

NIVA UC3 – FARM REGISTRY

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UC3 GENERAL ASPECTS

UC3: GENERAL ASPECTS

Reference data model for an agricultural Farm Registry

Interfaces to exchange information (upload and query)

Store and manage data



Where is the farm?
What does the farm produce?
How does the farm produce?

UC3 DEFINITIONS

Reglamentation

- Main Concepts are regulated in:
- 1. REGULATION (EU) No 1307/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, <u>Article 4</u>
 REGULATION (EU) No 1307/2013
- 2. REGULATION (EU) No 1306/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, <u>Article 67</u>
 REGULATION (EU) No 1306/2013

3. COMMISSION DELEGATED REGULATION (EU) No 640/2014, <u>Article 2</u>
COMMISSION DELEGATED REGULATION (EU) No 640/2014

Definitions

Farm Registry

➤ UC3 FARM REGISTRY: Registry of an administrative, public, and informative nature that centralizes and unifies agricultural information and allows the Administration and the farmers to query all the data about farms and their agricultural parcels, and to facilitate administrative procedures. Farm registry should be strongly linked to the future IACS and should be updated in a continuous way

Farmer

As REGULATION #1 (farmer): a natural or legal person, or a group of natural or legal persons, regardless of the legal status granted to such group and its members by national law, whose holding is situated within the territorial scope of the Treaties, as defined in Article 52 TEU in conjunction with Articles 349 and 355 TFEU, and who exercises an agricultural activity.

> UC3 FARMER: person, or group of persons, who exercises an agricultural activity

Production Unit

As REGULATION #1 (holding): all the units used for agricultural activities and managed by a farmer situated within the territory of the same Member State.

UC3 PRODUCTION UNIT: set of contiguous parcels used for agricultural activities and managed by a farmer

Definitions

Agricultural Block

As REGULATION #1 (agricultural area): any area taken up by arable land, permanent grassland and permanent pasture, or permanent crops.

UC3 AGRICULTURAL BLOCK: continuous land areas with the same land cover

Reference Plot

As REGULATION #3 (reference parcel): a geographically delimited area retaining an unique identification as registered in the identification system for agricultural parcels referred to in Article 70 of Regulation (EU) No 1306/2013.

UC3 REFERENCE PLOT: intersection between agricultural blocks and reference parcels

Definitions

Crop Parcel

As REGULATION #2 (agricultural parcel): a continuous area of land, declared by one farmer, which does not cover more than one single crop group; however, where a separate declaration of the use of an area within a crop group is required in the context of Regulation (EU) No 1307/2013, that specific use shall if necessary further limit the agricultural parcel; Member States may lay down additional criteria for further delimitation of an agricultural parcel.

UC3 CROP PARCEL: continuous land areas with the same crop

Crop Activity

UC3 CROP ACTIVITY: works, methods and actions related to a specific crop

Crop Activity Detail

UC3 CROP ACTIVITY DETAIL: detail of works, methods and actions related to a specific crop

REFERENCE DATA MODEL

REFERENCE DATA MODEL - Basic

- Farm: all the units used for agricultural
- Farmer ID

Farmer

1

- 1-N per Farmer
- Production unit ID
- Work unit of each
 PU

Production unit

2

- Land cover (land use)
- Geometry
- Stable in time

Agricultural block

3

- Reference parcel
- Geometry
- 1-N reference plot per block

Reference plot

4

- Crop parcel with product and variety
- Irrigation and other indicators
- Land tenure
- Geometry
- Annual update

