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UNITED NATIONS CENTRE FOR TRADE FACILITATION
AND ELECTRONIC BUSINESS (UN/CEFACT)

**BUSINESS REQUIREMENTS SPECIFICATION
(BRS)**

eCROP

FINAL DRAFT AFTER PUBLIC REVIEW

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Document Change history log

Date of change	Version	Paragraphs changed	Summary of changes
	0.1		New initial document
April 2016		Chapter 1 – 4.4	Editorial Comments Update of business requirements (chapter 4.1)
October 2017	0.9	Chapter 4.4 and 4.5	Update class diagrams and business information entities. All information entities are updated according to the outcome of the harmonization process and the CCL16B In version 0.9 these changes are not marked in the text. The class diagrams in chapter 4.4 and all text in chapter 4.5 are replaced.

1 Preamble

This document describes the use cases for the exchange of production and cultivation data (crop recordings) in arable farming, horticulture and aquaculture for plant products (seaweed, mussels, fish ...) in two phases. Describing the use cases is part of the process of developing standard UN/CEFACT messages for exchanging crop related data.

The outputs will be the harmonized XML schemas that specify the data exchange between business processes.

The structure of this document is based on the structure of the UN/CEFACT Business Requirements Specification (BRS) document reference.

2 References

- UN/CEFACT Modelling Methodology User Guide (CEFACT/TMG/N093)
- UN/CEFACT Business Requirement Specification Document Template (CEFACT/ICG/005)
- UN/CEFACT E-CERT, eDaplos and eLAB (BRS)
- UN/CEFACT CCL 15B
- ISO 191xx / GML
- The Crop Reference Data Model (Wageningen, 2015)
- AgroConnect EDI-Crop standard messages for arable farming

3 Scope

3.1 Description

This section describes the extent and limits of the business processes within the information chain being described in this document.

The scope of eCROP (source: project initialization document):

- The project focuses on data exchange in the supply chain for horticulture, fresh fruits, vegetables, flowers & plants and arable farming crops, including processed food. The supply chain consist of parties involved from retail to the grower including cooperatives and producer organization, food processors, other industries (pharma?, chemical) auctions, packers and traders.
- The information is used by the producer/grower (use producer instead) and his business partners to insure sustainable production farming and aquaculture, food quality and food safety and to produce more with less.
- (Include diagram with all the types of actors and roles (producer, grower, producer processor))
- What is in scope and out of scope (palm oil Unilever is out, farm operations is in, storage and packing can be in, not the further processing is out. (use the Nace qualification A and B)
- In growing, raising, harvesting and primary storage, including the farm related transport. Crop recording data is used by advisory services and systems to support the farmer in making the right decisions in de process of nurturing his crop and in precision farming, including the farm related transport

The information flows concern:

- Information about the crop fields including aquaculture plots - production location, the planned and or actual crop (rotation) schema, treatment, plant health (animal health next phase), soil and water situation, crop observation data, supplies (seed, fertilizer, plant protection), operation advices and operation instructions and the logging report about operations and events.
- Information about the production of the crop or product; information about treatment (crop protection, health agents, fertilizers, animal feed, use of energy and water and other necessary master data).
- Geo-information / location, (geographical characteristics such as point, line polygons, 2D, 3D) about the exact location of field operations to support spatial farming. (or address , GLN or blue numbers)
- Information about labor (organizing of the labor in the companies on the supply chain level).
- Information about certificates (such as GlobalGap or SPS certificates, farm or product).

Categories	Description and Values
Business Process	Plant production, produce and certification data exchange

Product Classification	Plant production and produce data
Industry Classification	All sectors involving plant production (arable farming, horticulture, animal forage and aqua culture)
Geopolitical	Global
Official Constraint	European Regulations National regulations Local applicable regulations
Business Process Role	Exchange of plant production data
Supporting Role	None
System Capabilities	Agreed level of security to protect data integrity Network of connected T&T databases

3.2 Context

Important is:

- A generic standard supporting data exchange to plant commodities of all kinds to be used by the involved parties for the specified plant products.

4 Business Requirements Elaboration

4.1 Business Requirements List

Number	Business Requirement Statement
0.	Interoperability between different systems
1.	Independent of local plant production practises, storage, trade and processing and independent of national and / or geographical locations
2.	Independent of the brand and type of information systems (e.a. FMIS) used in the production chain.
3.	Support the use of global and regional standards for identification of parties involved, plots, object, batches and events.
4.	Can be used as a standards for data exchange in different types of architecture, like peer-to-peer data exchange or data exchange via a message broker.
5.	
6.	
7.	

Definitions of Business Terms

Crop	
Produce	
Geographical Feature	
Location	An identified geographical point or area where an event related to an agriculture practice occurs.
Party	An identified person, organization or authority.
Certificate	
Agricultural process	

4.2 Business Requirements View

The purpose of the eCROP project is to create Business Process Models and Business Class Diagrams for documenting the business scenarios and business transactions involved in the electronic exchange of the data involved in the process of cultivation of crops (def of crop: xxxxx) (and aqua plant products) (arable farming and horticulture and aqua culture) and the electronic exchange of crop cultivation data along the supply chain.

Four different use cases are distinguished:

- A. Use case **Compliance**
Crop data for certification purposed. Report the cultivation history of a crop and/or treatment data of a batch of produce to certifying bodies for compliance purposes.
- B. Use case **Supply chain**
Crop data for business partners like traders and retail. Report the cultivation history of a crop and/or treatment data of a batch of produce to buyers, traders, retail.
- C. Use case **Cultivation support**
Crop data for advisory services. Report data on a regular base (e.g. every month) of all operations and observations carried out for a specific specific crop or produce to an advisory service, in order to receive detailed advice on further crop treatment.
- D. Use case **Business to Government**
Crop data and produce data for governmental organizations for compliance purposes to national and international regulations concerning the import - and export of seeds, plant material or produce; for instance in the field of phytosanitary regulations.

A) USE CASE COMPLIANCE

General description:

- Concerns crop and produce data for certification purposes.
Reporting the cultivation history of a crop and/or the treatment history of a product to certification bodies for compliance purposes.
- Concerns the reporting of all operations carried out on the crop and on the harvested product.
- Does not include compliance data on farm level, for instance if the storage of chemicals for crop protection is in good order or if sufficient action is taken to keep mice out of storage rooms, etc.

Process description:

- Producer requests Certifying Body for a specific certificate.
- Certifying Body provides the producer with the report instructions for compliance for that specific certificate.
- Producer keeps record of all the operations carried out on the crop or produce, to prove conformance to the requirements of the certificate.
- Producer sends Certifying Body a complete recording of all the operations carried out on the crops and on the produce.
- Certifying Body checks if the crop and produce treatment comply with the requirements of the specific certificate.

- If the crop/produce treatment is according to the certification requirements (and also comply with all the other requirements), the Certifying Body grants the producer the certificate.

Pre-condition:

- Producer has a need for a specific certificate for his crop or produce.

Post-condition:

- Producer receives a specific certificate (or not?) for his crop or product.

B) USE CASE SUPPLY CHAIN

General description:

- Concerns crop data for traders and retail.
Report the cultivation history of a crop to business partners like buyers, traders, retail. It is important to have crop data available for goods yet to be traded or goods to be supplied to retail organizations. Firstly, because customers or regulatory organizations demand it in the context of food safety, secondly because it offers vital information for produce selection, in right order at the right time, to serve the actual market demands. A third reason for the business partner to collect detailed information about the growing process and storage process is benchmarking between different producers and to increase their knowledge on growing and storing of crops and produce.
- It concerns the reporting of all operations carried out on the crop and on the produce during storage.

Process description:

- Producer reaches a trading agreement (including the requirements) with a Buyer (Broker, Trader, Industry).
- Buyer provides Producer with the report instructions, concerning treatments that are carried out on the crop and on the produce that are part of the business agreement.
- Producer keeps record of the operations and/or treatments carried out on the crop or produce, conform the requirements of Buyer.
- Producer sends to Buyer at the end of the growing season or at the end of the storing period of the produce, a complete recording of the operations carried out on the crops and produce.
- Buyer checks if the growing and storage process is carried out in conformance with the agreed requirements.
- If the crop/produce treatment is in conformance with the requirements the produce is accepted. by the Buyer.

Pre-condition:

- Buyer requires that the crops and produce are treated compliant to conformance with the requirements set by the buyer.
- Buyer demands detailed information about the process of growing and storing.

Post-condition:

- Buyer receives detailed information about the process of growing and storing.

C) USE CASE CULTIVATION SUPPORT

General description:

- Concerns crop data for Advisory Services.
Share on a regular basis (e.g. real time or every month), the records of all operations carried out on a specific plot or on a specific crop or produce with an advisory service or supporting system, in order to receive detailed advice on further crop or produce treatment.
-

Process description:

- Producer comes to an agreement with an Advisory Service concerning support on crop cultivation and produce treatment.
Part of the agreement is the specification of the data set that they will share and the intensity of advising.
- Producer keeps record of all the operations carried out on his crop and on his produce.
Producer shares this data during the growing season of his crop or the storage period of his produce, with his Advisory Service.
- Advisory Service provides advises for the producer, during the growing season and / or storage period. The advises can be transferred in word, on paper or in digital way.

Pre-condition:

- Producer requires advisory service in growing his crop and / or storing his produce.

Post-condition:

- During the growing season and during the period of produce storing, the producer receives the best advice on crop and produce treatment.

D) BUSINESS TO GOVERNMENT

General description:

- Crop data for governmental organizations for compliance purposes to national and international regulations concerning the in- and export of produce; for instance in the field of phytosanitary regulations.
- These reports might trigger RASFF's (Rapid Alert System for Feed and Food) to intervene in the trading and transportation of animals, feed and food.

Process description:

- Governmental Organization publishes the regulations for transportation of animals, feed and food.
- Producer takes notice of these regulations where it concerns the cultivation of his crops and the treatment of his produce.
- Producer produces according to the regulations.
- Producer keeps record of all the operations carried out on his crop and on his produce.

- When the Producers delivers his produce, he sends in the report of all the operations carried out on his crop / produce to the Governmental Organization or to the Auditing Organization.
- Governmental Organization checks if the agricultural produce is produces according to the regulations. If not so, the required measurements are taken by the Governmental Organization.

Pre-condition:

- Producer needs conformation that his produce is produced compliant to phytosanitairian regulations so that he can export the produce.

Post-condition:

- In case the produce is compliant to the relevant regulations, the export can take place. In case the produce is not compliant with the regulations, the producer is informed and in the worst case scenario he has to hold on to his produce, export cannot take place.

2. SEQUENCE MODEL ECROP

The four use cases are illustrated with the following sequence diagram.

