LUCAS 2009
(Land Use / Cover Area Frame Survey)

Technical reference document C-3:

Land use and Land Cover: Nomenclature

Version of 20 March 2009
**TABLE OF CONTENTS**

- **INTRODUCTION**.............................................................................................................. 5
- **LAND COVER AND LAND USE: GENERAL EXPLANATIONS**.............................................. 6
- **LAND COVER CATEGORIES**............................................................................................. 8
  - Artificial land (A00)........................................................................................................... 8
  - Cropland (B00).................................................................................................................. 8
  - Woodland (C00)................................................................................................................. 10
  - Shrubland (D00)................................................................................................................ 11
  - Grassland (E00).................................................................................................................. 11
  - Bare land (F00)................................................................................................................... 11
  - Water (G00)........................................................................................................................ 12
  - Wetland (H00).................................................................................................................... 12
- **LAND COVER PLANT SPECIES GROUP**......................................................................... 12
- **LAND USE CATEGORIES**................................................................................................. 12

**NOMENCLATURE** .............................................................................................................. 14

**LAND COVER** .................................................................................................................. 14

A00 ARTIFICIAL LAND ........................................................................................................... 14
  A10 BUILT-UP AREAS ........................................................................................................... 14
  A11 Buildings with one to three floors................................................................................ 14
  A12 Buildings with more than three floors ........................................................................ 15
  A13 Greenhouses.................................................................................................................. 15
  A20 ARTIFICIAL NON-BUILT UP AREAS ............................................................................ 16
  A21 Non-built-up area features........................................................................................... 16
  A22 Non-built-up linear features........................................................................................... 16
B00 CROPLAND ..................................................................................................................... 17
  B10 CEREALS ....................................................................................................................... 17
  B11 Common wheat.............................................................................................................. 17
  B12 Durum wheat.................................................................................................................. 18
  B13 Barley.............................................................................................................................. 18
  B14 Rye.................................................................................................................................. 19
  B15 Oats.................................................................................................................................. 19
  B16 Maize................................................................................................................................ 20
  B17 Rice .................................................................................................................................. 20
  B18 Triticale............................................................................................................................ 21
  B19 Other cereals.................................................................................................................... 21
  B20 ROOT CROPS ................................................................................................................ 22
  B21 Potatoes.......................................................................................................................... 22
  B22 Sugar beet........................................................................................................................ 22
  B23 Other root crops.............................................................................................................. 23
  B30 NON-PERMANENT INDUSTRIAL CROPS...................................................................... 24
  B31 Sunflower....................................................................................................................... 24
  B32 Rape and turnip rape....................................................................................................... 24
  B33 Soya.................................................................................................................................. 25
  B34 Cotton.............................................................................................................................. 25
  B35 Other fibre and oleaginous crops.................................................................................... 26
  B36 Tobacco............................................................................................................................ 26
  B37 Other non-permanent industrial crops.......................................................................... 27
  B40 DRY PULSES, VEGETABLES AND FLOWERS............................................................... 28
  B41 Dry pulses....................................................................................................................... 28
  B42 Tomatoes........................................................................................................................ 29
  B43 Other fresh vegetables.................................................................................................... 29
  B44 Floriculture and ornamental plants............................................................................... 30
  B45 Strawberries.................................................................................................................... 30
  B50 FODDER CROPS (mainly leguminous).......................................................................... 31
  B51 Clovers............................................................................................................................. 31
  B52 Lucerne............................................................................................................................ 31
  B53 Other Leguminous and mixtures for fodder................................................................... 32
  B54 Mix of cereals.................................................................................................................. 33
  B55 Temporary grassland...................................................................................................... 33
  B70 PERMANENT CROPS: FRUIT TREES........................................................................ 35
  B71 Apple fruit....................................................................................................................... 35

LUCAS C-3 – Land Use and Land Cover: Nomenclature (version of 20/03/2009) 2
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B72</td>
<td>Pear fruit</td>
<td>35</td>
</tr>
<tr>
<td>B73</td>
<td>Cherry fruit</td>
<td>35</td>
</tr>
<tr>
<td>B74</td>
<td>Nuts trees</td>
<td>36</td>
</tr>
<tr>
<td>B75</td>
<td>Other fruit trees and berries</td>
<td>37</td>
</tr>
<tr>
<td>B76</td>
<td>Oranges</td>
<td>38</td>
</tr>
<tr>
<td>B77</td>
<td>Other citrus fruit</td>
<td>38</td>
</tr>
<tr>
<td>B80</td>
<td>OTHER PERMANENT CROPS</td>
<td>39</td>
</tr>
<tr>
<td>B81</td>
<td>Olive groves</td>
<td>39</td>
</tr>
<tr>
<td>B82</td>
<td>Vineyards</td>
<td>39</td>
</tr>
<tr>
<td>B83</td>
<td>Nurseries</td>
<td>39</td>
</tr>
<tr>
<td>B84</td>
<td>Permanent industrial crops</td>
<td>40</td>
</tr>
<tr>
<td>C00</td>
<td>WOODLAND</td>
<td>41</td>
</tr>
<tr>
<td>C10</td>
<td>Broadleaved and evergreen woodland</td>
<td>41</td>
</tr>
<tr>
<td>C20</td>
<td>Coniferous woodland</td>
<td>42</td>
</tr>
<tr>
<td>C30</td>
<td>Mixed woodland</td>
<td>43</td>
</tr>
<tr>
<td>CX1-CXE</td>
<td>FOREST TYPES</td>
<td>44</td>
</tr>
<tr>
<td>CX1</td>
<td>Boreal forest</td>
<td>44</td>
</tr>
<tr>
<td>CX2</td>
<td>Hemiboreal forest and nemoral coniferous forest and mixed broadleaved-coniferous forest</td>
<td>45</td>
</tr>
<tr>
<td>CX3</td>
<td>Alpine coniferous forest</td>
<td>45</td>
</tr>
<tr>
<td>CX4</td>
<td>Acidophilous oak and oak-birch forest</td>
<td>46</td>
</tr>
<tr>
<td>CX5</td>
<td>Mesophytic deciduous forest</td>
<td>47</td>
</tr>
<tr>
<td>CX6</td>
<td>Beech forest</td>
<td>48</td>
</tr>
<tr>
<td>CX7</td>
<td>Mountainous beech forest</td>
<td>48</td>
</tr>
<tr>
<td>CX8</td>
<td>Thermophilous deciduous forest</td>
<td>49</td>
</tr>
<tr>
<td>CX9</td>
<td>Broadleaved evergreen forest</td>
<td>50</td>
</tr>
<tr>
<td>CXA</td>
<td>Coniferous forest of the Mediterranean region</td>
<td>51</td>
</tr>
<tr>
<td>CXB</td>
<td>Mire and swamp forests</td>
<td>52</td>
</tr>
<tr>
<td>CXC</td>
<td>Floodplain forests</td>
<td>53</td>
</tr>
<tr>
<td>CXD</td>
<td>Non-riverine alder, birch or aspen forest</td>
<td>54</td>
</tr>
<tr>
<td>CXE</td>
<td>Plantations and self-sown exotic forest</td>
<td>54</td>
</tr>
<tr>
<td>D00</td>
<td>SHRUBLAND</td>
<td>56</td>
</tr>
<tr>
<td>D10</td>
<td>Shrubland with sparse tree cover</td>
<td>56</td>
</tr>
<tr>
<td>D20</td>
<td>Shrubland without tree cover</td>
<td>57</td>
</tr>
<tr>
<td>E00</td>
<td>GRASSLAND</td>
<td>58</td>
</tr>
<tr>
<td>E10</td>
<td>Grassland with sparse tree/shrub cover</td>
<td>58</td>
</tr>
<tr>
<td>E20</td>
<td>Grassland without tree/shrub cover</td>
<td>59</td>
</tr>
<tr>
<td>E30</td>
<td>Spontaneously re-vegetated surfaces</td>
<td>60</td>
</tr>
<tr>
<td>F00</td>
<td>BARE LAND</td>
<td>62</td>
</tr>
<tr>
<td>F00</td>
<td>Bare land</td>
<td>62</td>
</tr>
<tr>
<td>G00</td>
<td>WATER AREAS</td>
<td>63</td>
</tr>
<tr>
<td>G10</td>
<td>Inland water bodies</td>
<td>63</td>
</tr>
<tr>
<td>G20</td>
<td>Inland running water</td>
<td>63</td>
</tr>
<tr>
<td>G30</td>
<td>Coastal water bodies</td>
<td>64</td>
</tr>
<tr>
<td>G30</td>
<td>Glaciers, permanent snow</td>
<td>64</td>
</tr>
<tr>
<td>H00</td>
<td>WETLANDS</td>
<td>65</td>
</tr>
<tr>
<td>H10</td>
<td>Inland wetlands</td>
<td>65</td>
</tr>
<tr>
<td>H11</td>
<td>Inland marshes</td>
<td>65</td>
</tr>
<tr>
<td>H12</td>
<td>Peatbogs</td>
<td>66</td>
</tr>
<tr>
<td>H20</td>
<td>Coastal wetlands</td>
<td>66</td>
</tr>
<tr>
<td>H21</td>
<td>Salt marshes</td>
<td>66</td>
</tr>
<tr>
<td>H22</td>
<td>Salines</td>
<td>67</td>
</tr>
<tr>
<td>H23</td>
<td>Intertidal flats</td>
<td>67</td>
</tr>
<tr>
<td>EUC</td>
<td>FOREST TYPES</td>
<td>44</td>
</tr>
<tr>
<td>BARE</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>GRAS</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>WATR</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>WETL</td>
<td></td>
<td>65</td>
</tr>
</tbody>
</table>

**NOMENCLATURE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>U110</td>
<td>AGRICULTURE</td>
<td>69</td>
</tr>
<tr>
<td>U111</td>
<td>Agriculture (excluding fallow land and kitchen gardens)</td>
<td>69</td>
</tr>
<tr>
<td>U112</td>
<td>Fallow and abandoned land</td>
<td>70</td>
</tr>
<tr>
<td>U113</td>
<td>Kitchen garden</td>
<td>70</td>
</tr>
<tr>
<td>U120</td>
<td>FORESTRY</td>
<td>70</td>
</tr>
<tr>
<td>U120</td>
<td>Forestry</td>
<td>70</td>
</tr>
<tr>
<td>U130</td>
<td>FISHING</td>
<td>71</td>
</tr>
<tr>
<td>U130</td>
<td>Fishing</td>
<td>71</td>
</tr>
<tr>
<td>U140</td>
<td>MINING AND QUARRING</td>
<td>71</td>
</tr>
<tr>
<td>U140</td>
<td>Mining and quarrying</td>
<td>71</td>
</tr>
<tr>
<td>U150</td>
<td>HUNTING</td>
<td>71</td>
</tr>
<tr>
<td>U150</td>
<td>Hunting</td>
<td>71</td>
</tr>
</tbody>
</table>

Eurostat: LUCAS 2009 (Land Use / Cover Area frame statistical Survey)
U210 ENERGY PRODUCTION................................................................. 72
U210 Energy production................................................................. 72
U220 INDUSTRY AND MANUFACTURING........................................... 72
U221 Manufacturing of food, beverages and tobacco products........ 72
U222 Manufacturing of textile products...................................... 72
U223 Coal, oil and metal processing............................................ 73
U224 Production of Non-metal mineral goods............................. 73
U225 Chemical and allied industries and manufacturing............. 73
U226 Machinery and equipment................................................... 74
U227 Wood based products......................................................... 74
U310 TRANSPORT, COMMUNICATION NETWORKS, STORAGE, PROTECTIVE WORKS................................................................. 75
U311 Railways.......................................................... 75
U312 Roads............................................................ 75
U313 Water transport.......................................................... 75
U314 Air transport............................................................. 75
U315 Transport via Pipelines................................................. 76
U316 Telecommunication...................................................... 76
U317 Storage............................................................... 76
U318 Protection works.......................................................... 76
U320 WATER AND WASTE TREATMENT....................................... 77
U321 Water supply and treatment............................................. 77
U322 Waste treatment............................................................. 77
U330 CONSTRUCTION............................................................... 77
U331 Construction.............................................................. 77
U340 COMMERCE, FINANCE, BUSINESS...................................... 78
U341 Commerce, finance, business.......................................... 78
U350 COMMUNITY SERVICES.................................................. 78
U351 Community services....................................................... 78
U360 RECREATION, LEISURE, SPORT........................................ 79
U361 Amenities, museums, leisure.......................................... 79
U362 Sport................................................................. 79
U363 Holiday camps............................................................ 79
U364 Nature reserves............................................................ 79
U370 RESIDENTIAL................................................................. 80
U371 Residential................................................................. 80
U400 UNUSED................................................................. 80
U400 Unused area................................................................. 80

SOURCES ......................................................................................... 81

INDEX LC ......................................................................................... 82
Introduction

This document gives detailed information about the land cover and land use classification system of the LUCAS survey. Information about the implementation of the survey in general and of all other parameters and the way how they should be surveyed can be found in document C-1.

The LUCAS nomenclature has evolved over the years but the fundamental aspects of it have remained. The LUCAS nomenclature has separate classification systems for land cover and land use. Land cover is the physical cover of the earth’s surface and land use is the socio-economic function of the land. The same nomenclature is applied in all EU countries in the LUCAS survey. It also allows comparisons in time (since the first LUCAS survey). It is as much as possible compatible with the existing land cover/use systems (e.g. FAO, NACE and Farm Structure Survey).

Land cover has 8 main categories, which are indicated by letter:
- A: Artificial land
- B: Cropland
- C: Woodland
- D: Shrubland
- E: Grassland
- F: Bareland
- G: Water
- H: Wetlands

Every main category has subclasses, which are indicated by the combination of the letter of the category and digits. The most detailed class is to be used during the survey. Altogether there are 76 classes.

The nomenclature is composed of the following parts:

**Land Cover**
- code and title of the class
- short definition of the class
- inclusions (“This class includes”),
- exclusions (“This class excludes”),
- the principle observation rule
- and the “Links with land use”.

Land use is the description of the same areas in terms of their socio-economic function. For rare and exceptional combinations, please consult Annex 5. Land use has 15 main categories. It has altogether 34 classes, which are indicated by the combination of the letter “U” and three digits.

The nomenclature is composed of the following parts:

**Land use:**
- code and title
- short definition of the class
- inclusions (“This class includes”) according to the NACE classification if it is possible,
- and exclusions (“This class excludes”) with the correct land use code.

Comparison LUCAS 2006 - LUCAS 2009

The LUCAS 2009 nomenclature is not fundamentally different from the 2006/2007 survey documents. Some minor details have however been changed, always ensuring the comparability with the 2006 exercise. Main changes are the following:

- Elimination of inconsistencies and clarifying some definitions which resulted asambiguous in the 2006/2007 survey exercises;
- New LC (B55, Hxx classes) and LU (U150) classes have been introduced; others (U114) have been deleted or changed (C1x and C2x were replaced by C10, C20 and C30 and their subclasses, if needed);
- Additional parameters have been included: “Area size”, “Percentage of LC” and “Land management”, “height of trees” (in case of woodland, grassland with tree cover, shrubland with tree cover always with area size larger than 0.5ha) and “width of features” (in case of woodland with area size larger than 0.5ha and height of trees above 5m, shrubland or grassland with tree cover, area size larger than 0.5ha and height of trees above 5m). These parameters allowed the simplification of LC classes definitions;
- The compatibility with FAO forest classification (see Reg (EC) No 2152/2003 of 17/11/2003 concerning monitoring of forests and environmental interactions in the Community - Forest Focus) has been strengthened by a simplification of the woodland classes definition. At the same time, forest types have been introduced for forestry areas, in line with the EUNIS classification on forests (http://eunis.eea.europa.eu/about.jsp), thus receiving more information on forest biotopes than the hitherto used woodland characterization;
- Introduction of further, secondary LC classes, for the subclasses of cropland:
  - B19: Other cereals
  - B23: Other root crops
  - B37: Other non permanent industrial crops
  - B43: Other fresh vegetables
  - B53: Other leguminous and mixtures for fodder
  - B75: Other fruit trees and berries
  - B77: Other citrus fruit
  - B84: Permanent industrial crops

Land cover and land use: General explications

Information collected at the point is land cover and land use. Simplified tables on the land-cover and land-use types are attached in ANNEXES 2 and 3. After some general explanations, more details regarding difficult cases are provided below.

1 Statistical Classification of Economic Activities in the European Community, Rev. 1.1 (2002) (NACE Rev. 1.1)

2 According to the Regulation the following definitions apply: ‘Forest’ means land with tree crown cover of more than 10% and area of more than 0.5ha. The trees should be able to reach a minimum height of 5m at maturity in situ; ‘other wooded land’ means land either with a tree crown cover of 5 to 10% of trees able to reach a height of 5m at maturity in situ, or a crown cover of more than 10% of trees not able to reach a height of 5m at maturity in situ and shrub or bush cover.
Detailed definitions of the categories for both land use and land cover are to be found in the nomenclature (following chapters).

