INTERNATIONAL STANDARD

ISO 11788-3

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Electronic data interchange between information systems in agriculture — Agricultural data element dictionary —

Part 3: Pig farming

Échange de données informatisé entre systèmes d'information en agriculture — Dictionnaire de données agricoles —

Partie 3: Élevage porcin

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 11788 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 11788-3 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

ISO 11788 consists of the following parts, under the general title *Electronic data interchange between information systems in agriculture — Agricultural data element dictionary*:

— *Part 1: General description*

— *Part 2: Dairy farming*

— *Part 3: Pig farming*

— *Part 4: Poultry farming*

— *Part 5: Non-animal stationary applications*

Annexes A and B form a normative part of this part of ISO 11788.

Introduction

Stand-alone computers on farms require that the same data be manually entered into and collected from each computer. This laborious task becomes superfluous when the computers are interconnected and able to communicate with each other automatically to share and exchange information. Information exchange means data transport between the management computer on one side and each process computer on the other.

An agricultural data element dictionary (ADED) consists of data elements that can be used in the agricultural sector to exchange data electronically. ADED is closely linked to agricultural data interchange syntax (ADIS), also used in the agricultural sector to exchange data electronically. The two in combination make electronic data interchange possible.

In a data element dictionary all data elements are described in a unique way. Each element is uniquely identified by a data dictionary number (DD number). Data dictionaries for data exchange between management computers and process computers may be subsets of larger data dictionaries.

The standardization of on-farm data interchange between management computer and stationary process computers consists of an ADIS and an ADED. The ADIS is described in ISO 11787. A general description of the ADED is given in ISO 11788-1; the other parts of ISO 11788 describe data dictionaries for different fields of application.

Electronic data interchange between information systems in agriculture — Agricultural data element dictionary —

Part 3: Pig farming

1 Scope

This part of ISO 11788 specifies how the agricultural data element dictionary (ADED) can be used in on-farm data exchange between management systems and stationary computers in pig farming. Stationary computers in pig farming are, for example, feeding computers and animal weighing computers.

This part of ISO 11788 describes the data elements and entities in the field of pig farming in accordance with the rules given in ISO 11788-1 and ISO 11788-2.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 11788. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 11788 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 11788-1:1997, *Electronic data interchange between information systems in agriculture — Agricultural data element dictionary — Part 1: General description.*

ISO 11788-2:2000, *Electronic data interchange between information systems in agriculture — Agricultural data element dictionary — Part 2: Dairy farming.*

3 Terms and definitions

For the purposes of this part of ISO 11788, the terms and definitions given in ISO 11788-1 and the following apply.

3.1
entity relationship diagram
visual presentation of the possible relationships between entities

4 Abbreviated terms

ADED Agricultural Data Element Dictionary

ADIS Agricultural Data Interchange Syntax

AN Alphanumeric

C	Conditional
DD	Data Dictionary
EDI	Electronic Data Interchange
ERD	Entity Relationship Diagram
K	Key data element
M	Mandatory
N	Numeric
O	Optional
Obl	Obligation

5 ADED pig farming

5.1 Code sets

In this part of ISO 11788, code sets are added to the data element. When a data element has a code set, it may be a normative or an informative code set. A normative code set is specified in an International Standard; an informative code set only gives an example of possible values.

When there is agreement on the data element description, but the values of the code set differ between countries, the code set must be defined as national. The national code set can be found in the national data dictionary.

5.2 Entity relationship diagram

The entity relationship diagrams given in Figure 2 and Figure 3 show the entity types (rectangles) and their relationship types (lines with certain characteristics). The relationship type between two entity types can have the characteristics/cardinalities shown in Figure 1.

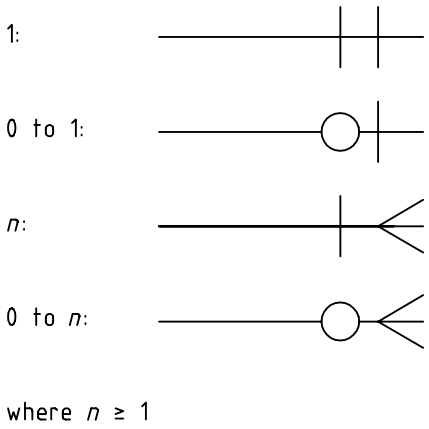
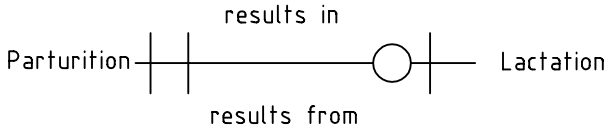


