I Centri ed i Laboratori di Referenza Nazionali nell'ottica One Health.

"Tutto quanto accade una volta potrebbe non accadere mai più.
Ma tutto quanto accade due volte accadrà certamente una terza"

Ministero della Salute - Roma, 6 dicembre 2023

Sostenibilità della gestione delle mastiti nell'allevamento ovino e caprino da latte per il contrasto dell'antibiotico-resistenza

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National Mastitis Council
Research Committee Report

Interpreting Bacteriological Culture Results to Diagnose Bovine Intramammary Infections

Table 1: Definitions and features of intramammary infection and mastitis.

	Intramammary Infection	Mastitis
International Dairy Federation definition	An infection occurring in the secretory tissue and/or the ducts and tubules of the mammary gland.	Inflammation of one or more quarters of the mammary gland, almost always caused by infecting microorganisms.
Diagnosis mainly by:	Bacteriological culture of milk samples obtained aseptically.	Subclinical: Measure of indicators of inflammation in milk samples such as somatic cell count (SCC) or California Mastitis Test (CMT). Clinical: Visual observation of milk and/or physical examination of the udder.

Agenti infettivi causa di mastite

I microrganismi che possono causare la mastite sono moltissimi (secondo alcuni autori più di 140!!) e sono rappresentati in massima parte da:

- batteri
- micoplasmi
- muffe e lieviti (Candida spp; Criptococcus spp)
- alghe (*Prototheca zopfii*)
- virus (retroviridae – VISNA MAEDI - CAEV)

Agenti infettivi causa di mastite

I microrganismi maggiormente prevalenti sono classificati in 3 gruppi:

- **Batteri contagiosi:** (*i.e.*, *Staphylococcus aureus*, gram-negativi non fermentati, e coryneiformi)
- **Batteri opportunisti:** (*i.e.*, non-aureus stafilococchi –NAS-);
- **Batteri ambientali:** (*i.e.*, *Streptococcus spp.*, *Pseudomonas spp.*, *Enterobacteriaceae*, e enterococchi)

Epidemiologia

Uno studio condotto dal CReNMOC sull'eziologia delle mastiti batteriche dei piccoli ruminanti in Italia ha confermato i risultati riportati per altre nazioni:

Small Ruminant Research 141 (2016) 91–93

Contents lists available at ScienceDirect

Small Ruminant Research

journal homepage: www.elsevier.com/locate/smallrumres

Short communication

Survey on small ruminant bacterial mastitis in Italy, 2013–2014

Simone Dore[a,*], Manuele Liciardi[a], Simonetta Amatiste[b], Stefania Bergagna[c], Giuseppe Bolzoni[d], Vincenzo Caligiuri[e], Anna Cerrone[e], Giovanni Farina[f], Cosimo Oscar Montagna[g], Maria Antonietta Saletti[h], Maria Luisa Scatassa[i], Giovanni Sotgiu[j], Eugenia Agnese Cannas[a]

[a] National Reference Center for Sheep and Goat Mastitis – Experimental Zooprophylactic Institute of Sardinia, Sassari, Italy
[b] National Reference Center for Ovine and Caprine Milk and Dairy Products Quality – Experimental Zooprophylactic Institute of Lazio and Tuscany, Rome, Italy
[c] Experimental Zooprophylactic Institute of Piemonte, Liguria and Valle d'Aosta, Turin, Italy
[d] National Reference Center for Bovine Milk Quality – Experimental Zooprophylactic Institute of Lombardia and Emilia Romagna, Brescia, Italy
[e] Experimental Zooprophylactic Institute of Southern Italy, Portici, Italy
[f] Experimental Zooprophylactic Institute of Venice, Legnaro (PD), Italy
[g] Experimental Zooprophylactic Institute of Puglia and Basilicata, Foggia, Italy
[h] Experimental Zooprophylactic Institute of Abruzzo and Molise, Teramo, Italy
[i] Experimental Zooprophylactic Institute of Sicily, Palermo, Italy
[j] Clinical Epidemiology and Medical Statistics Unit, Dept. of Biomedical Sciences, University of Sassari – Research, Medical Education and Professional Development Unit, AOU Sassari, Sassari, Italy

- NAS e *Staphylococcus aureus* sono le principali cause di infezioni intramammarie subcliniche e cliniche sia nelle pecore che nelle capre;

- inferiore (ma non meno importante!) la prevalenza di altri patogeni come *Streptococcus spp.*, *Pseudomonas spp.*, *Corynebacterium spp.*, e *Enterobacteriaceae*.

Mastite

Trattamento (terapia antibiotica)

Profilassi

Prevenzione e controllo

Trattamento

Il trattamento delle mastiti ha l'obiettivo di curare l'infezione batterica intramammaria con l'utilizzo di antimicrobici somministrati secondo specifici protocolli.

La scelta della terapia è responsabilità esclusiva del veterianario aziendale.

Rischio sviluppo di Antibiotico Resistenza

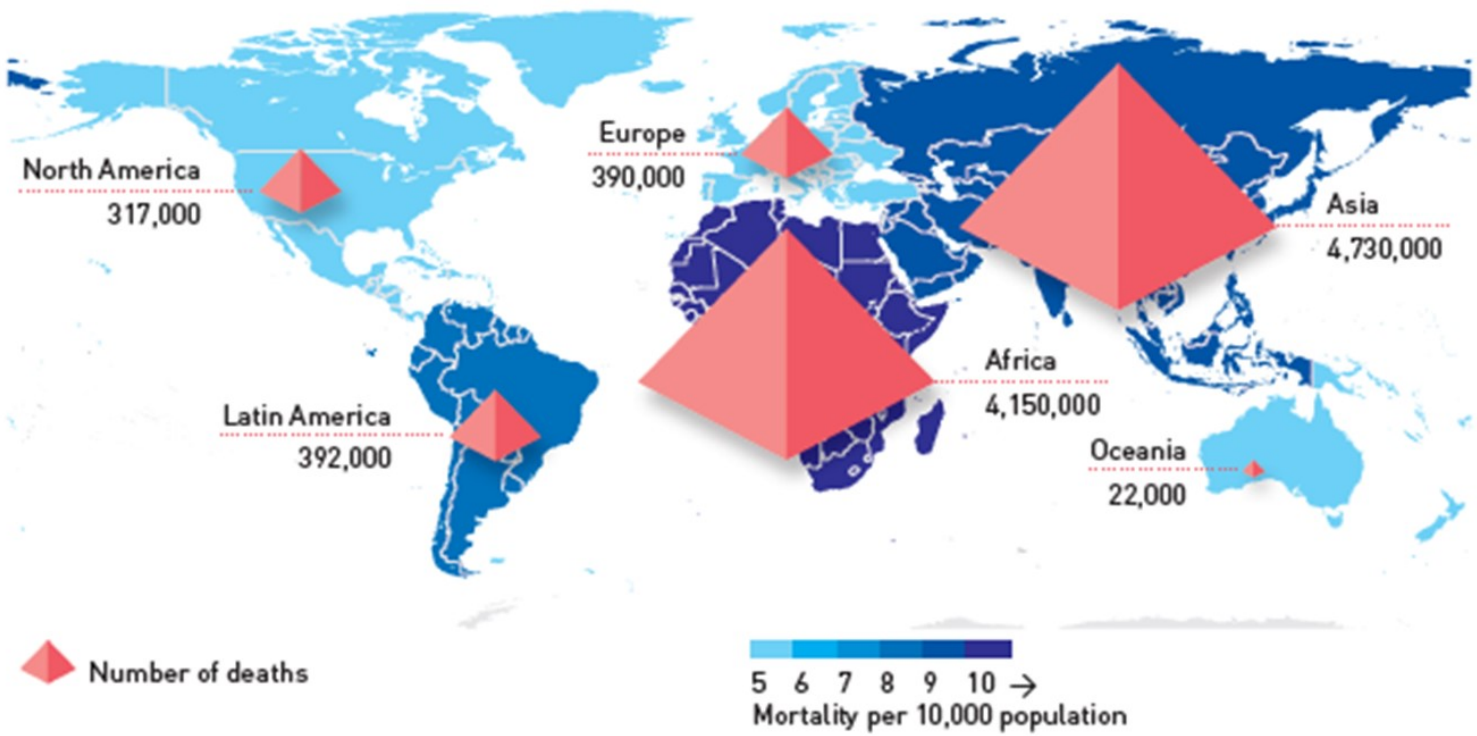
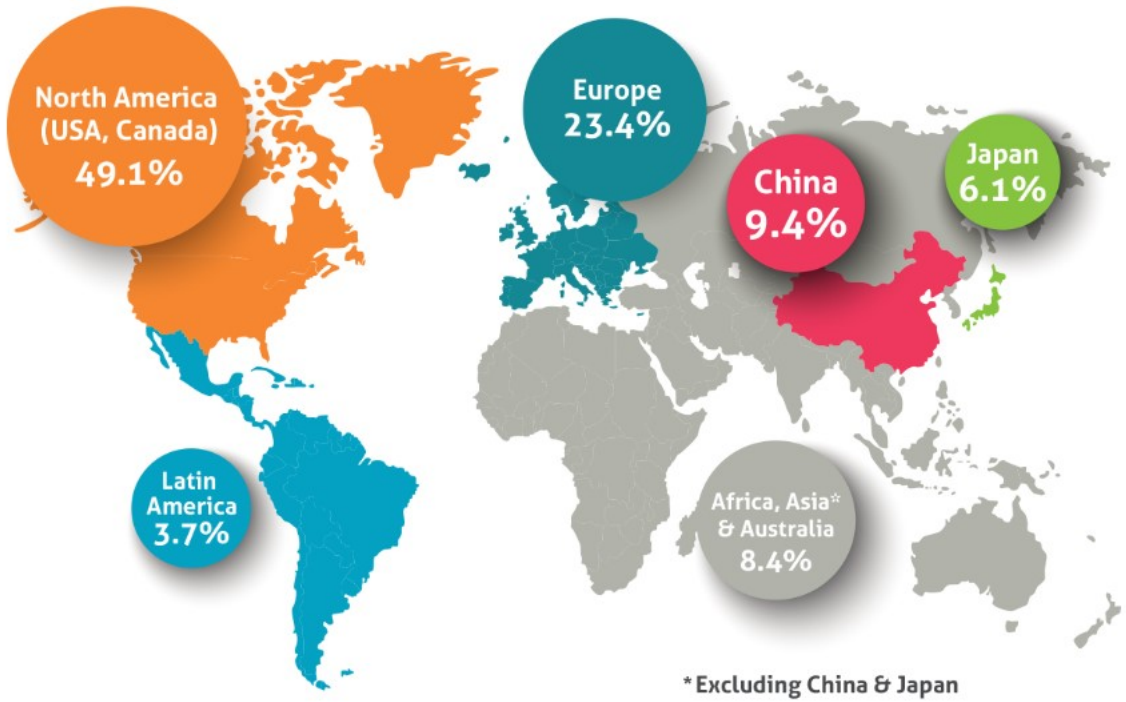


