

Description of production environments

a new module in the Domestic Animal Diversity Information System

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- Description of production environments & GPA
- Why describe production environments?
- For whom?
- Framework for describing production environments
- Implementation in FABISnet/DAD-IS
- Functionality
- Way-forward





Description of production environments & GPA

Strategic Priority Area 1

Characterization, Inventory and Monitoring of Trends and Associated Risks

Strategic Priority 1

Inventory and characterize animal genetic resources, monitor trends and risks associated with them, and establish countrybased early-warning and response systems

Strategic Priority 2

Develop international technical standards and protocols for characterization, inventory, and monitoring of trends and associated risks





Why describe production environments ?

- facilitate meaningful comparisons and evaluation of breed performance
- obtain data that can serve as proxies for adaptedness
- contribute to evidence-based approach to decision-making
- complement other sources of breed-related information
- allow comparison of internationally standardized data
- allow analysis of AnGR in relation to other domains such as disease outbreaks, poverty levels ...
- prerequisite for modeling the impact of climate change on AnGR





For whom?

- National Coordinators for the Management of Animal Genetic Resources (NCs)
 - plan & implement AnGR-related measures at national level
 - require well-structured & relevant information
 - require clear definitions and standards
 - require user-friendly tools for reporting & analysis
- Scientists
 - understand relationships between geographic location & characteristics of the production environment
 - analyse evolution of agricultural production systems
 - analyse breed distribution & utilization over time
 - develop prioritization frameworks for conservation & breed development





For whom?

- Development practitioners (NGOs, technical cooperation agencies & extension services)
 - disseminate or promote particular breeds/species in a given PE
 - identify new marketing opportunities
 - require info on socio-economic factors & specific products
- Livestock keepers
 - decide on breed substitution or changes to management environment
 - evaluate capacities of non-local breeds to withstand locally specific sets of stressors
 - face problem to access information!





For whom?

- Policy-makers
 - improve national & household food security
 - promote rural development & poverty alleviation
 - maintain biodiversity & other natural resources
 - determine how available AnGR & existing PEs can be matched & developed to meet demands for livestock products & services
 - prioritize for conservation
 - plan genetic improvement programmes at national level
 - avoid interventions that cause economic harm or impact livelihoods
 - evaluate suitability of breeds for introduction into a new PE
 - facilitate exchange & access required to cope with change



1999: DAD-IS review WS discussed approach administrative level vs breed distribution

2008: Expert Group developed approach further for implementation - EFABISnet WP





* for detailed lists within level of these categories, please see questionnaire





Implementation in FABISnet/DAD-IS







Implementation in FABISnet/DAD-IS: GIS layers

Mean Daily Maximum Temperatures of the Hottest Month (deg C) (Temperature increment: 1 deg)



Wind Speed : Average Wind Speed of the Coldest Month (m/sec)







Functionality

Anonymous user

- browse single breed distribution
- browse/list suitable breeds
- browse breeds with given criteria on the map

National coordinator

- enter distribution of breed
 - link management PEDs to distribution
 - link diseases
 - enter performance data, etc. for combination of above
- define country specific management PEDs
- select country relevant diseases





Functionality

Anonymous user

- browse single breed distribution
- browse/list suitable breeds*
- \bullet browse breeds with given criteria on the map \ast





Functionality: browse single breed distribution

national breed distribution – example Chios sheep in Greece







Functionality: browse single breed distribution

national breed distribution



transboundary breed distribution



Transboundary breed:	Chios
Number of countries reporting the breed:	6
Number of countries reporting the population data:	3
Estimated population size:	232669

	Most common name	Country	National risk status	Risk index?	Total population size - lower limit
Chios		Albania	unknown		
Chios		Cyprus	not at risk	\bigcirc	180739
Chios		Greece	not at risk	\bigcirc	51860
Chios		Iraq	unknown	\bigcirc	
Chios		Jordan	critical		70
Chios		Oman	unknown	Ó	





Functionality

National coordinator

- enter distribution of breed
 - link management PEDs to distribution
 - link diseases
 - enter performance data, etc. for combination of above
- define country specific management PEDs
- select country relevant diseases