Figure 1 — Relationships between entity types

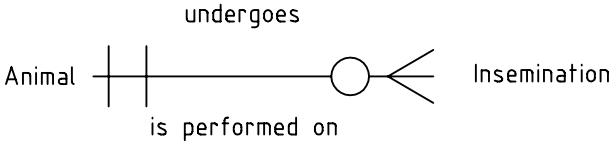
EXAMPLE 1



The cardinalities show that one occurrence of an entity type has a relationship to zero or one occurrence of an other entity type. The relationship names have to be read clockwise.

In this case: A parturition may result in a new lactation. The other way around: a lactation results from one parturition. The relationship to parturition is used for identifying the lactation.

EXAMPLE 2



The cardinalities show that one occurrence of an entity type has a relationship to zero or more occurrences of another entity type.

In this case: An animal may undergo several inseminations, an insemination is performed on one animal. The relationship to the animal is used for identifying the insemination.

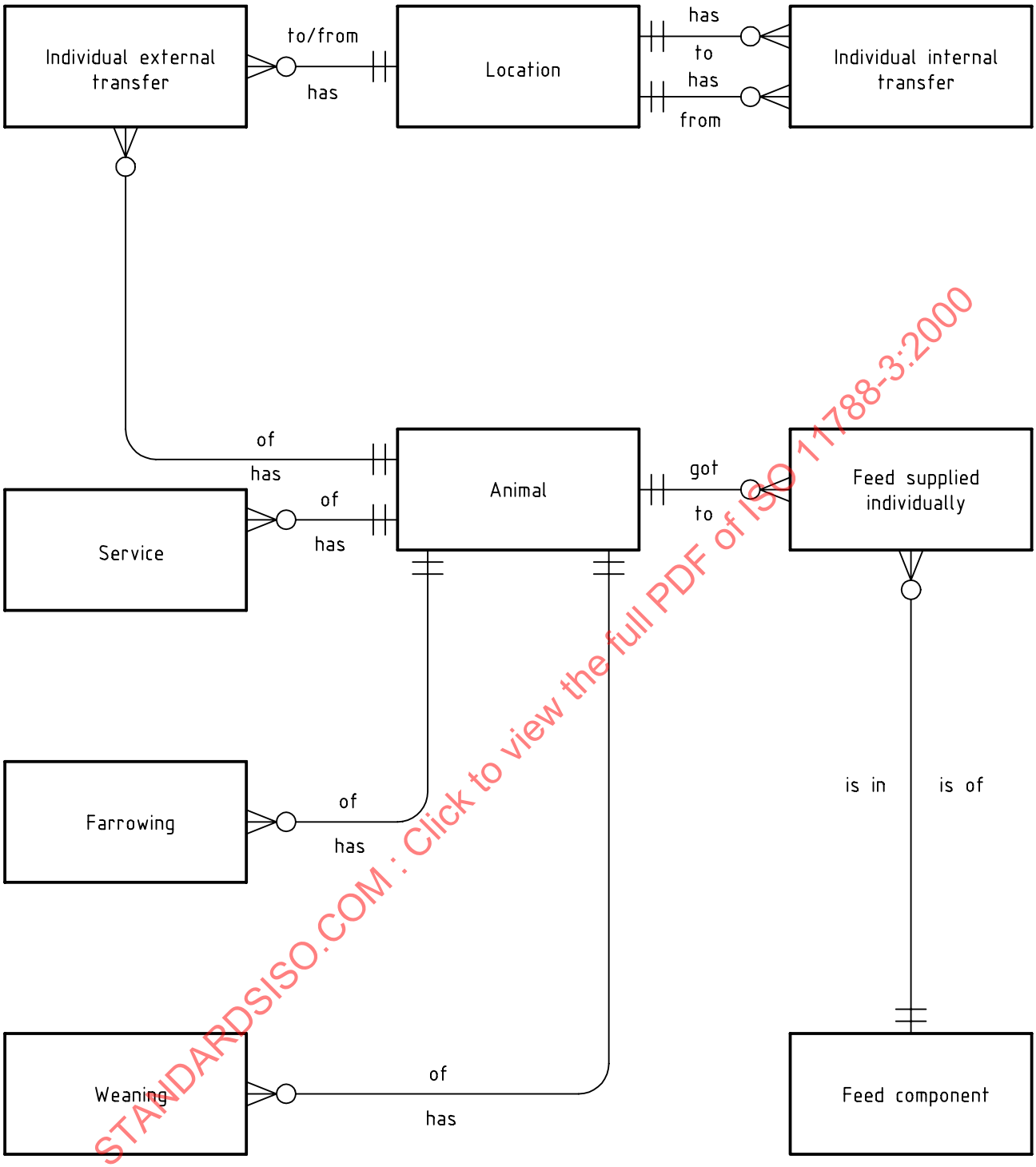


Figure 2 — Entity relationship diagram for individual identification

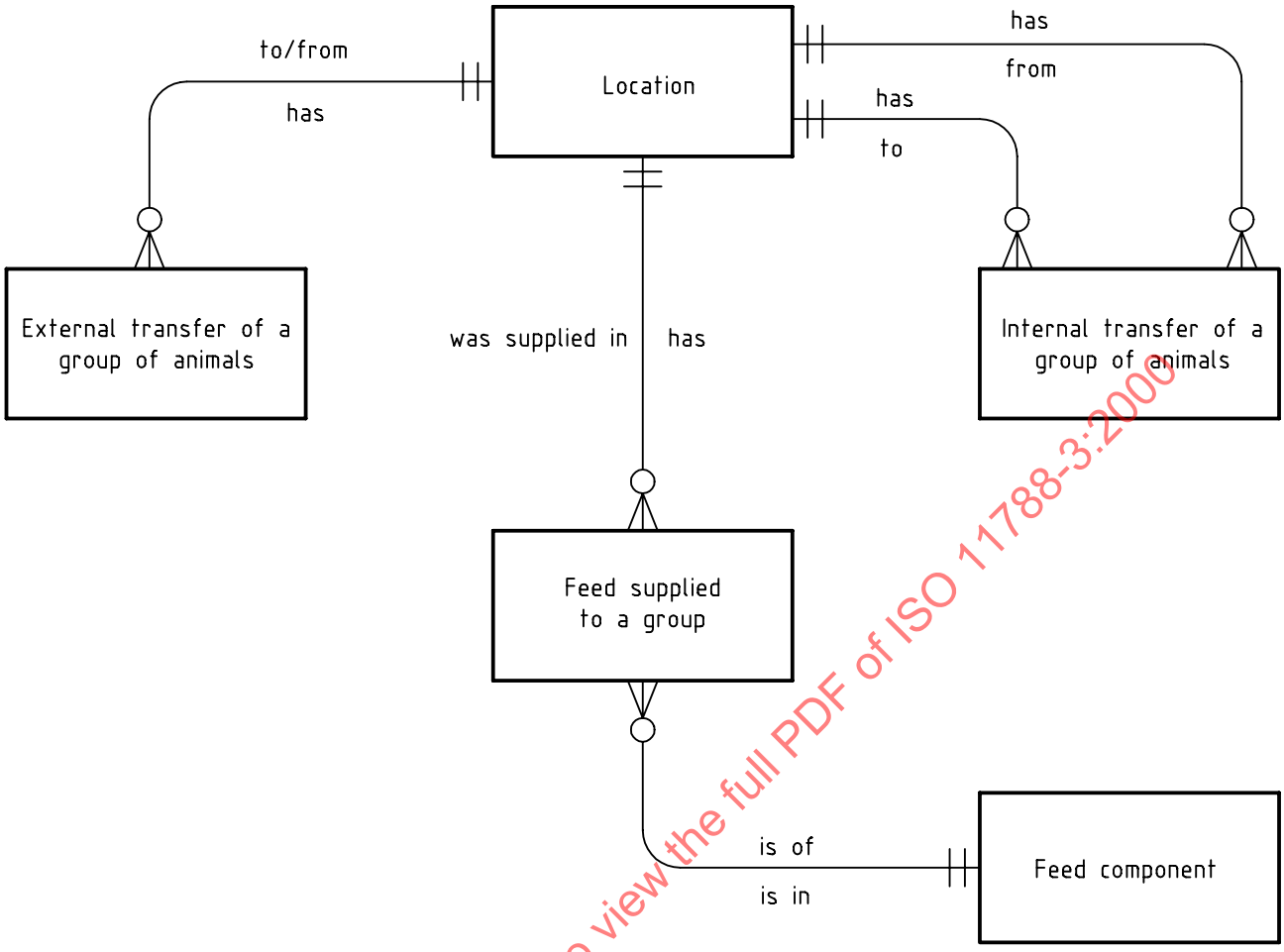


Figure 3 — Entity relationship diagram for no individual identification

5.3 Entities

The entities for the field of pig farming are given in annex A.

