D2.1 Data management plan

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| **EXECUTIVE SUMMARY:**  This deliverable provides an overview of the Perceptive Sentinel Data Management Plan (DMP). Descriptions and approaches to the data capturing, storing, preserving, and sharing are outlined. The DMP is intended as a living document that will be updated throughout the duration of the project.  Keywords:  Data Management, Data Types, Data Storage, Data Security, Data Publication, Data Sharing |

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# Executive Summary

As an innovation Action, PerceptiveSentinel project will deliver innovative technological solutions that will encourage the usage of EO data, contribute to the EU gaining a leading position on the EO market and foster the growth and market position of the consortium partners.

The PerceptiveSentinel project is part of the Horizon 2020 – EO Big Data Shift. As a requirement of the project, this deliverable provides the Data Management Plan (DMP) describing the life cycle of the data collected, processed and generated. This deliverable is intended to be a living document that will be updated throughout the lifetime of the project, whenever significant changes arise, e.g. when data sets are added or there are changes in the project that affect the management of the data.

In general, two types of data will be used in PerceptiveSentinel: EO data and non-EO data. Several types of EO data will be used (SENTINELs, LANDSAT), that are accessible globally. On the level of non-EO data there is no “global” coverage available. Data from several different sources will be used: Danish field database, Danish validated YIELD dataset, public datasets from Denmark, Slovenia, Austria and France, and field trial datasets from Denmark and Slovenia. We have discussed whether to focus only on small part of Slovenia, Denmark, and Austria or develop the use-cases for the entire countries. The yield data will be from farms scattered all over Denmark and thus makes no sense to look into a smaller region. In addition, during the presentation of Geoville’s study of number of valid observations in 2017 and the discussion afterwards it became clear that it doesn’t make sense to focus on a region that has above/below average of cloud free observations. The algorithms should work on a country-scale under variable conditions, therefore the plan is to focus on entire countries.

# Project Summary

The Perceptive Sentinel project aims to build innovative technological solutions that will encourage the usage of EO data, contribute to the EU gaining a leading position on the EO market and foster the growth and market position of the consortium partners. The major technological delivery of the project is the PerceptiveSentinel platform, that will combine big data sources into a single system. The data will be transformed into action by applying streaming machine learning to unlock its value.

The Perceptive Sentinel platform will provide the necessary toolset to transform petabytes of data into action for a domain of choice. The platform will provide a new way of doing business and science. It will deliver capabilities to engage new kinds of questions and solve the most challenging forecasting problems facing EO data today. Its capabilities will be exposed for the wider public as well as for business purposes. In fact, PerceptiveSentinel platform is committed to provide a complete service - including its own Front Office service.

The PerceptiveSentinel project will enable fusion of Copernicus data with other, EO and non-EO data sources. Further, it will stimulate the emergence of new user communities, that previously hesitated to use EO services due to the complexity and high costs.

The PerceptiveSentinel project has founded on three pillars:

* Scientific excellence: embodied in pre-processing algorithms, time-series feature extraction, streaming machine learning principles deep learning algorithms and delivery of EO services;
* Technological innovation: embodied through PerceptiveSentinel platform and its sub-system EO-QMiner, streaming data mining engine designed for the interpretation of EO time-series data;
* Business innovation: embodied in free-of-charge modelling (offering a cost-free approach to modelling of EO processing chains) and in open value chain strategy – open approach to building alliances among contributors, providers and consumers of EO VAS.

# Data Capture

L&F have spent a lot of time getting a validated crop yield dataset for this type of project. From the harvest year 2016 they collected 1000 – 1500 validated yields at the field level - primarily in grain crops and rape seed. Furthermore, L&F conducts approximately 1000 field trials every year. In the field trials, different treatments is applied in each plot (4 repeat plots of same treatment) and different parameters are scored. E.g. several trials with increasing N amounts are conducted every year, as well as different doses of plant protection products and different plant protection strategies. In such experiment yield is always recorded as well as crop quality, along with other parameters. That could be plant diseases scores, measured biomass, measured plant nutrient content or the ability of the crop to remain standing until harvest. All of these data are stored in the Nordic Field Trial Database, from which a query of the relevant experiments can be extracted and provided for PerceptiveSentinel, as this data is owned directly by L&F. For the trial season 2017, L&F have in partnership with operator on the field trials (Danish Technological Institute) a plan to equip drones with multiband cameras, which can take photos of a similar type as the SENTINEL satellites to provide verification data for the algorithms. L&F will continue this work within the PerceptiveSentinel project. Similar type of trial data, including drone-hyperspectral imaging (from 2015 on) is available also by Slovenian field trial dataset, covering the area of 500 field polygons. The comparison of both trial datasets will be especially interesting, since they reflect different environmental aspects and different crop-growing cultures. Public Danish datasets contains data on crop type, soil texture, geology and approximate fertilization rate, all at the scale of individual fields from 2009 - present day. Data on farm operations are not available in the public datasets.

# Data Types, Formats and Storage

# 3.1 Data types

In general, two types of data will be used in PerceptiveSentinel:

* EO data
* non-EO data

## 3.1.1 EO data

Will be used (SENTINELs, LANDSAT …) that are accessible globally

### Open satellite data

Landsat missions, directed as a joint initiative between the U.S. Geological Survey (USGS) and NASA, have been observing Earth since1972, and provide invaluable historical data on top of recent observations. The two currently operational satellites are Landsat 7 and Landsat 8, both providing global coverage. The European counterpart, Sentinel missions, are directed by European Commission in partnership with European Space Agency and are part of Copernicus Earth Observation programme.

Both Landsat and Sentinel missions have adopted the free, full and open data policy, with access available to all users. The combined high frequency and resolution of given data provide a unique resource for applications in agriculture, forestry, geology, regional planning, education, mapping, insurance, defence and global land change research, and offer instrumental information for emergency response and disaster relief.

The following chapter will shortly describe open accessible data from Landsat and Copernicus missions.

SENTINEL -1

Sentinel-1 is SAR radar mission from Copernicus programme. As for all Sentinel missions, Sentinel-1 data is publicly accessible.

### 3.1.1.1 SENTINEL-1

Sentinel-1 mission is designed to provide enhanced revisit frequency, coverage, timeliness and reliability for operational services and applications requiring long time series. Affords an operational interferometry capability through stringent requirements placed on attitude accuracy, attitude and orbit knowledge, and data-take timing accuracy. The constellation covers the entire world’s land masses on a bi-weekly basis, sea-ice zones, Europe's coastal zones and shipping routes on a daily basis and open ocean continuously by wave imagettes.

The instrument may acquire data in four exclusive modes:

Strip map (SM) - A standard SAR strip map imaging mode where the ground swath is illuminated with a continuous sequence of pulses, while the antenna beam is pointing to a fixed azimuth and elevation angle.

Interferometric Wide swath (IW) - Data is acquired in three swaths using the Terrain Observation with Progressive Scanning SAR (TOPSAR) imaging technique. In IW mode, bursts are synchronised from pass to pass to ensure the alignment of interferometric pairs. IW is SENTINEL-1's primary operational mode over land.

Extra Wide swath (EW) - Data is acquired in five swaths using the TOPSAR imaging technique. EW mode provides very large swath coverage at the expense of spatial resolution.

Wave (WV) - Data is acquired in small strip map scenes called "vignettes", situated at regular intervals of 100 km along track. The vignettes are acquired by alternating, acquiring one vignette at a near range incidence angle while the next vignette is acquired at a far range incidence angle. WV is SENTINEL-1's operational mode over open ocean.

Spectral Bands and Resolution -- for the four exclusive acquisition modes:

• SM -- 5 m by 5 m resolution over a narrow swath width of 80 km;

• IW -- with a large swath width (250 km) and a moderate geometric resolution (5 m by 20 m);

• EW -- with a lower resolution (20 m by 40 m);

• WV – strip map images of 20 km by 20 km, acquired alternately on two different incidence angles;

Main Uses -- The SAR instrument and short revisit times provide data routinely and systematically for maritime and land monitoring, emergency response, climate change and security;

### 3.1.1.2 SENTINEL 2

SENTINEL-2 mission objectives are to provide:

• systematic global acquisitions of high-resolution, multispectral images allied to a high revisit frequency

• continuity of multi-spectral imagery provided by the SPOT series of satellites and the USGS LANDSAT Thematic Mapper instrument

• observation data for the next generation of operational products, such as land-cover maps, land-change detection maps and geophysical variables.

The Sentinel-2A satellite sees very early changes in plant health due to its high temporal, spatial resolution and 3 red edge bands. This is particularly useful for the end users and policy makers for agriculture applications and to detect early signs of food shortages in developing countries;

Launch date:

Sentinel-2A - 23 June 2015

Sentinel-2B - 07 March 2017

Revisit time:

5 days

Sensor data:

Sensor Resolution: Sentinel-2A Satellite Sensor: 10m, 4 bands, basic land-cover classification; 20m, 6 bands, enhanced land-cover classification and retrieval of geophysical parameters; 60m, 3 bands, atmospheric corrections and cirrus-cloud screening;

Spectral Bands: MSI covering 13 spectral bands (443–2190 nm), with a swath width of 290 km and a spatial resolution of 10 m (four visible and near-infrared bands), 20 m (six red edge and shortwave infrared bands) and 60 m (three atmospheric correction bands);

Types of use:

Agriculture, forests, land-use change, land-cover change. Mapping biophysical variables such as leaf chlorophyll content, leaf water content, leaf area index; monitoring coastal and inland waters; risk and disaster mapping;

### 3.1.1.3 SENTINEL 3

Low Earth-orbit moderate-size satellite, which main objective is to measure sea surface topography, sea and land surface temperature, and ocean and land surface colour with high accuracy and reliability.

European global land and ocean monitoring mission. It provides 2day global coverage Earth observation data (with 2 satellites) for sea and land applications with real-time products delivery in less than 3 hours.

Launch date:

Sentinel-3A - 16 February 2016

Revisit time:

Less than two days for OLCI and less than one day for SLSTR at the equator.

Sensor data:

• Sensor Resolution: 300m full resolution, 1200m reduced resolution;

• Spectral Bands:

- Ocean and Land Colour Instrument (OLCI) covering 21 spectral bands (400–1020 nm) with a swath width of 1270 km;

- Sea, Land Surface Temperature Radiometer (SLSTR) covering 9 spectral bands (550–12000 nm);

- Dual-view scan with swath widths of 1420 km (nadir) and 750 km (oblique view);

- Synthetic Aperture Radar Altimeter (SRAL) Ku-band (300 m after SAR processing); C-band Microwave Radiometer (MWR) dual-frequency at 23.8 & 36.5 GHz;

Types of use:

Systematically measures Earth’s oceans, land, ice and atmosphere to monitor and understand large-scale global dynamics. Provides critical near-real time information for ocean and weather forecasting. Broad scope of data allows European environmental policies to be administered with confidence;

### 3.1.1.4 LANDSAT 8

It is the eighth satellite in the Landsat program; the seventh to reach orbit successfully. Originally called the Landsat Data Continuity Mission (LDCM), it is a collaboration between NASA and the United States Geological Survey (USGS). NASA Goddard Space Flight Center in Greenbelt, Maryland, provided development, mission systems engineering, and acquisition of the launch vehicle while the USGS provided for development of the ground systems and will conduct on-going mission operations.