Figure 3

Predicted global deaths from AMR in 2050 (O'Neill 2014)

BREAKDOWN OF THE WORLD PHARMACEUTICAL MARKET – 2021 SALES



Note:
Europe includes Belarus, Turkey, Russia and Ukraine; percentages might not add up due to rounding

Source: IQVIA (MIDAS) Q4 2021 MAT, May 2022; data relate to the 2021 global retail and hospital pharmaceutical market (prescription only) at ex-factory prices.

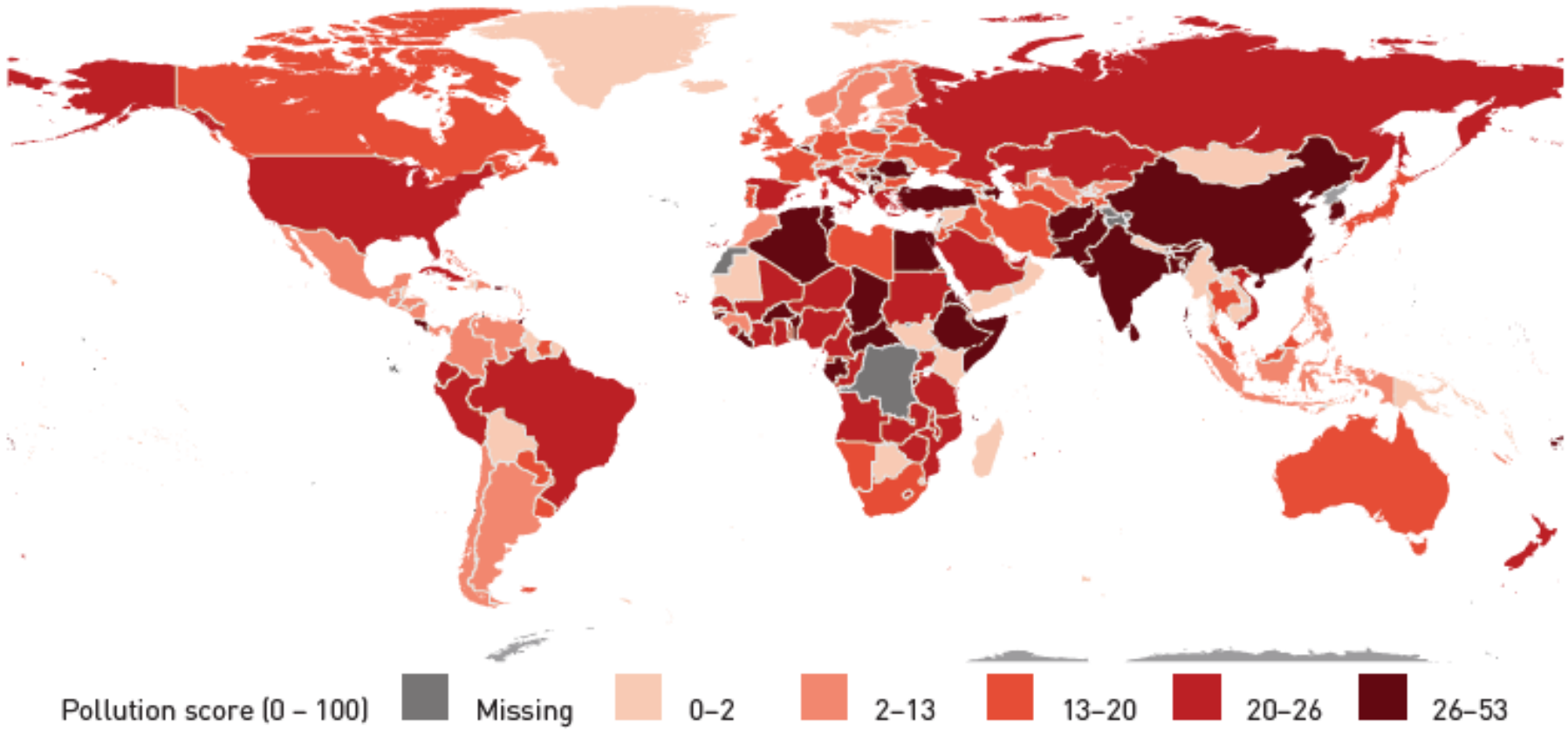
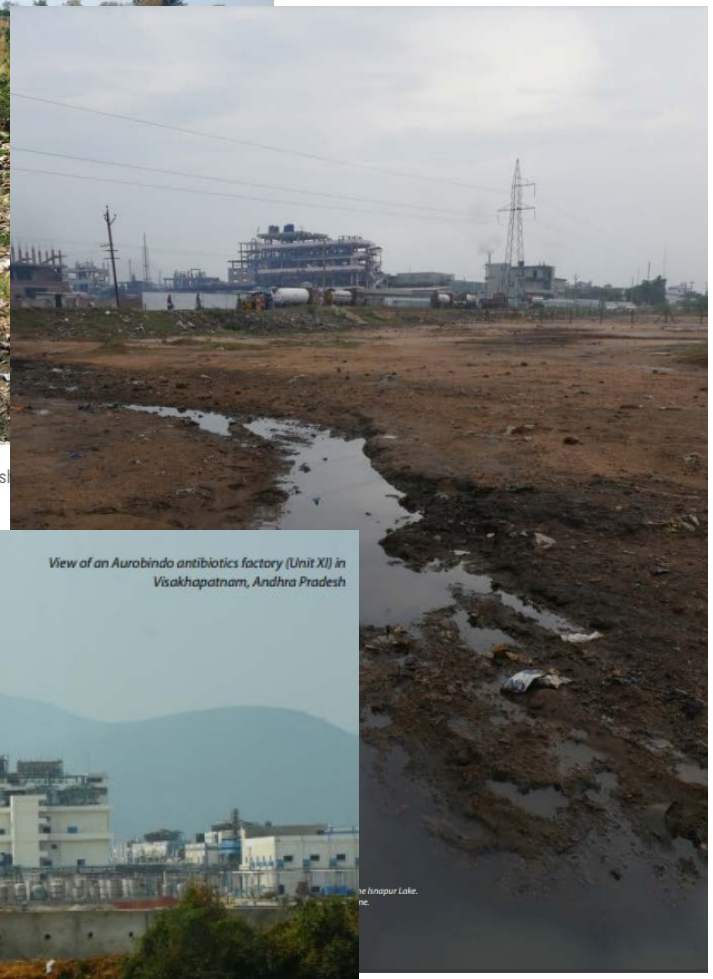


