https://dor.sd.gov/ 1-800-829-9188 (Option 2)

Agricultural Land Productivity Formula

The purpose of this document is to provide a general overview of how agricultural land is assessed in South Dakota based on the productivity valuation system. It is not intended to answer all questions that may arise. The information contained in this fact sheet is current as of the date of publication.

July 2021

Overview

The property tax assessments of agricultural land in South Dakota are based on the land's productivity value. The goal of the productivity valuation system is to ensure all agricultural land in South Dakota is valued fairly and equitably in each county based on what the agricultural land is able to produce.

- The productivity valuation system began with the 2010 assessments for taxes payable in 2011.
- As of the 2019 assessment year, the implementation period is finalized, and all counties are at their full productivity valuation.

The Department of Revenue (Department) contracts with the South Dakota State University (SDSU) Economics Department to calculate the statistics used throughout the productivity valuation system.

- The statistics are individualized by county and are the starting point for valuing all agricultural land in the state.

The county data used to establish the productivity value is from official estimates published by the United States Department of Agriculture, National Agricultural Statistics Services (USDA/NASS).

- These official estimates are based upon surveys of farmers, ranchers, and agribusinesses.

Productivity Formula

The productivity formula multiplies the gross revenue per acre by the landowner's share, and then divides this amount by the capitalization rate.

Productivity Formula

average value per acre = [gross revenue per acre × landowner's share] ÷ [cap rate]

The landowner's share and the capitalization rate are both established by South Dakota Codified Law (SDCL 10-6-127).

Land Classification	How Gross Revenue per Acre is Determined	Landowner's Share	Capitalization Rate
Cropland	Gross revenue per acre is determined by using an 8-year Olympic average of yields and commodity prices.	35%	6.6%
Non-Cropland	Gross revenue per acre is determined by using an 8-year Olympic average of cash rents.	100%	6.6%

The Department sends each county its top dollar valuation for cropland and its top dollar valuation for non-cropland, along with the formula calculations and background information provided by SDSU. The counties then apply these values according to the soil survey.

- Similar to the previous market valuation system, the values are applied to the soil survey which establishes the base valuation, upon which the county may make necessary adjustments.

Productivity Formula Breakdown

Productivity Formula

average value per acre = [gross revenue per acre × landowner's share] ÷ [cap rate]

How Gross Revenue per Acre is Determined

The gross revenue per acre is the starting point for the productivity formula, which is determined by calculating an 8-year Olympic average. USDA/NASS data is used to establish the gross revenue per acre in each county for an 8-year period.

- For the 8-years of data, the lowest and highest years are thrown out, and the remaining six years are averaged.
- Each year, the newest year of data is added, the oldest year is discarded, and a new Olympic average is calculated.

Cropland Data

The data used to establish the cropland gross revenue is all published by USDA/NASS. For each commodity in each county, USDA/NASS publishes:

(1) Total planted acres for all purposes; and
(2) Total production.

The commodity price is the only statewide number used in the productivity formula. The commodity price is provided by NASS and is weighted based upon the quantity of the commodity sold each month during the marketing year for South Dakota.

Non-Cropland Data

For non-cropland, cash rents determine the gross revenue.

⇒ Every other year, USDA/NASS conducts a survey of landowners as part of a nationwide program to establish cash rents for each county.

⇒ In off years, SDSU calculates the cash rent for each county using the past rents of that county, rents from the surrounding counties, or other rental information.

Cropland Example - Gross Revenue per Acre

The total production of each crop is multiplied by the statewide commodity price to determine the gross revenue for that crop.