Crop parcel

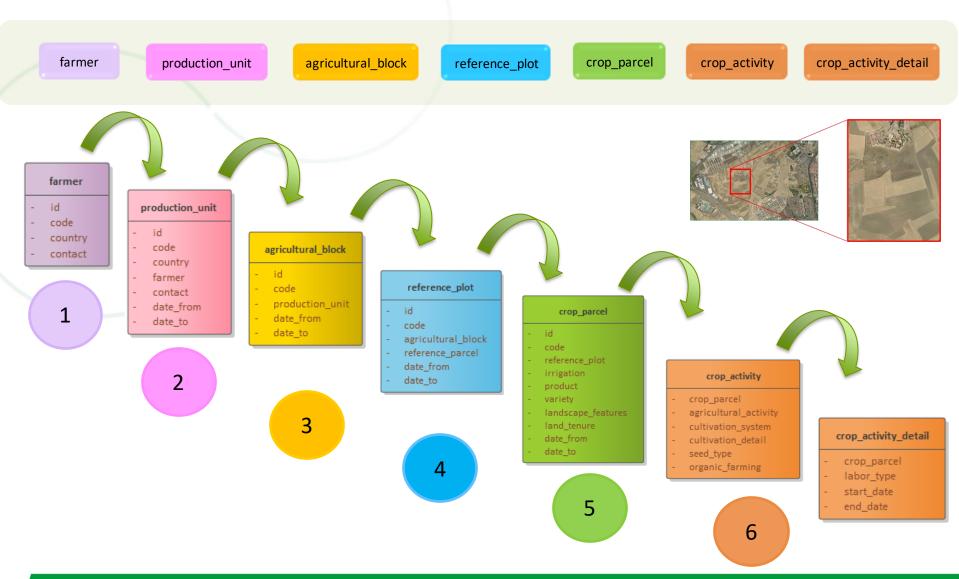
5

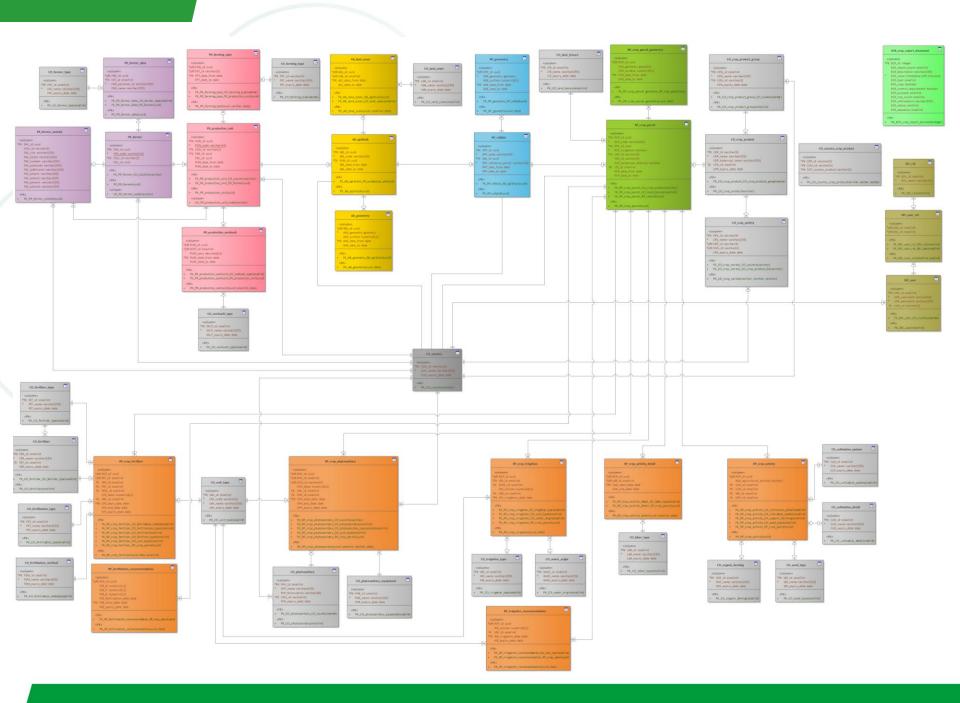
- Agricultural activity
- Cultivation system
- Labor type
- Irrigation
- Fertilization
- Phytosanitary

Crop activity

6

REFERENCE DATA MODEL - Basic





REFERENCE DATA MODEL DETAIL AND CODE LISTS PROPOSED

Farmer

Farmer Data

Basic identification data of a farmer

Farmer Contact

Single contact data of a farmer





farmer

- id
- code
- country
- contact

farmer_data

- farmer
- farmer_type
- personal_id
- name

farmer_contact

- · id
- country
- city
- street
- number
- postcode
- additional
- email1
- email2
- phone1
- phone2

Farmer ID code

Farmer

Code Lists

farmer_type

Regulation: REGULATION (EU) No 1307/2013

Code	Description
1	Natural Person
2	Legal Person
3	Group of Natural Persons
4	Group of Legal Persons

farmer

production unit

agricultural_block

reference plot

crop_parcel

crop_activity

crop_activity_detail

Production_unit

Farming type

> The type of farming of a production unit

Workunit type

> Employees' handwork type of a production unit

production_unit

- id
- code
- country
- farmer
- contact
- date_from
- date to

production_unit_farming_type

- production_unit
- farming_type
- date_from
- date_to

production_unit_workunit

- production_unit
- workunit_type
- awu
- date_from
- date_to



PRODUCTION UNIT:

