past in sales of the family type dairy farm. The assessor must analyze each building independently to see what it contributes to the overall property value.

There has been a trend for the value of buildings relative to the total value of the farm to decline. This is primarily due to farm consolidation. When a farm tract is added to another farming unit, the need for additional buildings does not necessarily increase proportionately with the acreage increase. The buildings on the add-on unit may actually represent a liability if they are not needed or are functionally obsolete or poorly located with respect to the main set of farm buildings. Another factor involved in determining the contributory value of farm buildings is whether the farm is located in an area of surplus buildings, in an area with a balance of farm land and buildings, or in an area of building shortages. In areas of surplus buildings, unimproved land frequently sells for as much as or more than land with buildings.

Knowledge of construction and equipment costs and depreciation is necessary for the assessor to interpret sale values today and to apply sale values obtained from one property to other comparable improvements in the area.

The assessor should also be aware of cases where the farm improvements add a much larger value to the overall value of the farm in relation to the typical farm's improvements. A case in point would be the gentle-man's farm or country estate where the buildings are an obvious over-improvement in comparison to other farms in the area. Generally, the owner of such property has a major source of income outside of the farming operation. This type of owner is primarily interested in the aesthetic amenities such as the setting, fine quality construction, spacious lawns, and shade trees. Such properties represent a dual use and the test of ordinary market value for a property of this kind is whether it is so located that a market for it can be said to exist. If a market does exist, the buildings will suffer less obsolescence due to over-improvement than is usually the case with ordinary farms.

The contributory value of farm improvements can only be estimated by analyzing farm sales, establishing land values, deriving the replacement cost new of the improvements, and estimating depreciation. The improvement's contributory value will also vary depending upon the size of the farm, the type of farm operation, the quality of the improvements, and the location of the improvements. Each building's contributory value and effect on the total set value should be considered. As an example, the addition of a new silo may make the hay loft of an existing barn of less importance. This would have the effect of decreasing the contributory value of that barn. The same would be true of a new milking parlor decreasing the value of an existing milk house. An analysis of all these factors requires the assessor to look at many sales and apply sound judgment as value estimates are made.

Agricultural Property Record Card – Land

The information for agricultural properties can be listed on the two-page master Property Record Card (PA-500). Side one of the card provides space to enter three years of assessment history by class for land, improvements, and total assessments. It also provides space to enter the number of acres and assessed value for class 4 tillable land, pasture land, homesite (class 7), classes 5 and 6, as well as forest crop lands and woodland tax land for the reason that such lands are commonly owned in conjunction with class 4 lands. The procedures for such lands will be found following this section.

Side four of the Property Record Card provides areas for recording sales information, property factors, and among other items, an area to show land data and computations. In this area, as was done on side one of the card, lines are available for designating the agricultural land subclasses. For each subclass the number of acres, productivity rating, and value per acre can be listed. It is intended that the land value and classification as noted on the tracing of the aerial photos will be posted to the agricultural property record cards for each separate description in the assessment roll containing such lands.

Appraisal Illustration

An analysis of the sales that have occurred in the Town of Anytown_revealed that land was selling for the values shown in Table 14-8.

Table 14-8

1st grade tillable	$ 5,674/ac	Swamp	$ 1,800/ac
2nd grade tillable	$ 5,567/ac	Forest	$ 4,597/ac
3rd grade tillable	$ 5,552/ac	Homesite	$ 25,000/ac
Pasture	$ 2,613/ac		

A 240 acre farm owned by Mr. John Public, in Anytown Township sold for $1,413,300. In order to determine the value of the improvements, a building residual analysis of the sale is done (see Table 14-9).