Functionality: enter distribution of breed







Functionality: enter distribution of breed







Functionality: enter distribution of breed



combination of above





Functionality

National coordinator

- define country specific management PEDs
- select country relevant diseases





Functionality: define country specific management PEDs







Functionality: define country specific management PEDs







Functionality: select country relevant diseases

Name	Specie: affected	Causative agent(s)	Netifiable				
			to OIE yes/no	Name	Species affected	Causative agent(s)	Notifiable to OIE
Actinobacillosis	She Goa Cat Pig Hor Ass Buf	Actinobacillus spp.	No				yes/no
Actinomycosis	Dee She Goa Cat Buf	Actinomyces bovis	Nø	Tetamus	Buf Cat Yak Goa She Pig Ass Hor	Clostridium tetani	No
Anthree	Bui Car Yak Goa She Dig Ass Hor Bat Dro Alo Lla Gua Vic Dee Rab Gpg	Bacillus anthracis	Vet		Bac Dro Alp Lla Gua Vic Dee Rab Gpg Dog Chi Duc Tur Goo Mus Gfi Par Phe Qua Pea Pgn Swa Cas Emu		
Arizona infection (avian arizoniosis)	Tur Chi	Salmone'la orizonae	No	Infectious necrotic hepatitis	She Cat Pig Hor Goa Rab Dro	Clostridium novyi type B	No
Avian chlamydiosis (Psittacosis, crnothosis)	Chi Du: Tur Goo Mus Gfl Par Phe Qua Pea Pgn Swa Cas Emu Ñan Ost	Chlamyäia and Chlamydophila sop.	Vet				
Bolo disease	She	Corynebacterium spp.	No	Lyme Borreliosis	Dee	Berrelia burgdorferi	No
Chlamydial pneumonia	Cat She Dig Hor Dee Goa Baf	Chlamydophila (Chlamydia) psitiaci	No	Necrotic enteritis	Chi Duc Tur Goo Mus Gfl Par Phe	Clostridium perfringens,	No
Chlamydial conjunctivitis	Goa She Gpg Cat Baf Yak	Chlanydophila psittaci, Chlanydda pecorum	No		Qua Pea Pgn Swa Cas Ema Nan Ost	types A and C	
Chlamydial abortions	Cat Yak Gua Lla Alp Gua Vic Hou Az: Buf Pig She	Chlamydophila door tus	No	Malignant oedema	Cat Hor She Goa Pig	Clostridium septicum	No
Escherchia coli infections	Cat She Dro Lla Alo Chi Goa Pig Tur Gfl Par Phe Buí	Escherchia coli	No	Ulcerative enteritis, quail disease	Qua Chi Phe Tur	Clostridium colinum	No
Enzootic abortion of ewes (ovine chlariydiosis)	She	Chlamydophila pabortus	Yes	Bordetellosis, (turkey coryza, Bordetella avium/hinotracheitis	Tur	Berdetella avium	No
Avina mycoplasmosis, (chronic respiratory disease of chicken, Infectious sinusitis of turbeys)	Chi Du: Tur Goo Mus Gfl Par Fhe Qua Pea Pgn Staa Cas Frmu Nan Ost	Mycoplatina gallisepticun	Ye	(BART), Alcaligenes rhinotracheitis (ART), Adenovirus-			
Avian mycoplasmosis (mycoplasma synoviae Infection)	Chi Du: Tur Goo Mus Gfl Par Phe Qua Pea Pgn Swa Cas Emu Ñan Osa	Mycoplasma synoviae	Yes	Acute respiratory disease			
Inzootic pneumonia	Pig	Myceplanna kynpneumonine	No	Bovine genital campylobacteriosis	Cat Buf Dee	Cempylobacter feus	Yes
Mycoplasma hyosyncviae arthritis of swine.	Pig	Mycoplasma hyosynoviae	No	Bovine brucellosis (Brucella	Cat Dro Bac Lla Alp Gua Vic Buf	venerealis oz C. fetus fetus Brucella abortus	Yei
Contagious agalactia	She Goa	Mycoplasma agalactiae	Yes	abartus)	Yak Dee Fig		
Contegious bovine pleuro- pneumonia (CBP?)	Cat Buf Yak	Mycoplatma mycoide: subsp. mycoides	Yes	Caprine and ovine brucellosis	She Goa Cat Yak Bac Dro Alp Lla Gua Vic Pig	Brucella melitensis	Yei
• • •		SC (MmmSC; SC = small colonies)		Porcine brucellosis (Brucella suis)	Pig Hor Cat	Brucella suis	Yei
Contagious caprine	She Got	Mycoplatma comicolum substacius	Yes	Erucellosis (Brucella suis biovar 4)	Dee	Brucella suis biovar 4	Yes
preutopileumoma (CCPP)	11	capricovam suospecies capripneumoniae (Mccp)		Cvine epididymitis (Brucella ovi:)	She Dee Goa	Brucella ovis	Ye:
Contrigiorus skin nectosis	Dro	марлуюссосия spp. Streptoceocus spp.	210	Fowl typhoid	Chi Tur Phe	Salmonella gallinarum	Yei
Big fead	She	Clostridnim novye, C.	No	Pullorum disease	Chi Tur	Saimonella pullorum	Yei
		channai		Salmonellosis	Buf Cat Yak Goa She Pig Ass Hor Bac Dro Alp Lla Gua Vic Dee Bab	Saimonella spp.	Yes (on sheep an
Black-leg	Cat She Dee Pig But Goa Yak Dro Bac Os:	Closiviatum (feseri) chauvaei	No		Gpg Dog Chi Duc Tur Goo Mus Gfl Par Dhe One Dee Den Swa Cas From		goat)
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	Gpg Dog Chi Duc Tur Goo Mus Gfl Par Phe Qui Pei Pgn Swa Cas Emu			Haemorrhagic septicaemia	Dro Dee	Pasteurena muitociaa	141
Nao Ost Enterotoxaemia Buť Car Yak G Bas. Do Aby L Gry Dog Chi I Par Phe Qua P Nao Ost	Buf Cat Yak Goa She Pig Ass Hor	or Clostridium perfingens, ab Clostridium difficile Gfl (GPGs) mu	No	Pasteurellosis	Rab Cat She Goa Pig Dee Lla Alp Yak Buf Ero Ost Gua Vic	Pasteurella spp.	No
	Ban Duo Aly Lin Gua Vic Dee Rab Grig Dag Chi Dar Tur Gao Mus Gfi Par Phe Qua Pen Pgn Swa Cas Emu Nan Oct			Fowl cholera, Avian cholera, Avian pasteurellosis, avian hemorrhagic septicemia	Chi Duc Tur Goo Mus Gfl Par Phe Qua Pea Pgn Swa Cas Emu Nan Ost	Pasteurella multocida	Yei
		1		Contagious equine metritis	Hor Ass	Taylorella equigenitalis	Yes
				Dermatophilosis	Cat She Goa Hor Ass Pig Dro Bac Buf	Dermatophilus congolensis	No
				Erysipelas	Tur Chi Duc Mus Goo Gil Phe Pig Cat Sha Rah Dae	Erysipelothrix rhesionathiae	No
				Footrot	Cat She Goa Dee Buf	Fusobacterium necrophorum	No
				Glanders	Hor Ass	Burkholderia mallei	Yes