Launch date: 11 February 2013

Sensor Resolution and Spectral Bands -- Landsat Thematic Mapper (TM) sensor:

* Band 1 - Coastal / Aerosol 0.433 – 0.453 µm, resolution 30 m
* Band 2 - Blue 0.450 – 0.515 µm, resolution 30 m
* Band 3 – Green 0.525 – 0.600 µm, resolution 30 m
* Band 4 - Red 0.630 – 0.680 µm, resolution 30 m
* Band 5 - Near Infrared 0.845 – 0.885 µm, resolution 30 m
* Band 6 - Short Wavelength Infrared 1.560 – 1.660 µm, resolution 30 m
* Band 7 - Short Wavelength Infrared 2.100 – 2.300 µm, resolution 30 m
* Band 8 - Panchromatic 0.500 – 0.680 µm, resolution 15 m
* Band 9 - Cirrus 1.360 – 1.390 µm, resolution 30 m

Spectral Band Wavelength Resolution

Band 10 - Long Wavelength Infrared 10.30 – 11.30 µm 100 m

Band 11 - Long Wavelength Infrared 11.50 – 12.50 µm 100 m

Types of use:

Landsat 8 consists of three key mission and science objectives:

* Collect and archive medium resolution (30-meter spatial resolution) multispectral image data affording seasonal coverage of the global landmasses for a period of no less than 5 years;
* Ensure that Landsat 8 data are sufficiently consistent with data from the earlier Landsat missions in terms of acquisition geometry, calibration, coverage characteristics, spectral characteristics, output product quality, and data availability to permit studies of landcover and land-use change over time;
* Distribute Landsat 8 data products to the general public at no cost to the user.

## 3.1.2 non-EO data

On the level of non-EO data there is no “global”coverage available. Data from several different sources will be used: Danish field database, Danish validated YIELD dataset, public datasets from Denmark, Slovenia, Austria and France, and field trial datasets from Denmark and Slovenia.

Our plan is to collect non-EO data available for the 6 use cases

1.) Cultivated Area

Could be extracted from Austrian, Danish, and Slovenian LPIS data that will be provided.

2.) Crop Type

Could be extracted from Austrian, Danish, and Slovenian LPIS data that will be provided.

3.) Crop Cycle

We believe that typical dates for different phenology stages could be set for current and previous years, once the main crop types classes are set and there is a solution to add data for Slovenia for damages.

4.) Crop Damage

We will check with Slovenian Agency for availability of historic reference data. Geoville has first version of crop status analysis, baseline for crop damage.

5.) Moisture Content

For now we do not have nothing available.

6.) Crop Yield (LANDBRUG & FODEVARER F.M.B.A)

* available from Jable test area (by Agricultural Institute of Slovenia);
* Yield maps for subset of Denmark;
* Yield at field level for subset of Denmark

#### 3.1.2.1 Danish Field Database (DFDB)

Is the database platform that contains all data for L&F’s software solutions consisting of

desktop field management software “MarkOnline” (field management plans and nutrient management plans), used by farmers and consultants for 85% of the Danish farmland, “FarmTracking” phone app allows farmers to store information about operations that have been carried out in each field; “MarkAnalyseIOnline” software provides information about soil samples (information is stored in the form of GPS positions and results from the laboratory and can be displayed in “MarkOnline”, “PlanteværnOnline” is a decision support tool for plant protection intervention, which, among other things, can advise the farmer on which product to use, and which dosage would be appropriate , AgroGIS – special tool for agriculture advisors.

DFDB will provide a range of other attributes, important for farm management, representing an important PerceptiveSentinel input: field polygons, data on crop yields, dates of sowing, type of crops, soil composition, harvest date, type of plant protection product + amount and date of its usage, type of fertilizer + amount and date of its usage, autumn cover, soil data on pH, Phosphorus, Potassium, Magnesium, Boron, Copper, Total N, Mineral N and Total C. Data is owned by Danish farmers, not by L&F, and hence a permission from the farmers to use the data for the project will have to be acquired.

## 3.2 Data format

Non-EO Data will be stored in cloud GIS database based on PostgreSQL/PostGIS. Export of the data can be in ESRI SHP and various other formats. Note that there are limitations to accessibility of non-EO data due to national constraints.

# 4. Data outputs

Data in the form of vector and raster maps crop types, etc., will be generated as PerceptiveSentinel products. Authenticated users of the PerceptiveSentinel Platform will be able to visualize and, in certain cases, download these outputs. Specific terms of use, privacy policy and contributor terms (i.e. describing data licensing), all compliant with the EU General Data Protection Regulation1 are not necessary, because we will not have any private data.

# 5. Data preservation

Data is preserved in Sinergise's data centre in Ljubljana. Project partners will be accessing, in some cases copying the data to their own data centres but only temporarily, for the time of execution of the process. No preservation is planned in 3rd party locations.

# 6. Data documentation and description

No specific documentation requirements are set for the non-EO data in the project.

# 7. Data sharing and publication

Data sharing policies will follow rules of Open Research Data Pilot, providing an open access to

research data generated through this project. Privacy and data ownership will be accounted as well. Following principles will apply:

* data generated through project research activities will be openly available, all the data which is available free of cost (for instance SENTINEL data) will be available at the same terms also through PerceptiveSentinel platform;
* all of the other data will be (or not be) available on the terms set by data owner. The only exception of this rule is represented in PerceptiveSentinel’s DEMO REGION, where we will tend to provide ALL data free-of-charge (following special agreements with data owners). The described principles will assure that all data, required to verify project deliveries, will be openly available;
* Non EO data will be shared over proprietary APIs and in limited cases over WMS.

# 8. Data Security

We do not provide any ways to access data for the hosting company other than the ways intended for every user. The environment is set up such that we restrict access to the database strictly to our trusted network and through APIs that let us choose exactly which data are accessible to which users.