Table 14-9

80 acres of 1st grade tillable	@	$ 5,674/ac	=	$ 453,900
100 acres of 2nd grade tillable	@	$ 5,567/ac	=	$ 556,700
30 acres of 3rd grade tillable	@	$ 5,552/ac	=	$ 166,600
29 acres of pasture	@	$ 2,613/ac	=	$ 75,800
1 acre of homesite	@	$ 25,000/ac	=	$ 25,000
240 acres				$ 1,278,000
Sale value attributable to the improvements				$ 135,300

To determine the contributory percentage of the improvements the sales value assigned to the improvements is divided by the total selling price. In this case it would be:

$$\frac{\text{Value attributable to improvements}}{\text{Sales price}} = \frac{\$\ 135{,}300}{\$\ 1{,}413{,}300} = 9.6\%$$

The improvements on Mr. Public's farm contribute 9.6% to the value of the farm. An analysis of all the municipality's sales could be done in this same manner. A range of improvement contributory value could be derived as well as an overall average.

To determine the market adjustment on Mr. Public's improvements the replacement cost new must be established. Based on the Volume II cost tables the replacement cost new of Mr. Public's improvements is $270,000. (This was derived by costing out each building and applying the appropriate local modifier.)

From actual observation and market indications the overall depreciation of the improvements is 15 percent. This means that 85 percent of the improvements remain good. Application of these figures show:

Replacement cost new for improvements	$270,000
15 percent depreciation leaves a residual of	x 85%
Replacement cost new less physical depreciation (RCNLPD)	$229,500
Sales value assigned to the improvements	- $135,300
Difference between replacement cost new less depreciation and the sales value assigned to the improvements	$94,200

The $94,200 is the market adjustment on the improvements. The overall market adjustment expressed in percentage terms is the market adjustment expressed in dollars divided by the replacement cost new of the improvements.

$$\frac{\$\ 94{,}200}{\$270{,}000} = 35\% \text{ Overall market adjustment}$$

As a percentage of RCNLPD, the calculation would be shown as:

$$\frac{\$\ 94{,}200}{\$229{,}500} = 41\% \text{ Market adjustment to RCNLPD}$$

Analyzing sales in this fashion will permit the assessor to determine the market adjustment necessary in the assessment district. This method can also help the assessor explain the procedure to property owners.

Agricultural Property Record Card – Improvements

The agricultural outbuildings and improvements can be listed on the one-page agricultural work card (PA-703). This card provides an area for listing the basic construction details for agricultural outbuildings such as barns, silos, milk houses, pole frame buildings, corn cribs, and other improvements. The Agricultural Cost section of Volume II is to be used in estimating the cost of replacement of the farm's outbuildings. This cost section includes agricultural structure type codes which will permit easy use of the card and quick reference to the cost tables. After the replacement cost new of each structure has been estimated, the assessor is faced with the difficult task of estimating accrued depreciation. As mentioned before, this estimate can only be made by keen observation, skill, and experience gained by thoroughly analyzing the farm properties that have been sold. The one-page Agricultural Work Card provides for depreciation in two places. The first is under the column headed "Cond." (Overall condition of the improvement.). The assessor should indicate whether the overall condition is excellent, good, average, fair, poor, or unsound. Also in the "Cond." column, based upon the overall condition used, the assessor should enter the percent good of the improvement. The percent good is defined as the resultant estimate of the diminishing value of an improvement after subtracting the amount of estimated depreciation from the replacement cost new. Depreciation and percent good are complements of each other and percent good tables are available in Volume II. The second place depreciation is shown is under the column headed "OB/MA" (Obsolescence/Market Adjustment). This refers to the resultant value after deduction of functional obsolescence and deduction or addition of a market adjustment factor. This figure is expressed as a percentage and can range from 0% to 200%.

After the "Cond." percentage and the OB/MA percentage have been applied to the replacement cost new the estimated value of the improvement will be derived. The individual values of all the outbuildings can be totaled and this amount can be placed in the OBI (Other Building Improvements) section of the two-page master property record card. The one-page agricultural work card can be inserted in the two-page property record card. The agricultural residence should be listed on the two-page master property record card (PA-500) in the same area and fashion as residential homes. The Residential Cost section of Volume II is to be used in estimating the cost of replacement of the farm dwelling. The assessor should analyze the farm residence carefully so that the proper quality grade, grade factor, cost and design factors, and depreciation factors are chosen.

