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LUCAS 2009 (Land Use / Cover Area Frame Survey)



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*Land use and Land Cover:
Nomenclature*

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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 classification¹ 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 classification² (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 5 am 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 5 m at maturity in situ, or a crown cover of more than 10% of trees not able to reach a height of 5 m 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 Survivors' 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

(B11 and B14) in the same parcel). Mixed cereals with more than 2 species will be categorized as B54.

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 or 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

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 > U317	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, 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
A21 > U130	Roads utilized for fishery purpose
A22 > U14 0	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
A21 > 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

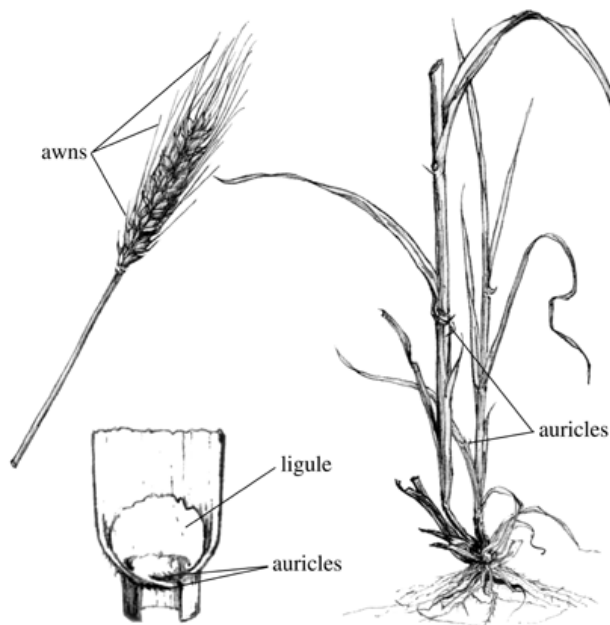


Links with Land Use

B11 > U111 Agricultural production
B11 > U112 Fallow land
B11 > U113 Kitchen garden
B11 > U210 Energy production
B11 > U361 Amenities, museums, leisure



Wheat
Triticum aestivum



Wheat (*Triticum aestivum*)
*short, hairy auricles
*long awned to awnless
*28-41 in. tall

Cereal Disease Laboratory USDA-ARS

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
B12 > U111 Agricultural production
B12 > U112 Fallow land
B12 > U113 Kitchen garden
B12 > U210 Energy production
B12 > U361 Amenities, museums, leisure



B13 Barley

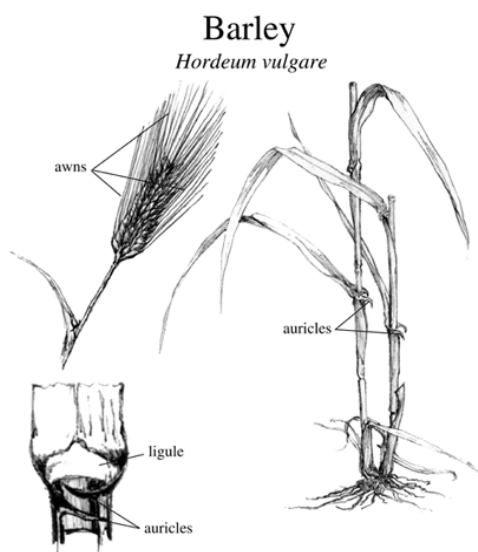
Areas where barley (*Hordeum vulgare*) is planted



Principles of observation
Basic observation unit

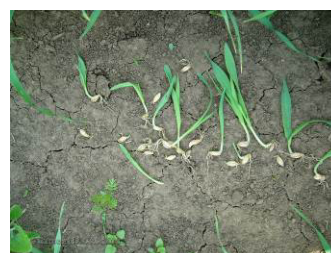


Links with Land Use
B13 > U111 Agricultural production
B13 > U112 Fallow land
B13 > U113 Kitchen garden
B13 > U210 Energy production
B13 > U361 Amenities, museums, leisure