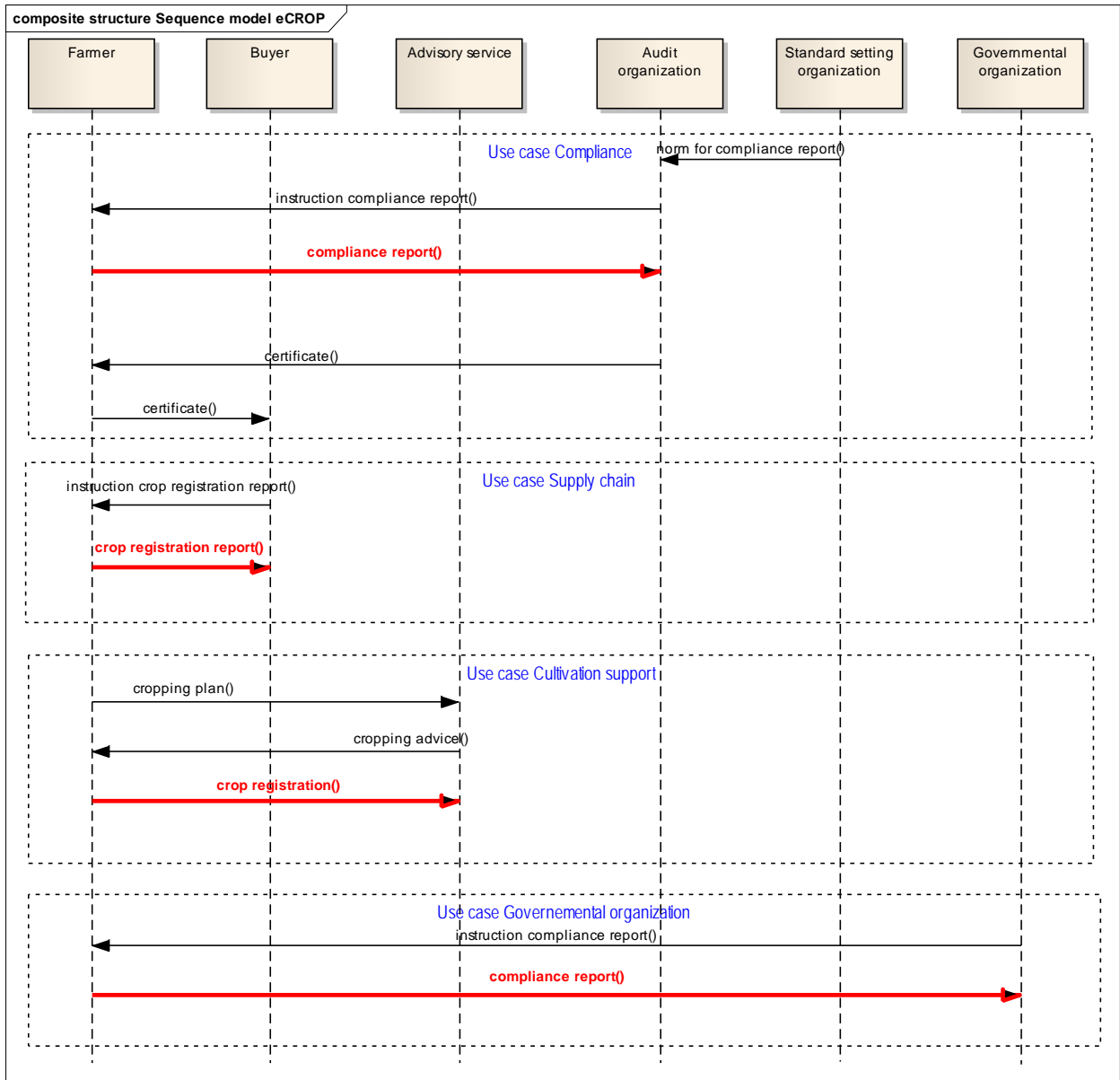


Diagram 1. Sequence diagram use cases eCROP.

4.2.1 Business Partner View–Participants and Stakeholders

Figure 6. the business parties

4.2.1 Business Entity View– Entity States, Lifecycle and Conceptual Model

The class diagram describes all the necessary classes of information for a flow of information exchange for eCROP Data Exchange.

This use cases on eCROP helps reducing risks in the fields of feed and food safety, health, economic and environmental sustainability.

4.3 The activity diagrams

The activity diagrams helps identifying all the significant information flows between the business partners in the tracking and tracing processes.

4.3.1 Activity Diagram

4.4 Information model definition (class diagram)

A generic information structure is provided in the figure Generic / overview class diagram for eCROP

This shows the relation between different kind of objects required for all the uses cases.

To serve the uses cases the objects needs much more detail detailed.

Also the hierarchy between the objects can be different, depending on the type of message, ie the purpose of the business exchange and the information to be exchanged.

The information entities related to the product, crop growing and the farm processes are based in the data reference model crop rmAgro (D. Goense Wageingen University and Research).

In this version of the class diagrams, the cardinality of the BBIES is not correct indicated. For the proper cardinalities see the description in next chapter.

