Eric Herschthal and John L. Brooke,
"The Plantation Carbon Complex: Slavery and the Origins of Climate Change in the Early Modern British Atlantic,"
William and Mary Quarterly, 3d ser., 81, no. 2 (April 2024): 255–306

Appendix II: Land Use Data

Table III: Average Indenture-Based Tobacco Plantation, ca. 1670, over Twenty-Six Years

Total Acreage Available: 200 acres
Adult Agricultural Laborers: 3.5

Land Use	Acreage in Use	Emission Factors (E.F.) Applied: E.F. Value (in parentheses), as Metric tons of Carbon (MtC) ***per acre***	Average Emission (MtC)	Description
Cropland	93	Above-Ground Biomass in Forest (34.2) Below-Ground Biomass in Forest (6.0) Dead Wood Biomass (3.4) Litter Biomass (2.5) Soil Organic Carbon Stock, applied 26 times (0.9) Carbon drawdown in cropland (-1.9)	4,532	10.5 acres tobacco (@ 3 acres tob. / worker); 8 acres corn (@ 2 acres corn / worker, plus 1 acre rented out). Assumes new tobacco land cleared every 3 years, with used tobacco land shifting to corn production for another 3 years, then fallowed for 20 years. Soil emission factor applied 26 times to account for 26 years of cropland being tilled.
Pasture and meadow	0	*n/a*	0	Assumes livestock foraged in forest, on fallowed croplands, and in natural meadows.
Household	2	Above-Ground Biomass in Forest (34.2) Below-Ground Biomass in Forest (6.0) Dead Wood Biomass (3.4) Litter Biomass (2.5)	92	Area cleared for household, kitchen garden, and orchard.
Remaining woodlands after 26 years	*105*	*n/a*	*n/a*	
Total (26 years)	**95**		**4,624**	

Sources and Notes: Average of 2.5 indentures per household with bound labor is from period when indentures per household was highest, the 1660s through 1670s, and averages figures in Carville Earle, *The Evolution of a Tidewater Settlement System: All Hallow's Parish, Maryland, 1650–1783* (Chicago, 1975), 46 (table 8); Gloria L. Main, *Tobacco Colony: Life in Early Maryland, 1650–1720* (Princeton, N.J., 1982), 26 (figure 1-4). We assume the adult male plantation owner also worked in the fields, bringing the total number of adult workers to 3.5. The typical indenture-owning planter owned around 200 acres, according to Lorena S. Walsh, *Motives of Honor, Pleasure, and Profit: Plantation Management in the Colonial Chesapeake, 1607–1763* (Williamsburg, Va., and Chapel Hill, N.C., 2010), 152. For three acres of tobacco and two acres of corn per worker, see Lois Green Carr and Russell R. Menard, "Land, Labor, and Economies of Scale in Early Maryland: Some Limits to Growth in the Chesapeake System of Husbandry," *Journal of Economic History* 49, no. 2 (June 1989): 407–18, esp. 414 (table 4, note); Menard, Carr, and Walsh, "A Small Planter's Profits: The Cole Estate and the Growth of the Early Chesapeake Economy," *William and Mary Quarterly*, 3d ser., 40, no. 2 (April 1983): 171–96, esp. 179. Acreage for cabins, rented land, and orchard from Carr, Menard, and Walsh, *Robert Cole's World: Agriculture and Society in Early Maryland* (Williamsburg, Va., and Chapel Hill, N.C., 1991), 35–38. We assume shifting long-fallow cultivation, with tobacco planted on the same field for 3 consecutive years, followed by corn for 3 consecutive years, then a 20-year fallow period. For sources of emission factors, see Appendix I: Table A.I.1.