The concept of land is extended to inland water areas (lakes, rivers, coastal areas: estuaries, lagoons). The land concept does not embrace uses below the earth's surface (mine deposits, subways, mushroom beds, ground levels of buildings).

**Example A:** the point is located in a common wheat field. The land cover is cropland of common wheat (B11) and the land use is Agriculture (U111).

**Example B:** the point is located in the lawn of a campsite with trees. The land cover is grassland (E10) and the land use is holiday camp (U363). **Example C:** the point is located on a sealed road. If the road is wider than 3m, the land cover is Non-built-up linear feature (A22) and the land use is Road Transport (U312).

If the road is not wider than 3m, the point is considered to be located on a linear feature (<3m) and the surveyor has to apply the “Look to the North” rule, i.e. observe the land cover and land use in the Northern direction (or Eastern direction if the limit or the linear feature follows the N-S direction).

**Example D:** the point is located in a big urban park with mainly broadleaved trees. The surveyor has to apply the Extended Window of Observation around the point with a radius of 20m. The land cover is Broad-leaved and evergreen woodland (C10), and the land use Leisure (U361). As the tree area is more than 0.5 ha, the height of trees at maturity more than 5 m and the width of woody features larger than 20 m, a forest species has to be added, e.g. CX6 if the point falls into a beech grove (in field "LC1 plant species").
Land cover categories

In general, there is no major difficulty in observing the land cover (LC) because the land cover is frequently homogeneous. Some specific cases are listed below.

**Artificial land (A00)**

Built-up areas (A10) include roofed constructions (buildings) distinguished in 2 categories by the number of floors or the height of the building (<= 3 floors: A11 and > 3 floors: A12) and Greenhouses (A13). If crops grown in the greenhouse can be identified, a second land cover code should be noted.

Buildings higher than 10 m, even though with only one floor (e.g. industrial constructions), should be also classified as "A12".

Non-built-up areas with artificial cover (A20) include area features (A21) or linear features wider than 3 meters (A22).

*Example A:* the point is located on a parking area of a supermarket. The point is categorised as land cover A21 (Non built-up area feature) and in terms of land use as U340 (Commerce, Finance, Business).

*Example B:* the point is located in a building hosting offices of a textile products' manufacturer on the same plot. The point is categorised as A12 (Buildings with more than three floors) and U222 (Textile products).

Greenhouses (A13) are defined as ‘installations of glass, plastic or any material which is translucent but impervious to water’ and are categorised as artificial land (A13). If only the ground is covered by plastic for protecting the plants against frost without a raised structure, only the crop code has to be provided. If greenhouses are dedicated to agricultural production - as is mostly the case - a second information on land cover will be taken (multiple registration - see Surveyors' instructions): the type of crop beneath the greenhouse will be noted as second land cover, the land use is U111 Agriculture, in this case. If the greenhouses are not dedicated to agricultural production, the land use may be different.

*Example C:* the point is located on an agricultural road with more than 3 m width. If the road is not sealed (sand, gravel, grass), it is categorized as A22 (non built-up linear features), with LU1 as U312 (roads) and LU2 as U111 (agriculture).

**Cropland (B00)**

**Arable land**

Arable land means crop production on a parcel. The recent crop must be classified according to the nomenclature. If the field is already harvested, the surveyor has to try to recognize the crop from crop residuals in the field and use the code of that crop. In the remarks field, the comment harvested field should be inserted. If it is not possible to recognize the crop, F00 should be used (spontaneous weed cover less than 50 %) or E30 (spontaneous weed cover more than 50 %).

**LC plant species**

For all crops coded as B19, B23, B35, B37, B43, B53, B75, B77 and B84, the specific crop should be noted down in field "LC plant species".

**Mixed arable crops**

*Mixtures of crops* have to be recorded through assigning a double cover (relating to the two main crops observed, e.g. olive trees and vine (LC1 B81 and LC2 B82) or common wheat and rye...
Crop not yet emerged

If the point falls in arable land that does not have a growing crop at the
time of the survey, or it is snow covered, the point has to be revisited. If
seeds are visible, a crop photo of them on the ground has to be taken and
the point has not to be revisited again. The surveyor observes only what he
can see on the ground (information given by the farmer does not count!).

Permanent crops

Permanent crops mean orchards, berries, olive groves, vineyard, and nurseries.

Bare or grassy areas of an orchard (B7x) or a vineyard (B82): there are stripes of bare ground or
of grassy ground between and around the rows of fruit-trees. They are considered as belonging
to the orchard (or vineyard). So land cover is fruit tree (or vineyard) wherever the point is inside
the orchard. A second land cover should be assigned to get environmentally important
information, e.g. on the grass cover (E10), spontaneous vegetation (E30) or bare soil (F00).

Orchard size and use: Fruit trees can be part of very different land use categories: Industrial or
intensive agriculturally used tree plantations (e.g. which can be harvested with machines)
mostly have more than 0.5 ha. Small orchards (under 20 trees), mostly situated around or
outside settlements, for own consumption or sold on markets, and normally not fenced (except
if for grazing purposes), as a group of fruit trees on grassland or small vegetable fields, have a
relatively small size (around or less than 0.5 ha). Both cases are to be coded as: B7x/U113. Fruit
trees in kitchen gardens (which are normally delimited by a fence or a hedge) are falling into
categories B7x/U113. Isolated fruit trees: If a point is in the crown of an isolated tree, the zone
is heterogeneous, the extended window has to be used, and the land cover of the surrounding is
coded (grass for instance). Sparse woody area or fruit trees will be coded grassland with tree
cover (E10) if the crown coverage is between 5 and 10% in the Extended Window of Observation.

Orchards (B7x) organised with mixed species: the different species may be in alternate rows or
mixed within a given row. If the two species have a significant presence in the orchard (at least
33% each), two types of land cover are noted. Otherwise, the major one is noted and the others
are ignored.

Orchards (B7x) with annual crops: Some orchards are organised in association with annual crops
besides the rows. If the annual crop has a significant presence (at least 33%) within the extended
window (20 m radius), two types of land cover are noted the first is the permanent crop and the
second is the annual one.

For nurseries (B83) the main type of plant/tree has to be noted as second land cover.

Cropland vs. woodland

When crops are cultivated under trees (forest species) a double registration will be necessary:
two land covers and their attached land uses. This case is frequent in southern countries (e.g. in
dehesas, montados) where cereals, dry pulses, potatoes, fresh vegetables may grow in areas
corresponding to definitions of woodland (more than 10% of tree canopy). As the first land cover
code the woodland should be registered and the crop as LC2.

Crops no longer cultivated

Crop areas, which are no longer cultivated, must be classified by observing the cover: if the
cover is grass, it will be coded grassland (E10/E20), if the cover is spontaneous vegetation
(weeds), the code E30 will be set, whereas if the cover is bushes, criteria to classify between
grassland and shrubland will be applied. For abandoned vineyards and orchards, the
 corresponding land cover code (B82 or B7X) has to be assigned to the point through assigning as a
land use category the ‘fallow and abandoned land’ code (U112) unless they became shrubland or woodland after some years.

**Woodland (C00)**

Areas covered by trees with a tree crown area of at least 10%.

When broad-leaved and coniferous trees are mixed, the criterion to respect is the 75% or more of the canopy occupied by one group. Otherwise it is considered as mixed. The canopy is the aerial volume occupied by boughs and leaves. The breakdown between broad-leaved and coniferous may be difficult when coniferous have been planted under the broad-leaved trees they will replace. During the first few years it will be coded broad-leaved until the coniferous trees dominate the canopy.

**Clear-cuts**

After a clear-cut, when there are no more trees left in the plot, it will be classified according to the actual land cover (E, D or F for example) with a remark ‘clear-cut’. The U120 land use code has to be assigned to these areas.

**Fire breaks**

In areas with frequent forest fires, fire breaks are often found in forests. The Land cover is coded according to the coverage (CX0, DX0, EX0 of F00) and the land use is U120.

**Woodland and cropland/grassland**

When grass is under forest trees (density more than 10%), land cover is woodland. Grass has to be normally coded as secondary land cover only if there is a separate land use linked to that. If grassland is grazed the coding should be: LC1: CX0, LC2: E10. Two land uses are coded: forestry (U120) + agriculture (U111). For crops under forest trees see cropland vs. woodland.

Hedges having an average width larger than 3m are classified as woodland (Cx0) if they are made up of woody species with canopy cover above 10%. Only hedges not composed by woodland or forest hedge species (e.g. by ornamental plants or dwarf shrub, heathland or Mediterranean shrub species or having a crown cover below 10% are considered as shrubland (Dx0).

**Burnt areas**

Burnt areas are coded according to their present cover, e.g. shrubland or bare land, land use will be coded: forestry (U120) or unused (U400) according to the actual land use and a remark ‘burnt area’ is added to the remarks.

**Large woodland areas**

If the wooded area (C10, C20 or C30) is larger than 0.5 ha and more than 20 m wide and height of trees at maturity is above 5 m, the surveyor has to classify the area according to the more detailed forest biotope type (in the respective "LC plant species" field). Otherwise (e.g. extensive hedgerows which cover more than 0.5 ha but narrower than 20 m width), no forest type needs to be assigned. A more detailed key is available in ANNEX 6. Biogeographical areas (which are part of the decision which forest class to apply) are mapped in ANNEX 7.

CX1 Boreal forest
CX2 Hemiboreal forest and nemoral coniferous forest and mixed broadleaved-coniferous forest
CX3 Alpine coniferous forest
CX4 Acidophilous oak and oak-birch forest
CX5 Mesophytic deciduous forest
CX6 Beech forest
CX7 Montane beech forest
CX8 Thermophilous deciduous forest
Eurostat

LUCAS 2009 (Land Use / Cover Area frame statistical Survey)

CX9 Broadleaved evergreen forest
CXA Coniferous forest of the Mediterranean region
CXB Mire and swamp forests
CXC Floodplain forest
CXD Non-riverine alder, birch or aspen forest
CXE Plantations and self-sown exotic forest

Where X stands for 1, 2, 3 if LC1 is respectively C10, C20 or C30.

For the LC classes C10, C20 and C30 the height of trees at maturity (below or above 5 m) and the width of woody features (larger or smaller than 20m) have to be assessed in the Field Form (field 20 and 21 respectively) if area size is larger than 0.5ha and height of trees above 5 m (for width of features).

**Shrubland (D00)**

Areas dominated (more than 20% of the surface) by shrubs and low woody plants

Shrubland may include sparsely occurring trees within a limit of a tree-crown area density of 10%. This can be encountered in two cases:
Permanent vegetation in regions where soil and climate conditions are poor;
Temporary covers evolving from a cultivated state to woodland in regions with better conditions (if bushes only). In central Europe, only heath lands and some ruderal communities are falling into this category.

Areas which are composed by young or coppiced trees, which can reach more than 5 m of height, are to be classified in Cx0.

For the LC class D10 and in case of area size larger than 0.5 ha, the height of trees at maturity (below or above 5 m) and the width of woody features (larger or smaller than 20m) have to be assessed in the Field Form(field 20 and 21 respectively).

Shrubland might be used for pasture and is then linked with LU U111.

**Grassland (E00)**

Land predominantly covered by communities of grassland, grass like plants and shrubs. The density of tree-crown is less than 10% and the density of tree+shrub-crown is less than 20%. Pastures under trees or shrub cover are coded with E10 (see the p. 11 ) . Grassland under permanent crops (B7, B8) is classified as E10. Temporary (and artificial) grassland is also included in this category. Spontaneous, herb or tall fringe vegetation is coded under E30.

For the LC class E10 and in case of area size larger than 0.5 ha, the height of trees at maturity (below or above 5 m) and the width of grassland features (larger or smaller than 20m) have to be assessed in the Field Form (field 20 and 21 respectively).

**Bare land (F00)**

Areas with no dominant vegetation cover. 50% of the ground or more is bare.

If the survey is being carried out before the planting period of certain crops, a second visit has to be organised for those fields found bare in arable land, if no seeds or young plants could be found which unambiguously refer to the sown crop.
Water (G00)
Areas covered by water and flooded surfaces or likely to be so over a large part of the year. It excludes rice fields which are classified as crop land. It also excludes brackish or stagnating water bearing a vegetation cover of grass, herbaceous type, shrub or tree.
The average water level of the river defines inland running water, so a sandbank inside the mean bed of the river is considered as water.
The areas permanently covered by snow do not include those under snow for a certain period of the year. It is, though, necessary to dig a little to find the bare soil or the grass, or to organise a second visit for these points that were found under snow cover during the survey to assess the actual land cover.

Wetland (H00)
Wetlands are areas that fall between land and water. They are areas that are wet for long enough periods that the plants and animals living in or near them are adapted to, and often dependent on, wet conditions for at least part of their life cycle. Wetlands are defined as land that is inundated on a temporary or permanent basis, with water usually slow moving or stationary and that can be shallowing, fresh, brackish or saline.

Possible combinations of LC1 and LC2 are shown in ANNEX 4.

Land cover plant species group

In case one the following land cover classes are assigned to the point:
- B19: Other cereals
- B23: Other root crops
- B35: Other fibre and oleaginous crops
- B37: Other non-permanent industrial crops
- B43: Other fresh vegetables
- B53: Other leguminous and mixtures for fodder
- B75: Other fruit trees and berries
- B77: Other citrus fruit
- B84: Permanent industrial crops
the exact crop type has to be noted in field "LC plant species (field n° 22 for LC1 and 23 for LC2). Example: The point falls into a tea plantation. The correct LC code is B84 for permanent industrial crops; the surveyor chooses the code for tea in the Annex 10 and notes it down in the "LC plant species" field.

Land use categories

Land use (LU) will be noted for each point according to the nomenclature mentioned in the following chapters.
The LC1 and LU1 information need to correspond to each other. If the land use of two land cover types is the same, only one land use class is to be assigned. Possible combinations of LC and LU are presented in ANNEX 5.

Correspondence between LC1 - LU1
In general, the use is easy to define, the orchard (B7x) is trimmed, traces of work are visible in
the fields and there is no ambiguity about the use. It is more difficult when there is no visible
proof of the use: a forest may be abandoned (no recent tracks, no cuttings, etc.), a reed-bed
does not have any signs of being regularly cut, etc. In this case, it will be classified as unused
(U400); abandoned areas on agricultural land are coded as U112.

Large or intensively used agricultural areas (e.g. which can be harvested with machines, for
economic purposes), as well as small areas (under 20 trees when orchards or <0.5 ha for crops),
mostly situated around or outside settlements, for own consumption or sold on markets, and
normally not fenced (except if for grazing purposes), are assigned to LU U111. Kitchen gardens
(mostly fenced or limited by a hedge, and mostly situated in residential areas or as allotment
gardens), are coded as U113.

The land use class Unused (U400) cannot be registered in combination with another land use
code; it is reserved for non-agricultural land which is not managed. All other agricultural land,
whether cropland, orchards or grassland, which has been set-aside or abandoned, will be
classified as U112 (fallow land).

Shrubland or a forest may be used for the feeding of cattle (agriculture). Parts of forest may be
also be exploited for the leisure of people during weekends (recreation, leisure, sport), or be
used as hunting areas (visible signs of hunting e.g. towers, hides etc.) or part of a nature
protection area (indicated by signs). Some other areas may have also several uses: Where a dam
has been built for the production of electricity, the lake may also be used for water-skiing. The
lake would be classified as energy production and leisure-recreation.

In general, a second land use code is justified if there is a visible sign of this use, e.g. a fence
around the shrubland or forest area to prevent people from entering a hunting area, a landing
stage for boats at the lakeside, a special track for persons to walk on or for horse-riding etc.
Agricultural areas can also be used for hunting indicated by hunting towers etc. The double
coding should also be used for fields evidentially sown for game feeding (often on a clearing in a
forest).

Areas planted with forest species (usually fast rotation plants) for exploitation purposes are
assigned to the ‘Forestry’ land use category. The same land-use category has to be assigned to
nurseries of forest species.

In case of roads, the first land use has to be always transport (U312). A second land use might be
added for final socio-economic use of the road, e.g. agriculture (U111) if it is for agricultural
machines, forestry (U120) if it is used in forests and so on. Small tracks need second LU code.
Military zones are to be included in community services (U350).