5.4 Data elements

The data elements for the field of pig farming are given in annex B.

Annex A
(normative)

Entities

990012 Feed component

In this entity the data elements give information on the major characteristics of a feed component (a feed component could be a mix of several feed components)

	ADED-nr	Name
O		
K	900099	Feed component number
K	900100	Feed lot number
	900101	Feed type number
	900102	Feed component name
M	900103	Dry matter content
	900104	Energy type
	900105	Energy per kilogram
	900106	Crude protein per kilogram
	900107	Phosphorus per kilogram
	900108	Calcium per kilogram
	900109	Lysine per kilogram

990013 Feed supplied individually

In this entity the data elements give information about the feeding of an individually identified animal, during a certain period

	ADED-nr	Name
O		
K	900070	Animal number (see ISO 11788-2)
K	900099	Feed component number
K	900100	Feed lot number
K	900110	Feeding end date
K	900111	Feeding end time
	900112	Feeding start date
	900113	Feeding start time
	900114	Distribution type
	900115	Measure type
	900116	Total feed amount

990014 Feed supplied to a group

In this entity the data elements give information about the feeding of a group of animals during a certain period

O	ADED-nr	Name
K	900117	Location number
K	900118	Location type
K	900119	Process computer number
K	900099	Feed component number
K	900100	Feed lot number
K	900110	Feeding end date
K	900111	Feeding end time
	900112	Feeding start date
	900113	Feeding start time
	900114	Distribution type
	900115	Measure type
	900116	Total feed amount

990015 Individual external transfer

In this entity the data elements give information about the transfer of an individually identified animal to or from the farm

O	ADED-nr	Name
K	900070	Animal number (see ISO 11788-2)
K	900117	Location number
K	900118	Location type
K	900119	Process computer number
K	900120	Transfer date
K	900121	Transfer time
	900122	Location direction
	900123	Transfer reason

990016 Individual internal transfer

In this entity the data elements give information about the transfer of an individually identified animal within the farm

O	ADED-nr	Name
K	900070	Animal number (see ISO 11788-2)
K	900124	To-location number
K	900125	To-location type
K	900126	To-process computer number
K	900120	Transfer date
K	900121	Transfer time
	900123	Transfer reason

990017 External transfer of a group of animals

In this entity the data elements give information about the transfer of animals to or from the farm

	ADED-nr	Name
K	900117	Location number
K	900118	Location type
K	900119	Process computer number
K	900120	Transfer date
K	900121	Transfer time
K	900122	Location direction
	900123	Transfer reason
	900127	Number of animal(s) transferred
	900128	Average age of a group of animals
	900129	Average mass
	900130	Registered total mass of animal(s)

990018 Internal transfer of a group of animals

In this entity the data elements give information about the transfer of animals within the farm

	ADED-nr	Name
K	900131	From-location number
K	900132	From-location type
K	900133	From-process computer number
K	900124	To-location number
K	900125	To-location type
K	900126	To-process computer number
K	900120	Transfer date
K	900121	Transfer time
	900123	Transfer reason
	900127	Number of animal(s) transferred
	900128	Average age of a group of animals
	900129	Average mass
	900130	Registered total mass of animal(s)

990019 Location

In this entity the data elements give information about the location number and the location level

	ADED-nr	Name
K	900117	Location number
K	900118	Location type
K	900119	Process computer number

990020	Farrowing	
	In this entity data elements of a farrowing are listed	
O	ADED-nr	Name
K	900070	Animal number (see ISO 11788-2)
K	900134	Farrowing date
	900135	Farrowing time
	900136	Number of piglets born alive
	900137	Number of stillborn piglets
	900138	Number of male piglets born alive
	900129	Average mass
	900130	Registered total mass of animal(s)
	900139	Litter quality

990021	Service	
	In this entity data elements belonging to a specific service, artificial or natural, are listed	
O	ADED-nr	Name
K	900070	Animal number
K	900140	Service date
K	900141	Service time
	900142	Type of insemination
	900143	Batch number
	900144	Boar number
	900145	Service technician