- Farmer ID code
- Production unit ID code

Production_unit

Code Lists

Type of farming

Regulation: Commission Regulation (EC) No 1242/2008

Brief example of UC3 proposal: Pre-loaded values

Code	General Type of farming
151	Specialist cereals (other than rice), oilseeds and protein crops
152	Specialist rice
153	Cereals, oilseeds, protein crops and rice combined
161	Specialist root crops
162	Cereals, oilseeds, protein crops and root crops combined
163	Specialist field vegetables
164	Specialist tobacco
165	Specialist cotton
166	Various field crops combined
211	Specialist vegetables indoor
212	Specialist flowers and ornamentals indoor

Production_unit

Code Lists

Work unit

Regulation: Commission Regulation (EC) No 868/2008

Code	Description
1	Regular unpaid labour
2	Regular paid labour
3	Casual unpaid labour
4	Casual paid labour

farmer production unit

agricultural_block

reference_plot

crop_parcel

crop_activity

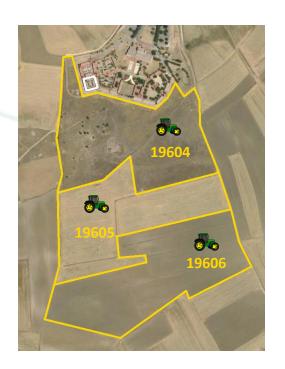
crop_activity_detail

Agricultural_block

Geometries of continuous land areas with the same land cover

Land cover

➤ Land use as EU CAP Regulation



agricultural block

- id
- code
- production_unit
- date_from
- date_to

agricultural_block_geometry

- agricultural block
- geometry
- surface
- date_from
- date_to

agricultural_block_land_cover

- agricultural_block
- land_cover
- date_from
- date_to

→ Surface: hectares in decimal format, with 2 decimals

Agricultural_block

Code Lists

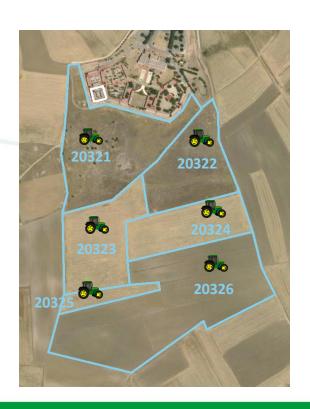
Land cover

Regulation: Regulation (EU) No 1307/2013

Code	Description
1	Arable Land
2	Permanent grassland
3	Permanent crops
4	Other non agricultural areas

Reference_plot

Created by the intersection between agricultural block and reference parcels



reference_plot

- id
- code
- agricultural_block
- reference_parcel
- date_from
- date_to

reference_plot_geometry

- reference_plot
- geometry
- surface
- date_from
- date_to

Crop_parcel

Each reference plot contains as many crop parcels as geometries of different crops.

Product

Generic denomination of an agricultural product based on its botanical species

Variety

Taxonomic rank below that of species and subspecies, but above that of form.

Land tenure

Tenure regime of a crop parcel

crop_parcel

- id
- code
- reference_plot
- irrigation
- product
- variety
- landscape_features
- land_tenure
- date_from
- date_to

crop_parcel_geometry

- crop_parcel
- geometry
- surface
- date_from
- date_to



Crop_parcel

Code Lists

Product

Brief example of UC3 proposal: Pre-loaded values

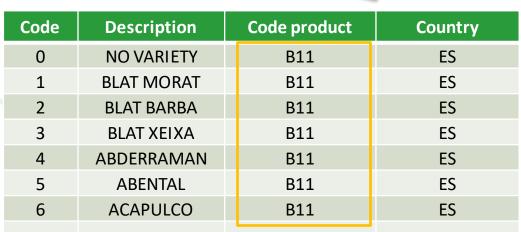
Code	Description	Botanical Name
B11	Common wheat	Triticum aestivum
B12	Durum wheat	Triticum durum
B13	Barley	Hordeum vulgare
B14	Rye	Secale cereale
B15	Oats	Avena sativa
B16	Maize	Zea mays
B17	Triticale	Triticum aestivum
B21	Potatoes	Solanum tuberosum