For the grassland in residential areas, the land cover should be observed in combination with the
relevant land use (if it belongs to a hotel or a residential house, for example, the land uses U340
and U370 should be respectively adequate).
NOMENCLATURE

LAND COVER

A00  ARTIFICIAL LAND

Areas characterized by an artificial and often impervious cover of constructions and pavement

A10  BUILT-UP AREAS

Roofed constructions built for permanent purposes which can be entered by persons

A11  Buildings with one to three floors

Roofed constructions with one to three floors or less than 10 meters of height in total

this class includes:
  - single-family houses
  - mobile homes
  - summer cottages
  - industrial or cultural buildings or stores of less than 10m of height
  - agricultural buildings of less than 10m of height
  - market halls
  - temporary constructions
  - visitor stations or centers of less than 10 m of height

Principles of observation
Basic observation unit

Links with Land Use
A11  U111  Small agricultural buildings, farms, stables, poultry yards
A11  U120  Small buildings utilized for forestry purpose
A11  U130  Small buildings utilized for fishery production
A11  U140  Small buildings utilized for mining and quarrying purposes
A11  U150  Small buildings utilized for hunting purposes, hides
A11  U210  Small buildings utilized for energy production purposes
A11  U22x  Small industrial plants and buildings
A11  U31x  Small buildings utilized for transport purposes
A11  U32x  Small buildings utilized for waste and water treatment
A11  U330  Small buildings in construction
A11  U340  Small buildings utilized for commercial purposes
A11  U350  Small buildings utilized for community services
A11  U36x  Small buildings utilized for recreation or nature protection
A11  U370  Individual residential houses
A11  U400  Unused or abandoned small buildings
**A12 Buildings with more than three floors**

Roofed constructions with more than three floors or more than 10 meters of height in total

- **this class includes:**
  - industrial buildings, stores, technical infrastructures of more than 10m of height
  - residential or cultural buildings of more than 10m of height
  - agricultural buildings of more than 10m of height
  - visitor centers of more than 10 m of height

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - **A12** U111 Tall agricultural buildings, farms, stables, poultry yards
  - **A12** U120 Tall buildings utilized for forestry purpose
  - **A12** U130 Tall buildings utilized for fishery production
  - **A12** U140 Tall buildings utilized for mining and quarrying purposes
  - **A12** U150 Tall buildings utilized for hunting purposes
  - **A12** U210 Tall buildings utilized for energy production purposes
  - **A12** U22x Tall industrial plants and buildings, coking plants, blast furnaces
  - **A12** U31x Tall buildings utilized for transport purposes: Railway stations, hangars, airport buildings
  - **A12** U32x Tall buildings utilized for waste and water treatment
  - **A12** U330 Tall buildings in construction
  - **A12** U340 Tall buildings utilized for commercial purposes: garages, supermarkets, banks, stores, hotels, restaurants, offices
  - **A12** U350 Tall buildings utilized for community services: Administrative buildings, parliaments, ministries, town halls, law courts, fire brigade and police barracks, military buildings, hospitals, clinics, sanatoria, orphans, schools, universities, churches, monasteries
  - **A12** U36x Tall buildings utilized for recreational or nature protection purposes: e.g. Libraries, Museums, Cinemas, Theatres, Stadiums, Sport halls, Visitor Centers
  - **A12** U370 Collective residential houses
  - **A12** U400 Tall abandoned or unused buildings

**A13 Greenhouses**

Installations of glass, plastic or any other material which is translucent but impervious to water

- **this class includes:**
  - All greenhouses, utilized or not

- **Principles of observation**
  - Basic observation unit. If crops are identified they should be registered using the corresponding land cover category (double codification greenhouse + crop)

- **Links with Land Use**
  - **A13** U111 Greenhouses utilized for agricultural production
  - **A13** U113 Kitchen garden
  - **A13** U120 Forestry
  - **A13** U130 Greenhouses utilized for storage (caravans)
  - **A13** U330 Construction
  - **A13** U340 Greenhouses utilized for commercial purposes
  - **A13** U350 Community services
  - **A13** U361-3 Greenhouses of botanical gardens
  - **A13** U370 Greenhouses attached to residential use
  - **A13** U400 Unused greenhouses
A20 ARTIFICIAL NON-BUILT UP AREAS

Non built-up areas characterized by an artificial and/or impervious cover of hard artificial materials, concrete, gravel

A21 Non built-up area features

Non built-up area features characterized by an artificial and/or impervious cover of hard artificial materials, concrete, gravel

- **this class includes:**
  - yards, farmyards, cemeteries
  - car parking areas, artificialised areas of railway station precincts and aerodromes
  - quays, loading and unloading zones, dry docks

- **this class excludes:**
  - Bare land (F00)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - A21 U111 Farmyards and parking areas attached to agricultural buildings
  - A21 U120 Yards and parking areas attached to buildings utilized for forestry purpose
  - A21 U130 Yards and parking areas attached to buildings utilized for fishery purpose
  - A21 U140 Yards, parking areas, storage areas utilized for mining, quarrying
  - A21 U210 Yards, parking areas, storage areas on industrial sites for energy production
  - A21 U22x Yards, parking areas, storage areas on industrial sites
  - A21 U31x Yards, parking areas, storage areas attached to railway stations, airports, motorways,
  - A21 U32x Yards, parking areas, storage areas attached to installations of waste and water treatment
  - A21 U330 Yards, parking areas, storage areas attached to installations for construction
  - A21 U340 Parking areas of supermarkets
  - A21 U350 Parking areas of administrations; cemeteries
  - A21 U36x Parking areas of leisure and recreation activities, tennis courts
  - A21 U370 Yards and parking areas of residential zones
  - A21 U400 Abandoned or unused non built-up area features

A22 Non built-up linear features

Non built-up linear features characterized by an artificial and/or impervious cover of hard artificial material, concrete or gravel

- **this class includes:**
  - roads, railways, runways, bridges (width >3m)

- **this class excludes:**
  - Linear features less than 3m of width (not registered as land cover)

- **Principles of observation**
  - Basic observation unit. Only linear features of more than 3m of width are to be registered.

- **Links with Land Use**
  - A22 U111 Roads utilized for agricultural purposes and accesses to farms
  - A22 U120 Roads utilized for forestry purpose
  - A22 U130 Roads utilized for fishery purpose
  - A22 U140 Roads or railways utilised for specific mining, quarrying purposes
  - A22 U210 Roads or railways utilised for specific energy production purposes
  - A22 U22x Roads or railways utilised for specific industrial purposes
  - A22 U31x Roads, railways, airport runways
  - A22 U32x Roads utilised for specific purposes of waste and water treatment
  - A22 U330 Roads utilised for specific construction purposes
  - A22 U340 Roads utilised for commercial, financial and business activities
  - A22 U350 Roads utilised for specific purposes of community services; dykes
  - A22 U36x Roads utilised for specific purposes of leisure, riding tracks, car racing circuits
  - A22 U370 Roads utilised for specific access of residential areas
  - A22 U400 Abandoned or unused non built-up linear area features
**B00 CROPLAND**

Areas where crops are planted and cultivated

---

**B10 CEREALS**

(for detailed instructions on the identification of cereals: see ANNEX 9 to "Technical reference document C1 Instructions for surveyors")

---

**B11 Common wheat**

Areas where common wheat (*Triticum aestivum*) is planted, whether as spring or as winter wheat

- this class includes:
  - Spelt (*Triticum spelta*)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B11 U111 Agricultural production
  - B11 U112 Fallow land
  - B11 U113 Kitchen garden
  - B11 U210 Energy production
  - B11 U361 Amenities, museums, leisure

---

**Wheat**

*Triticum aestivum*

- awns
- ligule
- auricles

*Wheat (*Triticum aestivum*)
*short, hairy auricles
*long awned to awnless
*26-41 in. tall*
### B12 Durum wheat

Areas where durum wheat (*Triticum durum*) is planted

- **this class includes:**
  - Emmer (*Triticum turgidum*)
  - Einkorn (*Triticum monococcum*)

#### Principles of observation

**Basic observation unit**

#### Links with Land Use

<table>
<thead>
<tr>
<th>B12</th>
<th>U111</th>
<th>Agricultural production</th>
</tr>
</thead>
<tbody>
<tr>
<td>B12</td>
<td>U112</td>
<td>Fallow land</td>
</tr>
<tr>
<td>B12</td>
<td>U113</td>
<td>Kitchen garden</td>
</tr>
<tr>
<td>B12</td>
<td>U210</td>
<td>Energy production</td>
</tr>
<tr>
<td>B12</td>
<td>U361</td>
<td>Amenities, museums, leisure</td>
</tr>
</tbody>
</table>

### B13 Barley

Areas where barley (*Hordeum vulgare*) is planted

#### Principles of observation

**Basic observation unit**

#### Links with Land Use

<table>
<thead>
<tr>
<th>B13</th>
<th>U111</th>
<th>Agricultural production</th>
</tr>
</thead>
<tbody>
<tr>
<td>B13</td>
<td>U112</td>
<td>Fallow land</td>
</tr>
<tr>
<td>B13</td>
<td>U113</td>
<td>Kitchen garden</td>
</tr>
<tr>
<td>B13</td>
<td>U210</td>
<td>Energy production</td>
</tr>
<tr>
<td>B13</td>
<td>U361</td>
<td>Amenities, museums, leisure</td>
</tr>
</tbody>
</table>
**B14  Rye**

Areas where rye (*Secale cereale*) is planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B14 U111  Agricultural production
  - B14 U112  Fallow land
  - B14 U113  Kitchen garden
  - B14 U210  Energy production
  - B14 U361  Amenities, museum, leisure

**B15  Oats**

Areas where oats (*Avena sativa*) is planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B15 U111  Agricultural production
  - B15 U112  Fallow land
  - B15 U113  Kitchen garden
  - B15 U210  Energy production
  - B15 U361  Amenities, museum, leisure
**B16  Maize**

Areas where maize (*Zea mays*) is planted

- **Principles of observation**
  Basic observation unit

- **Links with Land Use**
  - B16 U111 Agricultural production
  - B16 U112 Fallow land
  - B16 U113 Kitchen garden
  - B16 U210 Energy production
  - B16 U361 Amenities, museum, leisure

---

**B17  Rice**

Areas where rice (*Oryza sativa*) is planted

- **Principles of observation**
  Basic observation unit

- **Links with Land Use**
  - B17 U111 Agricultural production
  - B17 U112 Fallow land
  - B17 U113 Kitchen garden
  - B17 U210 Energy production
  - B17 U361 Amenities, museum, leisure
B18 Triticale

Areas where triticale (Triticeae) is planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B18 ▶ U111 Agricultural production
  - B18 ▶ U112 Fallow land
  - B18 ▶ U113 Kitchen garden
  - B18 ▶ U210 Energy production
  - B18 ▶ U361 Amenities, museum, leisure

B19 Other cereals

Areas where other cereals are planted. The surveyor must note the cereal species in the LC plant species field.

- **this class includes:**
  - buckwheat (*Fagopyrum esculentum*)
  - canary grass (*Phalaris canariensis*)
  - millets: barnyard or Japanese millet (*Echinochloa frumentacea*); ragi, finger or African millet (*Eleusine coracana*); teff (*Eragrostis abyssinica*); common, golden or proso millet (*Panicum miliaceum*); koda or ditch millet (*Paspalum scrobiculatum*); pearl or cattail millet (*Pennisetum glaucum*); foxtail millet (*Setaria italica*)
  - sorghum (*Sorghum spp.*)
  - quinoa (*Chenopodium quinoa*); fonio (*Digitaria spp.*)

- **this class excludes:**
  - Common wheat (B11), Durum wheat (B12), Barley (B13), Rye (B14), Oats (B15), Maize (B16), Rice (B17), Mixed cereals for fodder (B54)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B19 ▶ U111 Agricultural production
  - B19 ▶ U112 Fallow land
  - B19 ▶ U113 Kitchen garden
  - B19 ▶ U210 Energy production
  - B19 ▶ U361 Amenities, museum, leisure
B20 ROOT CROPS

B21 Potatoes

Areas where potatoes (*Solanum tuberosum*) are planted

- *this class includes:*
  - early potatoes and seeds

- *Principles of observation*
  - Basic observation unit

- *Links with Land Use*
  - B21 ➔ U111 Agricultural production
  - B21 ➔ U112 Fallow land
  - B21 ➔ U113 Kitchen garden
  - B21 ➔ U210 Energy production
  - B21 ➔ U361 Amenities, museum, leisure

B22 Sugar beet

Areas where sugar beet (*Beta vulgaris var. altissima*) is planted

- *Principles of observation*
  - Basic observation unit

- *Links with Land Use*
  - B22 ➔ U111 Agricultural production
  - B22 ➔ U112 Fallow land
  - B22 ➔ U113 Kitchen garden
  - B22 ➔ U210 Energy production
  - B22 ➔ U361 Amenities, museum, leisure

- *this class excludes:*
  - Fodder beat (B23)
**B23 Other root crops**

Areas where other root crops are planted. The surveyor must note the root crop species in the LC plant species field.

- **this class includes:**
  - fodder carrots (*Daucus carota*) and fodder turnips
  - horseradish (*Cochlearia armoracia*)
  - Jerusalem artichokes (*Helianthus tuberosus*)
  - Mangolds and fodder beet (*Beta vulgaris var. alba*)
  - parsnips (*Pastinaca sativa*)
  - swedes (*Brassica napus var napobrassica*)
  - tuberous chervil (*Chaerophyllum bulbosum*)
  - tropical tubers: sweet potatoes (*Ipomoea batatas*), cassava (*Manihot esculenta*, syn. *M. utilissima*); taros (*Colocasia esculenta*), yams (*Dioscorea spp*)

- **this class excludes:**
  - Potatoes (B21), Sugar beet (B22)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B23 > U111 Agricultural production
  - B23 > U112 Fallow land
  - B23 > U113 Kitchen garden
  - B23 > U210 Energy production
  - B23 > U361 Amenities, museum, leisure
B30 NON-PERMANENT INDUSTRIAL CROPS

B31 Sunflower

Areas where sunflower (Helianthus annuus) is planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B31 U111 Agricultural production
  - B31 U112 Fallow land
  - B31 U113 Kitchen garden
  - B31 U210 Energy production
  - B31 U361 Amenities, museum, leisure

B32 Rape and turnip rape

Areas where rape (Brassica napus var. oleifera) and turnip rape (Brassica rapa) are planted

- **this class includes:**
  - turnip rape and other rape species

- **this class excludes:**
  - Garden turnips (B43)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B32 U111 Agricultural production
  - B32 U112 Fallow land
  - B32 U113 Kitchen garden
  - B32 U210 Energy production
  - B32 U361 Amenities, museum, leisure

Rape Seed (Brassica napus var. oleifera)
**B33 Soya**

Areas where soya beans (*Glycine soja*) are planted

☀️  **Principles of observation**
Basic observation unit

 principio de observación

**Links with Land Use**

- B33 U111 Agricultural production
- B33 U112 Fallow land
- B33 U113 Kitchen garden
- B33 U210 Energy production
- B33 U361 Amenities, museum, leisure

---

**B34 Cotton**

Areas where cotton (*Gossypium spp.*) is planted

☀️  **Principles of observation**
Basic observation unit

 principio de observación

**Links with Land Use**

- B34 U111 Agricultural production
- B34 U112 Fallow land
- B34 U113 Kitchen garden
- B34 U210 Energy production
- B34 U361 Amenities, museum, leisure
B35 Other fibre and oleaginous crops

Areas where other fibre and oleaginous crops are planted. The surveyor must note the fibre and oleaginous crop species in the LC plant species field.

this class includes:
- flax/linseeds (*Linum usitatissimum*)
- hemp (*Cannabis sativa*)
- jute (*Corchorus spp.*)
- ramie (*Boehmeria nivea*)
- sisal (*Agave sisalana*)
- kenaf (*Hibiscus cannabinus*)
- bird rape (*Brassica rapa var. silvestris*)
- castor beans (*Ricinus communis*)
- sesame (*Sesamum indicum*)
- safflower (*Carthamus tinctorius*)
- mustard seeds (*Sinapis alba*, *Sinapis nigra*)
- poppy seeds (*Papaver somniferum*)

this class excludes:
- Sunflower (B31), Rape seeds (B32), Soya (B33), Cotton (B34), Olive groves (B81)

Principles of observation

Basic observation unit

Links with Land Use

- B35 U111 Agricultural production
- B35 U112 Fallow land
- B35 U113 Kitchen garden
- B35 U210 Energy production
- B35 U361 Amenities, museum, leisure
### B36 Tobacco

Areas where tobacco (*Nicotiana tabacum*) is planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - **B36 > U111** Agricultural production
  - **B36 > U112** Fallow land
  - **B36 > U113** Kitchen garden
  - **B36 > U361** Amenities, museum, leisure

### B37 Other non-permanent industrial crops

Areas where other non-permanent industrial crops are planted. The surveyor must note the non-permanent industrial crop species in the LC plant species field.