Barley (*Hordeum vulgare*)
*long clasp smooth auricles
*stiff and straight awns
*33-36 in. tall

Cereal Disease Laboratory USDA-ARS



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

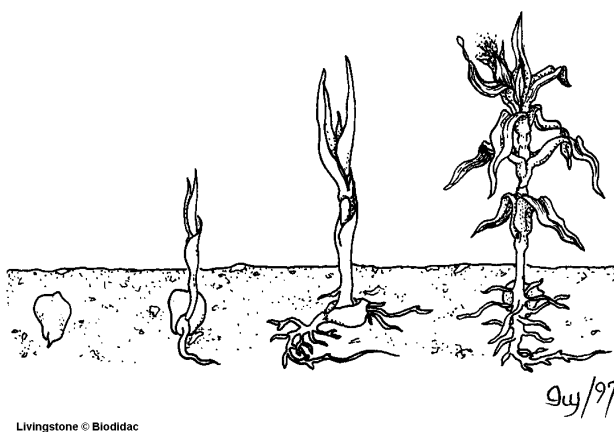


B16 Maize

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



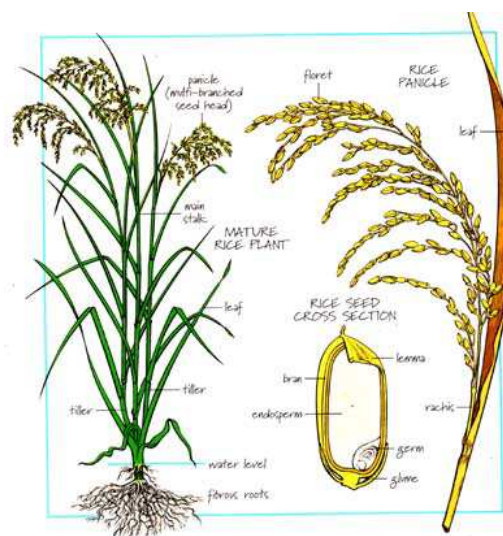
Livingstone © Biodidac

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
 - B11 > U210 Energy production
 - B17 > U361 Amenities, museum, leisure



B18 Triticale

Areas where triticale (*Triticosecale*) 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*)
 - millet: 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

Buckwheat



Quinoa



Canary grass



Sorghum



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 beet (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

Carrots



Horseradish



Swedes



Topinambur (*Helianthus tuberosus*)



Parsnips (*Pastinaca sativa*)



Tuberous chervil (*Chaerophyllum bulbosum*)



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*)



Rape (*Brassica rapa*)



B33 Soya

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

- ⊙ *Principles of observation*
Basic observation unit



- *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

- *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*)

Hemp



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

Jute



Flax



Mustard



Sisal



Ramie



Poppy seeds



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 (*Illicium 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

Sugar cane



Chicory



Hops



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 faba 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



Chick peas

Field peas



Lentils



Dry beans



Lupins



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
 - artichokes (*Cynara scolymus*), asparagus (*Asparagus officinalis*), cardoons (*Cynara cardunculus*, celery (*Apium graveolens*), chervil (*Anthriscus cerefolium*), chicory (*Cichorium intybus* var. *foliosum*), cress (*Lepidium sativum*), endives (*Cichorium endivia* var. *crispa*), garden orache (*Atriplex hortensis*), leeks (*Allium porrum*), lettuce (*Lactuca sativa*), rhubarb (*Rheum* spp.), parsley (*Petroselinum crispum*), purslane (*Portulaca oleracea*), spinach (*Spinacia oleracea*), rocket (*Eruca sativa*), watercress (*Nasturtium officinale*)
 - leguminous vegetables, incl. production for tins
 - green beans (*Phaseolus* and *vigna* 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



Asparagus (*Asparagus off.*)

Spinach (*Spinacia oleracea*)



Lettuce (*Lactuca sativa*)



