# Cost Estimation for the Ohio Beginning Farmer Tax Credit Program

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On January 1, 2023, the Ohio Beginning Farmer Tax Credit Program was introduced; a program which will be in effect for five years until January 1, 2028. Like initiatives in other states, this program benefits beginning farmers in the state. The program aims to support the transition of farmland to a new generation of farmers and assist beginning farmers in accessing and acquiring farmland. The program provides nonrefundable tax credits to landowners who sell or lease agricultural assets to beginning farmers. Beginning farmers also receive tax credits for participating in financial management programs. The tax credit rate for both farmland rentals and sales is set at 3.99%.

Given that the overall cap for the five-year program (2023-2028) stands at $10 million, we are interested in calculating the potential costs to the state of Ohio for the beginning farmer tax credit program related to farmland sales using the following formula. The first part of the formula

$$\text{Arable farmland} * (\text{pasture share} * \text{pasture price} + \text{cropland share} * \text{cropland price})$$

represents the calculated total value of pasture and cropland in Ohio in 2022. The data is from the USDA Census of Agriculture for 2017 and the USDA NASS surveys. Using a 2% farmland turnover rate that is reported for Illinois as an assumption for the turnover rate in Ohio, we multiply it by the total pasture and cropland value, which is calculated as the total value of traded farmland in 2023 (Sherrick, 2012). We next multiply it by the share of beginning farmers in the state to get

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an estimate on value of traded farmland by beginning farmers. The share of beginning farmers is around 26.3% according to the 2017 USDA Census of Agriculture, which defines beginning farmers as those who have operated a farm or a ranch for ten years or less. Lastly, we multiply this value by the participation rate, the percentage of farmland that is qualified for the program, and the tax credit rate, to get an estimated overall cost for the beginning farmer tax credit program. According to the 2017 Census of Agriculture, around 34% of farmland has a value of less than $2500, and 2% of farms are smaller than 10 acres. We then assume that the share of qualified farmland for the program is 60-70% and that the participation rate in the program is 20-40%.

The scenarios presented below are based on different combinations of program qualification shares and participation rates. These are designed to illustrate the range of potential cost the state of Ohio might incur under different levels of participation in the program. For instance, a scenario assuming 60% qualification shares and a 20% participation rate provides a conservative estimate of the program cost of $1,471,760 for 2023, while assuming higher qualification and participation rates, results in the program cost reaching $3,434,107 for 2023. Assuming that every subsequent year would have a similar annual cost and considering the duration of the beginning farmer tax program of 5 years and an inflation rate of 3.5%, the total estimated cost for the program will vary from $7,892,263 to $18,415,282. The beginning farmer tax credit program in Ohio has a cap of $10 million, therefore under high qualification shares and participation rates, this cap would be reached.

**Estimation Information**

| True data | Value | Source |
|---|---|---|
| Arable farmland in OH | 13,100,000 acres | USDA NASS 2022 |
| Cropland share | 78 % | USDA Census of Agriculture 2017 |
| Pasture share | 9 % | USDA Census of Agriculture 2017 |
| Cropland price | 7550 $/acre | USDA NASS 2022 |
| Pasture price | 3600 $/acre | USDA NASS 2022 |
| Tax credit rate | 3.99% | Ohio Department of Agriculture |

| **Estimated data according to Benchmarks** | | |
|---|---|---|
| Farmland turnover rate | 2% | UIUC farmdoc daily |
| Share of beginning farmer | 26.3% | USDA Census of Agriculture 2017 |
| Principal job percentage of beginning farmer | 71.8% | USDA Census of Agriculture 2017 |

| **Assumptions** | |
|---|---|
| Share of farmland qualified for the program | 60-70% |
| Participation rate in the program | 20-40% |

**Calculation method**

$$\begin{aligned}\text{total cost} = \text{arable farmland} \\ * (\text{pasture share} * \text{pasture price} + \text{cropland share} * \text{cropland price}) \\ * \text{turnover rate} * \text{tax credit rate} * \text{share of beginning farmers} \\ * \text{principal job percentage} * \text{share of farmland qualified for the program} \\ * \text{participation rate in program}\end{aligned}$$

**Simulated Scenarios**

| **Event** | **Estimated spending** |
|---|---|
| Share of farmland qualified for program: 60%<br>Participation rate in the program: 20% | 7,892,263 $/year |
| Share of farmland qualified for program: 70%<br>Participation rate in the program: 40% | 18,415,282 $/year |

**Reference**

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