

Supplemental Deliverable

# Kosovo AgStrat- Animal Products Study

Pristina, Kosovo  
April 2010

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## Table of Contents

▶ Overview of Deliverable

▶ Baseline Analysis of Animal Product Sector

▶ Recommendations to Improve Kosovo's Animal Product Sector

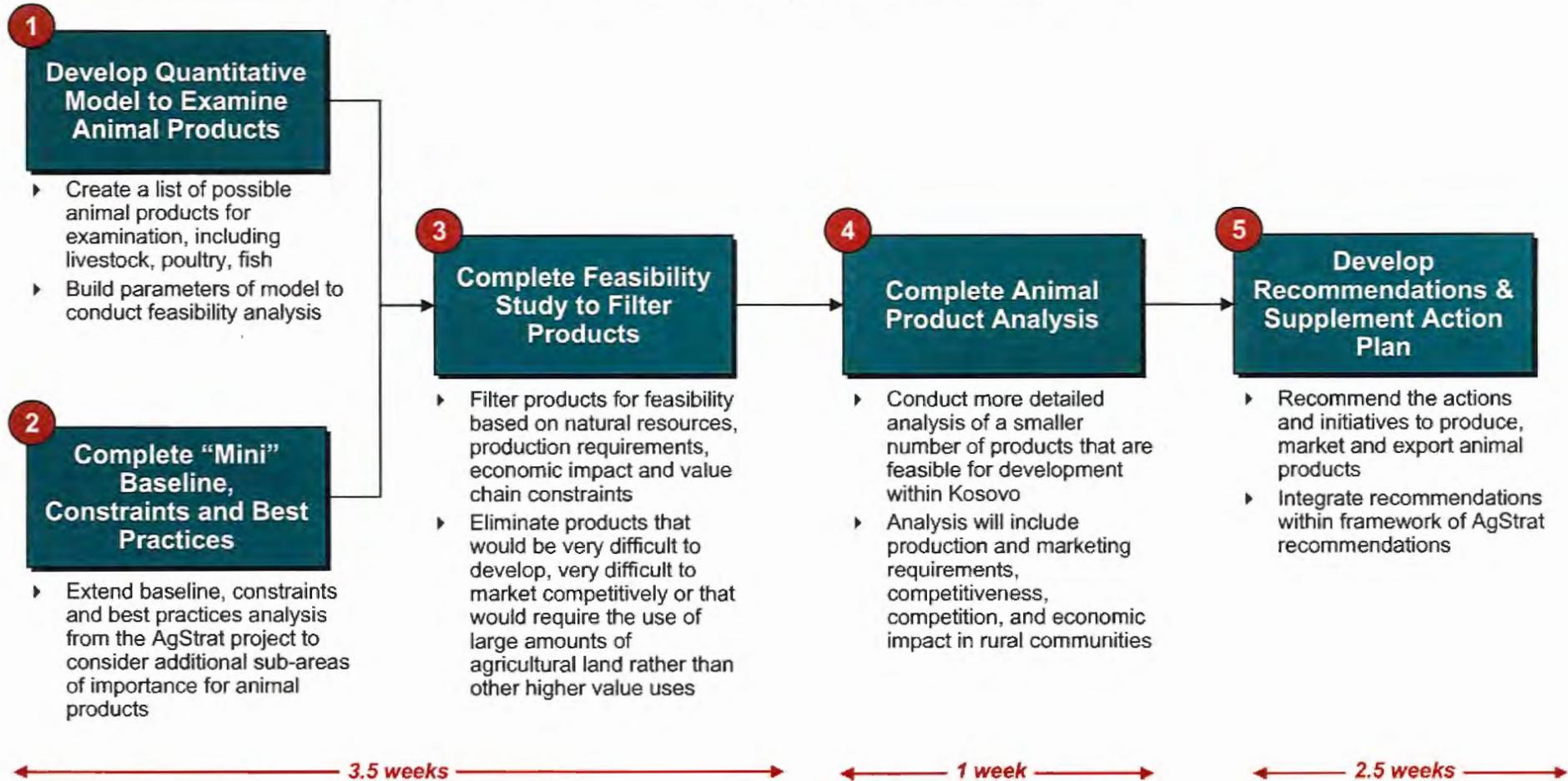
# **The objective of this document is to present details from the animal products study and recommendations for animals and by-products of focus**

## **Document Objectives**

- ▶ At the end of January, the Booz Allen team completed the first phase of the Kosovo Agriculture Opportunities Strategy, which focused on recommendations of new high-potential, high-value crops that can be grown in Kosovo
- ▶ As a follow-on study, USAID asked Booz Allen to also examine key animal products that could be developed in Kosovo. Over the course of seven weeks, the Booz Allen team, including a livestock economist and an aquaculture specialist, analyzed in detail Kosovo's animal products sector. The team developed findings along three main areas: a quantitative baseline of Kosovo's animal products sector, current constraints facing the sector and an assessment of best practices around the world
- ▶ Based on the analysis, the team developed the following types of recommendations: 1) a quantitative model to determine top animals and by-products of focus; 2) "Go-to-Market" snapshots for the top animals and by-products; and, 3) initiatives to reform the animal products sector. The recommendations were used to determine the potential impact on local consumption, production and employment

# The Animal Products study comprises five steps that span a total of seven weeks

## Animal Products Study Proposed Project Approach



# We interviewed a number stakeholders, reviewed studies, documents and reports...

## List of Interviewees & Documents Reviewed

Interviewees	Reports Examined
<ul style="list-style-type: none"> <li>▶ Head Manager/Buyer for Meat/Dairy Products, ETC Supermarket</li> <li>▶ Bejim Koja, Sheep Farmer</li> <li>▶ Deme Abazi , Iber Lepence</li> <li>▶ Lulzim Shamolli, Grazing expert</li> <li>▶ Muzafer Luma, ITC Forest Agency</li> <li>▶ Konisoni</li> <li>▶ Bessam Bechai, Head of Chamber of Commerce</li> <li>▶ Ilir Zenelaj , Mercy Corps</li> <li>▶ Gursel Arifi , Former KCBS</li> <li>▶ Zija Idrizi, animal feed and veterinary input supplier, FAUNA</li> <li>▶ Ramadan Memaj, President, KDPA</li> <li>▶ Imer Berisha, Manager, Bylemti Dairy Processor</li> <li>▶ Peter Welling, fish expert, ICO in Mitrovica</li> <li>▶ Agim Rexhepi, fish expert and veterinary faculty</li> <li>▶ Bajram Imeri, Director of Livestock Department, MAFRD</li> <li>▶ Arsim Mema, Chief of Livestock Breeding, MAFRD</li> <li>▶ Kurtesh Sherifi, veterinary researcher</li> <li>▶ Sali Golaj, importer of animals and livestock equipment, Agroschweiz</li> <li>▶ Behlul Behluli, premix distributor and AI specialist, SANO</li> <li>▶ Istog site visit (Trofta Istog and other fish farms)</li> <li>▶ Arton Osmani, European Commission liaison office</li> <li>▶ Karoline Schollmayer, German/Lithuanian twining project</li> <li>▶ Naim Huruglica , Customs general director</li> <li>▶ Flamur Kadriu, Chief of Veterinary Public Health, KFVA</li> <li>▶ Bafti Murati, Chief of Animal Health, KFVA</li> <li>▶ Milazim Berisha, President, KAMP</li> <li>▶ Muhamet Farizi, Executive Director, Feed Millers Association</li> <li>▶ Agron Berisha, animal feed supplier, Agrocom</li> <li>▶ Ekrem Gjokaj, Senior Agricultural Policy Officer, MAFRD</li> <li>▶ Lulzim Shamolli, Chief of Division for Agricultural Policies and Projects, MAFRD</li> <li>▶ Mustafe Kastrati, Project Manager, GTZ</li> </ul>	<ul style="list-style-type: none"> <li>▶ Agriculture Household Survey, 2007, Statistics Office of Kosovo</li> <li>▶ Training Interns in Milk Quality Field Work (KPEP), 2009</li> <li>▶ Responding to Subsidized Dairy Imports Into Kosovo (KPEP), 2009</li> <li>▶ Standards of Identity for Milk and Milk Products, 2009</li> <li>▶ Dairy Value Chain Assessment, Serbia, June 2008</li> <li>▶ FAO, Small Ponds Make a Big Difference, Integrating Fish with Crop and Livestock Farming, 2000</li> <li>▶ IFPRI Fish to 2020 Report, Supply and Demand in Changing Global Markets, 2003</li> <li>▶ World Bank, Kosovo – Towards a Strategic Action Plan, November 2009</li> <li>▶ IFPRI, World Fish Center, Fish as Food, Projections to 2020</li> <li>▶ FAO Discussion Paper 28, Livestock to 2020, The Next Food Revolution</li> <li>▶ FAO, Livestock Policy Discussion Paper No. 6, International trade in livestock and livestock products: the need for a commodity-based approach, March 2002</li> <li>▶ Journal of Agribusiness, Traceability and Certification in Meat Supply Chains, 2003</li> <li>▶ UNESCO, Virtual water flows between nations in relation to trade in livestock and livestock products, August 2003</li> <li>▶ KPEP, Standards for Milk and Milk Products, June 26, 2009</li> <li>▶ Environment Protection Agency of Kosovo, Draft Report on the Situation of Water in the Republic of Kosovo, 2010</li> <li>▶ USDA Foreign Agriculture Service, GAIN Report: State Subsidies Flush for Supporting Genetics Trade, 2010</li> <li>▶ USDA Foreign Agriculture Service, GAIN Report: Russia Changes Legislation and Structure of Animal Improvement Industry, 2008</li> <li>▶ Land Information New Zealand, High Country Pastoral Leases Review Interim Report, 2005</li> <li>▶ European Commission, A New Health Strategy for the European Union, 2007</li> </ul>

# ... and compiled a comprehensive data repository based on cross-reference from multiple sources to ensure data consistency

## Data Sources and Guiding Principles

Data Source	Information Extracted
FAOSTAT	▶ Yield for Animal By-Products for Benchmark Countries
UN Comtrade / ITC TradeMap	▶ Breakdown of Exported / Imported Value by Destination / Origin for Benchmark Countries
OIE Website	▶ Total Animal Population by Animal Type for Benchmark Countries; Disease and Vaccination Rate by Country
ITC Forestry Agency	▶ Total Pasture/Grazing Land Available in Kosovo
Statistics Office of Kosovo	▶ Fodder Crop Area, Production, Yield, Irrigation, Local Market Prices
Ministry of Agriculture, Forestry, Rural Development	▶ Number and Size of Farms by Animal Type ▶ Grazing Land by Municipality
Customs Office of Kosovo	▶ Imported and Exported Volumes and Values overall as well as for select animal and animal by-product HS codes
Ministry of Environment & Spatial Planning	▶ Temperature Data and Rainfall Data for 7 Meteorological Stations



Core Guiding Principles
▶ Rely as much as possible on one data source to provide <b>consistent and comparable</b> export figures
▶ <b>Cross-check trade, price, and production data</b> with alternative data sources
▶ Prefer <b>mirrored data sets</b> over single-source
▶ Complement missing information with <b>expert opinion</b> and <b>interpolation</b>

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
  - Quantitative Baseline of Kosovo's Animal Product Sector
  - Overview of Constraints and Opportunities
  - International Best Practices Assessment
- ▶ Recommendations to Improve Kosovo's Animal Product Sector

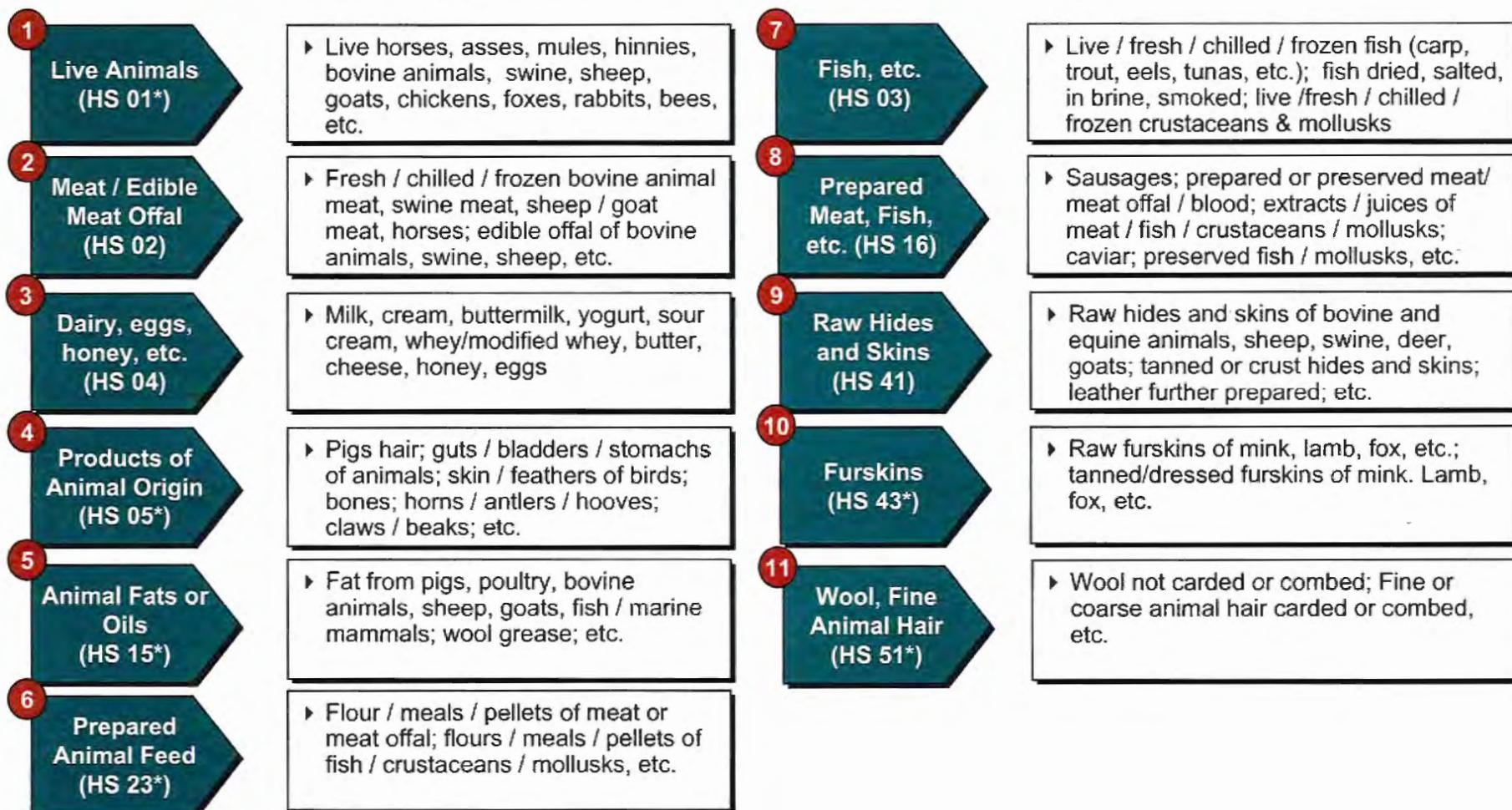
# Quantitative Baseline of Kosovo's Animal Product Sector

▶ Market Definition and Methodology

▶ Kosovo Animal Products Performance

# We focused our baseline analysis on both livestock and fish as well as the by-products from these animals

## Primary Animal Commodities and Related Processed Products



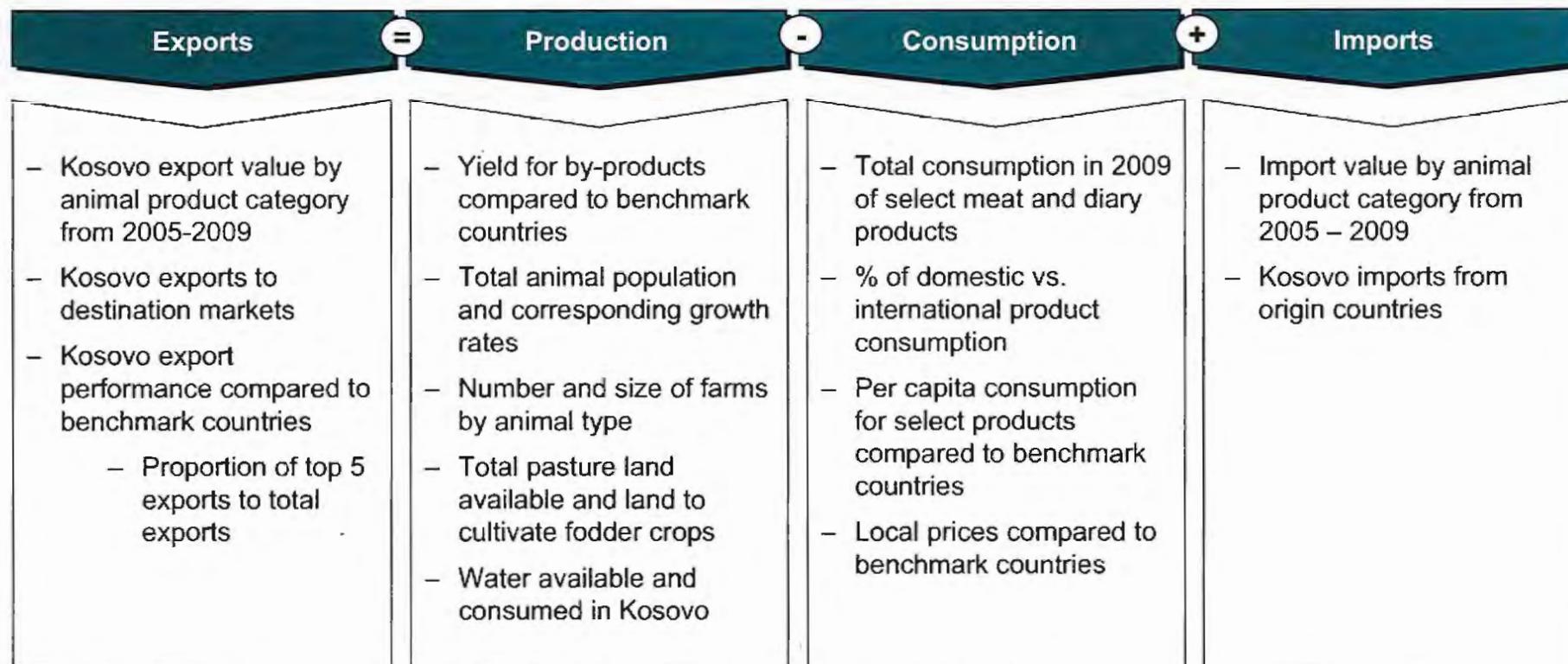
Note: All codes within the HS chapter are included unless indicated by a (\*). (\*) HS Chapter 01 focused on 0101-0105, 010619, and 010690; HS Chapter 05 focused on 0502-0511, HS Chapter 15 focused on 1501-1506, 151610, 1517, 1518; HS Chapter 23 focused on 230110, 230120; HS Chapter 43 focused on 4301, 4302, 430390; HS Chapter 51 focused on 5101-5105.

Note: Analysis excludes primates, whales, dolphins, porpoises, reptiles and birds

Source: FAOSTAT; UN Comtrade, BAH Analysis

# The baseline examines different aspects of production, consumption, imports, and exports to better understand the performance of the animal products sector

## Kosovo Baseline Analysis Components



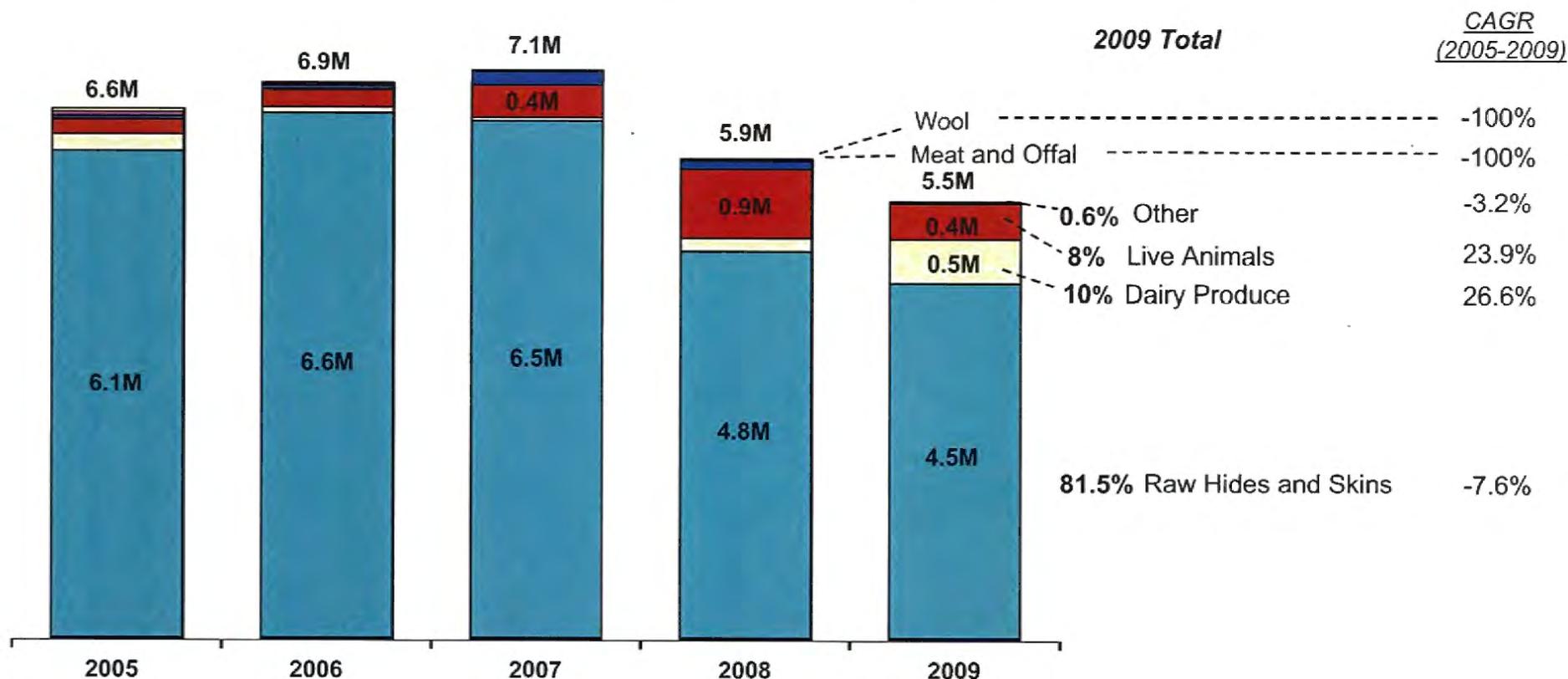
## **Quantitative Baseline of Kosovo's Animal Product Sector**

▶ Market Definition and Methodology

▶ Kosovo Animal Products Performance

# Over 81% of Kosovo's animal product exports are concentrated in raw hides and skins

Breakdown of Kosovo Animal Product Export Value by Product Type (2005–2009, in Millions, Euro)



Note: Animal product export value determined by looking at HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010690, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105

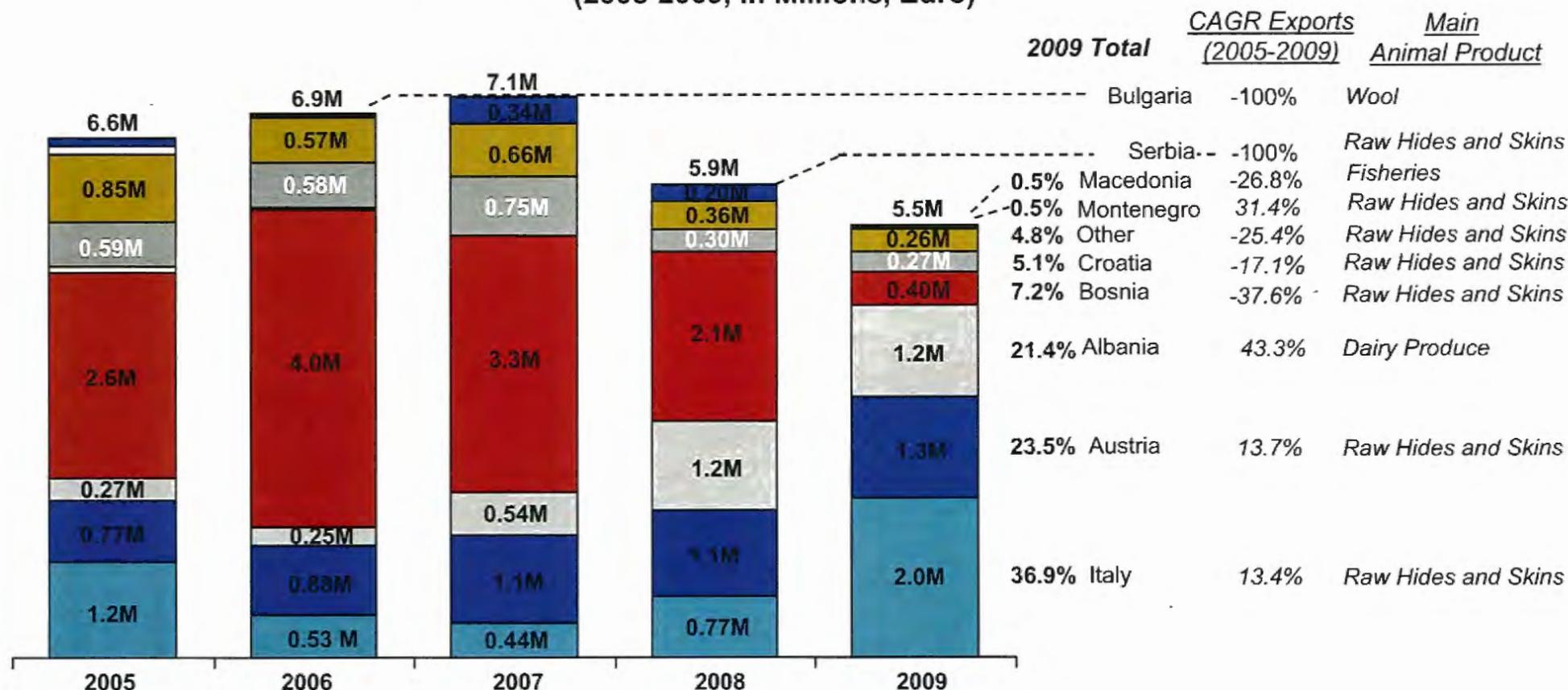
Note: Wool and Meat and Offal were not exported in 2009

Note: "Other" category includes: fisheries; products of animal origin; animal and vegetable fats and oils; flours, meals and pellets of meat and fish; fur skins; preparations of meat and fisheries

Source: Customs Office of Kosovo

# Exports to Italy, Austria, and Albania account for over 80% of the destination markets and are growing, while exports to other regional countries such as Bosnia and Croatia are declining

Relative Share of Destination Markets for Kosovo Animal Product Exports  
(2005-2009, in Millions, Euro)



Note: In 2005, Serbia and Montenegro were recorded as one country. Thus, CAGR for Serbia and Montenegro is calculated from 2006-2009:

Note: "Other" includes: Afghanistan, Algeria, Bahamas, Haiti, India, Madagascar, Slovenia, Turkey, Greece, Ireland, Switzerland, Netherlands, UK