Crop_parcel

Code Lists

Variety

Load by each Member State Brief example:



Product

Code	Description	Botanical Name
B11	Common wheat	Triticum aestivum
B12	Durum wheat	Triticum durum
B13	Barley	Hordeum vulgare

Crop_parcel

Code Lists

Land tenure

Code	Description
0	Other
1	Property
2	Lease
3	Sharecropping
4	Communal land allocation
5	Usufruct
6	Communal sharecropping

Crop_activity

Agricultural Activity

Identification of agricultural activity on agricultural areas naturally kept in a state suitable for grazing or cultivation

Cultivation system

Crop cultivation system

Cultivation detail

Crop cultivation system detail

Seed type

Type of seed used by the farmer

Organic farming

Type of organic certification

crop_activity

- crop_parcel
- agricultural_activity
- cultivation_system
- cultivation_detail
- seed type
- organic_farming



Crop_activity

Code Lists

Cultivation system

UC3 proposal: Pre-loaded values

Code	Description
0	Other
1	Fresh air
2	Accesible cover
3	Not accesible cover

Cultivation detail

Code	Description
0	Other
1	In water
2	In soil
3	Artificial substrate
4	Pot crops
5	Tray crops
6	On trellises
7	In row

Crop_activity

Code Lists

Seed type

UC3 proposal: Pre-loaded values

Code	Description
0	Other
1	Certificated
2	Re-used
3	Treated

Organic farming

Code	Description
1	Non-certified
2	Certified
3	In conversion



Labor type **Labor type**

The type of labor carried out

Irrigation type

> Type of irrigation used to produce a crop

Phytosanitary

Phytosanitaries that can be used by the farmer when producing a crop

Kind of fertilizers that can be used by the farmer when producing a crop

crop activity detail

- crop parcel
- labor type
- start_date
- end_date

crop_irrigation

water_origin

irrigation_date

volume

- crop_parcel crop parcel
- irrigation_type phytosanitary
 - country
 - dose

 - equipment
 - start_date

crop phytosanitary

end_date

crop_fertilizer

- crop_parcel
- fertilizer type
- fertilizer
- fertilization_type: int
- fertilization_method: int
- dose
- unit
- start_date end date

Irrigation type Water origin

Phytosanitary Equipment

> Fertilizer type **Fertilizer** Fertilization type



Fertilizer

Fertilization method

Code Lists

Labor type

Code	Description
0	Other
1	Sowing
2	Harvest
3	Fruit picking
4	Pruning
5	Tillage
6	Maintenance of permanent crops
7	Sepherding
8	Weeding / Clear
9	Mowing for maintenance
10	Drainage maintenance
11	Mowing for grass production

Code Lists

Irrigation type

UC3 proposal: Pre-loaded values

Code	Description	
0	Other	
1	Sprinkler	
2	Drip	
3	Surface flow	
4	Inundation	

Water origin

Code	Description
1	Surface water
2	Ground water

Code Lists

Phytosanitary

Load by each Member State Brief Example:

Code	Name	Formulation	%	Country
11179	MICROTHIOL SPECIAL DISPERSS	SULPHUR 80% [WG] W/W	80	ES
11231	COBRE NORDOX 50	CUPROUS OXIDE 50% (EXPR. IN CU) [WP] W/W	50	ES
11312	DECCOSOL-MF	2-PHENYLPHENOL 13% (EXPR. IN OPP) [SL] W/V	13	ES
•••				•••

Phytosanitary equipment

Code	Description
0	Other
1	Hydraulic sprayer/folding arms sprayer
2	Atomizer or hydro-pneumatic sprayer
3	Mistblowers
4	Centrifugal air blast
5	Soil injection equipment
6	Dusters
7	Equipment placed inside greenhouses or other covers
8	Equipment placed on aerial craft for aerial spraying

