



Establishing a monitoring system for the use of antibiotics at animal level in Austria

Obritzhauser, W.¹, Mayerhofer, M.², Firth, C.¹, Fuchs, K.³, Egger-Danner, C.²

¹ Institute of Veterinary Public Health, Vetmeduni Vienna, Austria

² ZuchtData / Federation of Austrian Cattle Breeders, Austria

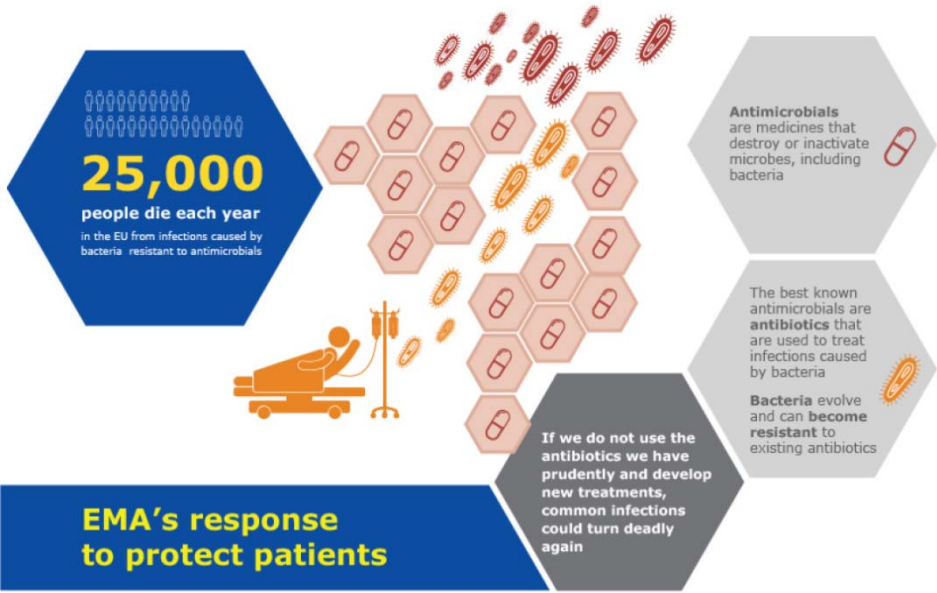
³ Data, Statistics & Risk Assessment, Austrian Agency for Health and Food Safety



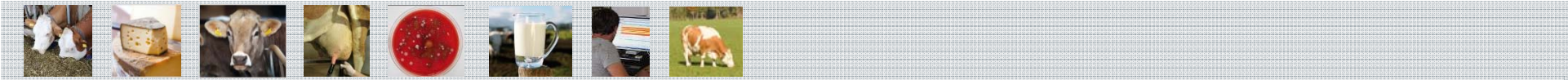
Use of antibiotics is increasingly important to consumers

ANTIMICROBIAL RESISTANCE

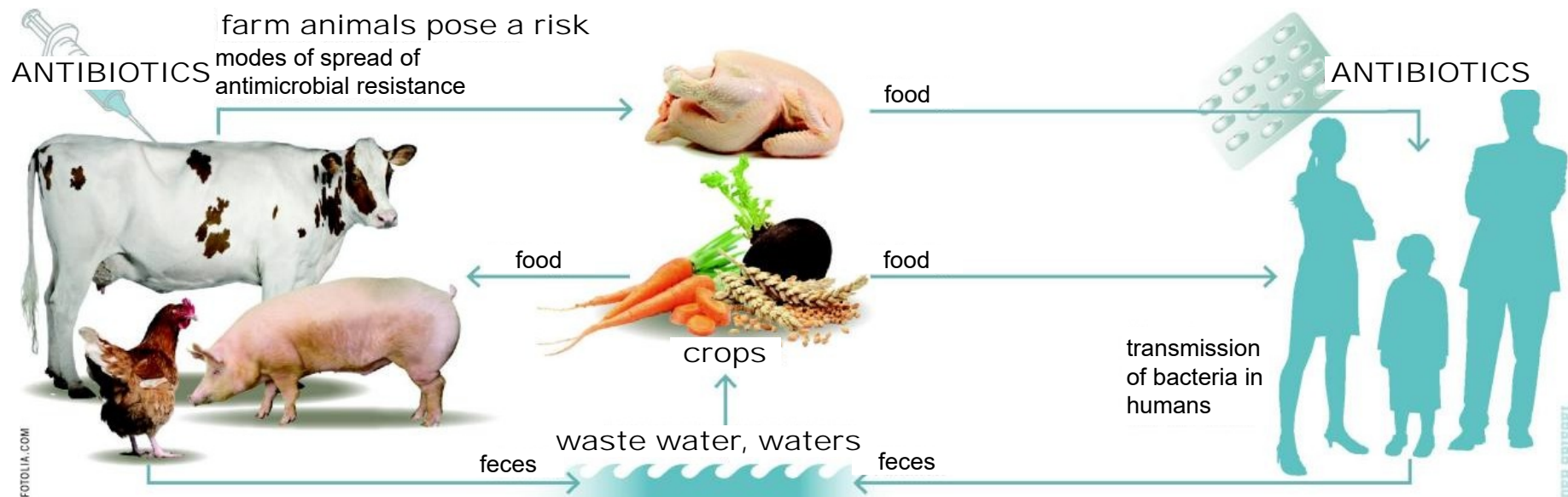
Combating a serious threat to public and animal health



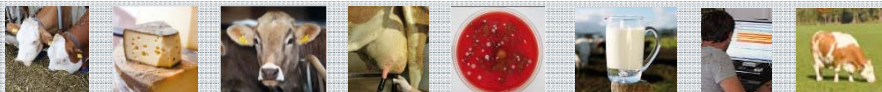
EMA's response to anti-microbial resistance – infographic 2016