Functionality: select country relevant diseases

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Chargeding paramotais	Bolo disease	She	Corynebacterium spp.	No	Lyme Borreliosis	Dee	Borrelia burgdorferi	No
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Constraint She Ges Adjoint and the control of the cont		4	SC (MmmSC; SC = small colonies)		Porcine bruceLosis (Brucella suis)	Pig Hor Cat	Brucella suis	Yes
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Black-leg Cat She Dee Pig Buf Goa Yak Dro Bat Os: Cleatridium (Reari) chanveai No But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig Ass Hor Cleatridium (Reari) chanveai Shimonellosis But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig Ass Hor Dro Dee Shimonellosis But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig Ass Hor Dro Dee Shimonellosis But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig Ass Hor Dro Dee Shimonellosis But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig Ass Hor No Shimonellosis But Cat Yak Goa She Pig Ass Hor But Cat Yak Goa She Pig She Goa Hor Ass Dro Dee Shimonellosis But Cat Yak Dia Goa Hor Ass Dro Dee Parteurella multocida Yee Yee Emeroioxaemia Cat She Dig Ass Hor Bat Dro Ap Lia Goa Yie Dee Rab Gog Dog Chi Duc Tur Goo Mis Gfi Par Die Que Pen Pig Swa Cas Emu Noa Oat Cleatridium perfringenz, Cleatridium difficile (GPG) No No No No No No Fauteurellosis, avian hemoring Septicemia Contagious equine metritis Rab Cat She One Mis Gfi Pig Pie Qian Pen Pig Swa Cas Emu Nan Ost Perteurella multocida Yee No Contagious equine metritis Hor Ass Taylorella equipenitalis Yee No No Dir Due Cau Pie Pig Dir Bac Buf Cemu Nan Out Der Mat Spi Dir DBac Buf Shoulderia Der Matophilus congolensis No No <t< td=""><td>Big head</td><td>She</td><td>Clostridium nevyi , C. sondalii , at rately C.</td><td>No</td><td>Pullorum disezse</td><td>Chi Tur</td><td>Salmonella pullorum</td><td>Yes</td></t<>	Big head	She	Clostridium nevyi , C. sondalii , at rately C.	No	Pullorum disezse	Chi Tur	Salmonella pullorum	Yes
Bits Ost Disconsistion Chanvail No Both Dro Alp Lia Grav Yak Goa She Pig Ass Hor Bac Dro Alp Lia Grav Vic Doe Rab Gog Dog Chi Duc Tur Goo Mis Gfl Par Phe Qua Pea Pign Swa Cas Emn Na Ost Chanvail Chanvail No Pasteurellosis Rab Cat She Goa Pig Dee Lh Alp Yak Buf Dro Cat Gua Vic Pasteurella multocida Yes Par Phe Qua Pea Pign Swa Cas Emn Nan Ost Chanvail Chanvail Chanvail No Chanvail Pasteurellosis Rab Cat She Goa Pig Dee Lh Alp Yak Buf Dro Cat Gua Vic Pasteurella multocida Yes Par Phe Qua Pea Pign Swa Cas Emn Nan Ost Chanvail Quarter Age She Cas Emn (GPGS) No Chanvail Cat Yak Did Cat She Goa Pig Dee Lh Alp Yak Buf Dro Cat Gua Vic Pasteurellosis Pasteurellosis Pasteurel	Black-leg	Cat She Dee Pig Buf Goa Yak Dro	chauveai Clostridium (fesari)	No	Saimonellosis	But Cat Yak Goa She Pig Ass Hor Bac Dro Alp Lla Gua Vic Dee Rab	Saimoneila spp.	Yes (only sheep and