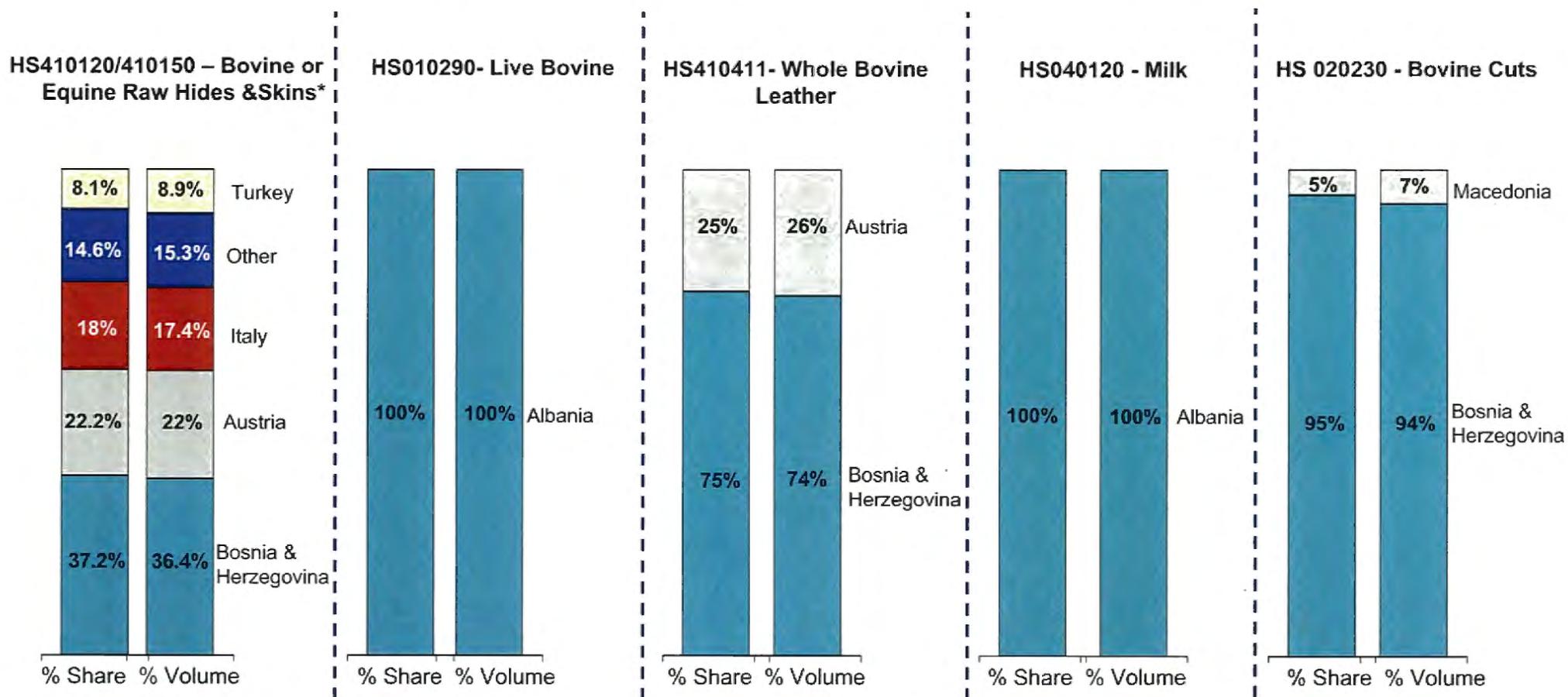
Note: HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010699, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105 used for exports

Note: In the EU, Italy and Austria are the main exporting partners

Source: Customs Office of Kosovo; BAH Analysis

# Kosovo's top animal exports are mainly processed products and are predominantly concentrated in a small number of countries, namely Albania and Bosnia & Herzegovina

Market Distribution of Primary Animal Products in Kosovo (2008)



Note: Primary animal products in Kosovo determined by looking at HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010690, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105

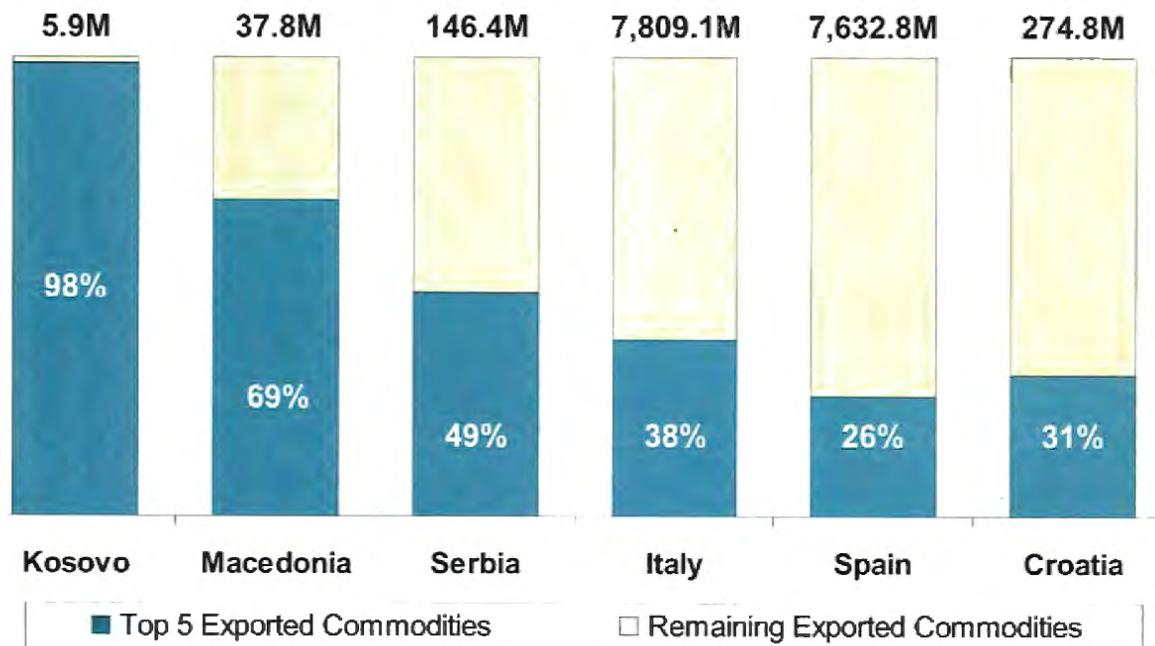
Note: (\*) 410120 and 410150 combined due to their similarity

Note: "Other" category includes Albania, Croatia and Serbia

Source: Customs Office of Kosovo

## The top five animal products represented a larger share of Kosovo's exported value compared to benchmark countries

Top 5 Exports Compared to Total Animal Product Exports  
(2008, in Millions, Euro)



Country	Top 5 Animal Product Categories
Kosovo	Bovine or equine raw hides and skins, live bovine, whole bovine leather, milk, bovine cuts
Macedonia	Lamb carcasses, preserved mollusks and other aquatic invertebrates <sup>1</sup> , sausages and similar products, live bovine, swine carcasses
Serbia	Bovine cuts, sausages and similar products, milk, cheese, bovine or equine raw hides and skins
Italy	Whole hides and skins,* other cheese, swine meat, fresh cheese and curd
Spain	Swine cuts (fresh or chilled), swine cuts (frozen), hams, tunas, bovine carcasses
Croatia	Blue fin tunas, whole hides and skins, other fish, sardines, tunas (albacore or long finned)

Note: Exported value for animal products is determined by looking at HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010690, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105

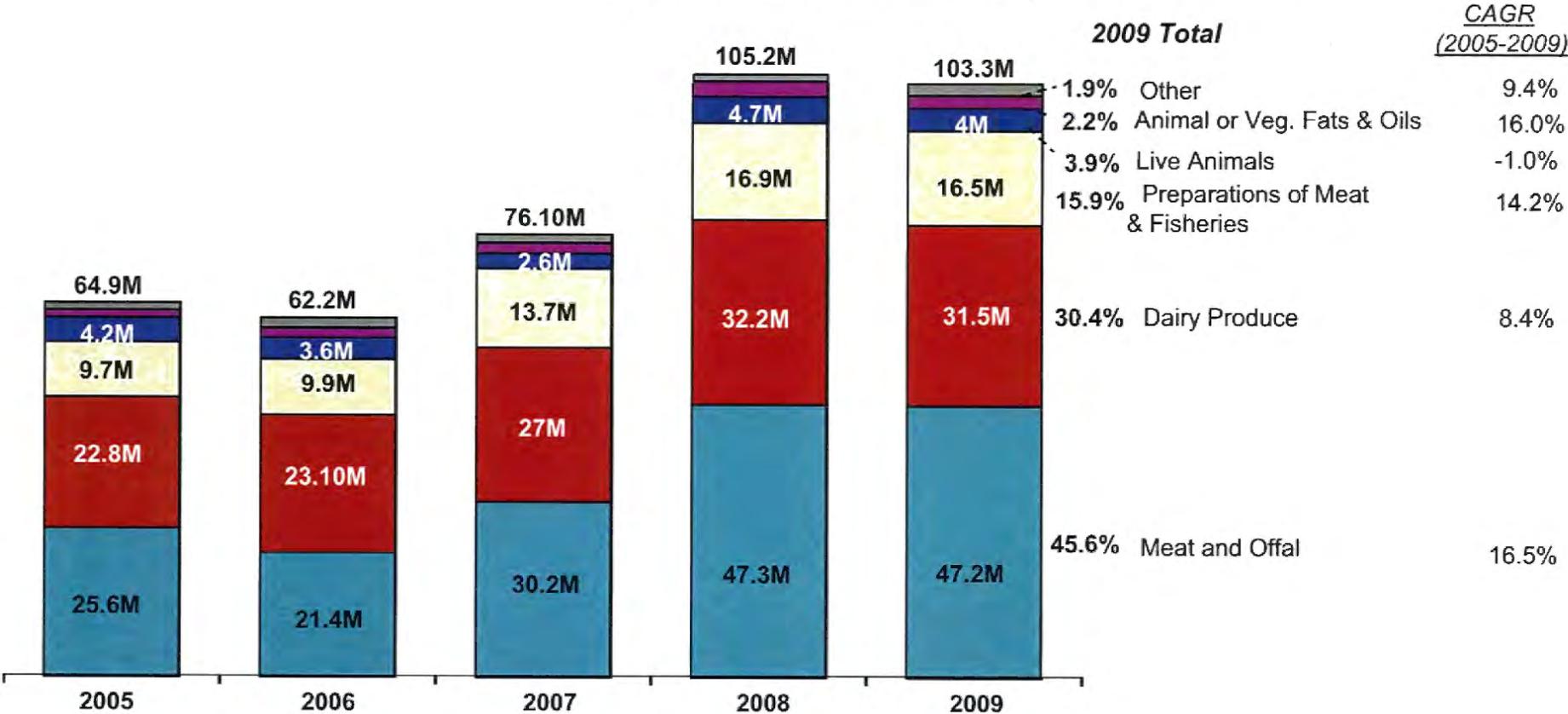
Top 5 HS Codes: Kosovo: 410120 and 410150 (combined due to their similarity), 010290, 410411, 040120, 020230; Macedonia: 020410, 160590, 160100, 010290, 020311; Serbia: 020120, 160100, 040120, 040690, 410150; Italy: 410712 and 410719\* (grouped together as whole hides and skins), 040690 (other cheeses include Bryndza, Cheddar and Gouda cheese), 021019, 040610; Spain: 020319, 020329, 020312, 160414, 020110; Croatia: 030235, 410712, 030269 (other fish include sable, fresh-water, perch and bass fish), 160413, 030231

Note: (1): HS category can include: products containing fish meat, prepared meals, clams in airtight containers, smoked oysters, snails, etc.

Source: Customs Office of Kosovo, TradeMap

# Kosovo’s animal product imports largely consist of meat, offal and dairy produce and collectively have grown from 48.4M to 78.7M Euros over the past five years

Breakdown of Kosovo Animal Product Import Value by Product Type (2005–2009, in Millions, Euro)



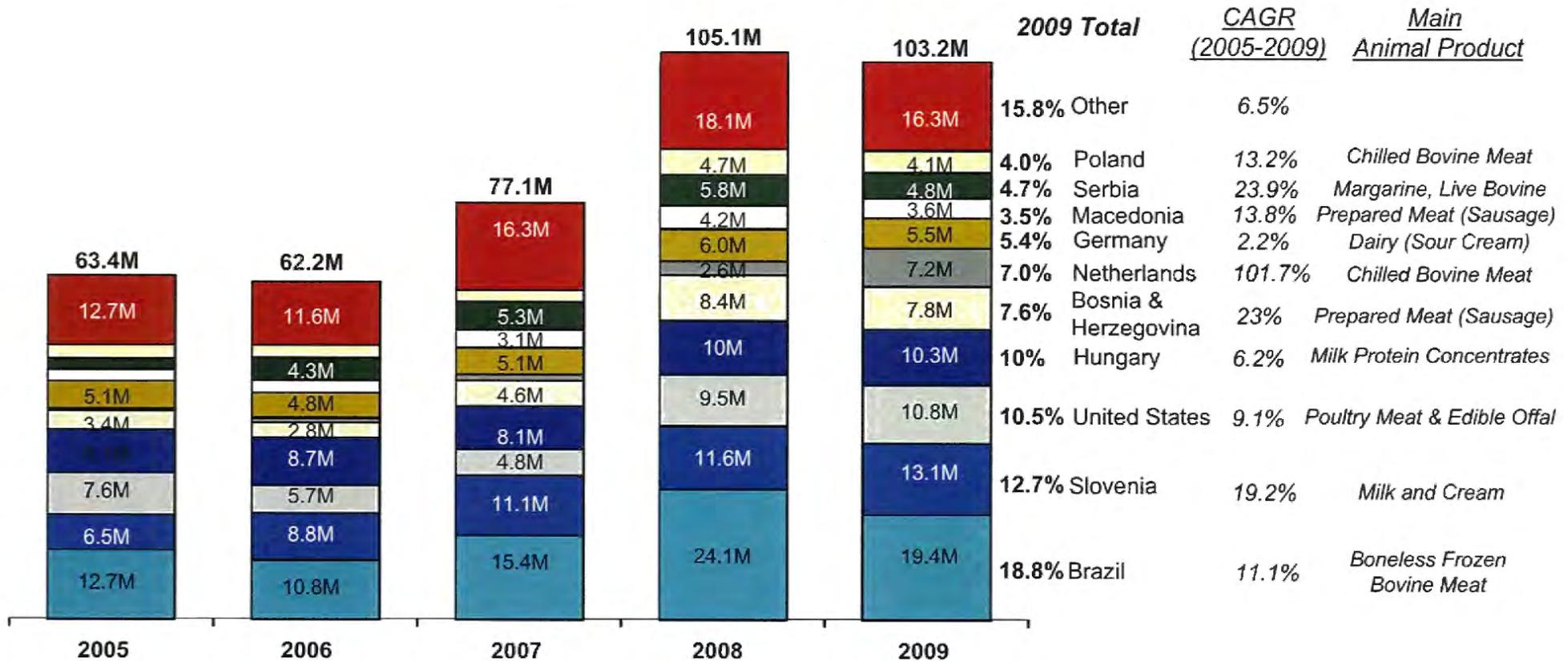
Note: Animal product import value determined by looking at HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010690, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105

Note: "Other" category includes: fisheries; products of animal origin; flours, meals and pellets of meat and fish; raw hides and skins; fur skins; wool

Source: Customs Office of Kosovo

# Over half of the imported animal products come from Brazil, Slovenia, the United States, and Hungary

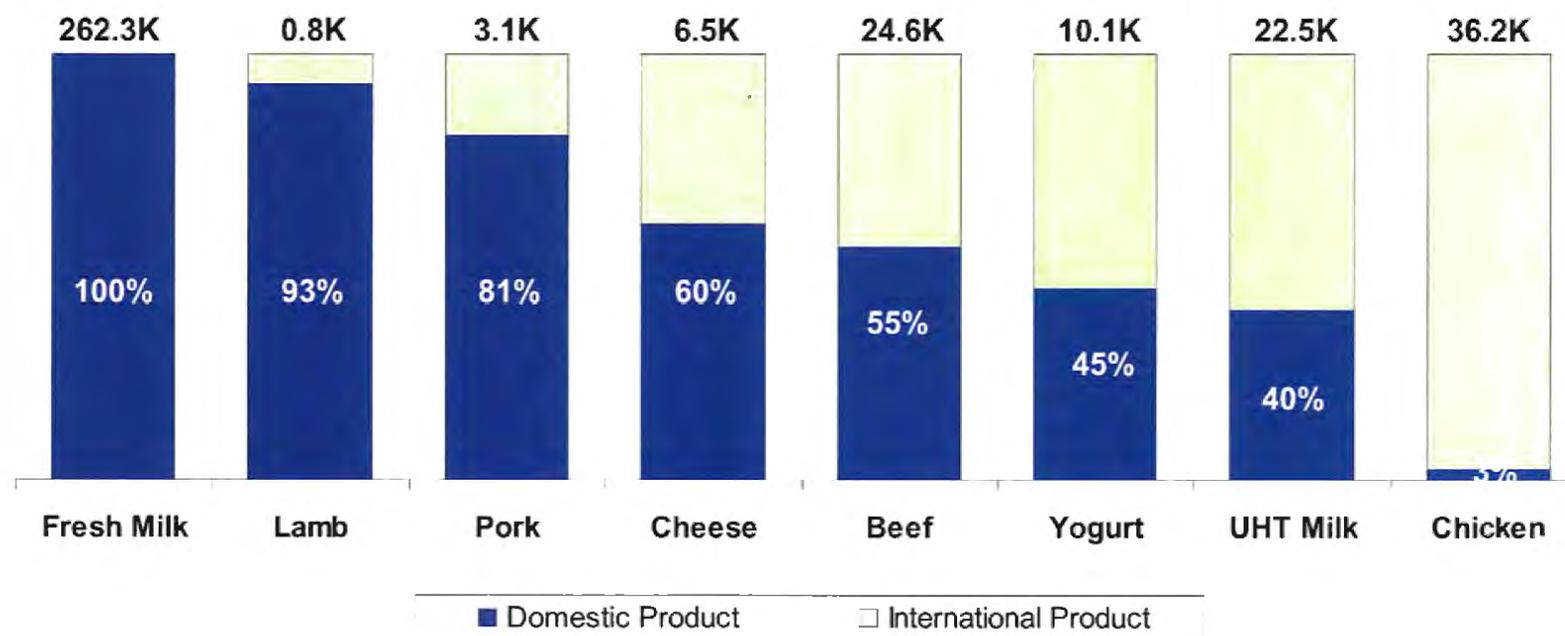
Relative Share of Importers of Animal Products into Kosovo (2005-2009, in Millions, Euro)



Note: "Other" includes : Argentina, Bulgaria, Canada, Croatia, Italy, Albania, Australia, Austria, Belgium, China, Czech Republic, Denmark, France, Greece, India and 46 other countries  
 Note: Value of animal products determined by looking at HS chapters 2-4, 16, 41 and HS codes 0101-0105, 010619, 010690, 010600, 0502-0511, 1501-1506, 151610, 1517, 1518, 230110, 230120, 4301, 4302, 430390, 5101-5105. Total numbers may not add to sum of country totals due to rounding  
 Source: Customs Office of Kosovo

# Kosovo consumes mostly domestic products for fresh milk, lamb, pork, cheese and beef but imports most of its UHT milk and almost all of its chicken

Total Consumption in Kosovo  
(2009, in Thousands, Ton)

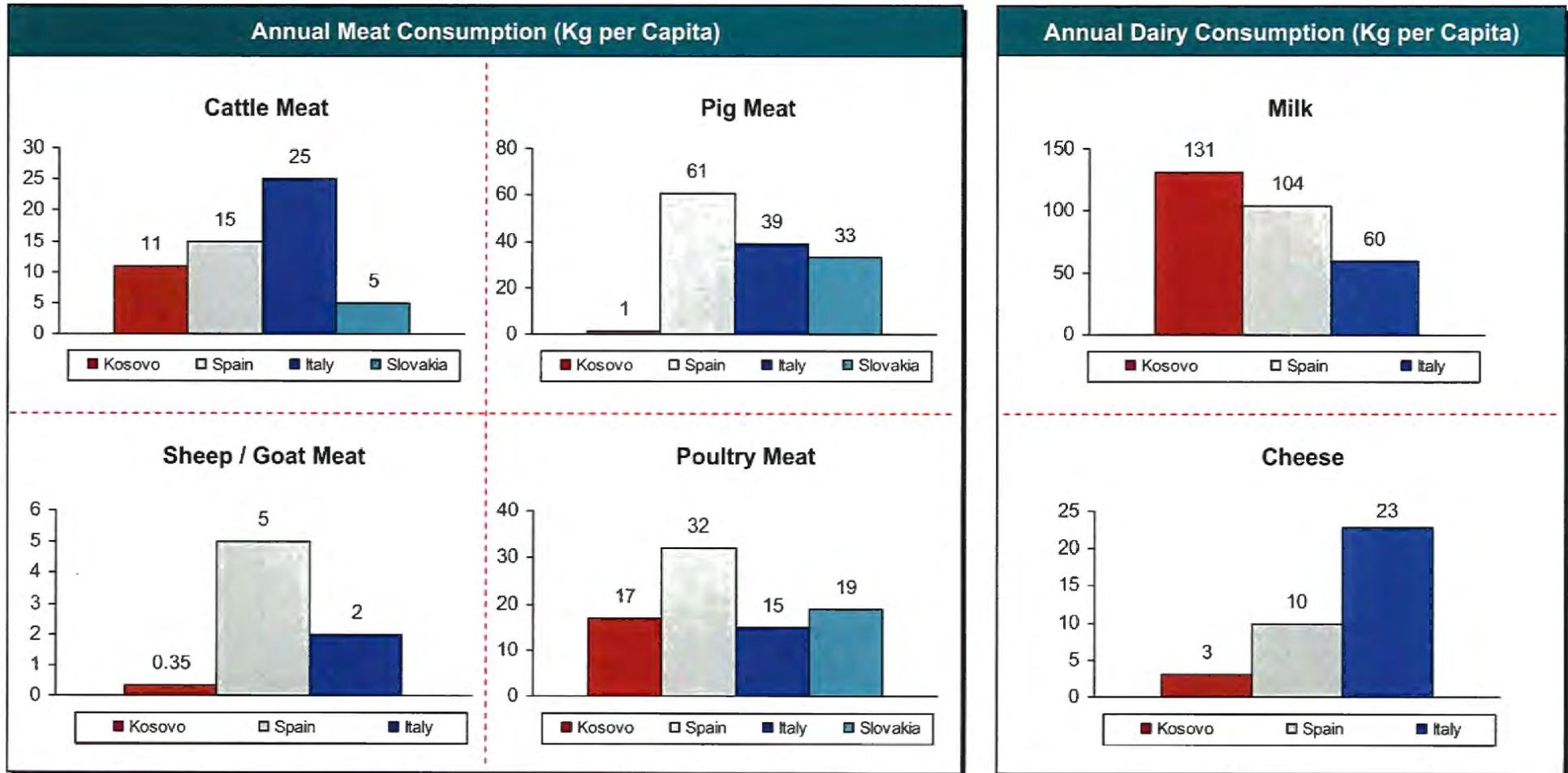


Note: The following HS codes were used to compile UHT imports in 2009: 40110, 40120, 40130, 40210, 40221, 40229, 40291; Imported cheese HS codes are 40610, 40620, 40630, 40640, 40690; Imported yogurt HS code is 40310; Imported beef HS Codes are 020110, 020120, 020220, 020230; Imported HS codes for pork are 020311, 020319, 020322, 020329; Imported HS codes for lamb are 020422, 020442, 020443; Imported HS codes for chicken are 020711, 020712, 020713, 020714;

Source: Customs Office of Kosovo, ETC Supermarket, MAFRD

# With the exception of milk and poultry meat, Kosovo's per capita consumption of goods is lower compared to benchmark countries

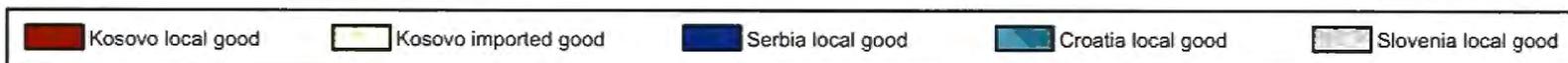
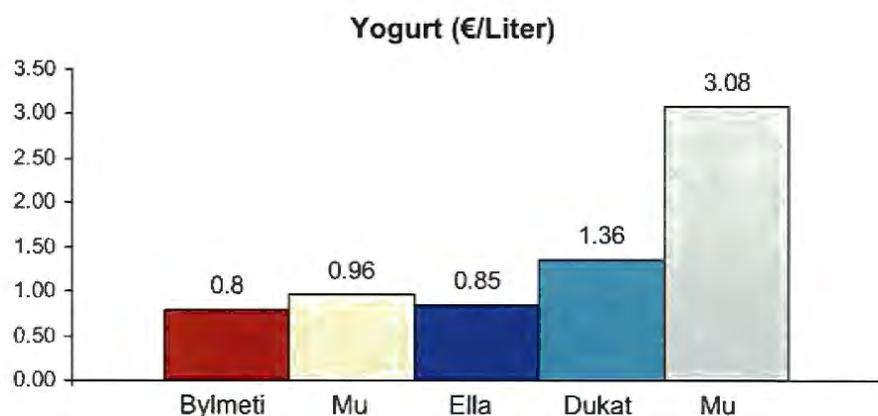
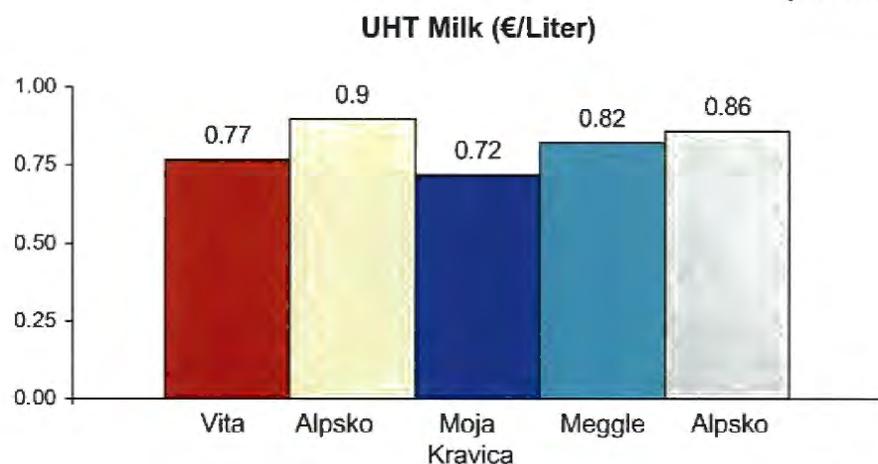
Per Capita Consumption: Kosovo vs. Benchmark Countries  
(2009, in Kg Per Capita Per Year)



Source: Customs Office of Kosovo, Eurostat, ETC Supermarket, IAFRC, EAH 4/15/18

**Although locally produced UHT milk and yogurt cost less than imported brands, consumers choose to buy more of imported brands because of longer shelf life and perception of higher quality**

**Kosovo Market Price Comparison for Dairy Products**  
(2009, Euro)

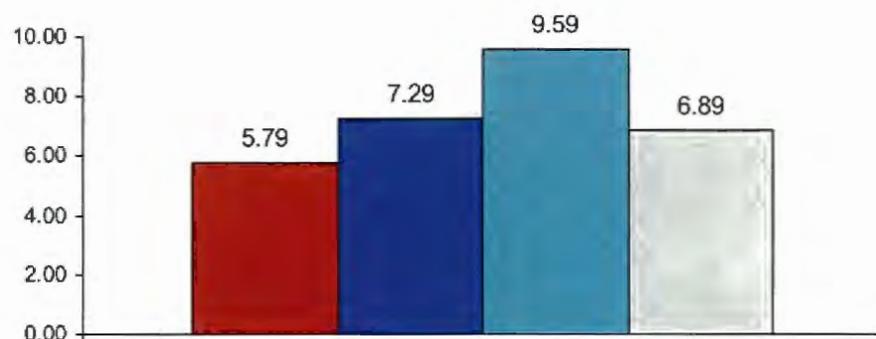


Comments
<p>▶ Although the price of locally-produced UHT milk and yogurt are comparatively lower than imported brands from regional countries, consumption of imported brands versus local brands is 40% and 45% respectively. The main reasons behind this include:</p> <ul style="list-style-type: none"> <li>– Imported brands tend to have a longer shelf life, while domestic goods spoil at a faster rate. Consumers can keep the products for a longer time period</li> <li>– There is a perception among consumers that imported brands from countries with a higher proportion of HACCP-certified production is safer and higher quality. As a result, consumers are more sensitive to quality than price</li> </ul>