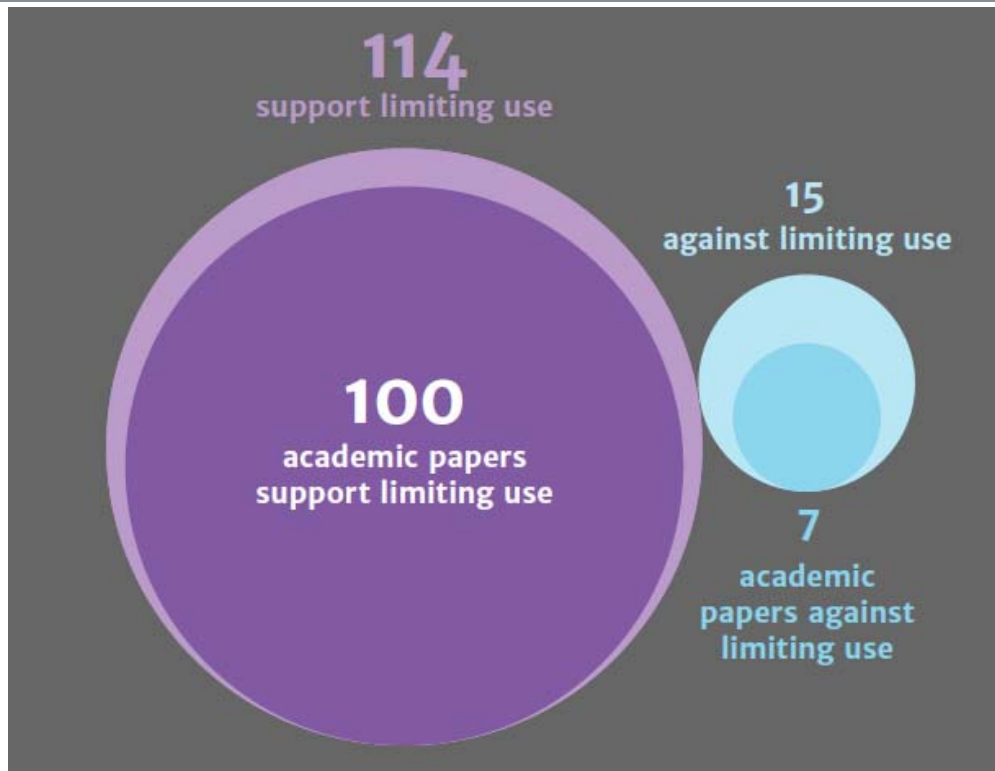
Use of antibiotics is increasingly important to consumers



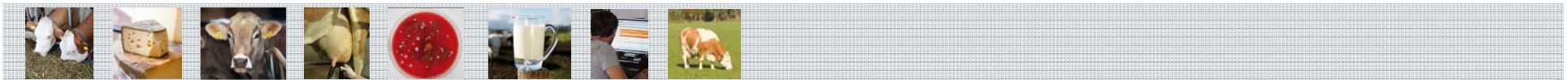
“The antibiotic usage in food animals is indeed becoming a global issue associated with food safety and public health. All countries in the world should use the antibiotics in food animals more prudently and rationally. ...” (J. Shen quoted from O’Neill, 2016)



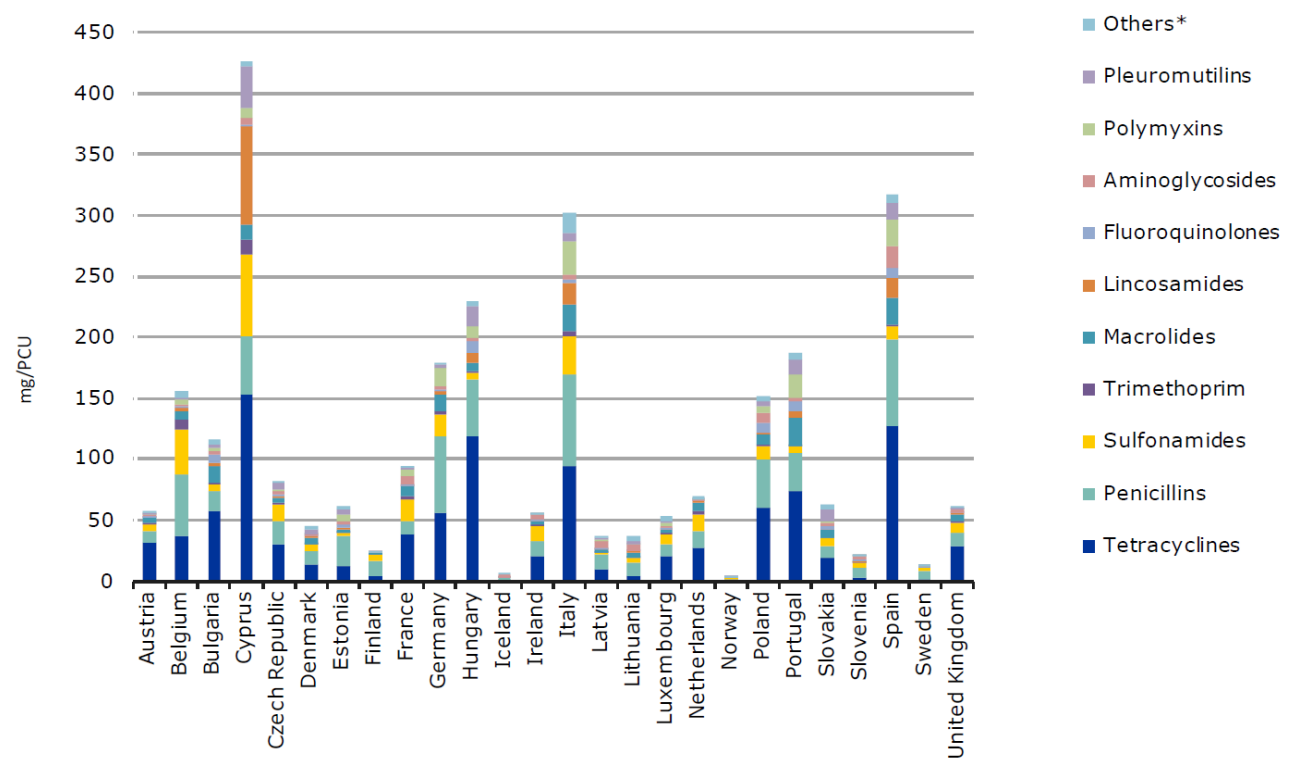
Evidence to support limiting use of antibiotics