The value that the farm residence contributes to the total property value will depend upon the condition of the house, the age, it's location in reference to the other outbuildings and its location from the nearest village or city. There has been a recent trend toward a higher value return for the farm house. This trend is due to today's roads, road maintenance, cars, and school transportation for children which all combine to make it possible for anyone to live in a rural area and commute to work in a relatively short time. This, coupled with a growing desire for living in a pastoral setting rather than in urban communities, has created a market for agricultural residences. This trend has been tempered by the recent increase in commuter costs. Because of this the assessor must constantly monitor the market to keep pace with current market factors that influence value.

Farm homes can be sold separately from the farm or with the farm buildings and a small amount of acreage for residential use. Forty, sixty, and eighty acre farms are being actively sought for residential usage and as part-time farming operations for supplemental income to other full-time employment. Consequently, the value of farm homes as residential units has been recognized in the buying and selling of farms. They must be assessed accordingly to maintain equity.

If additional field notes or a simple sketch showing the plat plan of the farm improvement site is desired, they may be placed on a separate sheet of paper and placed in the folder. As a further supplement it is desirable to have photographs of the improvements attached to a sheet and included in the data card folder. The total value of the agricultural improvements can be shown on the two-page property record card by adding the residence value to the other building improvements value.

Farm buildings in urban areas, except the residence, may decline rapidly in market value when the land is to be eventually sold for some other use. The outbuildings, in many cases, are permitted to deteriorate. Some farm land also lies idle in anticipation of a sale for some higher use, and farm homes are rented out for residential use. The homesite value is usually comparable to other residential site values.

Special Purpose Agricultural Land Valuation

Introduction

Wisconsin farmers produce a wide variety of crops and livestock on typical cropland and pasture. They also produce two unique agricultural products, cranberries and fish, on lands that are unable to support typical crops or the pasturing of livestock. Therefore, lands used for cranberry production or aquaculture should be categorized under Chapter Tax 18.06 (2)(e) as "specialty land."

Cranberry Marshes

Cranberries have been grown commercially in Wisconsin for more than 100 years. Early harvesting was confined to wild and natural uncultivated areas. However, over the years, cranberry culture has become a very specialized and technical business. Cranberry beds are usually located on low wet lands which are not generally adaptable to other agricultural endeavors.

Cranberries are usually adaptable to an acid peat soil with the acidity ranging from pH 4.0 to pH 5.0 (compared to a normal pH of 6.5 to 7.5). Newer beds are established in sand marshes or on a minimum three-inch sand lift covering a peat soil base. Sand beds provide better drainage and allow better control of weeds and fertilization. New beds can be productive in four years with proper management. Long beds are better than square beds. The older beds vary in size while the newer beds are generally constructed approximately 160 feet wide and four to six acres in area.

Water supply is critical to a cranberry marsh. Water is used for frost protection, irrigation, harvesting and winter protection. Although water may be available from different sources such as marshes, reservoirs, streams, lakes or rivers, it must have an acid content. A small, deep reservoir is better than a large, shallow reservoir. Sprinkling systems are now commonplace. They offer immediate frost protection and water conservation. Irrigation pipes are disconnected during harvest and removed from the beds for the winter unless the system is underground. Stationary diesel engines or electric motors attached to large pumps supply pressure for operation of the sprinkling systems.

Proper drainage allows efficient movement of water onto and off of the beds. Water is controlled by a series of dikes and bulkheads and is usually drained by gravity flow. A minor slope may help, but overall the bed should be fairly level. This allows an even water depth over the top of the bed for the harvest and winter floods. If water is limited in quantity, it can be pumped back to a holding area to be reused. The use of drain tile in a bed can improve drainage conditions.

