Table 9. Effect of alternative co-product calculations on NEB. In addition to our base NEB ratio detailed in Table 5, we estimate the co-product credit for both biofuels using mass balance, energy content, and market value. All three methods assume 0.914 kg of DDGS are made per kg of ethanol, and 4.56 kg of soybean meal and 0.08 kg of glycerol are produced per kg of biodiesel. For the mass balance method, the co-product credit for each co-product is equal to the energy input of all production steps leading to creation of the co-product multiplied by the relative weight of the co-product to the biofuel or biofuel intermediate product. For the energy content method, the co-product credit is the amount of inherent energy (low heat value) within each product assuming complete combustion at 90% boiler efficiency (DDGS = 20.79 MJ/kg; soybean meal = 16.84 MJ/kg; and glycerol = 16.55 MJ/kg) (35). For the market value method, the co-product credit is equal to the relative value (2002-2004 wholesale averages) of each of the products of biofuel production (ethanol = $0.37/kg; DDGS = $0.10/kg; biodiesel = $0.52/kg; soybean meal = $0.22/kg; raw glycerol = $0.88/kg) (36).

Biofuel	Base	No Credit	Mass Balance	Energy Content	Market Value
Corn grain ethanol	1.25	1.04	1.52	1.71	1.21
Soybean biodiesel	1.93	1.16	1.83	3.38	1.81