- **this class includes:**
  - Chicory roots (*Cichorium intybus* var. *sativum*)
  - hops (*Humulus lupulus*)
  - medicinal plants
    - common balm (*Melissa officinalis*)
    - common lungwort (*Pulmonaria officinalis*)
    - common mallow (*Malva silvestris*)
    - marsh mallow (*Althaea officinalis*)
    - poison hemlock (*Conium maculatum*)
    - pot marigold (*Calendula officinalis*)
    - purple foxglove (*Digitalis purpurea*)
    - soapwort (*Saponaria officinalis*)
    - sweet chamomile (*Chamaemelum nobile*)
    - valerian (*Valeriana officinalis*)
    - vervain (*Verbena officinalis*)
  - spices and aromatic plants
    - anise (*Pimpinella anisum*)
    - badian (*Ilicium verum*)
    - basil (*Ocimum basilicum*)
    - coriander (*Coriandrum sativum*)
    - dill (*Anethum graveolens*)
    - tarragon (*Artemisia dracunculus*)
    - fennel (*Foeniculum vulgare*)
    - garden chervil (*Anthriscus cerefolium*)
    - cumin (*Cuminum cyminum*)
    - majoram (*Origanum sp.*)
    - rosemary (*Rosmarinus officinalis*)
    - spearmint (*Mentha sp*).
    - sorrel (*Rumex acetosa*)
    - sage (*Salvia officinalis*)
    - thyme (*Thymus vulgaris*)
  - sugar cane (*Saccharum officinarum*)

- **this class excludes:**
  - tobacco (B36), permanent industrial crops (B84)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - **B37 > U111** Agricultural production
  - **B37 > U112** Fallow land
  - **B37 > U113** Kitchen garden
  - **B37 > U210** Energy production
  - **B37 > U361** Amenities, museum, leisure
**B40  DRY PULSES, VEGETABLES AND FLOWERS**

**B41  Dry pulses**

Areas where dry pulses are planted

- **this class includes:**
  - dry peas
    - garden pea (*Pisum sativum*), chickpea, garbanzo bean (*Cicer arietinum*), cowpea (*Vigna sinensis*; *Dolichos sinensis*), pigeon pea (*Cajanus cajan*),
  - field peas (*Pisum arvense*),
  - dry beans (*Phaseolus* spp.),
  - field beans (*Vicia fab* spp.),
  - lentils (*Lens culinaris*), lentil vetches (*Vicia ervilia*),
  - vetches spring, common vetch (*Vicia sativa*, *Vicia villosa*),
  - Lupins (*Lupinus* spp.),
  - Peanuts (*Arachis hypogaea*).

- **this class excludes:**
  - soya (B33).

**Principles of observation**

Basic observation unit

**Links with Land Use**

- B41 ➤ U111 Agricultural production
- B41 ➤ U112 Fallow land
- B41 ➤ U113 Kitchen garden
- B41 ➤ U361 Amenities, museum, leisure
**B42 Tomatoes**

Areas where tomatoes (*Lycopersicon esculentum*) are planted

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B42 > U111 Agricultural production
  - B42 > U112 Fallow land
  - B42 > U113 Kitchen garden
  - B42 > U361 Amenities, museum, leisure

**B43 Other fresh vegetables**

Areas where other fresh vegetables are planted. The surveyor must note the fresh vegetable species in the LC plant species field.

- **this class includes:**
  - brassicas
  - cabbages (*Brassica oleracea* spp.), cauliflowers (*Brassica oleracea* var. *botrytis*)
  - leaf and stalked vegetables other than brassicas
  - leguminous vegetables, incl. production for tins
    - green beans (*Phaseolus vulgaris* spp.)
    - green peas
  - roots-bulbs-tubers
    - carrots (*Daucus carota*), garlic (*Allium sativum*), onions (*Allium cepa*), radishes (*Raphanus sativus*), red beet (*Beta vulgaris* var. *conditiva*), shallots (*Allium ascalonicum*), turnips (*Brassica rapa* var. *rapifera*),
  - vegetables cultivated for fruit other than tomatoes
    - melons (*Cucumis melo*), cucumbers (*Cucumis sativus*), egg-plants (*Solanum melongena*), okras (*Abelmoschus esculentus*, *Hibiscus esculentus*), peppers (*Capsicum annuum*, *C. frutescens*, *Pimenta officinalis*), pumpkins (*Cucurbita spp*.), watermelons (*Citrullus vulgaris*)
  - cultivated mushrooms
    - (Boletus edulis; *Agaricus campestris*; *Morchella* spp. and *Tuber magnatum*)

- **this class excludes:**
  - tomatoes (B42), strawberries (B45), horseradish (B23)

- **Turnip** (*Brassica rapa* var. *rapifera*)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B43 > U111 Agricultural production
  - B43 > U112 Fallow land
  - B43 > U113 Kitchen garden
  - B43 > U361 Amenities, museum, leisure

Spinach (*Spinacia oleracea*) Lettuce (*Lactuca sativa*) Onions (*Allium cepa*) Cucumber (*Cucumis sativus*)
B44 **Floriculture and ornamental plants**

Areas where flowers and ornamental plants are planted

- **this class includes:**
  - bulbs and tubers, cut-flowers
    - alstroemeria, anemone, anthurium, campanula, celosia, cymbidium, dendranthema, dianthus, echinops, eryngium, euphobia, forsythia, gerbera, gladiolus, helianthus, hydrangea, hyacinthus, iris, larkspur, liliy, lysimachia, muscaria, narcissus, papaver, paphiopedilum, protea, ranunculus, rosa, streititzia, tulipa, veronica, zantedeschia, zinnia
  - cut-leafage
    - acacia, achillea, alchemilla, arbutus, asparagus, aster, camellia, cedrus, cornus, cyperus, erica, gypsophila, hibiscus, hosta, ilex, limonium, melaleuca, molluccela, panicum, pennisetum, philodendrium, physalis, rhododendron, ruscus, salix, sedum, solidago, solidaster, syringe, thuya, trachelium, vibernum, weigela
  - ornamental plants
    - abelia, agapanthus, araucaria, azalea, begonia, berberis, betula, bougainvillea, callistemon, chamaecypar, chamaerops, croton, cupressus, cyca, cyclamen, cymbidium, deutzia, dimorphoteca, dracaena, eounymous, euphobia, eurypops, ficus, forsythia, grevillea, hydrangea, lavandula, leptospermum, lonicera, morus, myrtus, olea, paphiopedilum, pelargonium, petunia, phoenix, photinia, piracanta, rosmarinus, saintpaulia, scindapsus, spiraea, syngonium, vibernum, washintonia, wisteria, yucca

- **this class excludes:**
  - nurseries (B83)

### Principles of observation

- Basic observation unit

### Links with Land Use

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B44</td>
<td>U111 Agricultural production</td>
</tr>
<tr>
<td>B44</td>
<td>U112 Fallow land</td>
</tr>
<tr>
<td>B44</td>
<td>U113 Kitchen garden</td>
</tr>
<tr>
<td>B44</td>
<td>U340 Commerce, Finance, Business</td>
</tr>
<tr>
<td>B44</td>
<td>U350 Community services</td>
</tr>
<tr>
<td>B44</td>
<td>U361 Leisure (allotments)</td>
</tr>
<tr>
<td>B44</td>
<td>U364 Nature reserves</td>
</tr>
</tbody>
</table>

B45 **Strawberries**

Areas where strawberries (*Fragaria spp.*) are planted

### Principles of observation

- Basic observation unit

### Links with Land Use

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B45</td>
<td>U111 Agricultural production</td>
</tr>
<tr>
<td>B45</td>
<td>U112 Fallow land</td>
</tr>
<tr>
<td>B45</td>
<td>U113 Kitchen garden</td>
</tr>
</tbody>
</table>
**B50 FOODER CROPS (mainly leguminous)**

They occupy the soil in a temporary way but are defined especially by the predominance of the legumes at the level of 80%.

**B51 Clovers**

The various species of clover, annual or perennial cultivated alone.

- **this class includes:**
  - Crimson clover (Trifolium incarnatum L.), red (T. pratense L.), white (T. repens L.), Egyptian (T. alexandrinum), Persia clover (T. resupinatum)

- **this class excludes:**

**Principles of observation**

Basic observation unit

**Links with Land Use**

- B51 ▶ U111 Agricultural production
- B51 ▶ U112 Fallow Land
- B51 ▶ U113 Kitchen garden
- B51 ▶ U210 Energy production
- B51 ▶ U361 Amenities, museum, leisure
- B51 ▶ U364 Nature reserves

---

**B52 Lucerne**

The various types of lucerne cultivated alone.

- **this class includes:**
  - Lucerne Medicago sativa L. with M. falcata L. and hybrids

- **this class excludes:**

**Principles of observation**

Basic observation unit

**Links with Land Use**

- B52 ▶ U111 Agricultural production
- B52 ▶ U112 Fallow Land
- B52 ▶ U113 Kitchen garden
- B52 ▶ U210 Energy production
- B19 ▶ U361 Amenities, museum, leisure
- B52 ▶ U364 Nature reserves
### B53 Other Leguminous and mixtures for fodder

Other leguminous or mixtures of predominantly leguminous (normally > 80 %) forage crops and grass plants, harvested green or as dried hay. It is accepted that legumes can be associated with graminaceous plants:

- i.e. at the time of the setting up when the germination of the legume is protected by an annual graminaceous plant
- i.e. at the time of the setting up with a view to an association between the two families of plants

Included here are: annual crops belonging to other families such as the cruciferous and that are not mentioned elsewhere (rape, etc.), the California bluebell (Phacelia tanacetifolia Benth), if they are harvested green.

The surveyor must note the leguminous or fodder species in the LC plant species field.

#### this class includes:
- Sainfoin (Onobrychis viciifolia Scop.), Sweet clover (Lotus corniculatus L.), Chickling vetch (Lathyrus sativus), Trefoil (Medicago lupulina L.), Melilot (Melilotus alba Lam.), Serradella (Ornithopus sativus), Fenugreek (Trigonella foenum-graecum), Sulla (Hedysarium coronarium), California bluebell (Phacelia tanacetifolia)

#### this class excludes:
- Mix of cereals for fodder (B54)
- Temporary grassland (B55)

#### Principles of observation

Basic observation unit

#### Links with Land Use

- B53 ➤ U111 Agricultural production
- B53 ➤ U112 Fallow Land
- B53 ➤ U113 Kitchen garden
- B53 ➤ U210 Energy production
- B53 ➤ U361 Amenities, museum, leisure
- B53 ➤ U364 Nature reserves

Onobrychis viciifolia  Phacelia tanacetifolia  Lotus corniculatus
**B54 Mix of cereals**

Mix of more than two cereals used in most cases for fodder, often as winter crop and harvested green.

*this class includes:*

- Common wheat (B11)
- Durum wheat (B12)
- Barley (B13)
- Rye (B14)
- Oats (B15)
- Maize (B16)
- Triticale (B18)
- Other cereals (B19) if mixed and harvested for fodder

*this class excludes:*

- Common wheat (B11)
- Durum wheat (B12)
- Barley (B13)
- Rye (B14)
- Oats (B15)
- Maize (B16)
- Rice (B17)
- Triticale (B18)
- Other cereals (B19) if only one or two species sown and harvested for human consumption

*Principles of observation*

Basic observation unit

*Links with Land Use*

- B54 U111 Agricultural production
- B54 U112 Fallow Land
- B54 U113 Kitchen garden
- B54 U210 Energy production
- B54 U361 Amenities, museum, leisure
- B54 U364 Nature reserves

**B55 Temporary grassland**

Land occupied by temporary and artificial pastures, occupying the ground for at least one crop year and less than five years, the seeds being either pure or mixed grass, on cropland areas. This can also be the case on fallow fields, when i.e. after some years graminaceous plants settle over spontaneously. If the soil is ploughed and /if the grass is sown the same year, the grassland is very likely a temporary one and not a permanent one.
this class includes:
temporary pastures (Italian ryegrass, other ryegrasses, cock’s foot, fescues, timothy) on agricultural areas/cropland

this class excludes:
permanent grassland (E)
Mix of legumes with gramineous plants for fodder (B53)
Mix of cereals for fodder (B54)

Principles of observation
Basic observation unit

Links with Land Use
B55 > U111 Agricultural production
B55 > U113 Kitchen garden
B55 > U361 Amenities, museum, leisure
B55 > U364 Nature reserves
B70 PERMANENT CROPS: FRUIT TREES

B71 Apple fruit

Surfaces occupied by apple trees (*Malus pumila; Pyrus malus*)

- **this class includes:**
  - Abandoned apple orchards

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - B71 U111 Agricultural production
  - B71 U112 Fallow land
  - B71 U113 Kitchen garden
  - B71 U361 Amenities, museum, leisure

B72 Pear fruit

Surfaces occupied by pear trees (*Pyrus communis*)

- **this class includes:**
  - Abandoned pear orchards

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - B72 U111 Agricultural production
  - B72 U112 Fallow land
  - B72 U113 Kitchen garden
  - B72 U361 Amenities, museum, leisure

B73 Cherry fruit

Surfaces occupied by cherry trees (*Prunus cerasus; Cerasus acida*)

- **this class includes:**
  - Abandoned cherry orchards

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - B73 U111 Agricultural production
  - B73 U112 Fallow land
  - B73 U113 Kitchen garden
  - B19 U361 Amenities, museum, leisure
**B74 Nuts trees**

Surfaces occupied by nuts trees

- **this class includes:**
  - almonds (*Prunus amygdalus*)
  - chestnuts (*Castanea spp.*)
  - hazelnuts (*Corylus avellana*)
  - pistachios (*Pistacia vera*)
  - walnuts (*Juglans spp.*)
  - Abandoned nuts trees orchards

**Principles of observation**

Extended window of observation

**Links with Land Use**

- B74 U111 Agricultural production
- B74 U112 Fallow land
- B74 U113 Kitchen garden
- B74 U361 Amenities, museum, leisure
**B75 Other fruit trees and berries**

Surfaces occupied by other fruit trees and berries. The surveyor must note the fruit tree/berry species in the LC plant species field.

- this class includes:
  - apricot (*Prunus armeniaca*)
  - cornel (*Cornus mas*) if used
  - figs (*Ficus carica*)
  - juneberry (*Amelanchier vulgaris*)
  - kiwi (*Actinidia chinensis*)
  - loquat (*Eriobotrya japonica*)
  - medlar (*Mespilus germanica*)
  - mirabellas (*Prunus insititia var. syriaca*)
  - peach and nectarines (*Prunus persica; Amygdalus persica; Persica laevis*)
  - persimmons (*Diospyros kaki*)
  - plums (*Prunus domestica*)
  - pomegranates (*Punica granatum*)
  - oleaster (*Eleagnus sp.*)
  - quinces (*Cydonia oblonga*)
  - sloes (*Prunus spinosa*) - if used
  - small fruit and berries:
    - blackberries (*Morus nigra*)
    - black currants (*Ribes nigrum*)
    - blueberries (*Vaccinium myrtillus*)
    - cowberries (*Vaccinium vitis-idaea*)
    - cranberries (*Vaccinium macrocarpon*)
    - dewberries (*Rubus arcticus*)
    - gooseberries (*Ribes uva-crispa*)
    - mulberries (*Morus alba; M. rubra*)
    - myrtle berries (*Myrtus communis*)
    - raspberries (*Rubus idaeus*)
  - tropical fruits like bananas (*Musa sp.*), avocado (*Persea americana*)
  - abandoned fruit tree orchards

- this class excludes:
  - apples (B71), pears (B72), cherries (B73), nuts (B74), strawberries (B45); citrus fruits (B76, B77)

- **Principles of observation**

- Extended window of observation

- **Links with Land Use**

  - B75 ➔ U111 Agricultural production
  - B75 ➔ U112 Fallow land
  - B75 ➔ U113 Kitchen garden
  - B75 ➔ U361 Amenities, museum, leisure

---

*Images of apricot, peach, mirabellas, and plums.*
B76 **Oranges**

Surfaces occupied by orange trees (*Citrus sinensis, C. aurantium*)

- this class includes:
  - Abandoned oranges orchards

**Principles of observation**

- Extended window of observation

**Links with Land Use**

- B76 U111 Agricultural production
- B76 U112 Fallow land
- B76 U113 Kitchen garden
- B76 U361 Amenities, museum, leisure

B77 **Other citrus fruit**

Surfaces occupied by other citrus fruit trees. The surveyor must note the citrus species in the LC plant species field.