Review on antimicrobial resistance. Tackling drug-resistant infections globally: Final report and recommendations. (O'Neill, 2016)



Surveillance of antimicrobial consumption in Europe

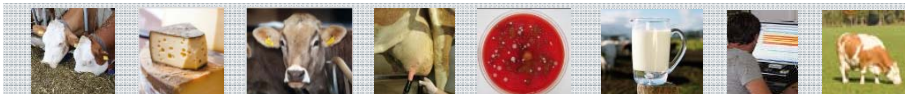
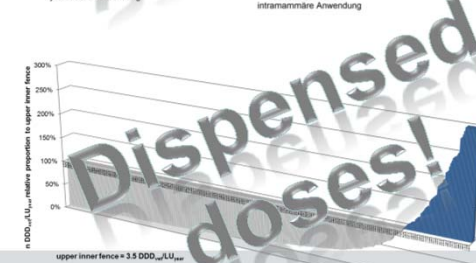
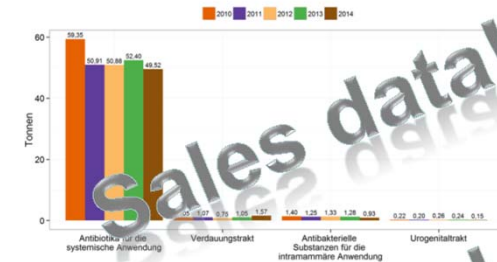


Sales data for food-producing species in mg/PCU in 2013 (ESVAC 2013)



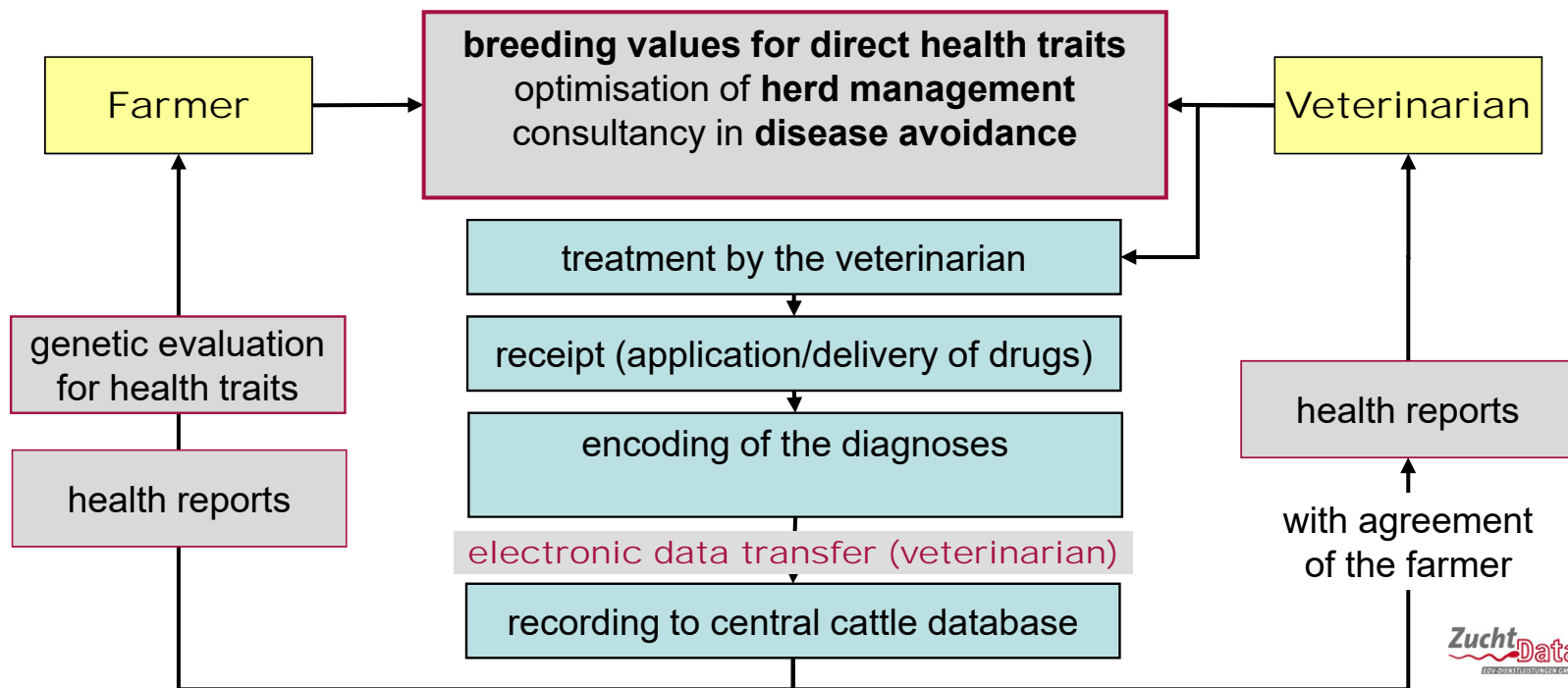
Surveillance of antimicrobial consumption in Austria

- **ESVAC** European Surveillance of Veterinary Antimicrobial Consumption (European Medicines Agency)
- Pharmaceutical industry, wholesale pharmacies: **mass flows of antimicrobials** used in veterinary medicine (regulation 2014, ministry of health)
- Veterinary practices: **mass flows of antimicrobials** used in veterinary medicine (regulation 2015, ministry of health)



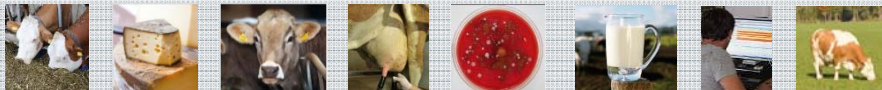
Health monitoring system for cattle in Austria

