



7. Michigan Drainage

In Michigan, lateral drain pipes are typically installed at a depth of 28 to 30 inches. Drain spacing ranges from 15 to 40 feet for a new installation with the lower range for fine-textured soils (clay, clay loam and loam) and the higher range for coarse-textured soils (sand and sandy loams). Overall, there has been a recent trend for narrower drain spacing, which allows for a quicker water removal from the field.

In Michigan's Lower Peninsula, subsurface drainage is more concentrated in the southeast and the Thumb region where the dominant natural drainage classes are very poorly, poorly and somewhat poorly drained (Figure 7). Drainage class identifies the frequency and duration of wet periods under natural conditions.

It is difficult to know exactly how much land is subsurface drained in Michigan, but the 2017 Census of Agriculture estimated 3.0 million acres of subsurface-drained farms, which shows a 38% increase from the 2.5 million acres in 2012. This is because subsurface drainage pays well.



8. Economics of drainage

Subsurface drainage has a clear economic advantage. Percent corn yield increase can range from 20% to 80%. Payback period can range from 2 to 6 years for corn (Ghane et al., 2021). The site-specific payback period depends on: (1) Long-term average growing-season rainfall, (2) Drainage design (drain depth and spacing), (3) Soil property (saturated hydraulic conductivity and depth to restrictive layer), (4) Economics (interest rate, depreciation, maintenance cost, pipe cost, installation cost, corn price).

Typically, drainage investment is done by the landowner because it increases the value of the land. In the scenario that the land operator wants to invest in the drainage system, the rental value should not increase as the operator is paying for the drainage system. In addition, the operator and landowner should agree on having a long-term lease that provides enough time to pay off the drainage-installation loan (FarmProgress, 2010). The lease term should be greater than the amortization period of the drainage-installation loan. Otherwise, a buyout clause should be added to the lease agreement.

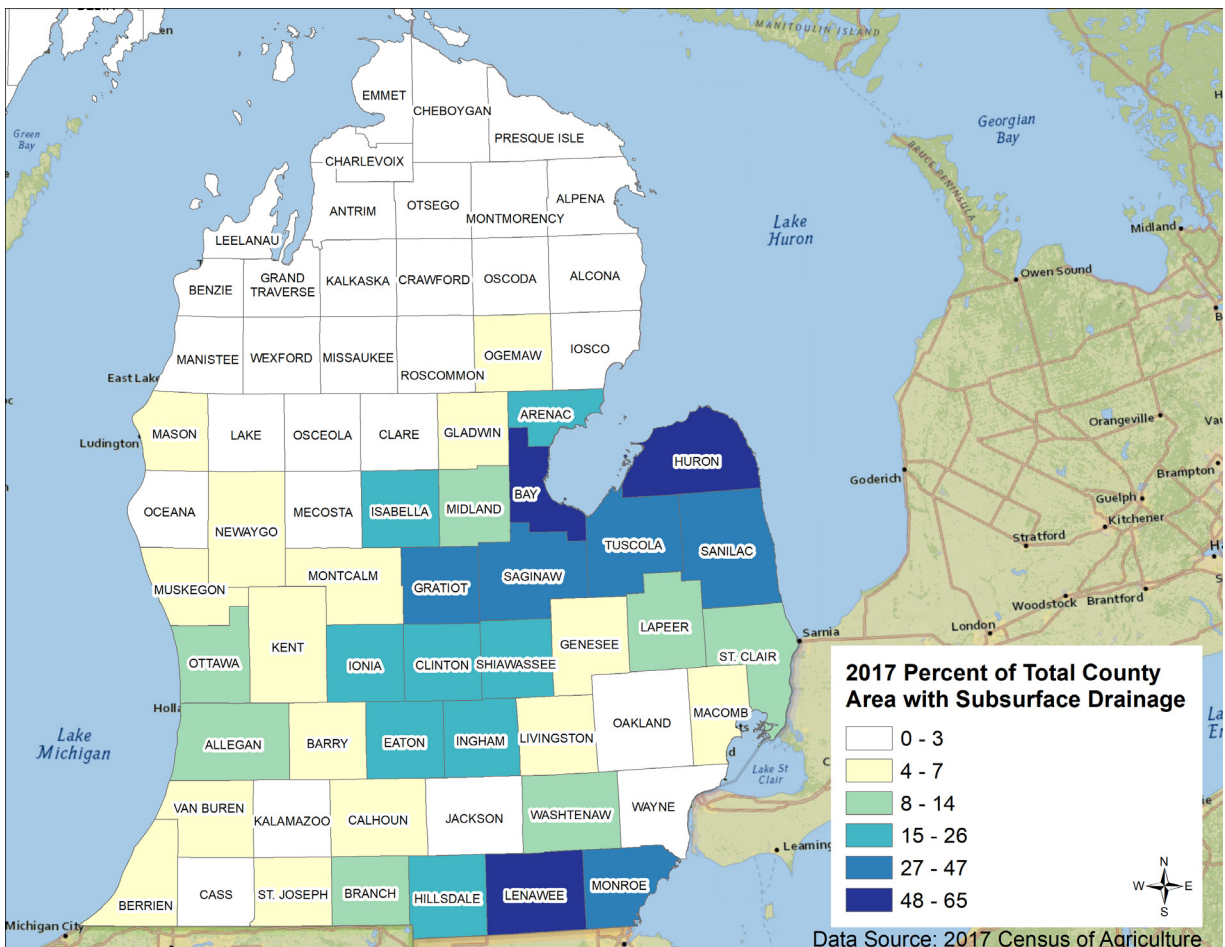


Figure 7- Map of Michigan's Lower Peninsula with percent of total county area with subsurface drainage.