- this class includes:
  - bergamot (*Citrus bergamia*)
  - citron (*Citrus. medica var. cedrata*)
  - grapefruit and pomelo (*Citrus maxima; C. grandis; C. paradisea*)
  - lemons (*Citrus limon*);
  - limes (*Citrus aurantifolia, Citrus. limetta*)
  - satsumas (*Citrus unshiu*)
  - mandarines (*Citrus deliciosa, C. nobilis*), clementines (*C. clementina*)
  - kumquats (*Fortunella sp.*)
  - abandoned citrus orchards

- this class excludes:
  - oranges (B66)

**Principles of observation**

- Extended window of observation

**Links with Land Use**

- B77 U111 Agricultural production
- B77 U112 Fallow land
- B77 U113 Kitchen garden
- B77 U361 Amenities, museum, leisure

Lemon  Grapefruit  Limes
B80 OTHER PERMANENT CROPS

B81 Olive groves

Surfaces occupied by olive groves (*Olea europea*)

- **this class includes:**
  - Abandoned olive groves

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - B81 > U111 Agricultural production
  - B81 > U112 Fallow land
  - B81 > U113 Kitchen garden
  - B81 > U361 Amenities, museum, leisure

B82 Vineyards

Surfaces occupied by vineyards (*Vitis vinifera*)

- **this class includes:**
  - Abandoned vineyards

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - B82 > U111 Agricultural production
  - B82 > U112 Fallow land
  - B82 > U113 Kitchen garden
  - B82 > U361 Amenities, museum, leisure

B83 Nurseries

Surfaces permanently occupied by young woody open-air seedlings for transplantation. The type of main plant/tree has to be noted as LC2.

- **this class includes:**
  - vine and root-stock nurseries
  - fruit tree nurseries
  - ornamental nurseries
  - trees and bushes for planting in gardens, parks, embankments

- **this class excludes:**
  - forest tree nurseries (C0x)

- **Principles of observation**
  - Basic observation unit

- **Links with Land Use**
  - B83 > U111 Agricultural production
  - B83 > U113 Kitchen garden
**B84  Permanent industrial crops**

Surfaces occupied by permanent industrial crops. The surveyor must note the permanent industrial crop species in the LC plant species field.

*this class includes:*

- plants for plaiting (osier, rushes, rattans, reeds)
- industrial plants for beverages (coffee, cocoa, tea, mate)
- industrial plants for oil (coconut, palm)
- permanent aromatic plants (black or red pepper, cinnamon, cloves, ginger, vanilla, cardamon)
- permanent textile plants (abaca, agave, kapok, etc.)
- plants for rubber and tannin (hevea, red quebracho, etc.)
- other permanent industrial crops (lavender - lavendula spp., citronella, sago, quinine, areca nuts, mulberries for sow production, carobs, rose trees, etc.)

**Principles of observation**

Extended window of observation

**Links with Land Use**

- B84 U111 Agricultural production
- B84 U112 Fallow land
- B84 U113 Kitchen garden
- B84 U210 Energy production
- B84 U361 Amenities, museum, leisure

---

![Lavender](image1)

![Coffee](image2)

![Tea](image3)

![Osier](image4)
**C00 WOODLAND**

Areas covered by trees with a tree crown area of at least 10%. Also woody hedges belong to this class.

NB: Height of trees at maturity and width of woody features have to be assessed (fields 20-21). Areas covered by trees with a tree crown area of at least 10%.

### C10 Broadleaved and evergreen woodland

Areas with a tree-crown area density of more than 10% and composed of more than 75% of broadleaved/evergreen species

- **this class includes:**
  - stands with the following species:
    - acacia (Acacia ssp.), alder (Alnus ssp), ash (Fraxinus excelsior), aspens (Populus tremula), beech trees (Fagus sylvatica), birch (Betula sp.), carob (Ceratonia siliqua), elm (Ulmus sp.), eucalyptus (Eucalyptus globulus), hedge (Acer campestre), hornbeam (Carpinus betulus), linden (Tilia ssp.), maple (Acer sp.), palm trees of the Mediterranean and Macaronesian zones (Phoenix theophrasti, Ph. canariensis), poplars (Populus nigra), oaks (Quercus sp), rowan (Sorbus aucuparia), wild olive (Olea europaea ssp. sylvestris), willows (Salix sp.).
  - young natural stands and managed plantations having yet to reach a crown density of 10% forest nurseries

- **this class excludes:**

#### Principles of observation

Extended window of observation

#### Links with Land Use

- C10 U111 Agricultural use: grazing or crops in dehesas
- C10 U120 Forestry (wood production)
- C10 U210 Energy production
- C10 U340 Wooded areas connected to commercial areas
- C10 U350 Wooded areas connected to community services
- C10 U36x Wooded areas specifically managed for recreational purposes and in nature reserves
- C10 U370 Wooded areas in residential areas (urban parks)
- C10 U400 Wooded areas not utilized

Source: Maxim Bobrovsky.
C20 Coniferous woodland

Areas with a tree-crown area density of more than 10% and composed of more than 75% of coniferous species

this class includes:

stands with the following species
Cedars (Cedrus sp.), cypresses (Cupressus sempervirens), firs (Abies sp.), Douglas firs (Pseudotsuga menziesii), larches (Larix spp.), pines (Pinus sp.: Scots pines, Black pines, Siberian pines, Weymouth pines, Maritime pine, Mediterranean stone pine etc).
Spruce (Picea sp.),
Xerophyte conifers: Brutia pine, Umbrella pine, Aleppo pine, Corsican pine
Christmas trees
young stands, plantations having yet to reach a crown density of 10% forest nurseries

Principles of observation
Extended window of observation

Links with Land Use
C20 ➤ U111 Agricultural use: grazing
C20 ➤ U120 Forestry (wood production)
C20 ➤ U210 Energy production
C20 ➤ U340 Wooded areas connected to commercial areas
C20 ➤ U350 Wooded areas connected to community services
C20 ➤ U36x Wooded areas specifically managed for recreational purposes and in nature reserves
C20 ➤ U370 Wooded areas in residential areas (urban parks)
C20 ➤ U400 Wooded areas not utilized

C30 Mixed woodland

Areas with a tree-crown area density of more than 10% and composed of broadleaved/evergreen and coniferous comprising both >25% of the tree canopy

- **this class includes:**
  young stands, plantations having yet to reach a crown density of 10%

**Principles of observation**

Extended window of observation

**Links with Land Use**

- C30 U111 Agricultural use: grazing
- C30 U120 Forestry (wood production)
- C30 U210 Energy production
- C30 U340 Wooded areas connected to commercial areas
- C30 U350 Wooded areas connected to community services
- C30 U36x Wooded areas specifically managed for recreational purposes and in nature reserves
- C30 U370 Wooded areas in residential areas (urban parks)
- C30 U400 Wooded areas not utilized
CX1-CXE FOREST TYPES

If the forest is larger than 0.5 ha, the height of trees is above 5 m at maturity and the width of the wooded feature is more than 20 m, the surveyor has to give also a secondary forest cover code according to the forest type classification of the European Environment Agency (see the document: European forest types. Categories and types for sustainable forest management reporting and policy. EEA Technical Report No 9/2006) downloadable at http://reports.eea.europa.eu/technical_report_2006_9/en. A key for recognising the forest types can be found in ANNEX 6; a biogeographical map of Europe in ANNEX 7. The surveyor has to note down the secondary forest cover code in the respective "LC plant species" field.

<table>
<thead>
<tr>
<th>CX1 Boreal forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coniferous and mixed broadleaved-coniferous forest of the Boreal (climate) zone of Europe, known also as taiga. Two conifer species, Scots pine (<em>Pinus sylvestris</em>) and Norway spruce (<em>Picea abies</em>) dominate the boreal forest zone; both of them have quite broad habitat amplitudes and may grow from very dry to wet habitats. Pine generally prevails on drier soils, in areas with a more continental climate and with a high fire frequency. Spruce, on the other hand, prevails on more nutrient-rich, mesic-moist soils, in areas with a more oceanic climate and on sites with a low fire frequency. Birch species (e.g. <em>B. pubescens</em>, <em>B. pendula</em>) as well as other deciduous trees, such as aspen, rowan and grey alder can be frequently found growing amongst the conifers. Admixtures of spruce or pine with birch species are also typical of the pioneer stages of the forest succession.</td>
</tr>
<tr>
<td>this class includes:</td>
</tr>
<tr>
<td>young stands, plantations having yet to reach a crown density of 10%</td>
</tr>
<tr>
<td>this class excludes:</td>
</tr>
<tr>
<td>Alpine forests in Scandinavia (CX3)</td>
</tr>
<tr>
<td>Extended window of observation</td>
</tr>
<tr>
<td>Links with Land Use</td>
</tr>
<tr>
<td>CX1 ➤ U111 Agricultural use: grazing</td>
</tr>
<tr>
<td>CX1 ➤ U120 Forestry (wood production)</td>
</tr>
<tr>
<td>CX1 ➤ U350 Wooded areas connected to community services</td>
</tr>
<tr>
<td>CX1 ➤ U36x Wooded areas managed for recreational purposes and in nature reserves</td>
</tr>
<tr>
<td>CX1 ➤ U370 Wooded areas in residential areas (urban parks)</td>
</tr>
<tr>
<td>CX1 ➤ U400 Wooded areas not utilized</td>
</tr>
</tbody>
</table>
CX2 Hemiboreal forest and nemoral coniferous forest and mixed broadleaved-coniferous forest

The hemi-boreal zone is a transitional zone between the boreal and temperate forest of nemoral Europe. It is characterized by the coexistence of boreal coniferous — on poor soils — and temperate broadleaved tree species (Fraxinus excelsior, Ulmus glabra, Tilia cordata, Quercus robur) on the most fertile soils. The structure and composition of hemiboreal forest is maintained by a complex admixture of natural and cultural disturbances.

The type is characterised by mixtures of Scots pine (Pinus sylvestris) and Norway spruce (Picea abies) with broadleaves deciduous trees such as Birch (Betula spp), aspens (Populus tremula), alder (Alnus sp), and rowan (Sorbus aucuparia). The broadleaved trees generally characterise early to mid successional stages; with age the dominance of coniferous species increases.

source: Kjell Sjöberg.

this class includes:
young stands, plantations having yet to reach a crown density of 10%

Principles of observation
Extended window of observation

Links with Land Use
CX2 U111 Agricultural use: grazing
CX2 U120 Forestry (wood production)
CX2 U350 Wooded areas connected to community services
CX2 U36x Wooded areas managed for recreational purposes and in nature reserves
CX2 U370 Wooded areas in residential areas (urban parks)
CX2 U400 Wooded areas not utilized

CX3 Alpine coniferous forest

Forests occurring in the alpine biogeographical region dominated by coniferous trees, mainly Norway spruce (Picea abies), Silver fir (Abies alba), Scots pine (Pinus sylvestris), Swiss stone pine (Pinus cembra), mountain pine (Pinus mugo, Pinus uncinata), Macedonian pine (Pinus peuce) and Bosnian pine (Pinus heldreichii). Included in this category is the forest vegetation of high altitudinal vegetation belts of the central European
mountain ranges dominated by spruce (*Picea abies*), silver fir (*Abies alba*) and, under local microclimatic and edaphic conditions, termophilous pure Austrian pine (*Pinus nigra*) forests of the southern Alps.

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10% or 5m tree height
  - Alpine forests in Scandinavia

- **this class excludes:**
  - Boreal forests (CX1)

### Principles of observation

**Extended window of observation**

#### Links with Land Use

- CX3 U111 Agricultural use: grazing
- CX3 U120 Forestry (wood production)
- CX3 U350 Wooded areas connected to community services
- CX3 U36x Wooded areas managed for recreational purposes and in nature reserves
- CX3 U370 Wooded areas in residential areas (urban parks)
- CX3 U400 Wooded areas not utilized

**Source:** Georg Frank.

### CX4 Acidophilous oak and oak-birch forest

Acidophilous oakwoods and mixed oak–birch forest characteristic of oligotrophic soils of the nemoral forest zone. The main areas of distribution of the class are the Atlantic and Continental biogeographical regions. Lowland to submountainous forests are dominated by acidophilous oaks (*Quercus petraea* and *Quercus robur*). In the wide natural range of distribution of beech trees (*Fagus sylvatica*) oakwoods are pushed back to areas with poor acid soils, with variable soil moisture or thin soil layers. Pioneers such as birch (*Betula pendula*, *Betula pubescens*) are important during the regeneration phase in the western parts of the area of occurrence. In the eastern parts pine (*Pinus sp.*) and locally spruce (*Picea sp.*) can form together with oak the tree layer. In the south-western areas of occurrence some Mediterranean species can participate in the tree layer. Aspen (*Populus tremula*), rowan (*Sorbus aucuparia*), Norway maple (*Acer platanoides*), ash (*Fraxinus excelsior*), linden (*Tilia cordata*) and Wych elm (*Ulmus glabra*) can be found in the southern boreal region.

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10%

- **Principles of observation**
  - Extended window of observation
**CX5 Mesophytic deciduous forest**

Forests, typically with mixed canopy composition, on rich and moderately rich soils. The category includes forests dominated by mixtures of Hornbeam (*Carpinus betulus*), Sessile oak (*Quercus petraea*), Pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*, *Fraxinus angustifolia*), hedge (*Acer campestre*) maple (*Acer pseudoplatanus*) and linden (*Tilia cordata*).

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10%

**Principles of observation**

- Extended window of observation

**Links with Land Use**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CX5</td>
<td>Agricultural use: grazing</td>
</tr>
<tr>
<td>CX5</td>
<td>Forestry (wood production)</td>
</tr>
<tr>
<td>CX5</td>
<td>Wooded areas connected to community services</td>
</tr>
<tr>
<td>CX5</td>
<td>Wooded areas managed for recreational purposes and in nature reserves</td>
</tr>
<tr>
<td>CX5</td>
<td>Wooded areas in residential areas (urban parks)</td>
</tr>
<tr>
<td>CX5</td>
<td>Wooded areas not utilized</td>
</tr>
</tbody>
</table>

**CX6 Beech forest**

Beech forests are characterised by the dominance of beech (*Fagus sylvatica*) or its transitional hybrids with oriental beech (*Fagus orientalis*) in the eastern and southern parts of the Balkan Peninsula, and along the eastern periphery of the Carpathians. These latter were described as Balkan beech (*Fagus moesica*), Podolian or Moldovian beech (*Fagus podolica* Yap.) and Crimean beech (*Fagus taurica* Popl). Specific elevation range (from lowlands to submountainous, 0 to 600(-800) meters above see level) and the lack of conifers define this type often referred to as lowland and submountainous beech forest. Important additional tree species include Norvay maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), birch (*Betula pendula*), hornbeam (*Carpinus betulus*), Sweet chestnut (*Castanea sativa*), asp (Fraxinus excelsior), aspen (*Populus tremula*), wild cherry (*Prunus avium*), oak (*Quercus petraea, Quercus robur*), rowan (*Sorbus aucuparia*), linden (*Tilia cordata, Tilia platyphyllos*), Wych elm (*Ulmus glabra*).

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10%

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - CX6 U111 Agricultural use: grazing
  - CX6 U120 Forestry (wood production)
  - CX6 U350 Wooded areas connected to community services
  - CX6 U36x Wooded areas managed for recreational purposes and in nature reserves
  - CX6 U370 Wooded areas in residential areas (urban parks)
  - CX6 U400 Wooded areas not utilized

**Source:** Tibor Standovár.

**CX7 Mountainous beech forest**

Mountainous beech forests are defined by the altitudinal range of distribution, by the dominance of *Fagus* and, in most cases, by the presence of coniferous species (*Abies alba* and/or *Picea abies*) as important components. Locally important additional tree species include Norvay maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), birch (*Betula pendula*), hornbeam (*Carpinus betulus*), Sweet chestnut (*Castanea sativa*), ash (Fraxinusexcelsior), aspen (*Populus tremula*), wild cherry (*Prunus avium*), oak (*Quercus petraea, Quercus robur*), rowan (*Sorbus aucuparia*), linden (*Tilia cordata, Tilia platyphyllos*), Wych elm (*Ulmus glabra*), oriental beech (*Fagus orientalis Lipsky*) and Goat willow (*Salix caprea*). depending on trophic status and/or successional phase.

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10%

- **Principles of observation**
  - Extended window of observation
Eurostat  LUCAS 2009 (Land Use / Cover Area frame statistical Survey)

Links with Land Use

CX7 U111 Agricultural use: grazing
CX7 U120 Forestry (wood production)
CX7 U350 Wooded areas connected to community services
CX7 U36x Wooded areas managed for recreational purposes and in nature reserves
CX7 U370 Wooded areas in residential areas (urban parks)
CX7 U400 Wooded areas not utilized

Source: Tibor Standovár

CX8 Thermophilous deciduous forest

Forest dominated by deciduous or semideciduous thermophilous species, mainly Downy Oak (Quercus pubescens); other oaks associate with or replace (Q. pubescens in submediterranean woods: Quercus faginea, Q. pyrenaica and Q. canariensis (Spain), Q. cerris (Italy), Q. frainetto, Q. trojana (Greece)). The species typically associated in these oak woods are maples (Acer monspessulanus, Acer opalus, Acer obtusatum) and, in eastern areas, Hop-hornbeam (Ostrya carpinifolia), Manna ash (Fraxinus ornus), Oriental hornbeam (Carpinus orientalis). Forest dominated by thermophilous deciduous oaks, under local microclimatic or edaphic conditions, are found also far north in the Atlantic region, Pannonic and Continental regions.

this class includes:

Other deciduous non-alluvial formations of meso- and supra- Mediterranean zone, dominated by Fraxinus spp., Ostrya carpinifolia, Carpinus orientalis, Acer spp., Tilia spp., Carpinus betulus, Aesculus hippocastanus and Juglans regia;

Castanea sativa dominated forests, represented, for the most part, by old established and naturalised plantations.

young stands, plantations having yet to reach a crown density of 10%

Dehesas, montados

Principles of observation

Extended window of observation

Links with Land Use

CX8 U111 Agricultural use: grazing
CX8 U120 Forestry (wood production)
CX8 U350 Wooded areas connected to community services
CX8 U36x Wooded areas managed for recreational purposes and in nature reserves
CX8 U370 Wooded areas in residential areas (urban parks)
CX8 U400 Wooded areas not utilized
CX9 Broadleaved evergreen forest

Forests characteristic of the Mediterranean and warm temperate humid zones of Macaronesia biogeographical regions, dominated by broadleaved sclerophyllous or lauriphyllous evergreen trees. Broadleaved evergreen forests can be dominated by the evergreen sclerophyllous oaks (*Quercus suber*, *Q. ilex*, *Q. rotundifolia*, *Q. coccifera*, *Q. alnifolia*).