Recording diagnoses and return of information



ZuchtData
BESCHLEIBUNGSGENETIK

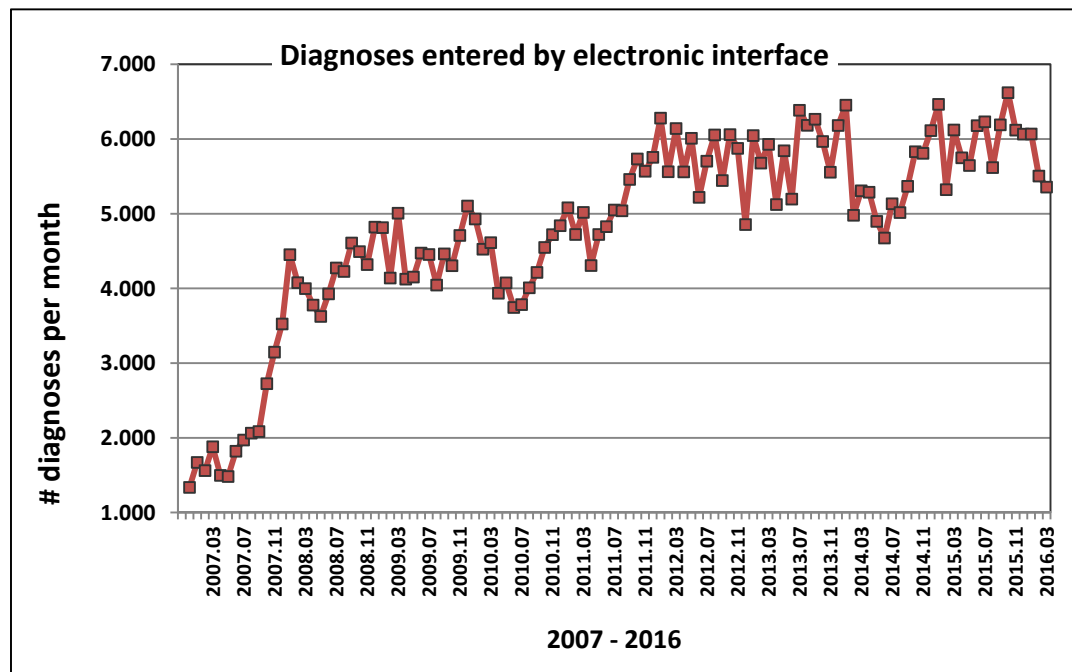
ZAR
RINDERZUCHT
AUSTRIA



Health monitoring system for cattle in Austria

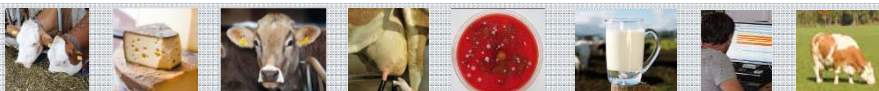
diagnoses determined as of June 26, 2016

Code	diagnosis	number	%
51	acute mastitis	148.009	17,6
42	silent heat, anestrus	95.362	11,4
43	ovarian cysts	89.827	10,7
52	chronic mastitis	67.165	8,0
48	retained fetal membranes	44.160	5,3
72	pneumonia	39.975	4,8
41	endometritis	38.741	4,6
31	milk fever (hypocalcemia)	38.044	4,5
61	interdigital dermatitis	23.689	2,8
49	diseases of the post-parturient period	17.977	2,1
16	diarrhoea in newborn calves	16.196	1,9
21	diarrhoea	14.455	1,7
71	other diseases of the respiratory tract	13.835	1,6
62	sole ulcer	11.696	1,4
33	clinical ketosis	11.324	1,3
55	other udder diseases	10.187	1,2
96	systemic diseases	8.463	1,0
03	fever, feverish systemic diseases	8.457	1,0
94	diseases of the horns	7.374	0,9
24	hardware disease	6.422	0,8
93	scabies and other infectious skin diseases	6.193	0,7
46	dystocia	5.614	0,7
11	umbilical inflammation	5.546	0,7
total		839.564	



ZuchtData
REGIONSSTRECKENREISE

ZAR
RINDERZUCHT
AUSTRIA



Monitoring system for health & drug use for cattle in Austria

Austrian Federal Office for Safety in Health Care
Austrian Medicines and Medical Devices Agency

eServices ABOUT US NEWS CENTER MEDICINES PHARMACOVIGILANCE MEDICAL DEVICES

Home » eServices » European Surveillance of Veterinary Antimicrobial Consumption ESVAC

Print Page Provision of data

Content currently only available in German.

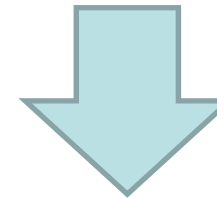
Antibiotika Mengengstromanalyse laut Verordnung

Filename	Info	Modified
AntibiotikaMengengstromanalyseASP.xml	6.1 MB	2016-08-06 08:00:01

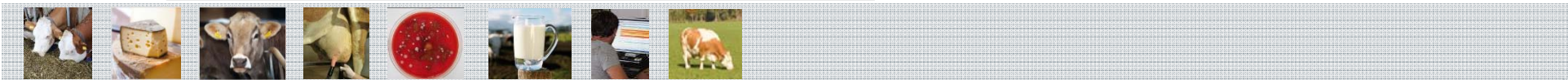
Welche Daten enthält der Tierarzneimittel-Datensatz („Stammdatendownload“) für Nicht-Antibiotika? Warum enthält er nicht die gleichen Daten wie für Antibiotika?