Figure 7

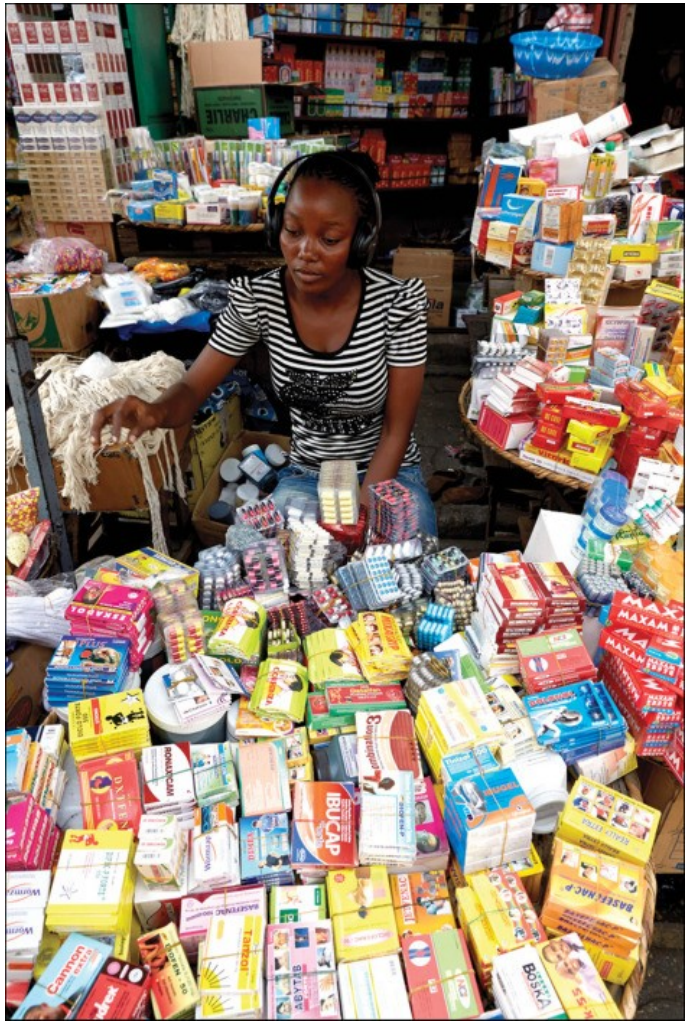
Estimated global environmental water contamination and pollution from antimicrobials
(Vivid Economics 2020)

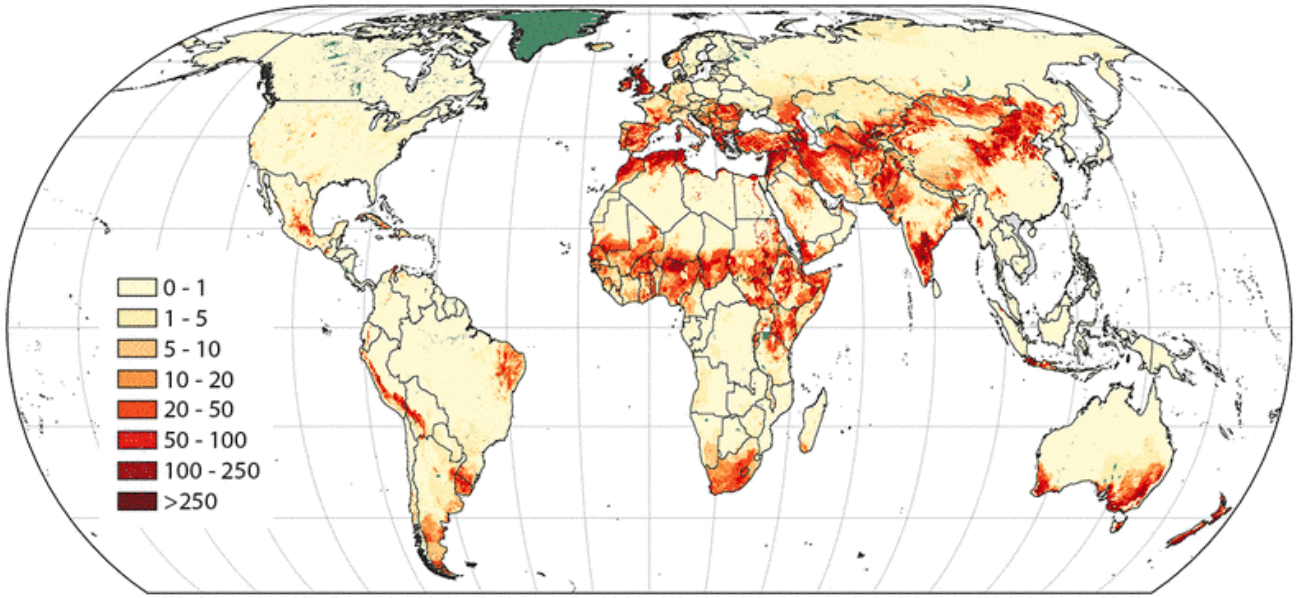
Underground pipes drain wastewater into the open behind pharma plants in Baddi (Photographs: Rajesh



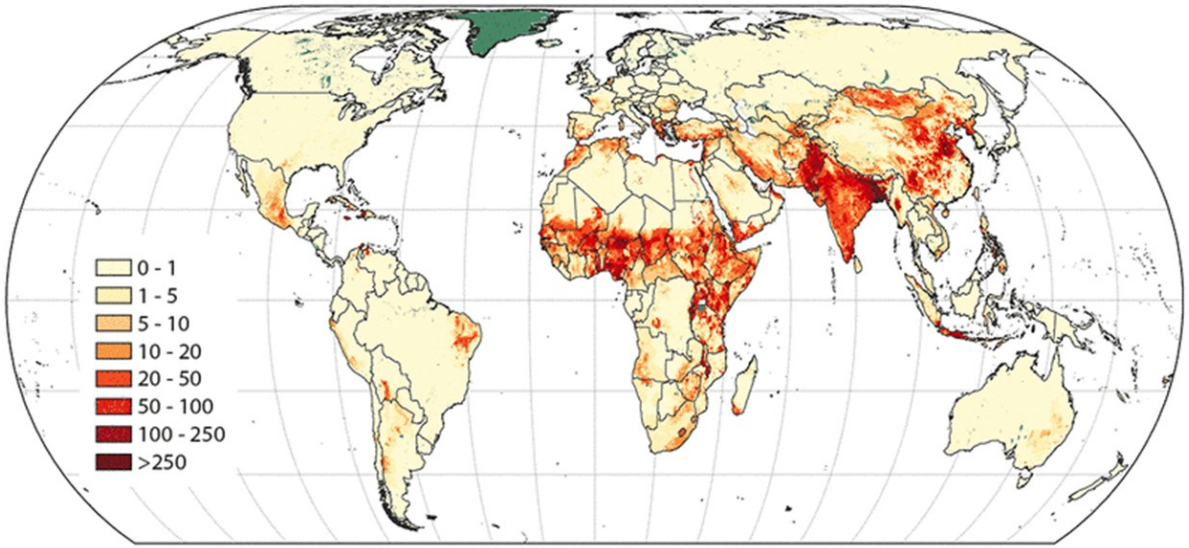
View of an Aurobindo antibiotics factory (Unit XI) in Visakhapatnam, Andhra Pradesh

he Isnapur Lake.
ne.





