This report uses the balances of materials to derive environmental efficiency measures in the context of agricultural production where balances of nutrients (N and P) and emission of greenhouse gases (GHGs) are two notable environmental stresses. Environmental efficiency measures are used to construct so-called environmental Malmquist Total Factor Productivity indexes in the same manner as the traditional Malmquist TFP indexes. An empirical examination of agricultural production in 32 OECD economies over 17 years from 1992 to 2008 presents several important findings. First, OECD agriculture, on average, should be able to produce the same output levels with inputs containing 63.51% less materials of N, P, and C. By improving ME, these countries could have reduced potential damage in the air, water and land systems. Second, in the period surveyed, OECD agriculture achieved an annual traditional TFP growth rate of 1.33% while the environmental TFP growth, measured by the material efficiency in the Malmquist TFP index framework, was estimated to be only 0.95%. Third, the main driver of environmental TFP growth is the technical efficiency change but technical efficiency change exhibit some divergence. Last, environmental efficiency and productivity performance varied highly across economies. The report notes that further investigations in terms of data quality and potential application of this new approach are warranted.