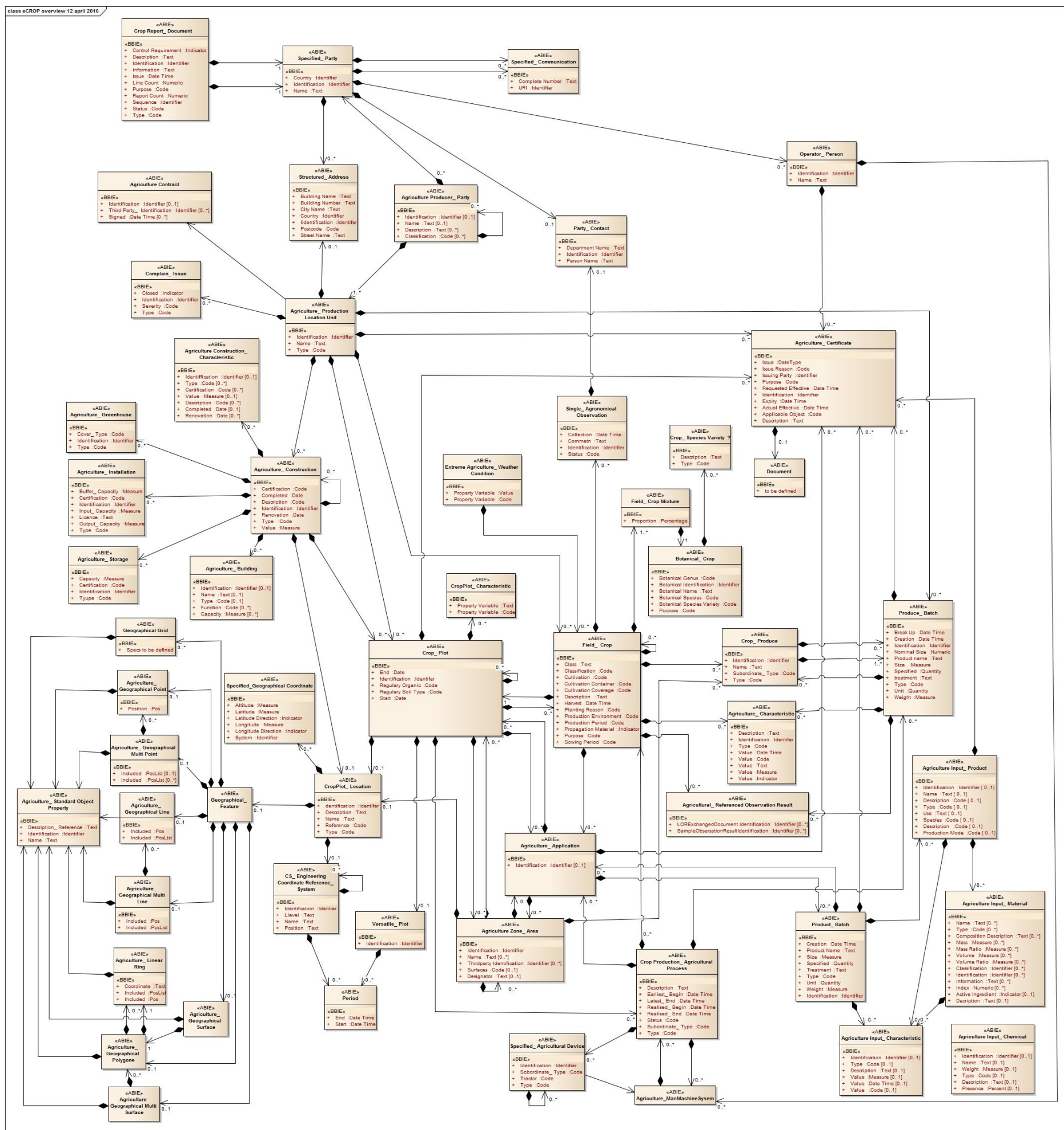


Figure Generic / overview class diagram for eCROP

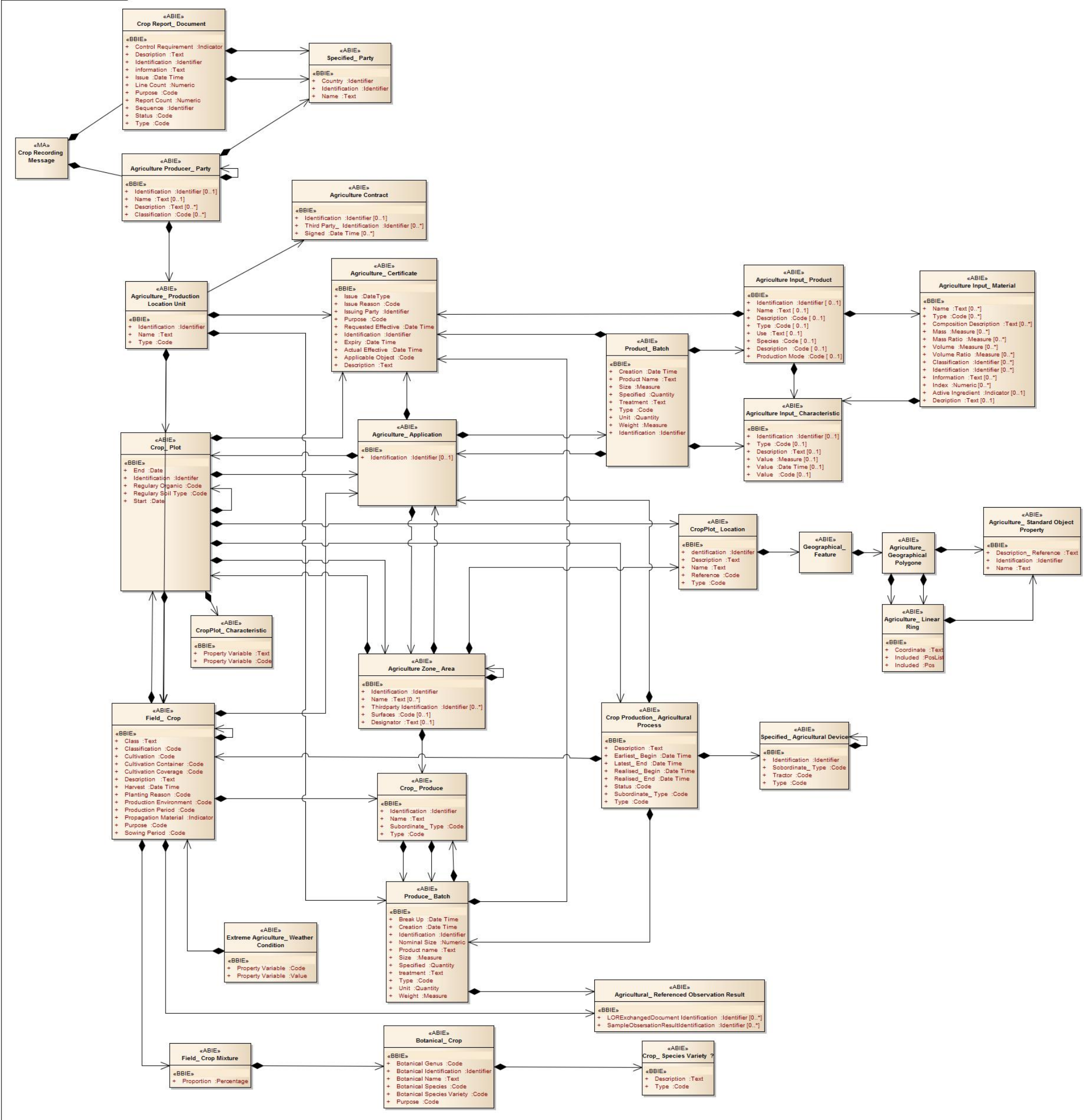


Figure Crop Recording class diagram for eCROP

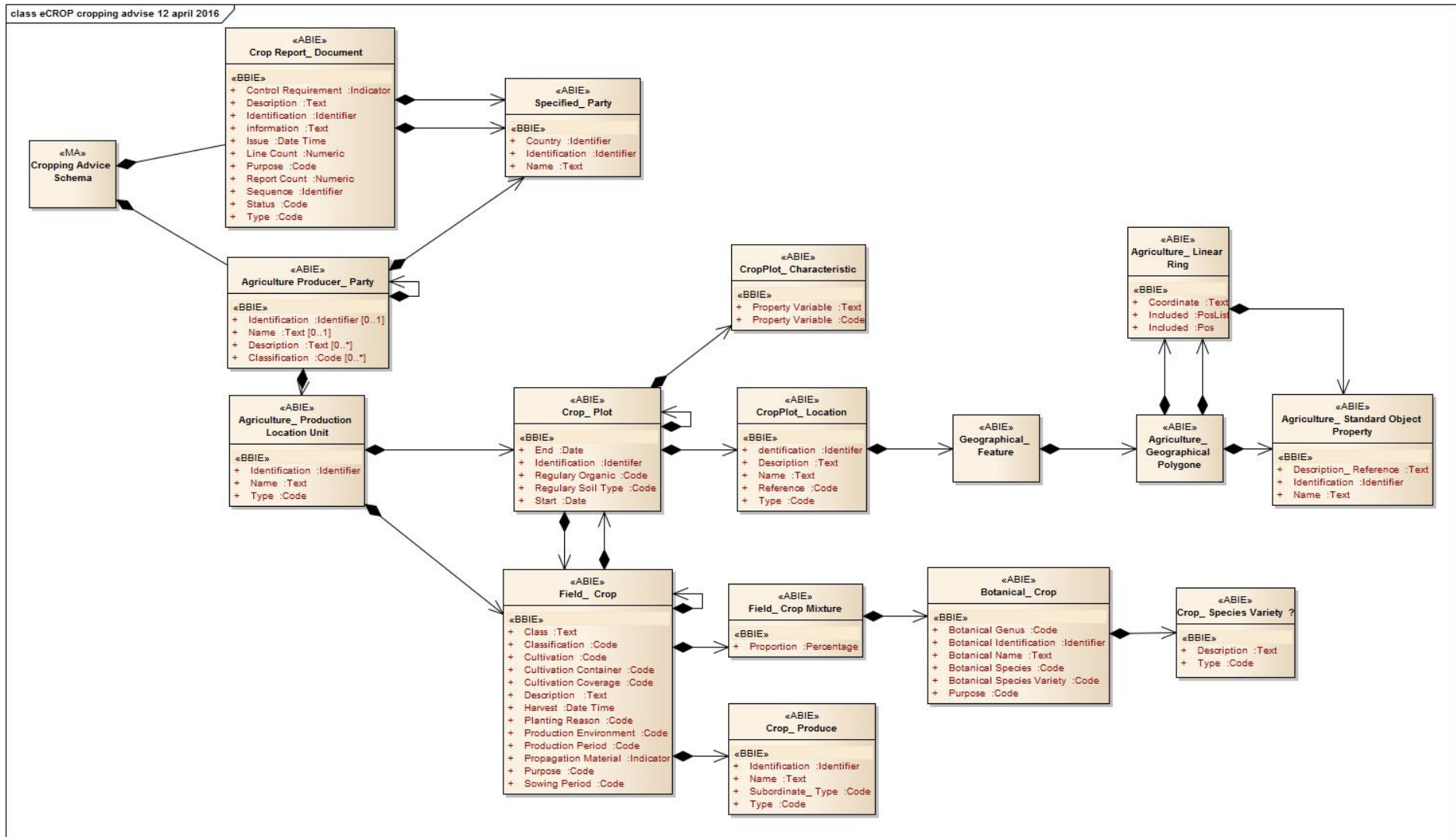


Figure Cropping Advise class diagram for eCROP

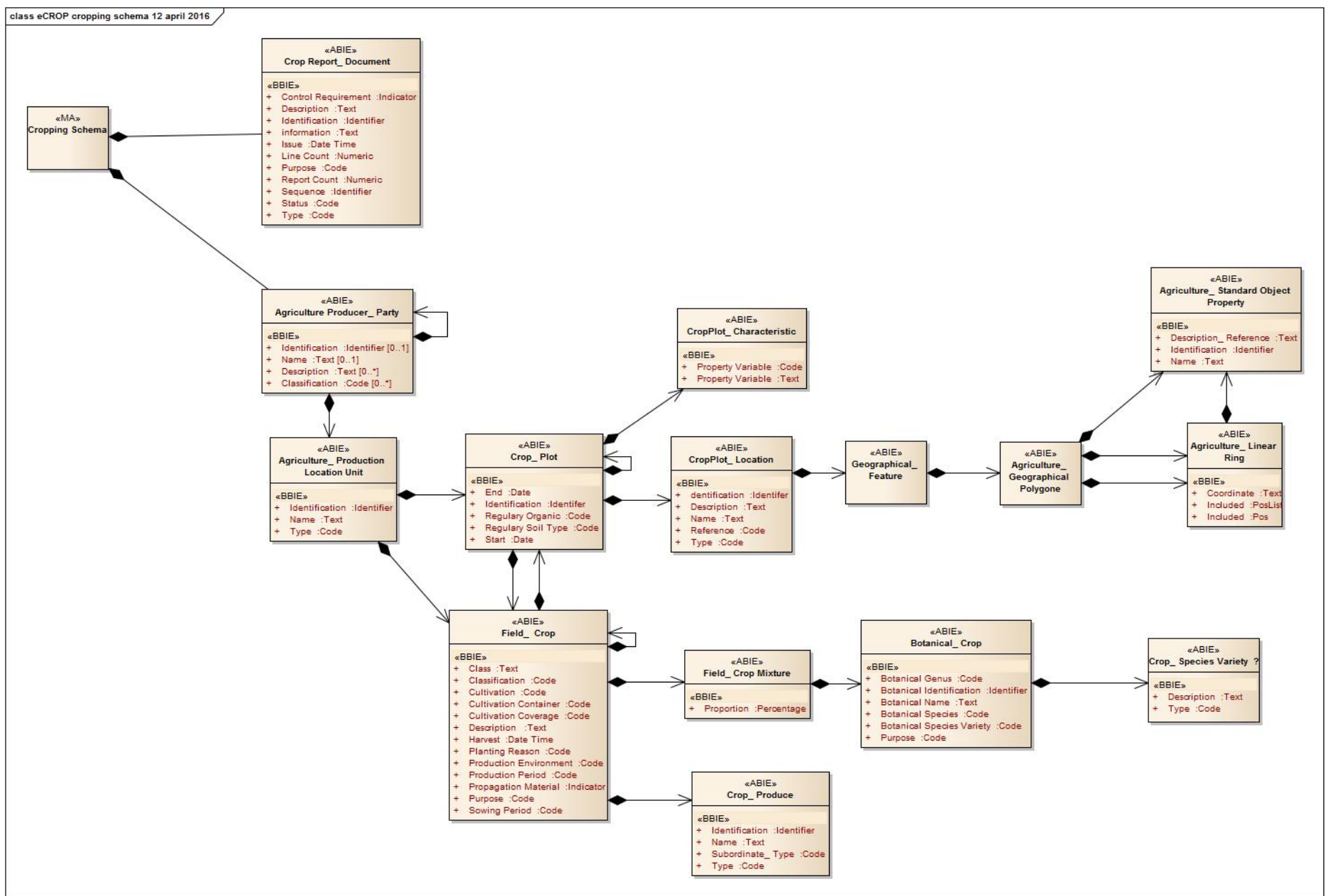


Figure Cropping Schema class diagram for eCROP

More class diagrams has to be included for the other use cases.

In this version of the class diagrams the cardinality of the BBIES is not correct indicated. For the proper cardinalities see the description in next chapter.

4.5 Business Information Entities

The data structure and the definitions of the spatial objects are aligned with the ISO 191xx GML specifications, of the OGC (Open GIS Consortium).

Crop Report_ Document.

Description: A collection of data for a piece of written, printed or electronic matter that is exchanged between two or more parties for crop reporting purposes.