It is important that the beds be well sanded. Sanding is a rejuvenating process that anchors the vines and stimulates new growth. It also controls certain soil-bred insects. Sand is applied during the winter months when trucks can drive on the ice covering the beds. The sand is spread across the ice in a 1/4 to 1 inch layer and when the ice melts, the sand settles onto the beds. Established beds are generally sanded once every 2 to 4 years.

Due to the unique nature of this agribusiness, a brief chronological summation of the cyclical productive process follows, starting with the spring months. The cranberry beds may be flooded in the spring to draw the frost out of the ground evenly. Fertilizer, herbicides and fungicides may be applied and new plantings prepared. Following early summer bloom, the plants set the fruit for this year's crop, while producing a bud which will be the following year's fruit. Ongoing maintenance of beds includes pulling weeds, cleaning ditches, mowing and leveling dikes, and maintenance to water control structures. Vines are irrigated as necessary and are sprinkled when frost is imminent. In September and October, the beds are covered with water so the vine tips are sticking out. They are harvested by beating the vines with a machine that detaches the berries from the vines.

Water is brought up so that the berries float free, moved to one corner of the bed, loaded into trucks, and delivered for processing. For berries destined for the fresh fruit market, raking machines are used instead of beaters to minimize bruising. Minor bed maintenance is done after harvest. Following hard freezes in the winter, the beds are once again flooded with water which protects the vines from the winter air. During the winter, the beds may be sanded. The cycle then begins again with the arrival of spring.

Cranberry Bed Classification

The method for valuing cranberries has changed over the last few years. Under use-value assessment, the land improvements are appraised using the cost approach while the land under beds is considered agricultural land. Although the method has changed, we continue to provide descriptions of shape, slope, drainage, water source, bulkheads, soils, dams, dikes and ditches. These descriptions help provide a better understanding of a cranberry operation and help ensure the consideration of these attributes for any adjustment to land or improvement value.

Shape: The ideal beds are rectangular and more than 600 feet in length and 100 feet to 160 feet in width.

Slope: The most desirable cranberry bed has approximately a 2 or 3-inch slope that tapers toward the outer ditches and eventually to the outlets. This is the most desirable because it uses minimum amounts of water during winter flood and harvest. With a moderate slope, the harvest machinery functions with relative ease and is most cost effective for the grower. The greater the slope, the more water the bed requires for winter flood and harvest.

Drainage: Drainage is the ability to quickly and adequately drain the flood waters away from the bed. The most desirable situation for draining a bed is for each bed to be drained individually without affecting another bed's flood. This situation is most desirable because it is the most cost effective and efficient way to handle water. If water is limited in quantity, it is usually pumped back to the holding area to be reused.

Water Source: Adequate water supply is crucial to the production of cranberries. The most desirable water source is directly from a flood ditch as each bed can be flooded independently. It is less desirable to flood from bed to bed with different elevations. The most undesirable water source is the pumping of water onto the bed as this increases the cost of operation.

Bulkheads: Aluminum and concrete bulkheads have the highest value for controlling water flow. Each bed will have at least one inlet and one outlet bulkhead, possibly more.

Soils: While cranberry vines can be grown in many types of soils, an acid soil is preferable (pH 4.0 to 5.0). Beds built on sand (minimum of 2 feet) are the easiest to construct and the most economical to manage. Sand beds are less susceptible to freeze and thaw cycles, allow for good drainage, are easier to plant, and are generally uniform in texture. Peat or organic type soils will produce a crop, but require more management, and involve weed and drainage problems.

Dams or Dikes Surrounding Each Bed: Dams and dikes are earthen features which are an integral part of bed management. They act as water impoundment structures, serve as flood barriers, and allow for travel of fertilization and harvest equipment. The dams and dikes should be level, solid, and wide enough for heavy truck traffic. The berms (sides of dikes) should be well sodded to prevent slippage and erosion.