Bac Dro Ab Lia Gua Vic Dee Rab Gog Dog Chi Duc Tur Goo Mis Gel Dar Dro Dea Pag Pus war Case Emu Na Ost No Na Na Cat Buf Yak Pig She Goa Hor Ass Dro Dee Pasteurella multocida Yes Emeroroxaemia Ost Suf Car Yak Goa She Pig Ass Hor Bac Dro Ab Lia Gua Vic Dee Rab Gog Dog Chi Duc Tur Goo Mis Gel Par Phe Qua Pea Pyn Swa Case Emu Nan Ost No No No No Fowl Choi Yak Goa She Pig Ass Hor Bac Dro Ab Lia Gua Vic Dee Rab Gog Dog Chi Duc Tur Goo Mis Gel Par Phe Qua Pea Pyn Swa Case Emu Nan Ost No No No No Fowl Cholera, Avian Chol	Boulim	Bat Os: Buf Ca: Yak Gaa She Pir Ass Hor Clastridium betulinum		No		Gpg Dog Chi Euc Tur Goo Mus Gfl Par Phe Qua Pea Pgn Swa Cas Emu		Boar)
Date Dot Dot Stat Dot Stat Dot Stat Dot Stat		Bac Dro Alp Lia Gua Vic Dee Rab Gpg Dog Chi Duc Tur Goo Mus Gfl Bar Dhe Qua Dea Den Sava Coo Bourd			Haemorrhagic septicaemia	Nen Ost Cat Buf Yak Pig She Goa Hor Ass Dro Dee	Pasteurella multocida	Yes
East Day Alp Lia Gua Vili Dec Rab Gog Dog Chi Duc Tur Goo Mis Gil Par Phe Qua Pea Pgn Swa Cas Emu Nan Ost Cheatrifiture difficule (GPGs) Fowl Cholera, Avian cholera, Avian cholera, Avian Cholera, Avian Gli Duc Uni Was Gil Par Phe Qua Pea Pgn Swa Cas Emu Nan Ost Parteurella multocida Yes Fowl Cholera, Avian Cholera,	Enterotoxaemia	a Ost out Cat Vak Goa She Pig Acc Hor	Clostridium perfringess	No	Pasteurellosis	Rab Cat She Goa Pig Dee Lls Alp Vak Buf Dro Oct Gua Vic	Pasteurella spp.	No
Nam Out reprint chain Image: Contragious equipe metritis Hor Ass Taylorella equigentialis Yes Contagious equipe metritis Dermatophilosis Cat She Goa Her Ass Pig Dro Bac Dermatophilus congolensis No Error Tur Chi Duc Mus Goo Gfl Phe Pig Erysipelothrix No Footrot Cat She Goa Dee Buf Fustopathial No Glanders Hor Ass Barkholderia mallei Yes		Bac Dro Alp Lia Gua Vic Dee Rab Gpg Dog Chi Duc Tur Goc Mus Gfl Par Phe Qua Pea Pgn Swa Cas Emu	Clostridiure difficile (GPGs)		Fowl cholera, Avian cholera, Avian pasteurellosis, avian hemorih senticernia	Chi Duc Tur Goo Mus Gfl Pur Phe Qua Pea Pgn Swa Cas Emu Ñan Ost	Pesteurella multocida	Yes
Dermatophilosis Cat She Goa Her Ass Pig Do Bac Bif Dermatophilus congolensis No Evsipelas Tur Chi Duc Mas Goo Gfl Pie Pig Cat She Rab Dee Evsipeloshric Pluziopathiae No Footrot Cat She Goa Dee Buf Fuziopachterium necrophorum No Glanders Hor Ass Burkholderia mallei Yes		Nan Ost		I	Contagious equine metritis	Hor Ass	Taylorella equigenitalis	Yes
Bysipelas Tur Chi Duc Mıs Goo Gfl Pie Pig Cat She Rab Dee Eysipelothrix No Footrot Cat She Goa Dee Buf Fuziopathiaa No Glanders Hor Ass Burkholderia mallei Yes					Dermatophilosis	Cat She Goa Her Ass Pig Dro Bac Buf	Dermatophilus congolensis	No
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Glanders Hor Ass Burkholderia mallei Yes					Footrot	Cat She Goa Dee Buf	Fusobacterium necrophorum	No
					Glanders	Hor Ass	Burkholderia mallei	Yes