Onions (*Allium cepa*)



Cucumber (*Cucumis sativa*)



B44 Floriculture and ornamental plants

Areas where flowers and ornamental plants are planted



this class includes:

bulbs and tubers, cut-flowers

alstroemeria, amaranthus, anemone, anthurium, campanula, celosia, centaurea, cymbidium, dendranthema, dianthus, echinops, eryngium, euphorbia, forsythia, gerbera, gladiolus, helianthus, hydrangea, hyacinthus, iris, liatris, liliium, lysimachia, muscari, narcissus, papaver, paphiopedilum, protea, ranunculus, rosa, strelitzia, tulipa, veronica, zantedeschia, zinnia

cut- leafage

acacia, achillea, alchemilla, arbutus, asparaguspidistra, aster, camellia, cedrus, cornus, cyperus, erica, gypsophila, hibiscus, hosta, ilex, limonium, melaleucea, molluccela, panicum, pennisetum, philodendrum, physalis, rhododendron, ruscus, salix, sedum, solidago, solidaster, syringe, thuya, trachelium, viburnum, weigela

ornamental plants

abelia, agapanthus, araucaria, azalea, begonia, berberis, betula, bougainvillea, callistemon, chamaecyparis, chamaerops, croton, cupressus, cycas, cyclamen, cymbidium, deutzia, dimorphoteca, dracaena, eounymous, euphorbia, euryops, ficus, forsythia, grevillea, hydrangea, lavandula, leptospermum, lonicera, morus, myrtus, olea, paphiopedilum, pelargonium, petunia, phoenix, photinia, piracanta, rosmarinus, saintpaulia, scindapsus, spiraea, syngonium, viburnum, washintonia, wisteria, yucca



this class excludes:

nurseries (B83)



Principles of observation

Basic observation unit



Links with Land Use

B44 > U111	Agricultural production
B44 > U112	Fallow land
B44 > U113	Kitchen garden
B44 > U340	Commerce, Finance, Business
B44 > U350	Community services
B44 > U361	Leisure (allotments)
B44 > U350	Community service
B44 > U364	Nature reserves



Tulips (*Tulipa* spp)



Ornamental plants

B45 Strawberries

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



Principles of observation

Basic observation unit



Links with Land Use

B45 > U111	Agricultural production
B45 > U112	Fallow land
B45 > U113	Kitchen garden



Strawberries (*Fragaria* spp.)

B50 FODDER 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

Trifolium pratense



Trifolium Incarnatum



Trifolium resupinatum



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

Medicago sativa



Medicago falcata



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



Medicago lupulina



Melilotus albus



Trigonella foenum-graecum



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

Pistachios



Walnuts



Chestnuts



Hazelnuts



Almond tree



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*)

persimons (*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*) dangleberries (*Gaylussacia* spp.), 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

Apricot



Peach



Mirabellas



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 europaea*)



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 tanin (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



Coffee



Tea



Osier




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 ssp.*), 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



Source: **David Woods/Dreamstime.com.**

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.

CX1 Boreal forest

Coniferous and mixed broadleaved-coniferous forest of the Boreal (climate) zone of Europe, known also as taiga. Two conifer species, Scots pine (*Pinus sylvestris*) and Norway spruce (*Picea abies*) 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. *B. pubescens*, *B. pendula*) 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.



this class includes:

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



this class excludes:



Principles of observation

Alpine forests in Scandinavia (CX3)

Extended window of observation



Links with Land Use

CX1 > U111	Agricultural use: grazing
CX1 > U120	Forestry (wood production)
CX1 > U350	Wooded areas connected to community services
CX1 > U36x	Wooded areas managed for recreational purposes and in nature reserves
CX1 > U370	Wooded areas in residential areas (urban parks)
CX1 > U400	Wooded areas not utilized



Source: Kjell Sjöberg.

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 broadleaved 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.