In 2011, Ziebach County had this mix of crops:

Crop	Acres	Production	Value/Unit	Gross Revenue
Corn for Grain	10,400	998,000 bushels	$6.05/bushel	$6,037,900
Hay Alfalfa	55,000	96,000 tons	$125.00/ton	$12,000,000
Hay Other	34,000	34,703 tons	$118.00/ton	$4,095,000
Wheat, Winter	48,200	1,645,000 bushels	$7.10/bushel	$11,679,500
Total	**147,600**			**$33,812,400**

For 2011, the yearly gross revenue per acre is $229.08 ($33,812,400 ÷ 147,600). This process is repeated for 2012 to 2018:

2011	2012	2013	2014	2015	2016	2017	2018
$229.08	$264.70	$213.97	$226.25	$173.15	$171.40	$166.26	$182.25

The 8-year Olympic average throws out the low ($166.26) and high ($264.70) years, and averages the remaining six years. Ziebach County's gross revenue per acre used to set the 2020 cropland values (for taxes payable in 2021) is **$199.35**.

Non-Cropland Example - Gross Revenue per Acre

For Ziebach County, the 8-year period of cash rents were:

2011	2012	2013	2014	2015	2016	2017	2018
$6.80	$7.00	$8.00	$6.90	$9.50	$8.26	$9.00	$10.30

The 8-year Olympic average throws out the low ($6.80) and high ($10.30) years, and averages the remaining six years. Ziebach County's gross revenue per acre used to set the 2020 cropland values (for taxes payable in 2021) is **$8.11**.

Gross Revenue per Acre Produces Average Value Per Acre

The gross revenue per acre is entered into the productivity formula to produce the average value per acre of ag land property in the county.

The landowner's share and the capitalization rate are set by state law (SDCL 10-6-127).

- The landowner's share percentages are 35% for cropland and 100% for non-cropland.
- The capitalization rate is 6.6%.

Example - Average Value Per Acre

Using the Ziebach County's examples:

- Average Cropland Value is **$1,057.16** ([$199.35 × .35] ÷ .066)
- Average Non-Cropland Value is **$122.88** ([$8.11 × 1.0] ÷ .066)

Calculating the Top Dollar Value per Acre

Top Dollar Formula

top dollar value per acre = average value per acre ÷ weighted soil rating

The next step in the process is for the average value per acre to be adjusted up to the top dollar value per acre, or the value for the best soil in the county. The top dollar value per acre is calculated by dividing the average value per acre by the weighted soil rating.

Each soil type in the county is classified as either crop or non-crop and is rated on a scale from 1.00 to 0.10 based on soil quality. The weighted soil rating is based on the individual soil ratings in a county, giving more weight to those soil types that are more prevalent in that county.

- **Cropland:** The cropland top dollar value per acre is calculated by taking the cropland average value per acre and dividing by the crop weighted soil rating.
- **Non-Cropland:** The non-cropland top dollar value per acre is calculated by taking the non-cropland average value per acre and dividing by the non-cropland weighted soil rating.

Example - Top Dollar Value per Acre

Cropland

In Ziebach County, the soil table shows that the weighted rating of cropland soils is .584656.

- To get the cropland top dollar value per acre, take the cropland average value per acre, which was calculated in the previous example, and divide by the weighted soil rating ($1,057.16 ÷ .584656 = **$1,808.17**).
- This calculation establishes the top dollar value per acre for the best crop rated soil in Ziebach County with a value of $1,808.17. The best soil receives a rating of 1.0 and all other soils are scaled appropriately.

Non-Cropland

In Ziebach County, the soil table shows that the weighted rating of non-cropland soils is .317561.

- To get the non-cropland top dollar value per acre, take the non-cropland average value per acre, which was calculated in the previous example, and divide by the weighted soil rating ($122.88 ÷ .317561 = **$386.95**).
- This calculation establishes the top dollar value per acre for the best non-crop rated soil in Ziebach County with a value of $386.95. The best soil receives a rating of 1.0 and all other soils are scaled appropriately.

Calculating the Assessed Value of a Parcel

Assessed Value of a Parcel

1. Top dollar value per acre x soil rating = unit value of the soil type
2. Unit value of soil type x number of acres of soil type = total value for the soil type
3. Add all soil type values to get total assessed parcel value

Individual parcels of land typically contain many different soils. The soil survey provides an inventory of the acres of each type of soil in each parcel. Every soil type in a county is valued in relation to the top rated soil. Therefore, a crop soil with a rating of .88 has a value that is 88% of the top rated crop soil.