Cork oak and holm oak form the most widespread evergreen woodland in the Mediterranean Region. Forest dominated by holm oak (*Quercus ilex*), are typical of the meso-Mediterranean level, but ingress to the supra-Mediterranean level is also common. Holm oak woodland is often, but not necessary, calcicolous.

Cork oak (*Quercus suber*) dominated woodland has a west-Mediterranean distribution and is associated to siliceous substrates. It is usually more thermophilous and hygrophilous than holm oak woodland. In some areas, holm-oak and cork-oak woodland are closely related and the two oaks occur in mixed stands.

Arborescent formations dominated by Kermes oak (*Quercus coccifera*, *Quercus 'calliprinos', Quercus 'pseudococcifera') or Golden oak (*Quercus alnifolia*); occurring in the Iberian peninsula, Greece and eastern Mediterranean (Cyprus, Anatolia). Thermom-Mediterranean woodland dominated by arborescent tree layer, often open, of wild olive (*Olea europaea ssp. sylvestris*), carob (*Ceratonia siliqua*) or a mixture of the two; found in southern Spain (Andalucia, Menorca, Maiorca), southern Italy (Puglia, Calabria, Sardinia, Sicilia), Crete, Cyprus and Turkey.

Woods, often riparian, formed by palm trees of the Mediterranean and Macaronesian zones, *Phoenix theophrasti* of Crete and western Anatolia, and *Phoenix canariensis* of the Canary Islands.

this class includes:

- young stands, plantations having yet to reach a crown density of 10%

Principles of observation

Extended window of observation

Links with Land Use

- CX9 U111 Agricultural use: grazing
- CX9 U120 Forestry (wood production)
- CX9 U350 Wooded areas connected to community services
- CX9 U36x Wooded areas managed for recreational purposes and in nature reserves
- CX9 U370 Wooded areas in residential areas (urban parks)
- CX9 U400 Wooded areas not utilized
The category covers a wide range of xerophytic forests dominated by coniferous species (pines, firs, junipers, cypress, cedar) found in the Mediterranean, Anatolian and Macaronesian biogeographical Regions.

Woodland dominated by thermophilous Pine species (*Pinus pinaster* ssp. *pinaster*, *Pinus pinea*, *Pinus halepensis*, *Pinus brutia*). These pinewoods constitute thermo-Mediterranean pioneer formations, largely widespread in the coasts and lowlands of the circummediterranean regions. Woods dominated by Black pine (*Pinus nigra* ssp.), characteristic of the mountainous level of the Mediterranean and Anatolia regions. Scots pine forest (*Pinus sylvestris*) in the Mediterranean region have a mountainous and oro-Mediterranean distribution. Local treeline formations of Bosnian pine (*Pinus heldreichii* and *Pinus leucodermis*) are restricted to the southern Balkans, northern Greece and southern Italy. Fir woods (*Abies*) are distributed along the rim of the southern Mediterranean basin and western Anatolia. Woods dominated by Junipers (*Juniperus spp.*) of the Mediterranean and Anatolian mountains. Pure or mixed forests of Lebanon cedar (*Cedrus libani*) of the southern Anatolia and locally north-eastern Anatolia (subpontic forests) and endemic endangered *Cedrus brevifolia* forest of Cyprus.

### this class includes:
- young stands, plantations having yet to reach a crown density of 10%

### Principles of observation
- Extended window of observation

### Links with Land Use
- **CXA** U111 Agricultural use: grazing
- **CXA** U120 Forestry (wood production)
- **CXA** U350 Wooded areas connected to community services
- **CXA** U36x Wooded areas managed for recreational purposes and in nature reserves
- **CXA** U370 Wooded areas in residential areas (urban parks)
- **CXA** U400 Wooded areas not utilized
CXB  Mire and swamp forests

Coniferous or broadleaved forested wetlands, located mainly in Fennoscandia with scattered occurrences on peaty soils throughout Europe. Forested wetlands consist of a heterogeneous complex of wet and moist forest types, and they are characterised by a high water table of variable duration. The terminology used to characterise them differs between countries. In Sweden, for example, swamp forests are classified as forests and not as mires if the annual forest productivity exceeds 1 m³ per ha or if the tree layer has a crown projection exceeding 30 %. In Finland, however, the classification is based on botanical and hydrological criteria. As a consequence, wet and moist forests are assigned to the mire series regardless of forest productivity and tree cover. Therefore, many herb-rich vegetation types are included in this category.

The dominating trees are spruces (Picea sp.) and birches (Betula sp.) in swamps or pines (Pinus sp.) in bogs. Swamp forests can be dominated by alder (Alnus sp.), birch (Betula sp.), pedunculate oaks (Quercus robur) or aspen (Populus tremula).

- **this class includes:**
  young stands, plantations having yet to reach a crown density of 10%

- **this class excludes:**
  Peat bogs (H12)

- **Principles of observation**
  Extended window of observation

- **Links with Land Use**
  - CXB ➤ U111  Agricultural use: grazing
  - CXB ➤ U120  Forestry (wood production)
  - CXB ➤ U350  Wooded areas connected to community services
  - CXB ➤ U36x  Wooded areas managed for recreational purposes and in nature reserves
  - CXB ➤ U370  Wooded areas in residential areas (urban parks)
  - CXB ➤ U400  Wooded areas not utilized
CXC Floodplain forests

Alluvial and riparian woodlands and galleries close to main European river channels. These are species-rich often multi-layered communities characterised by different assemblages of forest dominant trees. Forest composition and structure largely depends on the frequency of flooding. Included are those forest communities typically associated with alluvial or riparian woodlands that may constitute locally important forest types e.g. in Bulgaria, the dense forests of field elm and ashes associated to alluvial and riparian mixed forests.

Riparian forests of the boreal, boreo- nemoral and nemoral zone growing on low-lying areas and organic soils frequently flooded and close to river channels. Characteristically dominated by species of alder (Alnus), birch (Betula sp.), aspens (Populus tremula) and willows (Salix sp.). In the Mediterranean and Macaronesian regions additions local species (e.g. Fraxinus angustifolia, Platanus, Alnus orientalis, A. orientalis Nerium Oleander, Tamarix, Liquidambar and Flueggea tinctoria) exist.

this class includes:
young stands, plantations having yet to reach a crown density of 10%

*Principles of observation*
Extended window of observation

**Links with Land Use**
- CXC U111 Agricultural use: grazing
- CXC U120 Forestry (wood production)
- CXC U350 Wooded areas connected to community services
- CXC U36x Wooded areas managed for recreational purposes and in nature reserves
- CXC U370 Wooded areas in residential areas (urban parks)
- CXC U400 Wooded areas not utilized

**CXD Non-riverine alder, birch or aspen forest**

Non-riparian, non-marshy forest formations dominated by alder (*Alnus glutinosa, Alnus incana, Alnus cordata*), birch (*Betula pendula, Betula pubescens, Betula celtiberica, Betula aetnensis*) or aspen (*Populus tremula*).

- **this class includes:**
  - young stands, plantations having yet to reach a crown density of 10%

**Principles of observation**

Extended window of observation

**Links with Land Use**

- CXD U111 Agricultural use: grazing
- CXD U120 Forestry (wood production)
- CXD U350 Wooded areas connected to community services
- CXD U36x Wooded areas managed for recreational purposes and in nature reserves
- CXD U370 Wooded areas in residential areas (urban parks)
- CXD U400 Wooded areas not utilized

**CXE Plantations and self-sown exotic forest**

The class covers forest and self-sown stands of exotic species. Forest plantations are stands established by planting or/and seeding in the process of afforestation or reforestation; they are intensively managed stands (e.g., short rotation forestry) that meet all the following criteria: one or two species at plantation, even aged, regular spacing, systematic thinning regimes.

- **this class includes:**
  - Eucalyptus (*Eucalyptus spp*)
  - Douglas fir (*Pseudotsuga menziesii*)
  - Sitka spruce (*Picea sitchensis*)
  - young stands, plantations having yet to reach a crown density of 10%

- **this class excludes:**
  - Plantations of autochthonous species

**Principles of observation**

Extended window of observation

**Links with Land Use**

- CXE U111 Agricultural use: grazing
- CXE U120 Forestry (wood production)
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXE U340</td>
<td>Wooded areas connected to commercial areas</td>
</tr>
<tr>
<td>CXE U350</td>
<td>Wooded areas connected to community services</td>
</tr>
<tr>
<td>CXE U36x</td>
<td>Wooded areas managed for recreational purposes and in nature reserves (but not yet conversed to more natural stands)</td>
</tr>
<tr>
<td>CXE U370</td>
<td>Wooded areas in residential areas (urban parks)</td>
</tr>
<tr>
<td>CXE U400</td>
<td>Wooded areas not utilized</td>
</tr>
</tbody>
</table>

**D00 SHRUBLAND**

Areas dominated (more than 20% of the surface) by shrubs and low woody plants. It may include sparsely occurring trees within a limit of a tree-crown area density of 10%. In central Europe, only heath lands and some ruderal communities are falling into this category.

**D10 Shrubland with sparse tree cover**

Areas dominated (more than 20% of the surface) by shrubs and low woody plants, including sparsely occurring trees with a tree-crown area density between 5 and 10%.

NB: Height of trees at maturity (field 20) and width of features (field 21) have to be assessed when area size is larger than 0.5 ha.

this class includes:
- Scrub land (pines, rhododendrons, maquis, matorral and deciduous thickets)
- Heathland with gorse, heather or broom

this class excludes:
- Shrubland where tree cover is more than 10% (C)
- Shrub-like crops: orchards, vineyards in production (B7-B8)

Principles of observation

Extended window of observation

**Links with Land Use**

- D10 ➔ U111 Agricultural use: grazing
- D10 ➔ U112 Abandoned agricultural land
- D10 ➔ U120 Forestry (Wood production)
- D10 ➔ U210 Energy production
- D10 ➔ U36x Leisure areas and nature reserves
- D10 ➔ U400 Natural shrubland areas and areas outside agricultural areas not utilized

Alpine rose (Rhododendron ferrugineum)

Heather

Gorse

Maquis

Mattoral
D20  Shrubland without tree cover

Areas dominated (more than 20% of the surface) by shrubs and low woody plants. Sparsely occurring trees should not cover more than 5% of the area

this class includes:
- Scrub land (pines, rhododendrons, maquis, matorral and deciduous thickets)
- Dwarf shrub tundra with dwarf birches and willows, Heather and dwarf juniper vegetation
- Garrigues with strawberry trees, thyme, white rock rose, lavender and rosemary
- Heathland with gorse, heather or broom
- Spiny mediterranean heaths (phrygana)
- Xerophytic areas with succulents

this class excludes:
- Shrubland where tree cover is more than 10% (C)
- Shrubland where the tree cover is between 5-10%: D10
- Shrub-like crops: orchards, vineyards: B7-B8

Principles of observation
- Extended window of observation

Links with Land Use
- D20 U111 Agricultural use: grazing
- D20 U112 Abandoned agricultural land
- D20 U120 Forestry (Wood production)
- D20 U36x Leisure areas and nature reserves
- D20 U400 Natural shrubland areas and areas outside agricultural land not utilised
E00 GRASSLAND

Land predominantly covered by communities of grassland, grass-like plants and forbs. It may include sparsely occurring trees within a limit of a tree-crown area density of 10% and shrubs within a total limit of cover (including trees) of 20%.

E10 Grassland with sparse tree/shrub cover

Land predominantly covered by communities of grassland, grass-like plants and forbs including sparsely occurring trees (the density of the tree crown is between 5 and 10% and the total density of the tree+shrub crown is between 5 and 20% of the area). Fruit trees in small groups or along an avenue on grassland are classified here as well (with B7x as second land cover).

NB: Height of trees at maturity (field 20) and width of features (field 21) have to be assessed when area size is larger than 0,5 ha.

- **this class includes:**
  - dry grasslands, dry edaphic meadows, steppes with gramineae and artemisia
  - plain and mountainous grassland
  - wet grasslands
  - alpine and subalpine grasslands
  - saline grasslands
  - arctic meadows
  - temporarily unstocked areas within forests

- **this class excludes:**

Principles of observation

- Extended window of observation

Links with Land Use

- E10 U111 Agriculture: Permanent pastures, rough grazings, alpages, meadows
- E10 U112 Fallow and abandoned land
- E10 U120 Clear cuts within previously existing forests
- E10 U210 Energy production
- E10 U31x Associated areas of transport areas
- E10 U340 Grassland attached to commerce, finance or business areas
- E10 U350 Grassland attached to community service areas
- E10 U36x Grassland for recreation: public gardens, golf courses and nature reserves
- E10 U370 Grassland attached to residential areas
- E10 U400 Natural grassland or grassland outside agricultural areas not utilized
E20  **Grassland without tree/shrub cover**

Land predominantly covered by communities of grassland, grass like plants and forbs without trees and shrubland (density of tree-shrub crown is less than 5%).

- **this class includes:**
  - dry grasslands, dry meadows and steppes
  - plain and mountainous grassland
  - wet grasslands
  - alpine and subalpine grasslands
  - saline grasslands
  - arctic meadows
  - temporarily unstocked areas within forests

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - E20 U111 Agriculture: Permanent pastures, rough grazings, alpages, meadows
  - E20 U112 Fallow and abandoned land
  - E20 U120 Clear cuts within previously existing forests
  - E20 U31x Associated areas of transport areas (e.g. aerodromes)
  - E20 U340 Grassland attached to commerce, finance or business areas
  - E20 U350 Grassland attached to community service areas
  - E20 U36x Grassland for recreation: public gardens, golf courses, sports fields and nature reserves
  - E20 U370 Grassland attached to residential areas
  - E20 U400 Natural grassland grassland outside agricultural not utilized
E30 **Spontaneously re-vegetated surfaces**

Mostly agricultural land which has not been cultivated this year or the years before. It has not been prepared for sowing any crop this year. This class can also be found on unused land, storage land etc.

Main case is agricultural land not providing a crop during the entire year or abandoned earlier agricultural surfaces. It is occupied by spontaneous vegetation in case of set-aside arable land, with some tall herbs or weeds. This class applies as well for former grassland or hedge margins which are currently not used anymore but covered by tall herbs fringes. There might be some bare land pockets or crop residues and spontaneous re-grown crops of the before management period. Only surfaces which have not been deliberately sown and do not have any fodder crops like mixed cereals or are temporary grasslands classify for this land cover class.

- **this class includes:**
  - Set aside land within agricultural areas
  - Unused artificial land

- **this class excludes:**
  - Other Legumes and mixtures for Fodder (B53)
  - Mixed cereals (B54)
  - Temporary grassland (B55)
  - Grassland without tree/shrub cover (E20)
  - Bare land (F00)

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - E30 U112 Spontaneous vegetation on fallow and abandoned land
  - E30 U140 Mining and quarrying if in use
  - E30 U21x Energy and industrial production surfaces with spontaneous vegetation cover if still in use
  - E30 U31x Transport, storage, water and waste treatment etc surfaces with spontaneous vegetation cover if in use
  - E30 U400 Unused, spontaneously vegetated land
F00  BARE LAND

Areas with no dominant vegetation cover

F00  Bare land

Areas with no dominant vegetation cover on at least 50% of the area

Clouds

this class includes:
- areas covered by mosses and lichens
- inland rock cliffs, areas of rock outcrop and limestone parent, scree, block litter and mountain top debris
- areas of sand, shingle and mud: beaches, dunes, sand hills
- tidal areas, gravel or sand banks above water level
- land that has been scraped bare or is excavated
- land covered with recent volcanic features
- temporarily unstocked areas within forests
- bare arable land
- tracks and parking areas/yards with bare land cover
- illegal dump sites (in the remark field (illegal dumpsite))

this class excludes:
- Impervious cover (A2x)
- dune grassland (E20)
- heaths, scrub and woods dunes (D)
- Peat bogs (H12)

Principles of observation

Basic observation unit

Links with Land Use

F00 ▶ U111  Agricultural bare land, tilled and/or prepared for seeding
F00 ▶ U112  Fallow land with crop residues
F00 ▶ U120  Clear cuts within previously existing forests
F00 ▶ U140  Scrapped or excavated areas for quarrying, mining purposes
F00 ▶ U21x  Bare areas attached to energy production
F00 ▶ U22x  Bare areas attached to industrial use
F00 ▶ U31x  Bare areas attached to transport areas
F00 ▶ U330  Construction sites
F00 ▶ U340  Bare areas attached to commercial services
F00 ▶ U350  Bare areas attached to community services
F00 ▶ U36x  Bare areas utilised for recreational and leisure purposes and nature reserves
F00 ▶ U370  Bare areas attached to residential areas
F00 ▶ U400  Bare areas not utilised (inland rocks, top mountains)
G00 WATER AREAS

Inland or coastal areas covered by water and flooded surfaces or likely to be so over a large part of the year. For temporarily submerged islands and sandbanks use F00 codes. If the area is temporarily flooded, use G code, but add to the remarks 'flooded' and the normal LC if known.