# 9. Resources

https://www.sentinel-hub.com/develop/documentation/data\_sources

http://www.satimagingcorp.com/satellite-sensors/worldview-2/

http://www.satimagingcorp.com/satellite-sensors/worldview-3/

http://www.satimagingcorp.com/satellite-sensors/pleiades-1/

https://en.wikipedia.org/wiki/Landsat\_8

# Annex - examples of analysis of available non - eo data

## Austrian LPIS – code list

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SNAR\_BEZEIÄ | Crop type |  |  |  |  |  |  |
| Austrian | english | slovenian | latin | Class 1 | Class 2 | Class 3 |  |
| 20 JÄHRIGE STILLLEGUNG | set a side for 20 years |  |  | Unclassified | Undefined | Unclassifed |  |
| ACKERBOHNEN - GETREIDE GEMENGE | mixture of broad bean and cerals | bob/žito |  | Mixed plants | Mixed plants | Fodder |  |
| ACKERBOHNEN (PUFFBOHNEN) | broad bean | krmni bob | Vicia fabae | Legumes | Grain legumes | Vicia fabae |  |
| ACKERBOHNEN (PUFFBOHNEN) / FELDGEMÜSE | broad bean / in vegetable production | bob | Vicia fabae | Legumes | Grain legumes | Vicia fabae |  |
| ACKERBOHNEN / ERBSENGEMENGE | mixture of broad bean and peas | bob/grah | Vicia fabae/Pisum arvense | Legumes | Grain legumes | Vicia fabae/Pisum arvense | |
| ALMFUTTERFLÄCHE | alpine pasture | gorski pašniki |  | Grass | Grass | Mountain grass | |
| AMARANTH | amaranth | amarant | Amaranthus sp. | Pseudo cereals | Pseudo cereals | Pseudo cereals |  |
| ANDERE DAUERKULTUREN | other permanent crops | druge trajne kulture |  | Mixed plants | Perennial crops | Mixed plants |  |
| ANDERES OBST | other fruit | druge sadne vrste |  | Orchard | Fruit | Fruit |  |
| BERGMÄHDER | mountain mower | gorski košeni travniki |  | Grass | Grass | Grass |  |
| BITTERLUPINEN | narrow leaf or blue lupin | modra lupina | Lupinus angustifolius | Legumes | Fodder legumes | Fodder |  |
| BLUMEN UND ZIERPFLANZEN | flower and ornamental plants | cvetje in okrasne rastline |  | Mixed plants | Mixed plants | Ornamental production | |
| BLUMEN UND ZIERPFLANZEN IM FOLIENTUNNEL | flower and ornamental plants in tunels | cvetje in okrasne rastline v tunelih |  | Production under protection | Production under protection | Ornamental production | |
| BLUMEN UND ZIERPFLANZEN IM GEWÄCHSHAUS | flower and ornamental plants in grennhouse | cvetje in okrasne rastline v rastlinjakih |  | Production under protection | Production under protection | Ornamental production | |
| BUCHWEIZEN | buckwheat | ajda | Fagopyrum esculentum | Pseudo cereals | Summer Pseudo cereals | Fagopyrum esculentum | |
| DAUERWEIDE | permanent pastures | trajni pašniki |  | Grass | Grass | Grass |  |
| EDELKASTANIEN | marone - chesnut | kostanj | Castanea sativa | Orchard | Trees | Castanea sativa | |
| EINJÄHRIGE BAUMSCHULEN | one year nursery | enoletne drevesnice |  | Mixed plants | Trees | Nursery |  |
| EINMÄHDIGE WIESE | Once per year mow meadow | travniki |  | Grass | Grass | Grass |  |
| ELEFANTENGRAS (CHINASCHILF, MISCANTHUS SINENSIS) | ornamental grasses | okrasne trave | Miscanthus x giganteus / Mi | Mixed plants | Grass | Ornamental production | |
| EMMER ODER EINKORN (SOMMERUNG) | Oversummering emmer wheat or single grain wheat | jara tetraploidna in enozrna pšenica | *T. monococcum; Triticum tur* | Cereals | Summer Cereals | Oversummering emmer wheat or single grain wheat | |
| EMMER ODER EINKORN (SOMMERUNG) / FELDGEMÜSE | Oversummering emmer wheat or single grain wheat in vegetable pr | jara tetraploidna in enozrna pšenica - v zelenjad | *T. monococcum; Triticum tur* | Cereals | Summer Cereals | Oversummering emmer wheat or single grain wheat in vegetable production on the field | |
| EMMER ODER EINKORN (WINTERUNG) | Overswintering emmer wheat or single grain wheat | prezimna tetraploidna in enozrna pšenica | *T. monococcum; Triticum tur* | Cereals | Winter Cereals | Overswintering emmer wheat or single grain wheat | |
| EMMER ODER EINKORN (WINTERUNG) / FELDGEMÜSE | Overwintering emmer wheat or single grain wheat in vegetable pro | prezimna tetraploidna in enozrna pšenica - v zel | *T. monococcum; Triticum tur* | Cereals | Winter Cereals | Overwintering emmer wheat or single grain wheat in vegetable production on the field | |
| ENERGIEGRAS | grasses for enertgy production | pridelave trav za energijo |  | Grass | Grass | Grass |  |
| ENERGIEHOLZ OHNE ROBINIE | Wood energy plantations without Robinia pseudoacacia | lesna biomasa za energijo brez akacije |  | Trees | Trees | Trees |  |
| ENERGIEHOLZ ROBINIE | Wood energy plantations with Robinia pseudoacacia | lesna biomasa za energijo z akacijo |  | Trees | Trees | Trees |  |
| ERBSEN - GETREIDE GEMENGE | Mixture of peas and cereals | mešanica graha in žit |  | Mixed plants | Fodder | Fodder |  |
| ERBSEN - GETREIDE GEMENGE / BUCHWEIZEN | Mixture of peas and cereals or buckwheat | mešanica graha in žit ali ajde |  | Mixed plants | Fodder | Fodder |  |
| ERBSEN - GETREIDE GEMENGE / FELDGEMÜSE | Mixture of peas and cereals in vegetable production on the field | mešanica graha in žit v pridelavi zelenjave na prostem | | Mixed plants | Fodder | Fodder |  |
| ERDBEEREN | strawberry | jagoda |  | Vegetable | Row crops, interrow 1 m | Soft fruit |  |
| ERDBEEREN / FELDGEMÜSE | strawberry - in open field production | jagoda - pridelava na prostem |  | Vegetable | Row crops, interrow 1 m with foil | Soft fruit |  |
| ERSTAUFFORSTUNG | First forestation | prva pogozditev |  | Trees | Trees | Trees |  |
| ERSTAUFFORSTUNG ALT | forestation | pogozditev |  | Trees | Trees | Trees |  |
| ESPARSETTE | Common sainfon | turška detelja | Onobrychis viciifolia | Legumes | Fodder | Onobrychis viciifolia | |
| FELDGEMÜSE EINKULTURIG | Field vegetable - uniform production | enovita pridelava zelenjave na njivi |  | Vegetable | Mixed plants | Vegetable |  |
| FELDGEMÜSE EINLEGEGURKEN | Cucumber as open field production | kumarice na njivi | Cucumis sativas | Vegetable | Vegetable | Row crops, interrow 1 m with foil | |
| FELDGEMÜSE FRISCHMARKT UND VERARBEITUNG MEHRKULTURIG | Field vegetable production - mixture; for fresh consumption and pr | pridelava zelenjave na njivi mešanica za svežo prodajo in predelavo | | Vegetable | Mixed plants | Vegetable |  |
| FELDGEMÜSE MEHRKULTURIG | Field vegetable production - mixture; | pridelava zelenjave na njivi mešanica |  | Vegetable | Mixed plants | Vegetable |  |
| FELDGEMÜSE OHNE ERNTE | Field vegetable production without harvesting | pridelava zelenjave na njivi brez pobiranja |  | Vegetable | Mixed plants | Vegetable |  |
| FELDGEMÜSE VERARBEITUNG EINKULTURIG | Field vegetable - uniform production for processing | enovita pridelava zelenjave na njivi za predelavo |  | Vegetable | Mixed plants | Vegetable |  |
| FELDGEMÜSE VERARBEITUNG MEHRKULTURIG | Field vegetable production - mixture; for processing | mešana pridelava zelenjave na njivi za predelavo |  | Vegetable | Mixed plants | Vegetable |  |
| FLACHS (FASERLEIN) ZUR FASERERZEUGUNG | Common flax for processing | lan za predelavo | Linum usitatissimum | Pseudo cereals | Pseudo cereals | Winter pseudo cereals | |
| FORST GENETISCHE RESSOURCEN | Forest tree nursery - forest genetic resources | gozdna drevesnica za gozdne genske vire |  | Trees | Trees | Trees |  |
| FRÜHKARTOFFELN | Early potato | zgodnji krompir | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| FRÜHKARTOFFELN / BUCHWEIZEN | Early potato following by buckwheat | zgodnji krompir in ajda kot strniščni posevek |  | Potato | Row crop;interrow 70 cm | Mixed plants - |  |
| FRÜHKARTOFFELN / FELDGEMÜSE | Early potato in vegetable field production | zgodnji krompir v zelenjadarski pridelavi |  | Potato | Row crop;interrow 70 cm | Potato |  |
| FRÜHKARTOFFELN / MAIS | Early potato following by maize | zgodnji krompir in koruza kot strniščni posevek |  | Potato | Row crop;interrow 70 cm | Mixed plants |  |
| FUTTERGRÄSER | Fooder grasses | krmne trave |  | Grass | Grass | Fodder |  |
| FUTTERGRÄSER / FELDGEMÜSE | Fooder grasses in vegetable production in open field | krmne trave v pridelavi zelenjave na prostem |  | Grass | Grass | Fodder |  |
| FUTTERKARTOFFELN | Potato as a fodder | krmni krompir | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| FUTTERRÜBEN (RUNKELRÜBEN, BURGUND KOHLRÜBEN) | Root beet, Rutabage | krmna pesa, koleraba | Beta vulgaris subs. vulgaris; | Mixed plants | Row crop;interrow 70 cm | Root crop |  |
| GEMÜSE IM FOLIENTUNNEL | Vegetable production under tunnel | pridelava zelenjave v tunelih |  | Production under protection | Production under protection | Vegetable |  |
| GEMÜSE IM GEWÄCHSHAUS | Vegetable production in grenhouse | pridelava zelenjave v rastlinjakih |  | Production under protection | Production under protection | Vegetable |  |
| GEWÜRZFENCHEL | Fennel | koromač | Foeniculum vulgare | Vegetable | Vegetable | Vegetable |  |
| GEWÜRZPFLANZEN | Herbs | začimbnice |  | Vegetable | Vegetable | Vegetable |  |
| GEWÜRZPFLANZEN IM FOLIENTUNNEL | Herbs production under the tunnel | začimbnice v tunelih |  | Production under protection | Production under protection | Vegetable |  |
| GEWÜRZPFLANZEN IM GEWÄCHSHAUS | Herbs production in the greenhouse | začimbnice v rastlinjaku |  | Production under protection | Production under protection | Vegetable |  |
| GINKGO | Ginko | Ginko | Ginko biloba | Orchard | Trees | Trees |  |
| GLÍZ GRABEN / UFERRANDSTREIFEN | ditch, banch | Jarek, brežina |  | Unclassified | Undefined | infertile land |  |
| GLÍZ NATURDENKMAL FLÄCHE | undefined | naravna dediščina |  | Unclassified | undefined | undefined |  |
| GLÍZ STEINRIEGEL / STEINHAGE | Stone slope | kamnito pobočje |  | Unclassified | Undefined | infertile land |  |
| GLÍZ TEICH / TÜMPEL | Small standing water | manjša zajetje vode |  | Unclassified | Undefined | water |  |
| GRÜNBRACHE | Crop rotation- natural vegetation without planted vegetation | kolobarjenje, naravno zelenje, brez sejanih rastlin | | Mixed plants | Mixed plants | Natural vegetation | |
| GRÜNLANDBRACHE | Crop rotation - non cultivated for some time | kolobarjenje, že dalj časa ni bila obdelana |  | Mixed plants | Mixed plants | non cultivated for longer period | |
| GRÜNMAIS | Fresh maize as fodder | krmna, zelena koruza, pitnik |  | Maize | Maize | Fodder |  |
| GRÜNSCHNITTROGGEN | Fresh rye as a fodder | Ozimna rž za krmo |  | Cereals | Winter Cereals | Winter Cereals |  |
| GRÜNSCHNITTROGGEN / HIRSE | Fresh rye as a fodder/following millet | Ozimna rž za krmo s prosom kot naknadnim posevkom | | Cereals | Winter Cereals | Mixed plants |  |
| GRÜNSCHNITTROGGEN / MAIS | Fresh rye as a fodder/following maize | Ozimna rž za krmo s koruzo kot naknadnim posevkom | | Cereals | Winter Cereals | Mixed plants |  |
| GRÜNSCHNITTROGGEN / SUDANGRAS | Fresh rye as a fodder/following sudan grass | Ozimna rž za krmo s sudansko travo kot naknadnim posevkom | | Cereals | Winter Cereals | Mixed plants |  |
| HANF | Hemp | konoplja | Cannabis sativa | Other plants | Other plants | Cannabaceae |  |
| HEILPFLANZEN | Medecinal plants | zdravilne rastline |  | Other plants | Mixed plants | Vegetable |  |
| HIRSE | Millet | proso |  | Cereals | Summer Cereals | Panicum miliaceum | |
| HOLUNDER | Elderberry | bezeg |  | Trees | Trees | Sambucus nigra | |
| HOPFEN | Hop | hmelj | Humulus lupulus | Other plants | Hop | Plant height aroound 6 m | |
| HUTWEIDE | Pasture | pašnik |  | Grass | Grass | Grass |  |
| ÍLKÜRBIS | Pumpkin for oil | oljna buča | Cucurbita pepo | Other plants | Row crops, interrow > 1 m | Pumpkin |  |
| ÍLLEIN (NICHT ZUR FASERGEWINNUNG) | Flax | navadni lan (ne za pridobivanje vlaken) | Linum usitatissimum | Pseudo cereals | Winter pseudo cereals | Flax |  |
| ÍLLEIN (NICHT ZUR FASERGEWINNUNG) / FELDGEMÜSE | Flax/in vegetable production | navadni lan (ne za pridobivanje vlaken) / njivska | Linum usitatissimum | Pseudo cereals | Winter pseudo cereals | Flax |  |
| ÍLRETTICH | Radish | redkvica | Raphanus sativa L. var. oleif | Vegetable | Vegetable | Brassicaea |  |
| JOHANNISKRAUT | Saint John's wort | šentjanževka | Hypericum perforatum | Other plants | Medicinal plants | Saint John's wort | |
| KICHERERBSEN | Chickpea | čičerka | Cicer arietinum | Legumes | Grain legumes | Chickpea |  |
| KÍRNERERBSEN | Peas | grah | Pisum sativum | Legumes | Grain legumes | Peas |  |
| KÍRNERERBSEN / FELDGEMÜSE | Peas / in vegetable production | grah / njivska zelenjava | Pisum sativum | Legumes | Grain legumes | Peas |  |
| KÍRNERMAIS | Maize | prehranska koruza | Zea mais | Maize | Row crop;interrow 60 cm | Maize |  |
| KIRSCHEN | Cherry | češnje | Prunus avium | Orchard | Fruit | Trees |  |
| KLEE | Clover | detelja | Trifolium sp | Legumes | Fodder | Clover |  |
| KLEE / FELDGEMÜSE | Clover / in vegetable production | detelja / njivska zelenjava | Trifolium sp | Legumes | Fodder | Clover |  |
| KLEEGRAS | Grass clover mixture | mešanica trav in detelj |  | Grass | Grass | Grass |  |
| KLEEGRAS / FELDGEMÜSE | Grass clover mixture / in vegetable production | mešanica trav in detelj / njivska zelenjava |  | Grass | Grass | Grass |  |
| LEINDOTTER | Camelina | navadni riček | Camelina sativa | Other plants | Medicinal plants | Camelina |  |
| LINSEN | Lentil | leča | Lens esculenta | Legumes | Grain legumes | Lentil |  |
| LSE FELDGEHÍLZ / BAUM- / GEBÜSCHGRUPPE | Woody plants on the field, trees, bushes | lesne rastline na polju, drevesa, grmovje |  | Trees | Trees | Trees |  |