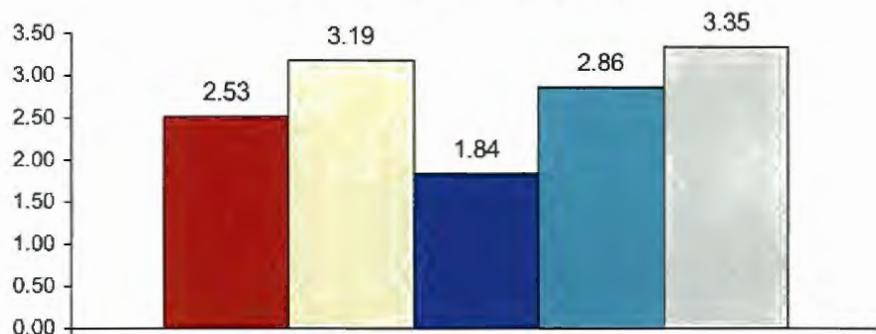
## Fresh beef and chicken products are priced lower than local meat products in regional countries; this may be attributed to the illegal imports of animals, which drives down prices

Kosovo Market Price Comparison for Fresh Meat Products  
(2009, Euro)

Beef (Fresh Schnitzel Cut, €/kg)



Whole Fresh Chicken (€/kg)



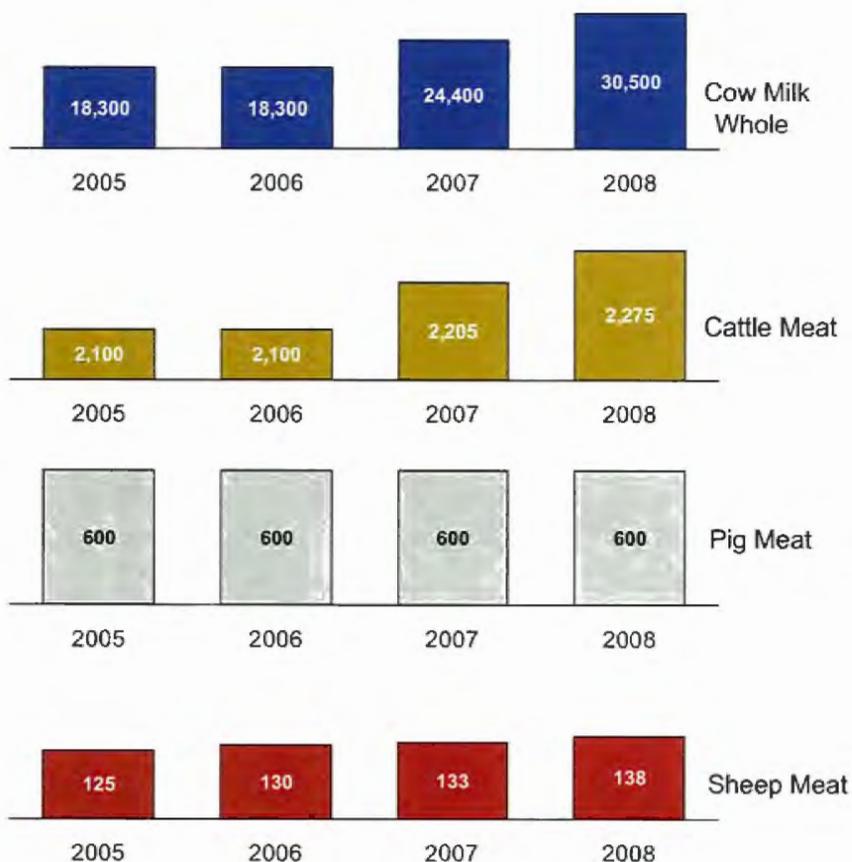
Kosovo local good
  Kosovo imported good
  Serbia local good
  Croatia local good
  Slovenia local good

### Comments

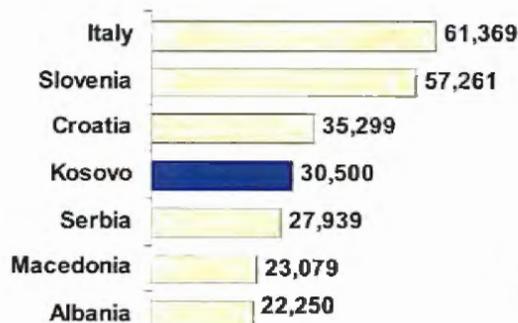
- ▶ Fresh beef and chicken products are cheaper than imported brands in Kosovo as well as local meat products sold in regional countries. This could be attributed to a couple reasons:
  - Illegal transit of frozen meat sold as Kosovo-produced fresh meat drives down the price of local fresh meat products. Currently, Brazilian beef is smuggled via Kosovo, while chicken is smuggled from the US, opening access to local markets
  - Live animals that are illegally smuggled into Kosovo are eventually used to develop fresh meat products. As smugglers do not pay taxes on these goods, prices for the live animals and by-products are lower on the local market

# Yields for by-products have increased for milk, cattle and sheep meat, but still rank lower than international benchmarks

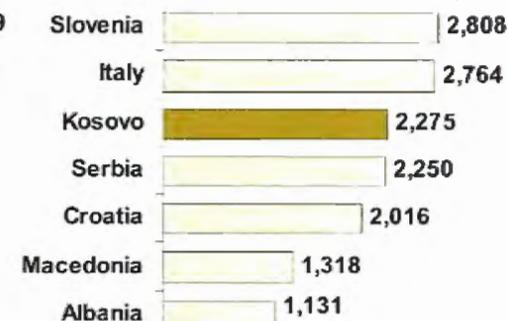
Kosovo Yield (2008, Hectogram per Animal)



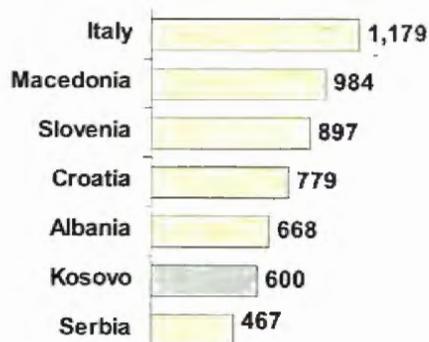
Cow Milk, Whole (2008, Hectogram per Animal)



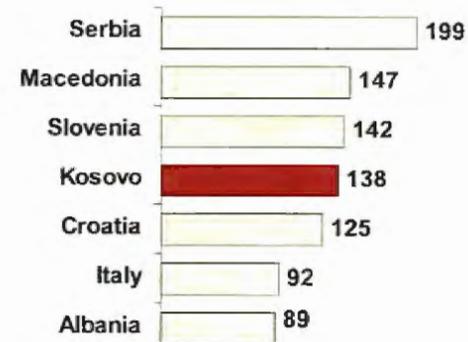
Cattle Meat (2008, Hectogram per Animal)



Pig Meat (2008, Hectogram per Animal)



Sheep Meat (2008, Hectogram per Animal)

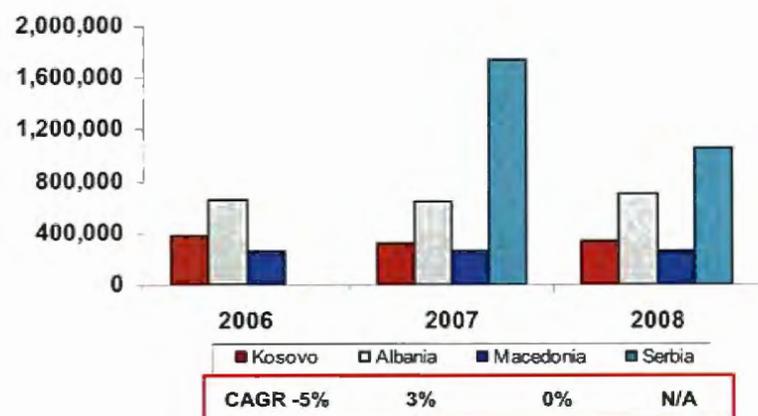


Note: Carcass weight was used to calculate yield for cattle meat, pig meat, and sheep meat  
 Source: FAOSTAT, BAH Analysis

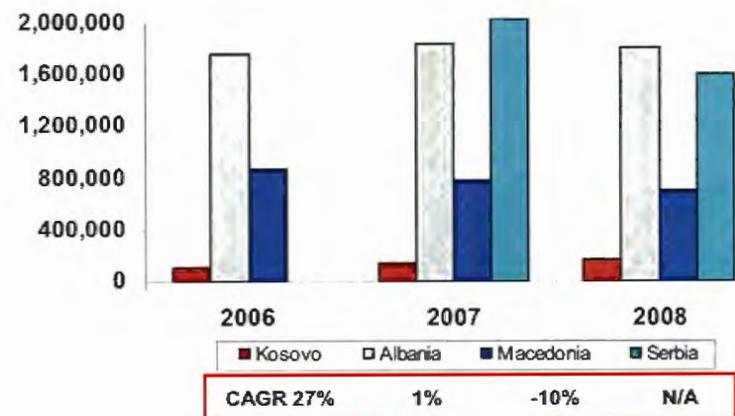
# Over the past few years, animal populations in Kosovo have declined for bovine animals and chickens, but have increased for sheep and goats

## Overview of Animal Population (2006-2008, Total Head Count)

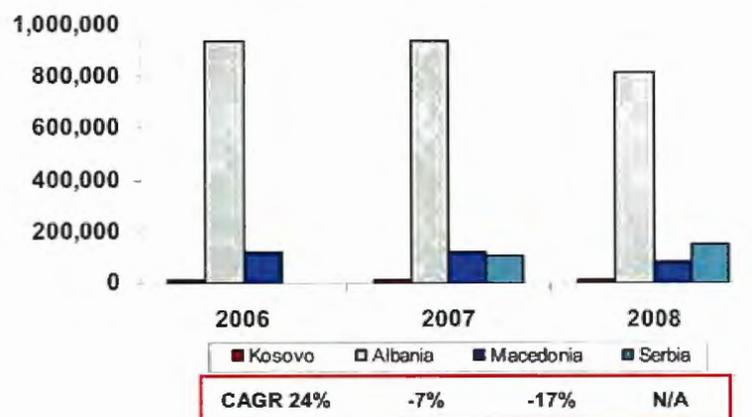
### 1 Bovine Animals



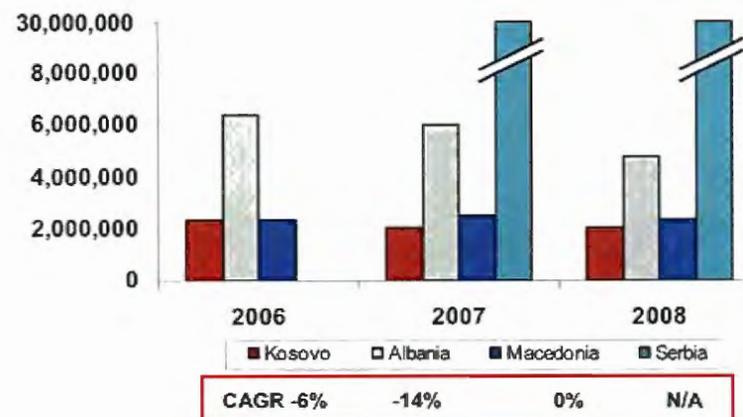
### 2 Sheep



### 3 Goats



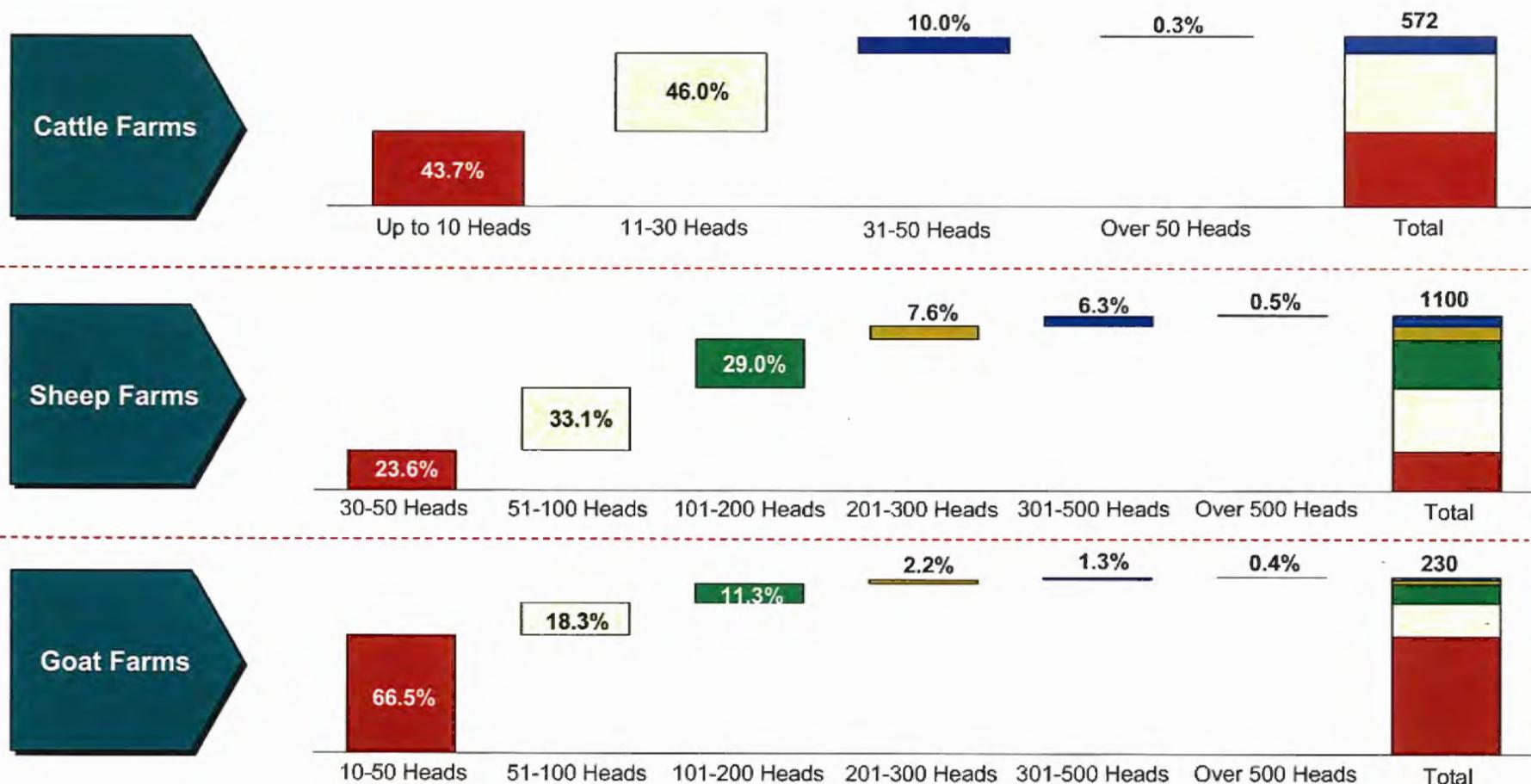
### 4 Chicken



Note: CAGR is calculated from 2006-2008; 2006 data for Serbia is not available; Source: SOK, OIE Website

The majority of cattle and goat farms have less than 30 and 50 heads respectively, while most sheep farms range from 30-200 heads

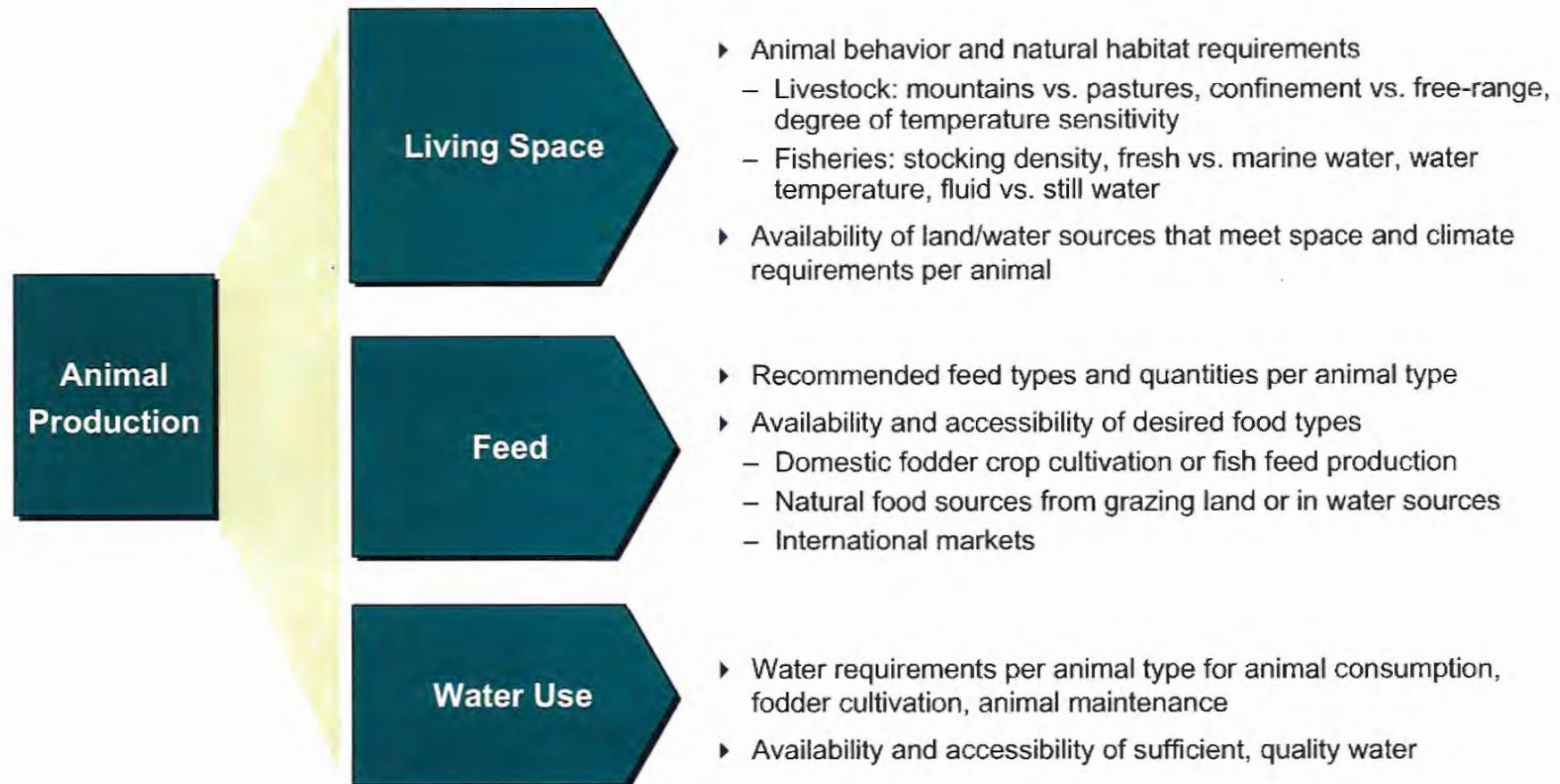
Number of Farms by Animal Type  
(2009, Animal Head Count)



Source: MAFRD Livestock Department, 2009

# The ability to produce animals is driven by three main factors: living space, feed, and water use requirements

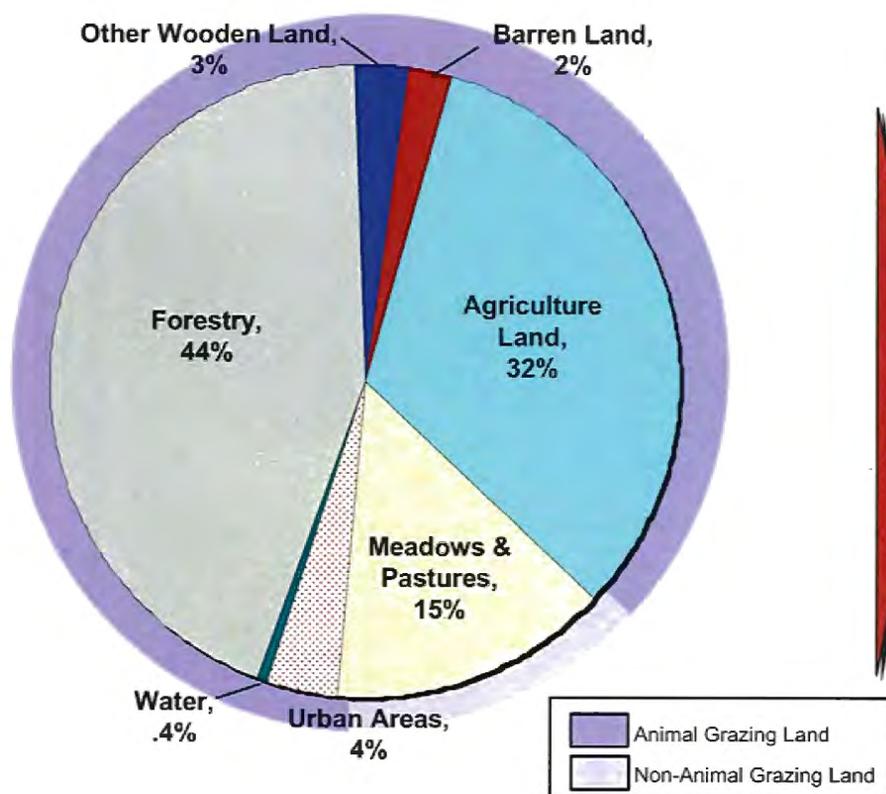
## Animal Production Drivers for Livestock and Fisheries



Currently 153,200 hectares of land, or 15% of total land in Kosovo, are available for raising livestock

### Proportion of Land Types and Total Grazing Land by Municipality (2006)

Proportion of Land Types in Kosovo by Hectares (2006)



Total Grazing Land by Municipality (2006)

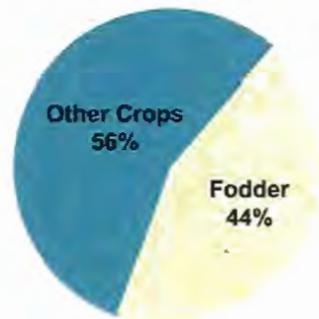
Municipality	Hectares	Municipality	Hectares
Deçan	5148	Rahavec	4132
Gjakovë	7335	Pejë	9499
Drenas	2521	Podujevë	6838
Gjilan	5344	Prishtinë	5785
Dragash	15538	Prizren	13104
Istog	5547	Skenderaj	2995
Kaçanik	3729	Shtime	963
Klinë	1939	Shtërpcë	7109
F.Kosovë	791	Therandë	4439
Kamenicë	8611	Ferizaj	1904
Mitrovicë	10091	Viti	2712
Leposaviq	11482	Vushtrri	3327
Lipjan	3720	Zubin Potok	2862
Artanë	2123	Zveçan	0
Obiliq	1079	Malishevë	2520

Note: Proportion of Agriculture land is based on ITC Forest Agency statistics  
Source: ITC Forestry Agency, MAFRD

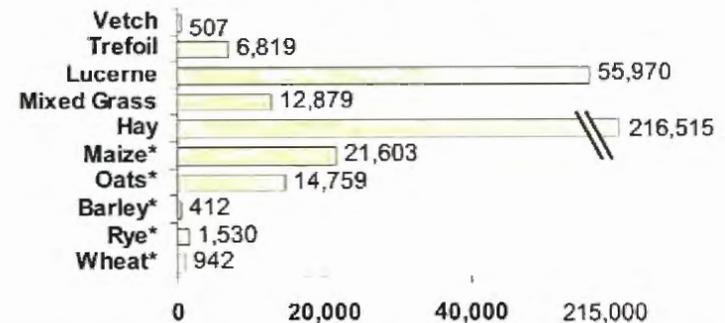
# In addition, 44% of agriculture land is used for fodder production, with an average yield of 3.2 tons/hectare

Proportion of Fodder Cultivation and Area, Production and Yield by Fodder Crop (2006)

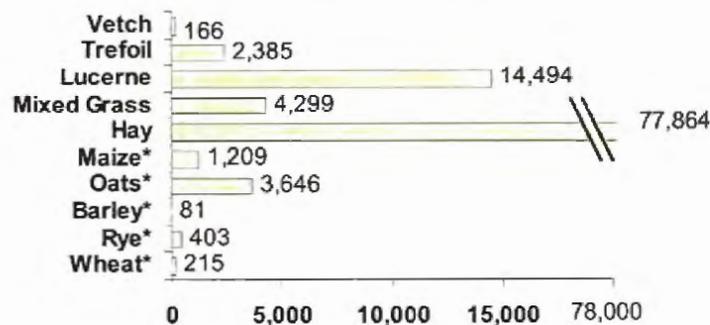
Proportion of Fodder Cultivation (2008)



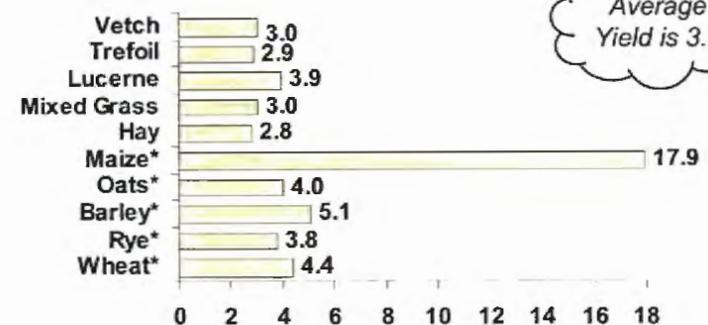
Total Production Harvested by Fodder Crop (2008, Tons)



Area Cultivated by Fodder Crop (2008, Hectares)



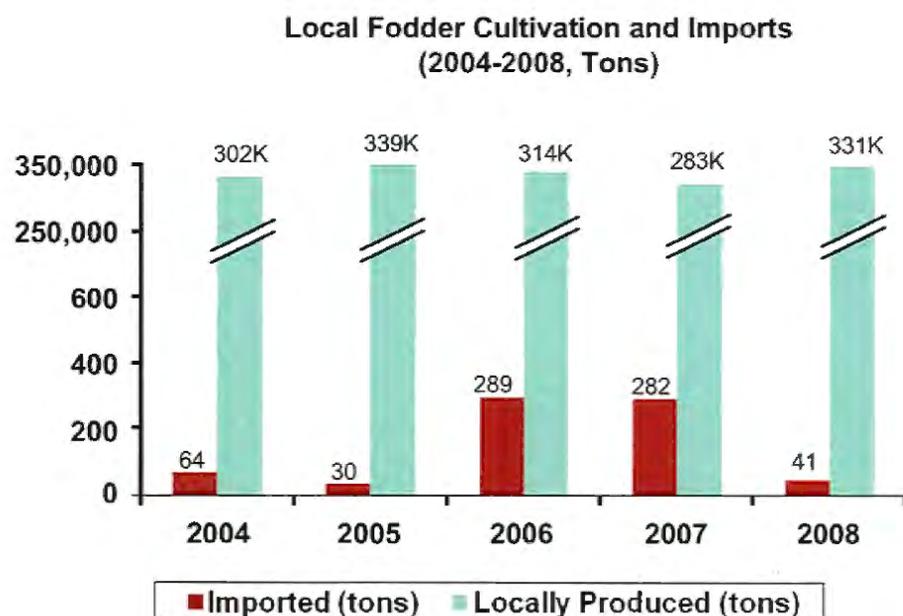
Total Yield by Fodder Crop (2008, Tons/Hectare)



Note: Total arable land to grow fodder crops is defined by the total hectares available for two land types; 1) meadows and 2) arable land and kitchen gardens  
 Note: In 2008, 40.8 tons of fodder (HS121490) was imported to Kosovo. Thus almost 100% of animal fodder consumption comes from local fodder production. \* Harvested green  
 Source: SOK, Customs Office of Kosovo

## Almost 100% of fodder consumption is of locally produced fodder crops, with only 41 out of 332K tons being imported in 2008

Local Cultivation and Import of Fodder  
(2004-2008, Tons)