Number of sheep per square kilometre in 2015

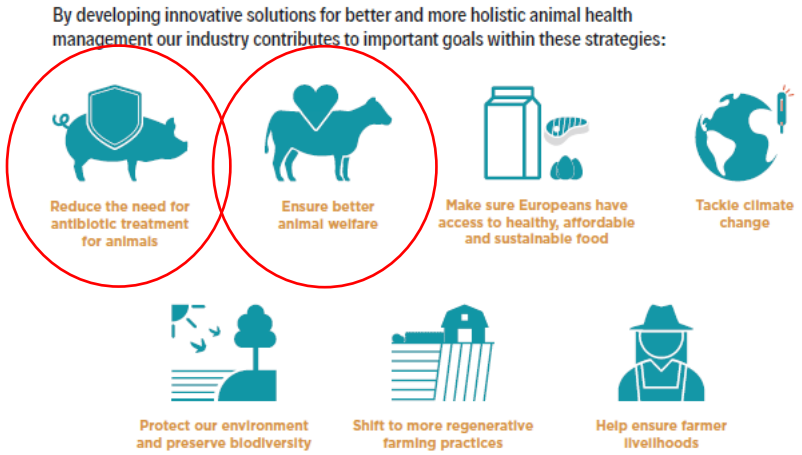


Number of goats per square kilometre in 2015

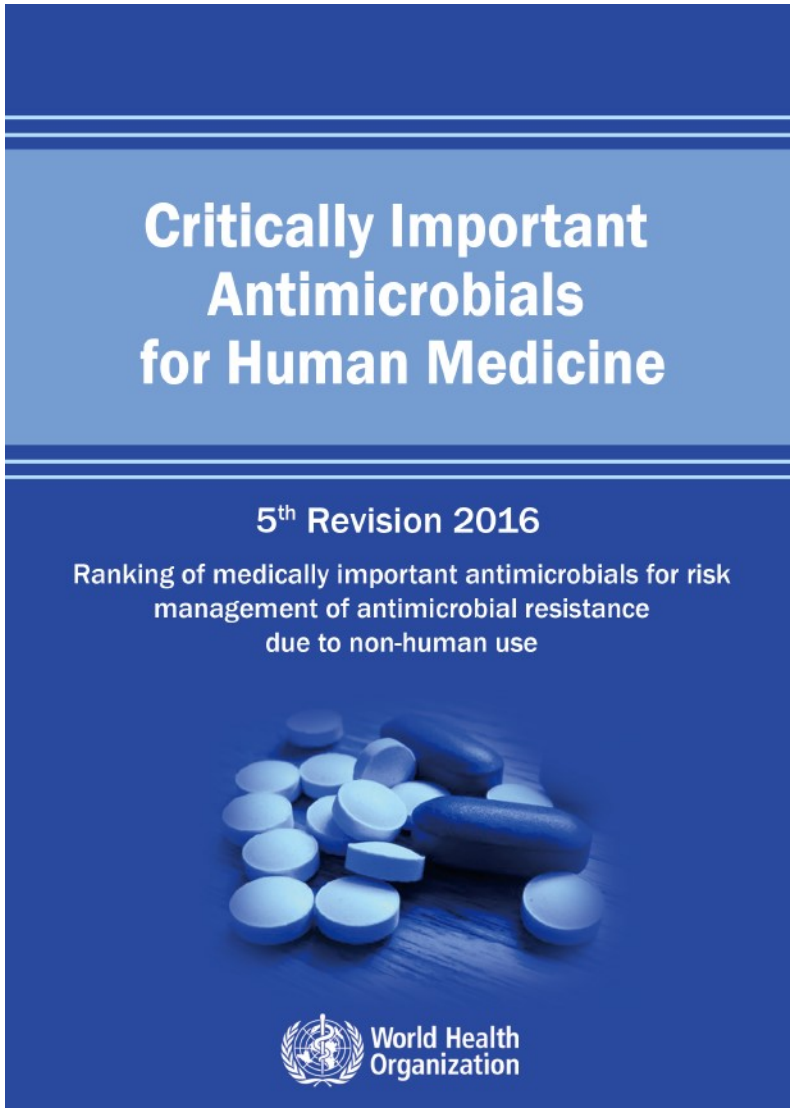

Healthy animals, healthier people and a healthier planet
The European animal health industry's sustainability focus
animalhealth europe
THE VOICE OF THE ANIMAL MEDICINES INDUSTRY


Healthier animals
Healthier people
Healthier planet


Healthy animals, healthier people and a healthier planet | 5
Delivering on the European Green Deal: The value of animal health
The animal health industry is committed to maintaining a balance in the relationship between animals, people and the environment. Ultimately, we want to help farmers focus on raising animals in a caring and more environmentally sustainable way – without having to worry about the health of their livestock.
Animal well-being
Animal health is a prerequisite for animal welfare. Preventing illness and keeping animals healthy also means a reduced need for treatments. Regular veterinary care helps ensure better well-being overall.
Circular resource efficiency
Livestock make efficient use of crop by-products with 86% of feed made up of materials inedible by people[1]. Not only are they great up-cyclers, but healthy animals are efficient resource-users as they require less feed & water to produce fish, meat, milk & eggs.
Climate care & reduced pollution
With less resources needed, well-managed animals can mean a 30% decrease in emissions[2]. Healthy animals are not only well-cared for, they have a smaller environmental footprint.
Delivering on the European Green Deal
Preserving ecosystems
Better animal health management means farmers can produce enough food on existing farmland, while preserving surrounding lands and biodiversity. With animal health covered extra attention can be given to environmental stewardship.
Healthy & sustainable food
Data-driven management decisions with Precision Livestock Farming techniques support farmers in sustainable food production, avoiding food losses and waste at farm level. Healthy animals provide high-quality foods enjoyed by many Europeans.
1, 2 Future of EU Livestock: https://op.europa.eu/en/publication-detail/-/publication/b1085ze8-0c33-11eb-bc07-01aa75ed71a1/language-en


By developing innovative solutions for better and more holistic animal health management our industry contributes to important goals within these strategies:
Reduce the need for antibiotic treatment for animals
Ensure better animal welfare
Make sure Europeans have access to healthy, affordable and sustainable food
Tackle climate change
Protect our environment and preserve biodiversity
Shift to more regenerative farming practices
Help ensure farmer livelihoods


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
5 of the 10 most valuable agri-commodities are animal-sourced foods (milk, eggs, poultry, pork, beef). Reducing animal disease reduces losses in livestock.
10 REDUCED INEQUALITIES
Around 70% of the world's "extreme poor" depend on livestock for livelihood. Increasing smallholder resilience and productivity helps reduce inequalities and creates a pathway out of poverty.
2 ZERO HUNGER
800 million people don't get enough protein. Animal medicines help improve food yields, contributing to the supply of affordable protein.
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
Up to 20% of global animal production is lost to disease. Vaccination ensures higher welfare, less illness and deaths, making more efficient resource use, and reducing the need to use antibiotics.
3 GOOD HEALTH AND WELL-BEING
Livestock provides 18% of global calories and 39% of global protein. Vaccination and preventive animal health care creates more reliable food supplies.
13 CLIMATE ACTION
Healthy animals require less inputs (feed, water, energy and land use) and better management can mean a 30% reduction in emissions.
5 GENDER EQUALITY
2/3 of livestock keepers in poor countries are women. Animal medicines can positively impact their livelihoods through increased incomes from farming.
14 LIFE BELOW WATER
Sustainable aquafarming provides over 50% of the global fish production. Fish vaccination enables more resource-friendly aquafarming.
8 DECENT WORK AND ECONOMIC GROWTH
Livestock is one of the fastest-growing economic sectors in the developing world and innovation in animal health can increase livestock production.
15 LIFE ON LAND
The use of animal medicines prevents the spread of animal diseases and supports sustainable agriculture protecting biodiversity.



Stop using antibiotics in healthy animals to prevent the spread of antibiotic resistance

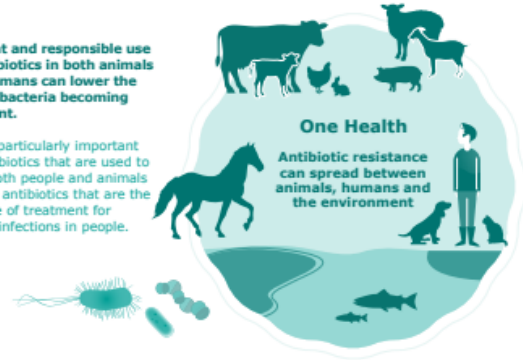
News release

7 November 2017 | Geneva - WHO

EMA Categorisation of antibiotics for use in animals
for prudent and responsible use

Prudent and responsible use of antibiotics in both animals and humans can lower the risk of bacteria becoming resistant.