Ditches: The 12 to 24-inch wide excavation around the perimeter of the beds allows for adequate drainage from the beds to the outlets. These ditches should be level, uniform width, and free of clogging weeds.

Some peat beds also have center ditches. If this situation occurs, the ditches are located approximately every 70 feet.

Cranberry Bog Valuation

The following guidelines describe how to appraise cranberry property. The method uses the cost approach for improvements, use-value figures for agricultural land, and market value figures for non-agricultural land. This method is consistent with the assessment of all other agricultural property in Wisconsin.

Cost Approach

The value resulting from the cost approach is the sum of land value and the improvement value. The land used in the production of cranberries is typically classified as “agriculture,” or “other.” “Agricultural” land is assessed at use-value rates whereas "Other" land is valued at market value. The improvements are typically beds, dikes, and bulkheads and the value is determined by estimating the reproduction cost then subtracting depreciation from all causes. Depreciation can be in the form of physical deterioration, functional obsolescence, or economic obsolescence.

Land: For assessment purposes, cranberry land can be either:
- Agricultural
- Other

Agricultural land: Land under a cranberry bed is considered land devoted primarily to an agricultural use. Cranberry land classified as agricultural should be categorized as third grade tillable and adjusted to the local level of assessment.

Other land: "Other" land is land necessary for the placement of the improvements. Land underneath earthen features (dams, dikes, ditches, inlets, outlets, etc.) surrounding the beds are classified as "Other", Class 7, and assessed at the third grade tillable value, adjusted to the local level of assessment. The earthen features are valued according to a cost less depreciation methodology.

Improvements: Improvements on cranberry operations should be classified as "Other." The improvements of cranberry operation can either be buildings or land improvements. Land improvements for cranberry operations typically:

- include buildings, dikes, and bulkheads (beds are classified as agricultural)
- require periodic maintenance
- depreciate

Land improvements are assessed at market value.

Unlike dairy farms, the land improvements for cranberry production are not necessarily located in a contiguous area. Therefore, an appropriate and reasonable amount of land must be allocated for placement of the land improvements based on the size of the parcel, number of beds.

The classification of land improvements have been described in this chapter where it states, "…the well and septic, driveway, retaining walls, and other man-made improvements are valued with the improvements and should not be included in the building site land value."

Land improvements are appraised using the cost approach which includes both the direct and indirect costs for improvements. The direct costs are those for the "brick and mortar." The indirect costs include such things as architect and permit fees as well as site preparation for such things as excavation, grading, and backfill. Based upon an analysis of construction data, we offer the costs in Table A as a guide.

Table A

Component Construction Costs and Classification for Cranberry Operations Land Improvements

Component	Cost	Classification	Valued
Bed: Range from 1 acre to 10 acres	$3,850-$7,000/bed acre	Agricultural	3rd Grade Tillable
Bed Renovation: All Acres (does not include bulkhead reconstruction and vine replacement)	Range $3,000-$5,000/bed acre	Agricultural	3rd Grade Tillable
Dike	Range $1,500 - $2,000/dike acre	Other	Cost less depreciation
Drainage Outlet	Flowgate $1,000	Other	Cost less depreciation
Flooding Inlet	Flowgate $1,000	Other	Cost less depreciation

Bed Renovation

Cranberry beds containing vines that are older than 10 - 15 years may undergo bed renovations including sand and vine replacements. Upgrading vine cultivars increases berry production. Assessors should interview owners annually to discover bed renovations, noting that not every producer will upgrade the beds or vines.

Outlet and inlet structures including flow gates may be replaced from time to time under various renovations.

Combining smaller beds into single large beds may occur from time to time under a renovation project.

Depreciation

According to the IAAO *Property Appraisal and Assessment Administration*, depreciation is defined as "Loss in value of an object, relative to its replacement cost, reproduction cost, or original cost, whatever the cause of the loss in value. Depreciation is sometimes subdivided into three types: physical deterioration (wear and tear), functional obsolescence (suboptimal design in light of current technologies or tastes), and economic obsolescence (poor location or radically diminished demand for the product)."