| LSE HECKE / UFERGEHÍLZ | Evergreen hedges, woody plants near the cost | živa meja, lesne rastline ob obali |  | Trees | Trees | Trees |  |
| LSE RAIN / BÍSCHUNG / TROCKENSTEINMAUER | banch, stone | obmejek, brežina, kamnita stena |  | Unclassified | Undefined | Infertile land |  |
| LUZERNE | Alfalfa | lucerna | Medicago sativa | Legumes | Fodder legumes | Alfalfa |  |
| MÄHWIESE/-WEIDE DREI UND MEHR NUTZUNGEN | 3 or more times mowed meadows | 3 ali večkrat košen travnik |  | Grass | Grass | Grass |  |
| MÄHWIESE/-WEIDE ZWEI NUTZUNGEN | 2 times mowed meadows | 2x košen travnik |  | Grass | Grass | Grass |  |
| MAIS / KÄFERBOHNEN IN GETRENNTEN REIHEN | Intercropping beans and maize | laški fižol / koruza v ločenih vrstah |  | Mixed plants | Mixed plants | Mixed plants |  |
| MAIS CORN-COB-MIX (CCM) | Maize (fodder) | krmna koruza | Zea mais | Maize | Row crop;interrow 60 cm | Maize |  |
| MAIS CORN-COB-MIX (CCM) / FELDGEMÜSE | Maize (fodder) / in vegetation production | krmna koruza / njivska zelenjava | Zea mais | Maize | Row crop;interrow 60 cm | Maize |  |
| MARIENDISTELN | Milk thistle | pegasti badelj | Silybum marianum | Other plants | Medicinal plants | Milk thistle |  |
| MARILLEN | Apricot | marelice | Prunus armeniaca | Orchard | Fruit | Trees |  |
| MEHRJÄHRIGE BAUMSCHULEN | Nurserys | drevesnice |  | Mixed plants | Mixed plants | Trees |  |
| NEKTARINEN | Nectarine | nektarine | Prunus persica | Orchard | Fruit | Trees |  |
| OBST IM FOLIENTUNNEL | Fruit production in the tunnel | sadje v tunelu |  | Production under protection | Fruit | Production under protection | |
| OBST IM GEWÄCHSHAUS | Fruit production in the greenhouse | sadje v rastlinjaku |  | Production under protection | Fruit | Production under protection | |
| OBST/HOPFEN BODENGESUNDUNG | Croprotation in orchards or hop production | kolobarjenje pri sadju / hmelju |  | Mixed plants | Mixed plants | Mixed plants |  |
| PELUSCHKE | Peas | njivski grah P. sativum var. arvensi | P. sativum var. arvensi | Legumes | Grain legumes | Vegetable |  |
| PFIRSICHE | Peaches | breskev | Prunus persica | Orchard | Fruit | Tree |  |
| PFLAUMEN | Plums | slive | Prunus domestica | Orchard | Fruit | Tree |  |
| PHACELIA | Lacy phacelia | facelija | Phacelia tanacetifolia | Legumes | Fodder legumes | Lacy phacelia |  |
| PLATTERBSEN | ? Pea | grahor | Lathyrus sativus | Legumes | Fodder legumes | Grass pea |  |
| QUINOA | Quinoa | kvinoja | Chenopodium quinoa | Pseudo cereals | Summer Pseudo cereals | Quinoa |  |
| QUITTEN | Quince | kutina | Cydónia oblónga | Orchard | Fruit | Trees |  |
| RÜBENVERMEHRUNG | Root beet for seed production | Semenski posevek navadne pese | Beta vulgaris subs. vulgaris | Other plants | Row crop;interrow 50 cm | Root crop |  |
| REBSCHULEN | Production of vine planting material | pridelava sadilnega materiala vinske trte | Vitis vinifera | Vineyard | Vineyard | Vineyard |  |
| ROLLRASEN | Grass roll | trava za polagat (navita) |  | Grass | Grass | Grass |  |
| SÜSSLUPINEN | Sweet lupin | volčji bob | Lupinus angustifolius | Legumes | Fodder legumes | Sweet lupin |  |
| SAATKARTOFFELN | Seed potato | semenski krompir | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| SAATMAISVERMEHRUNG | Seed maize | semenska koruza | Zea mais | Maize | Maize | Maize |  |
| SCHALENFRÜCHTE (WALNÜSSE, HASELNÜSSE, ...) | Nuts | oreški (orehi, lešniki...) |  | Orchard | Fruit | Trees |  |
| SCHNITTWEINGARTEN | Vineyard (establish) | vinograd (ne mlad, ravno rastišče, lahko terase) | Vitis vinifera | Vineyard | Vineyard | Vineyard |  |
| SENF | Mustard | gorčica | Brassica … | Other plants | Brassicaea | Brassicaea |  |
| SILOMAIS | Maize for sillage | koruza za silažo | Zea mais | Maize | Row crop;interrow 60 cm | Maize |  |
| SOJABOHNEN | Soybean | soja | Glycine max | Legumes | Grain legumes | Soybean |  |
| SOMMERDINKEL (SPELZ) | Summer Spelt | jara pira | Triticum spelta | Cereals | Summer Cereals | Summer Spelt |  |
| SOMMERGERSTE | Summer barley | jari ječmen | Hordeum vulgare | Cereals | Summer Cereals | Summer barley | |
| SOMMERGERSTE / BUCHWEIZEN | Summer barley following buckwheat | jari ječmen / ajda | Hordeum vulgare | Cereals | Summer Cereals | Summer barley following buckwheat | |
| SOMMERGERSTE / FELDGEMÜSE | Summer barley / in vegetable production | jari ječmen / njivska zelenjava | Hordeum vulgare | Cereals | Summer Cereals | Summer barley / in vegetable production | |
| SOMMERHAFER | Summer oat | jari oves | Avena sativa | Cereals | Summer Cereals | Summer oat |  |
| SOMMERHAFER / FELDGEMÜSE | Summer oat / in vegetable production | jari oves / njivska zelenjava | Avena sativa | Cereals | Summer Cereals | Summer oat / in vegetable production | |
| SOMMERHARTWEIZEN (DURUM) | Summer durum wheat | jara trda pšenica | Triticum turgidum var. duru | Cereals | Summer Cereals | Summer durum wheat | |
| SOMMERHARTWEIZEN (DURUM) / BUCHWEIZEN | Summer durum wheat following buckwheat | jara trda pšenica / ajda | Triticum turgidum var. duru | Cereals | Summer Cereals | mixed plants |  |
| SOMMERHARTWEIZEN (DURUM) / FELDGEMÜSE | Summer durum wheat / in vegetable production | jara trda pšenica / njivska zelenjava | Triticum turgidum var. duru | Cereals | Summer Cereals | mixed plants |  |
| SOMMERKÜMMEL | Summer Caraway | jara kumina | Carum carvi | Other plants | Medicinal plants | Summer Caraway | |
| SOMMERMENGGETREIDE | Summer cereals | jara žita |  | Cereals | Summer Cereals | Summer Cereals | |
| SOMMERMENGGETREIDE / FELDGEMÜSE | Summer cereals / in vegetable production | jara žita / njivska zelenjava |  | Cereals | Summer Cereals | Summer Cereals | |
| SOMMERMOHN | Summer Poppy flower | jari mak | Papaver somniferum | Other plants | Other plants | Summer Poppy flower | |
| SOMMERRAPS | Summer rapeseed | jara oljna ogrščica | Brassica napus var. napus | Other plants | Brassicae | Brassicae |  |
| SOMMERROGGEN | Summer rye | jara rž | Secale cereale | Cereals | Summer Cereals | Summer rye |  |
| SOMMERTRITICALE | Summer triticale | jara tritikala | Triticosecale Wittmack | Cereals | Summer Cereals | Summer triticale | |
| SOMMERWEICHWEIZEN | Summer wheat | jara mehka pšenica | Triticum aestivum | Cereals | Summer Cereals | Summer wheat | |
| SOMMERWICKEN | Common Vetch | jara grašica (Vicia sativa) | Vicia sativa | Legumes | Fodder legumes | Common Vetch | |
| SONNENBLUMEN | Sunflower | sončnice | Helianthus annuus | Other plants | Other plants | Sunflower |  |
| SONSTIGE ACKERFLÄCHEN | Other arable land | razne njivske površine |  | Unclassified | Undefined | undefined |  |
| SONSTIGE ACKERKULTUREN | Other arable plants | razne njivske kulture |  | Mixed plants | Mixed plants | undefined |  |
| SONSTIGE FLÄCHEN: GESCHÜTZTER ANBAU | Area of production under different protection | razne površine – varovano pridelovanje (folije, steklo...) | | Production under protection | Production under protection | Production under protection | |
| SONSTIGE GRÜNLANDFLÄCHEN | Different green areas | razne zelene površine |  | Mixed plants | Undefined | undefined |  |
| SONSTIGE ÍLFRÜCHTE (SAFLOR, ...) | Different production of medicinial and industrial plants | razne nekaj (žafranika...) |  | Other plants | Mixed plants | Mixed plants |  |
| SONSTIGE KULTUREN IM FOLIENTUNNEL | Diiferent production in the plastic tunnels | razne kulture v plastičnem tunelu |  | Production under protection | Production under protection | Production under protection | |
| SONSTIGE KULTUREN IM GEWÄCHSHAUS | Different production in the greenhouse | razne kulture v rastlinjaku |  | Production under protection | Production under protection | Production under protection | |
| SONSTIGE SPEZIALKULTURFLÄCHEN | Special areas | razne posebne površine |  | Mixed plants | undefined | undefined |  |
| SONSTIGE WEINFLÄCHEN | Different vineyard areas | razne vinogradniške površine |  | Vineyard | Vineyard | Vineyard |  |
| SONSTIGES FELDFUTTER | Different fodder | razna krma |  | Mixed plants | Mixed plants | Mixed plants |  |
| SORGHUM | Sorghum | sirek | Sorghum bicolor | Other plants | Row crop;interrow 60 cm | Maize | Sorghum |
| SPEISEINDUSTRIEKARTOFFELN | Potato - industrial and human consumption | prehranski in industrijski krompir | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| SPEISEKÜRBIS | Pumpkin | prehranska buča / buča velikanka | Cucurbita pepo | Other plants | Row crop;interrow 2 m | Pumpkin |  |
| SPEISEKARTOFFELN | Potato / human consumption | prehranski krompir | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| SPEISEKARTOFFELN / FELDGEMÜSE | Potato / human consumption in vegetable production | prehranski krompit / njivska zelenjava | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| STÄRKEINDUSTRIEKARTOFFELN | Potato for industrial production | krompir za industrijsko pridelavo (več škroba, gl | Solanum tuberosum | Potato | Row crop;interrow 70 cm | Potato |  |
| STRAUCHBEEREN | Raspberries, blackberries, blueberries… | maline, ribez, robide, kosmulje, borovnice |  | Orchard | Soft fruit | Bushes in row |  |
| STREUWIESE | Natural meedow not for animal consumption | vrstno bogat travnik na vlažni podlagi, kosijo enkrat letno, ni namenjeno preh | | Grass | Grass | Grass |  |
| SUDANGRAS | Sudan grass | sudanska trava | Sorghum sudannense | Other plants | Grass | Sudun grass |  |
| TAFELÄPFEL | Apples | jabolka | Malus domestica | Orchard | Fruit | Trees |  |
| TAFELBIRNEN | Pears | namizne? Hruške | Pyrus communis | Orchard | Fruit | Trees |  |
| TOPINAMBUR | Topinambur | topinambur | Helianthus tuberosus | Other plants | Other plants | Sunflower |  |
| WALDUMWELTMASSNAHMEN | Measures for forest and environment preservation | ukrepi za ohranjanje gozdov in okolja |  | Unclassified | Undefined | Unclassifed |  |
| WECHSELWIESE (EGART, ACKERWEIDE) | Rotation of arable land and meadow | njiva, ker se izmenjujeta oranje in travišče? |  | Mixed plants | Mixed plants | Mixed plants |  |
| WEICHSELN | Souer Cherry | višnja | Prunus cerasus | Orchard | Fruit | Trees |  |
| WEIN | Wine | vino | Vitis vinifera | Vineyard | Vineyard | Vineyard |  |
| WEIN BODENGESUNDUNG | Green manure to rise nitrogen contetnt in the soil | kolobarjenje z vnosom dušika |  | Mixed plants | Mixed plants | Mixed plants |  |
| WICKEN - GETREIDE GEMENGE | Mixed sowing od common vetch and cereals | mešanica grašica – žita |  | Mixed plants | Mixed plants | Mixed plants |  |
| WINTERDINKEL (SPELZ) | Winter spelt | prezimna pira | Triticum spelta | Cereals | Winter cereals | Winter spelt |  |
| WINTERDINKEL (SPELZ) / FELDGEMÜSE | Winter spelt /vegetable production | prezimna pira / njivska zelenjava | Triticum spelta | Cereals | Winter cereals | Winter spelt |  |
| WINTERGERSTE | Winter barley | prezimni ječmen | Hordeum vulgare | Cereals | Winter cereals | Winter barley |  |
| WINTERGERSTE / BUCHWEIZEN | Winter barley following buckwheat | prezimni ječmen / ajda | Hordeum vulgare | Cereals | Winter cereals | Winter barley following buckwheat | |
| WINTERGERSTE / FELDGEMÜSE | Winter barley / vegetable production | prezimni ječmen / njivska zelenjava | Hordeum vulgare | Cereals | Winter cereals | Winter barley |  |
| WINTERHAFER | Winter oat | prezimni oves | Avena sativa | Cereals | Winter cereals | Winter oat |  |
| WINTERHARTWEIZEN (DURUM) | Winter dorum wheat | prezimna trda pšenica | Triticum turgidum var. duru | Cereals | Winter cereals | Winter dorum wheat | |
| WINTERHARTWEIZEN (DURUM) / BUCHWEIZEN | Winter dorum wheat following buckwheat | prezimna trda pšenica / ajda | Triticum turgidum var. duru | Cereals | Mixed plants | Winter dorum wheat following buckwheat | |
| WINTERHARTWEIZEN (DURUM) / FELDGEMÜSE | Winter dorum wheat / in vegetable production | prezimna trda pšenica / njivska zelenjava | Triticum turgidum var. duru | Cereals | Winter cereals | Winter dorum wheat | |
| WINTERKÜMMEL | Winter caraway | prezimna kumina | Carum carvi | Other plants | Medicinal plants | Winter caraway | |
| WINTERMENGGETREIDE | Winter cereals | prezimna žita |  | Cereals | Winter cereals | Winter cereals |  |
| WINTERMOHN | Summer Poppy flower | prezimni mak | Papaver somniferum | Other plants | Other plants | Papaver somniferum | |
| WINTERRÜBSEN | Turnip Tops | prezimna repica | Brassica rapa L. ssp. sylvestri | Other plants | Brassicaea | Brassicaea |  |
| WINTERRAPS | Winter rapeseed | prezimna oljna ogrščica | Brassica napus var. napus | Other plants | Brassicaea | Brassicaea |  |
| WINTERROGGEN | Winter rye | prezimna rž | Secale cereale | Cereals | Winter cereals | Winter rye |  |
| WINTERROGGEN / FELDGEMÜSE | Winter rye / in vegetable production | prezimna rž / njivska zelenjava? | Secale cereale | Cereals | Winter cereals | Winter rye |  |
| WINTERTRITICALE | Winter triticala | prezimna tritikala | Triticosecale Wittmack | Cereals | Winter cereals | Winter triticala | |
| WINTERTRITICALE / FELDGEMÜSE | Winter triticala / in vegetable production | prezimna tritikala / njivska zelenjava | Triticosecale Wittmack | Cereals | Winter cereals | Winter triticala | |
| WINTERTRITICALE / FUTTERRÜBE | Winter triticala following peas | prezimna tritikala / njivski grah |  | Mixed plants | Mixed plants | Winter triticala following peas | |
| WINTERTRITICALE / HIRSE | Winter millet | proso | Panicum miliaceum | Cereals | Winter cereals | Winter millet |  |
| WINTERWEICHWEIZEN | Winter wheat | prezimna pšenica – mehka | Triticum aestivum | Cereals | Winter cereals | Winter wheat |  |