This is particularly important for antibiotics that are used to treat both people and animals and for antibiotics that are the last line of treatment for critical infections in people.



The Antimicrobial Advice Ad Hoc Expert Group (AMEG) has categorised antibiotics based on the potential consequences to public health of increased antimicrobial resistance when used in animals and the need for their use in veterinary medicine.

The categorisation is intended as a tool to support decision-making by veterinarians on which antibiotic to use.

Veterinarians are encouraged to check the AMEG categorisation before prescribing any antibiotic for animals in their care. The AMEG categorisation does not replace treatment guidelines, which also need to take account of other factors such as supporting information in the Summary of Product Characteristics for available medicines, constraints around use in food-producing species, regional variations in diseases and antibiotic resistance, and national prescribing policies.

Category A
Avoid

- antibiotics in this category are not authorised as veterinary medicines in the EU
- should not be used in food-producing animals
- may be given to companion animals under exceptional circumstances

Category B
Restrict

- antibiotics in this category are critically important in human medicine and use in animals should be restricted to mitigate the risk to public health
- should be considered only when there are no antibiotics in Categories C or D that could be clinically effective
- use should be based on antimicrobial susceptibility testing, wherever possible

Category C
Caution

- for antibiotics in this category there are alternatives in human medicine
- for some veterinary indications, there are no alternatives belonging to Category D
- should be considered only when there are no antibiotics in Category D that could be clinically effective

Category D
Prudence

- should be used as first line treatments, whenever possible
- as always, should be used prudently, only when medically needed

For antibiotics in all categories

- unnecessary use, overly long treatment periods, and under-dosing should be avoided
- group treatment should be restricted to situations where individual treatment is not feasible
- check out the European Commission's guideline on prudent use of antibiotics in animals: https://bit.ly/2s7LUF2

AMEG is the acronym for EMA's Antimicrobial Advice Ad Hoc Expert Group. It brings together experts from both human and veterinary medicine. They work together to provide guidance on the impact on public health of the use of antibiotics in animals.

EUROPEAN MEDICINES AGENCY

Full AMEG report: https://bit.ly/30ZEuRi

Categorisation of antibiotic classes for veterinary use
(with examples of substances authorised for human or veterinary use in the EU)

A — AVOID

Aminopenicillins
mecillinam
pivmecillinam

Ketolides
telithromycin

Monobactams
aztreonam

Rifamycins (except rifaximin)
rifampicin

Carboxypenicillin and ureidopenicillin, including combinations with beta lactamase inhibitors
piperacillin-tazobactam

Carbapenems
meropenem
doripenem

Lipopeptides
daptomycin

Oxazolidinones
linezolid

Riminofenazines
clofazimine

Sulfones
dapsone

Streptogramins
pristinamycin
virginiamycin

Drugs used solely to treat tuberculosis or other mycobacterial diseases
isoniazid
ethambutol
pyrazinamide
ethionamide

Other cephalosporins and penems (ATC code J01DI), including combinations of 3rd-generation cephalosporins with beta lactamase inhibitors
ceftobiprole
ceftaroline
ceftolozane-tazobactam
faropenem

Glycopeptides
vancomycin

Glycylcyclines
tigecycline

Phosphonic acid derivates
fosfomycin

Pseudomonic acids
mupirocin

Substances newly authorised in human medicine following publication of the AMEG categorisation
to be determined

B — RESTRICT

Cephalosporins, 3rd- and 4th-generation, with the exception of combinations with β-lactamase inhibitors
cefoperazone
cefovecin
cefquinome
ceftiofur

Polymyxins
colistin
polymyxin B

Quinolones: fluoroquinolones and other quinolones
cinoxacin
danofloxacin
difloxacin
enrofloxacin
flumequine
ibafloxacin
marbofloxacin
norfloxacin
orbifloxacin
oxolinic acid
pradofloxacin

C — CAUTION

Aminoglycosides (except spectinomycin)
amikacin
apramycin
dihydrostreptomycin
framycetin
gentamicin
kanamycin
neomycin
paromomycin
streptomycin
tobramycin

Aminopenicillins, in combination with beta lactamase inhibitors
amoxicillin + clavulanic acid
ampicillin + sulbactam

Cephalosporins, 1st- and 2nd-generation, and cephamycins
cefacetrile
cefadroxil
cefalexin
cefalonium
cefalotin
cefapirin
cefazolin

Amphenicols
chloramphenicol
florfenicol
thiamphenicol

Lincosamides
clindamycin
lincomycin
pirlimycin

Pleuromutilins
tiamulin
valnemulin

Macrolides
erythromycin
gamithromycin
oleandomycin
spiramycin
tildipirosin
tilmicosin
tulathromycin
tylosin
tylvalosin

Rifamycins: rifaximin only
rifaximin

D — PRUDENCE

Aminopenicillins, without beta-lactamase inhibitors
amoxicillin
ampicillin
metampicillin

Tetracyclines
chlortetracycline
doxycycline
oxytetracycline
tetracycline

Aminoglycosides: spectinomycin only
spectinomycin

Anti-staphylococcal penicillins (beta-lactamase-resistant penicillins)
cloxacillin
dicloxacillin
nafcillin
oxacillin

Natural, narrow-spectrum penicillins (beta lactamase-sensitive penicillins)
benzathine benzylpenicillin
benzathine phenoxymethylpenicillin
benzylpenicillin
penethamate hydriodide
phenethicillin
phenoxymethylpenicillin
procaine benzylpenicillin

Sulfonamides, dihydrofolate reductase inhibitors and combinations
formosulfathiazole
phthalylsulfathiazole
sulfacetamide
sulfachlorpyridazine
sulfaclozine
sulfadiazine
sulfadimethoxine
sulfadimidine
sulfadoxine
sulfafurazole
sulfaguanidine
sulfalene
sulfamerazine
sulfamethizole
sulfamethoxazole
sulfamethoxypyridazine
sulfamonomethoxine
sulfanilamide
sulfapyridine
sulfaquinoxaline
sulfathiazole
trimethoprim

Cyclic polypeptides
bacitracin

Steroid antibacterials
fusidic acid

Nitroimidazoles
metronidazole

Nitrofuran derivatives
furaltadone
furazolidone

Other factors to consider

The **route of administration** should be taken into account alongside the categorisation when prescribing antibiotics. The list below suggests routes of administration and types of formulation ranked from the lowest to the highest estimated impact on antibiotic resistance.

Local individual treatment (e.g. udder injector, eye or ear drops)
Parenteral individual treatment (intravenously, intramuscularly, subcutaneously)
Oral individual treatment (i.e. tablets, oral bolus)
Injectable group medication (metaphylaxis), only if appropriately justified
Oral group medication via drinking water/milk replacer (metaphylaxis), only if appropriately justified
Oral group medication via feed or premixes (metaphylaxis), only if appropriately justified

EUROPEAN MEDICINES AGENCY

Full AMEG report: https://bit.ly/30ZEuRi

Eco-schema 1 - Pagamento per la riduzione della antimicrobico resistenza e il benessere animale

L'impegno è finalizzato a sostenere il processo di transizione verso un modello allevatoriale più sostenibile, innalzare la qualità e salubrità delle produzioni agroalimentari, ridurre l'antimicrobico resistenza (AMR) e migliorare il benessere degli animali.

Esso si pone come obiettivo finale quello di fare aderire le aziende zootecniche ad un percorso virtuoso di riduzione dell'uso del farmaco, basato sull'attuazione di impegni direttamente collegati al miglioramento del benessere animale misurati attraverso *Classy Farm*, sistema informativo del Ministero della Salute, gestito dall'Istituto Zooprofilattico Sperimentale della Lombardia ed Emilia Romagna.

L'eco-schema è strutturato in due livelli tra loro indipendenti ma sinergici:

Livello 1 - Riduzione dell'antimicrobico resistenza (AMR) Il livello 1 introduce l'impegno alla riduzione dell'uso del farmaco, quantificato in base alla classificazione degli allevamenti rispetto al consumo di antibiotici attraverso lo strumento *Classy Farm*.