G10 Inland water bodies

Inland areas of still open water

this class includes:
lakes, ponds, meres, reservoirs

Principles of observation
Basic observation unit

Links with Land Use

G10 U111 Small ponds attached to agricultural use
G10 U130 Fish farming
G10 U140 Gravel and sand extraction under water
G10 U210 Energy production
G10 U22x Industrial bodies of water, dockyards
G10 U313 Bodies of water utilized for transport
G10 U32x Decanters, reservoirs
G10 U340 Bodies of water attached to commercial services
G10 U350 Bodies of water attached to community services
G10 U361-3 Swimming pools
G10 U364 Ponds or lakes in nature reserves
G10 U370 Swimming pools
G10 U400 Unutilized bodies of water

G20 Inland running water

Inland channels of running water

this class includes:
rivers, streams, springs, canals
temporary streams

Principles of observation
Basic observation unit

Links with Land Use

G20 U111 Agriculture
G20 U130 Fish farming
G20 U140 Gravel and sand extraction under water
G20 U313 Rivers, canals utilized for transport
G20 U361-3 Recreation, leisure, sport
G20 U364 Rivers, streams, springs in nature reserves
G20 U400 Not utilized
### G30 Coastal water bodies

Water surfaces in estuaries and lagoons

- **this class includes:**
  - **Estuaries:** the wide portion of rivers at their mouths subject to the influence of the sea into which the water course flows: the limit is fixed at the point where width is less than 5 km at high tide and greater than 3 km at low tide
  - **Lagoons:** cut off from the sea by coastal banks or other forms of relief with, however, certain possible openings

#### Principles of observation

Basic observation unit

#### Links with Land Use

- **G30 U130** Marine aquaculture
- **G30 U140** Salt extraction
- **G30 U313** Bodies of water utilized for transport
- **G30 U361-3** Specific leisure, recreational equipments
- **G30 U364** Estuaries and lagoons in nature reserves
- **G30 U400** Unutilized

### G50 Glaciers, permanent snow

Areas covered by glaciers (generally measured at the time of their greatest expansion in the season) or permanent snow

#### Principles of observation

Basic observation unit

#### Links with Land Use

- **G50 U361-3** Ski tows on glaciers
- **G50 U364** Glaciers or permanent snow in nature reserves
- **G50 U400** Unused
H00 WETLANDS

Wetlands are areas that fall between land and water. They are areas that are wet for long enough periods that the plants and animals living in or near them are adapted to, and often dependent on, wet conditions for at least part of their life cycle.

Wetlands are defined as land that is:

- Inundated with water on a temporary or permanent basis.
- Inundated with water that is usually slow moving or stationary.
- Inundated with water that is shallow.
- Inundated with water that may be fresh, brackish or saline.

H10 Inland wetlands

Wetlands located in inland.

H11 Inland marshes

Inland marshes are wetlands usually saturated around the year and seasonally flooded dominated by grasses or grasslike plants.

- This class includes:
  - Inland marshes
  - Reeds (inland)

- This class excludes:
  - Peatbogs, fens (H12)
  - Salt marshes (H21)
  - Rice fields (B17)
  - Plantations of plants for plaiting including reeds (B84)

- Principles of observation
  - Extended window of observation

- Links with Land Use
  - H11 U210 Energy production
  - H11 U321 Water supply and treatment
**H12 Peatbogs**

Bogs accumulate acidic peat, a deposit of dead plant material—usually mosses, but also lichens in Arctic climates.

- **this class includes:**
  - Turf, peat bogs, fens

- **this class excludes:**
  - Mire and swamp forests, alluvial forests (tree crown more than 10%) (C classes)

**Principles of observation**

- Extended window of observation

**Links with Land Use**

- H12 U140 Mining and quarrying: Peat extraction
- H12 U364 Nature reserves
- H12 U400 Unused

**H20 Coastal wetlands**

Wetlands located on marine coasts.

**H21 Salt marshes**

A salt marsh is a type of marsh that is a transitional intertidal between land and salty or brackish water.

- **this class includes:**
  - Salt marshes
  - Marine reeds

- **this class excludes:**
  - Inland marshes (H11)
  - Salines (H22)

**Principles of observation**

- Extended window of observation

**Links with Land Use**

- H21 U210 Energy production
- H21 U364 Nature reserves
- H21 U400 Unused
**H22 Salines**

Actively used or abandoned salt evaporation ponds and salt pans with clear parcels and embankment systems.

- **this class includes:**
  - Active or abandoned salines

- **this class excludes:**
  - Salt marshes (H21)

- **Principles of observation**
  - Extended window of observation

- **Links with Land Use**
  - H22 U140 Salt extraction
  - H22 U400 Unused

**H23 Intertidal flats**

Normally unvegetated mud, sand or rock flats located between high and low tide water marks.

- **this class includes:**
  - Rock, sand and mud flats affected by tides
this class excludes:
Salt marshes (H21)
Active of abandoned salines (H22)
Beaches normally above the water level (F00)

Principles of observation
Extended window of observation

Links with Land Use
H23 ➤ U130 Fishing: Collect of water organisms
H23 ➤ U364 Nature reserve
H23 ➤ U400 Unused
**NOMENCLATURE**

**LAND USE**

**U110 AGRICULTURE**

**U111 Agriculture (excluding fallow land and kitchen gardens)**

Areas used for agricultural purposes (NACE Section A01)

This class includes the production of crop products and production of animal products. This class includes growing of crops in open fields as well in greenhouses. The preparation of products for the primary markets is included here. These areas are normally harvested with use of agricultural machinery (e.g. delicate crops). The class also includes field construction (e.g. agricultural land terracing, drainage, preparing rice paddies etc. - NACE section F), as well as landscape care and maintenance (NACE 81.30).

- **this class includes**
  - **01.1 Growing of non-perennial crops**
    - Growing of cereals (except rice), leguminous crops and oil seeds
    - Growing of rice
    - Growing of vegetables and melons, roots and tubers
    - Growing of sugar cane
    - Growing of tobacco
    - Growing of fiber crops
    - Growing of fodder crops (including temporary grassland)
    - Growing of other non-perennial crops (including industrial reed beds)
  - **01.2 Growing of perennial crops**
    - Growing of grapes
    - Growing of tropical and subtropical fruits
    - Growing of citrus fruits
    - Growing of pome fruits and stone fruits
    - Growing of other tree and bush fruits and nuts
    - Growing of oleaginous fruits
    - Growing of beverage crops
    - Growing of spices, aromatic, drug and pharmaceutical crops
    - Growing of other perennial crops
  - **01.3 Plant propagation**
    - Growing of plants for planting
    - Growing of plants for ornamental purposes, including turf for transplanting
    - Growing of live plants for bulbs, tubers and roots; cuttings and slips; mushroom spawn
  - **01.4 Animal production**
    - This group includes raising (farming) and breeding of all animals, except aquatic animals.
    - Raising of dairy cattle (including the grazing areas)
    - Raising of other cattle and buffaloes (including the grazing areas)
    - Raising of horses and other equines (including the grazing areas)
    - Raising of sheep and goats (including the grazing areas)
    - Raising of swine/pigs
    - Raising of poultry
    - Raising of other animals (including the grazing areas)
  - **01.5 Growing of crops combined with farming of animals (mixed farming)**
    - Crop growing in combination with farming of livestock at mixed activity units with a specialization ratio in either one of less than 66%
  - **01.6 Support activities to agriculture and post-harvest crop activities**
    - Support activities for crop production
    - Support activities for animal production
    - Post-harvest crop activities
    - Seed processing for propagation

- **this class excludes:**
Agricultural activities exclude any subsequent processing of the agricultural products (U221: Manufacture of food products and beverages and tobacco products, as well as U222: the manufacturing of textile products), beyond that needed to prepare them for the primary markets.

U112 Fallow or abandoned agricultural land

U113 Kitchen gardens

### U112 Fallow and abandoned land

Agricultural land not used for the entire year for crop production, as part of the field rotation. Also, all agricultural land which is set aside long-term is included. Crops growing in naturally vegetated areas are a sign of land been in the past in agricultural use.

- \( \text{this class includes} \)
  - Set aside or abandoned land within agricultural areas
  - Bare land for agricultural use (in other years)

- \( \text{this class excludes:} \)
  - Grazing of lucerne, clover, sainfoin, trefoil, black medick, etc; (U111) Agricultural land

### U113 Kitchen garden

Gardens, where the crops are planted heterogeneously and mainly for own consumption. These areas are mostly fenced (by metal fences or hedges) and mostly situated in residential areas or as allotment gardens.

- \( \text{this class includes} \)
  - Allotment gardens
  - Kitchen gardens (around the house)
  - Small orchards

- \( \text{this class excludes:} \)
  - Industrial agriculture: U111

### U120 FORESTRY

#### U120 Forestry

Areas utilised for forestry purpose (NACE A02) and hunting (NACE A01.7)

This class includes the production of roundwood as well as the extraction and gathering of wild growing non-wood forest products. Besides the production of timber, forestry activities result in products that undergo little processing, such as firewood, charcoal and roundwood used in an unprocessed form (e.g. pit-props, pulpwood etc.). These activities can be carried out in natural or planted forests.

- \( \text{this class includes} \)
  - Forestry and logging
    - Growing of standing timber: planting, replanting, transplanting, thinning and conserving of forests and timber tracts
    - Growing of coppice, pulpwood and fire wood
    - Operation of forest tree nurseries
    - Logging: felling of timber and production of wood in the rough such as pit-props, split poles, pickets or fuel wood
    - Gathering of wild growing forest materials : balatta and other rubber-like gums, cork, lac, resins, balsams, vegetable hair, eel grass, acorns, horse-chestnuts, mosses, lichens
    - Support services to forestry
      - Growing of Christmas trees

- \( \text{this class excludes:} \)
managed production of any of these products (except growing of cork trees) > U111 Agricultural land
- further processing of wood beginning with sawmilling and planning of wood > U227 Wood based products

U130 FISHING

U130 Fishing

Areas utilised for fishing and aquaculture (NACE A03)

This class includes capture fishery and aquaculture, covering the use of fishery resources from marine, brackish or freshwater environments, with the goal of capturing or gathering fish, crustaceans, mollusks and other water organisms and products (e.g. aquatic plants, pearls, sponges).

this class includes:
Fishing
Aquaculture (Fish farming)

this class excludes:

U140 MINING AND QUARRYING

U140 Mining and quarrying

Areas utilised for mining and quarrying purposes (NACE Section B)

Mining and quarrying include the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by different methods such as underground or surface mining, well operation etc. This section includes supplementary activities aimed at preparing the crude materials for marketing, for example, crushing, grinding, cleaning, drying, sorting, concentrating ores, liquefaction of natural gas and agglomeration of solid fuels.

this class includes:
Mining of coal and lignite
Extraction of crude petroleum and natural gas
Mining of metal ores
Quarrying of stone, sand and clay
Mining of chemical and fertiliser minerals
Extraction of peat
Extraction of salt
Other mining and quarrying n.e.c.
Mining support service activities

this class excludes:
Areas of waste disposal and treatment (U322)
Processing of the extracted materials (U223: Coal, oil and metal processing, U224: Production of non-metal mineral goods. U225: Chemical and allied industries and manufacturing)
Usage of the extracted materials without a further transformation for construction purposes (U330: Construction)

U150 HUNTING

U150 Hunting

Areas utilised for hunting, trapping and game propagation, including related service activities (visible hunting hides, lodges or towers)
this class includes:
hunting, trapping and game propagation, including related service activities (NACE 01.5)

U210 ENERGY PRODUCTION

U210 Energy production
Areas utilised for producing and generating energy (NACE D 35)
This section includes the activity of providing electric power, natural gas, steam, hot water and the like through a permanent infrastructure (network) of lines, mains and pipes. This section therefore includes the operation of electric and gas utilities, which generate and control electric power or gas. Manufacture of gas by purification, blending and other processes from gases and production of gas for the purpose of gas supply by carbonation of coal or from by-products of agriculture or from waste.

this class includes:
- Electricity, gas, steam and air conditioning supply and the attached areas

this class excludes:
Operation of water and sewage utilities (U321).
Typically long-distance transport of gas, water etc through pipelines (U315).

U220 INDUSTRY AND MANUFACTURING

U221 Manufacturing of food, beverages and tobacco products
Areas utilised for production of food and beverage products and luxury foodstuff (NACE C10, 11, 12)
This class includes the processing of the products of agriculture, forestry and fishing into food for humans or animals. Some activities are considered manufacturing (for example, those performed in bakeries, pastry shops, and prepared meat shops etc. which sell their own production) even though there is retail sale of the products in the producers’ own shop. It includes the manufacture of beverages and mineral water, as well as the processing of tobacco for final consumption.

this class includes:
Manufacture of food products
Manufacture of beverages
Manufacture of tobacco products
and the attached areas

this class excludes:
This class does not include the preparation of meals for immediate consumption, such as in restaurants (U340: Commerce, Finance, Business).

U222 Manufacturing of textile products
Areas utilised for manufacturing of textile products (NACE C13, 14, 15)
This class includes preparation and spinning of textile fibres as well as textile weaving, finishing of textiles and wearing apparel, manufacture of made-up textile articles and apparel (e.g. household linen, blankets, rugs, cordage etc.). It also includes all tailoring (ready-to-wear or made-to-measure), in all materials (e.g. leather, fabric, knitted and crocheted fabrics etc.), of all items of clothing and accessories. Furthermore, dressing and dyeing of fur and the transformation of hides into leather by tanning or curing and fabricating the leather into products for final consumption. And it includes the manufacture of similar products from other materials, such as rubber footwear, textile luggage etc.

this class includes:
Manufacture of textiles
Manufacture of wearing apparel
Manufacture of leather and related products
U223 Coal, oil and metal processing

Areas utilised for Coal, oil and metal processing (NACE C19, 24, 25)

This class includes the transformation of crude petroleum and coal into usable products (petroleum refining), manufacture of gases as products of petroleum refineries. It also includes the activities of smelting and/or refining ferrous and non-ferrous metals and the manufacture of "pure" metal products (such as parts, containers and structures. The manufacture of weapons and ammunition is also included in this class.

- Manufacture of coke and refined petroleum products
- Manufacture of basic metals
- Manufacture of fabricated metal products, except machinery and equipment

and the attached areas

U224 Production of Non-metal mineral goods

Areas utilised for manufacturing of non-metal mineral goods (NACE C23)

This class includes manufacturing activities related to a single substance of mineral origin. It includes the manufacture of glass and glass products (e.g. flat glass, hollow glass, fibres, technical glassware etc.), ceramic products, tiles and baked clay products, and cement and plaster, from raw materials to finished articles. The manufacture of shaped and finished stone and other mineral products is also included in this class.

- Manufacture of glass and glass products
- Manufacture of refractory products
- Manufacture of clay building materials
- Manufacture of other porcelain and ceramic products
- Manufacture of cement, lime and plaster
- Manufacture of articles of concrete, cement and plaster
- Cutting, shaping and finishing of stone
- Manufacture of abrasive products and non-metallic mineral products n.e.c.

and the attached areas

U225 Chemical and allied industries and manufacturing

Areas utilised for industrial and manufacturing of chemical and related products (NACE C20-22, 25)

This class includes the transformation of organic and inorganic raw materials by a chemical process and the formation of products, also the production of basic pharmaceutical products and pharmaceutical preparations, medicinal chemical and botanical products, rubber and plastic products.