## Analysis of available non-EO data (Agriculture institute of Slovenia)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Region: Subset of Slovenia (Jablje)** | | | | | | | | | | **Region: Slovenia** | | | | | | | | | |
| **Data** | **Information provided** | **Available** | **Descripion/ Remarks** | **Format** | **Units and coordinates** | **Spatial Resolution** | **Polygons layout:Format & Spatial resolution** | **Temporal Resolution/ Acquistion Frequency** | **Available dates** | **Validity** | **Use with EO-**  **data/Expect ations from EO data** | **Available** | **Remarks** | **Format** | **Units and coordinates** | **Spatial resolution** | **Polygons layout:Format & Spatial resolution** | **Temporal Resolution/ Acquistion Frequency** | **Validity** | **Available dates** | **Use with EO- data/Expectation s from EO data** |
| **Soil phosphorus** | soil samples | yes | phosphorus as P2O5 (internal laboratory validated method) n=59 | Shape and excel/csv | mg/100g and classes D48 coordfinate system |  | Polygon or centroid. LPIS field (if there will be possible even more detailed than LPIS field level) | Resolutions is at the actual field level |  | 2014 | As covariate for crop yield, soil moisture |  |  | Shape | phosphorus as P2O5 (mg/100g) --> internal validated method |  |  |  |  |  |  |
| **Soil pottasium** | soil samples | yes | potassium as K2O (mg/100g) -- | Shape and excel/csv | mg/100g and classes |  | Polygon or centroid. | Resolutions is at the |  | 2014 | As covariate |  |  |  |  |  |  |  |  |  |  |
|  |  |  | > internal validated method |  | D48 coordfinate system | LPIS field (if there | actual field level |  | for crop |
|  |  |  | n=59 |  |  | will be possible even |  |  | yield, soil |
|  |  |  |  |  |  | more detailed than |  |  | moisture |
|  |  |  |  |  |  | LPIS field level) |  |  |  |
| **Soil pH** | soil samples | yes | pH in KCl (-) --> ISO 10390:2005  n=59 | Shape and excel/csv | pH value and classes D48 coordfinate system |  | Polygon or centroid. LPIS field (if there will be possible even more detailed than LPIS field level) | Resolutions is at the actual field level |  | 2014 | As covariate for crop yield, soil moisture | pH | pH from soil samples from 2006 and 2016 analysed at our LAB with method ISO 10390:2005. The samples are taken mostly from central and northwestern part of Slovenia.  n=11.387 with pH data |  |  |  |  |  |  |  |  |
| **Soil organic matter** | soil samples | yes | organic matter (% f=1,724) -->  ISO 14235:1998 n=59 | Shape and excel/csv | % and classes  D48 coordfinate system |  | Polygon or centroid. LPIS field (if there will be possible even more detailed than LPIS field level) | Resolutions is at the actual field level |  | 2014 | As covariate for crop yield, soil moisture |  | Organic matter from soil samples from 2006 and 2016 analysed at our LAB with method ISO 14235:1998. The samples are taken mostly from central and northwestern part of Slovenia.  n=4.340 with OM data |  |  |  |  |  |  |  |  |
| **Soil type** | Soil types from soil map of Slovenia 1:25.000 |  |  |  |  |  |  |  |  |  |  | Yes | Each polygon has an attribute: (1) soil | Shape | meters, Slovenian D48coordinate system or new |  | Polygon. Polygons | No spatial update. Only | 1999 but valid |  | As covariate for |
|  |  |  | mapping unit (SMU) and zhe (2) area. Each |  | Slovenian D96 coordinate system | were delineated | some unofficial attribute | for more years | crop yield, soil |
|  |  |  | SMU has up to three soil type units (STU's) |  |  | based on field | and content updates and |  | moisture |
|  |  |  | with percentage of coverage in SMU. Soil |  |  | mapping in 90is in | extensions (in 2007 and |  |  |
|  |  |  | type units = soil types are classified based |  |  | scale 1:25.000 | 2014 by AIS). |  |  |
|  |  |  | on Slovenian Soil classification system. The |  |  |  |  |  |  |
|  |  |  | main soil type in SMU is also transformed |  |  |  |  |  |  |
|  |  |  | into FAO soil type (example: Eutric |  |  |  |  |  |  |
| **Soil depth** | Average soil depth from soil map of Slovenia 1:25.000 |  |  |  |  |  |  |  |  |  |  | yes | Soil depth (cm) is calculated from reference | Shape | cm or classes, Slovenian D48 coordinate system or |  | Polygon. Polygons | Soil depth was derived by | 1999 but valid |  | As covariate for |
|  |  |  | soil profile parameters (defined for each |  | new Slovenian D96 coordinate system | were delineated | AIS in 2015 | for more years | crop yield, soil |
|  |  |  | STU) using weighted average based on |  |  | based on field |  |  | moisture |
|  |  |  | percentage of coverage of STU under SMU. |  |  | mapping in 90is in |  |  |  |
|  |  |  |  |  |  | scale 1:25.000 |  |  |  |
| **Soil pH** | Average soil pH from soil map of Slovenia 1:25.000 |  |  |  |  |  |  |  |  |  |  | yes | Soil pH is calculated from reference soil | Shape | ph value or classes, Slovenian D48 coordinate |  | Polygon. Polygons | Soil pH was derived by | 1999 but valid |  | As covariate for |
|  |  |  | profile parameters (defined for each STU) |  | system or new Slovenian D96 coordinate system | were delineated | AIS in 2015 | for more years | crop yield, soil |
|  |  |  | using weighted average based on |  |  | based on field |  |  | moisture |
|  |  |  | percentage of coverage of STU under SMU. |  |  | mapping in 90is in |  |  |  |
|  |  |  |  |  |  | scale 1:25.000 |  |  |  |
| **LPIS field polygons** | Field polygons from AGENCY FOR AGRICULTURAL MARKETS AND RURAL DEVELOPMENT which is under Ministry of Agriculture, Forestry and food. Field polygons are uploaded every year. Field polygons are at the level of the actual field. |  |  |  |  |  |  |  |  |  |  | yes | Farm ID, field number, area, crop type code.There is no information about autumn catch crops . Main crop type only. | Shape |  | Field polygon | Polygon. Resolutions is at the actual field level | Yearly updates | Acqusition date/year | Permission for 2016 and  2017 | As covariate for crop type, crop yield |
| **Crop type by field** | Crop type by LPIS field polygons. | yes | crop types by LPIS field polygons | Shape or excel | crop types as defined in lookup table. D48 coordfinate system | Field polygon | Polygon or excel. Resolution is at the actual LPIS field level or sometimes by more detailed field level (example: inside corn LPIS field we have data about two corn varieties) |  | 2016 and 2017 | 2016 and 2017 | As covariate for crop type, crop yield | yes | crop types by LPIS field polygons | Shape | crop types as defined in lookup table. Also harmonized with Austrian crop type classification (level 1, 2 and 3) by AIS. | Field polygon | Polygon. Resolutions is at the actual LPIS field level | Yearly updates | Acqusition date/year | Permission for 2016 and  2017 | As covariate for crop type, crop yield |
| **Working task by field** | Working task by field polygons | yes | crop types by LPIS field polygons.  Date and type of task. | Shape or excel | Type of task: 1 plowing  pre-sowing soil treatment  sowing / planting / transplanting 4 fertilization  mechanical weed control  covering with anti-insect nets or other coverages  plant protection measures 8 harvesting, mowing  9 mechanical destruction of the crop 10 soil sample for Nmin analysis  11 other work tasks | Field polygon | Polygon. Resolution is at the actual LPIS field level or sometimes by more detailed field level (example:  inside one LPIS field we have data about two spatialy separated fertilization operations) |  | 2016 and 2017 | 2016 and 2017 | As covariate for crop yield | no |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | Can be grouped or some working tasks (such as plant protection measures) can be excluded.  D48 coordfinate system |  |  |  |  |  |  |
| **Fertilization by field** | Fertilization by field polygons | yes | crop types by LPIS field polygons.  Date, type of fertilizer and amount of fertilizer.  Will be calculated on N, P and K  input. | Shape or excel | type of fertilizer:  (1) mineral or (2) organic fertilizer amount (kg per area).  D48 coordfinate systemd | Field polygon | Polygon.  Same as Working tasks |  | 2016 and 2017 | 2016 and 2017 | As covariate for crop yield | no |  |  |  |  |  |  |  |  |  |
| **Yield by field** | Yield by field polygon | yes | Yield by LPIS field polygons. Will be calculated per field in t/ha. | Shape or excel | yield in kg per area. D48 coordfinate system | Field polygon | Polygon.  Same as Working tasks |  | 2016 and 2017 | 2016 and 2017 | As covariate for crop yield | no |  |  |  |  |  |  |  |  |  |
| **Crop demage** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Crop cycle** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Climate data** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  | **Region: Subset of Denmark** | | | | | | | | | | **Region: Denmark** | | | | | | | | | |
| **Data** | **Information provided** | **Available** | **Descripion/ Remarks** | **Format** | **Units and coordinates** | **Spatial Resolution** | **Polygons layout:Format & Spatial resolution** | **Temporal Resolution/ Acquistion Frequency** | **Available dates** | **Validity** | **Use with EO data/Expect ations from EO data** | **Available** | **Remarks** | **Format** | **Units and coordinates** | **Spatial resolution** | **Polygons layout:Format & Spatial resolution** | **Temporal Resolution/ Acquistion Frequency** | **Validity** | **Available dates** | **Use with EO- data/Expectation s from EO data** |
| **Soil map** | Map of Danish soil types |  |  |  |  |  |  |  |  |  |  | Yes | The Danish soil classification system JB 1-  JB 11.  SEGES will deliver a description of the definitions of JB numbers (% clay, % silt, % sand and % OM) | shape |  |  |  | Soil map updated in 2014. | 2014, but valid for more years |  |  |
| **Soil capacity of plant available water** | Map of soil capacity of plant available water in 50, 75, 100, 125 and 150 cm |  |  |  |  |  |  |  |  |  |  | Yes | Soil capacity of plant available water in 50,  75, 100, 125  and 150 cm | Shape |  |  |  |  |  |  |  |
| **Danish height model** | DHM / Terrain which is a model of terrain topography or elevation above sea level. The model is constructed form LIDAR scans. The product consists of several themes. Most relevant are a terrain model where objects like vegetation, houses, cars, etc. is removed. DHM / Additional relevant products are a surface map where structures and buildings are included. The actual LIDAR point scans are also available. |  |  |  |  |  |  |  |  |  |  | Yes | Height above sealevel.  LIDAR scan points.  Surface height, i.e. height of buildings and structures included | Shape, WMS |  | Terrain has a grid point of 40 cm. Vertical RMSE ~5 cm, Horizontal RMSE ~15 cm. | 40x40 cm | Updateded 2015 and updates are published continiously | Several years (terrain) | 2015 -  onwards |  |
| **Field polygons (IMK)** | Field polygons from The Ministry of Food, Agricultura and environment. Field polygons is uploaded every year in connection with EU application. Field polygons are at the level of the actual field. |  |  |  |  |  |  |  |  |  |  | Yes (NDA?) | Farm ID, field num-ber, area, crop type, crop code.There is no information about autumn catch crops | Shape |  | Field polygon | Resolutions is at the actual field level | Yearly updates | Acqusition date/year | 2009 -  onwards |  |
| **Climate data** | Data is collected and validated by The Danish Meteorological Institute. Data is obtained on an hourly or daily basis. Data is available for current year and two years back. |  |  |  |  |  |  |  |  |  |  | NDA (brought by SEGES and can only be made available for third parties for SEGES R&D activities, subject to NDA) | Dataset consists of: Air temperature hourly/av./min  ⁰  ./max. ( C), |  |  | 10 x 10 km grid | 10 x 10 km grid | Daily | Day | 01/01/2016-  to current date. Only two years back at any time | Crop type, yeild, soil moisture |
| **Yield maps** | Yield maps from individual fields collected from combines. Data comes from actual production farms which have granted SEGES access to their data. Yield meters on combines must be calibrated. Since the data comes from actual farms, the data various levels of calibration may have been performed, which is a source of error. This error can possibly be quantified if yields for a subsample of data have also been measured by weighbridge. SEGES will deliver yield data with a document describing data cleaning procedures (field polygons, outlier removal for different crops and headland) | NDA | The number of attributes and spatial resolution will vary depending on type of combine harvester (manufactures). SEGES will deliver a master table with selected attributes. Some yield maps will include data in all attributes, others will be blank in some of the attributes. | likely shape |  | Depending on manufacture | Position data within field (GPS) with a X and Y Coordinate. | Yearly | 2015-2017 | Acqusition date | Yeild prediction, crop type |  |  |  |  |  |  |  |  |  |  |
| **Yield field level** | Yield data are retrieved from the Danish field database (DFDB). The data is either estimated by farmer (low quality), registered by combine harvester with various levels of calibration (medium quality), measured by weighbridge (high quality). | NDA | Yield from individual fields |  |  | Field level | Actual field polygon |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **DFDB (Danish field database)** | Data consist of information from Danish production farms. Data consists both of registered and planned operations or status at the field level. Registered and planned data can be separated through a user validation system.  However, not all farmers use this system, so the separation between planned and registered operations can be difficult. Quality of this separation have to be done individually on each attribute. In general, quality of data related to farms and fields (ID, soil texture and soil analysis,) is very accurate. Quality of the yearly data varies from low to medium for planned  and default data to high for |  | Data consist of: Farmidentity (address, CVR-number), Field-ID per farmidentity (positiondata for the majority of fields), Soiltexture on fieldlevel, Soilanalysis on fieldlevel if registrated (Rt, Pt, Kt), Yearly data: crop, seedrate, fertilizer (organic, inorganic), pesticides used, machinery, yield, operations data (drilling and harvesting dates etc.) |  |  | Field level | Actual field polygon | Yearly | 2005-onwards | Growing season. Quality varies (see description). |  |  |  |  |  |  |  |  |  |  |  |
| **NFTS (Nordic field trial system) – optimal N rate** | Data is obtained from field trials (typically 10x 3 m plots) with different rates of N-fertilizer placed within cultivated fields.  Observations of treatments (drilling, fertilizer, growth control), yield and soil parameters are recorded from field trial. The results from field trials provides optimal N-fertilizer rate for surrounding field. Data for actual N-fertilizer rate for surrounding field and field polygon coordinates can be retrieved from DFDB. Quality of data is high.  Crop: Number of fields 2015/2016/2017, Winter wheat: 42/30/26, Winter rye: 4/4/5, Winter barley: 7/4/5, Spring barley: 16/9/11, Corn: 3/4/3, Triticale: 0/0/1, Winter rapeseed: 0/8/8, Sugar beet: 0/1/0, Total: 72/60/59 | NDA | Crop, crop protection, fertilizer, growth control, harvest, yield, soil texture (analyzed), laid crops (estimated). Exact GPS position of trial |  |  | Field level |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **NFTS (Nordic field trial system)** | Data is obtained from a variety of field trials (plot trials within cultivated fields). Observations of treatments (sowing, fertilizer, growth control), yield and soil parameters are recorded. Pictures (multispectral) of field trials are provided by overflight using drone 3-5 times throughout growth season. Data for for surrounding field and field polygon coordinates can be retrieved from DMDB. Quality of data is high.  Number of fields 2015/2016/2017 ? |  | Multispectral pictures of field trials, crop, crop protection, fertilizer, growth control, harvest, yield, soil texture (analyzed), laid crops (estimated) |  |  | Plot level | Treatment plot for all oprations and yeld data, <10 x 10 cm for multispec imagary | 3- 6 times pr. growing season | harves year 2018 - onwards | Growing season |  |  |  |  |  |  |  |  |  |  |  |
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## LPIS crop groups of Geoville