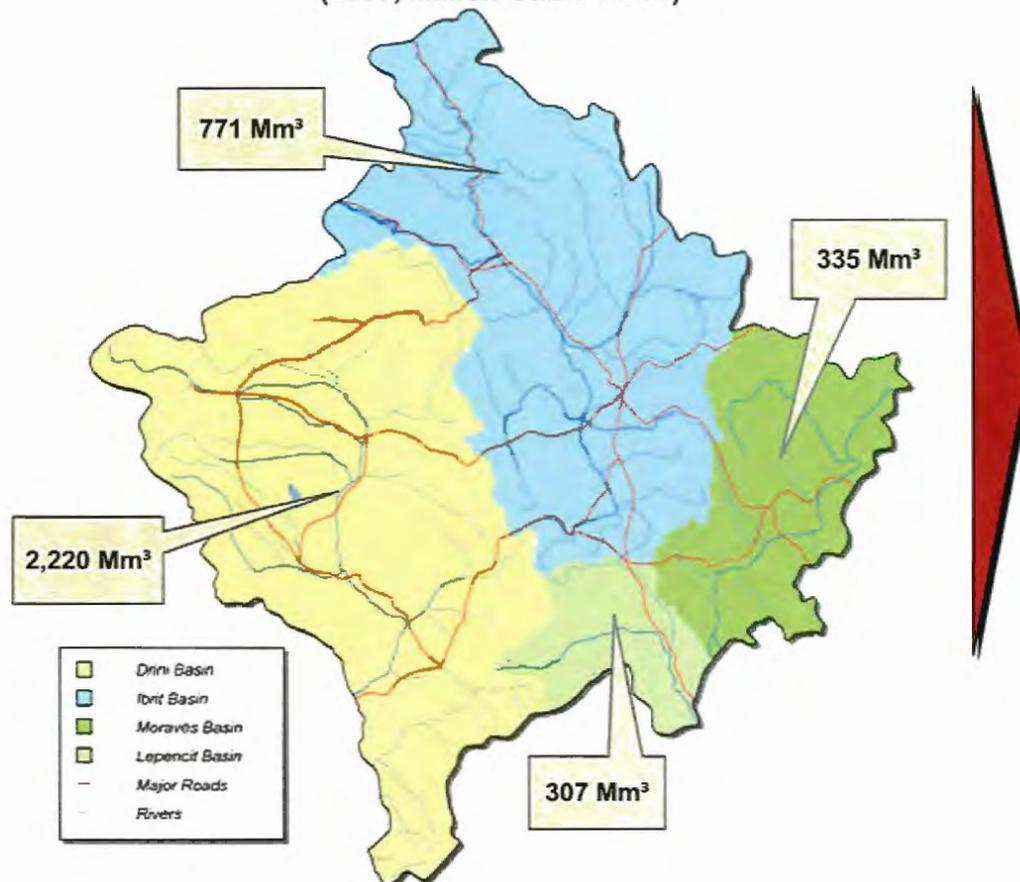
Proportion of Domestic and Imported Fodder  
(2004-2008, Tons)

Year	Total Fodder Available for Consumption	% Domestic	% Imported
2004	302,241	99.98%	0.02%
2005	339,730	99.99%	0.01%
2006	314,387	99.91%	0.09%
2007	283,437	99.90%	0.10%
2008	331,977	99.99%	0.01%

# Kosovo has over 3,600 Mm<sup>3</sup> water available in its river basins and consumes about 30% or 1,105 Mm<sup>3</sup> annually

## River Basin Water Available and Daily Water Consumption (2008, Mm<sup>3</sup>, Liters/Capita/Day)

Total River Basin Annual Flow in Kosovo  
(2008, Million Cubic Meter)



Daily Water Consumption per Capita  
(2008, Liters/Capita/Day)

Regional Water Companies	Daily per Capita Consumption (l/c/d)	Annual Water Consumed (Mm <sup>3</sup> )
Pristina	250	1,105
Hidroregioni Jugor	188	
Hidroдини	523	
Mitrovica	400	
Radoniqi	295	
Hidromorava	191	
Bifurkiacioni	137	
<b>Total</b>	<b>1,984</b>	

Annual Water Available:  
3,613 Mm<sup>3</sup>

Annual Water Consumed:  
1,105 Mm<sup>3</sup>

Note: Consumption numbers include 50% water loss through leakage  
Source: World Bank Water Report "Kosovo - Towards a Water Strategic Action Plan", November 2009

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
  - Quantitative Baseline of Kosovo's Animal Product Sector
  - Overview of Constraints and Opportunities
  - International Best Practices Assessment
- ▶ Recommendations to Improve Kosovo's Animal Product Sector

# The previous horticulture strategy identified weaknesses in the agriculture sector along six constraint areas

## Overview of Constraints

- 1 Untapped Potential of Small Farmers**
  - ▶ **Coordination among Small Farmers:** Coordination of small farmers is improving but still nascent.
  - ▶ **Extension Services:** Extension services do not exist using public-, private- or PPP models.
  - ▶ **Lack of Financing for Small Farmers:** Credit for small farmers not readily available; limited availability of non-bank products.
  - ▶ **Mechanization:** Despite high rate of tractor use and existence of machinery rings, rates of mechanization for planting, etc. is low and service technicians are unavailable.
- 2 Lack of Demand-Driven Focus**
  - ▶ **Market Intelligence:** Little market intelligence on end customer characteristics and requirements.
  - ▶ **Distribution:** Lack of collection centers and poor farmer-distributor contracting impede reliability and flexibility of distribution.
  - ▶ **Promotion & Branding:** Export promotion is fragmented and not focused on key markets and crops. Weak branding.
  - ▶ **Pricing:** Poor understanding of wholesale pricing and lack of storage capacity to take advantage of seasonally high prices.
- 3 Infrastructure Capacity Issues**
  - ▶ **Development of Irrigation Networks:** Incomplete coverage of irrigation networks in Kosovo-Plains area. Domination of public sector in irrigation and use of fat rate pricing that does not cover costs or permit maintenance of system.
  - ▶ **Building greenhouse capacity:** Improvements in quality and area of greenhouses is warranted to extend growing season, substitute imports and develop exports to Northern Europe
- 4 Transportation Disadvantages**
  - ▶ **Land & Land-Sea Delivery:** Disadvantages in land and land-sea routes due to incomplete road network and inability to transit Serbia.
  - ▶ **Air Transport and Shipping:** No presence of dedicated air cargo freighters for perishables. No experience of agriculture exporters with air delivery.
  - ▶ **Export and Cold Chain:** Gaps in cold chain for fresh, chilled and frozen products. Limited storage.
- 5 Inadequate Agriculture Regulations**
  - ▶ **Food Safety & Quality:** Lack of government food safety infrastructure. Lack of recognition of private labs for food quality testing.
  - ▶ **Regulation of Inputs:** Poor regulation for seed, fertilizer and pesticide quality and usage.
  - ▶ **Environment:** Lack of regulation to protect arable land and quality and availability of natural resources.
- 6 Trade Access Issues**
  - ▶ **Enforcement of Trade Agreements:** Enforcement issues exist with CEFTA and EU GSP. Government trade facilitation capacity insufficient for existing agreements and for WTO accession.
  - ▶ **Responses to Subsidies:** Meat and dairy sectors vulnerable to subsidized imports. Some disadvantages in export markets.
  - ▶ **Recognition of Sovereignty:** Lack of recognition of Kosovo sovereignty results in transit and trade restrictions especially with Serbia and BiH. There are recognition-related risks with 12 other countries.

# These areas also apply to animal products, which we examined to distill additional findings

## Comparable Constraints for Animal Products

	Overview	Impact
Leveraging Small Farmers Potential	<ul style="list-style-type: none"> <li>▶ <b>Poor Use of Feedstuff.</b> Smallholder farmers lack the knowledge to produce high quality silage, assess quality feedstuffs, develop proper mixes of rations using ingredients, and use modern techniques for feedstuff application</li> <li>▶ <b>Lack of Resources to Mechanize Production:</b> Dairy farmers lack the resources to purchase modern collection and cooling systems and other infrastructure critical for supplying quality milk to milk collection centers and processors</li> </ul>	<ul style="list-style-type: none"> <li>▶ Decreased ability to raise quality animals for by-product development .</li> <li>▶ Diminished competitiveness of goods on the local market; inability to meet safety standards to export products</li> </ul>
Demand-Driven Focus	<ul style="list-style-type: none"> <li>▶ <b>Little Cohesion Among Stakeholders in the Value Chain:</b> Broken linkages among stakeholders (farmers, slaughterhouses, etc.) to provide goods according to required demand levels</li> <li>▶ <b>Weak Price Discovery &amp; Reporting:</b> Farmers lack knowledge on the prices according to quality levels; milk collection centers pay fees that are not based on milk quality, leaving little incentive for farmers to develop quality goods</li> </ul>	<ul style="list-style-type: none"> <li>▶ Leads to weak decision-making and loss of goods if supply exceeds quantity demanded</li> <li>▶ Lack of transparency in product development among farmers and processors</li> </ul>
Infrastructure Capacity Building	<ul style="list-style-type: none"> <li>▶ <b>Inadequate Processing Facilities:</b> Lack of modern and cost-efficient slaughter and processing systems that meet international food safety guidelines</li> </ul>	<ul style="list-style-type: none"> <li>▶ Decreased local consumption as individuals may opt for better quality goods</li> <li>▶ Inability to access export markets</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>▶ <b>Costly Land Transport and Shipping:</b> Because of 1) the small quantities produced and 2) absences of consolidated shipments, full capacity of trucks are not used for shipments of animal-products</li> <li>▶ <b>Lack of Integrated Cold Chain Distribution:</b> Minimal investment in developing options for short-haul refrigerated distribution of meat and dairy products from smallholder processors to support transport of goods to retail points</li> </ul>	<ul style="list-style-type: none"> <li>▶ High transportation costs disadvantages Kosovo producers from shipping products</li> <li>▶ Lack of access to markets for producers, especially small processing facilities</li> </ul>

# These areas also apply to animal products, which we examined to distill additional findings (cont'd)

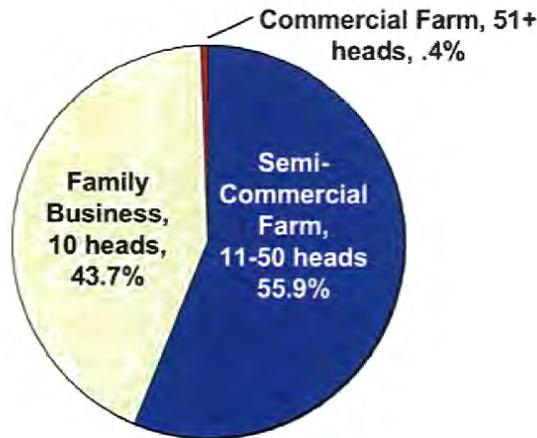
## Comparable Constraints for Animal Products (cont'd)

	Overview	Impact
Government Agriculture Regulations	<ul style="list-style-type: none"> <li>▶ <b>Ineffective Regulation of Inputs:</b> Quality of feedstuff is not actively monitored through testing and “guarantee analysis” of inputs</li> <li>▶ <b>Weak Compliance and Oversight of Food Safety Standards:</b> Little regulatory compliance with necessary safety standards, including HACCP, IFS, ISO; existing inspection systems are weak and insufficient to reach minimum standards</li> </ul>	<ul style="list-style-type: none"> <li>▶ Destroys quality and economic value of goods</li> <li>▶ Diminishes ability to enter new markets and drive exports</li> <li>▶ Decreases competitiveness of goods on local market</li> </ul>
Trade Access	<ul style="list-style-type: none"> <li>▶ <b>Prohibitive Subsidies for Animal Products:</b> Neighboring countries tend to place greater subsidies on animal products, such as meat and dairy</li> <li>▶ <b>Disproportionate Tariff Structure:</b> Because of proportionately higher tariffs to import raw ingredients of feedstuff (16% VAT) rather than final form products, farmers become more reliant on imports of finished goods</li> </ul>	<ul style="list-style-type: none"> <li>▶ Drives down consumption, prices and competitiveness of Kosovo goods on the local market</li> <li>▶ Over-reliance on imported finished products makes farmers susceptible to price fluctuations on international market</li> </ul>

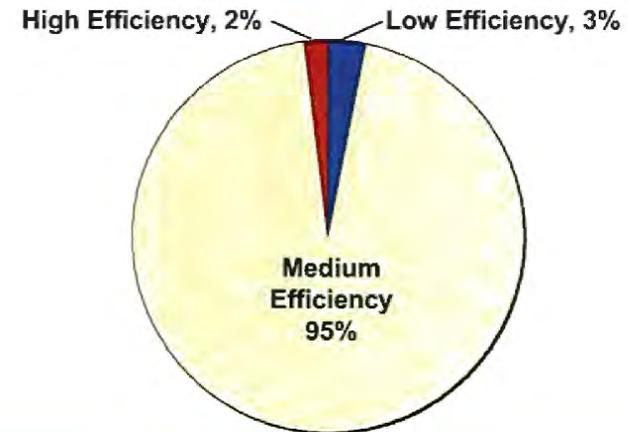
# The majority of dairy farmers use outdated and less efficient milking techniques for production

## Overview of Dairy Farm Types and Efficiency Levels in Kosovo

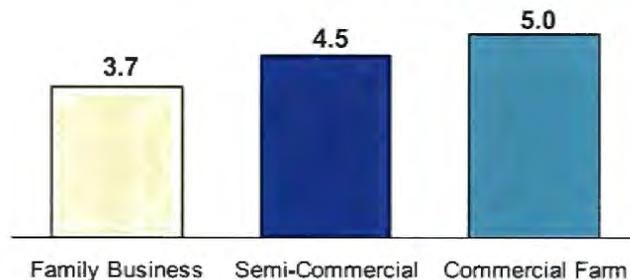
Breakdown of Dairy Farm Types in Kosovo  
(%, 2009)



Breakdown of Dairy Farms According to Efficiency Level  
of Milk Production (%, 2009)



Milk Production by Dairy Farm Type  
(liters / lactation, 2009)

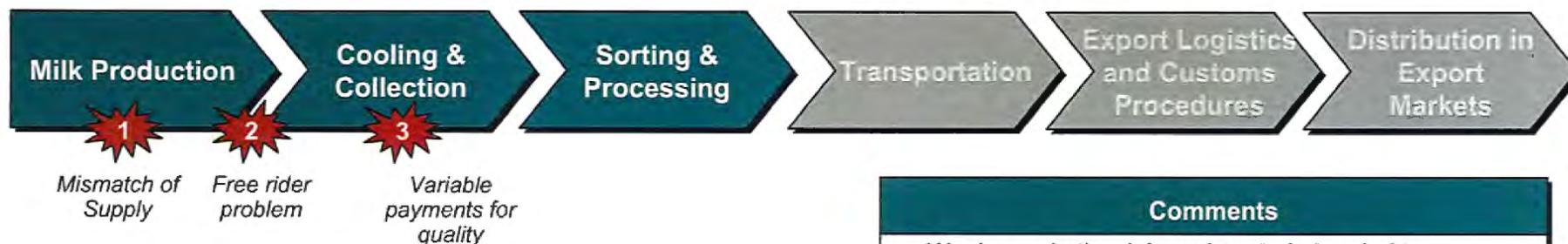


### Comments

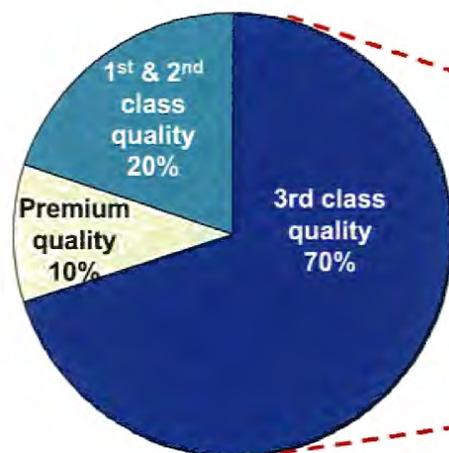
- ▶ The majority of dairy farms in Kosovo are using less efficient techniques for milking
  - Approximately 3% of farms use hand milking techniques with no automation; 95% use a vacuum system; and, only 2% have established technologically-advanced parlor systems
- ▶ The cost of establishing a modern dairy farm, with parlor and cooling systems, costs approximately €15,000-€20,000
  - The farm would require 25-30 dairy cows to justify the cost of the investment and reach the break even point

# Broken linkages among stakeholders in the dairy value chain have led to higher proportions of low-quality milk production

## Weaknesses in the Dairy Value Chain in Kosovo



Proportion of Milk Quality Supplied to Processors  
(%, 2010)



Milk Quality Type	Bonus to Producers
Premium	+15%
1st Class	0%
2nd Class	-5%
3rd Class	-20%

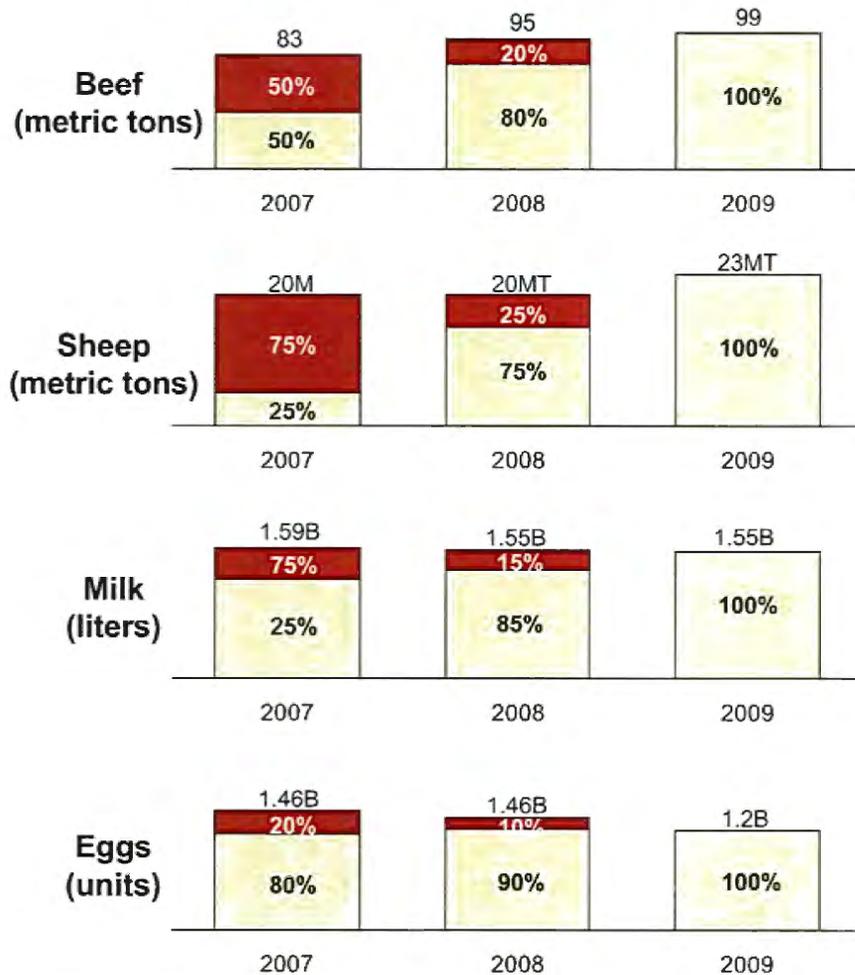
### Comments

- Weakness in the dairy value chain has led to proportionately higher production of low quality milk:
  - Mismatch of Supply to Demand:** During certain times of the year, farmers produce excess supply (summer) or insufficient levels (winter). Because many producers do not have automated cooling system to store excess supply, milk spoils and the quality decreases
  - Free Rider Problem:** As most milk is often provided by smallholders who produce low quantities, milk is often pooled and bonuses are provided according to samples based on an aggregated supply. This encourages a free rider problem for producers and disincentivizes them from developing higher quality milk
  - Variable Payments for Quality:** Milk collection centers lack the capacity to collect samples on a regular basis. As a result, they pay fees for milk irrespective of the quality of milk supplied

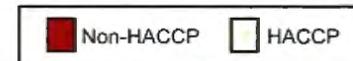
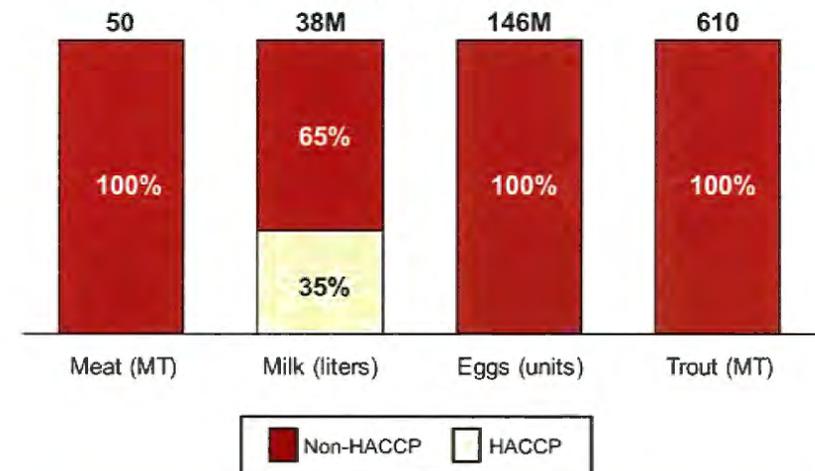
# Only 35% of milk is produced in HACCP certified plants in Kosovo, which is significantly lower than neighboring countries such as Serbia

## HACCP Certified Production in Kosovo vs. Benchmark

### Proportion of HACCP Certified Export Production in Serbia



### Proportion of HACCP Certified Production in Kosovo (2009)



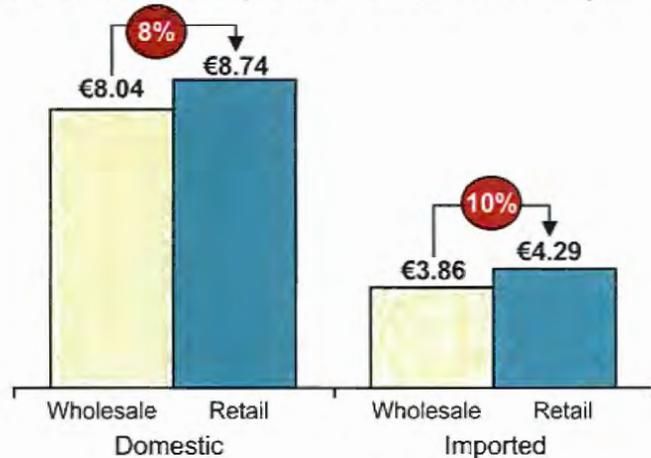
### Comments

- ▶ The large majority of meat, milk, egg and trout are not produced by plants that are HACCP certified
  - Lack of certification handicaps the country from entering many international markets, such as the EU
  - In addition, local consumption may decrease as consumers perceive the products to be lower quality compared to goods from countries that maintain a higher proportion of HACCP-certified production

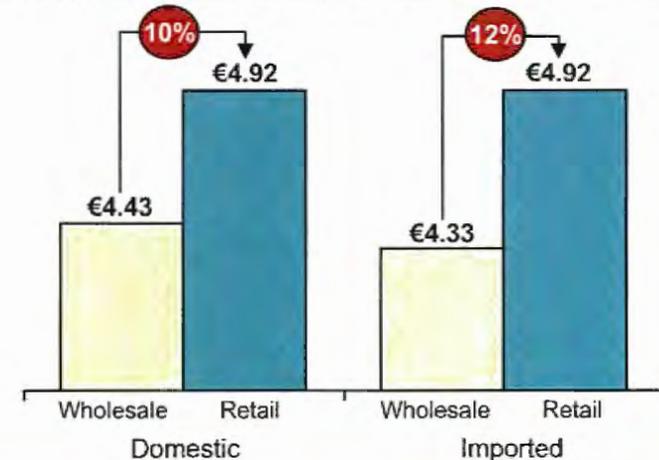
# Some importers' goods are more attractive on the local market because of lower retail prices and higher margins for supermarkets

## Retail Prices and Margins for Domestic vs. Imported Goods in Kosovo

Domestic vs. Imported Prices- Cheese (€, 2010)



Domestic vs. Imported Prices- Trout (€, 2010)



Domestic vs. Imported Prices- Yogurt (€, 2010)



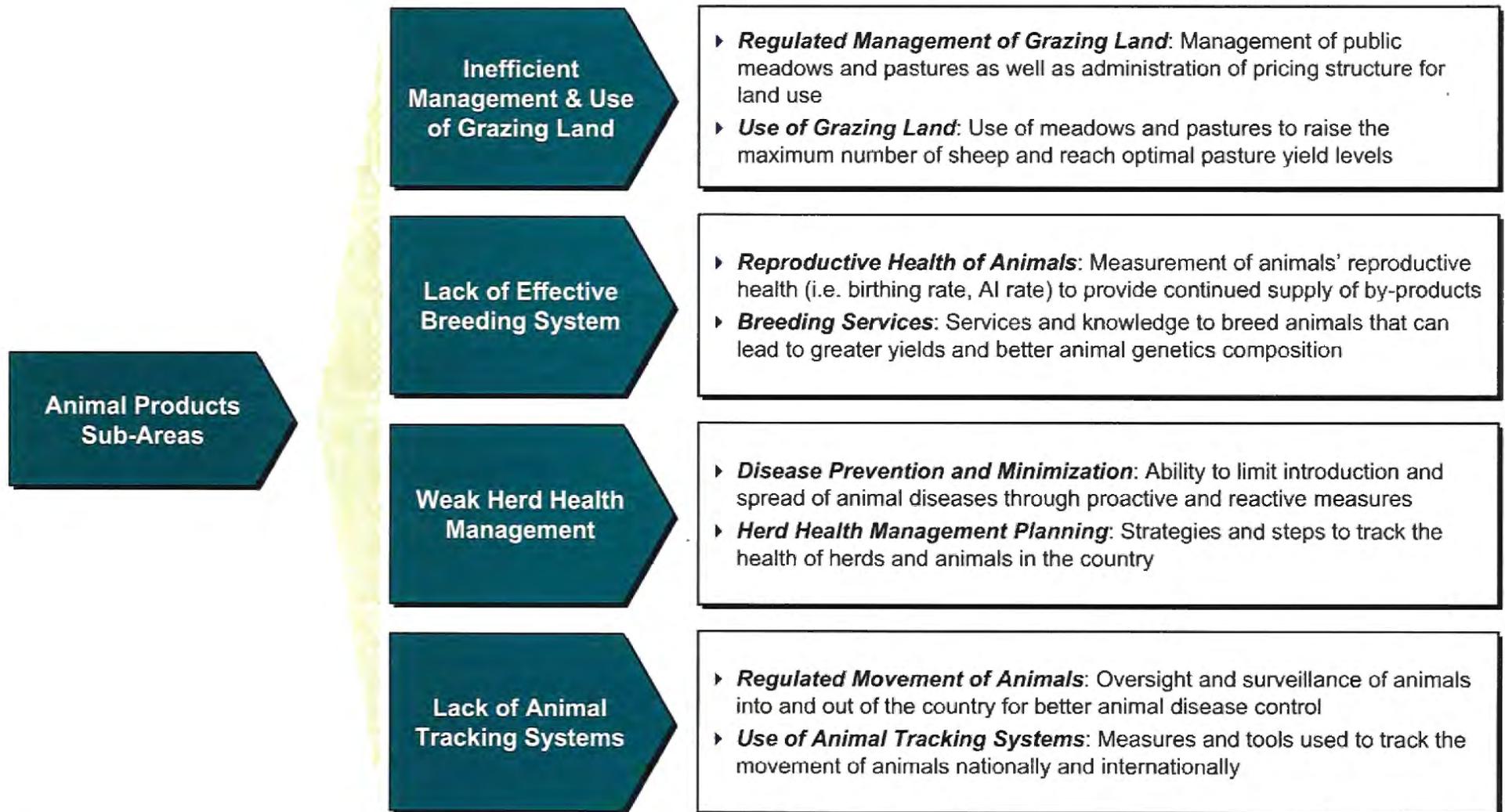
### Comments

- ▶ Prices of imported commodities tend to be more attractive for both consumers and supermarkets because of the combination of lower prices and higher margins
  - For some commodities, such as cheese, the wholesale and retail price for imported goods are lower than domestic goods; in addition, margins are higher for the retailer
  - While some imported commodities, such as yogurt, have a slighter higher retail price, local supermarkets provide higher margins because of the longer shelf life of products compared to local goods
  - In some cases, such as fish, the retail price for local and domestic goods may be the same, but supermarkets receive higher margins, thus incentivizing stocking

