|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Annual Plants | Contour Farming | Horticulture | Terraced | Non-farm |
| LUT1-Maize | LUT6-Maize | LUT11-Walnut | LUT15-Walnut | LUT18-Forest |
| LUT2-Wheat | LUT7-Wheat | LUT12-Vineyard | LUT16-Vineyard | LUT19-Pasture |
| LUT3-Vetch | LUT8-Vetch | LUT13-Almond | LUT17-Almond | - |
| LUT4-Sunflower | LUT9-Sunflower | LUT14-Pepper-tomato | - | - |
| LUT5-Barley | LUT10-Barley | - | - | - |

**Table S1- LUTs identified for the study area**

|  |  |  |
| --- | --- | --- |
| Land characteristics | Classes | Descriptions |
| Slope (%) | S1 | %2 |
| S2 | %2-6 |
| S3 | %6-12 |
| S4 | %12-20 |
| S5 | %20-30 |
| S6 | %30+ |
| Topsoil texture | TT1 | SiCl, Cl, SiL |
| TT2 | C, SiC |
| Soil depth (cm) | SD1 | 120 cm+ |
| SD2 | 90-120 cm |
| SD3 | 50-90 cm |
| SD4 | 20-50 cm |
| SD5 | 0-20 cm |
| Vertic feature | V1 | Not vertic |
| V2 | Vertic |
| Soil pH | pH1 | 6.5-7.5 |
| pH2 | 7.5-8.5 |
| Soil organic matter (%) | SOG1 | < %2 |
| SOG2 | %2-3 |
| SOG3 | > %3 |
| Drainage | DR1 | Good |
| DR2 | Medium |
| Surface stoniness | SS1 | Stony free |
| SS2 | Medium stony |
| SS3 | Very stony |
| Subsoil texture | ST1 | CL, SL, SiCL |
| ST2 | C, SiC |

**Table S2- Land characteristics and descriptions**

S: Slope, TT: Topsoil texture, SD: Soil depth, V: Vertic feature, pH: Soil pH, SOG: Soil organic matter, DR: Drainage, SS: Surface stoniness, ST: Subsoil texture

**Table S3- Land suitability classes according to FAO (1977)**

|  |  |
| --- | --- |
| Land suitability class | Index |
| Permanently not suitability | 0.00-0.25 |
| Currently not suitability | 0.25-0.50 |
| Marginal suitability | 0.50-0.75 |
| Moderately suitability | 0.75-0.90 |
| Highly suitability | 0.90-1.00 |

**Table S4- Agricultural land use planning scenarios created for the study area**

|  |  |
| --- | --- |
| Scenario type | Scenario definitions |
| 1st LUP scenario | Current land use of the study area |
| 2nd LUP scenario | Created considering the highest MUI values |
| 3rd LUP scenario | Created considering the highest PMIU values |
| 4th LUP scenario | It was created considering LUTs that include soil conservation practices. |
| 5th LUP scenario | Non-agricultural LUTs were taken into consideration. |

**Table S5- C factor values of land use types**

|  |  |
| --- | --- |
| Land use types | C factor values taken from the literature |
| Wheat | 0.20 |
| Barley | 0.21 |
| Maize, Sunflower, Vetch | 0.50 |
| Almond, Walnut | 0.30 |
| Vineyard | 0.451 |
| Tomato-pepper | 0.40 |
| Forest | 0.01 |
| Pasture | 0.08 |
| Other land use | 1.00 |

**Table S6- Land use planning scenarios and their area (ha-%)**

|  |  |  |
| --- | --- | --- |
| Land Use Type | Surface area (ha) | Ratio (%) |
| Scenario 1 (Current land use) | | |
| Agricultural areas | 8108 | 73.13 |
| Forest | 1311 | 11.83 |
| Pasture | 1117 | 10.08 |
| Non-farm | 550 | 4.96 |
| Scenario 2 (MUI) | | |
| LUT7-LUT6 | 5386.64 | 48.59 |
| LUT17 | 2198.12 | 19.83 |
| LUT18 | 1272.06 | 11.47 |
| LUT19 | 1217.26 | 10.98 |
| LUT16 | 912.71 | 8.23 |
| LUT13 | 49.06 | 0.44 |
| LUT11 | 47.08 | 0.42 |
| LUT14 | 3.73 | 0.03 |
| Scenario 3 (PMIU) | | |
| LUT15 | 3110.83 | 30.84 |
| LUT7-LUT9 | 2445.468 | 24.24 |
| LUT18 | 990.40 | 9.82 |
| LUT11 | 906.72 | 8.99 |
| LUT7-LUT8 | 655.815 | 6.50 |
| LUT10-LUT9 | 608.096 | 6.03 |
| LUT9-LUT7 | 579.274 | 5.74 |
| LUT12 | 351.604 | 3.49 |
| LUT16 | 210.363 | 2.09 |
| LUT7-LUT14 | 151.145 | 1.50 |
| LUT19 | 76.949 | 0.76 |
| Scenario 4 (Soil conservation) | | |
| LUT7-LUT9 | 4225.41 | 38.11 |
| LUT17 | 3115.86 | 28.10 |
| LUT7-LUT8 | 1937.84 | 17.48 |
| LUT16 | 703.624 | 6.35 |
| LUT10-LUT9 | 608.096 | 5.48 |
| LUT18 | 492.114 | 4.44 |
| LUT7-LUT6 | 3.7328 | 0.03 |
| Scenario 5 (Non-agricultural) | | |
| LUT15 | 2952.193 | 26.63 |
| LUT19 | 2839.336 | 25.61 |
| LUT7-LUT9 | 1839.266 | 16.59 |
| LUT18 | 1037.092 | 9.35 |
| LUT7-LUT8 | 655.815 | 5.92 |
| LUT10-LUT9 | 608.096 | 5.48 |
| LUT11 | 431.901 | 3.90 |
| LUT12 | 351.604 | 3.17 |
| LUT17 | 322.317 | 2.91 |
| LUT13 | 49.056 | 0.44 |

**Table S7- Erosion risk classes of the study area and the areas covered by these classes**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Classes | Scenario 1 | | Scenario 2 | | Scenario 3 | | Scenario 4 | | Scenario 5 | |
| (t ha-1 year-1) | ha | % | ha | % | ha | % | ha | % | ha | % |
| 0 – 1  (Very low) | 5301.79 | 47.76 | 8972.36 | 80.83 | 7793.10 | 70.21 | 9103.06 | 82.01 | 9693.16 | 87.33 |
| 1 – 5  (Low) | 4544.46 | 40.94 | 1851.66 | 16.68 | 2858.89 | 25.76 | 1769.10 | 15.94 | 1234.76 | 11.12 |
| 5 – 10 (Medium) | 783.37 | 7.06 | 165.26 | 1.49 | 267.91 | 2.41 | 132.30 | 1.19 | 99.18 | 0.89 |
| 10 – 20 (Severe) | 284.24 | 2.56 | 65.74 | 0.59 | 103.05 | 0.93 | 62.34 | 0.56 | 45.48 | 0.41 |
| 20 +  (Very severe) | 186.14 | 1.68 | 44.98 | 0.41 | 77.05 | 0.69 | 33.19 | 0.30 | 27.43 | 0.25 |