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The identifier of this crop report document.
0	1	Report Count	Att	Numeric	The number of reports in this crop report document.
0	1	Description	Att	Text	The textual description of this crop report document.
1	1	Issue	Att	Date Time	The date, time, date time or other date time value for the issuance of this crop report document.
0	1	Type	Att	Code	The code specifying the type of crop report document.
1	1	Copy	Att	Indicator	The indication of whether or not this crop report document is a copy.
1	1	Control Requirement	Att	Indicator	The indication of whether or not this crop report document has specific control requirements.
0	1	Purpose	Att	Code	The code specifying the purpose of this crop report document.
0	1	Line Count	Att	Numeric	The number of lines in this crop report document.
0	1	Information	Att	Text	Information, expressed as text, for this crop report document.
0	1	Status	Att	Code	The code specifying the status of this crop report document.
0	1	Sequence	Att	Identifier	The identifier for the sequence of this crop report document.

Mult.		Association	Description
Min	Max		
1	1	Crop Report_ Document. Sender. Specified_ Party	The party that sends this crop report document.
1	1	Crop Report_ Document. Recipient. Specified_ Party	The party that receives this crop report document.

Crop_Plot.

Description: A small piece of land or water used for a crop such as an agricultural or aquacultural crop.

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The identifier for this crop plot.
0	1	Start	Att	Date Time	The date, time, date time, or other date time value for the start of this crop plot.
0	1	End	Att	Date Time	The date, time, date time, or other date time value for the end of this crop plot.
0	1	Area	Att	Measure	The area measure for this crop plot.
0	1	Soil Type	Att	Code	The code specifying the type of regulatory soil for this crop plot.
0	1	Organic	Att	Indicator	The indication of whether or not this crop plot is certified as regulatory organic.

Mult.		Association	Description
Min	Max		
0	unbounded	Crop_ Plot. Specified. Agricultural_ Characteristic	An agricultural characteristic specified for this crop plot.
0	unbounded	Crop_ Plot. Specified. Agricultural Zone_ Area	An agricultural zone area specified for this crop plot.
0	unbounded	Crop_ Plot. Included. Crop_ Plot	A crop plot included in this crop plot.
0	1	Crop_ Plot. Specified. Referenced_ Location	The referenced location specified for this crop plot.
0	1	Crop_ Plot. Included. Mobile_ Plot	The mobile plot included for this crop plot.
0	unbounded	Crop_ Plot. Specified. Agricultural_ Certificate	An agricultural certificate specified for this crop plot.

Mult.		Association	Description
Min	Max		
		Certificate	this crop plot.
0	unbounded	Crop_ Plot. Grown. Field_ Crop	A field crop grown on this crop plot.
0	unbounded	Crop_ Plot. Applicable. Crop Production_ Agricultural Process	An agricultural process crop production specified for this crop plot.
0	unbounded	Crop_ Plot. Applied. Specified_ Agricultural Application	A specified agricultural application applied to this crop plot.
0	unbounded	Crop_ Plot. Specified. Agricultural_ Characteristic	An agricultural characteristic specified for this crop plot.
0	unbounded	Crop_ Plot. Specified. Agricultural Zone_ Area	An agricultural zone area specified for this crop plot.

Agricultural_ Characteristic.

Description: A prominent attribute or aspect of an agricultural object.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this agricultural characteristic.
0	1	Type	Att	Code	The code specifying the type of agricultural characteristic.
0	1	Description	Att	Text	The textual description of this agricultural characteristic.
0	1	Value	Att	Measure	The measure of a value for this agricultural characteristic.
0	1	Value	Att	Text	The value, expressed as text, for this agricultural characteristic.
0	1	Value	Att	Code	The code specifying the value of this agricultural characteristic.
0	1	Value	Att	Date Time	The value, expressed as a date, time, date time, or other date time value, of this agricultural characteristic.
0	1	Value	Att	Indicator	The value, expressed as an indicator, for this agricultural characteristic.

Mobile_ Plot.

Description: A mobile platform covered with soil, substrate or water used in agriculture or aquaculture to grow organisms.

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The identifier for this mobile plot.

Mult.		Association	Description
Min	Max		
0	unbounded	Mobile_ Plot. Specified. Delimited_ Period	A delimited period specified for this mobile plot.

Referenced_ Location.

Description: A reference to a physical location or place.

Mult.		Business term	Rel.	Type	Description
0	unbounded	Identification	Att	Identifier	An identifier for this referenced location such as a United Nations Blue Number (UNBN) or GS1 Global Location Number (GLN).
0	unbounded	Name	Att	Text	A name, expressed as text, of this referenced location.
0	1	Type	Att	Code	The code specifying the type of referenced location.
0	unbounded	Description	Att	Text	A textual description for this referenced location.
0	1	Type	Att	Code	The code specifying the reference type of this referenced location.

Mult.		Association	Description
Min	Max		
0	1	Referenced_ Location. Physical. Specified_ Geographical Coordinate	Geographical coordinate information for this referenced location.
0	1	Referenced_ Location. Physical. Structured_ Address	The physical address of this referenced location.
0	unbounded	Referenced_ Location. Specified. Laboratory Observation_ Reference	A laboratory observation reference specified for this referenced location.
0	1	Referenced_ Location. Included. Specified_ Polygon	The polygon included for this referenced location.
0	1	Referenced_ Location. Defined. CS Engineering_ Coordinate Reference System	The Coordinate System (CS) engineering coordinate reference system defined for this referenced location.

Mult.		Association	Description
Min	Max		
0	1	Referenced_ Location. Physical. Specified_ Geographical Feature	The physical geographical feature specified for this referenced location.
0	unbounded	Referenced_ Location. Applied. Specified_ Agricultural Application	A specified agricultural application applied to this referenced location.
0	1	Referenced_ Location. Physical. Specified_ Geographical Point	The physical geographical point specified for this location.

Specified Geographical Coordinate.

Description: The latitude and longitude of a specified place, by which its relative situation on the globe is known. The height above the sea level constitutes a third coordinate.

Remark: this ABIE should not be used. It is preferred to use Specified Geographical Feature and Specified Geographical Point instead.

Mult.		Business term	Rel.	Type	Description
0	1	Altitude	Att	Measure	The measure of the altitude that reflects the vertical elevation of an object above a surface for this specified geographical coordinate (Reference ISO 6709).
0	1	Latitude	Att	Measure	The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of a specific place for this specified geographical coordinate. (Reference ISO 6709).
0	1	Longitude	Att	Measure	The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of a specific place for this specified geographical coordinate. (Reference ISO 6709).
0	1	Latitude Direction	Att	Indicator	The indication of whether the latitude compass direction from the Equator meridian to the meridian of a specific place for this specified geographical coordinate is North (+) or South (-). (Reference ISO 6709).
0	1	Longitude Direction	Att	Indicator	The indication of whether the longitude as a compass direction from the Greenwich meridian to the meridian of a specific place is East (+) or West (-) for this specified geographical coordinate. (Reference ISO 6709).
0	1	System	Att	Identifier	The unique identifier of the system used for measuring this specified geographical coordinate.

CS Engineering_ Coordinate Reference System.

Description: A coordinate reference system that is used in a contextually local sense to describe the relative locations of objects in which coordinates of points are recorded in a Coordinate System (CS) (reference ISO 19111).

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The identifier for this CS engineering coordinate reference system.
0	1	Name	Att	Text	The name, expressed as text, for this CS engineering coordinate reference system.
1	1	Level	Att	Text	The level, expressed as text, of this CS engineering coordinate reference system.

Mult.		Association	Description
Min	Max		
0	unbounded	CS Engineering_ Coordinate Reference System. Subordinate. CS Engineering_ Coordinate Reference System	A CS engineering coordinate reference system subordinate to this CS engineering coordinate reference system.
0	unbounded	CS Engineering_ Coordinate Reference System. Specified. Delimited_ Period	A delimited period specified for this CS engineering coordinate reference system.

Specified_ Geographical Feature.

Description: Representation of real world phenomenon associated with a location relative to the Earth, such as cities, buildings, roads, rivers, forests and lakes.

Mult.		Business term	Rel.	Type	Description
0	1	Description	Att	Text	The textual description of this specified geographical feature.
0	1	Name	Att	Text	The name, expressed as text, of this specified geographical feature.
0	1	Coordinate Reference System	Att	Identifier	The identifier of the coordinate reference system for this geographical feature.

Mult.		Association	Description
Min	Max		
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Point	The geographical point included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Line	The geographical line included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Surface	The geographical surface included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Multi-Point	The geographical multi-point included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Multi-Curve	The geographical multi-curve included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Multi-Surface	The geographical multi-surface included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Polygon	The polygon included in this geographical feature.
0	1	Specified_ Geographical Feature. Included. Specified_ Geographical Grid	The geographical grid included in this geographical feature.

Specified_ Geographical Object Characteristic

Description: An attribute of a geographical object.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this geographical object characteristic.
0	1	Description	Att	Text	The textual description for this geographical object characteristic.
0	1	Description Reference	Att	Text	The description reference, expressed as text, for this geographical object characteristic.
0	1	Name	Att	Text	The name, expressed as text, for this geographical object characteristic.

Specified_ Geographical Point

Description: A point on the surface of the Earth (reference ISO 19136).

Mult.		Association	Description
Min	Max		
1	1	Specified_ Geographical Point. Associated. Specified_ Direct Position List	The direct position list associated with this geographical point.
1	1	Specified_ Geographical Point. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical point.

Specified_ Geographical Multi Point

Description: A collection of points, on the surface of the Earth (reference ISO 19136).

Mult.		Association	Description
Min	Max		
1	1	Specified_ Geographical Multi-Point. Associated. Specified_ Direct Position List	The direct position list associated with this geographical multi-point.
1	1	Specified_ Geographical Multi-Point. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical multi-point.
0	unbounded	Specified_ Geographical Multi-Point. Member. Specified_ Geographical Point	A geographical point member of this geographical multi-point feature.

Specified_ Geographical Line

Description: A connection between two points on the surface of the Earth (reference ISO 19136).

Mult.		Association	Description
Min	Max		
1	1	Specified_ Geographical Line. Associated. Specified_ Direct Position List	The direct position list associated with this geographical line.
1	1	Specified_ Geographical Line. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical line.

Specified_ Geographical Multi Curve

Description: A collection of curves on the surface of the Earth (reference ISO 19136).

Mult. Min Max		Association	Description
1	1	Specified_ Geographical Multi-Curve. Associated. Specified_ Direct Position List	The direct position list associated with this geographical multi-curve.
1	1	Specified_ Geographical Multi-Curve. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical multi-curve.
0	Unbounded	Specified_ Geographical Multi-Curve. Member. Specified_ Geographical Line	A geographical line member of this geographical multi-curve.

Specified_ Linear Ring

Description: A specified array of points which define a closed loop which is not self intersecting. A coordinate, expressed as text, for this specified linear ring.

