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The development of an environmental impact label on food products based on Life Cycle Assessment (LCA) is ongoing in France and Europe to meet environmental concerns, especially those linked to biodiversity drastic erosion. LCA shortcomings regarding impacts assessment on biodiversity concern coverage of some biodiversity components, inclusion of some farming or landscape management practices. We present a predictive indicator assessing the contribution of different food labels to biodiversity. This indicator is operational, transparent and adapted to all agricultural productions. Starting from the method of Lindner et al. (2019), we integrated more precise knowledge on the cause-effect relations between practices and impacts on biodiversity into the algorithms, using an original aggregation method based on fuzzy decision tree (Bockstaller et al. 2017). We aimed at describing associated biodiversity and applied the method on food quality and farming management labels (e.g. organic farming). Relevant management variables impacting biodiversity and principles guiding their structuration into a hierarchical decision tree were identified through a literature review. Current state of knowledge guided the CONTRA method parametrization regarding fuzzy class limits, membership functions and decision rules. Data to calculate indicators were retrieved from label guidelines. Missing data due to management items not covered by guidelines were assessed by available observations, or else, by average value from databases or experts. The new indicator distinguishes impacts on, on the one side, mobile species, and on the other side, species considered as “non-mobile” (plot-dependent). Organic farming label yielded good results for the systems we studied (annual crops) while results are variable for other labels and guidelines. In terms of outlook, i) the indicator will be compared to LCA methods and fields observations, for validation ii) calculations may be refined by integration of data on landscape context, and iii) calculation of indicator will be extended to a larger sample of labels.

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