Code Lists

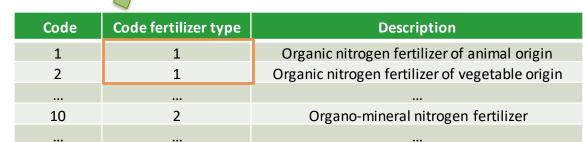
Fertilizer type

UC3 proposal: Pre-loaded values

Code	Description	
1	Organic fertilizer	
2	Organo-mineral fertilizer	
3	Inorganic fertilizer	
4	Liming material	
5	Organic soil improver	
6	Inorganic soil improver	
7	Growing medium	
8	Nitrification inhibitor	
9	Denitrification inhibitor	
10	Urease inhibitor	
11	Microbial plant biostimulant	
12	Non-microbial plant biostimulant	
13	Manure	
14	Sludge	
15	Wasterecovery (R10 operation)	
16	Urban compost	

Fertilizer

Brief example of UC3 proposal: Pre-loaded values



Code Lists

Fertilization type

UC3 proposal: Pre-loaded values

Code	Description	
1	Base dressing	
2	Top dressing	

Fertilization method

Code	Description	
0	Other	
1	Fertigation	

Other code lists

Country

Regulation: Horizon 2020
Regulation. Associated Countries

Code	Description
AT	Austria
BE	Belgium
BG	Bulgaria
HR	Croatia
CY	Cyprus
CZ	Czechia
DK	Denmark
EE	Estonia
FI	Finland
FR	France
DE	Germany

Code	Description
EL	Greece
HU	Hungary
IE	Ireland
IL	Israel
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	Netherlands

Code	Description
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SK	Slovakia
SI	Slovenia
ES	Spain
SE	Sweden
СН	Switzerland
UK	United Kingdom

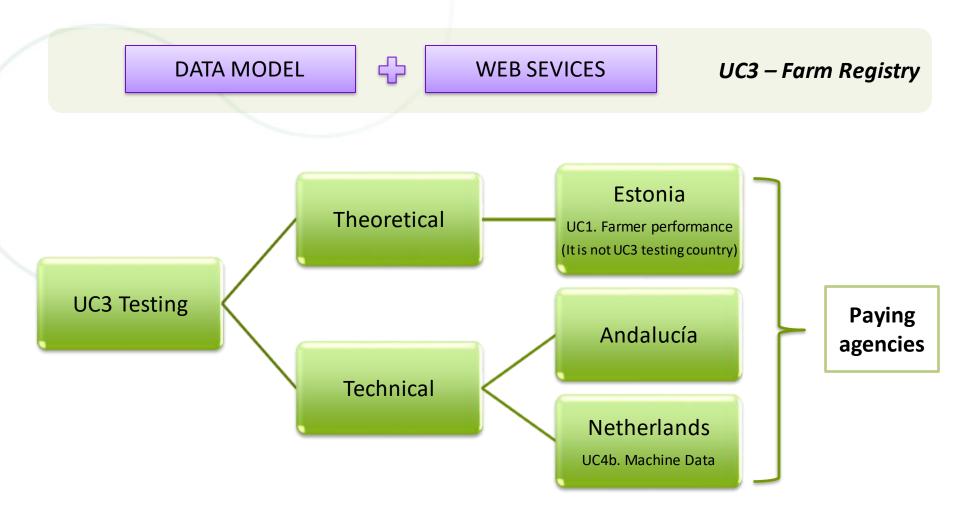
Unit

Code	Description	
1	l/ha	Litre/Hectare
2	kg/ha	Kilogram/Hectare
3	m3/ha	Cubic meter/Hectare
4	I/m2	Litre/Square meter