Way forward

- Finalize development & implementation in DAD-IS and related IS: EFABIS & 16 national nodes before end 2010
- LOA with ICARDA collecting production environment descriptions of breeds kept in Egypt, Iran, Morocco, Turkey to:
 - provide case studies
 - demonstrate use of the system
 - recommend in detail further output of the system (identify suitable breeds
- Develop further outputs of the system





About GLiPHA

GLIPHA

chart

Global Livestock Production and Health Atlas

Functionality: browse breeds with given criteria on the map





by R	egion	by Them	ie
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Topic:	Growth rate, k	.g / animal	•
Year:	2007		

Apply filter



WORLD - Livestock production - Growth rate, kg / animal (Year = 2007, Livestock products = Produced eggs, Livestock species = Chickens)

map



table

Growth rate, kg / animal: Compounded annual growth rate of the quantity produced per number of animals during a period of 5 years expressed as a percentag





Functionality: browse breeds with given criteria on the map

DOMESTIC ANIMAL DIVERSITY INFORMATION SYSTEM

	by Region	by T	neme	map	table	chart
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- Fundraising for climate change modeling continues
- ... and encourage National Coordinators to enter data and use the system !





Thank you !

Please visit <u>http://www.fao.org/dad-is/</u> or <u>http://efabis.tzv.fal.de</u> & check & maintain your national data up-dated!



Livestock Biodiversity Workshop, 5-6 May 2010, Rome, Italy

Which strategies and policies are needed to successfully maintain European animal genetic diversity? What are the latest technologies to characterize and prioritize livestock breeds? These were the topics at a two-day Livestock Biodiversity Workshop hosted by FAO on 5-6 May 2010 that has been jointly organized by the *A global view of livestock biodiversity and conservation* and *Towards self-sustainable EUropean REgional CAttle breeds* projects. Both projects receive financial support from the European Commission, Directorate-General for Agriculture and Rural Development, under Council Regulation (EC) No 870/2004. The workshop aimed at bringing together and drawing lessons from the five animal related GENRES project that will come to closure in 2011.

98 persons from science, governments and NGOs from 24 countries attended the meeting. Within an overall framework of future challenges for the livestock sector, including climate change, lecture topics covered methodology development in genomics, databases, geo-referencing and priority setting for conservation. Recommendations were formulated for better conservation strategies and policies in Europe. In addition to GLOBALDIV and EURECA

DOMESTIC ANIMAL DIVERSITY INFORMATION SYSTEM

Kari sheep indispensable breed contributing rural livelihoods [...] Discover the world of animal diversity

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