



Ecosystem Service	Disease control
CICES class name	Disease control
CICES Section	Regulation & Maintenance (Biotic)
CICES Class code	2.2.3.2

Sample Indicators



















Indicator values from			
Experiment or direct measurement		Survey	
Expert assessment		Statistical- or census data	
Model or GIS		Literature values	
Stakeholder participation		Not provided	

Table 1: Field Scale

Indicator	Unit	Indicator values from
^[1] Leaf damages: Maximal percentage of young leaves infected in the year	%	
^[1] Plant damages: Dieback. Percentage of (coffee) plants infected in the plot	%	
^[3] Damage from diseases six weeks after planting. Based on visual inspection of 40 randomly selected plants.	Index 1 - 3	
^[1] Fruit Damages: Incidence of Ceratocystis canker. Maximal percentage of fruits infected in the year	%	
^[2] Level of injury severity, fruit loss, leaf loss, LAI loss	%	 , 
^[2] Indicators or models to assess the impact of pesticides	Not provided	 , 
^[4] Indicator value calculated as: $I = \frac{\sum \log(\frac{i}{i_{max}}) }{n}$ <p>With: i – variable i measured, i_{max} – maximum ecologic potential of variable i in benchmark reference, n – number of variables. Where performance is considered better than in the benchmark and deviation, therefore, has a positive</p>	-	 , 



<p>effect, $\log(\frac{i}{i_{max}})$ is subtracted from the sum instead of added. For this ecosystem service, variables were:</p> <ul style="list-style-type: none"> -Soil organic matter [% dw] -pH in KCl -Number of nematode taxa [-] -Number of micro-arthropod taxa [-] -Density of nematode plant-parasites [number per 100 g soil] 		
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Table 2: Regional Scale








Indicator	Unit	Indicator values from
^[6] Disease prevalence	Not provided	
^[6] Host and vector abundances	Not provided	
^[6] Infection levels	Not provided	
^[7] Expert-/stakeholder rating of how much of this ecosystem service can be provided by a landscape (represented by a land use map)	6-point Likert-scale (none - highest capacity)	
^[7] Expert-/stakeholder rating based on pairwise comparisons of landscapes (represented by land use maps) in an Analytical Hierarchical Process (AHP). Experts select the landscape with higher capacity for providing this ecosystem service and rate the difference between the two landscapes	1 (equal capacity) - 9 (absolute preference of one landscape)	
^[5] Human diseases: number of diseases and effects among local inhabitants	#	

Table 3: National Scale

Indicator	Unit	Indicator values from
^[8] Density of hedgerows	m * ha ⁻¹	



References

No.	Citation
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2	Demestihias C, Plénet D, Génard M, Raynal C, Lescourret F (2017) Ecosystem services in orchards. A review. <i>Agronomy for Sustainable Development</i> 37(2): 12. DOI: 10.1007/s13593-017-0422-1
3	Kearney SP, Fonte SJ, García E, Siles P, Chan KMA, Smukler SM (2019) Evaluating ecosystem service trade-offs and synergies from slash-and-mulch agroforestry systems in El Salvador. <i>Ecological Indicators</i> 105: 264-278. DOI: 10.1016/j.ecolind.2017.08.032
4	Rutgers M, van Wijnen HJ, Schouten AJ, Mulder C, Kuiten AMP, Brussaard L, Breure AM (2012) A method to assess ecosystem services developed from soil attributes with stakeholders and data of four arable farms. <i>Science of the Total Environment</i> 415: 39-48. DOI: 10.1016/j.scitotenv.2011.04.041
5	Adhikari S, Baral H, Nitschke CR (2018) Identification, Prioritization and Mapping of Ecosystem Services in the Panchase Mountain Ecological Region of Western Nepal. <i>Forests</i> 9(9): 554. DOI: 10.3390/f9090554
6	Duarte GT, Santos PM, Cornelissen TG, Ribeiro MC, Paglia AP (2018) The effects of landscape patterns on ecosystem services: meta-analyses of landscape services. <i>Landscape Ecology</i> 33(8): 1247-1257. DOI: 10.1007/s10980-018-0673-5
7	Inkoom JN, Frank S, Greve K, Furst C (2018) A framework to assess landscape structural capacity to provide regulating ecosystem services in West Africa. <i>Journal of Environmental Management</i> 209: 393-408. DOI: 10.1016/j.jenvman.2017.12.027
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