TESTING

NEW ACS VISION IN ACTION

Testing by paying agencies



JSON: UC3- SampleMessage JSON

```
"CropReportDocument": {
   "ID": 1234567890.
   "ReportCount": 1.
   "Description": "eCrop report message",
   "Issue": "2020-01-30",
   "Type": 1,
   "Copy": false,
   "ControlRequirement": false,
   "Purpose": 1.
   "LineCount": 440,
   "Information": "Some random information tex
   "Status": 1.
   "Sequence": 1
"AgriculturalProducerParty": [{
   "Country": "ES",
   "Name": "Luis Miguel Sánches",
   "Classification": 1.
   "PersonalID": "2260069R",
   "StructuredAddress": {
        "Country": "ES",
        "CityName": "Getafe",
        "StreetName": "Julián Camarillo",
        "BuildingNumber": "6B",
       "Postcode": "28080",
       "Additional": "nothing",
       "Emaill": "lmsanches@tragsa.es",
       "Email2": "email2@tragsa.es",
       "Phonel": "+34 611 742 101",
       "Phone2": "0034 612 742 102"
   1.
   "AgriculturalProductionUnit": [{
        "Country": "ES",
       "DateFrom": "2015-01-26",
        "DateTo": "2015-12-31",
        "StructuredAddress": {
            "Country": "ES",
            "CityName": "Madrid",
            "StreetName": "Alcalá",
            "BuildingNumber": "100",
            "Postcode": "28082",
            "Additional": "parcel",
            "Emaill": "parcell@tragsa.es",
            "Email2": "parcel2@tragsa.es",
            "Phone1": "+34687791122",
            "Phone2": "+34666777888"
```

```
"FarmingType": [{
    "Type": "152",
    "DateFrom": "2020-01-01",
    "DateTo": "2020-01-21"
"Workunit": [{
    "Type": 1,
    "AWU": 8.5,
    "DateFrom": "2020-02-01".
    "DateTo": "2020-02-10"
11.
"CropPlot": [{
    "Code": "CP 01",
    "Start": "2019-09-01",
    "End": "2019-12-31".
    "SoilType": [{
        "DateFrom": "2020-07-01",
        "DateTo": "2020-07-07"
    "Geometry": [{
        "Type": "Polygon",
         "Coordinates": [
                         [[5.41412794564089, 52.148451591648602],
                          [5.41784357231444, 52.154784683175897],
                          [5.4232748279405, 52.157515523436402],
                          [5.41412794564089, 52.14845159164860211
        "Surface": 9873.25,
        "DateFrom": "2021-01-01".
        "DateTo": "2021-12-31"
    11.
    "ReferencePlot": [{
        "Code": "RP_01",
        "DateFrom": "2020-02-01".
        "DateTo": "2020-02-10",
        "ReferenceParcel": "28074A017003930000UA00000001",
        "Geometry": [{
            "Type": "Polygon",
            "Coordinates": [
                             [[5.49469492804353, 52.124697887324601],
                             [5.49691768162249, 52.119557486966002],
                             [5.5053539453497, 52.1197504466279971,
                             [5.49469492804353, 52.124697887324601]]
            "Surface": 5688.45,
            "DateFrom": "2021-10-01".
            "DateTo": "2021-10-31"
```

```
"FieldCrop": [{
        "Code": "FC 01",
        "Irrigation": true,
        "CropProduct": "B18",
        "LandscapeFeatures": true,
        "LandTenure": 3,
        "DateFrom": "2020-01-01",
         "DateTo": "2021-12-31".
        "Geometry": [{
            "Type": "Polygon",
             "Coordinates": [
                             [[5.47582548628898, 52.112071103
                             [5.47603713431143, 52.1050121536
                             [5.47370706432387, 52.1047596282
                             [5.47582548628898, 52.11207110359
            "Surface": 754.12,
            "DateFrom": "2021-01-01",
            "DateTo": "2021-12-31"
        "Activity": {
            "AgriculturalActivity": true,
            "CultivationSystem": 2,
            "CultivationDetail": 5,
            "SeedType": 3,
            "OrganicFarming": 1
        "ActivityDetail": [{
            "LaborType": 1.
            "StartDate": "2021-01-01",
            "EndDate": "2021-01-01"
        11.
        "CropIrrigation": [{
            "Type": 1,
            "WaterOrigin": 1,
            "Volume": 49.99,
            "Unit": 1,
            "Date": "2021-12-31"
        11.
        "Phytosanitary": [{
            "ID": 0,
            "Country": "ES",
            "Dose": 55.99,
            "Unit": 1.
            "Equipment": 1,
            "StartDate": "2020-02-01",
            "EndDate": "2020-02-10"
        "Fertiliser": [{
            "ID": 5,
             "Type": 1,
            "FertilisationType": 2,
            "FertilisationMethod": 1.
            "Dose": 25.52,
             "Unit": 1.
            "StartDate": "2021-01-01".
            "EndDate": "2021-01-01"
        11
11
```

11

11

UC3- NEW MILESTONES

Next milestones

- ✓ Consolidated Version of the Data Model **M17** (Oct 2020)
- ✓ Interfaces query and update M18 (Nov 2020)
- ✓ Testing **before M19** (Dec 2020) by:
 - Andalucía
 - Netherlands
 - Estonia



THANK YOU!



























































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