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Indirect Costs of Pesticide Use

A discussion of the pros and cons of pesticide use was initiated by Philip H. Abelson in his editorial of 26 February 1992 "Pesticides and food" (p. 1235). The strongest argument against pesticides was raised by David and Marcia Pimentel, who offered impressive figures concerning their impact on human health and environment (Letters, 4 June, p. 1409). Some of these figures were contested by Abelson in his response to the Pimentels (4 June, p. 1410). However, the most important figure, Pimentel *et al.*'s estimate of the total indirect cost of pesticide use as being $8 billion per year in the United States (*1*), was not challenged by Abelson.

Because this estimate is the only one available, it will likely continue to be cited in the continuing debate to support the view that pesticide use causes significant harm. However, the figure is highly questionable. The study in which it is presented (*1*) is based primarily on citations of 20 personal communications, the reliability of which is difficult to assess; arbitrarily chosen values are assumed (for example, the value of a human life is set at $2 million). The largest component in the $8-billion sum is the cost of bird loss ($2.1 billion). Pimentel *et al.* state that 160 million hectares (ha) per year receive *heavy* pesticide doses (*1*), but cite 148 million ha as the *total* area treated (*2*). They assume, without statistical support, that 10% of all birds inhabiting this area are killed by pesticides. When one considers that most modern pesticides do not seem to have an adverse effect on bird populations (*3*, p. 93), the figure seems highly exaggerated. The inclusion of these questionable numbers together with an arbitrarily chosen value of $30 per bird result in the meaningless figure of $2 billion.

It seems clear that the $8-billion estimate put forth by Pimentel *et al.* (*1*) as indirect pesticide cost should not be used in serious debate regarding future pesticide policy.

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