**Original LPIS Grouping Initial grouping Austria LPIS member classes Stage 1 Stage 2 Stage 3**

TAFELÄPFEL Apples 1

SCHALENFRÜCHTE, MARILLEN, TAFELBIRNEN, KIRSCHEN, ZWETSCHKEN, PFIRSICHE, EDELKASTANIEN, WEICHSELN,

QUITTEN, NEKTARINEN, PFLAUMEN All other tree-fruits 11

WEIN Wine 1

KÖRNERMAIS, SILOMAIS, MAIS CORN-COB-MIX (CCM),

SAATMAISVERMEHRUNG, ZUCKERMAIS Maize 5

SOJABOHNEN Soya bean 1

SOMMERMOHN Poppy 1

SONNENBLUMEN Sun flower 1

ACKERBOHNEN (PUFFBOHNEN) Beans 1

KÖRNERERBSEN, PLATTERBSEN Peas 2 FELDGEMÜSE EINKULTURIG, FELDGEMÜSE VERARBEITUNG

EINKULTURIG, FELDGEMÜSE MEHRKULTURIG Other/mixed vegetables 3

SPEISEKARTOFFELN, STÄRKEINDUSTRIEKARTOFFELN, SPEISEINDUSTRIEKARTOFFELN, SAATKARTOFFELN,

FRÜHKARTOFFELN Potatoes 1 ZUCKERRÜBEN Sugar beet 1

ÖLKÜRBIS, SPEISEKÜRBIS Pumpkins 2

SOMMERGERSTE Summer barley 1

SOMMERHAFER Summer oats 1

Tree fruits

Maize & Soy Other

Vegetables

Vegetables & other

Root vegetables

Fruits

Summer non-grain

SOMMERHARTWEIZEN (DURUM) Summer hard wheat 1

SOMMERMENGGETREIDE Summer mixed grain 1

SOMMERWEICHWEIZEN Summer wheat 1 HIRSE, SORGHUM Millet & Sorghum 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WINTERWEICHWEIZEN | Winter wheat | 1 |  | Winter crops |
| WINTERTRITICALE | Winter triticale | 1 |  |
| WINTERROGGEN | Winter rye | 1 | Winter grains |
| WINTERDINKEL (SPELZ) | Winter spelt | 1 |  |
| WINTERHARTWEIZEN (DURUM) | Winter hard wheat | 1 |  |
| WINTERMENGGETREIDE | Winter mixed grain | 1 |  |
| WINTERRAPS | Winter rape/canola | 1 |  |