Sono ammissibili al pagamento gli allevamenti, anche misti, che alla fine dell'anno solare della domanda di aiuto (31 dicembre) riducono o, in caso siano già sotto il livello mediano regionale calcolato per l'anno precedente, mantengono valori DDD (Define Daily Dose) inferiori alla mediana stessa.

Esso si rivolge agli allevatori di bovini da latte, da carne, a duplice attitudine, vitelli a carne bianca, ovini da latte e da carne, caprini, bufalini da latte e da carne e suini (tutte le tipologie).

A seconda della tipologia di allevamento, l'importo unitario stimato varia da 24,00 a 66,00 euro/UBA.

CRONACA

Farmaci veterinari abusivi, blitz dei Nas nelle stalle: campionamenti di latte crudo per la verifica di residui antibiotici, multe per 25 mila euro

I controlli sono stati portati avanti nell'Al
riguardato otto allevamenti. Le forze dell'
medicinali veterinari dal valore complessi

Nell'azienda agricola 10mila euro di farmaci veterinari illegali: nei guai titolare e gestore

Farmaci in nero per aumentare produzione latte, farmacia sequestrata

AZIENDE DI MODICA E RAGUSA

di **Redazione** | 03/05/2022

Attiva ora le notifiche su Messenger

Cagliari, traffico di farmaci veterinari dalla Romania: maxi indagine in corso

L'indagine sarebbe collegata al sequestro di farmaci per uso veterinario operato il 16 settembre scorso al porto di Olbia

Da **Redazione Cagliaripad** - 26 Settembre 2018

CONTROLLI E FRODI

NAS SEQUESTRANO A CREMONA GROSSO QUANTITATIVO DI FARMACI ILLEGALI PER INCREMENTARE LA PRODUZIONE DI LATTE E ALTRI MEDICINALI VIETATI

Sara Rossi 4 Settembre 2015

Terapia antibiotica mastiti

L'antibiotico prescritto **DEVE** essere autorizzato dall'Autorità Competente.

L'antibiotico, autorizzato per la specie e la patologia da trattare, **DEVE** essere somministrato con il tempo e il dosaggio raccomandato (il trattamento *off-label* dovrebbe essere evitato).

Il trattamento locale (intramammario) **DEVE** essere preferito a quello sistemico.

Terapia antibiotica mastiti

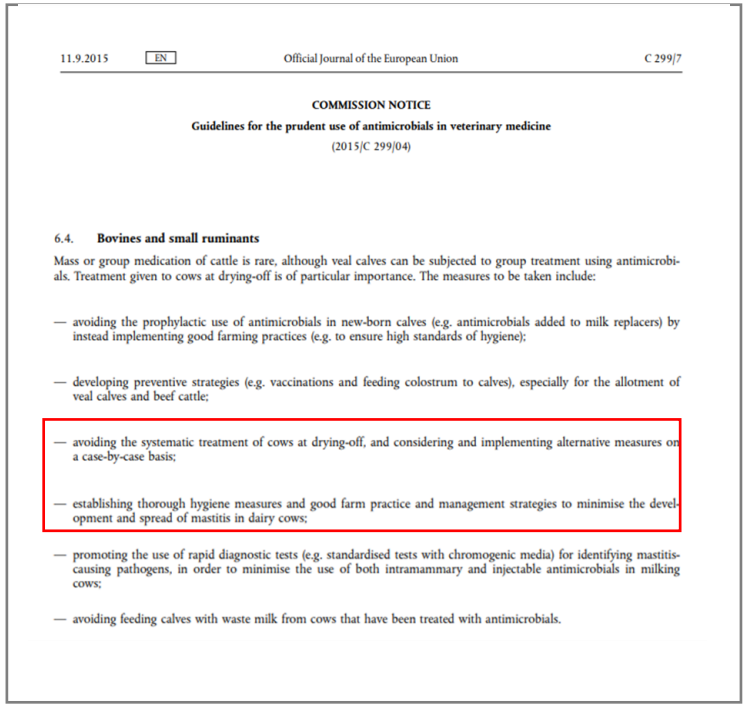
La scelta dell'antibiotico **DEVE** essere definita sulla base del test di sensibilità effettuato sui batteri isolati dal latte.

Il test di sensibilità **DEVE** essere eseguito per ogni specie batterica isolata in allevamento.

L'antibiotico selezionato **DEVE** essere efficace verso tutti i microrganismi isolati.

Terapia antibiotica mastiti

Trattamento **SELETTIVO** durante l'asciutta:



11.9.2015 EN Official Journal of the European Union C 299/7

COMMISSION NOTICE

Guidelines for the prudent use of antimicrobials in veterinary medicine

(2015/C 299/04)

6.4. **Bovines and small ruminants**

Mass or group medication of cattle is rare, although veal calves can be subjected to group treatment using antimicrobials. Treatment given to cows at drying-off is of particular importance. The measures to be taken include:

— avoiding the prophylactic use of antimicrobials in new-born calves (e.g. antimicrobials added to milk replacers) by instead implementing good farming practices (e.g. to ensure high standards of hygiene);

— developing preventive strategies (e.g. vaccinations and feeding colostrum to calves), especially for the allotment of veal calves and beef cattle;

— avoiding the systematic treatment of cows at drying-off, and considering and implementing alternative measures on a case-by-case basis;

— establishing thorough hygiene measures and good farm practice and management strategies to minimise the development and spread of mastitis in dairy cows;

— promoting the use of rapid diagnostic tests (e.g. standardised tests with chromogenic media) for identifying mastitis-causing pathogens, in order to minimise the use of both intramammary and injectable antimicrobials in milking cows;

— avoiding feeding calves with waste milk from cows that have been treated with antimicrobials.

- ✓Basato su sintomi clinici, esame colturale, CCS
- ✓Formulazione di antibiotico con attività antibatterica prolungata e migliore penetrazione tissutale rispetto a quelle usate per il trattamento in lattazione.
- ✓ Infusione effettuata dopo l'ultima mungitura della stagione.
- ✓Utilizzo di tecnica asettica durante l'infusione per evitare infezioni iatrogene.

Terapia in asciutta

Disponibili poche molecole per il trattamento intramammario delle mastiti degli ovini…ancora meno per i caprini!

GRUPPO	PRINCIPIO ATTIVO	VIA DI SOMMINISTRAZIONE
aminoglicosidi	diidrostreptomicina	intramammaria
	kanamicina	intramuscolo/sottocute
cefalosporine	cefazolina	intramammaria
chinoloni	flumequina	intramuscolo
fenicoli	florfenicolo	intramuscolo/sottocute
fluorchinoloni	enrofloxacina	intramuscolo/sottocute
lincosamidi	lincomicina (alone or associated with spectinomicina	intramuscolo/sottocute
macrolides	tilmicosina	sottocute
	tilosina	intramuscolo
penicillins	cloxacillina	intramammaria
	benzilpenicillina procaina	intramuscolo/sottocute
	amoxicillina	intramuscolo/sottocute
	ampicillina	intramuscolo
	benzilpenicillina procaina (alone or associated with aminoglycoside)	intramuscolo
tetracicline	ossitetraciclina	intramuscolo/sottocute