- BASG official announcement
- BASG voting results
- Austrian Medicinal Product Index
- Public registers
- Instructions for use
- User registration
- Login to your account
- Authorisation and Lifecycle MP
- Pharmacovigilance Report
- Medical device adverse incidents
- Mail-order pharmacies
- European Surveillance of Veterinary Antimicrobial Consumption ESVAC
- Information about ESVAC - European Surveillance of Veterinary Antimicrobial Consumption
- Provision of data
- FAQ

standardized list of pharmaceuticals
which is updated daily



Filename	Info	Modified
AntibiotikaMengengstromanalyseASP.xml	6.1 MB	2016-08-06 08:00:01



Monitoring system for health & drug use for cattle in Austria

GERMAN | ENGLISH Data Allocation | BASG-Announcement | FAQ | Terms of use

Austrian Federal Office for Safety in Health Care
Austrian Medicines and Medical Devices Agency
Traisengasse 5
1200 Vienna

Austrian Federal Office for Safety in Health Care
Austrian Medicines and Medical Devices Agency

Austrian medicinal product index – Online Search for medicinal products

Search

Name

MA number

Holder

MA date from to

Authorized in Liechtenstein?

Prescription status

Supply status

Active Substance

Category of medicinal product

ATC code

Domain

Animal category

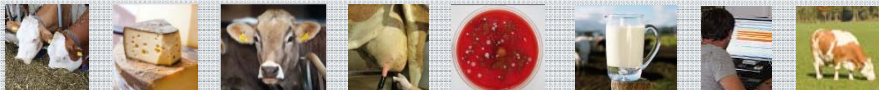
Animal species

Mandatory for batch release?

Use * or % for a wildcard search

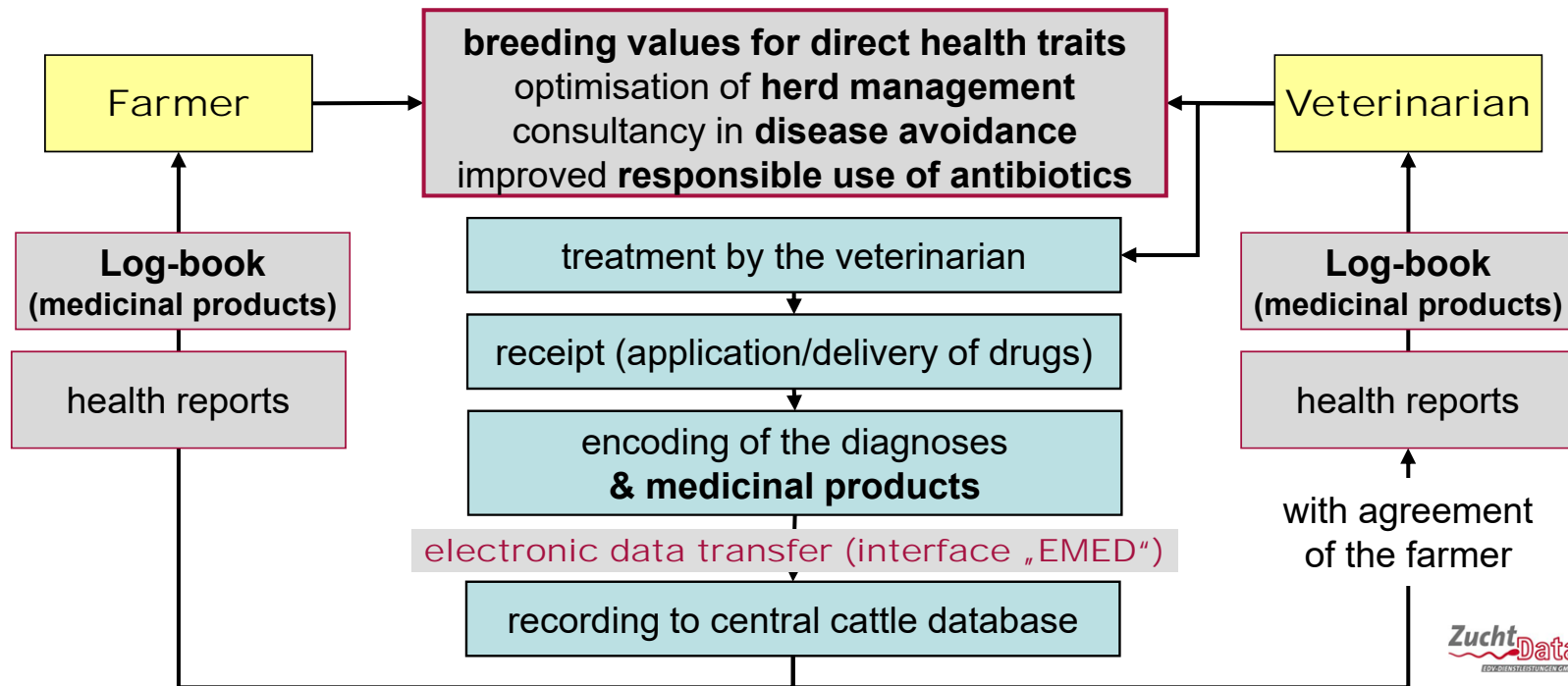
Name	Documents	MA number	Holder	ATC code
> CEFFECT 25 mg/ml Injektionssuspension für Rind	Package Leaflet (national translation); SmPC (national translation)	8-01136	Emdoka Bvba, John Lijsenstraat 16, 2321 Hoogstraten, Kingdom of Belgium	QJ01DE90
> Cefimam DC 150 mg - Salbe zur intramammären	Package Leaflet (national translation); SmPC (national translation)	835809	Norbrook Laboratories Ltd, Station Works -, BT35 6JP Newry, County Down, Northern Ireland, United Kingdom of Great Britain and Northern Ireland	QJ51DE90
> Cefimam LC, 75 mg Salbe zur intramammären An	Package Leaflet (national translation); SmPC (national translation)	835755	Norbrook Laboratories Ltd, Station Works -, BT35 6JP Newry, County Down, Northern Ireland, United Kingdom of Great Britain and Northern Ireland	QJ51DE90
> Cefquinor DC 150 mg - Salbe zur intramammären	Package Leaflet (national translation); SmPC (national translation)	835810	Norbrook Laboratories Ltd, Station Works -, BT35 6JP Newry, County Down, Northern Ireland, United Kingdom of Great Britain and Northern Ireland	QJ51DE90