Mult.		Business term	Rel.	Type	Description
0	Unbounded and a minimum of 3	Coordinate	Att	Text	A position of a point, expressed as text, using one or more numbers, or coordinates, to uniquely determine the position of a point.

Mult. Min Max		Association	Description
0	1	Specified_ Linear Ring. Coordinate. Specified_ Direct Position	The specified direct position of a coordinate for this linear ring.
0	unbounded	Specified_ Linear Ring. Specified. FLUX_ Geographical Coordinate	Geographical coordinate information specified for this linear ring.
0	1	Specified_ Linear Ring. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this linear ring.

Specified_ Polygon

Description: A planar surface, defined by one exterior boundary and zero or more interior boundaries. Each interior boundary defines a hole in the polygon.

Mult. Min Max		Association	Description
0	unbounded	Specified_ Polygon. Interior. Specified_ Linear Ring	An interior linear ring specified for this polygon.
1	1	Specified_ Polygon. Exterior. Specified_ Linear Ring	The exterior linear specified ring for this polygon.

Mult.		Association	Description
Min	Max		
0	1	Specified_ Polygon. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this specified polygon.

Specified_ Geographical Multi Surface

Description: A collection of surfaces on the Earth (reference ISO 19136).

Mult.		Association	Description
Min	Max		
1	1	Specified_ Geographical Multi-Surface. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical multi-surface.
0	unbounded	Specified_ Geographical Multi-Surface. Included. Specified_ Polygon	A polygon included in this geographical multi-surface.

Specified_ Geographical Surface

Description: A figure on the Earth having only two dimensions (reference ISO 19136).

Mult.		Association	Description
Min	Max		
1	1	Specified_ Geographical Surface. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical surface.
0	1	Specified_ Geographical Surface. Included. Specified_ Polygon	The polygon included in this geographical surface.

Specified_ Geographical Grid

Description: The combination of the latitude and longitude forming a graticule, used for specifying the position of any location on the surface of the Earth, without consideration of altitude or depth (reference ISO 19136).

Mult.		Business term	Rel.	Type	Description
1	1	Cell	Att	Text	An axis name, expressed as text, for this geographical grid.
0	unbounded	Identification	Att	Identifier	An axis name, expressed as text, for this geographical grid.
0	1	Offset Vector	Att	Numeric	An axis name, expressed as text, for

					this geographical grid.
1	1	Limit	Att	Text	An axis name, expressed as text, for this geographical grid.
1	1	Limit	Att	Text	An axis name, expressed as text, for this geographical grid.
0	1	Dimension	Att	Numeric	An axis name, expressed as text, for this geographical grid.
1	unbounded	Name	Att	Text	An axis name, expressed as text, for this geographical grid.

Mult. Min Max		Association	Description
1	1	Specified_ Geographical Grid. Origin_ Associated. Specified_ Direct Position List	The direct position list associated with the origin of this geographical grid.
1	1	Specified_ Geographical Grid. Associated. Specified_ Geographical Object Characteristic	The geographical object characteristic associated with this geographical grid.
0	unbounded	Specified_ Geographical Grid. Specified. Crop_ Plot	A crop plot specified for this geographical grid.

Agricultural Zone_ Area

Description: A named, delimited and identified part of a land and or water surface of the globe subject to dedicated uniform agricultural treatment.

Mult.		Business term	Rel.	Type	Description
1	1	Identification		Identifier	The identifier for this agricultural zone area.
0	1	Name	Att	Text	The name, expressed as text, for this agricultural zone area.
0	unbounded	Third Party Issued_ Identification	Att	Identifier	An identifier issued by a third party for this agricultural zone area.
0	1	Designated Section	Att	Text	The designated section, expressed as text, of this agricultural zone area.
0	1	Multi-Surface_ Type	Att	Code	The code specifying the multi-surface type for this agricultural zone area.

Mult. Min Max		Association	Description
0	unbounded	Agricultural Zone_ Area. Applicable.	An agricultural characteristic applicable

Mult.		Association	Description
Min	Max		
		Agricultural_ Characteristic	to this agricultural zone area.
0	1	Agricultural Zone_ Area. Specified. Referenced_ Location	The referenced location specified for this agricultural zone area.
0	unbounded	Agricultural Zone_ Area. Subordinate. Agricultural Zone_ Area	An agricultural zone area subordinate to this agricultural zone area.
0	unbounded	Agricultural Zone_ Area. Harvested. Crop_ Produce	Crop produce harvested from this agricultural zone area.
0	unbounded	Agricultural Zone_ Area. Applied. Specified_ Agricultural Application	A specified agricultural application applied to this agricultural zone area.
0	unbounded	Agricultural Zone_ Area. Specified. Crop_ Plot	A crop plot specified for this agricultural zone area.

Delimited_Period

Description: A period of time from a start date time onwards up to an end date time.

Mult.		Business term	Rel.	Type	Description
0	1	Start	Att	Date Time	A period of time from a start date time onwards up to an end date time.
0	1	End	Att	Date Time	A period of time from a start date time onwards up to an end date time.
0	1	Duration	Att	Measure	A period of time from a start date time onwards up to an end date time.

Agricultural_Construction_Details

Description: A man made agricultural physical structure, such as a building, greenhouse, installation, storage.

Mult.		Business term	Rel.	Type	Description
0	1	Identification		Identifier	The identifier for this agricultural construction.
0	1	Name		Text	The name, expressed as text, of this agricultural construction.

0	unbounded	Description		Code	A code specifying the description for this agricultural construction.
0	unbounded	Type		Code	A code specifying a type of agricultural construction, such as a building, greenhouse, installation, storage.
0	unbounded	Type		Code	A code specifying a subordinate type for this agricultural construction.
0	1	Type		Code	The code specifying the type of coverage, such as a glass roof, for this agricultural construction.
0	unbounded	Certification		Code	A code specifying a certification for this agricultural construction.
0	unbounded	Function		Code	A code specifying a function of this agricultural construction.
0	1	Licence		Text	The licence, expressed as text, for this agricultural construction.
0	1	Completion		Date Time	The date of the completion of this agricultural construction.
0	unbounded	Renovation		Date Time	A date of a renovation of this agricultural construction.
0	unbounded	Capacity		Measure	A measure of the capacity of this agricultural construction, such as the number of horses in a stable or the quantity of grain in a silo.
0	1	Capacity		Measure	The measure of the input capacity for this agricultural construction, such as maximum reach or average per month.
0	1	Capacity		Measure	The measure of the output capacity for this agricultural construction.
0	1	Capacity		Measure	The measure of the buffer capacity for this agricultural construction.

Mult.		Association	Description
Min	Max		
0	1	Agricultural_ Construction. Specified. Referenced_ Location	The referenced location specified for this agricultural construction.
0	unbounded	Agricultural_ Construction. Specified. Crop_ Plot	A crop plot specified for this agricultural construction.
0	unbounded	Agricultural_ Construction. Subordinate.	An agricultural construction

Mult.		Association	Description
Min	Max		
		Agricultural_ Construction	subordinate to this agricultural construction.

Agricultural_ Production Location Unit

Description: A defined set of agricultural production utilities under a single management.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this agriculture production location unit.
0	unbounded	Type	Att	Code	A classification type, expressed as a code, for this agriculture production location unit.
0	1	Name	Att	Tekst	A name, expressed as tekst, for this agriculture production location unit.

Mult.		Association	Description
Min	Max		
0	unbounded	Agricultural_ Production Unit. Dedicated. Agricultural_ Construction	An agricultural construction dedicated to this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Specified. Crop_ Plot	A crop plot specified for this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Declared. Complaint_ Issue	A complaint issue declared for this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Specified. Crop Produce_ Batch	A batch of crop produce specified for this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Grown. Field_ Crop	A field crop grown on this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Specified. Agricultural_ Certificate	An agricultural certificate specified for this agricultural production unit.
0	1	Agricultural_ Production Unit. Specified. Agricultural_ Contract	The agricultural contract specified for this agricultural production unit.
0	1	Agricultural_ Production Unit. Specified. Structured_ Address	The structured address specified for this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Related. Specified_ Party	A party related to this agricultural production unit.
0	unbounded	Agricultural_ Production Unit. Related. Agricultural Producer_ Party	An agricultural producer party related to this agricultural production unit.

Agricultural Producer_ Party

Description: An individual, a group, or a body having a role in the production of crops such as vegetables, flowers, plants.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier of the agricultural producer party.
0	1	Name	Att	Text	The name, expressed as text, for this agricultural producer party.
0	1	Description	Att	Text	The textual description of this agricultural producer party.
0	unbounded	Classification	Att	Code	A code specifying a classification for this agricultural producer party.

Mult.		Association	Description
Min	Max		
0	unbounded	Agricultural Producer_ Party. Managed. Agricultural_ Production Unit	An agricultural production unit managed by this agricultural producer party.
0	unbounded	Agricultural Producer_ Party. Parent. Agricultural Producer_ Party	A party that is a parent of this agricultural producer party.
0	unbounded	Agricultural Producer_ Party. Managed. Agricultural_ Production Unit	An agricultural production unit managed by this agricultural producer party.

Structured_ Address

Description: The location, using a structured address format, at which a particular organization or person may be found or reached.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The unique identifier in the structured address.
0	1	Postcode	Att	Code	The code specifying the postcode in the structured address.
0	1	Building Name	Att	Text	The name, expressed as text, of a building, a house or other structure on a street in the structured address.
0	1	Street Name	Att	Text	The name, expressed as text, of a street or thoroughfare in the structured address.
0	1	City Name	Att	Text	The name, expressed as text, of the city, town or village in the structured address.

0	1	Country	Att	Identifier	The unique identifier of a country in the structured address (Reference ISO 3166 and UN/ECE Rec 3).
0	1	City Sub-Division Name	Att	Text	The name, expressed as text, of a sub-division of a city, town or village in the structured address.
0	1	Country Name	Att	Text	The name, expressed as text, of the country in the structured address.
0	1	Country Sub-Division Name	Att	Text	The name, expressed as text, of the sub-division of a country in the structured address.
0	1	Block Name	Att	Text	The block name, expressed as text, for an area surrounded by streets for this structured address.
0	1	Plot Identification	Att	Text	The identification, expressed as text, of the plot for this structured address.
0	1	Post Office Box	Att	Text	The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, where postal items may be kept for this structured address.
0	1	Building Number	Att	Text	The number, expressed as text, of a building or house on a street at this structured address.
0	1	Staircase Number	Att	Text	The number, expressed as text, of a staircase for this structured address.
0	1	Floor Identification	Att	Text	The identification by name or number, expressed as text, of the floor in a building as part of this structured address.
0	1	Room Identification	Att	Text	The identification, expressed as text, of a room, suite, office or apartment as part of this structured address.
0	1	Postal Area	Att	Text	The postal area, expressed as a text, in this structured address.