Summer grains

DAUERWEIDE, HUTWEIDE Pasture 2 MÄHWIESE/-WEIDE DREI UND MEHR NUTZUNGEN, MÄHWIESE/-

WEIDE ZWEI NUTZUNGEN, WECHSELWIESE (EGART,

ACKERWEIDE), EINMÄHDIGE WIESE Meadows 4

ALMFUTTERFLÄCHE, BERGMÄHDER Alpine meadows 2

GRÜNBRACHE, GRÜNLANDBRACHE Fallow green land 2 KLEE, LUZERNE, FUTTERGRÄSER, SONSTIGES FELDFUTTER,

KLEEGRAS Grass crops 5

Grassland

## Slovenian LPIS code list

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SIFKMRS** | | | | **NAZIV** | english | | slovenian l | | atin | Class 1 | | | | Class 2 | | Class 3 | | | |
| 115 | | | | abesinska gizotija | Niger seed | | abesinska gizotija | | Guizotia abyssinic | Other plants | | | | Other plants | |  | | | |
| 004 | | | | ajda | buckwheat | | ajda | | Fagopyrum esculentum) | Pseudo cereals | | | | Pseudo cereals | | Buckwheat | | | |
| 220 | | | | aleksandrijska detelja | Egyptian clover | | aleksandrijska detelja | | Trifolium alexandrinum | Legumes | | | | Legumes - Fodder | |  | | | |
| 037 | | | | amarant | amaranth | | amarant | | Amaranthus sp. | Pseudo cereals | | | | Pseudo cereals | | Pseudo cereals | | | |
| 652 | | | | ameriška borovnica | American blueberrie | | maline, ribez, robide, kosmulje, borovnice | | | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 681 | | | | ameriška brusnica | American cranberries | | maline, ribez, robide, kosmulje, borovnice | | | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 738 | | | | ameriški slamnik | Purple coneflower | | ameriški slamnik | | Echinacea purpurea | Other plants | | | | Other plants | | Ornamental production | | | |
| 657 | | | | aronija | Chokeberries | | aronija | |  | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 733 | | | | artičoka | Arthichocke | | artičoka | | Cynara scolymus | Vegetable | | | | Vegetable | | Vegetable | | | |
| 648 | | | | asimina | Paw Paw | | asimina | | Asimina triloba | Orchard | | | | Fruit | | Trees | | | |
| 032 | | | | bar | ?? | | bar | |  | Other plants | | | |  | |  | | | |
| 111 | | | | bela gorjušica | White mustard | | bela gorjušica | | Sinapis alba | Other plants | | | | Brassicaceae | |  | | | |
| 646 | | | | bezeg | Elderberry | | bezeg | | Sambucus nigra | Trees | | | | Trees | |  | | | |
| 045 | | | | bob | broad bean / in vegetable p | | bob | | Vicia fabae | Legumes | | | | Grain legumes | |  | | | |
| 621 | | | | breskev | Peaches | | breskev | | Prunus persica | Orchard | | | | Fruit | | Tree | | | |
| 555 | | | | brez zahtevka | undfefined | |  | |  | Unclassified | | | | Undefined | |  | | | |
| 679 | | | | brusnica (evropska ali gozdna) | Raspberries, blackberries, b | | maline, ribez, robide, kosmulje, borovnice | | | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 625 | | | | češnja | Cherry | | češnje | | Prunus avium | Orchard | | | | Fruit | | Trees | | | |
| 043 | | | | črni koren | Spanish salsify | | črni koren | | Scorzonera hispanica | Vegetable | | | | Vegetable | |  | | | |
| 656 | | | | črni ribez | Raspberries, blackberries, b | | maline, ribez, robide, kosmulje, borovnice | | | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 660 | | | | črni ribez x kosmulja | Raspberries, blackberries, b | | maline, ribez, robide, kosmulje, borovnice | | | Orchard | | | | Soft fruit | | Bushes in row | | | |
| 207 | | | | detelja | Clover | | detelja | | Trifolium sp | Legumes | | | | Fodder legumes | | Clover | | | |
| 206 | | | | deteljnotravne mešanice | Grass clover mixture | | mešanica trav in detelj | |  | Grass | | | | Grass | | Grass | | | |
| 675 | | | | dren | Woody plants on the field, | | lesne rastline na polju, drevesa, grmovje | | | Trees | | | | Trees | |  | | | |
| 702 | | | | drevesnice | Nurserys | | drevesnice | |  | Other plants | | | | Trees | | Nursery | | | |
| 114 | | | | druge rastline za krmo na njivah | Different fodder | | razna krma | |  | Other plants | | | | Mixed plants | |  | | | |
| 721 | | | | drugi hitro rastoči panjevci | Trees | | drugi hitro rastoči panjevci | |  | Trees | | | | Trees | |  | | | |
| 219 | | | | facelija | Lacy phacelia | | facelija | | Phacelia tanacetifolia | Legumes | | | | Fodder legumes | | Lacy phacelia | | | |
| 619 | | | | feioja | Pineapple guava | | Pineapple guava | | Feijoa sellowiana | Orchard | | | | Trees | | Pineapple guava | | | |
| 659 | | | | goji jagoda | Goji berry | | goji jagoda | | Lycium barbarum | Orchard | | | | Trees | | Goji berry | | | |
| 044 | | | | grah | Peas | | grah | | Pisum sativum | Legumes | | | | Grain legumes | |  | | | |
| 211 | | | | grahor | ? Pea | | grahor | | Lathyrus sativus | Legumes | | | | Fodder legumes | | Lathyrus sativus | | | |
| 615 | | | | granatno jabolko | Pomegranate | | granatno jabolko | | Punica granatum | Orchard | | | | Fruit | | Trees | | | |
| 110 | | | | grašica (jara) | Common Vetch | | jara grašica (Vicia sativa) | | Vicia sativa | Legumes | | | | Fodder legumes | | Common Vetch | | | |
| 810 | | | | grašica (ozimna) | Winter vetch | | ozimna grašica | | Vicia villosa | Legumes | | | | Fodder legumes | | Winter vetch | | | |
| 672 | | | | grenivka | Grapefruit | | grenivlka | | Citrus x paradisi | Orchard | | | | Fruit | | Trees | | | |
| 720 | | | | hitro rastoči panjevec (vrba, topol) | Woody plants on the field, | | lesne rastline na polju, drevesa, grmovje | | | Trees | | | | Trees | |  | | | |
| 900 | hmelj | | | | Hop | | hmelj | Humulus lupulus | | | Other plants | | | Hop | | Plant height around 6 m | |
| 612 | hruška | | | | Pears | | namizne? Hruške | Pyrus communis | | | Orchard | | | Fruit | | Trees | |
| 222 | inkarnatka | | | | Crimson clover | | inkarnatka | Trifolium incarnatum | | | Legumes | | | Fodder legumes | | Crimson clover | |
| 611 | jablana | | | | Apples | | jabolka | Malus domestica | | | Orchard | | | Fruit | | Trees | |
| 651 | jagoda | | | | strawberry | | jagoda |  | | | Vegetable | | | Row crops, interrow 1 m | | Vegetable | |
| 627 | japonska nešplja | | | | Loquat | | japonska nešplja | Eriobotrya japonica | | | Orchard | | | Fruit | | Trees | |
| 009 | ječmen (jari) | | | | Summer barley | | jari ječmen | Hordeum vulgare | | | Cereals | | | Summer Cereals | | Summer barley | |
| 809 | ječmen (ozimni) | | | | Winter barley | | prezimni ječmen | Hordeum vulgare | | | Cereals | | | Winter cereals | | Winter barley | |
| 643 | kaki | | | | Persimmon | | kaki | Diospyros kaki | | | Orchard | | | Fruit | | Trees | |
| 035 | kamut (jari) | | | | Summer khorasan wheat | | kamut (jari) | Triticum turgidum spp turanicum | | | Cereals | | | Summer Cereals | |  | |
| 835 | kamut (ozimni) | | | | Winter khorasan wheat | | kamut (ozimni) | Triticum turgidum spp turanicum | | | Cereals | | | Winter cereals | |  | |
| 642 | kivi | | | | Kiwi | | kivi | Actinidia deliciosa | | | Orchard | | | Fruit | | Trees | |
| 027 | konoplja | | | | Hemp | | konoplja | Cannabis sativa | | | Other plants | | | Other plants | | Cannabaceae | |
| 006 | koruza za silažo | | | | Maize for sillage | | koruza za silažo | Zea mais | | | Maize | | | Maize | | Maize | |
| 005 | koruza za zrnje | | | | Maize | | prehranska koruza | Zea mais | | | Maize | | | Maize | |  | |
| 676 | kosmulja | | | | Raspberries, blackberries, b | | maline, ribez, robide, kosmulje, borovnice | | | | Orchard | | | Soft fruit | | Bushes in row | |
| 644 | kostanj | | | | marone - chesnut | | kostanj | Castanea sativa | | | Orchard | | | Trees | |  | |
| 112 | krmna ogrščica (jara) | | | | Summer Swede rape | | krmna ogrščica (jara) | Brassica napus L. var. napus f. biennis | | | Other plants | | | Brassicaceae | | Root crop | |
| 812 | krmna ogrščica (ozimna) | | | | Winter Swede rape | | krmna ogrščica (ozimna) | Brassica napus L. var. napus f. biennis | | | Other plants | | | Brassicaceae | | Brassicaceae | |
| 101 | krmna pesa | | | | Root beet, Rutabage | | krmna pesa | Beta vulgaris subs. vulgaris; Brassica na | | | Other plants | | | Row crop;interrow 70 cm | | Root crop | |
| 102 | krmna repa | | | | Turnips | | krmna repa | Brassica rapa | | | Other plants | | | Row crop;interrow 50 cm | | Root crop | |
| 104 | krmna repica (jara) | | | | Summer wild turnip | | krmna repica (jara) | Brassica rapa L. ssp. sylvestris | | | Other plants | | | Brassicaceae | | Brassicaceae | |
| 804 | krmna repica (ozimna) | | | | Winterwild turnip | | krmna repica (ozimna) | Brassica rapa L. ssp. sylvestris | | | Other plants | | | Brassicaceae | | Brassicaceae | |
| 017 | krmni bob | | | | broad bean | | krmni bob | Vicia fabae | | | Legumes | | | Fodder legumes | |  | |
| 033 | krmni grah (jari) | | | | Peas | | grah | Pisum sativum | | | Legumes | | | Grain legumes | |  | |
| 833 | krmni grah (ozimni) | | | | Peas | | grah | Pisum sativum | | | Legumes | | | Grain legumes | |  | |
| 105 | krmni ohrovt | | | | Field vegetable - uniform pr | | enovita pridelava zelenjave na njivi | | | | Vegetable | | | Mixed plants | | Vegetable | |
| 106 | krmni radič | | | | Field vegetable - uniform pr | | enovita pridelava zelenjave na njivi | | | | Vegetable | | | Mixed plants | | Vegetable | |
| 109 | krmni sirek | | | | Sorghum | | sirek | Sorghum bicolor | | | Other plants | | | Row crop;interrow 60 cm | | Maize | |
| 107 | krmno korenje | | | | Field vegetable - uniform pr | | enovita pridelava zelenjave na njivi | | | | Vegetable | | | Mixed plants | | Vegetable | |
| 020 | krompir | | | | Potato / human consumpti | | prehranski krompir | Solanum tuberosum | | | Potato | | | Row crop;interrow 70 cm | | Potato | |
| 613 | kutina | | | | Quince | | kutina | Cydónia oblónga | | | Orchard | | | Fruit | | Trees | |
| 028 | lan | | | | Flax | | navadni lan (ne za pridobi | Linum usitatissimum | | | Pseudo cereals | | | Winter pseudo cereals | |  | |
| 632 | leska | | | | Woody plants on the field, | | lesne rastline na polju, drevesa, grmovje | | | | Trees | | | Trees | |  | |
| 671 | limonovec | | | | Lemon | | limonovec | Citrus limon | | | Orchard | | | Fruit | | Trees | |
| 040 | lubenice | | | | Watermelon | | lubenice | Citrullus lanatus | | | Other plants | | | Row crop;interrow 2 m | | Watermelon | |
| 208 | lucerna | | | | Alfalfa | | lucerna | Medicago sativa | | | Legumes | | | Fodder legumes | |  | |
| 653 | malina | | | | Raspberries, blackberries, b | | maline, ribez, robide, kosmulje, borovnice | | | | Orchard | | | Soft fruit | | Bushes in row | |
| 674 | mandarinovec | | | | Tangerine | | mandarinovec | Citrus reticulata | | | Orchard | | | Fruit | | Trees | |
| 633 | mandelj | | | | Almond | | mandelj | Prunus dulcis | | | Orchard | | | Fruit | | Trees | |
| 624 | marelica | | | | Apricot | | marelice | Prunus armeniaca | | | Orchard | | | Fruit | | Trees | |
| 707 | matičnjak | | | | Production of vine planting | | pridelava sadilnega mater | Vitis vinifera | | | Vineyard | | | Vineyard | |  | |
| 041 | melone oziroma dinje | | | | Melon | | melone oziroma dinje | Cucumis melo | | | Other plants | | | Row crop;interrow 2 m | | Melon | |
| 405 | mešana raba (zelenjadnice, poljščine, diša | | | | Field vegetable production | | mešana pridelava zelenjave na njivi za predelavo | | | | Vegetable | | | Mixed plants | |  | |
| 710 | mešane rastline za rejo polžev | | | | Mixed plants | | mešane rastline za rejo polžev | | | | Other plants | | | Mixed plants | |  | |
| 699 | mešane sadne vrste | | | | other fruit | | druge sadne vrste |  | | | Orchard | | | Fruit | |  | |