- product name
- SmPC
- package leaflet
- MA number
- MA date
- active substances
- ATC_{vet} code
- drug unit
- dosage
- administration type
- withdrawal period
- supply status
- domain
- animal species
- holder



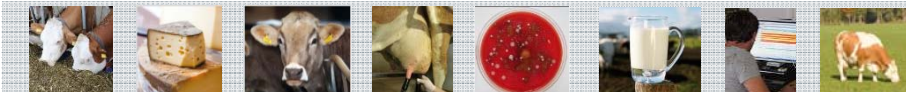
Monitoring system for health & drug use for cattle in Austria

Recording diagnoses and return of information



ZuchtData
BESCHLEIBUNGSGRUNDLAGEN

ZAR
RINDERZUCHT
AUSTRIA



Monitoring system for health & drug use for cattle in Austria



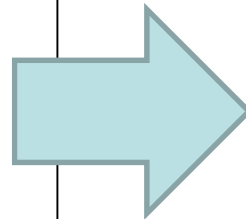
SCHNITTSTELLE ELEKTRONISCHES MEDIKAMENTENBUCH

Anwendung, Abgabe und Rücknahme von Medikamenten sowie Behandlungshinweise

Die Schnittstelle dient zum Befüllen des elektronischen Abgabe- und Anwendungsbeleges und zur Führung des elektronischen Medikamentenbuches. Aus diesen Daten werden auch die Abgabemeldungen an die AGES erstellt.

Satzaufbau:

Lfd.Nr	Feld	Format	Beispiele
1	Tierarztnummer	Zahl(4)	1234
2	Hapo-ID	text	HA1234501234
3	interne Datensatznummer aus Tierarztprogramm	zahl	123456789
4	Belegnummer - Arzneimittelbeleg	text	AA1234
5	Betriebsnummer (Iffbis)	Zahl(7)	1234567
6	Datum	TT.MM.JJJJ	01.01.2014
7	Tier Lebensnummer	text	G40000123456789 AT 123456789 AT 123.456.789
8	Anzahl behandelt	zahl	1
9	Nutzungsart	text	Milch
10	Diagnosecode	zahl(3)	52
11	Einsatzindikation	Text(300)	Wundinfektion
12	Nachbehandlung	text(1)	J oder N
13	Arzneimittel Zulassungsnummer	text	8-00235
14	Arzneimittel Chargenbezeichnung	text	AB1234-56
15	Verwendungsart	text	Anwendung, Abgabe
16	Arzneimittelmenge	zahl	25,-10
17	Arzneimittелеinheit	text	ml
18	Arzneimittelmenge pro Anwendung	Zahl	5
19	Dosierung	text	1ml/100kg KGW
20	Anzahl Anwendungen pro Tag	Zahl	1
21	Anwendungsdauer in Tagen	zahl	1
22	Anwendungsart	Text	intramammäre Anwendung
23	Anwendungsempfehlung	Text(300)	Zweimal täglich
24	Wartezeit Milch in Tagen	zahl	0
25	Wartezeit Fleisch in Tagen	zahl	0
26	Tierart	Text	Rind
27	Artikelbezeichnung	Text	Futtermittel