Complaint_Issue

Description: A topic for debate or resolution, expressed as a dissatisfaction.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier of this complaint issue.
0	unbounded	Type	Att	Code	A code specifying a type of complaint issue.
0	unbounded	Severity	Att	Code	A code specifying a severity of this complaint issue, such as alarming, severe.

0	1	Description	Att	Text	The textual description of this complaint issue.
0	1	Closed	Att	Indicator	The indication of whether or not this complaint issue has been closed.

Specified_Party

Description: A specified individual, group, or body having a role in a business function.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier of the specified party.
0	1	Name	Att	Text	The name, expressed as text, for this specified party.
0	1	Country	Att	Identifier	The country identifier for this specified party.

Mult.		Association			Description
Min	Max				
0	1	Specified_Party.	Defined.	Party_Contact	The defined contact for this specified party.
0	1	Specified_Party.	Office.	Unstructured_Address	The unstructured office address for this specified party.
0	unbounded	Specified_Party.	Specified.	Structured_Address	A structured address specified for this party.
0	unbounded	Specified_Party.	Telephone.	Specified_Communication	Telephone communication information specified for this party.
0	unbounded	Specified_Party.	URI.	Specified_Communication	Uniform Resource Identifier (URI) communication information, such as a web or email address, specified for this party.
0	unbounded	Specified_Party.	Specified.	Operator_Person	An operator person specified for this party.

Party_Contact. Details

Description: A person or department that acts as a point of contact for a party.

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The unique identifier of this party

					contact.
0	1	Department Name	Att	Text	The name, expressed as text, of the department to which this party contact belongs.
0	1	Person Name	Att	Text	The name, expressed as text, of the person for this party contact.
0	1	Job Title		Text	The job title, expressed as text, for this party contact.
0	1	Responsibility		Text	The responsibility, expressed as text, for this party contact.
0	1	Type		Code	The code specifying the type of party contact, such as accountant, auditor, accounting firm.
0	1	Identification		Identifier	The additional identifier of this party contact.

Mult.		Association		Description
Min	Max			
0	1	Party_ Contact. Unstructured_ Communication	Direct_ Telephone. Telecommunication_	The direct unstructured telephone communication information for this party contact.
0	1	Party_ Contact. Unstructured_ Communication	Mobile_ Telephone. Telecommunication_	The mobile unstructured telephone communication information for this party contact.
0	1	Party_ Contact. Unstructured_ Communication	Fax. Telecommunication_	The fax unstructured telecommunication information for this party contact.
0	1	Party_ Contact. URI. Email_ Communication		The email Uniform Resource Identifier (URI) communication information for this party contact.
0	1	Party_ Contact. Unstructured_ Communication	Telex. Telecommunication_	The telegraphy (Telex) unstructured telecommunication information for this party contact.
0	unbounded	Party_ Contact. Person	Specified. Responsible_	A responsible person specified for this party contact.

Operator_ Person. Details

Description A person acting as an operator.

Mult.	Business term	Rel.	Type	Description
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0	1	Identification	Att	Identifier	The identifier for this operator person.
0	1	Name	Att	Text	The name, expressed as text, of this operator person.

Mult.		Association	Description
Min	Max		
0	unbounded	Operator_ Person. Specified. Agricultural_ Certificate	An agricultural certificate specified for this operator person.
0	unbounded	Operator_ Person. Specified. Agricultural_ Man Machine System	An agricultural man machine system specified for this operator person.

Agricultural_ Certificate

Description: A legal proof of ownership, worthiness or qualification to operate an agricultural item.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this agricultural certificate.
0	1	Issue	Att	Date Time	The date, time, date time, or other date time value when this agricultural certificate was issued.
0	1	Expiry	Att	Date Time	The date, time, date time, or other date time value when this agricultural certificate expires.
0	1	Issue Reason	Att	Code	The code specifying the reason why the agricultural certificate was issued.
0	1	Type	Att	Code	The code specifying the type of agricultural certificate.
0	1	Requested Effective	Att	Date Time	The requested effective date, time, date time or other date time value for this agricultural certificate.
0	1	Actual Effective	Att	Date Time	The actual effective date, time, date time or other date time value for this agricultural certificate.
0	1	Description	Att	Text	The textual description of this agricultural certificate.
0	unbounded	Object	Att	Code	A code specifying an applicable object, such as item, animal, person or organization, for this agricultural certificate.
0	1	Party	Att	Identifier	The identifier for the issuing party of

					this agricultural certificate.
0	unbounded	Purpose	Att	Code	A code specifying the purpose of this agricultural certificate.

Botanical_Crop

Description: Plants or produce cultivated from a single botanical species or variety.

Mult.		Business term	Rel.	Type	Description
1	1	Botanical Species	Att	Code	The code specifying the botanical species for this agricultural crop.
0	1	Botanical Species	Att	Code	The code specifying the supplementary botanical species for this agricultural crop.
0	1	Sowing Period	Att	Code	The code specifying the sowing period of this agricultural crop, such as spring or winter.
0	1	Purpose	Att	Code	The code specifying the purpose for this agricultural crop.
0	1	Planting Reason	Att	Code	The code specifying the planting reason for this agricultural crop.
0	1	Description	Att	Text	The textual description for this agricultural crop.
0	1	Development Stage		Code	The code specifying the development stage for this agricultural crop.

Field_Crop

Description: A field with one or more cultivated plants or produce from one or more botanical species or varieties.

Mult.		Business term	Rel.	Type	Description
0	1	Period	Att	Code	The code specifying the sowing period for this field crop, such as spring or winter.
0	unbounded	Purpose	Att	Code	A code specifying a purpose for this field crop.

0	unbounded	Planting Reason	Att	Code	A code specifying a reason for planting this field crop.
0	1	Description	Att	Text	The textual description for this field crop.
0	unbounded	Classification	Att	Code	A code specifying a classification for this field crop.
0	1	Cultivation Type	Att	Code	The code specifying the type of cultivation for this field crop.
0	1	Propagation Material	Att	Indicator	The indication of whether or not a field crop is to be used as propagation material.
0	unbounded	Cultivation Coverage	Att	Code	A code specifying a type of cultivation coverage, such as glass, for this field crop.
0	1	Cultivation Medium	Att	Code	The code specifying the type of cultivation medium, such as substrate, for this field crop.
0	1	Cultivation Container	Att	Code	The code specifying the type of cultivation container, such as a pot or an iron cabinet, for this field crop.
0	1	Harvest	Att	Date Time	The date, time, date time, or other date time value for the harvest of this field crop.
0	1	Class Name	Att	Text	The class name, expressed as a text, for this field crop.
0	1	Period	Att	Code	The code specifying the production period for this field crop.
0	1	Environment	Att	Code	The code specifying the production environment for this field crop.

Crop plo		Association	Description
0	unbounded	Field_Crop. Grown_ Previous. Field_Crop	A field crop grown previous to this field crop.
1	1	Field_Crop. Grown. Crop_Plot	The plot where this field crop is grown.
1	unbounded	Field_Crop. Specified. Field_Crop Mixture Constituent	A field crop mixture constituent specified for this field crop.
0	unbounded	Field_Crop. Harvested. Crop_Produce	Produce harvested from this field crop.
0	unbounded	Field_Crop. Specified. Referenced_	A referenced sample observation result

Crop plo		Association	Description
		Observation Result	specified for this field crop.
0	unbounded	Field_ Crop. Applicable. Crop Production_ Agricultural Process	An agricultural process crop production applicable for this field crop.
0	unbounded	Field_ Crop. Specified. Single_ Agronomical Observation	A single agronomical observation specified for this field crop.
0	unbounded	Field_ Crop. Specified. Agricultural_ Characteristic	An agricultural characteristic specified for this field crop.
0	unbounded	Field_ Crop. Applied. Specified_ Agricultural Application	An agricultural application applied to this field crop.
0	unbounded		

Field_Crop Mixture Consistent

Description: A plant species or variety constituting part of a field crop mixture.

Mult.		Business term	Rel.	Type	Description
1	1	Crop_ proportion	Att	Percent	The percent of the crop proportion of this field crop mixture constituent.

Mult.		Association	Description
Min	Max		
1	1	Field_Crop Mixture Constituent. Specified. Botanical_ Crop	The botanical crop specified for this field crop mixture constituent.

Crop_Produce

Description: Agricultural plants or plant products grown and harvested, such as grain, fruit, vegetables, silage.

Mult.		Business term	Rel.	Type	Description
0	unbounded	Identification	Att	Identifier	An identifier for this crop produce.
0	1	Type	Att	Code	The code specifying the type of crop produce.
0	1	Subordinate_Type	Att	Code	The code specifying the subordinate type of crop produce, such as product or by-product.

0	1	Name	Att	Text	The name, expressed as text, for this crop produce.
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Mult.		Association	Description
Min	Max		
0	unbounded	Crop_ Produce. Input_ Specified. Crop Produce_ Batch	An input batch crop produce, such as seed or fertilizer, specified for this crop produce.
1	unbounded	Crop_ Produce. Output_ Specified. Crop Produce_ Batch	An output batch crop produce, such as potatoes, grain, straw, specified for this crop produce.

Crop Produce_ Batch

Description: A group of crop produce considered or dealt with together.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this crop produce batch.
0	1	Creation	Att	Date Time	The date, time, date time, or other date time value of the creation of this crop produce batch.
0	1	Break Up	Att	Date Time	The date, time, date time, or other date time value of the break up of this crop produce batch.
0	1	Product Name	Att	Text	The product name, expressed as text, for this crop produce batch.
0	1	Type	Att	Code	The code specifying the type of crop produce batch.
0	1	Size	Att	Measure	The size, expressed as a measure, for this crop produce batch.
0	1	Unit	Att	Quantity	The number of units, expressed as a quantity, for this crop produce batch.
0	1	Specified	Att	Quantity	The quantity specified for this crop produce batch.
0	1	Nominal Size	Att	Numeric	The value of the nominal size for this crop produce batch.
0	unbounded	Applied Treatment	Att	Text	A treatment, expressed as text, applied to this crop produce batch.

Mult.		Association	Description
Min	Max		
0	unbounded	Crop Produce_ Batch. Specified. Agricultural_ Characteristic	An agricultural characteristic specified for this crop produce batch.
0	unbounded	Crop Produce_ Batch. Specified. Agricultural_ Certificate	An agricultural certificate specified for this crop produce batch.
0	unbounded	Crop Produce_ Batch. Specified. Referenced_ Observation Result	A referenced observation result specified for this crop produce batch.
0	unbounded	Crop Produce_ Batch. Specified. Crop_ Produce	A crop produce specified for this crop produce batch.