990022	Weaning	
	In this entity data elements of a weaning are listed	
O	ADED-nr	Name
K	900070	Animal number
K	900146	Weaning date
	900147	Number of weaned piglets
	900148	Number of weaned male piglets
	900129	Average mass
	900130	Registered total mass of animal(s)
	900139	Litter quality

Annex B
(normative)

Data elements

ADED-number : 900099
Name : Feed component number
Synonyms :
Definition : Numeric code used to identify the feed component
Comments :
Format : type: N length: 5 resolution: 0 unit:
Values : code set: N min: max:
Code set :

ADED-number : 900100
Name : Feed lot number
Synonyms :
Definition : Numeric code used to identify the feed lot from which the feed component originates
Comments :
Format : type: N length: 2 resolution: 0 unit:
Values : code set: N min: max:
Code set :

ADED-number : 900101
Name : Feed type number
Synonyms : Group of feed component
Definition : Numeric code used to identify the group to which the feed component belongs
Comments :
Format : type: N length: 1 resolution: 0 unit:
Values : code set: Y min: max:
Code set : Defined at national level

ADED-number : 900102
Name : Feed component name
Synonyms :
Definition : Name of the feed component (raw material or complementary feed, ...) used in a feed mix
Comments :
Format : type: AN length: 25 resolution: unit:
Values : code set: N min: max:
Code set :

ADED-number : 900103
Name : Dry matter content
Synonyms :
Definition : Content of dry matter in a feed component or in a feed mix
Comments :
Format : type: N length: 5 resolution: 2 unit: g/kg
Values : code set: N min: max:
Code set :

ADED-number : 900104
Name : Energy type
Synonyms :
Definition : Name of energy definition used to characterize the feed component
Comments : This data element allows for the use of a specific definition of energy (as EN, ED, FU, EW, etc.)
Format : type: AN length: 25 resolution: unit:
Values : code set: N min: max:
Code set :

ADED-number : 900105
Name : Energy per kilogram
Synonyms :
Definition : Energy content per kilogram of wet mass
Comments :
Format : type: N length: 4 resolution: 2 unit: MJ/kg
Values : code set: N min: max:
Code set :

ADED-number : 900106
Name : Crude protein per kilogram
Synonyms :
Definition : Content of crude protein per kilogram of wet mass
Comments :
Format : type: N length: 5 resolution: 2 unit: g/kg
Values : code set: N min: max:
Code set :

ADED-number : 900107
Name : Phosphorus per kilogram
Synonyms :
Definition : Content of phosphorus per kilogram of wet mass
Comments :
Format : type: N length: 5 resolution: 2 unit: g/kg
Values : code set: N min: max:
Code set :

ADED-number : 900108
Name : Calcium per kilogram
Synonyms :
Definition : Content of calcium per kilogram of wet mass
Comments :
Format : type: N length: 5 resolution: 2 unit: g/kg
Values : code set: N min: max:
Code set :

ADED-number : 900109
Name : Lysine per kilogram
Synonyms :
Definition : Content of lysine per kilogram of wet mass
Comments :
Format : type: N length: 5 resolution: 2 unit: g/kg
Values : code set: N min: max:
Code set :

ADED-number : 900110
Name : Feeding end date
Synonyms :
Definition : Date of the end of a feeding period
Comments :
Format : type: N length: 8 resolution: unit: ccyymmdd
Values : code set: N min: max:
Code set :

ADED-number : 900111
Name : Feeding end time
Synonyms :
Definition : Time of the end of a feeding period
Comments :
Format : type: N length: 6 resolution: unit: hhmmss
Values : code set: N min: max:
Code set :

ADED-number : 900112
Name : Feeding start date
Synonyms :
Definition : Date of the start of a feeding period
Comments :
Format : type: N length: 8 resolution: unit: ccyymmdd
Values : code set: N min: max:
Code set :

ADED-number : 900113
Name : Feeding start time
Synonyms :
Definition : Time of the start of a feeding period
Comments :
Format : type: N length: 6 resolution: unit: hhmmss
Values : code set: N min: max:
Code set :

ADED-number : 900114
Name : Distribution type
Synonyms :
Definition : Numeric code used to identified the type of feeding distribution
Comments :
Format : type: N length: 1 resolution: 0 unit:
Values : code set: Y min: max:
Code set : Normative: 1 = Restricted; 2 = Ad lib

