

# Table of Contents

<b>1. Introduction .....</b>	<b>8</b>
1.1. LUCAS Survey: Objectives and a short history .....	8
1.2. Main features of 2022 LUCAS sample and a short overview of the next chapters .	10
<b>2. Preparation of the sampling frame.....</b>	<b>12</b>
2.1. Introduction.....	12
2.2. Auxiliary variables from Copernicus program .....	12
2.3. Reachability .....	13
2.4. Sample - Module eligibility .....	16
<b>3. LUCAS sample design and selection.....</b>	<b>18</b>
3.1 Determination of the allowable sample size per country .....	18
3.2 Optimization of stratification and allocation of points in the strata.....	19
3.2.1. Determination of the Precision Constraints .....	20
3.2.2. Choice of stratification and determination of the best allocation .....	21
3.2.3. Adjustment of sample size and final allocation.....	22
3.3 Selection of the sample and attribution of weights .....	25
3.3.1 Selection of the Sample.....	25
3.3.2 Attribution of the weights .....	25
3.4 Attribution of the type of observation to the selected units .....	26
<b>4. Design and selection of subsamples .....</b>	<b>31</b>
4.1 Grassland .....	32
4.2 Extended Grassland.....	39
4.3 Landscape Features.....	40
4.4 Soil .....	42
4.4.1. Prediction of Soil Organic Carbon (SOC) .....	43
4.4.2. Evaluation of model variance and heteroscedasticity.....	45
4.4.3. Optimization of stratification and allocation .....	45
4.4.4. Selection of the subsample .....	46
4.5 Copernicus .....	48
4.6 Overlap of the subsamples.....	51
<b>5. Conclusions.....</b>	<b>52</b>
<b>6. References .....</b>	<b>55</b>