Product_ Batch

Description: A group of products considered or dealt with together.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this product batch.
0	1	Creation	Att	Date Time	The date, time, date time or other date time value of the creation of this product batch.
0	1	Product Name	Att	Text	The product name, expressed as text, for this product batch.
0	1	Type	Att	Code	The code specifying the type of product batch.
0	1	Size	Att	Measure	The size, expressed as a measure, for this product batch.
0	1	Weight	Att	Measure	The weight, expressed as a measure, for this product batch.
0	1	Unit	Att	Quantity	The number of units, expressed as a quantity, for this product batch.
0	unbounded	Applied Treatment	Att	Text	A treatment, expressed as text, applied to this product batch.

Mult.		Association	Description
Min	Max		
0	unbounded	Product_ Batch. Specified. Agricultural_	An agricultural characteristic specified

Mult.		Association	Description
Min	Max		
		Characteristic	for this product batch.
0	unbounded	Product_ Batch. Specified. Agricultural_Certificate	An agricultural certificate specified for this product batch.
0	unbounded	Product_ Batch. Specified. Agricultural Input_Product	An agricultural input product specified for this product batch.
0	unbounded	Product_ Batch. Applied. Specified_Agricultural Application	A specified agricultural application applied to this product batch.

Agricultural Input_ Product

Description: Any product used as an input for an agricultural process.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this agricultural input product.
0	1	Name	Att	Text	The name, expressed as text, for this agricultural input product.
0	1	Description	Att	Text	The textual description of this agricultural input product.
0	1	Type	Att	Code	The code specifying the type of agricultural input product.
0	1	Use	Att	Text	The use, expressed as text, for this agricultural input product.
0	1	Species	Att	Code	The code specifying the species for this agricultural input product.
0	1	Description	Att	Code	The code specifying the description of this agricultural input product.
0	1	Production Mode	Att	Code	The code specifying the production mode for this agricultural input product.

Mult.		Association	Description
Min	Max		
0	unbounded	Agricultural Input_Product. Applicable. Agricultural_Characteristic	An agricultural characteristic applicable to this agricultural input product.

Mult.		Association	Description
Min	Max		
0	unbounded	Agricultural Input_ Product. Composition. Agricultural Input_ Material	A composition of agricultural input material for this agricultural input product.
0	unbounded	Agricultural Input_ Product. Specified. Agricultural_ Certificate	An agricultural certificate specified for this agricultural input product.
0	unbounded	Agricultural Input_ Product. Specified. Agricultural Input_ Chemical	An agricultural input chemical specified for this agricultural input product.

Agricultural Input_ Material

Description: A substance out of which something is or could be made to be used as agricultural input.

Mult.		Business term	Rel.	Type	Description
0	1	Name	Att	Text	The name, expressed as text, of this agricultural input material.
0	unbounded	Type	Att	Code	A code specifying a type of agricultural input material.
0	1	Composition Description	Att	Text	The textual description of the composition of this agricultural input material.
0	1	Mass	Att	Measure	The measure of the mass of this agricultural input material.
0	1	Mass Ratio	Att	Measure	The mass measure of the this agricultural input material expressed as a ratio to another mass, such as the total mass.
0	1	Volume	Att	Measure	The measure of the volume of this agricultural input material.
0	1	Volume Ratio	Att	Measure	The volume measure of this agricultural input material expressed as a ratio to another volume, such as the total volume.
0	unbounded	Classification	Att	Identifier	An identifier for the classification of this agricultural input material.
0	unbounded	Identification	Att	Identifier	An identifier for this agricultural input material.
0	unbounded	Information	Att	Text	Information, expressed as text, for this agricultural input material.

0	1	Index	Att	Numeric	The index number of this agricultural input material.
0	1	Active Ingredient	Att	Indicator	The indication of whether or not this agricultural input material is an active ingredient.
0	1	Description	Att	Text	The textual description of this agricultural input material.

Mult. Min Max		Association	Description
0	unbounded	Agricultural Input_Material. Applicable. Agricultural_Characteristic	An agricultural characteristic applicable to this agricultural input material.

Single_Agronomical Observation. Details

Description: A single collection of diagnostic data, visual or technical, for agronomical purposes.

<<cg: make clear what is meant by single, is there a non single observation, what is the difference??>>

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The identifier for this single agronomical observation.
0	1	Collection	Att	Date Time	The date, time, date time, or other date time value when this single agronomical observation is collected.
0	1	Comment	Att	Text	The comment, expressed as text, for this single agronomical observation.
0	1	Status	Att	Code	The code specifying the status for this single agronomical observation.

Mult. Min Max		Association	Description
0	1	Single_Agronomical Observation. Occurrence. Specified_Location	The specified location where this single agronomical observation occurs.
1	unbounded	Single_Agronomical Observation. Specified. Agronomical Observation_Target Object	An agronomical observation target object specified for this single agronomical observation.
0	1	Single_Agronomical Observation. Subject. Agricultural_Crop	The agricultural crop that is the subject of this single agronomical observation.

Mult.		Association	Description
Min	Max		
0	1	Single_ Agronomical Observation. Specified. Party_ Contact	The party contact specified for this single agronomical observation.

Crop Production_ Agricultural Process

Description: A practice of cultivating land, raising crops, or treatment of the agricultural produce.

Mult.		Business term	Rel.	Type	Description
0	1	Type	Att	Code	The code specifying the type of agricultural process for this crop production.
0	1	Type	Att	Code	The code specifying the subordinate type of the agricultural process for this crop production.
0	1	Start	Att	Date Time	The date, time, date time or other date time value for the earliest start of the crop production in this agricultural process.
0	1	Start	Att	Date Time	The date, time, date time or other date time value for the actual start of the crop production in this agricultural process.
0	1	End	Att	Date Time	The date, time, date time or other date time value of the latest end for the crop production in this agricultural process.
0	1	End	Att	Date Time	The date, time, date time or other date time value of the actual end for the crop production in this agricultural process.
0	1	Status	Att	Code	The code specifying the status of the agricultural process for this crop production.
0	1	Description	Att	Text	The textual description of the agricultural process for this crop production.

Mult.		Association	Description
Min	Max		

Mult.		Association	Description
Min	Max		
0	unbounded	Crop Production_ Agricultural Process. Harvested. Crop Produce_ Batch	A crop produce batch harvested in the crop production for this agricultural process.
0	unbounded	Crop Production_ Agricultural Process. Used. Specified_ Agricultural Device	An agricultural device used for the crop production agricultural process.
0	unbounded	Crop Production_ Agricultural Process. Allocated. Agricultural_ Man Machine System	A man machine system allocated to this crop production agricultural process.
0	unbounded	Crop Production_ Agricultural Process. Applied. Specified_ Agricultural Application	An agricultural application applied to a crop production agricultural process.
0	unbounded	Crop Production_ Agricultural Process. Specified. Field_ Crop	A field crop specified for this crop production agricultural process.

Specified_ Agricultural Device

Description: An object specified to be used to perform an agricultural activity.

Mult.		Business term	Rel.	Type	Description
1	1	Identification	Att	Identifier	The unique identifier for this specified agricultural device.
0	1	Type	Att	Code	The code specifying the type of this specified agricultural device.
0	1	Subordinate_Type	Att	Code	The code specifying the subordinate type for this specified agricultural device.

Mult.		Association	Description
Min	Max		
0	1	Specified_ Agricultural Device. Owner. Crop Data Sheet_ Party	The crop data sheet party that owns this specified agricultural device.
0	unbounded	Specified_ Agricultural Device. Combined. Specified_ Agricultural Device	An agricultural device combined with this specified agricultural device into a single (temporary) working unit.
0	unbounded	Specified_ Agricultural Device. Specified. Agricultural_ Man Machine System	A man machine system specified for this agricultural device.

Specified_ Agriculture Application

Description: Any substance such as seed, fertilizer, water, gas or chemical applied to an agricultural field, substrate, construction, plant, animal or product.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this specified agricultural application.

Mult.		Association	Description
Min	Max		
0	unbounded	Specified_ Agricultural Application. Specified. Referenced_ Location	A referenced location specified for this specified agricultural application.
0	unbounded	Specified_ Agricultural Application. Applied. Agricultural Zone_ Area	A specified agricultural application applied to this agricultural zone area.
0	unbounded	Specified_ Agricultural Application. Specified. Product_ Batch	A product batch specified for this specified agricultural application.
0	unbounded	Specified_ Agricultural Application. Applied. Agricultural_ Certificate	An agricultural certificate applied to this specified agricultural application.
0	unbounded	Specified_ Agricultural Application. Specified. Crop_ Plot	A crop plot specified for this agricultural application.
0	unbounded	Specified_ Agricultural Application. Specified. Referenced_ Location	A referenced location specified for this specified agricultural application.

Agricultural_ Contract

Description: The written or spoken contract between two or more parties for the expressed purpose of specifying the required agricultural produce, products or services.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this agricultural contract.
0	unbounded	Identification	Att	Identifier	An identifier issued by a third party for this agricultural contract.
0	unbounded	Signed	Att	Date Time	A date, time, date time, or other date time value on which this agricultural contract was or will be signed.

Mult.		Association	Description
Min	Max		
0	1	Agricultural_ Contract. Buyer. Specified_ Party	The buyer party for this agricultural contract.
0	1	Agricultural_ Contract. Seller. Specified_ Party	The seller party for this agricultural contract.
0	unbounded	Agricultural_ Contract. Additional_ Identified. Specified_ Party	An additional party identified for this agricultural contract.

Agricultural Extreme_ Weather Condition

Description: A weather condition regarded as extreme in agriculture.

Mult.		Business term	Rel.	Type	Description
0	unbounded	Characteristic_ Variable	Att	Code	A code specifying a characteristic value for this agricultural extreme weather condition.
0	unbounded	Characterisitic_ Variable	Att	Text	A characteristic value, expressed as text, for this agricultural extreme weather condition.

Referenced_ Observation Result. Details

Description: A reference to a collection of diagnostic data, visual or technical, and processing data, performed on a sample by a laboratory.

Mult.		Business term	Rel.	Type	Description
0	unbounded	Identification	Att	Identifier	An identifier of the Laboratory Observation Report (LOR) exchanged document for this referenced observation result.
0	unbounded	Identification	Att	Identifier	An identifier of the sample observation result for this referenced observation result.

Agricultural_ ManMachine System. Details

Description: A combination of man and farm machinery, which can be combined and operated as one independently controllable unit to perform an agricultural process.

Mult.		Association	Description
Min	Max		
0	unbounded	Agricultural_ Man Machine System. Specified. Crop Production_ Agricultural Process	A crop production process specified for this agricultural man machine system.

