Table 1. Consumption of supplemental feed relative to harvested cropland area (cattle, swine [*Sus scrofa*], sheep [*Ovis aries*], and poultry), average yield of harvested crops (food grains and feed crops), and their ratio in the U.S. in 1920 and currently in the U.S., Ohio, and Holmes and Wayne Counties (Ohio).

Indicator	Current			U.S. 1994	U.S. 1920
	Holmes 1997	Wayne 1997	Ohio 1997		
	Mg CFU/ha[1]				
Relative feed demand	8.8[2]	6.7[2]	1.9[2]	2.8[3]	0.9[4]
Average crop yield	4.3[5]	5.1[5]	5.5[5]	5.1[3]	1.5[6]
	unitless				
Ratio, feed/crops[7]	2.0	1.3	0.35	0.55[8]	0.60[9]

[1] Corn-equivalent feed units (CFU) is the substitution value of feeds for corn (13.5% moisture), as determined in feeding trials. Crop weights were converted to CFU by factors reported as corn-equivalent weight per unit weight of crop (Hodges, 1964). Both indicators are averaged across the same land area, namely harvested crops (sum of food grains and feed crops).

[2] Crampton and Harris, 1969; USDA 1996a; USDA, 1999a.

[3] USDA, 1996a.

[4] Jennings, 1949; USBC, 1960; USDA, 1922.

[5] USDA, 1999a.

[6] USBC, 1960; USDA, 1922.

[7] Since the two indicators have the same denominator, this is also a ratio of their numerators, namely supplemental feed consumption to harvested crop production for the entire location.

[8] This proportion of harvested crops provides nearly two-thirds (0.67) of total feed consumption by these animals in the U.S., while grazing of pasture accounts for the other third (USDA, 1996a, p. I–47).

[9] In agreement with a value of 0.58 for domestic use of cropland, from Anderson et al. (1957).

Table 2. Calculation of the proportion of cropland area devoted to supplemental feed for work and replacement stock in current Holmes County and in the U.S. during 1920 and now, the latter time conceivably including the 1920 national horse and mule population on farms.

	U.S. 1920	Holmes Co. 1997	U.S. 1994 with 1920 stock
Number of horses & mules per 100 ha of cropland	15[1]	38[2]	16[3]
Crop productivity (Mg CFU ha^{-1})[4]	1.5	4.3	5.1
Proportion of cropland for horse and mule feed	0.22[5]	0.19[6]	0.07[7]

[1] Anderson et al., 1957.

[2] Craumer, 1977; USDA, 1999a.

[3] USDA, 1999b.

[4] Table 1, corn-equivalent feed units per ha of harvested cropland.

[5] Anderson et al., 1957.

[6] (0.22)(38/15)(1.5/4.3).

[7] (0.22)(16/15)(1.5/5.1).

Table 3. Embodied energy of inputs for conventional production of three horse feeds in the Midwest, then adjusted for production driven by horses and mules that would displace self-propelled machinery and its fuel consumption.

inputs	corn grain	alfalfa	corn stubble
	———————GJ/ha———————		
conventional production	21.6[a,d]	13.9[b]	2.3[c]
minus traction fuel	-4.3[a]	-4.4[b]	-0.8[c]
minus self-propelled machinery[e]	-1.1[f]	-0.7[g]	-0.6[h]
net inputs[i]	16.2	8.8	0.9

[a] Shapouri et al. (1995).

[b] Heichel and Martin (1980), corrected for error in machinery.

[c] Harvest only (Smil, 1983, p. 217), assuming 7.5 t/ha corn stubble.

[d] Includes 4.1 GJ/ha for machinery (Pimentel and Burgess, 1980).

[e] Based on machinery weight reported by Weaver (1980) and an embodied energy of 75 MJ/kg (Doering, 1980).

[f] Two tractors, truck, and combine.

[g] Two tractors and swather.

[h] Two tractors.

[i] This contains the implicit assumption that horses and mules require the remaining amount of machinery for their tasks.