- Manufacture of chemicals and chemical products
- Manufacture of basic pharmaceutical products and pharmaceutical preparations
- Manufacture of rubber and plastic products

and the attached areas
**U226 Machinery and equipment**

Areas utilised for production of machinery and equipment (NACE C18.2, 26-30, 31, 32)

This class includes the manufacture of machinery and equipment: of computers, electronic products, consumer electronics, measuring, testing and navigating equipment, magnetic and optical media as well as the reproduction of recorded media, such as compact discs, videos, software on discs or tapes, records etc. This class includes the manufacture of products that generate, distribute and use electrical power, of general-purpose and special machinery, of motor vehicles and transport equipment (boats, airplanes etc), manufacture of furniture of any but wooden material, other manufacturing,

**this class includes:**

- Reproduction of recorded media
- Manufacture of computer, electronic and optical products
- Manufacture of machinery and equipment n.e.c.
- Manufacture of motor vehicles, trailers and semi-trailers
- Manufacture of other transport equipment
- Manufacture of furniture (if of any other than wooden material)
- Other manufacturing

and the attached areas

**this class excludes:**

- Areas where waste is sorted to prepare recycling of used material (U322)
- Repair and installation of machinery and equipment (U340)

**U227 Wood based products**

Areas utilised for production of wood-based products and of articles of cork, straw and plaiting materials (NACE C16-18.1, 31)

This class includes the manufacture of wood products and prefabricated wood buildings. The production processes include sawing, planing, shaping, laminating, and assembling of wood products. Also included is the manufacture of furniture, or the installation of wooden fittings and the like. This class also includes the manufacture of pulp, paper and converted paper products as well as printing of such products.

**this class includes:**

- Manufacture of wood and of products of wood and cork
- Manufacture of paper and paper products
- Printing and service activities related to printing
- Manufacture of furniture (if of wooden material)

and the attached areas
U310 TRANSPORT, COMMUNICATION NETWORKS, STORAGE, PROTECTIVE WORKS

U311 Railways

Areas utilised for railways transport (NACE 49.1, 49.2)

- **this class includes:**
  - All types of railways
  - TGV traces
  - Railway stations
  - Funiculars

- **this class excludes:**
  - Tramways and tram stations (U312)

U312 Roads

Land areas utilised for roads (NACE 49.4)

- **this class includes:**
  - All types of areas used for road transportations (streets, overland roads, highways) and associated areas (e.g. rest areas)
  - Car parking
  - Bus stations
  - Tramways and tram stations

U313 Water transport

Areas utilised for transport on water (NACE 50)

- **this class includes:**
  - Channels
  - Rivers utilised for ship transportation
  - Lakes
  - Estuaries
  - Areas utilised for harbors and ports

- **this class excludes:**
  - Areas used for storage of goods (U317)
  - Docks (U226)

U314 Air transport

Areas utilised for air transport (NACE 51)

- **this class includes:**
  - Airports for people and freight transportation
  - Airports with and without concrete runways

- **this class excludes:**
  - Areas used for storage of goods (U317)
  - Docks for aircrafts (U226)
## U315 Transport via Pipelines

Areas utilised for transport via pipelines (NACE 49.5)

- *this class includes:*
  - Transport of oil, water, gas or other material via pipelines

## U316 Telecommunication

Areas utilised for telecommunication infrastructures and postal services (NACE 53, partly 61.1)

- *this class includes:*
  - Postal and courier activities
  - Telecommunications networks

- *this class excludes:*
  - Theatres, production studios (TV, Movies), etc. (U361)

## U317 Storage

Areas utilised for storage of goods and warehousing (NACE 52)

This class includes warehousing and support activities for transportation, such as operating of transport infrastructure (e.g. airports, harbours, tunnels, bridges, etc.), the activities of transport agencies and cargo handling.

- *this class includes:*
  - Warehousing and storage
  - Support activities for transportation

- *this class excludes:*
  - Attached areas to land used in other categories (e.g. in U22x)

## U318 Protection works

Areas utilised for protection infrastructures

- *this class includes:*
  - Protection infrastructure against land slides
  - Dikes
U320 WATER AND WASTE TREATMENT

U321 Water supply and treatment

Areas utilised for water collection, treatment and supply (NACE E 36, 37)

This class includes the collection, treatment and distribution of water for domestic and industrial needs. Collection of water from various sources, as well as distribution by various means is included. It also includes the operation of sewer systems or sewage treatment facilities that collect, treat, and dispose of sewage. Furthermore: recovering and purifying water: stations to raise water levels, for purifying waste water, decanters, spreader areas, storage (reservoir), extraction of water.

- this class includes:
  - Water collection, treatment and supply
  - Sewerage

- this class excludes:
  - Distribution of water via pipeline (U315)

U322 Waste treatment

Areas utilised for waste treatment (NACE E 38, 39)

This class includes the collection, treatment, and disposal of waste materials. This also includes local hauling of waste materials and the operation of materials recovery facilities.

- this class includes:
  - Waste collection, treatment and disposal activities; materials recovery (recycling)
  - Remediation activities and other waste management services

- this class excludes:
  - Incineration stations for energy production (U210)

U330 CONSTRUCTION

U330 Construction

Areas utilised for construction whatever the degree of completion (NACE F)

This section includes general construction and specialised construction activities for buildings and civil engineering works. It includes new work, repair, additions and alterations, the erection of prefabricated buildings or structures on the site and also construction of a temporary nature. Thus, the construction of entire dwellings, office buildings, stores and other public and utility buildings, farm buildings etc., or the construction of civil engineering works such as motorways, streets, bridges, tunnels, railways, airfields, harbours and other water projects, irrigation systems, sewerage systems, industrial facilities, pipelines and electric lines, sports facilities etc.

- this class includes:
  - Construction of buildings
  - Civil engineering
  - Specialised construction activities (e.g. demolition)
U340 Commerce, finance, business

Areas utilised for commercial, financial and general business activities, including handicraft (NACE CX3, G, I55.1, 56, K, L, M, N)

This section includes wholesale and retail sale of any type of goods, and rendering services incidental to the sale of merchandise. It includes the specialised repair of goods produced in the manufacturing sector with the aim to restore machinery, equipment and other products to working order, as well as the provision of general or routine maintenance (i.e. servicing) on such products. This section also includes the provision of short-stay accommodation for visitors and other travellers and the provision of complete meals and drinks fit for immediate consumption. It covers financial service activities, including insurance, reinsurance and pension funding activities and activities to support financial services, as well as real state activities. This section also includes the provision of complete meals and drinks fit for immediate consumption. It covers financial service activities, including insurance, reinsurance and pension funding activities and activities to support financial services, as well as real state activities. This section also includes the provision of short-stay accommodation for visitors and other travellers and the provision of complete meals and drinks fit for immediate consumption. It covers financial service activities, including insurance, reinsurance and pension funding activities and activities to support financial services, as well as real state activities. This section also includes the provision of short-stay accommodation for visitors and other travellers and the provision of complete meals and drinks fit for immediate consumption.

- **this class includes:**
  - Repair and installation of machinery and equipment
  - Wholesale and retail trade
  - Hotels and similar accommodation
  - Food and beverage service activities
  - Financial and insurance activities
  - Real estate activities
  - Professional, scientific and technical activities
  - Administrative and support service activities

- **this class excludes:**
  - Holiday and other short-stay accommodation (U363)
  - Camping grounds, recreational vehicle parks and trailer parks (U363)

U350 Community services

Areas utilised for public administration, local authorities, defense, education, health and social work, religion (NACE M75, O, P, Q, U)

This section includes activities of a governmental nature, normally carried out by the public administration, and extraterritorial, international organisations. This section includes education at any level or for any profession, public as well as private education. This section includes the provision of health and social work activities. Religious areas (like churches, graveyards) are falling under this category as well. Military areas belong also to this group.

- **this class includes:**
  - Veterinary services
  - Public administration and defense (military)
  - Education
  - Human health and social work activities
  - Religion
  - Activities of extraterritorial organisations and bodies
U360 RECREATION, LEISURE, SPORT

U361 Amenities, museums, leisure

Areas utilised for cultural purposes, amenities and leisure, recreation, amusement and show activities

this class includes:
- Library, archives, museum and other cultural activities, preservation of historical sites, including botanical and zoological gardens (group R91.0 of NACE)
- Creative, arts and entertainment activities (group 90 of NACE)
- Amusement and recreation activities, including parks and beaches (group 93.2 of NACE)
- Motion picture, video, radio and television activities (groups 59.1, 60.1, 60.2 of NACE)

U362 Sport

Areas utilised for sport activities

this class includes:
- Sporting activities (group 93.1 of NACE)

U363 Holiday camps

Areas utilised for holidays camps (short-stay lodging e.g. apartments, camping) (NACE I55.2, 55.3)

This class includes the provision of accommodation, principally for short stays by visitors. This may take the form of apartments or flats in small free-standing multi-storey buildings or clusters of buildings, or single storey bungalows, chalets, cottages and cabins, as well as camping grounds, recreational vehicle and trailer parks.

this class includes:
- Holiday and other short-stay accommodation (holiday apartment lots)
- Camping grounds, recreational vehicle parks and trailer parks (also closed holiday camps)

this class excludes:
- Hotels (U340 Commerce, Finance, Business)

U364 Nature reserves

Areas declared for nature protection or similar preservation purposes (in NACE R 91.04): Nature reserves, nature parks, National parks, landscape protection areas, natural heritage sites, Natura 2000 areas. These sites can be agriculturally used/managed by forestry and are well accessible for leisure purposes with respective infrastructures (observation hides, hiking trails); or they are completely taken out of use and access is not permitted.

this class includes:
- Nature reserves activities
U370 Residential

Areas utilised for housing purpose

- this class includes:
  - Residential gardens

- this class excludes:
  - Hotels (U340)
  - Old people homes, children homes, prisons, monasteries, convents (U350)

U400 Unused

Unused areas

- this class includes:
  - Unused land
  - Unused land formerly developed (vacant or derelict)
  - Unused water

- this class excludes:
  - Agricultural land which is temporarily not used or abandoned (U112)
SOURCES

Pictures/photographs compiled from various sources on the Internet, e.g.
http://www.boga.ruhr-uni-bochum.de/html/
http://www.landw.uni-halle.de/lfak/inst/iap/stockbuch.html
http://www.saxifraga.de/europa/gesamttartenliste.html
http://bibd.uni-giessen.de/
http://lexikon.freenet.de/Nutzpflanze
http://www.netzwelt.de/lexikon/Nutzpflanzen.html
http://pages.unibas.ch/botimage/
http://faculty.msmary.edu/envirothon/current/guide/Image35.jpg
http://www.innofor.fi/kuvat/valoisa_sekametsa
http://www.kukkonienlamomokki.fi/aliasivut/kuvat/mantymetsa.jpg
http://aym.juntaex.es/webs/dgma/web_mohedaalta/images/deesa_cerrada2.jpg
http://www.bbsrc.ac.uk/images/mediareleases/060628_cloverpasture.jpg
http://www.essexfieldclub.org.uk/portal/p/Sites+in+our+site+database
http://www.severnwt衡dlands.org.uk/pics/meadows.jpg
http://www.britainsorchids.fieldguide.co.uk/images/neutral_grassland.jpg
https://puutarha.net/keskustelu/aihekuva.asp?id=187680
www.helsinki.fi/~korpela/forestphotos.html
en.wikivisual.com/index.php/Saltmarsh
http://www.panoramio.com/photo/5420069
http://www.caiprs.com/marsh.jpg

Wikimedia Commons

and from the contractors’ contributions for the LUCAS 2006, 2007 and 2008 surveys.
INDEX LC

—A—
abaca. B84
Abandoned apple orchards. B71
Abandoned nuts trees. B74
Abandoned olive groves. B81
Abandoned pear orchards. B72
Abandoned vineyards. B82
agave. B84
Almonds. B74
anise. B37
Apple. B71
Apricot. B75
barberry. B75
blackberries. B75
blackcurrants. B75
blanching celery. B43
blueberries. B75
Brassica napus. B32
Brassica rapa. B32
Brassicas. B43
Buckwheat. B19
Bulbs and tubers. B44
—C—
cabbage. B43
Canary grass. B19
cardamom. B84
cardoons. B43
carrots. B43
Cassava. B23
Castor beans. B35
cauliflowers. B43
CEREALS. B10
Cherry. B73
chervil. B43
Chestnuts. B74
Chickling vetch. B53
chickpea. B41
chicory. B43
Chicory. B43
Chicory roots. B37
Cinnamon. B84
citron. B77
citronella. B84
cloves. B84
cocoa. B84
cocnut. B84
coffee. B84
common balm. B37
common lungwort. B37
common mallow. B37
Common vetch. B41
Common wheat. B11
coriander. B37
Cotton. B34
cowberries. B75
cowpea. B41
cranberries. B75
cress. B43
cucumbers. B43
cumin. B37
Cut-leafage. B44
Cut-flowers. B43
—D—
dangleberries. B75
dewberries. B75
dill. B37
dry beans. B41
dry peas. B41
dry pulses. B41
Durum wheat. B12
—E—
Early potatoes. B21
egg-plants. B43
endives. B43
—F—
fennel. B37
fibre and oleaginous crops (others). B35
Field beans. B41
field pea. B41
Field peas. B41
Figs. B75
Flax. B35
Fodder carrots. B23
Fonio. B19
fruit tree nurseries. B83
FRUIT TREES. B70
—G—
garden chervil. B37
garden pea. B41
garlic. B43
ginger. B84
gooseberries. B75
grapefruit. B77
green beans. B43
green peas. B43
—H—
Hazel nuts. B74
Hemp. B35
hevea. B84
Hops. B37
Horseradish. B23
—J—
Jerusalem artichokes. B23
Junecberry. B75
Jute. B35
—K—
kapok. B84
Kenaf. B35
Kiwi. B75
—L—
lavender. B84
Leaf and stalked vegetables. B43
leeks. B43
Leguminous vegetables. B43
lemons. B77
Lentil vetches. B41
Lentils. B41
lenugreek. B53
lettuce. B43
limes. B77
Lucerne. B52
lupins. B41
—M—
Maize. B16
majoram. B37
Mangolds. B23
marsh mallow. B37
mate. B84
Medicago Falcata. B52
Medicago Sativa. B52
Medicinal plants. B37
Medlar. B75
Mellilot. B53
melons. B43
Millets. B19
Mirabelles. B75
mulberries. B75
Mushrooms. B43
Mustard seeds. B35
myrtle berries. B75
—N—
nectarines. B75
non-permanent industrial crops. B30
NON-PERMANENT INDUSTRIAL CROPS. B30
nurseries. B33, B33, B33, B33
Nurseries. B83
Nuts. B74
—O—
Oats. B15
okras. B43
Olive. B81
onions. B43
Oranges. B76
ornamental nurseries. B83
ornamental plants. B44, B44
Ornamental plants. B44
osier. B84
Other Cereals. B19
Other fruit trees and berries. B75
Other legumes and mixtures for fodder. B53
Other Root Crops. B23
—P—
palm. B84
parsley. B43
Parsnips. B23
Peach. B75
Pear. B72
peppers. B43
permanent aromatic plants. B84
PERMANENT CROPS. B70
Permanent industrial crops. B84
permanent textile plants. B84
Persimmons. B75
pigeon pea. B41
Pistachios. B74
plaiting. B84
Plums. B75
poison hemlock. B37
pomelo. B77
Poppy seeds. B35
pot marigold. B37
potatoes. B21
pumpkins. B43
purple foxglove. B37
—Q—
Quinces. B75
quinine. B84
Quinoa. B19
—R—
raddishes. B43
Ramie. B35
Rape. B32
raspberries. B75
rattans. B43
red beet. B43
red quelaquio. B84
reeds. B84 or H11
rhubarb. B43
Rice. B17
ROOT CROPS. B2
Roots-bulbs-tubers. B43
rosemary. B37
rushes. B84
Rye. B14
—S—
Sage. B37
sago. B84
Satsumas. B77
Serradella. B53
Sesame. B35
shallots. B43
Sisal. B35
Sloe. B75
soapwort. B37
Sorghum. B19
Sorrel. B37
Soya. B33
spearmint. B37
Spelt. B11
Spices. B37
spinach. B43
strawberries. B43
Sugar beet. B22
Sugar cane. B37
Sulfa. B53
Sunflower. B31
Swedes. B23
Sweet chamomile. B37
Sweet Clover. B53
Sweet potatoes. B23
—T—
Taros. B23
tarragon. B37
tea. B84
thyme. B37
tobacco. B36
tomatoes. B42
Trefoil. B53
Trifolium alexandrinum. B51
Trifolium incarnatum. B51
Trifolium pratense. B51
Trifolium repens. B51
Trifolium resupinatum. B51
Triticale. B18
Tropical fruits. B75
Tuberous chervil. B23
turnip rape. B32
turnips. B43
vanilla. B84
Vegetables cultivated for fruit. B42
verbena. B37
Vetches spring. B41
Vine and root-stock nurseries. B83
Vineyards. B82
—W—
Walnuts. B74
watercress. B43
watermelons. B43
Yams. B23