Note: White cheese 2kg package, local brand: Rugova, imported brand: Buda cheese from Hungary. Yogurt 1 liter package 2.8%-3.2% fat, local brand: Bylmeti, imported brand: Mu from Slovenia: vacuum-packed trout, local brand Istog: imported frozen trout: Norfish from Bosnia: Source: ETC: BAH Analysis

# In addition, we examined four additional constraints that are unique to animal products

## Overview of Additional Constraints for Animal Products



# For six months of the year, many sheep farmers lease public land for grazing; however, the fee structure is not enforced on a regular basis and land ownership rights are unclear

## Management of Land for Sheep Grazing in Kosovo

Typical Grazing Patterns of Sheep in Calendar Year

	Type of Land Used	Land Rights	Type of Feed Used
Jan	Confinement		Concentrate / Hay
Feb		Owned by Farmer	
Mar			
Apr	Low Pasture Land		Grass in Fields
May		Leased by Farmer for Fee	
June			
July	High Pasture- Mountains		Grass in Mountains
Aug		No fee- free	
Sept			
Oct	Low Pasture Land		Grass in Fields
Nov		Leased by Farmer for Fee	
Dec			

### Issues with Land Management

- ▶ **Unenforced Fee Structure for Leasing:** Up until 2009, guards from the Forest Agency's six municipal offices charged fees for farmers to use land for grazing based on a cost per head (€0.22 for sheep)
  - The fees were applied on a reactive basis as guards patrolled the lands and found farmers using pastures for grazing
  - However, the fee system is not actively applied and has not been consistently enforced for more than one year
- ▶ **Unclear Land Ownership Rights:** Some pasture land, such as the area in Sharrprodhimi, has been converted to an SOE (state-owned enterprise)
  - While the land is not available to the public, approximately 22,000ha of pasture of productive land is not actively used
  - Because of the lack of use, MAFRD has started allowing farmers to use the land for grazing

# While ample grazing land exists for the public, approximately 32% is considered marginal, leaving farmers to use only the most productive land

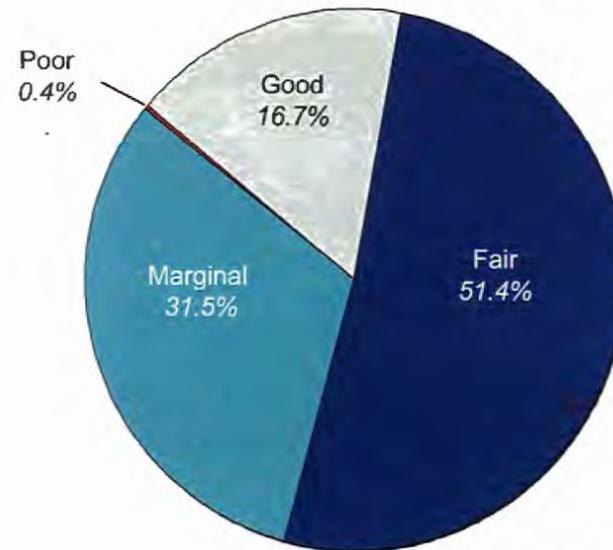
## Overview of Pasture Land Quality in Kosovo

Proportion of Public vs. Private Pasture Land in Kosovo (2009)



Total: 153,200 Ha

Breakdown of Pasture Land by Quality (2009)



Total: 153,200 Ha

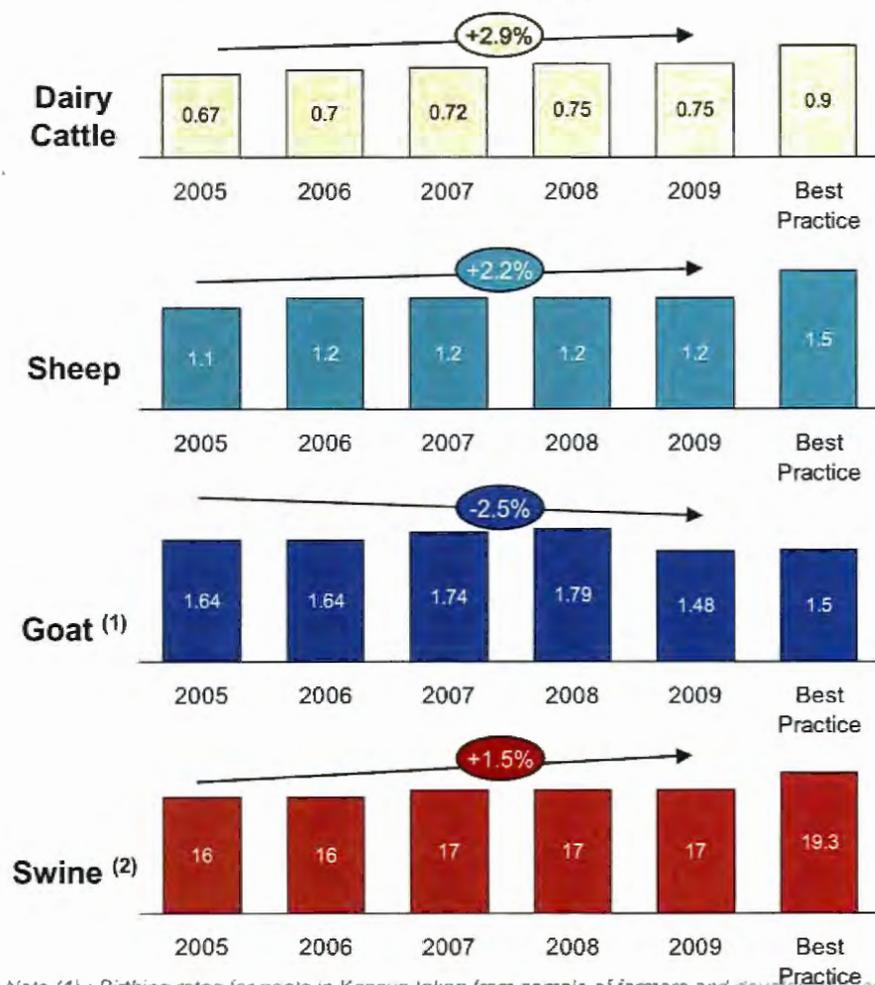
### Comments

- ▶ Although ample grazing land exists for sheep and goat farmers, a large portion of the pastures, both high and low mountainous land, is considered sub-par and not actively used
  - Sheep will selectively graze, eating the most nutritious plants and leaving the less desirable grass species. As sheep eat the plants very close to the ground, the plants don't have sufficient opportunity to re-grow. Over time the pastures become over grazed and deteriorate into a sub-optimal condition
- ▶ As a result, farmers tend to use the more productive land for grazing, causing neglect and further decline in the productivity of the sub-optimal land

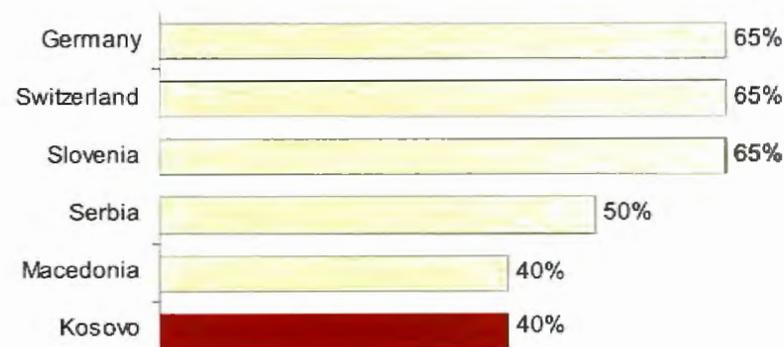
# Compared to other countries, animal populations in Kosovo multiply at a slower rate, which can be attributed to the lack of an effective breeding system

## Breeding Efficiency In Kosovo vs. Benchmark Countries

Annual Birthing Rates: Kosovo vs. Best Practice Averages (2005-2009)



Artificial Insemination Success Rates (2009)



### Comments

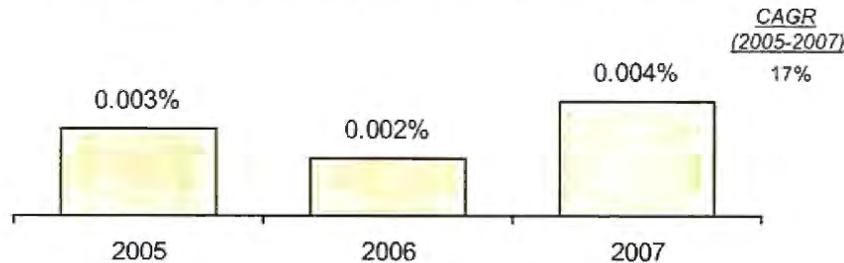
- ▶ Kosovo has lower than average artificial insemination rates and birthing rates for different types of animals, including dairy cattle, sheep and swine, indicating that reproductive health in the country is generally weak
- ▶ Weaknesses can also be attributed to the lack of breeding services. Feedback from farmers in the field indicate that they believe the services are poor
  - MARFD is planning to start licensing of AI veterinarians and technicians to monitor the level of service provided

Note (1) : Birthing rates for goats in Kosovo taken from sample of farmers and developed based on average; (2) swine based on sample of farmers; Source: KPEP Analysis, Agro Schwiez: BAH Analysis

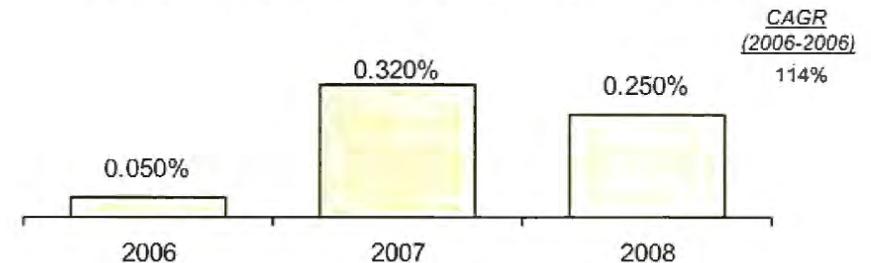
# Neighboring countries such as Albania and Macedonia have experienced an increase in the incidence rate of animal diseases such as brucellosis, tuberculosis and Newcastle disease....

## Incidence Rates of Animal Disease in Neighboring Countries

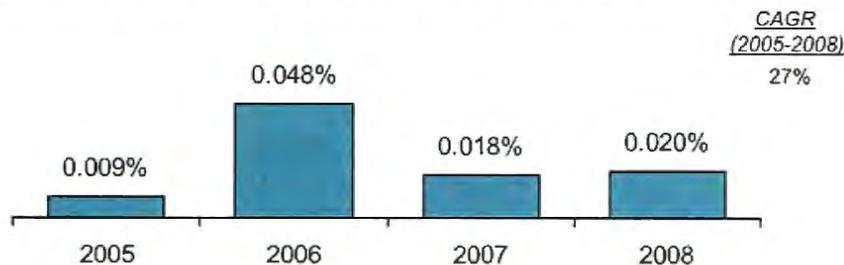
Albania- Incidence of Brucella abortus (2005-2007)



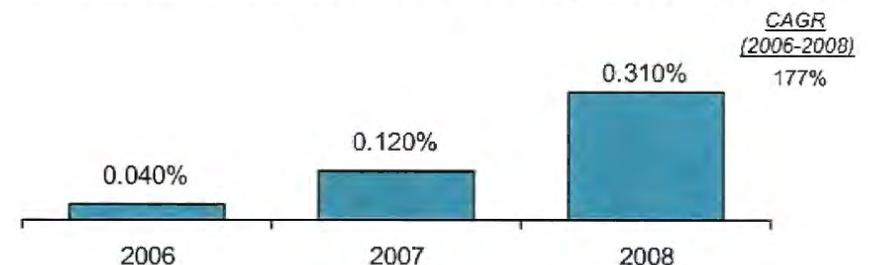
Macedonia Incidence of Brucella abortus (2006-2008)



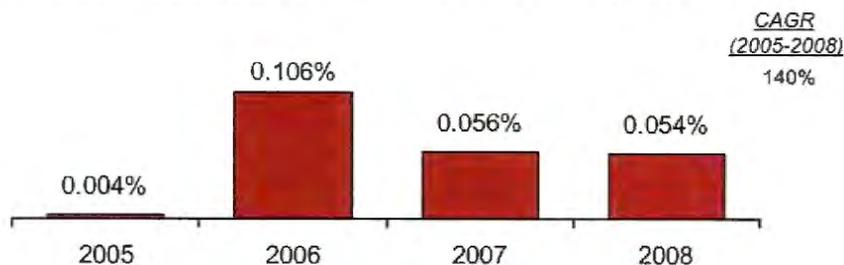
Albania- Incidence of Bovine Tuberculosis (2005-2008)



Macedonia Incidence of Bovine Tuberculosis (2006-2008)



Albania- Incidence of Newcastle Disease (2005-2008)

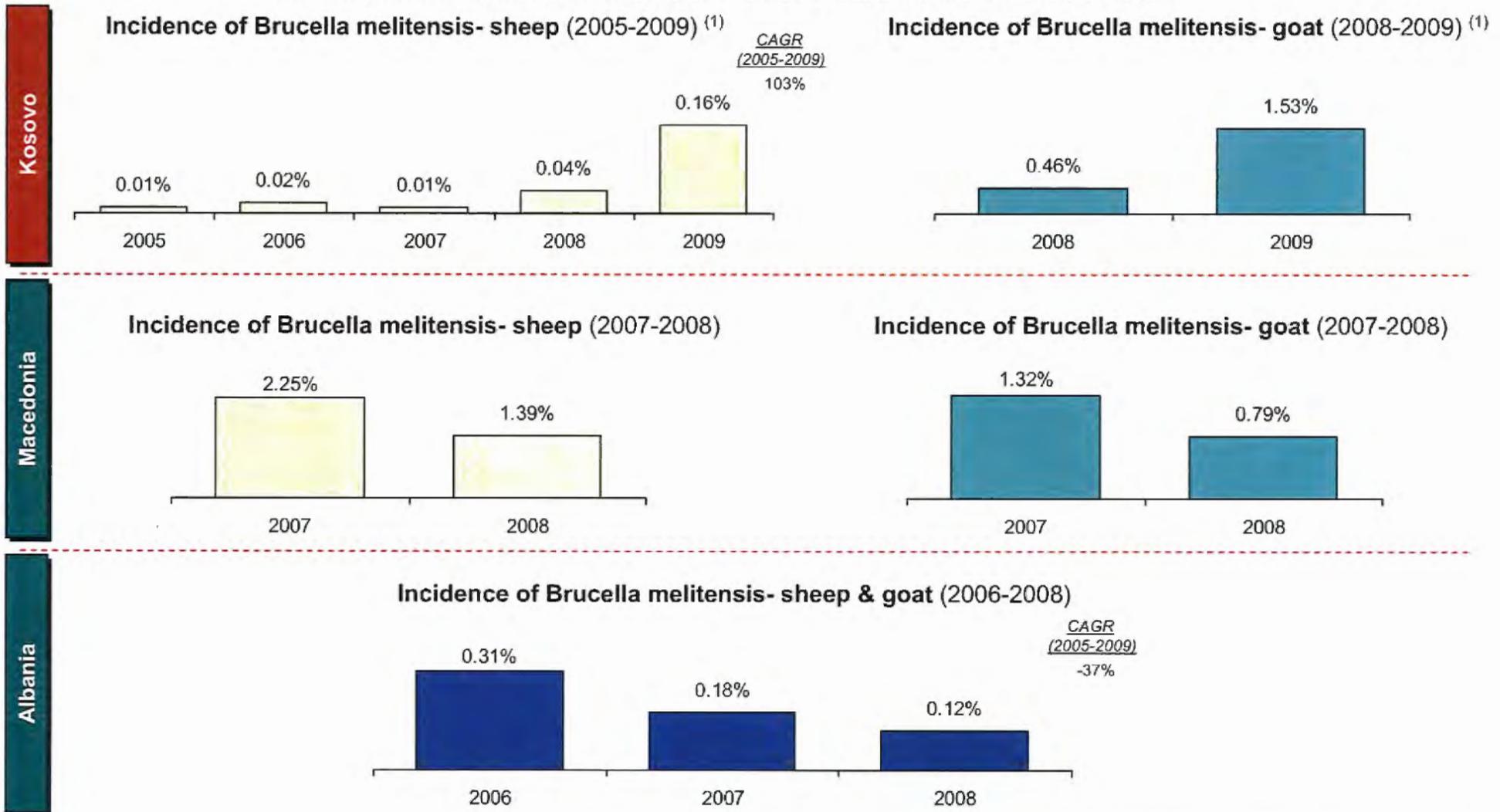


### Comments

- ▶ While the proportion of animals afflicted by brucellosis, tuberculosis and Newcastle disease remain low in Albania and Macedonia, the incidence rate has increased over the last few years
- ▶ Currently, the KFVA does not track or monitor animals for these diseases, and official statistics are provided to OIE for only a handful of diseases, indicating poor herd health management planning

...Kosovo has been particularly susceptible to brucellosis in sheep and goat; while there are proportionately fewer cases than benchmarks, the incidence rate is growing at a faster pace

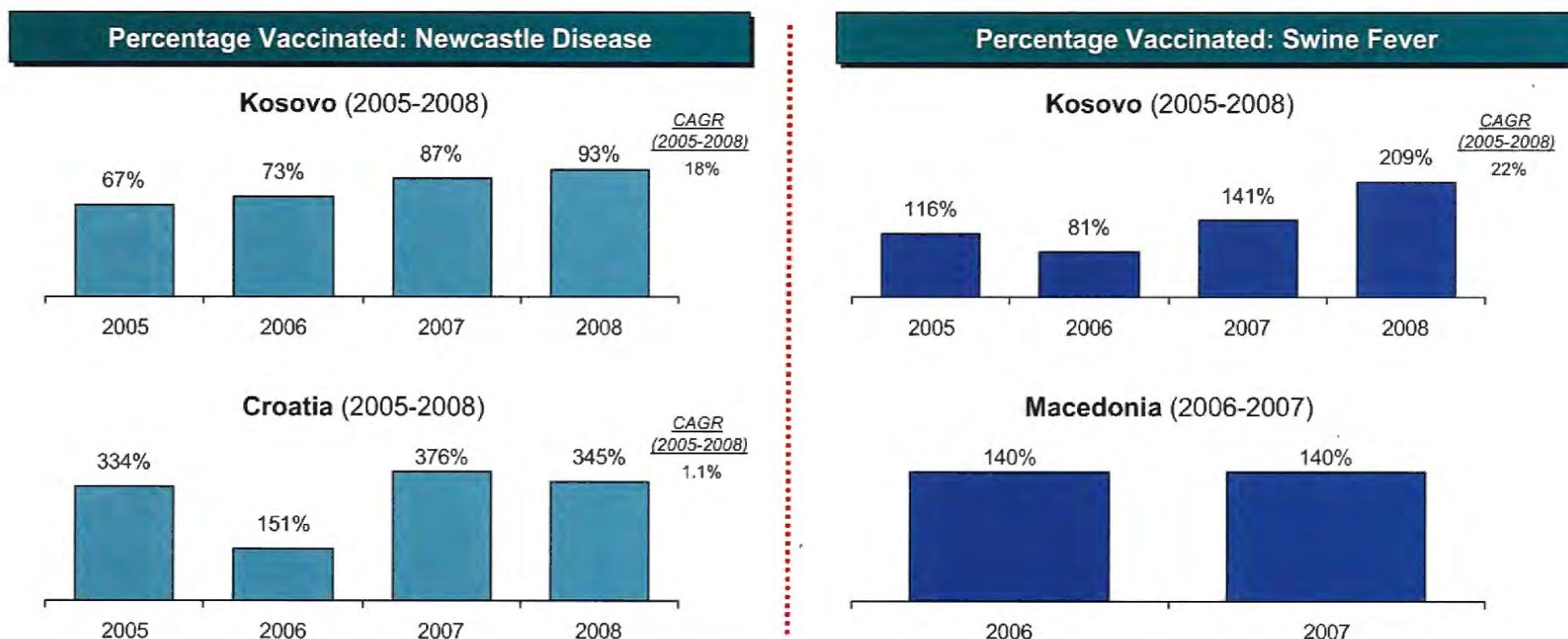
Incidence of Brucella Melitensis: Kosovo vs. Benchmark Countries



Note (1): 2009 incidence rate for Kosovo based on projected population of sheep and goat as SOK figures were not available; Source: OIE World Animal Health Information Database Interface, KFVA: BAH Analysis

## Kosovo has started providing vaccinations for some diseases; however, in some cases, the proportion of the animal population vaccinated is lower compared to regional countries

Percentage of Animal Population Vaccinated: Kosovo vs. Benchmark Countries



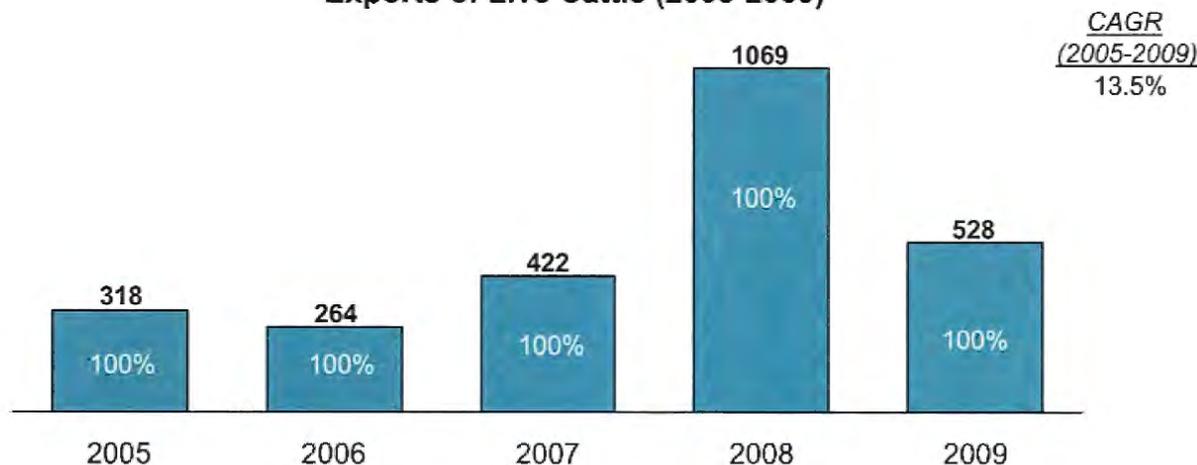
### Comments

- ▶ Although the KFVA maintains a tracking system, it does not actively track vaccinations and health of all animals
- ▶ However, the KFVA has launched a survey program to provide vaccinations for animal diseases, including rabies, anthrax, brucellosis, tuberculosis, BVD, IBR and bluetongue, among others

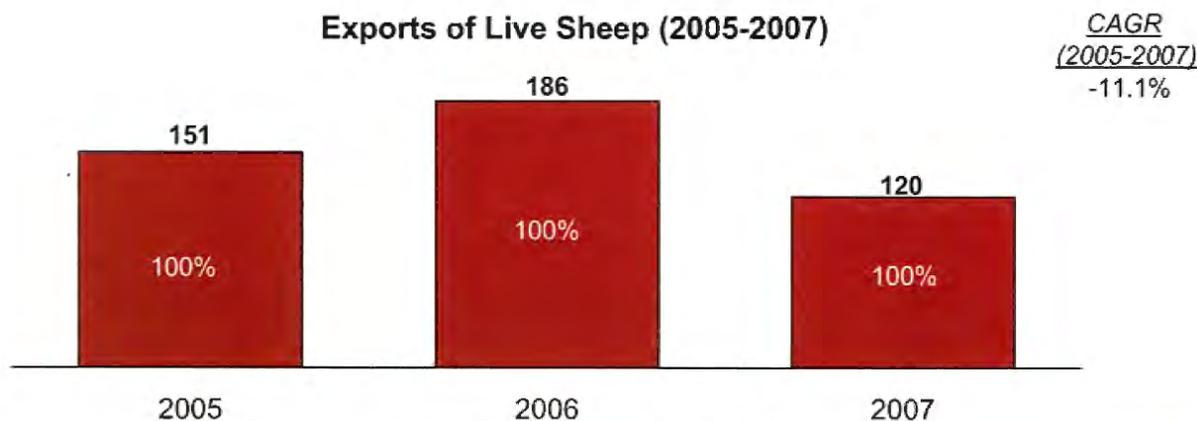
# Exports of live cows have grown, with flows concentrated in only one border point, Prizren; exports of sheep have decreased, with the Peja crossing serving as the only official exit point

Trends of the Most Exported Live Animals Across Kosovo's Borders

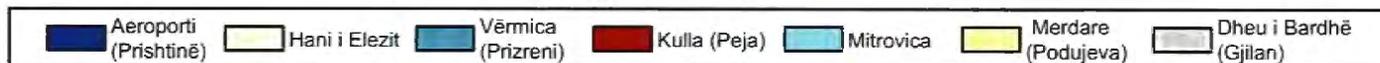
Exports of Live Cattle (2005-2009)



Exports of Live Sheep (2005-2007)



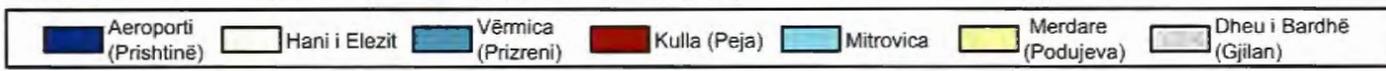
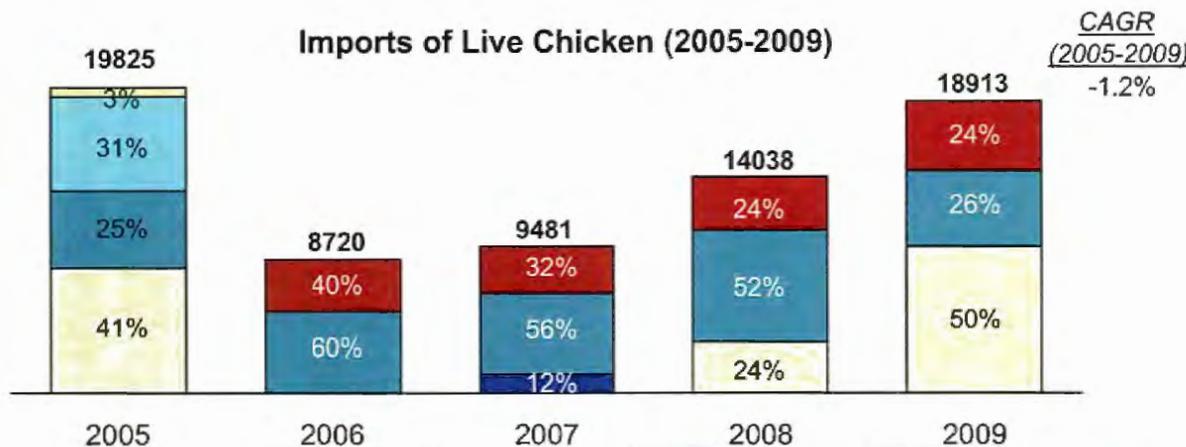
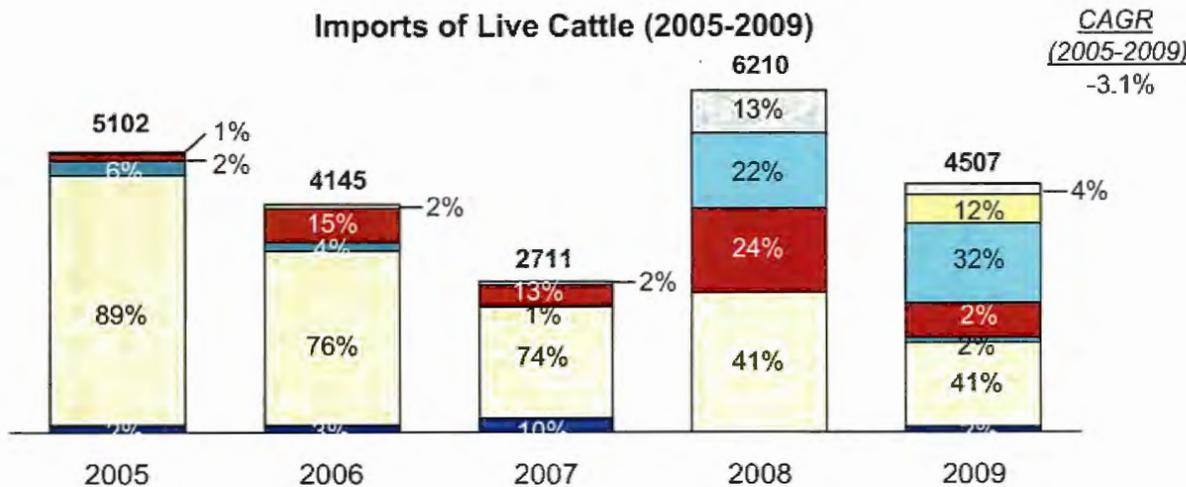
Comments
<ul style="list-style-type: none"> <li>Exports of cows have increased over the last five years, with a large spike in 2008                             <ul style="list-style-type: none"> <li>Only one border point is used for official exports of cattle, Prizren</li> </ul> </li> <li>Sheep exports decreased from 2005-2007, with no official exports recorded for 2008-2009                             <ul style="list-style-type: none"> <li>Sheep flows to other countries have been concentrated at one border point, Peja</li> </ul> </li> </ul>