Agricultural Input_ Chemical

Description: A chemical used as input in an agricultural process.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier of this agricultural input chemical.
0	1	Name	Att	Text	The name, expressed as text, for this agricultural input chemical.
0	1	Weight	Att	Measure	The weight, expressed as a measure, for this agricultural input chemical.
0	1	Type	Att	Code	The code specifying the type of chemical for this agricultural input.
0	1	Description	Att	Text	The textual description of this agricultural input chemical.
0	1	Presence	Att	Percent	The percentage of the presence of the chemical in this agricultural input.

Laboratory Observation_ Reference

Description: The direction to related information for this laboratory observation.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this laboratory observation reference.
0	1	Abbreviation	Att	Text	The shortened text string to identify this laboratory observation reference.
0	1	Description	Att	Text	The textual description of this laboratory observation reference.
0	1	Status	Att	Text	The status, expressed as text, for this laboratory observation reference.
0	1	Comment	Att	Text	The comment, expressed as text, for this laboratory observation reference.

0	1	Value	Att	Text	The value, expressed as text, for this laboratory observation reference.
0	1	Property Reference	Att	Code	The code specifying the property reference of this laboratory observation reference.
0	1	Value	Att	Code	The value, expressed as a code, for this laboratory observation reference.

Botanical_Crop

Description: Plants or produce cultivated from a single botanical species or variety.

Mult.		Business term	Rel.	Type	Description
0	1	Botanical Identification	Att	Identifier	The identifier for this botanical crop.
0	1	Botanical Species	Att	Code	The code specifying the species for this botanical crop.
0	1	Purpose	Att	Code	The code specifying the purpose for this botanical crop.
0	1	Botanical Genus	Att	Code	The code specifying the genus for this botanical crop.
0	1	Botanical Name	Att	Text	The botanical name, expressed as text, for this botanical crop.

Mult.		Association	Description
Min	Max		
0	unbounded	Botanical_Crop. Sown. Crop_Species Variety	A crop species variety sown for this botanical crop.

Crop_Species Variety

Description: A sub-division of cultivated plants within a species.

Mult.		Business term	Rel.	Type	Description
1	1	Type	Att	Code	The code specifying the type of crop species variety.
0	1	Description	Att	Text	The textual description for this crop species variety.

Crop_ Species Variety

Agricultural_Crop

Description: The produce from agriculturally cultivated plants.

Mult.		Business term	Rel.	Type	Description
1	1	Botanical Species	Att	Code	The code specifying the botanical species for this agricultural crop.
0	1	Supplementary_ Botanical Species	Att	Code	The code specifying the supplementary botanical species for this agricultural crop.
0	1	Sowing Period	Att	Code	The code specifying the sowing period of this agricultural crop, such as spring or winter.
0	1	Purpose	Att	Code	The code specifying the purpose for this agricultural crop.
0	1	Planting Reason	Att	Code	The code specifying the planting reason for this agricultural crop.
0	1	Description	Att	Text	The textual description for this agricultural crop.
0	1	Development Stage	Att	Code	The code specifying the development stage for this agricultural crop.

Mult.		Association	Description
Min	Max		
0	unbounded	Botanical_ Crop. Sown. Crop_ Species Variety	A crop species variety sown for this botanical crop.

Agronomical Observation_ Target Object

Description: An entity at which agronomical observation efforts are aimed, such as a pest, a disease or weed.

Mult.		Business term	Rel.	Type	Description
0	1	Type	Att	Code	The code specifying the type of agronomical observation target object, such as pests, diseases or weeds.
0	1	Subtype	Att	Code	The code specifying the subtype of this agronomical observation target object.

0	1	Development Stage	Att	Code	The code specifying the development stage for this agronomical observation target object.
0	1	Description	Att	Text	The textual description of this agronomical observation target object.

Mult. Min Max		Association	Description
0	unbounded	Agronomical Observation_ Target Object. Observation Basis. Agronomical Observation_ Scope	A scope for an observation basis related to this agronomical observation target object.
0	1	Agronomical Observation_ Target Object. Used. Observation_ Process	The observation process used in relation to this agronomical observation target object.

Operator_ Person

Description: A person acting as an operator.

Mult.		Business term	Rel.	Type	Description
0	1	Identification	Att	Identifier	The identifier for this operator person.
0	1	Name	Att	Text	The name, expressed as text, of this operator person.

Mult. Min Max		Association	Description
0	unbounded	Operator_ Person. Specified. Agricultural_ Certificate	An agricultural certificate specified for this operator person.
0	unbounded	Operator_ Person. Specified. Agricultural_ Man Machine System	An agricultural man machine system specified for this operator person.

Email_ Communication

Description: An address for the delivery of electronic mail.

Mult.		Business term	Rel.	Type	Description
0	1	URI	Att	Identifier	The Uniform Resource Identifier (URI) for this email communication.

Unstructured_Telecommunication_Communication

Description: A telecommunication number in an unstructured format.

Mult.		Business term	Rel.	Type	Description
0	1	Complete Number	Att	Text	The text string of characters that make up the complete number for this unstructured telecommunication.

4.6 Business rules

The messages are used to exchange information between the business partners in production, trade, processing and transport of animal products, the tracking and tracing parties, authorities and consumers. The message contains not any specified business rules.

The different receiving parties may get dedicated content, according to their information requirements and conform the license to distribute the data.

4.7 Definition of terms

4.7.1 Parties and party roles

Terms	Definitions

5 Appendix

Mapping ABIEs to the Crop Reference Data model

ABIE	Definition	CR data model
Agricultural Extreme_ Weather Condition	A weather condition regarded as extreme in agriculture.	
Agricultural Input_ Chemical	A chemical used as input in an agricultural process.	
Agricultural Input_ Material	A substance out of which something is or could be made to be used as agricultural input.	
Agricultural Input_ Product	Any product used as an input for an agricultural process.	
Agricultural Producer_ Party	An individual, a group, or a body having a role in the production of crops such as vegetables, flowers, plants.	
Agricultural Zone_ Area	A named, delimited and identified part of a land and or water surface of the globe subject to dedicated uniform agricultural treatment.	
Agricultural_ Certificate	A legal proof of ownership, worthiness or qualification to operate an agricultural item.	
Agricultural_ Characteristic	A prominent attribute or aspect of an agricultural object.	
Agricultural_ Construction	A man made agricultural physical structure, such as a building, greenhouse, installation, storage.	
Agricultural_ Contract	The written or spoken contract between two or more parties for the expressed purpose of specifying the required agricultural produce, products or services.	
Agricultural_ Crop	The produce from agriculturally cultivated plants.	
Agricultural_ Man Machine System	A combination of man and farm machinery which can be combined and operated as one independently controllable unit to perform an agricultural process.	
Agricultural_ Production Unit	A defined set of agricultural production utilities under a single management.	

Agronomical Observation_ Target Object	An entity at which agronomical observation efforts are aimed, such as a pest, a disease or weed.	
Botanical_ Crop	Plants or produce cultivated from a single botanical species or variety.	
Complaint_ Issue	A topic for debate or resolution, expressed as a dissatisfaction.	
Crop Produce_ Batch	A group of crop produce considered or dealt with together.	
Crop Production_ Agricultural Process	A practice of cultivating land, raising crops, or treatment of the agricultural produce.	
Crop Report_ Document	A collection of data for a piece of written, printed or electronic matter that is exchanged between two or more parties for crop reporting purposes.	
Crop_ Plot	A small piece of land or water used for a crop such as an agricultural or aquacultural crop.	
Crop_ Produce	Agricultural plants or plant products grown and harvested, such as grain, fruit, vegetables, silage.	
Crop_ Species Variety	A sub-division of cultivated plants within a species.	
CS Engineering_ Coordinate Reference System	A coordinate reference system that is used in a contextually local sense to describe the relative locations of objects in which coordinates of points are recorded in a Coordinate System (CS) (reference ISO 19111).	
Delimited_ Period	A period of time from a start date time onwards up to an end date time.	
Email_ Communication	An address for the delivery of electronic mail.	
Field_ Crop Mixture Constituent	A plant species or variety constituting part of a field crop mixture.	
Field_ Crop	A field with one or more cultivated plants or produce from one or more botanical species or varieties.	
Laboratory Observation_ Reference	The direction to related information for this laboratory observation.	

Mobile_ Plot	A mobile platform covered with soil, substrate or water used in agriculture or aquaculture to grow organisms.	
Operator_ Person	A person acting as an operator.	
Party_ Contact	A person or department that acts as a point of contact for a party.	
Product_ Batch	A group of products considered or dealt with together.	
Referenced_ Location	A reference to a physical location or place.	
Referenced_ Observation Result	A reference to a collection of diagnostic data, visual or technical, and processing data, performed on a sample by a laboratory.	
Single_ Agronomical Observation	A single collection of diagnostic data, visual or technical, for agronomical purposes.	
Specified_ Agricultural Application	Any substance such as seed, fertilizer, water, gas or chemical applied to an agricultural field, substrate, construction, plant, animal or product.	
Specified_ Agricultural Device	An object specified to be used to perform an agricultural activity.	
Specified_ Geographical Coordinate	The latitude and longitude of a specified place, by which its relative situation on the globe is known. The height above the sea level constitutes a third coordinate.	
Specified_ Geographical Feature	Representation of real world phenomenon associated with a location relative to the Earth, such as cities, buildings, roads, rivers, forests and lakes.	
Specified_ Geographical Grid	The combination of the latitude and longitude forming a graticule, used for specifying the position of any location on the surface of the Earth, without consideration of altitude or depth (reference ISO 19136).	
Specified_ Geographical Line	A connection between two points on the surface of the Earth (reference ISO 19136).	
Specified_ Geographical Multi-Curve	A collection of curves on the surface of the Earth (reference ISO 19136).	

Specified_ Geographical Multi-Point	A collection of points, on the surface of the Earth (reference ISO 19136).	
Specified_ Geographical Multi-Surface	A collection of surfaces on the Earth (reference ISO 19136).	
Specified_ Geographical Object Characteristic	An attribute of a geographical object.	
Specified_ Geographical Point	A point on the surface of the Earth (reference ISO 19136).	
Specified_ Geographical Surface	A figure on the Earth having only two dimensions (reference ISO 19136).	
Specified_ Linear Ring	A specified array of points which define a closed loop which is not self intersecting.	
Specified_ Party	A specified individual, group, or body having a role in a business function.	
Specified_ Polygon	A planar surface, defined by one exterior boundary and zero or more interior boundaries. Each interior boundary defines a hole in the polygon.	
Structured_ Address	The location, using a structured address format, at which a particular organization or person may be found or reached.	
Unstructured_ Telecommunication_ Communication	A telecommunication number in an unstructured format.	