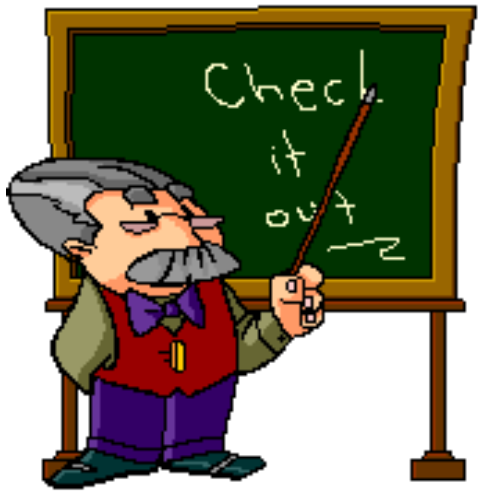
Profilassi

Vaccini

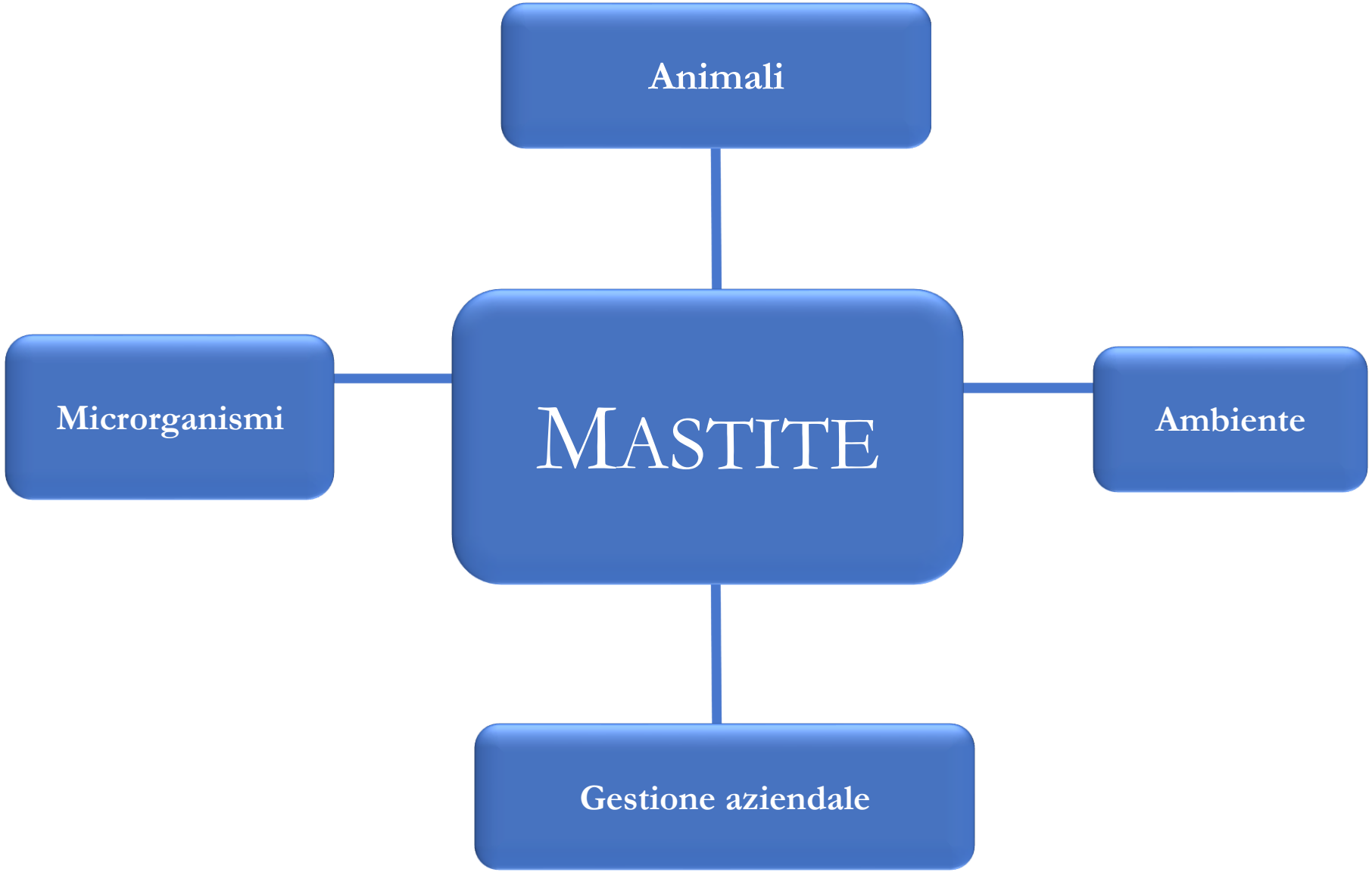
- Non sono disponibili vaccini che danno una protezione assoluta
- Il loro utilizzo va visto all'interno di un programma più ampio di prevenzione

Prevenzione e controllo

Obiettivo: tenere sotto controllo i fattori di rischio che possono favorire/causare la comparsa e la diffusione dell'infezione mammaria.



Prevenzione e controllo

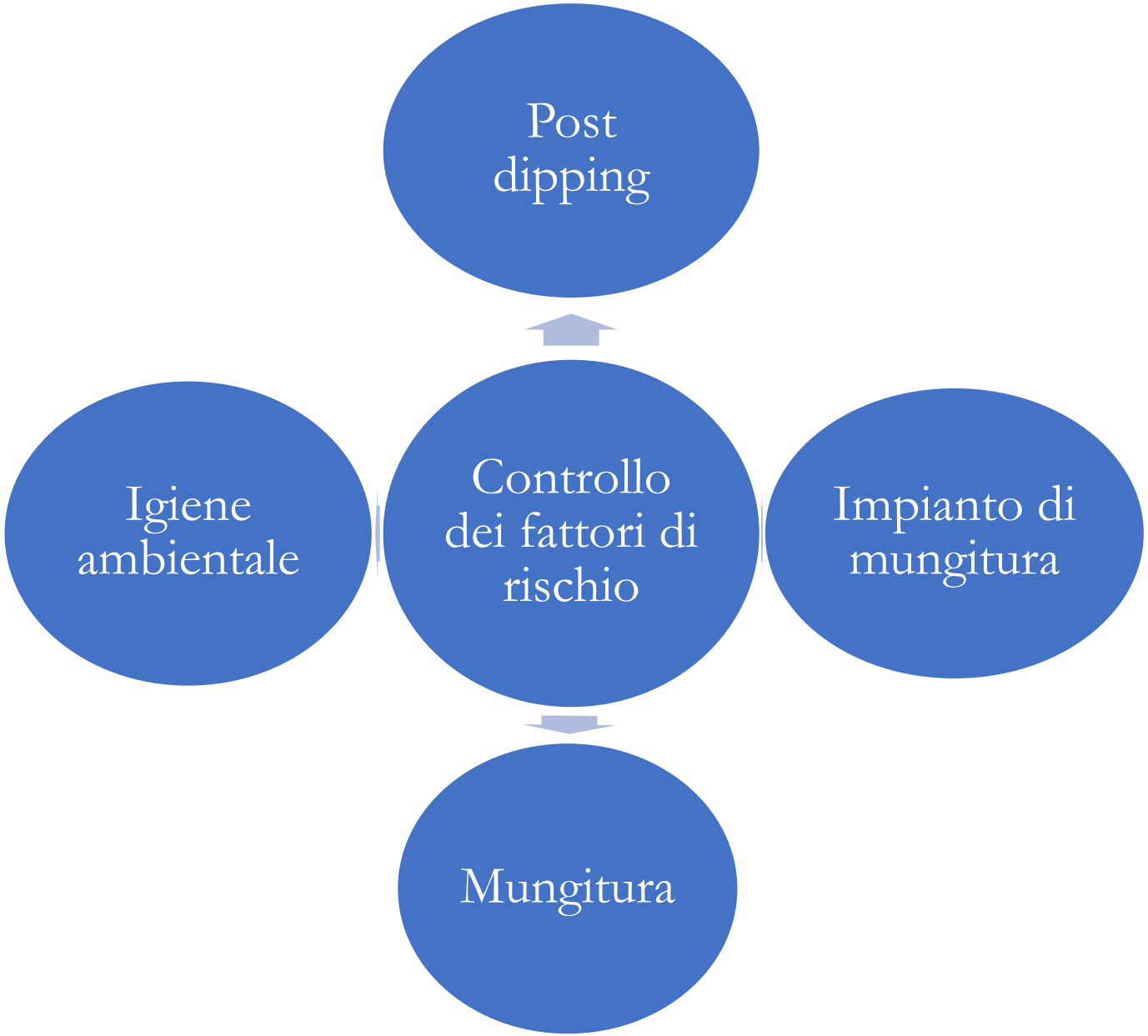


Prevenzione e controllo

Strategie preventive:

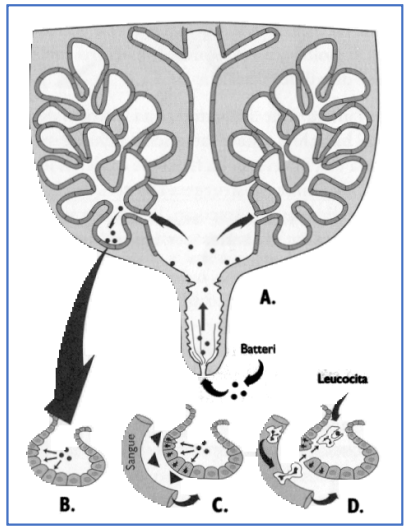
- Ridurre il numero dei batteri sulla punta del capezzolo
- Impedire l'ingresso dei batteri all'interno della mammella attraverso il canale del capezzolo
- Interrompere la diffusione della malattia
- Rimuovere/ridurre la sorgente d'infezione (animali infetti, inquinamento ambientale)