Note: Live animals calculated from kilograms of animals imported and assumes following weights to derive units: cow- 725kg, sheep 70kg; Source: Customs: KFVA; BAH Analysis

# While import flows of live animals into Kosovo has dropped, animals enter through a wider range of border crossings, with Hani i Elezit serving as the primary entry point

Trends of the Most Imported Live Animals Across Kosovo's Borders



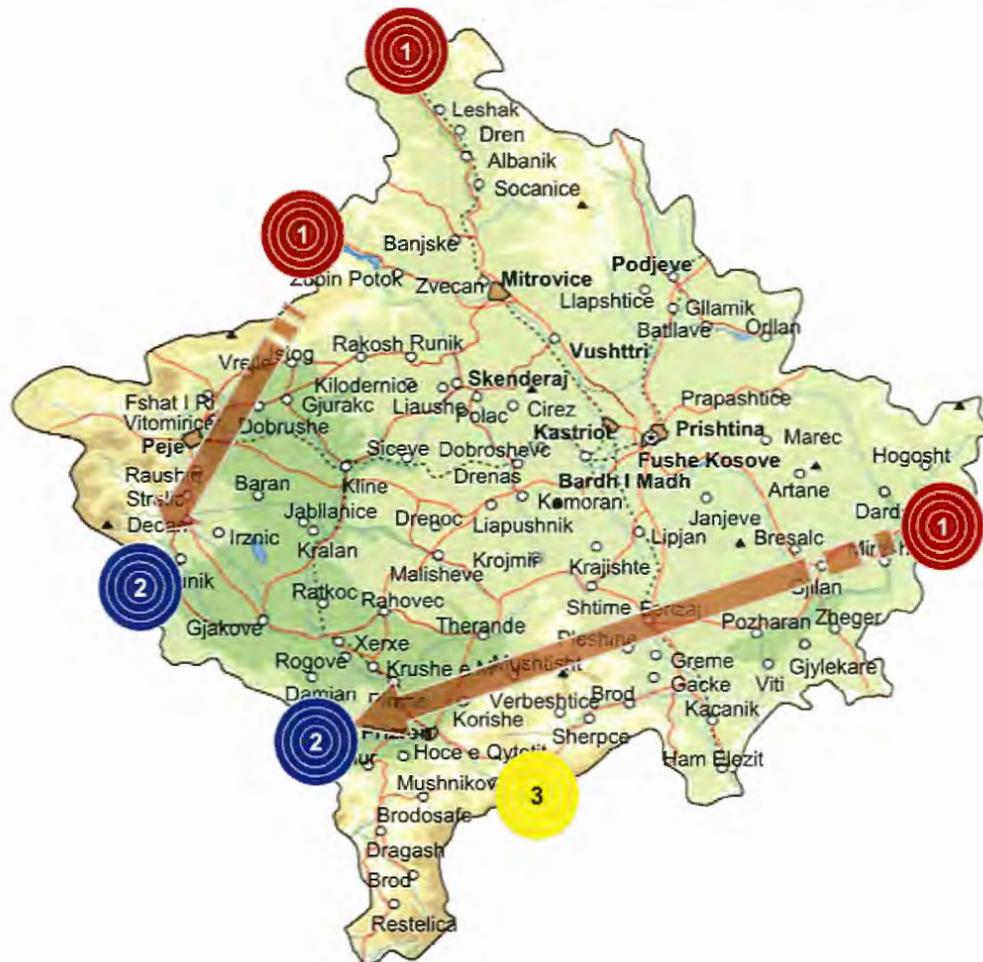
**Comments**

- ▶ Imports of live animals has decreased over the last several years
  - Flows of live cows and chickens dipped in 2006 / 2007, but have steadily started increasing in the last couple years
  - While Hani i Elezit has been the primary point of entry, import flows have increased at other points, such as Peja and Prizren
- ▶ KFVA and Customs work jointly at border points to monitor the flows of animals
  - KFVA performs the first check and registration of animals, health certificates and export papers. Some animals are required to stay in quarantine a minimum of 24 days
  - Once the animals have been received health certification, Customs clears the animals for entry into the country

Note: Live animals calculated from kilograms of animals imported and assumes following weights to derive units: cow- 725kg, chicken- 3kg; Source: Customs: KFVA; BAH Analysis

# In addition, Kosovo's borders are vulnerable to unregulated imports of cattle from Serbia, transit of cattle into Albania, as well as illegal grazing of sheep across the Macedonian border

## Border Crossings Commonly Used for Unregulated Movement of Live Animals



### Types of Unregulated Movement of Live Animals

- 1 **Illegal Imports** : Borders near Leshak, Mitrovica and Gjilan are common points for smuggling cows and other animals from Serbia
- 2 **Illegal Transit and Export**: Borders near Prushit and Morine are commonly used for the illegal exit of cattle into Albania once they have transited Kosovo
- 3 **Illegal Movement from Grazing**: Sheep and goats regularly cross the border in the summertime with Macedonia near Dragash for grazing. The unregulated movement makes animals on the Kosovo side more vulnerable to diseases such as brucellosis, with a 12% incidence among goats in the area

### Problems Associated with Illegal Trafficking

- ▶ Traders from Serbia believe that recognition issues and documentation requirements make it difficult to use official channels for exports
  - The Kosovo government has signed an agreement with the Serbian government to accept cattle passports rather than the more stringent export certificates to decrease trafficking
- ▶ Because of the lack of reporting and tracking of ear tagged animals, traders have the ability to create fake ID tags or recycle from deceased animals in order to transit animals across the border through Kosovo
  - The influx of illegal live animals decreases the quality of breeds through intermingling, increases the spread of animal diseases and diminishes the ability to qualify for international standards to export to the EU market

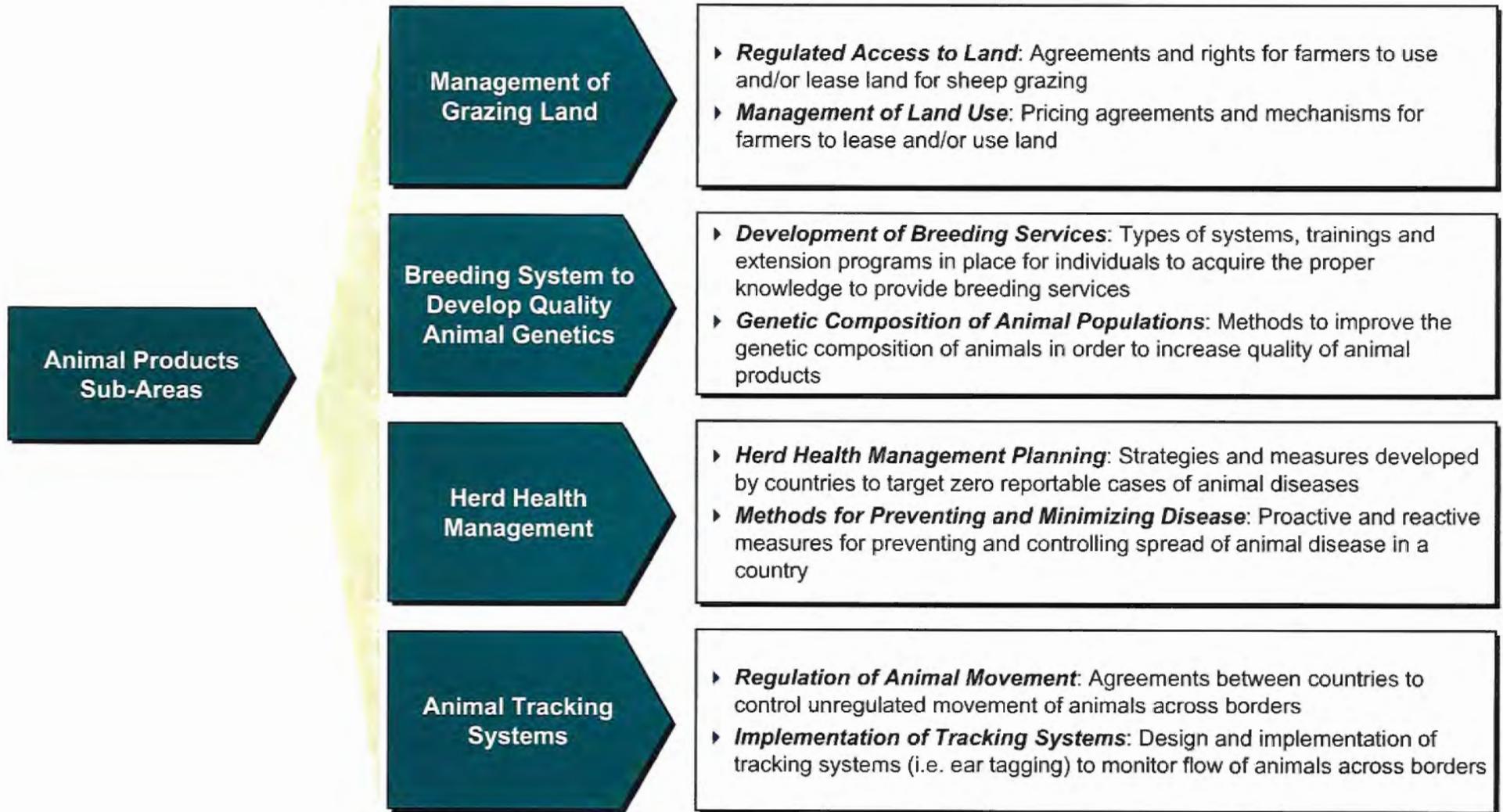
Note: Specific quantities of illegal flows of live animals are not available  
Source: Customs; KFVA; European Commission; BAH Analysis

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
  - Quantitative Baseline of Kosovo's Animal Product Sector
  - Overview of Constraints and Opportunities
  - International Best Practices Assessment
- ▶ Recommendations to Improve Kosovo's Animal Product Sector

# We completed an international best practice assessment along the additional sub-areas to distill lessons learned

## Overview of Additional Benchmarking Dimensions for Animal Products



# In New Zealand, farmers have established free-holding agreements with the government to gain ownership of land for grazing sheep

## New Zealand: Tenure Review Program for Sheep Farmers

### Background

- ▶ Beginning in 1991, farmers in New Zealand's South Island high country (known for sheep farming) who faced the end of their land lease terms with the government **were given the opportunity to gain ownership** of part of the land
- ▶ Ownership of land **frees farmers from having to pay annual land rents** to the government and relieves them from needing government consent for activities such as over-sowing, top dressing, cropping, and tree planting

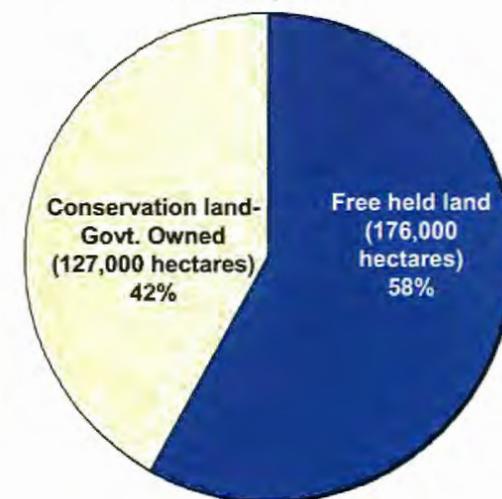
### Tenure Review

- ▶ The government acknowledged the farmers' desire for greater autonomy and in an effort to stream line the process of transferring leased land, **created a system of Tenure Review**
  - The Crown Pastoral Land Act of 1998 authorizes a process called tenure review, in which **farmers can negotiate freehold ownership of the most productive areas of the leased land**. Less fertile land is returned to government ownership to be used as conservation land and turned into public parks, managed by the Department of Conservation
- ▶ **Steps for the tenure review process include:**
  - Leaseholder **invites government to assess land and determine how to divide freehold and conservation sections**
  - The **proposal for the division of land is advertised for public submissions**. Views raised by the public are considered and proposal is modified if necessary
  - If leaseholder agrees with proposal, **they sell their leasehold interest in all their land to the government and buy back freehold title** to those parts of their land with productive potential. Both the sale of leasehold title to the Crown and freehold title to the farmer are done on the basis of market valuations

### Benefits

- ▶ Ownership of land **removes government restrictions on farmers**, such as only being able to use land for grazing. With the decline of sheep stock numbers, **farmers are looking to diversity beyond sheep farming** to areas such as viticulture, forestry, and ecotourism
- ▶ Conservation is promoted, leading to more opportunities for tourism

Division of Land in South Island High Country Based on Tenure Review, 2007

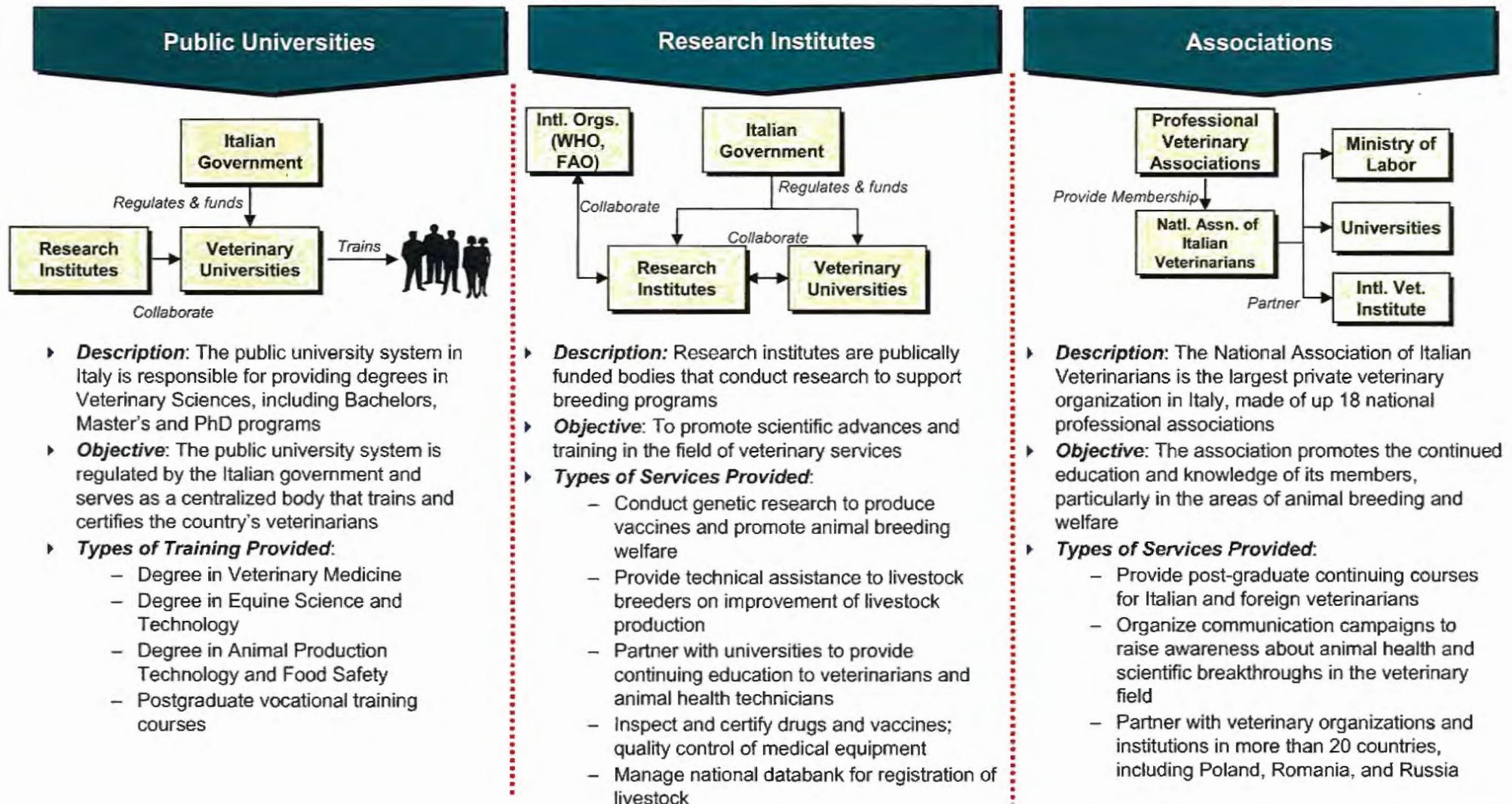


### Types of Land

- ▶ **Free held land is privately owned by the farmer**, who has full autonomy over the use and management of the land
- ▶ **Conservation land is turned into parks and reserves** by the Department of Conservation and is also used as a water catchment area

# In Italy, a wide number of university programs, research institutes and associations exist for technicians and veterinarians to become specialized in improving herd health

## Italy: Types of Animal Welfare Training Programs



# Russia developed a system of importing heifers for breeding to improve the genetic composition of cattle, thereby creating a more competitive market for beef and increasing milk yields

## Livestock Improvement Program in Russia

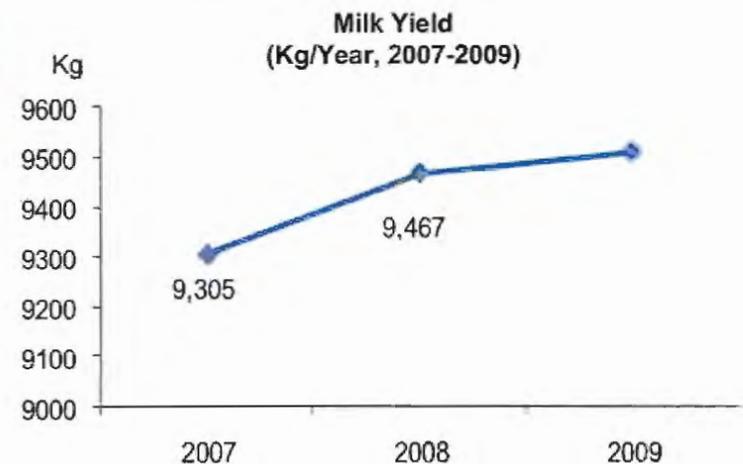
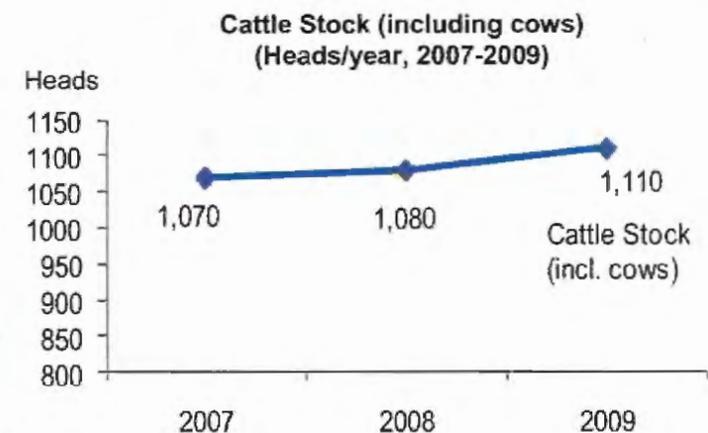
### Background

- ▶ For the past two decades, there has been a **dramatic decline in beef and dairy production** due to inferior genetic composition of Russian cattle
  - Domestic production was mainly replaced by imports from South America and New Zealand
- ▶ In 2007, the Russian Government created the Federal Law on Development of Agriculture in order to enhance food security in the country, **decrease dependence on foreign imports**, and promote economic development
  - More than **50,000 breeding cattle were imported to Russia** in 2008 from Australia, Canada, US, and EU countries such as Netherlands, Denmark, Germany and Hungary.
  - To spur domestic production, the government has **cut meat and poultry import quotas**, eliminated VAT taxes for breeding stock, and has provided subsidies to purchase livestock genetics
  - In the first half of 2009,, **17 new beef cattle farms were created** populated with high quality imported livestock for breeding

### Key Tenets Federal Law on Development of Agriculture

- ▶ **Order #494: Development of beef cattle breeding, 2009-2012**
  - Grants US \$686M for the development of beef cattle breeding and increases the number of pedigree beef cattle from 142,900 heads in 2007 to 500,000 heads in 2012
- ▶ **Order #495: Development of dairy cattle breeding and increase of milk production, 2009-2012**
  - Grants US \$1B to increase annual milk production to 37M metric tons by 2012. Development of pedigree livestock breeding and purchasing 100,000 domestic and imported heifers and breeding bulls annually over the next 4 years
- ▶ **Edit #1146: The Center of Excellence for Livestock Breeding**
  - The center was established to support development of highly productive cattle herds and improve livestock genetics; develop and introduce up-to-date technologies in livestock breeding and artificial insemination

Grazhdansky Cattle Breeding Farm Growth <sup>(1)</sup>



Sources: USDA GAIN Report, 2008 & 2010, Government of Russia website

Note: The Grazhdansky cattle farm has benefited from the Russian agricultural program since 2007 and is considered one of the most successfully cattle breeding farms in Russia

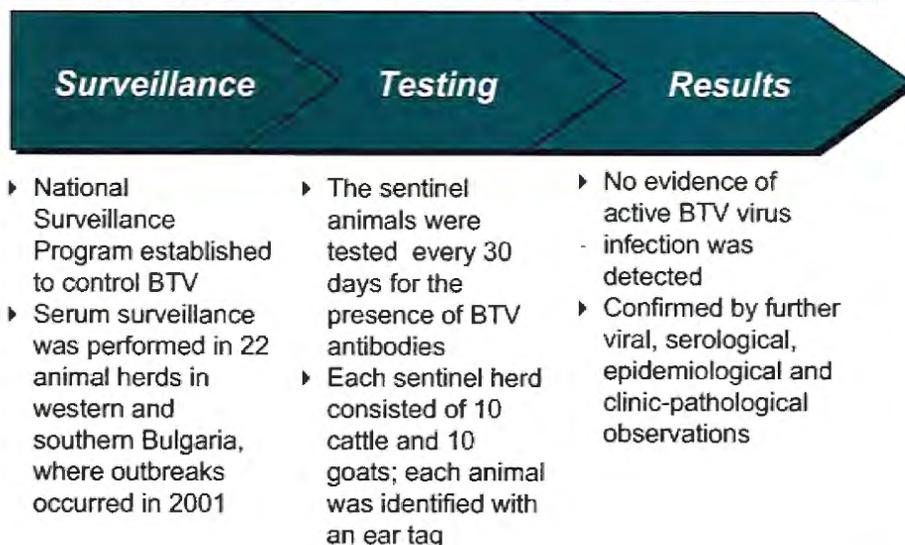
# The EU has formulated an Animal Health Strategy, which has been adopted by member countries to minimize cases of disease through proactive and reactive measures

## European Union: Proactive and Reactive Measures for Disease Control

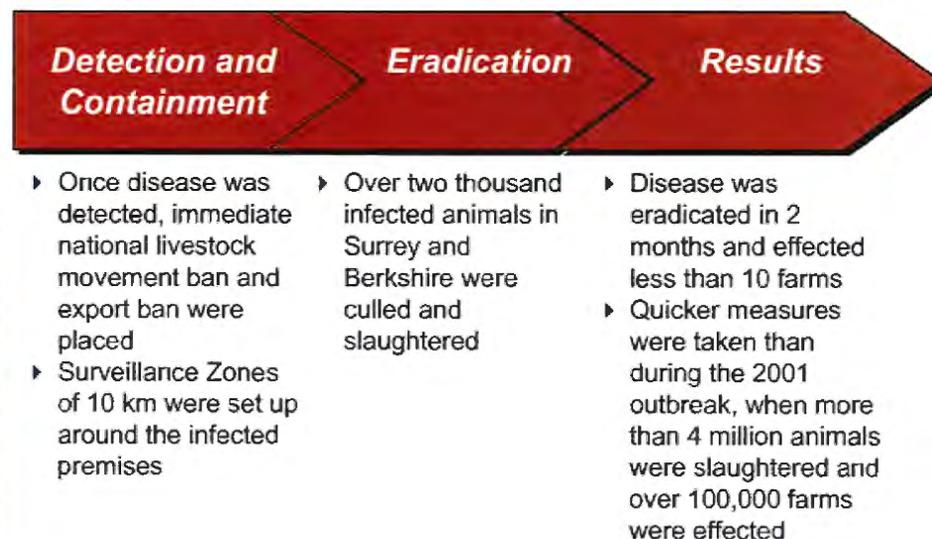
### Principles of EU Strategy

- ▶ **Overview:** Given the devastating impact of recent disease outbreaks on animal health, the EU's 2007-2013 Animal Health Strategy is based on the principle that "prevention is better than cure." The aim is to place greater focus in member states on precautionary measures, disease surveillance, controls and research, in order to reduce the incidence of animal disease and minimize the impact of outbreaks when they do occur. Individual EU member states are responsible to implement the measures but receive financial support from the EU for implementation
- ▶ **Main Tenets:**
  - The EU recommends proactive measures at border crossings, identification and registration of farm animals, establishment of a computerized system linking central and local veterinary authorities throughout the EU, creation of national reference laboratories, and use of preventative vaccination <sup>(1)</sup>
  - Some reactive measures are also recommended in cases of outbreak, such as slaughtering infected carcasses and notifying the EU of major diseases using the computerized Animal Disease Notification System

### Proactive Bluetongue Virus (BTV) Control- Bulgaria, 2009



### Reactive Foot and Mouth Disease Control- England, 2007



Note (1) : Generalized preventative vaccination against foot-and-mouth disease and classic swine fever are prohibited by the EU, as it may "hide" the infectious agents and favor disease spread. However, for some diseases, such as bluetongue, which may not be effectively controlled by other means, vaccination can be applied as the most important disease control tool  
 Source: European Commission, BAH Analysis

# With the support of donors, Macedonia has developed an effective animal identification and tracking system

## Macedonia: Tracking and Regulated Movement of Animals

### Macedonia Ear Tagging Program

- ▶ **Overview:** The National Animal Identification and Registration System Project, was developed and funded by the European Agency for Reconstruction (2002-present) to address concerns about disease prevention and food safety in Macedonia and to meet EU requirements
- ▶ **Goals:** Establishment of an integrated animal identification system so that animals can be tracked and controlled in the event of a disease outbreak, and traced in the case of non-compliance of animal products with food safety standards. System strives to produce healthy, quality products from 'stable to table'
- ▶ **Execution:** The system for the identification and registration of individual bovine animals includes:
  - Double ear tags for each animal with an individual number
  - Maintenance of a register on each holding (i.e. farm, market)
  - Cattle-passports
  - Computerized database at national level

### Phases of Ear Tagging Program

#### Phase 1: (Ear Tags)

- ▶ Hardware and software equipment, ear tags and printed materials added to the central database. This phase made it possible to launch of identification of cattle in the field

#### Phase 2: (I & R System for Cattle)

- ▶ Consolidation of the Identification and Registration system (I&R) for cattle, and establishment of an I&R system for small ruminants (sheep and goats)

#### Phase 3: (Movement Control System)

- ▶ Assist the Veterinary Directorate to complete the establishment of an integrated animal identification, holding registration and movement control system for small ruminants in compliance with EU requirements