ADED-number : 900115
Name : Measure type
Synonyms :
Definition : Numeric code used to identify the type of measurement of feed amount distributed
Comments :
Format : type: N length: 1 resolution: 0 unit:
Values : code set: Y min: max:
Code set :

ADED-number : 900116
Name : Total feed amount distributed
Synonyms :
Definition : Quantity of feed component distributed, not standardized
Comments :
Format : type: N length: 8 resolution: 3 unit: kg
Values : code set: N min: max:
Code set :

ADED-number : 900117
Name : Location number
Synonyms :
Definition : Serial number, unique within the farm, given to a certain location
Comments :
Format : type: N length: 5 resolution: 0 unit:
Values : code set: N min: max:
Code set :

ADED-number : 900118

Name : Location type

Synonyms :

Definition : Serial number, unique within the farm, given to a certain location detail level

Comments : Location type allows for the exchange of data from a detail level (amount of feed through a feed actuator), as well as from a global level (for example, transfer of all animals from a house to slaughterhouse)

Format : type: N length: 2 resolution: 0 unit:

Values : code set: Y min: max:

Code set : Code set (normative):

1 = enterprise; 2 = farm; 3 = house; 4 = section

5 = pen; 6 = feed actuator; 7 = group; 8 = other

ADED-number : 900119

Name : Process computer number

Synonyms :

Definition : Serial number used to identify the process computer in relation to a certain location

Comments :

Format : type: N length: 6 resolution: 0 unit:

Values : code set: AN min: max:

Code set :

ADED-number : 900120

Name : Transfer date

Synonyms :

Definition : Date of transfer of animal(s)

Comments : Date taken into account is the date of the start of transfer, except in the case of transfer from outside of the farm (in this case, date is the arrival date at the location)

Format : type: N length: 8 resolution: unit: ccyymmdd

Values : code set: N min: max:

Code set :

ADED-number : 900121

Name : Transfer time

Synonyms :

Definition : Time of transfer of animal(s)

Comments : Time taken into account is the time of the start of transfer, except in the case of transfer from outside of the farm (in this case, time is the arrival time at the location)

Format : type: N length: 6 resolution: unit: hhmmss

Values : code set: N min: max:

Code set :

ADED-number : 900122

Name : Location direction

Synonyms :

Definition : Numeric code used to clarify whether an animal comes from the outside or goes to outside the farm

Comments :

Format : type: N length: 1 resolution: 0 unit:

Values : code set: Y min: max:

Code set : Normative : 1 = from outside to inside, 2 = from inside to outside

ADED-number : 900123

Name : Transfer reason

Synonyms :

Definition : Reason the animal(s) was (were) transferred

Comments :

Format : type: AN length: 40 resolution: unit:

Values : code set: N min: max:

Code set :

ADED-number : 900124

Name : To-location number

Synonyms :

Definition : Location number where animal(s) is (are) transferred

Comments :

Format : type: N length: 5 resolution: 0 unit:

Values : code set: N min: max:

Code set :

ADED-number : 900125

Name : To-location type

Synonyms :

Definition : Serial number, unique within the farm, given to a certain location detail level where animal(s) is (are) transferred

Comments :

Format : type: N length: 1 resolution: 0 unit:

Values : code set: Y min: max:

Code set :

ADED-number : 900126

Name : To-process computer number

Synonyms :

Definition : Serial number used to identify the process computer in relation to a certain location where animal(s) is (are) transferred

Comments :

Format : type: N length: 2 resolution: 0 unit:

Values : code set: N min: max:

Code set :

ADED-number : 900127

Name : Number of animal(s) transferred

Synonyms :

Definition : Number of animals transferred together from one location to another location

Comments :

Format : type: N length: 4 resolution: 0 unit:

Values : code set: N min: max:

Code set :

ADED-number : 900128

Name : Average age

Synonyms :

Definition : Average age of a group of animals

Comments :

Format : type: N length: 4 resolution: 0 unit: Days

Values : code set: N min: max:

Code set :

ADED-number : 900129

Name : Average mass

Synonyms :

Definition : Estimated mass of each animal in a group

Comments : Average mass is obtained by the total mass (estimated or measured) of a group of animals, divided by the number of animals in this group

Format : type: N length: 6 resolution: 2 unit: kg

Values : code set: N min: max:

Code set :