Prevenzione e controllo

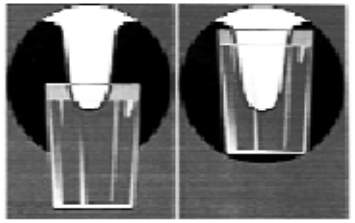


Prevenzione e controllo

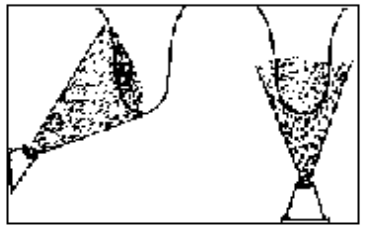
Disinfezione del capezzolo post-mungitura



- Il canale del capezzolo rappresenta la prima barriera fisica e chimica contro l'invasione dei patogeni all'interno della ghiandola mammaria.



Teat dipping



Teat spraying

- L'uso appropriato dei disinfettanti riduce l'incidenza di nuove infezioni e l'utilizzo di antibiotici.

Prevenzione e controllo

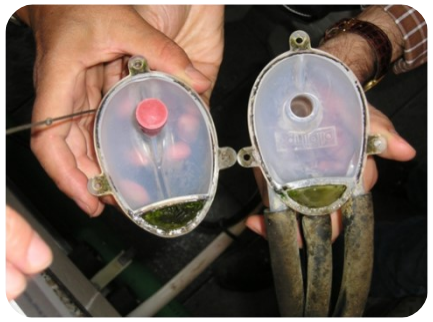
Un impianto di mungitura progettato, installato ed utilizzato correttamente è la prima azione di profilassi delle mastiti.

Vettore di batteri fra gli animali

Riduzione delle difese naturali del capezzolo

Vettore di batteri fra ambiente e ghiandola mammaria

Impianto di mungitura

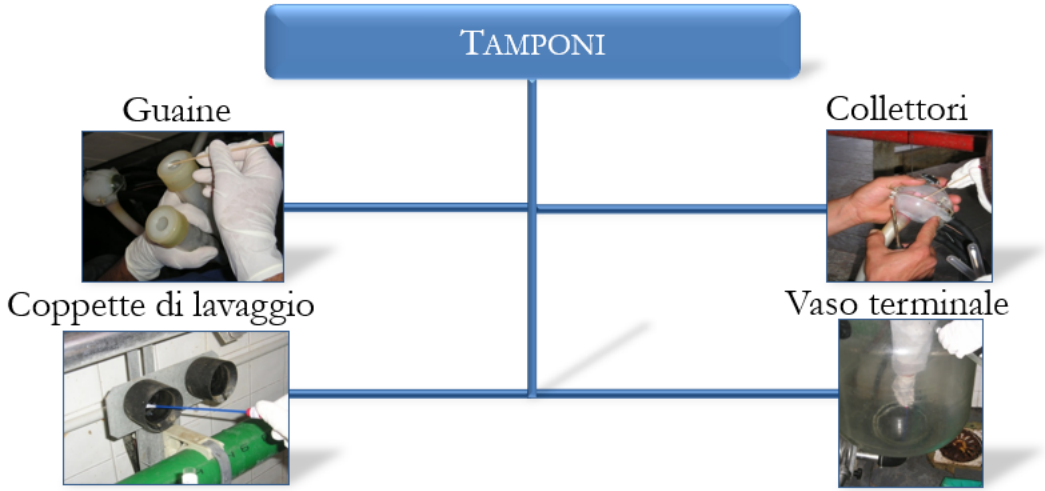


Prevenzione e controllo

Verifiche della efficacia delle operazioni di pulizia

Quando?

- ✓All'inizio della stagione produttiva
- ✓Alto contenuto in CCS e/o CBT



Come?

- ✓ Ispezioni visive (depositi, pellicole, residui detergenti, ecc)
- ✓ Analisi microbiologica del liquido di risciacquo dell'impianto di mungitura
- ✓ Analisi microbiologica dei tamponi effettuati sui componenti della mungitrice

Prevenzione e controllo

Gestione degli animali infetti

Interventi mirati a limitare la diffusione della malattia all'interno dell'allevamento:

- Diagnosi precoce e separazione degli animali infetti (in particolare quelli con mastite subclinica)
- Riforma degli animali con infezione cronica
- Riforma degli animali con infezione da batteri resistenti
- Mungitura separata (se possibile manuale) degli animali infetti
- Trattamento
- Vaccinazione

Biosicurezza

BIOSICUREZZA ESTERNA:

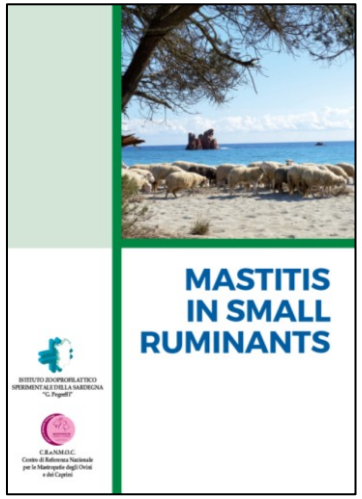
MISURE ADOTTATE NELL'ALLEVAMENTO PER IMPEDIRE O LIMITARE L'INTRODUZIONE DI MALATTIE DALL'ESTERNO

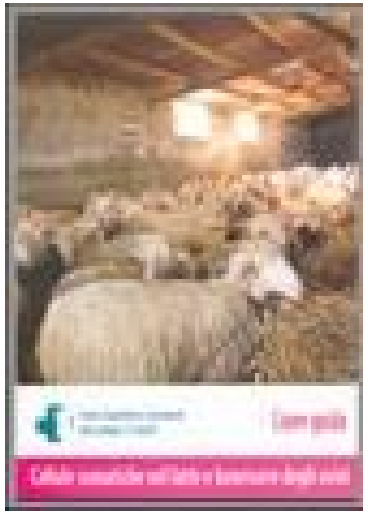
BIOSICUREZZA INTERNA:

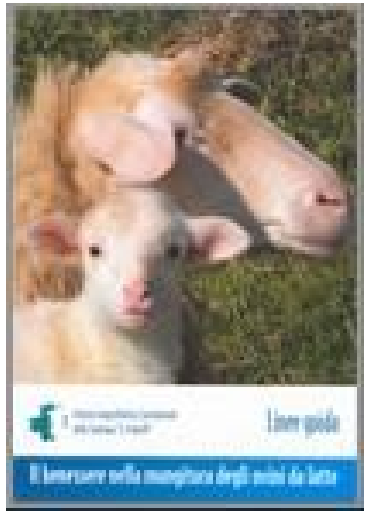
MISURE ADOTTATE NELL'ALLEVAMENTO PER LIMITARE LA DIFFUSIONE DI MALATTIE PRESENTI IN ALLEVAMENTO

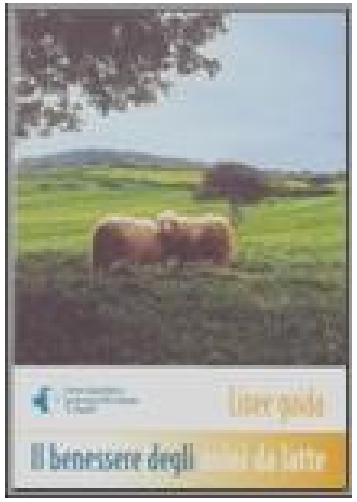
(Diagnosi precoce, gestione corretta degli animali, vaccinazioni, pulizie e disinfezioni)

Materiale informativo









http://www.izs-sardegna.it/CRENMOC_Materiale.cfm

- The small ruminant sector must adopt sustainable practices and principles in order to become more resilient and competitive. (Paraskevopoulou C., 2020)

- “Protecting livestock against diseases and preventing disease spread are key to fighting hinger, malnutrition and poverty”. (FAO)

- “If production is sustainable, then people, businesses, animals and the environment all benefit”.