### Benefits of Animal Identification Systems

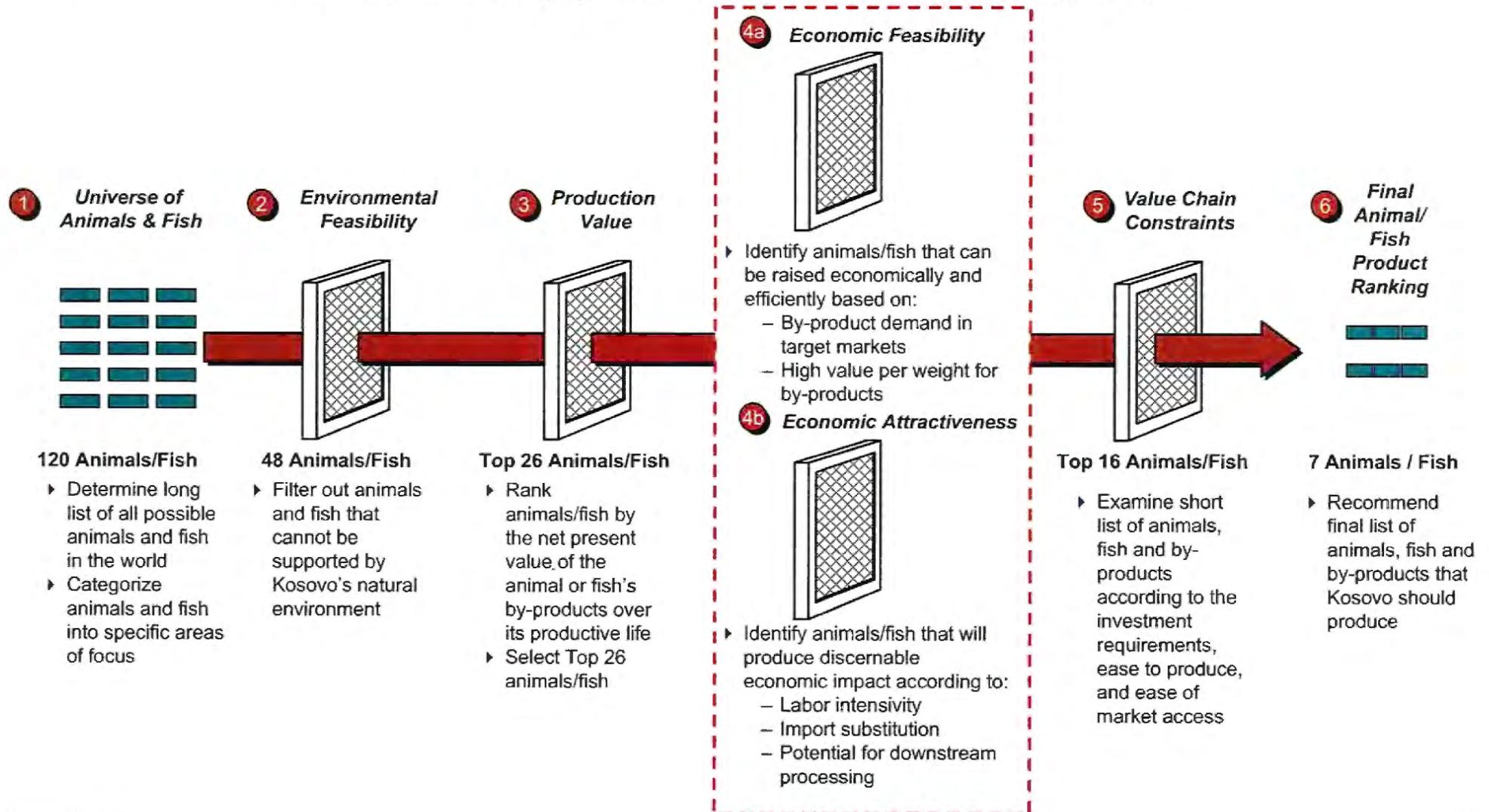
- ▶ Animal I&R serves as a central system that can provide information for animal breeding, subsidy payments, and veterinary procedures dealing with the treatment, vaccination and epidemiology of animal diseases
- ▶ Animal identification leads to **traceability of livestock**, which makes it possible for animal products to be traced back to the place of production
- ▶ Animal tracking improves **disease prevention and protects consumers of animal products**

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
- ▶ Recommendations to Improve Kosovo's Animal Product Sector
  - Recommended Animal Product Mix for Kosovo
  - Initiatives & Action Plan for Implementation
  - Reaching Overall Potential in Local Markets

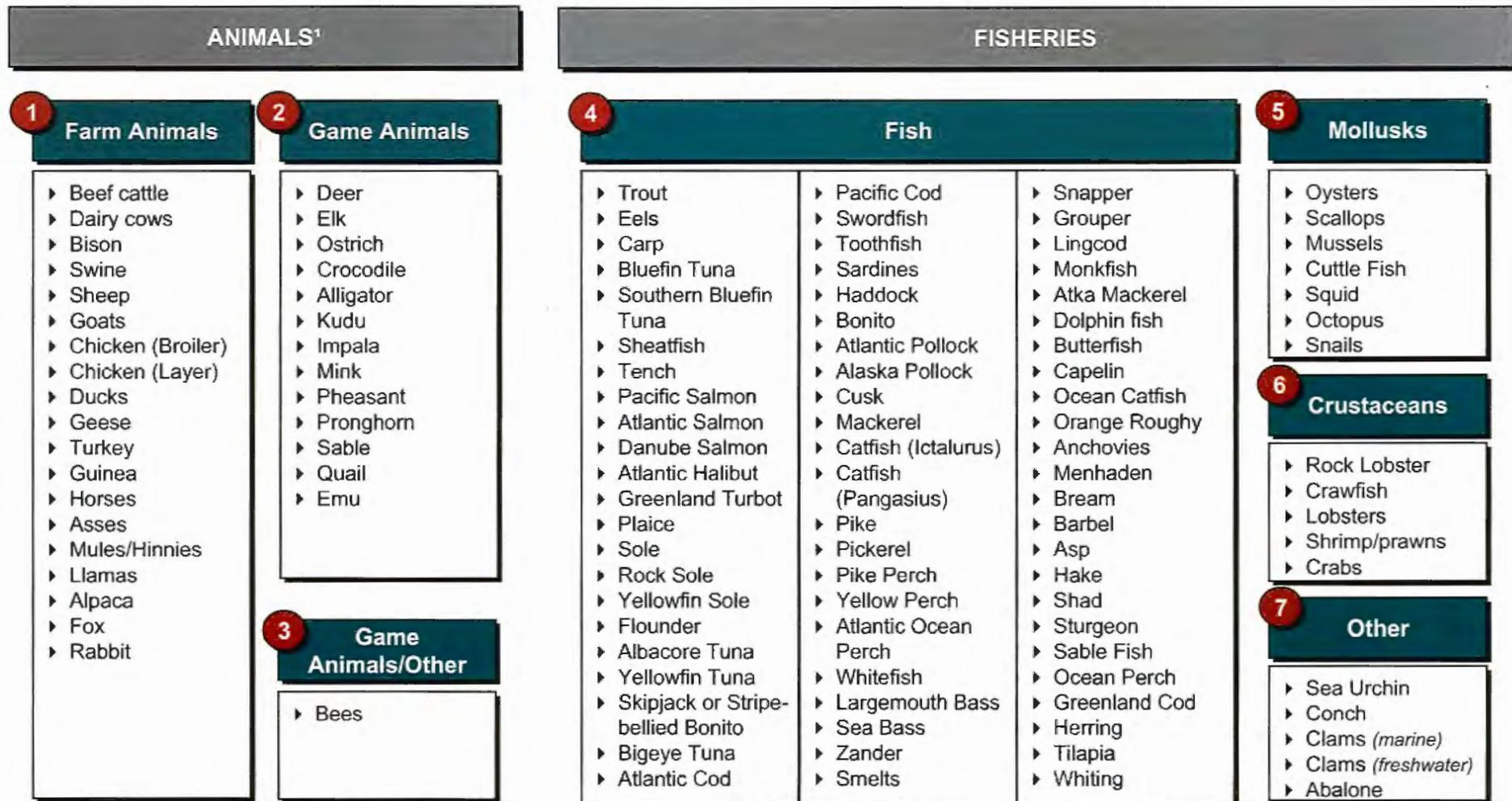
# To determine Kosovo's diversified mix of animal and fish products, we have adapted the six step filtering process

## Process for Identifying Kosovo's Diversified Animal and Fish Base



# For the first filter, we have developed a list of 120 potential animals and fish focusing on seven main categories...

## Breakdown of Animal and Fisheries Categories



Note: (1) Animals are defined as any animal that can be raised in a farm environment for sale commercially; some items listed represent more than one fish  
 Source: TradeMap. US International Trade Commission. BAH Analysis

## ...and also mapped the type of animal / fish raised by municipality

### Snapshot of Animals / Fish Raised by Municipality

	Ferizaj				Gjakova		Gjilan			Mitrovica					Peja			Pristina					Prizren							
	Kacaniku	Shitimja	Shterpcia	Ferizaj	Deçani	Gjakova	Rahoveci	Gjilani	Kamenica	Vitia	Mitrovica	Leposaviqi	Skenderaj	Vushtrria	Z. Potoku	Zvegani	Istogu	Klina	Peja	Glligovci	F. Kosova	Lipjani	Novobërdra	Obiliqi	Podujeva	Prishtina	Dragashi	Prizreni	Suhareka	Malisheva
Beef Cattle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dairy Cows	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Buffalo	✓	✓	✓					✓	✓	✓			✓						✓	✓	✓		✓						✓	✓
Pigs			✓				✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓						✓	
Lambs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sheep	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rams	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Goats	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Horses	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Donkeys	✓	✓	✓				✓	✓	✓								✓					✓	✓	✓				✓	✓	✓
Chickens	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beehives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Trout	✓	✓	✓		✓	✓	✓			✓	✓	✓		✓	✓	✓	✓	✓	✓		✓		✓			✓	✓	✓	✓	✓
Carp		✓	✓							✓	✓	✓		✓	✓	✓					✓	✓					✓		✓	✓

Note: Grouped municipalities according to 2007 Household Survey produced by the Statistics Office of Kosovo  
Source: Surveyed Municipality Agriculture Offices

In addition, we developed a list of the possible by-products that could be produced from the entire range of animals / fish

Types of By-Products According to Animal / Fish

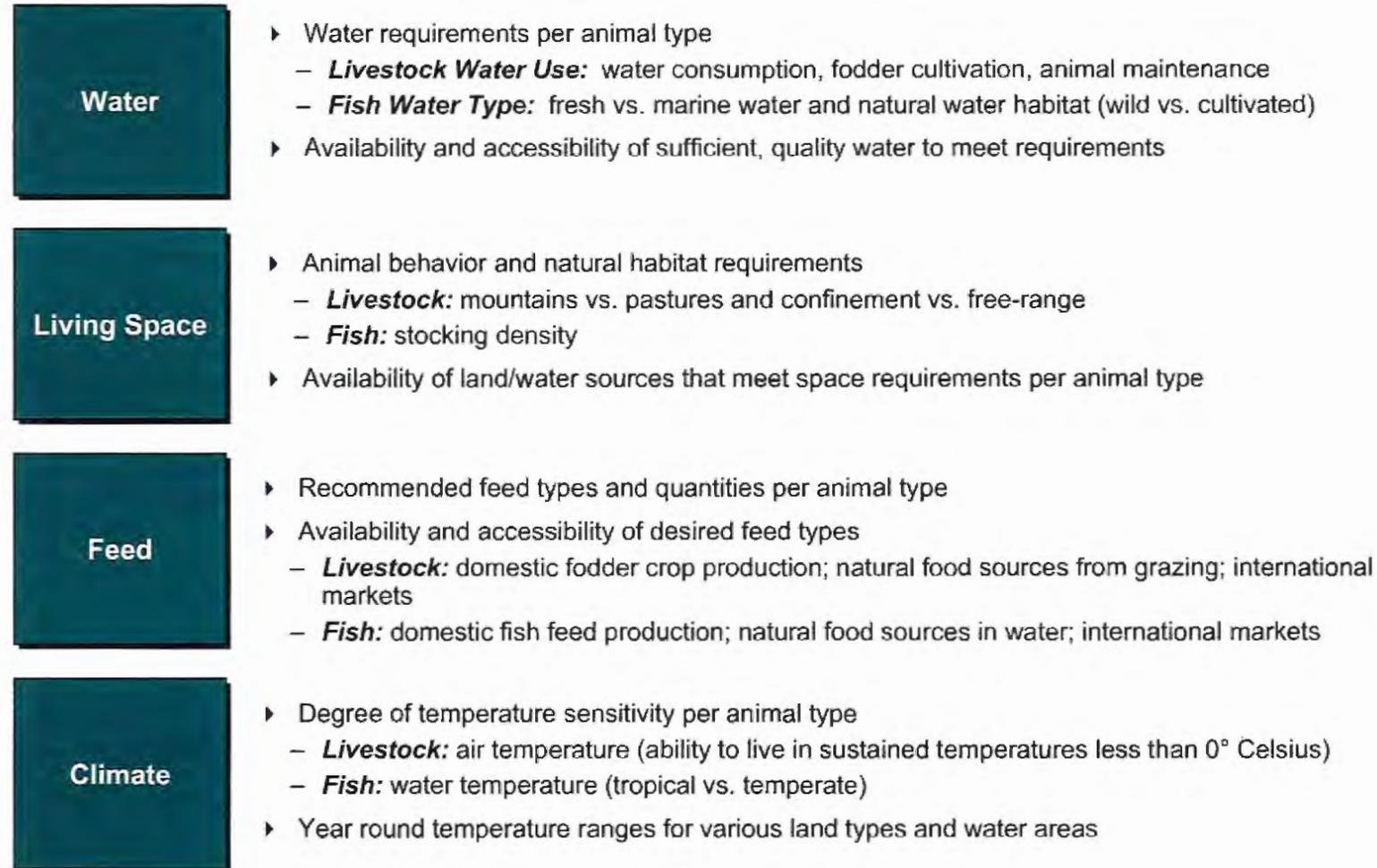
**NOT EXHAUSTIVE**

	Meat	Offal	Hides/ Skins	Wool	Feathers	Dairy	Eggs	Fat/ Oil	Horns	Honey
Beef/Dairy Cattle	✓	✓	✓			✓		✓		
Swine	✓	✓	✓					✓		
Sheep	✓	✓	✓	✓						
Goats	✓		✓			✓				
Chicken	✓						✓			
Turkey	✓									
Ducks/Geese	✓	✓			✓					
Fox			✓							
Rabbit	✓		✓							
Horse	✓	✓	✓							
Llama/Alpaca	✓			✓						
Deer/Elk	✓		✓						✓	
Ostrich	✓		✓		✓					
Crocodile/Alligator	✓		✓							
Impala	✓		✓							
Mink			✓					✓		
Pronghorn	✓		✓							
Sable			✓							
Bee										✓
Salmon	✓									
Trout	✓									
Clams	✓									
Crab	✓									

Source: BAH Analysis

# The environmental feasibility filter is based on an in-depth examination of four factors: water, living space, feed and climate

## Environmental Feasibility Factors



# Kosovo has sufficient water resources, and we did not consider this a constraint for the animal and fish products sectors

## Water Availability and Access in Kosovo

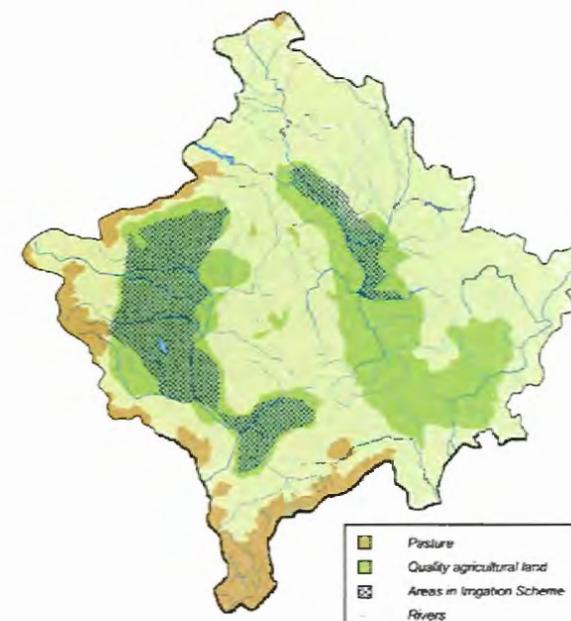
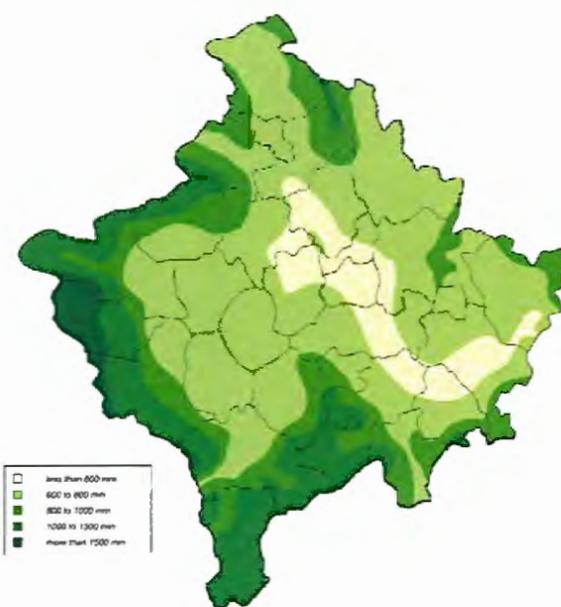
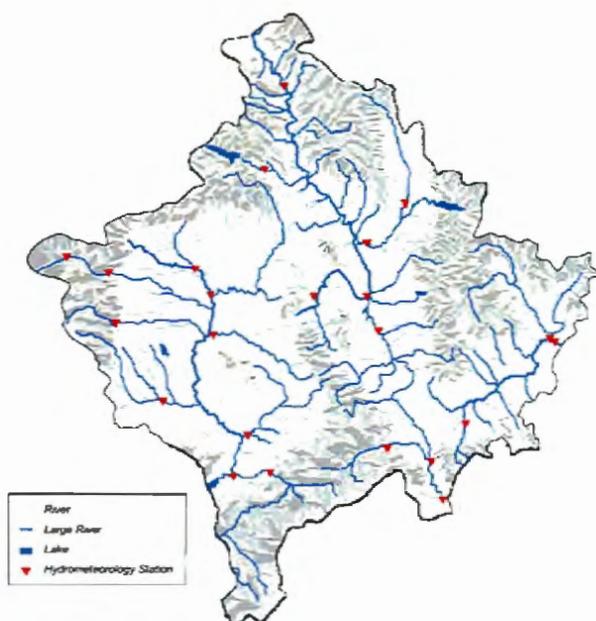
### Water Availability

### Water Access

Lakes and Rivers in Kosovo

Total Precipitation in Kosovo <sup>(1)</sup>

Irrigation Scheme in Kosovo

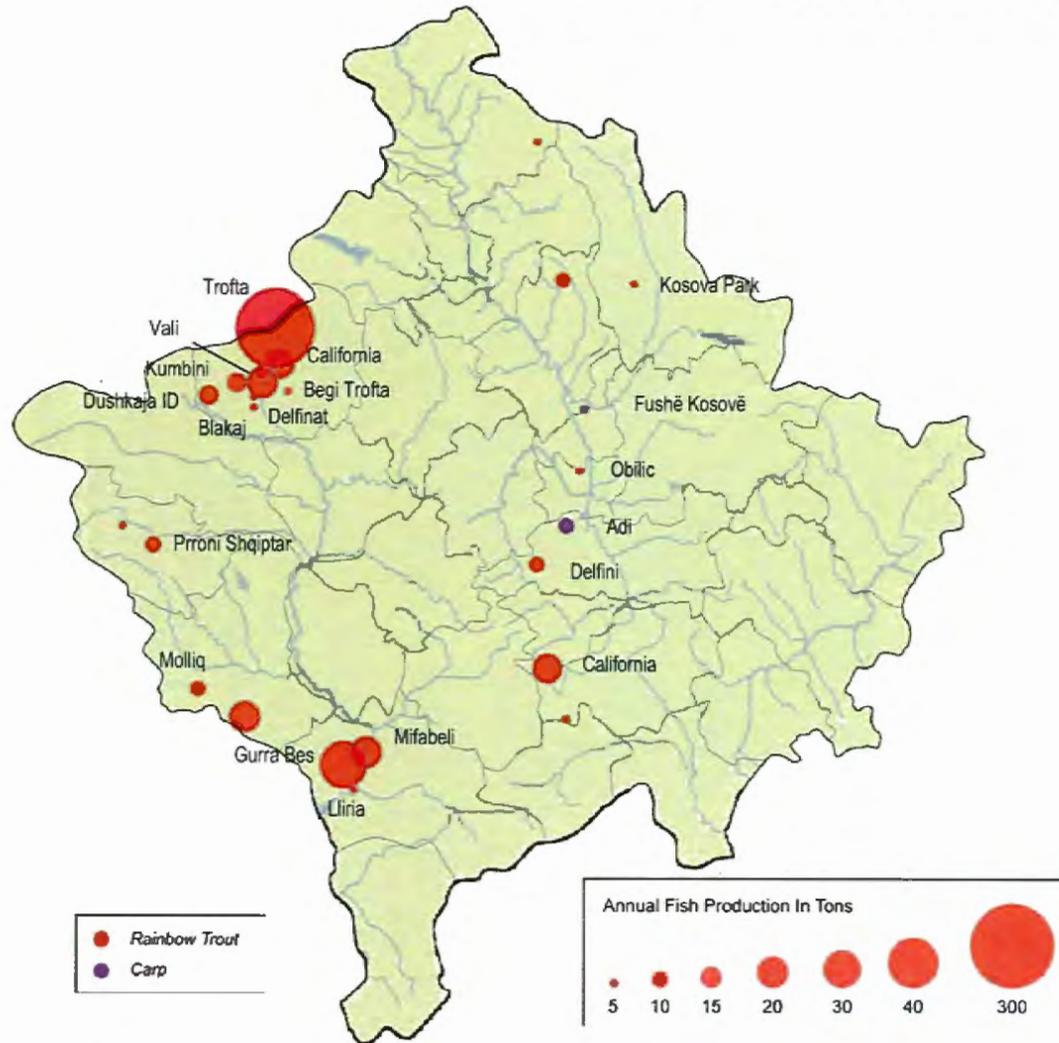


Note (1): Includes all forms of precipitation and dew

Source: Statistics Office of Kosovo: Ministry of Environment and Spatial Planning- Water Situation in Kosovo, 2008: BAH Analysis

# There are a number of water sources that are suitable for raising fish; currently 26 fish farms exist in Kosovo

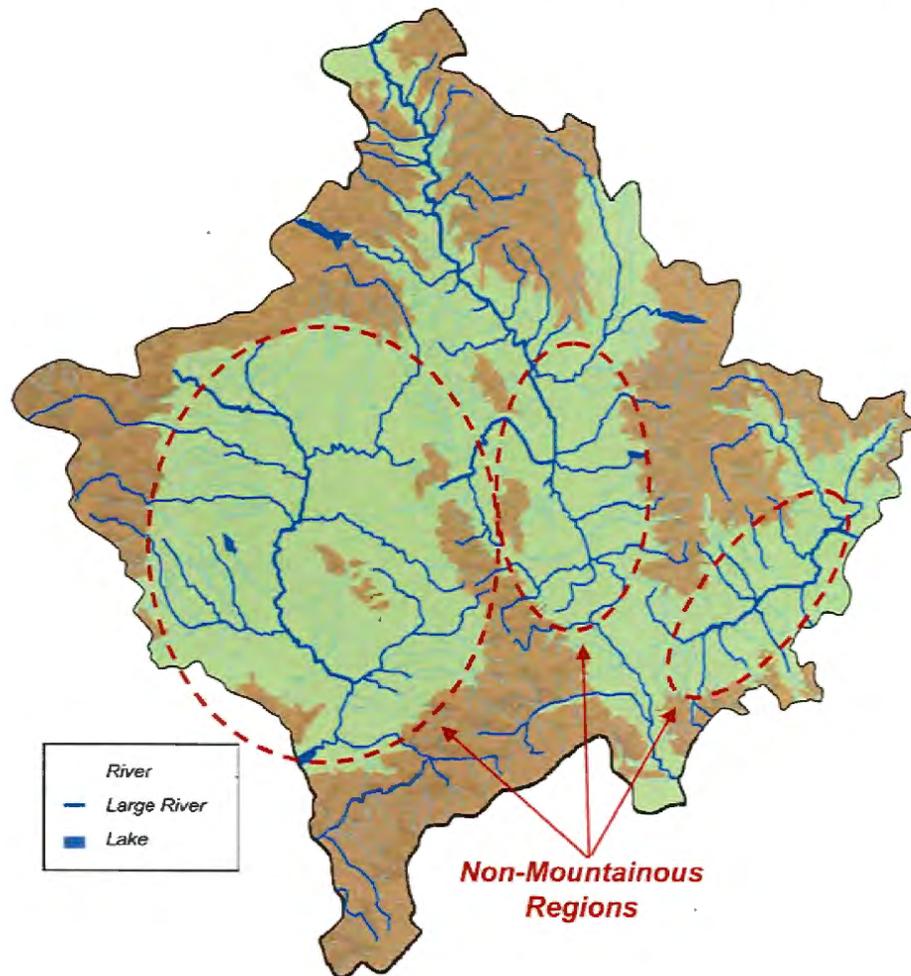
Water Sources and Distribution of Fish Farms in Kosovo



Comments
<ul style="list-style-type: none"> <li>▶ The majority of fish farms are located in the Istog municipality while others are found throughout Kosovo in areas such as Prizren</li> <li>▶ Most of the available spring water in Kosovo has a constant temperature of 7-9 degrees Celsius                             <ul style="list-style-type: none"> <li>– While the temperature suffices for raising fish, it is on the cooler end, causing the fish to grow at a slower rate</li> <li>– Although the fish grow at a slower pace, the quality of the meat increases</li> </ul> </li> </ul>

**Because Kosovo has limited high quality pasture land, we have retained only animals that can be raised in mountainous pasture or in confinement**

### Overview of Mountainous vs. Non-Mountainous Regions in Kosovo



#### Comments

- ▶ Nine out of thirty municipalities in Kosovo have between 128 and 667 people per square kilometer, highlighting that Kosovo has more urban, densely populated areas
- ▶ As a result, we focused on animals that can be raised in the lower populated mountainous pasture lands as well as in confined pasture lands located in more populated areas

