labor intensive nature of alternative agriculture.

Oelhaf (1978) estimated the macro-economic consequences of producing 1974 output with alternative agricultural systems. Like Olson et al and CAST, he found that production costs would be higher and that more land and labor would be required. Oelhaf did not explore the consequences for exports, for the distribution of income among regions or farmers, or between farmers and consumers. However, one can infer that the consequences would be in the same direction as those found by Olson et al and CAST: exports would be reduced, regions and farmers especially dependent on pesticides and inorganic fertilizer would be disadvantaged, and farmers generally would gain economically relative to consumers. All of this follows from Oelhaf's finding that production costs would rise.

Although Oelhaf's conclusions are directionally the same as those of Olson et al and CAST, quantitatively they show less severe impacts of the shift to alternative agriculture. At least his estimate of the cost increase is less. He concluded that after the shift were completed, aggregate annual production costs would be higher by about 9 percent. (They would be up 10 and 15 percent for wheat and corn respectively, 5 percent for soybeans, 20 and 30 percent respectively for citrus and deciduous fruits [Oelhaf 1978, p. 229]). Taking account of the costs of transition (see above, p. 9) Oelhaf estimated the total cost of the shift at roughly 15 percent. Olson et al and CAST do not give specific estimates of the cost of the shift, but their cost increase estimates are driven in large part by their estimates of the yield penalty of alternative agriculture, and these estimates show a substantially higher penalty than that estimated by Oelhaf. It can be inferred, therefore, that Oelhaf's estimate of the cost increase is less than that of Olson et al and CAST.

The results of each of the three studies are critically affected by the