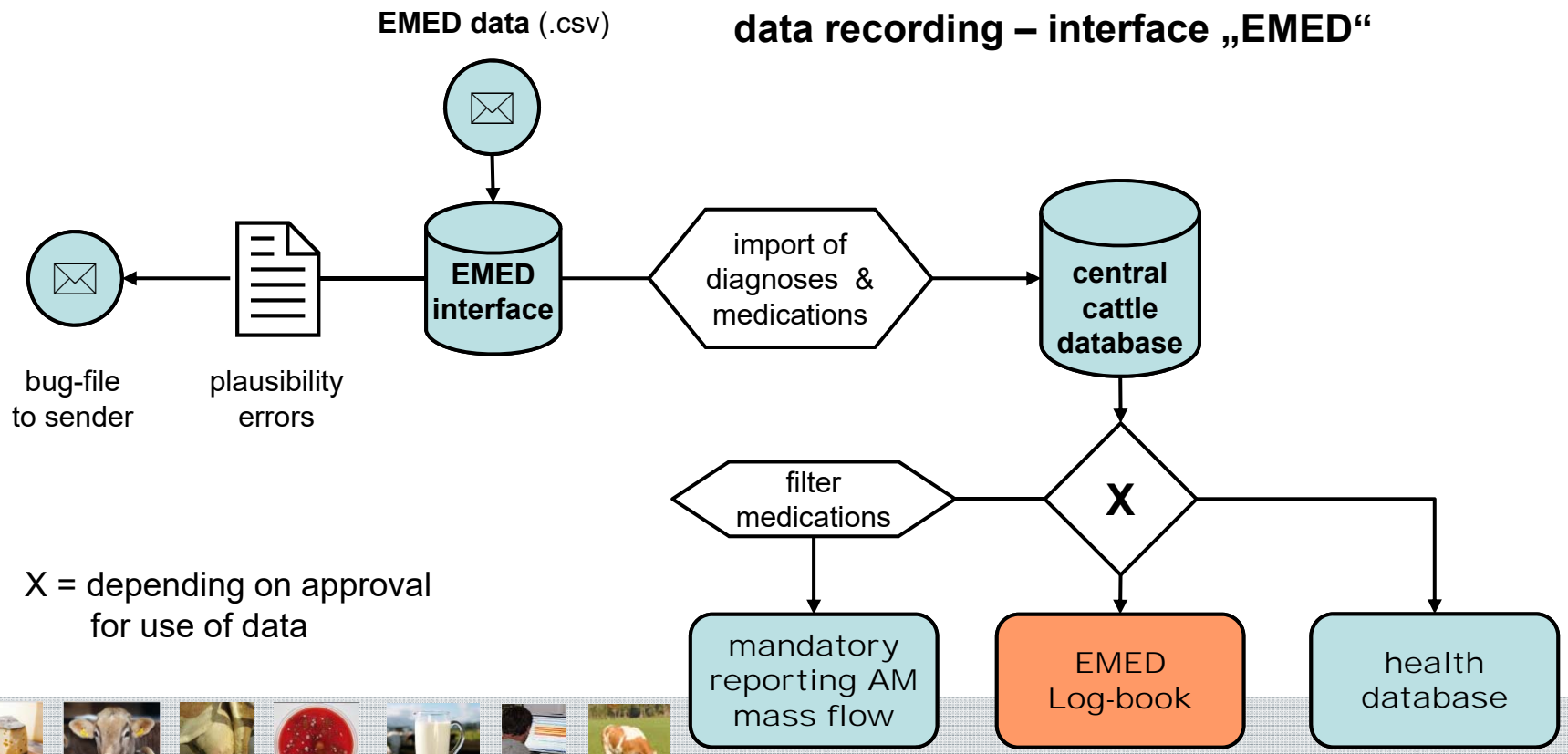


Data recording – interface „EMED“

- ID veterinarian
- ID vet pharmacy
- ID herd
- date of treatment
- **ID cattle**
- **code of diagnosis**
- **marketing authorisation number of medicinal product used**
- batch of product
- **applied / dispensed**
- **amount of drug used / dispensed**
- drug unit
- dosage, treatment duration
- product name (if no authorized drug)



Monitoring system for health & drug use for cattle in Austria



Monitoring system for drug use – electronic receipt

Veterinarian's & Farmer's View



Belege Bestandsbuch Arzneimittel

Belege Betriebsnummer

Arzneimittel - Belege

Offene Belege Zeitraum von

 Alle Belege bis

Tiersuche:

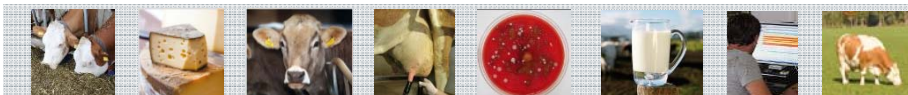
Nummer	Datum	Tierarzt	diagnose	E/W	Bezeichnung	Abg.Menge	Anw.Menge	Verabreichung	Charge	Dos./Tag	Dauer	Wartezeit
22731	14.01.2015	Fritz Testtierarzt	Lungenentzündung	E	Riketron	12,0 ml	12,0 ml	0,0 ml	1122915	0,0 ml	0 Tage	Fleisch 17T Milch 5T
22622	30.12.2014	Fritz Testtierarzt	Lungenentzündung	E	Novasul	8,0 ml	8,0 ml	0,0 ml	999	0,0 ml	0 Tage	Fleisch 13T Milch 3T
			Lungenentzündung	E	Oxysulfa	12000,0 g	0,0 g	35,0 g	8002141/01	25,0 g	8 Tage	Fleisch 17T Milch 0T

withdrawal period

ID-animal

diagnosis

drug, amount applied/delivered, batch



Monitoring system for drug use – Log book

Veterinarian's View



Belege Bestandsbuch Arzneimittel Hilfe

Bestandsbuch Betriebsnummer

Bestandsbuch

letzte 100 Tage Alle

Lfd. Nr.	St. Nr.	Name	ID-animal	Beleg Nr.	Beleg Datum	Arzneimittel	Menge	Dosierung	Vo. Art.	Dauer	Behandeler	Behandl. Datum
96	1	FLIPSI	AT 080.879.317	26242	30.04.2016	Permacyl	36,0 ml	36,0 ml		0 Tage	Tierarzt 2255	30.04.2016
97	21	FREI	AT 839.120.516	26243	30.04.2016	Permacyl	36,0 ml	36,0 ml		0 Tage	Tierarzt 2255	30.04.2016
106			AT 507.328.729	3986	12.05.2016	Riketron	10,0 ml	10,0 ml		0 Tage	Tierarzt 6393	12.05.2016
107			AT 507.328.729	3986	12.05.2016	Novasul	5,0 ml	5,0 ml		0 Tage	Tierarzt 6393	12.05.2016
108					12.05.2016	Vitasol	5,0 ml	5,0 ml		0 Tage	Tierarzt 6393	12.05.2016
109	34	KATJA	AT 570.029.309	3987	12.05.2016	Estrumate	2,0 ml	2,0 ml		0 Tage	Tierarzt 6393	12.05.2016

date administered, dispensed

ID-animal

date administered by farmer (dispensed by vet)

drug, amount, dosage, duration



Monitoring system for drug use – Log book

Farmer's View



Hilfe Abmelden

Belege Bestandsbuch Arzneimittel

Tiere behandeln

Betriebsnummer Name Max Mustermann

Tiere behandeln

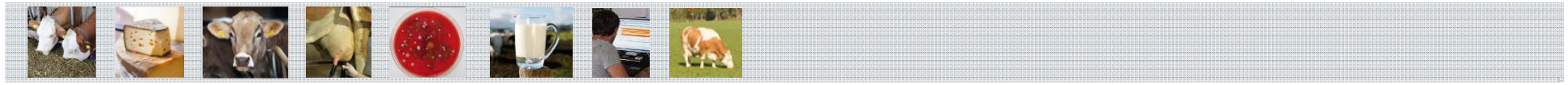
St.Nr.	Name	Lebensnummer	Beleg Nr.	Datum	Arzneimittel	Menge	Rest	Dos./Anw	Va.Art	Dauer	Anw.Menge	Behandelnder	Behandl. Datum
4	SISSI	AT 850.387.217	23746	15.06.2015	Uborexlin	4,0 Stück	2,0 Stück	1,0 Stück					
4	SISSI	AT 850.387.217	23746	15.06.2015	Uborexlin	4,0 Stück	2,0 Stück	1,0 Stück					
14	FREDCHEN	AT 880.925.718	23747	15.06.2015	Uborexlin	4,0 Stück	4,0 Stück	1,0 Stück		4 Tage	1,0 Stück	Mustermann	15.06.2015
14	FREDCHEN	AT 880.925.718	23747	15.06.2015	Uborexlin	4,0 Stück	4,0 Stück	1,0 Stück		4 Tage	1,0 Stück	Mustermann	16.06.2015
14	FREDCHEN	AT 880.925.718	23747	15.06.2015	Uborexlin	4,0 Stück	4,0 Stück	1,0 Stück		4 Tage	1,0 Stück	Mustermann	17.06.2015
14	FREDCHEN	AT 880.925.718	23747	15.06.2015	Uborexlin	4,0 Stück	4,0 Stück	1,0 Stück		4 Tage	1,0 Stück	Mustermann	18.06.2015
						0 Stück	4,0 Stück	1,0 Stück		4 Tage	1,0 Stück	Mustermann	19.06.2015
		AT 392.491.928	22731	14.01.2015	Oxysulfa	12000,0 g	12000,0 g	35,0 g		8 Tage	35,0 g	Mustermann	19.01.2015
		AT 392.491.928	22731	14.01.2015	Oxysulfa	12000,0 g	12000,0 g	35,0 g		8 Tage	35,0 g	Mustermann	18.01.2015

