

## Quantifying the value of ecosystem services: A Replacement Cost Scenario for Honey Bee pollination in UK dessert apple orchards

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Honey bees (*Apis mellifera*) make vital contributions to agriculture and the environment through the pollination of cultivated crops and wild plants. The value of agricultural and horticultural crops grown in the UK that benefit from bee pollination is £200m per annum, and their contribution to the global economy runs into many billions of dollars. Apple orchards form a major part of the UK horticultural industry, covering 15,500 ha. Well-pollinated apples are the best quality. Commercial apple growers in the UK employ managed colonies of *A. mellifera* to ensure reliable pollination. The value of insect pollination to the UK apple market is in region of £82 million, a figure equivalent to 90% of the total market value of the apple crop. We present a model that evaluates the role of pollinating bees in UK apple dessert apple orchards, using the “Replacement Cost” (RC) method. The RC method focuses on the financial cost of providing man-made substitutes for any particular ecosystem service. It is based on the premise that since society would not have to pay such costs if the ecosystem service is available, then such cost savings provide a measure of the economic value of the service in question.