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 VII: Average Enslaved Labor Rice Plantation, ca. 1770

Total Available Acreage: 600
Adult Agricultural Laborers: 30

Land Use	Acreage in Use	Emission Factors (E.F.) Applied: E.F. Value (in parentheses), as Metric tons of Carbon (MtC) ***per acre***	Average emissions (MtC)	Description
Cropland	187.5	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 (1.1) Carbon drawdown in cropland (-1.9) Methane emissions converted to carbon equivalent, applied 26 times to rice fields only (0.03)	13,645	127.5 acres in rice (@4.25 acres/worker); 30 acres in subsistence corn (@ 1 acre/enslaved person); an additional 30 acres for subsistence corn to account for need to fallow corn fields. Soil emission factor applied 26 times to all crop fields to account for 26 years of cropland being tilled. Methane emissions applied 26 times only to rice fields to account for 26 years of methane emissions only relevant to rice crop.
Pasture and meadow	0	*n/a*	0	Assumes livestock forage in uncut forests, natural marshland, and corn fodder.
Household	12	Above-Ground Biomass in Forest (34.2) Below-Ground Biomass in Forest (6.0) Dead Wood Biomass (3.4) Litter Biomass (2.5)	441	Area cleared for enslaved quarters (7.5 acres, at 0.25 acres per enslaved person) and 4.5 acres for enslaver's estate.
Remaining woodlands after 26 years	*400.5*	*n/a*	*n/a*	
Total (26 years)	199.5		**14,086**	

Sources and Notes: These estimates assume inland swamp cultivation, not tidal irrigation, since the latter only became common after the American Revolution. For inland swamp irrigation, see Hayden R. Smith, *Carolina's Golden Fields: Inland Rice Cultivation in the South Carolina Lowcountry, 1670–1860* (New York, 2020), 6, 38, 96, 109–12; Joyce E. Chaplin, *An Anxious Pursuit: Agricultural Innovation and Modernity in the Lower South, 1730-1815* (Williamsburg, Va., and Chapel Hill, N.C., 1993), 228–34. Number of adult enslaved laborers (30) and 600 available acres per plantation from Philip D. Morgan, *Slave Counterpoint: Black Culture in the Eighteenth-Century Chesapeake and Lowcountry* (Williamsburg, Va., and Chapel Hill, N.C., 1998), 35, 42-43; S. Max Edelson, *Plantation Enterprise in Colonial South Carolina* (Cambridge, 2006), 282–83 (table A.9-10), core and secondary zone averages. For 4.25 rice acres and one corn acre per enslaved person and 0.25 acre for each adult enslaved person's personal garden and cabin, see Morgan, *Slave Counterpoint,* 42, 48, 186–87; John Gerard William De Brahm*, Report of the General Survey in the Southern District of North America*, ed. Louis De Vorsey Jr. (Columbia, S.C., [1971]), 92. Planter dwellings acreage (4–5 acres) derived from 1789 plat map reproduced in Edelson, *Plantation Enterprise*, 118 (figure 3.2). To account for a 26-year period, we assume that only the corn fields needed to be rested at some point, and thus we add an additional 30 acres for subsistence corn. Because rice was non-exhaustive, there was no need to rest rice fields and clear additional rice lands. We assume no additional land clearance for livestock, as animals would have fed themselves in uncut forests, fallowed cropland, and natural grasslands and meadows as well as on corn fodder. These figures include the methane emissions for rice field croplands only. For sources of emission factors, see Appendix I: Table A.I.1.