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



Links with Land Use

CX4 > U111	Agricultural use: grazing
CX4 > U120	Forestry (wood production)
CX4 > U350	Wooded areas connected to community services
CX4 > U36x	Wooded areas managed for recreational purposes and in nature reserves
CX4 > U370	Wooded areas in residential areas (urban parks)
CX4 > U400	Wooded areas not utilized



Source: Marilyn Barbone/Dreamstime.com.

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

CX5 > U111	Agricultural use: grazing
CX5 > U120	Forestry (wood production)
CX5 > U350	Wooded areas connected to community services
CX5 > U36x	Wooded areas managed for recreational purposes and in nature reserves
CX5 > U370	Wooded areas in residential areas (urban parks)
CX5 > U400	Wooded areas not utilized



Source: Georg Frank

CX6 Beech forest

Beech forests are characterised by the dominance of beech (*Fagus sylvatica*) L. or its transitional hybrids with oriental beech (*Fagus orientalis* Lipsky) 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 moesiaca* Csecz.), 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 sea level) and the lack of conifers define this type often referred to as lowland and submountainous beech forest. Important additional tree species include Norway maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), birch (*Betula pendula*), hornbeam (*Carpinus betulus*), Sweet chestnut (*Castanea sativa*), ash (*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 Norway maple (*Acer platanoides*), Sycamore Maple (*Acer pseudoplatanus*), birch (*Betula pendula*), hornbeam (*Carpinus betulus*), Sweet chestnut (*Castanea sativa*), ash (*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*), 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

**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%
Dehasas, 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



Source: Anna Barbati.

CX9 Broadleaved evergreen forest

Forests characteristic of the Mediterranean and warmtemperate 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 ingression 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).

Thermo-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



Source: **Anna Barbati.**

CXA Coniferous forest of the Mediterranean region

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 spp*), 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



Source: Pedro Regato.

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



Source: **Dreamstime.com.**

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 additional local species (e.g. *Fraxinus angustifolia*, *Platanus orientalis*, *Alnus 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





Source: **Mirek Hejnicky / Dreamstime.com.**

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




Source: Kjell Sjöberg.

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 sitkensis*;)

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)

CXE > U340	Wooded areas connected to commercial areas
CXE > U350	Wooded areas connected to community services
CXE > U36x	Wooded areas managed for recreational purposes and in nature reserves (but not yet converted to more natural stands)
CXE > U370	Wooded areas in residential areas (urban parks)
CXE > U400	Wooded areas not utilized



Source: **Jose Marques Lopes/Dreamstime.com.**

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



Matorral



Maquis



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

Rosemary



Garrigues



Phrygana



Lavender



Strawberry tree



Succulents



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 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 > U120	Clear cuts within previously existing forests)
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



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

H11 > U364	Nature reserves
H11 > U400	Unused

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 (exc. 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.



this class includes

Set aside or abandoned land within agricultural areas
Bare land for agricultural use (in other years)



this class excludes:

Grazing of lucerne, clover, sainfoin, trefoil, black medick, etc: (U 111) 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.



this class includes

Allotment gardens
Kitchen gardens (around the house)
Small orchards



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.



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



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

and the attached areas

 *this class excludes:* -


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.

 *this class includes:*

Manufacture of coke and refined petroleum products
 Manufacture of basic metals
 Manufacture of fabricated metal products, except machinery and equipment
 and the attached areas

 *this class excludes:*

The manufacture of petrochemicals from refined petroleum is classified in U225: Chemical and allied industries and manufacturing.

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.


 *this class includes:*

- 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.

 *this class includes:*

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 electrical equipment
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:

3 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

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, specialised professional, scientific and technical activities, which require a high degree of training, and make specialised knowledge and skills available to users, are covered. This section includes support general business operations (renting and leasing activities, employment and travel agencies, private security activities, service to buildings and landscape, office services, ,



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

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:*

55.2 Holiday and other short-stay accommodation (holiday apartment lots)

55.3 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

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

U400 Unused area

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)

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