All improvements depreciate. Depreciating cranberry production facilities varies depending on the type of improvement, the quality of construction, the effect of the elements, and so on. It is likely that all three types of depreciation (physical, functional, and economic) apply to the improvements. Economic obsolescence, as shown in Table B, applies to new beds as they develop for production over the first four years. Functional obsolescence may apply as technology changes affect utility. Physical depreciation, as shown in Table C, applies as the improvements age and wear out.

Start-up obsolescence as a jurisdictional exception: Because cranberry beds require four years to become productive, consider start-up economic obsolescence using a straight-line function shown in Table B. Under this schedule, it is anticipated that the bed should be at full production in year four. Start-up obsolescence also applies to non-productive beds; examples include scalped beds and unplanted beds.

Table B

Start-Up Obsolescence for Cranberry Operations

Start-Up Time in Years	Obsolescence Percentage
1	75
2	50
3	25
4	0

Functional obsolescence: Functional obsolescence is a loss in value due to a reduction in utility. According to the IAAO, "Functional obsolescence exists where a property suffers from poor or inappropriate architecture, lack of modern equipment, wasteful floor plans, inappropriate room sizes, inadequate heating or cooling capacity, and so on."

Characteristics specific to cranberry operations that affect functional utility include, but are not limited to, bed shape, soil type, and water source.

Physical depreciation: Physical depreciation is a loss in value due to the wearing out of a building or land improvement.

The depreciation of improvements is based on a 25-year life as shown in Table C. The source of this schedule is Marshall Valuation Service, copyright 2016 by Marshall & Swift.

Table C

Depreciation for Cranberry Operations
25-Year Life

Effective Age in Years	Depreciation Percentage
0	0
1	3
2	6
3	9
4	12
5	15
6	18
7	22
8	25
9	29
10	32
11	36
12	40
13	44
14	48
15	52
16	55
17	59
18	63
19	67
20	71
21	74
22	76
23	78
24	79
25	80

Aquaculture

Aquaculture is an agricultural business of growing importance in Wisconsin. Ponds used for animal aquaculture qualify as Agricultural (Class 4) by virtue of Sector 11, Subsector 112 Animal Production of the North American Industry Classification System (NAICS) (Appendix 11-A). The NAICS manual describes animal aquaculture (Industry 11251) as "This industry comprises establishments primarily engaged in the farm raising of finfish, shellfish, or any other kind of animal aquaculture. These establishments use some form of intervention in the rearing process to enhance production, such as holding in captivity, regular stocking, feeding, and protecting from predators." In Wisconsin, two common aquaculture ventures are trout farms and minnow farms.

Not all aquaculture operations fit the definitions of agricultural land. Outdoor concrete raceways and indoor hatchery facilities do not meet the definition in sec. 70.32(2)(c)1g, Wis. Stats., that agricultural land is "land exclusive of buildings and improvements and the land necessary for their location and convenience, that is devoted primarily to agricultural use."

Fish Pond Valuation

Fish ponds used in aquaculture are analogous to pasture. Like cattle grazing pasture, fish ponds provide an area for the keeping and feeding of fish being raised for market. Lands covered by the water of a pond should be classified agricultural and categorized as pasture. Lands adjacent to ponds used in aquaculture should be appropriately classified by use. The appraisal steps for aquaculture property and fish ponds are:

1. Consider the current guideline use value for pasture land equated to the municipal level of assessment.
2. Estimate the depreciated cost of all improvements ("Other").
3. Sum all land and improvement values to generate an assessment.

Depreciation of improvements should include physical deterioration, functional and economic obsolescence, where appropriate. All improvements should be listed with associated land classified as "Other" (Class 7). Improvements are dikes, dams, and other structures used for diverting water. The cost of construction for the improvements should include such things as surveying, site preparation, excavation and earthmoving. Costs should be compiled from typical local market costs.

Sources

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