| 705 | mešane trajne rastline pod 0,1 ha | | | | Mixed plants | | mešane trajne rastline pod 0,1 ha | | | | Other plants | | | Mixed plants | |  | |
| 409 | mešane zelenjadnice pod 0,1 ha | | | | Mixed plants | | mešane zelenjadnice pod 0,1 ha | | | | Other plants | | | Mixed plants | |  | |
| 506 | mešanica rastlin - naknadni posevek | | | | Mixed plants | | mešanica rastlin - naknadni posevek | | | | Other plants | | | Mixed plants | |  | |
| 011 | mešanice žit (jara) | | | | Summer cereals | | jara žita |  | | | Cereals | | | Summer Cereals | |  | |
| 811 | | mešanice žit (ozimna) | | | Winter cereals | | prezimna žita |  | | Cereals | | Winter cereals | | |  | |
| 722 | | miskant | | | Ornametal grass | | miskant | Miscanthus spp | | Other plants | | Grass | | | Ornamental production | |
| 118 | | mnogocvetna ljulka | | | Perennial ryegrass | | mnogocvetna ljulka | Lolium perenne | | Grass | | Grass | | | Grass | |
| 046 | | motovilec | | | Corn Salad | | motovilec | Valerianella locusta | | Other plants | | Vegetable | | | Corn Salad | |
| 658 | | murva | | | Mulberry | | murva | Morus spp. | | Orchard | | Fruit | | | Trees | |
| 661 | | namizno grozdje | | | Vineyard | | vinograd (ne mlad, ravno | Vitis vinifera | | Vineyard | | Vineyard | | | Vineyard | |
| 614 | | nashi | | | Asian pear | | nashi | Pyrus pyrifolia | | Orchard | | Fruit | | | Trees | |
| 042 | | navadna buča | | | Pumpkin | | prehranska buča / buča v | Cucurbita pepo | | Other plants | | Pumpkin | | | Pumpkin | |
| 223 | | navadna nokota | | | Birdsfoot Trefoil | | navadna nokota | Lotus corniculatus | | Legumes | | Fodder legumes | | | Birdsfoot Trefoil | |
| 999 | | nedefinirana kmetijska rastlina | | | Undefined | | nedefinirana kmetijska rastlina | | | Unclassified | | Undefined | | |  | |
| 622 | | nektarina | | | Nectarine | | nektarine | Prunus persica | | Orchard | | Fruit | | | Trees | |
| 904 | | neozelenjen del | | | No green cover | | neozelenjen del |  | | Unclassified | | Undefined | | |  | |
| 204\_a | | nepokošen pas | | | Untouched grass belt | | nepokošen pas |  | | Unclassified | | Grass | | |  | |
| 616 | | nešplja | | | Medlar | | nešplja | Mespilus germanica | | Orchard | | Fruit | | | Trees | |
| 000 | | ni v uporabi | | | not in use | | ni v uporabi |  | | Unclassified | | Undefined | | |  | |
| 888 | | Ni v uporabi KMG | | | not in use | | Ni v uporabi KMG |  | | Unclassified | | Undefined | | |  | |
| 404 | | njivska zelišča | | | Field herbs | | njivska zelišča |  | | Other plants | | Mixed plants | | | Vegetable | |
| 735 | | okrasne rastline | | | cvetje in okrasne rastline | | okrasne rastline | Mixed plants | | Other plants | | Ornamental production | | |  | |
| 800 | | oljka | | | Olive | | oljka | Olea europea | | Orchard | | Fruit | | | Trees | |
| 013 | | oljna buča | | | Pumpkin for oil | | oljna buča | Cucurbita pepo | | Other plants | | Row crops, interrow 2 m | | | Pumpkin | |
| 014 | | oljna ogrščica (jara) | | | Summer rapeseed | | jara oljna ogrščica | Brassica napus var. napus | | Other plants | | Brassicaceae | | | Summer rapeseed | |
| 814 | | oljna ogrščica (ozimna) | | | Winter rapeseed | | prezimna oljna ogrščica | Brassica napus var. napus | | Other plants | | Brassicaceae | | | Winter rapeseed | |
| 113 | | oljna redkev | | | Oil radish | | oljna redkev | Raphanus sativus var. oleiformis | | Other plants | | Brassicaceae | | | Brassicaceae | |
| 103 | | oljna repica | | | Turnip rape | | oljna repica | Brassica rapa subsp. oleifera | | Other plants | | Brassicaceae | | | Brassicaceae | |
| 631 | | oreh | | | Nuts | | oreh | Juglans regia | | Orchard | | Fruit | | | Trees | |
| 698 | | oreh in kostanj | | | Nuts | | oreh in kostanj |  | | Orchard | | Fruit | | | Trees | |
| 008 | | oves (jari) | | | Summer oat | | jari oves | Avena sativa | | Cereals | | Summer Cereals | | | Summer oat | |
| 808 | | oves (ozimni) | | | Winter oat | | prezimni oves | Avena sativa | | Cereals | | Winter cereals | | | Winter oat | |
| 221 | | perzijska detelja | | | Clover | | detelja | Trifolium sp | | Legumes | | Fodder legumes | | | Clover | |
| 003 | | pira (jara) | | | Summer Spelt | | jara pira | Triticum spelta | | Cereals | | Summer Cereals | | | Summer spelt | |
| 803 | | pira (ozimna) | | | Winter spelt /vegetable pro | | prezimna pira / njivska ze | Triticum spelta | | Cereals | | Winter cereals | | | Winter spelt | |
| 108 | | podzemna koleraba | | | Rutabaga swede | | podzemna koleraba | Brassica napus rapifera | | Other plants | | Row crop;interrow 40 cm | | | Root crop | |
| 673 | | pomarančevec | | | Orange | | pomarančevec | Citrus × sinensis | | Orchard | | Fruit | | | Trees | |
| 777 | | površina v odstopu | | | Area in owner transition | | površina v odstopu |  | | Unclassified | | Undefined | | |  | |
| 026 | | praha | | | not in use | | praha |  | | Unclassified | | Undefined | | |  | |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 010 | proso | Winter millet | | proso | | Panicum miliaceum | Cereals | | Winter cereals | Winter cereals | |
| 001 | pšenica (jara) | Summer wheat | | jara mehka pšenica | | Triticum aestivum | Cereals | | Summer Cereals |  | |
| 801 | pšenica (ozimna) | Winter wheat | | prezimna pšenica – mehk | | Triticum aestivum | Cereals | | Winter cereals | Winter cereals | |
| 734 | rabarbara | Rhubarb | | rabarbara | | Rheum | Vegetable | | Vegetable | Rhubarb | |
| 047 | radič | Radicchio | | radič | | Cichorium intybus | Vegetable | | Vegetable | Radicchio | |
| 649 | rakitovec | Sea buckthorns | | rakitovec | | Hippophae | Other plants | | Trees | Sea buckthorns | |
| 403 | različna trajna zelišča | Permanent herbs | | različna trajna zelišča | |  | Vegetable | | Mixed plants |  | |
| 655 | rdeči ribez | Redcurrant | | rdeči ribez | | Ribes rubrum | Orchard | | Soft fruit | Bushes in row | |
| 036 | riček | Camelina | | navadni riček | | Camelina sativa | Other plants | | Other plants | Camelina | |
| 034 | rjava indijska gorčica | Brown mustard | | rjava indijska gorčica | | Brasica juncea | Other plants | | Brassicaceae |  | |
| 654 | robida | Blackberry | | robida | | Rubus fruticosus | Orchard | | Soft fruit | Bushes in row | |
| 662 | robida x malina | Tayberry | | robida x malina | | Rubus fruticosus x idaeus | Orchard | | Soft fruit | Bushes in row | |
| 048 | rukola | Arugola | | rukola | | Eruca sativa | Vegetable | | Vegetable |  | |
| 998 | Ruševje | Mountain pine | | Ruševje | | Pinus mugo | Trees | | Trees |  | |
| 002 | rž (jara) | Summer rye | | jara rž | | Secale cereale | Cereals | | Summer Cereals | Summer rye | |
| 802 | rž (ozimna) | Winter rye | | rž (ozimna) | | Secale cereale | Cereals | | Winter cereals | Winter rye | |
| 678 | sibirska borovnica | Fly honeysuckle | | sibirska borovnica | | Lonicera caerulea | Orchard | | Soft fruit | Bushes in row | |
| 024 | sirek | Sorghum | | sirek | | Sorghum bicolor | Other plants | | Row crop;interrow 60 cm | Maize | |
| 737 | sivka | Lavender | | sivka | | Lavandula | Other plants | | Other plants | Lavender | |
| 677 | skorš | Sorb tree | | skorš | | Sorbus domestica | Other plants | | Trees |  | |
| 049 | sladka koruza | Sweet maize | | sladka koruza | | Zea mais | Maize | | Maize | Maize | |
| 019 | sladkorna pesa | Root beet, Rutabage | | krmna pesa, koleraba | | Beta vulgaris subs. vulgaris; Brassica na | Other plants | | Row crop;interrow 70 cm | Row crop;interrow 70 cm | |
| 623 | sliva/češplja | Common plum, Flea | | sliva/češplja | | Prunus domestica | Orchard | | Fruit | Trees | |
| 647 | smokva (figa) | Common fig | | smokva (figa) | | Ficus carica | Orchard | | Fruit | Trees | |
| 030 | soja | Soybean | | soja | | Glycine max | Legumes | | Grain legumes | Soybean | |
| 012 | sončnice | Sunflower | | sončnice | | Helianthus annuus | Other plants | | Other plants | Sunflower | |
| 021 | soržica (jara) | Mixture of summer wheat a | | soržica (jara) | | Triticum aestivum, Secale cereale | Cereals | | Summer Cereals |  | |
| 821 | soržica (ozimna) | Mixture of winter wheat an | | soržica (ozimna) | | Triticum aestivum, Secale cereale | Cereals | | Winter cereals |  | |
| 116 | sudanska trava | Sudan grass | | sudanska trava | | Sorghum sudannense | Other plants | | Other plants | Maize | |
| 680 | šipek | Dog-rose | | šipek | | Rosa canina | Other plants | | Other plants | Bushes in row | |
| 703 | šparglji | Asparagus | | šparglji | | Asparagus officinalis | Vegetable | | Vegetable | Asparagus | |
| 333 | tehnično ali drugo sredstvo | undefined | | tehnično ali drugo sredstvo | | | Unclassified | | Undefined |  | |
| 723 | tobakovec | Tobacco | | tobakovec | | Nicotiana tabacum | Other plants | | Other plants |  | |
| 204 | trajno travinje | 2 times mowed meadows | | 2x košen travnik | |  | Grass | | Grass |  | |
| 505 | trava - podsevek | Grass asfter main crop | |  | |  | Other plants | | Mixed plants | Grass | |
| 201 | trave | Grasses | | trave | |  | Grass | | Grass | Fooder | |
| 200 | trave za pridelavo semena | Grasses for seed production | |  | |  | Grass | | Grass |  | |
| 202 | travna ruša (travni tepih) | Grass roll | |  | |  | Grass | | Grass |  | |
| 203 | travnodeteljne mešanice | Grass clover mixture | | mešanica trav in detelj | |  | Grass | | Grass | Grass | |
| 025 | trda pšenica (jara) | Summer durum wheat | | jara trda pšenica | | Triticum turgidum var. durum | Cereals | | Summer Cereals |  | |
| 825 | trda pšenica (ozimna) | Winter dorum wheat | | prezimna trda pšenica | | Triticum turgidum var. durum | Cereals | | Winter cereals |  | |
| 007 | tritikala (jara) | Summer triticale | | jara tritikala | | Triticosecale Wittmack | Cereals | | Summer Cereals |  | |
| 807 | tritikala (ozimna) | Winter triticala | | prezimna tritikala | | Triticosecale Wittmack | Cereals | | Winter cereals | Winter cereals | |
| 704 | trsnice | Vitis nursery | | trsnice | | Vitis vinifera | Other plants | |  |  | |
| 706 | trta za drugo rabo, ki ni vino ali namizno g | Vineyard (establish) | | vinograd (ne mlad, ravno | | Vitis vinifera | Vineyard | | Vineyard | Vineyard | |
| 029 | ukorenišče hmeljnih sadik | Hop rootstock | | ukorenišče hmeljnih sadik | | Humulus lupulus | Other plants | | Other plants | Hop | |
| 100 | vinska trta | Vineyard (establish) | | vinograd (ne mlad, ravno | | Vitis vinifera | Vineyard | | Vineyard | Vineyard | |
| 626 | višnja | Sour cherry | | višnja | | Prunus cerasus | Orchard | | Fruit | Trees | |
| 210 | volčji bob | Sweet lupin | | volčji bob | | Lupinus angustifolius | Legumes | | Fodder legumes |  | |
| 031 | vrtni mak (jari) | Summer Poppy flower | | jari mak | | Papaver somniferum | Other plants | | Other plants | Summer Poppy flower | |
| 831 | vrtni mak (ozimni) | Winter Poppy flower | ozimni mak | | Papaver somniferum | | | Other plants | Other plants | Winter Poppy flower |
| 736 | vrtnice | Rose | vrtnice | | Rosa spp. | | | Other plants | Other plants | Rose |
| 117 | westerwoldska ljuljka | Annual ryegrass | westerwoldska ljuljka | | Lolium multiflorum Lam. var. westerwo | | | Grass | Grass | Annual ryegrass |
| 402 | zelenjadnice | Field vegetable production | pridelava zelenjave na njivi mešanica | | | | | Vegetable | Mixed plants |  |
| 618 | žižula | Jujube red date | Žižula | | Ziziphus zizyphus | | | Orchard | Fruit | Trees |