ID-animal

date dispensed

amount and date administered (by farmer)

drug, amount delivered, dosage, duration (vet)



Monitoring system for drug use – Log book

Farmer's View



Belege

Bestandsbuch

Arzneimittel

▼ Tiere mit Wartezeit

Betriebsnummer

Tiere mit Wartezeit

Aktuelle Wartetiere ▼

Suchen

end of withdrawal period

St.Nr.	Name	name, ID-animal		Datum	Arzneimittel	Anw.Menge	Behandelnder	Behandl. Datum	Abgeschl.?	Fleisch	Milch
4	SISSI	AT 850.387.217	23746	15.06.2015	Kanamycin	30,0ml	Tierarzt 2255	15.06.2015	ja	30.07.2015	18.06.2015
4	SISSI	AT 850.387.217	23746	15.06.2015	Rifen	15,0ml	Tierarzt 2255	15.06.2015	ja	19.06.2015	15.06.2015
4	SISSI	AT 850.387.217	23746	15.06.2015	Ubrolexin	1,0Stück	Mustermann	16.06.2015	nein	>= 26.06.2015	>= 21.06.2015
4	SISSI	AT 850.387.217	23725	14.06.2015	Tylan	20,0ml	Tierarzt 2255	14.06.2015	ja	05.07.2015	18.06.2015
4	SISSI	AT 850.387.217	23725	14.06.2015	Kanamycin	30,0ml	Tierarzt 2255	14.06.2015	ja	29.07.2015	17.06.2015

Bei Fehlern setzen Sie sich mit Ihrem zuständigen [Kontrollverband](#) in Verbindung. Beachten Sie den Meldeverzug von bis zu 14 Tagen.



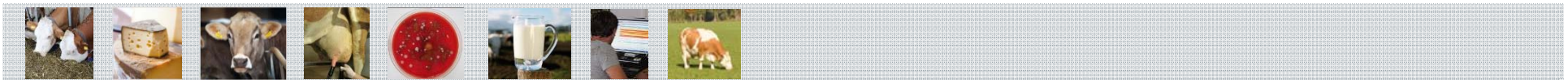
Monitoring system for drug use for cattle in Austria

Analysis of antibiotic use - observational study

- Use of antibiotics in dairy herds with special emphasis on mastitis:
 - Which antimicrobials? Extent of treatment density (#TD)?

$$\# TD_{100} = \sum_{i=1}^n \frac{\text{amount } AS_i \text{ in period } P \text{ (mg)}}{DDDA_i \text{ (mg/kg/day)} \times \# \text{ animal} \cdot \text{days in period } P \text{ (days)} \times \text{standard weight (kg)}} \times 100$$

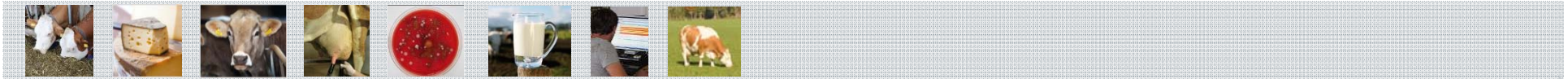
- Modelling links between mastitis and environment/management
 - Survey data; data of milk performance recording; regression analysis
- Modelling links between use of antibiotics in mastitis therapy and antimicrobial resistance (AMR)
 - Epidemiological cut-off (ECOFF) values



Monitoring system for drug use for cattle in Austria

Analysis of antibiotic use - observational study

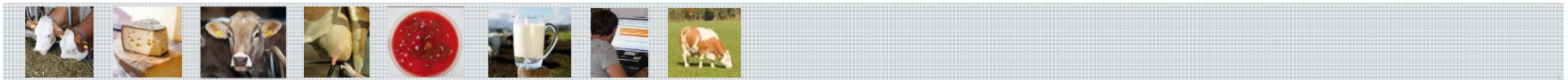
- 255 dairy farms (under performance recording)
 - 14.223 cattle
 - 6.729 cows
- 18 veterinary practices
 - 7 different practice-management software programs
- 10 commercial milk buyer companies



Monitoring system for drug use for cattle in Austria

Summary

- Observational study – experiences
 - Implementation of a recording/monitoring system for drug use in dairy farms
 - Evaluation of management practices regarding the use of antibiotics
- Detailed information on the current situation of medication use in dairy farms
 - Continued development of dairy cattle specific guidelines for the prudent use of antibiotics
 - Continued development of concepts to reduce antimicrobial resistance (AMR)
- Nationwide infrastructure for monitoring the use of antibiotics at animal level is being established for cattle in Austria



Acknowledgements

- We gratefully acknowledge the funding of the project “Electronic Log Book” by the Austrian Ministry of Health and the COMET project ADDA (“Advancement of Dairying in Austria”). We thank the project partners for their support.



Thank you for your attention!