To determine the unit value of a particular soil in each county, the top dollar value is multiplied by the soil rating.

Within the parcel, the unit value is then multiplied by the number of acres of each soil type to give the total value for that type of soil. After each soil type is calculated, the dollar values are then added together to determine the total value of the parcel.

Again, this is the starting point for valuing the parcel. The Director of Equalization may need to make adjustments to ensure uniform and fair valuations for all of the agricultural land in the county.

Example - Assessed Value of a Parcel

The rating of each soil type in the parcel is multiplied by the top dollar value per acre to determine the entire parcel's value.

- Crop soil CT has a unit value of $1,253.06 ($1,808.17 × .693)
- Non-Crop soil ACD has a unit value of $149.36 ($386.95 × .386)

The unit value of each soil type is multiplied by the number of acres of that soil type in the parcel.

These individual results are added together to get the total assessed parcel value.

Map Unit	Rating	Acres	Unit Value	Total
Crop Soils				
• CT	.693	42	$1,253.06	$52,628.60
• FAA	.868	41	$1,569.49	$64,349.15
• GR	1.0	17	$1,808.17	$30,738.89
Non-Crop Soils				
• ACD	.386	44	$149.36	$6,571.96
• HC	.589	16	$227.91	$3,646.62
TOTAL		**264**		**$157,935.22**

Adjustments to the Assessed Value

The productivity value formula is a starting point for assessing agricultural land. The assessed value of agricultural land may be adjusted due to the following factors which may affect productivity (SDCL 10-6-131):

- Location, size, soil survey statistics, terrain, topographical condition, climate, accessibility, or surface obstructions.

If a property owner feels their land may have one of these limiting factors, they can request an ag land adjustment by applying online or contacting their county Director of Equalization office.

In South Dakota, property cannot be assessed for more than its actual value and must be assessed equitably in relation to other property in the county. A property owner should ask:

(1) "Could I sell the property for this amount?"

(2) "Is my property assessed consistently with similar property in my county?"

- If the answer to either question is "no," the property owner should talk to their county Director of Equalization. The Director can provide additional information on how land in the county is assessed.

A property owner can discuss their land assessment at any time during the year. Depending on the timeframe, the assessment may not be able to be adjusted until the future year's assessment.

- If a property owner wishes to appeal their property assessment for a current taxation year, review the Appeal Process Guide for the steps and timeframe to follow.

Summary of Ag Land Productivity Formula

South Dakota State University compiles the following data from USDA/NASS for each county:

Cropland	Non-Cropland
• Acres planted • Acres harvested • Yields per acre • Statewide crop prices	• Cash rents

→

The Department of Revenue then calculates an 8-Year Olympic average of the USDA/NASS data.

This gives the **gross revenue per acre** for both cropland and non-cropland.

↓

Gross revenue per acre is then entered into the productivity formula.

[gross revenue per acre × landowner's share] ÷ [cap rate] = **average value per acre**

	Cropland	Non-Cropland
Landowner's Share	35%	100%
Capitalization Rate	6.6%	6.6%

←

Average value per acre is divided by the weighted soil rating to give the top dollar value per acre.

average value per acre ÷ weighted soil rating = top dollar value per acre

↓

Projected top dollar for cropland or non-cropland is then multiplied by soil rating which is then multiplied by number of acres which gives assessed value for a particular parcel.

top dollar value per acre × soil rating × number of acres = total value for soil type

add all soil types together = total assessed parcel value

Contact Us

If you have any questions, please contact the **South Dakota Department of Revenue.**

Call toll-free: 1-800-829-9188 (option 2)
Property Tax Division Email: proptaxin@state.sd.us
Website: https://dor.sd.gov/
Mailing address and office location: South Dakota Department of Revenue
445 East Capitol Ave
Pierre, SD 57501