## A variety of fodder types are available either domestically or through imports to raise animals in Kosovo

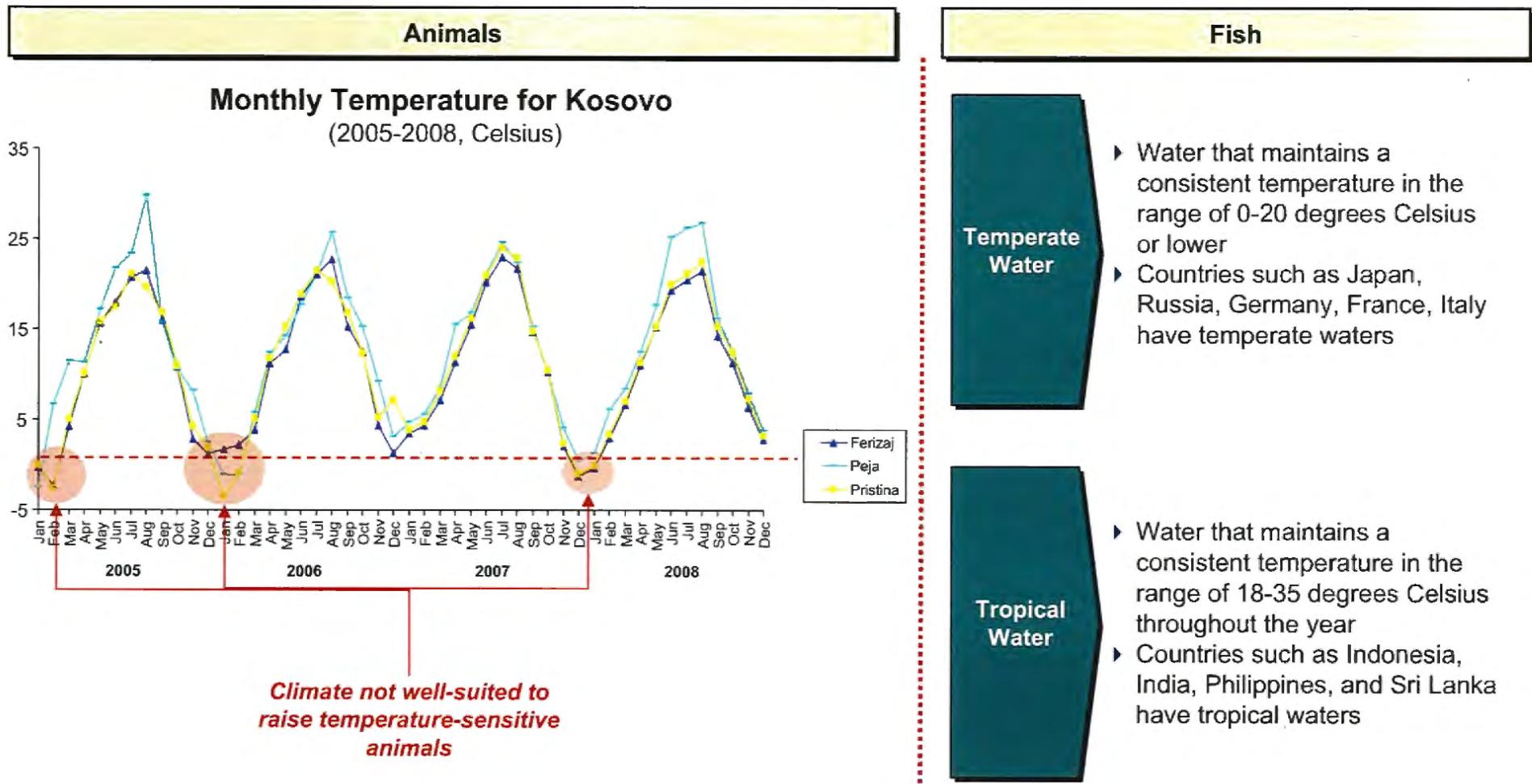
### Breakdown of Feed According to Animal

EXAMPLE

Animal	Feed Type	% of Ration	Feedstuff	% of Mix	% Imported	Major Importing Source
Dairy Cow	Forage	60%	Silage Hay Alfafa	Varies with availability	0%	N/A
	Concentrate	40%	Corn Soybeans Sunflower Wheat Chaff Pre-mix	70% 20% 5% 2% 3%	100% 100% 100% 0 100%	Serbia Brazil Bulgaria/Macedonia NA Germany
Beef Cow	Forage	90%	Silage Hay Alfafa	Varies with availability	0%	N/A
	Concentrate	10%	Corn Soybeans Sunflower Wheat Chaff Pre-mix	70% 20% 5% 2% 3%	100% 100% 100% 0 100%	Serbia Brazil Bulgaria/Macedonia NA Germany
Sheep / Goat	Forage	80%	Silage Hay Alfafa	Varies with availability	0%	N/A
	Concentrate	20%	Corn Soybeans Sunflower Wheat Chaff Pre-mix	70% 20% 5% 2% 3%	100% 100% 100% 0 100%	Serbia Brazil Bulgaria/Macedonia NA Germany
Poultry	Concentrate	100%	Corn Soybeans Sunflower Oil Salt Pre-mix	60% 23% 10% 2.5% 2% 2.5%	100% 100% 100% 100% 100% 100%	Serbia Brazil Bulgaria/Macedonia EU EU Germany
Swine	Concentrate (Ingredients of Starter Ration (1-10 kg live wt) (24% protein))	100%	Corn Soybeans Pre-mix	40% 35% 25%	100% 100% 100%	Serbia Brazil Germany

# Because Kosovo has sustained cold periods, we have only retained animals and fish that can be raised in a temperate climate

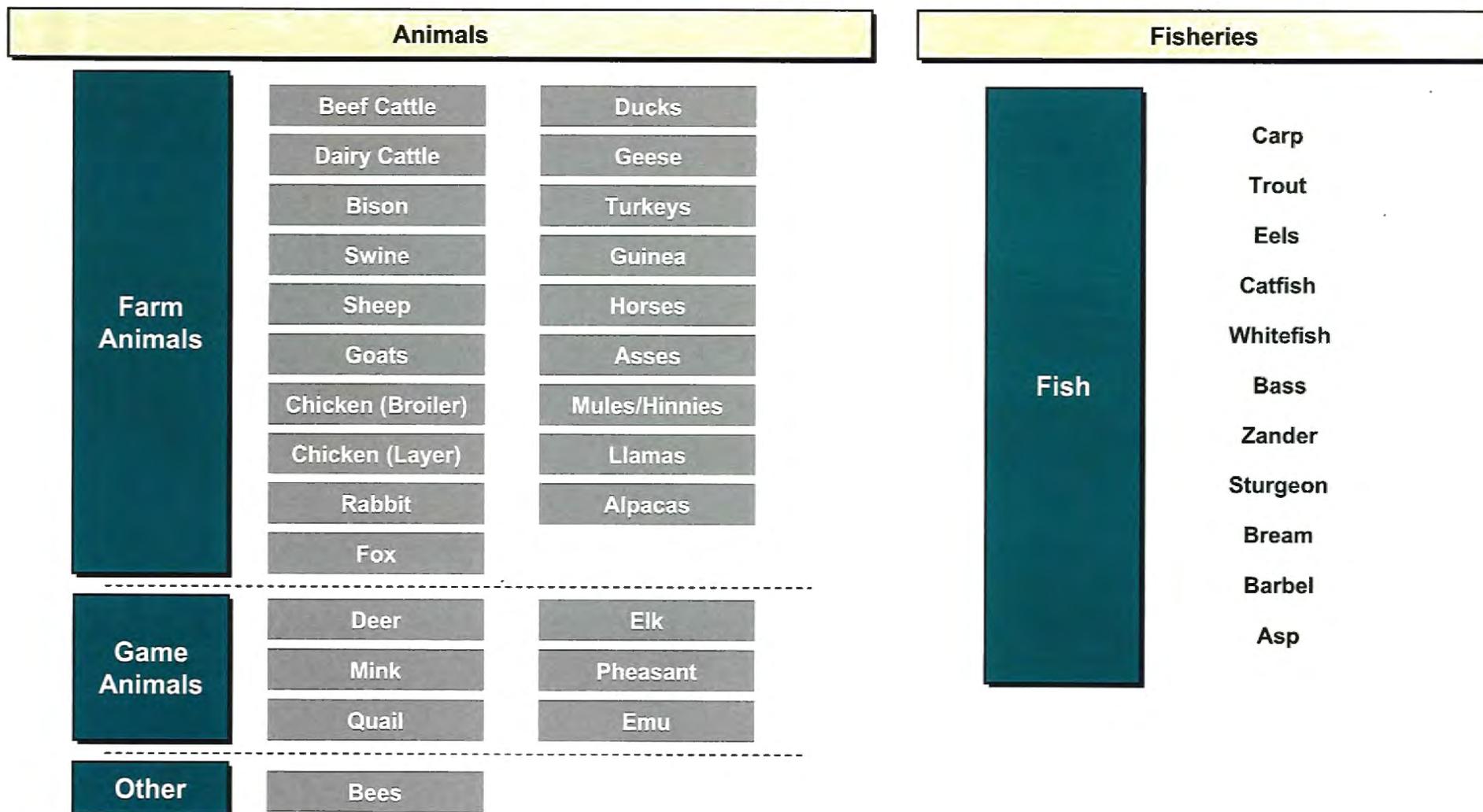
## Climate Evaluation Factors for Animals and Fish



Note: Temperature data shown represents a sample of data set. Complete temperature analysis included Meteorological Institute data from 2001-2008 and SWIK UNDP study data from 1977-1991; Non-aggregated temperature data was only available for Ferizaj, Peja, and Pristina Meteorological Stations. SWIK study contains historical temperature data from 1977 to 1991 for Dukadjini and Pristina; Source: Meteorological Institute; BAH Analysis, UNDP Funded Support for the Development of the Wine Industry of Kosovo (SWIK) Study, 2002

## As a result, we have identified 26 animals and 11 fish that can be feasibly raised in Kosovo's environment

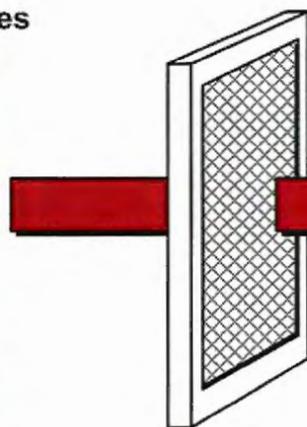
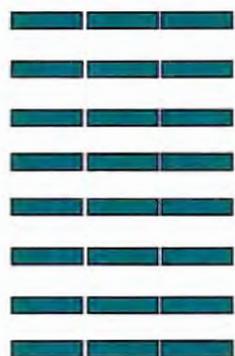
### Selection of Animals and Fish Passing Environmental Feasibility Filter



## We then calculated the potential production value for by-products from each remaining animal / fish in order to select the top 26

### Filtering Methodology to Identify Top 26 Animals / Fish

48 Animals/Fisheries



26 Animals/Fisheries



#### Filtering Method Overview

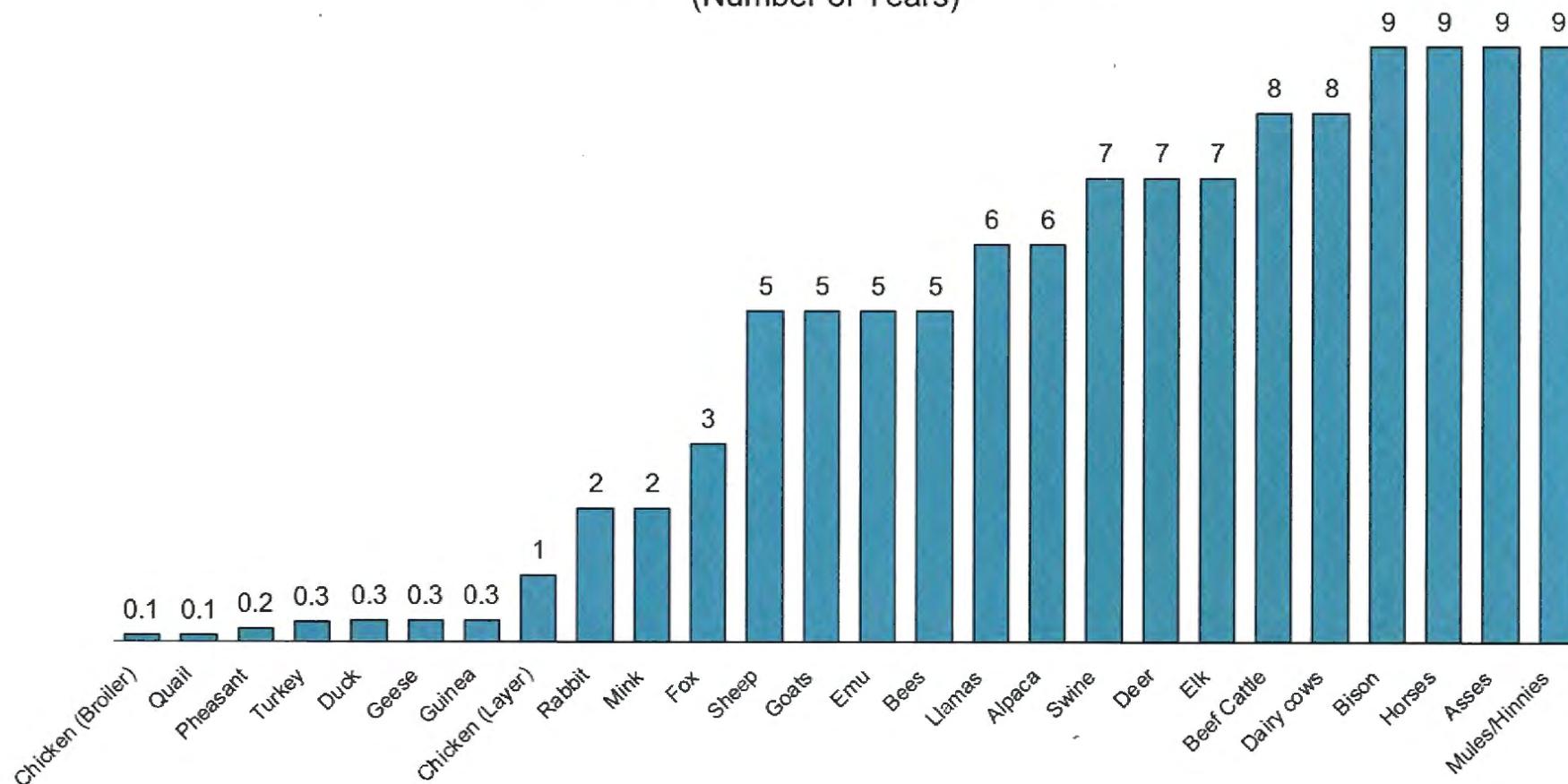
- ▶ This filter ranks 48 animals / fish according to their production value
- ▶ Production value is determined by calculating the Net Present Value (NPV) per year of the animal / fish's productive life
  - NPV is the value that could be obtained today of the animal / fish and its by-products over the course of its productive life in the future
- ▶ Steps to calculate production value are as follows:
  - Determine the average productive lifespan
  - Identify all commercially viable by-products from the animal / fish
  - Define the average weight per year for each by-product and corresponding unit price
  - Add up the total value each year of all by-products and calculate the NPV by applying a discount factor

$$\text{Net Present Value Per Year of Productive Life (Euro/Year)} = \frac{\text{Net Present Value (Euro)*}}{\text{Average Productive Lifespan (Years)}}$$

Note: (\*) For calculation purposes, NPV per year of productive life for fish is based on value derived from the last year of the fish's life, which enables a comparative analysis of production value across all fish. Source: BAH Analysis

As a first step, we determined the average number of productive years for each animal

Average Productive Lifespan by Animal  
(Number of Years)



Note (1): Years of productive life are defined as the number of years required to derive maximum commercial value and quality from the animal's by-products: Source: BAH Analysis

Then, we determined the types of commercially viable by-products that could be developed over the course of each animal / fish's lifetime

Value of By-Products Across Animal / Fish Lifetime <sup>(1)</sup>

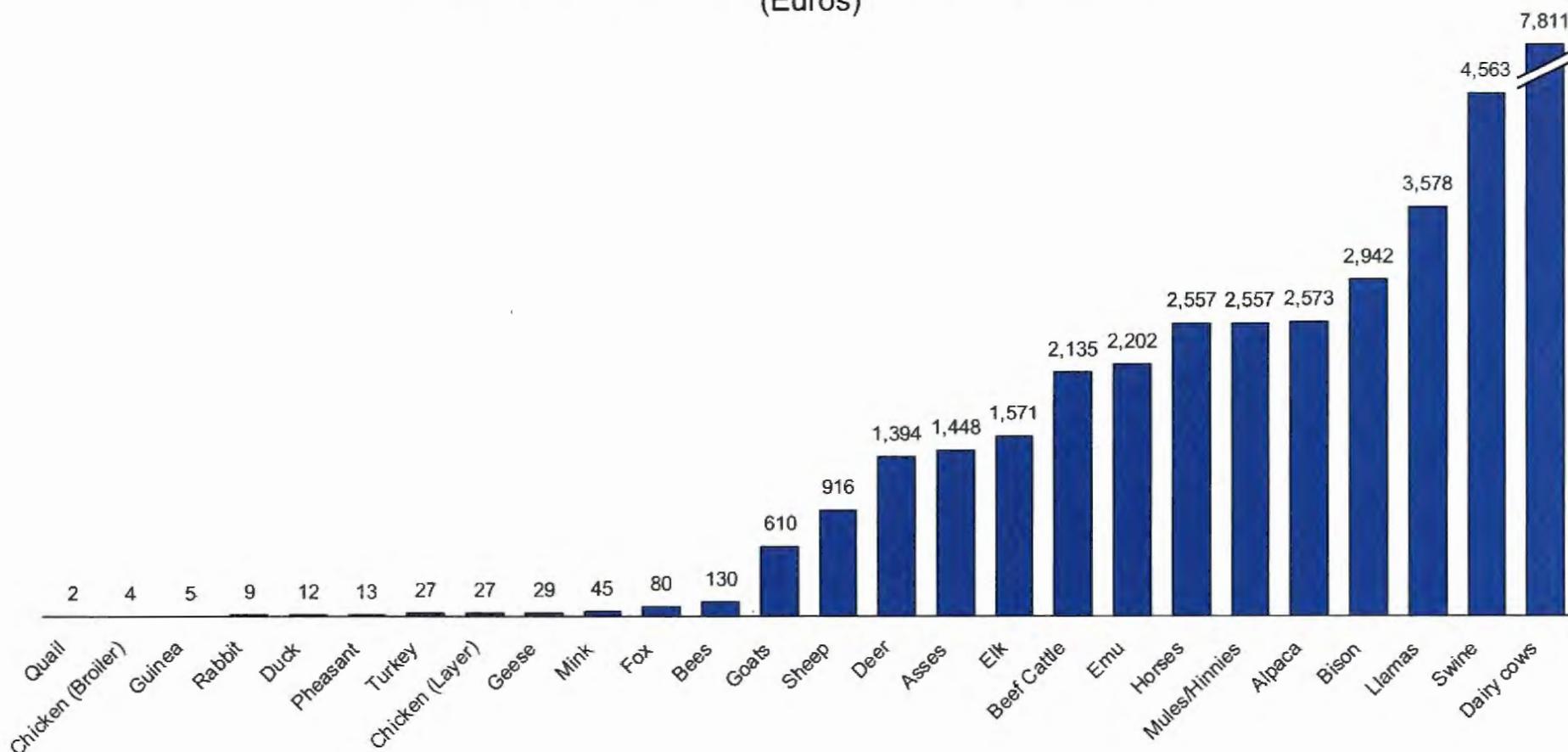
EXAMPLE

<u>Animal / Fish</u>	<u>By-Product</u>	<u>Value</u>							
Beef Cattle	Meat								€ 1,807.09
	Offal								€ 124.53
	Hides / skin								€ 69.65
	Offspring			€ 333.88	€ 333.88	€ 333.88	€ 333.88	€ 333.88	€ 333.88
	<b>TOTAL VALUE</b>	€ 0.00	€ 0.00	€ 333.88	€ 333.88	€ 333.88	€ 333.88	€ 333.88	€ 2,335.15
	<u>Lifetime</u> →	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8
Sheep	Meat								€ 195.12
	Offal								€ 16.31
	Hides / skin								€ 6.55
	Wool			€ 66.29	€ 66.29	€ 66.29	€ 66.29	€ 66.29	€ 66.29
	Dairy			€ 129.60	€ 129.60	€ 129.60	€ 129.60	€ 129.60	€ 129.60
	Offspring			€ 75.12	€ 75.12	€ 75.12	€ 75.12	€ 75.12	€ 75.12
	<b>TOTAL VALUE</b>	€ 0.00	€ 271.01	€ 271.01	€ 271.01	€ 271.01	€ 271.01	€ 271.01	€ 488.98
	<u>Lifetime</u> →	Y1	Y2	Y3	Y4	Y5			
Chicken (Layer)	Meat								€ 2.13
	Table Eggs								€ 27.29
	<b>TOTAL VALUE</b>								€ 29.42
	<u>Lifetime</u> →					Y1			
Trout	Fresh/chilled								€ 1.16
	<b>TOTAL VALUE</b>	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 0.00	€ 1.16
	<u>Lifetime</u> →	Y1	Y2	Y3					

Note (1): Years of productive life are defined as the number of years required to derive maximum commercial value and quality from the animal's by-products; Source: BAH Analysis

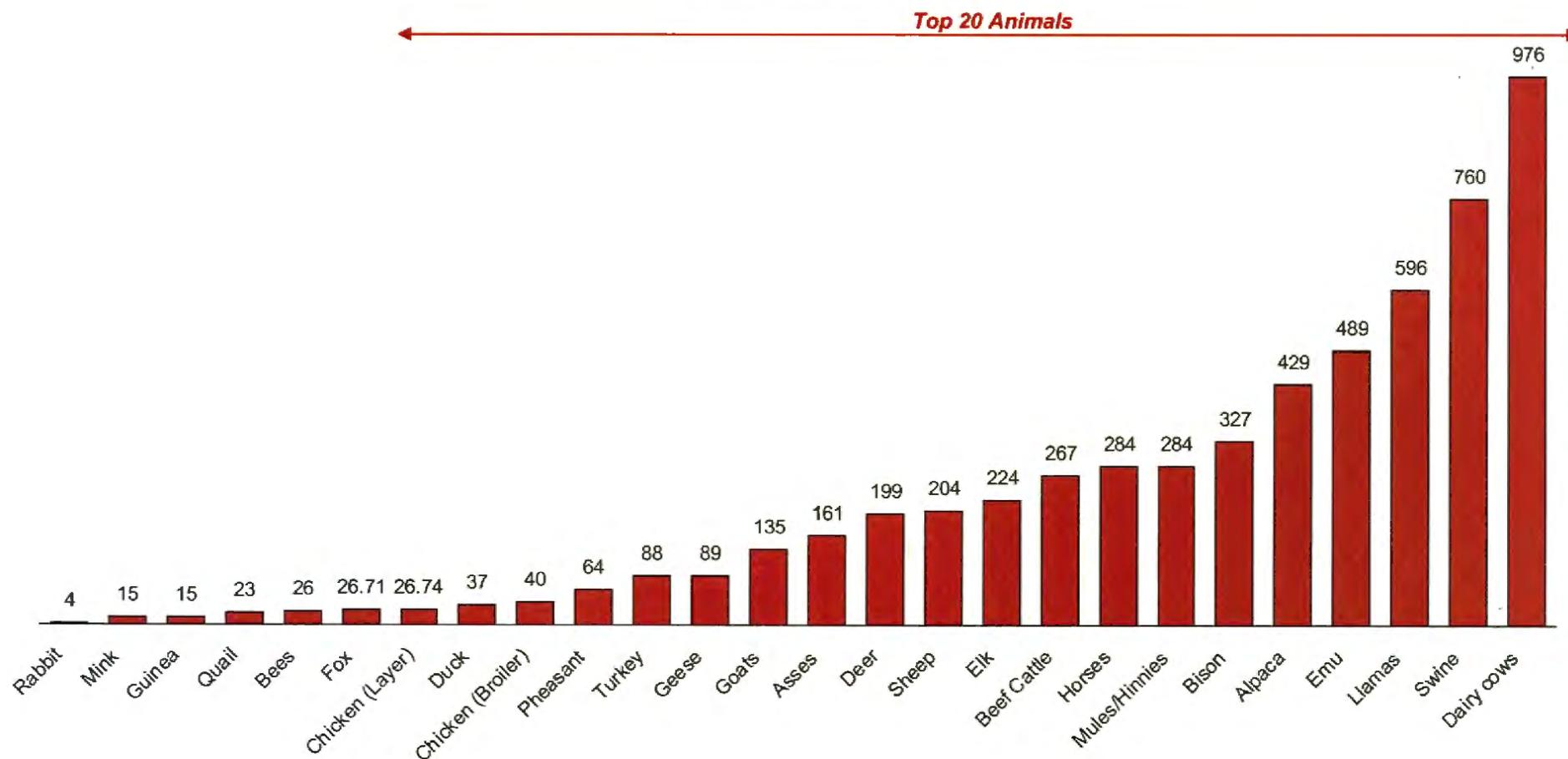
As a next step, we calculated the net present value (NPV) to identify value that could be obtained today for the animal and its by-products over the course of its productive life

NPV for Each Animal and Accompanying By-Products  
(Euros)



In order to identify the highest value animals, we took the NPV of each animal and divided by the total years of its productive life to derive its NPV per year

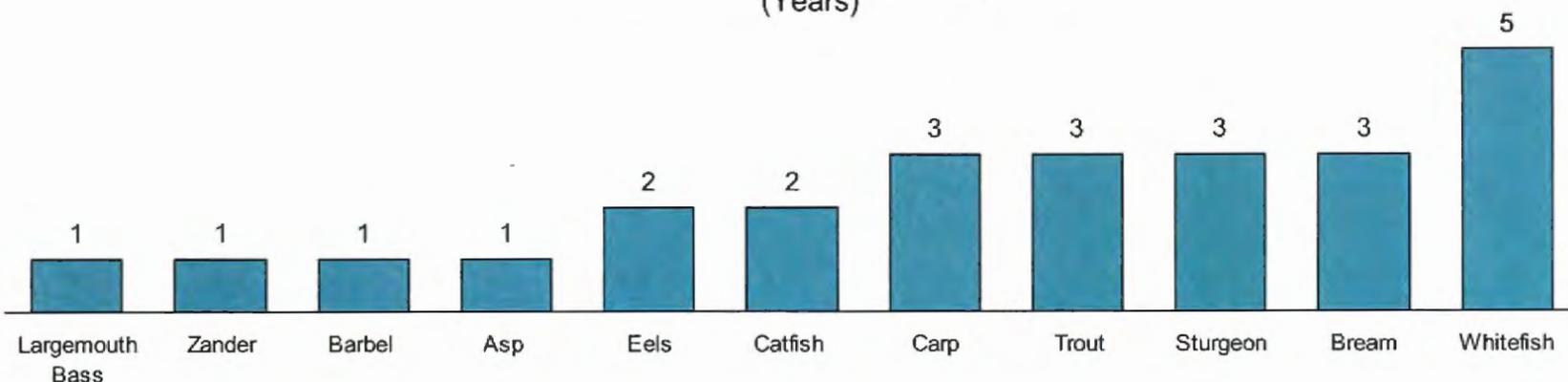
Net Present Value Per Year of Productive Life By Animal  
(Euros per Year)



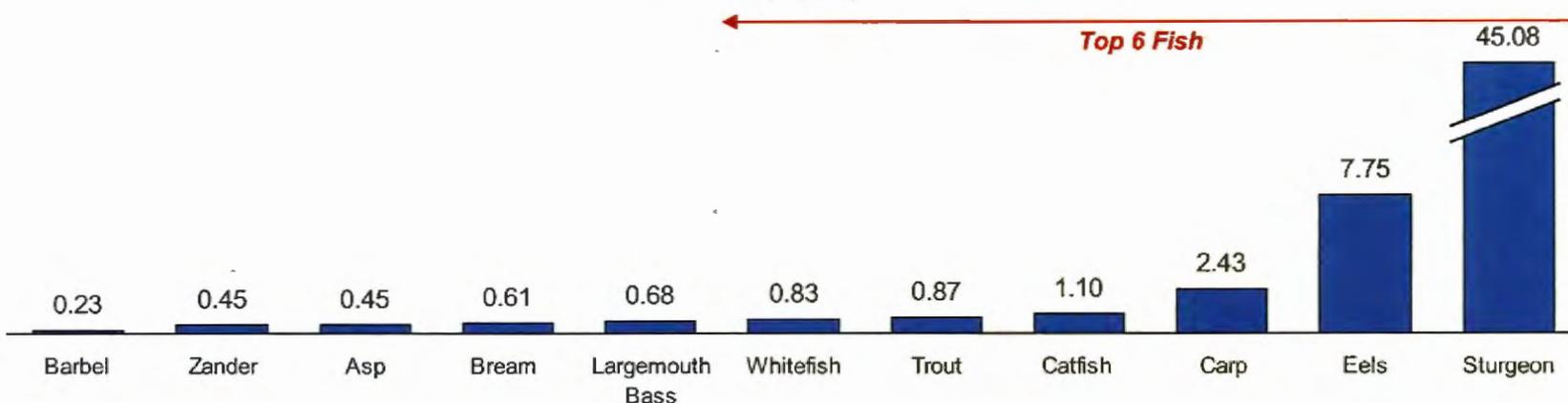
For fish, we calculated the total NPV over its lifetime to select those with the highest value

### Production Value Estimates for Fish

Average Productive Lifespan by Fish  
(Years)

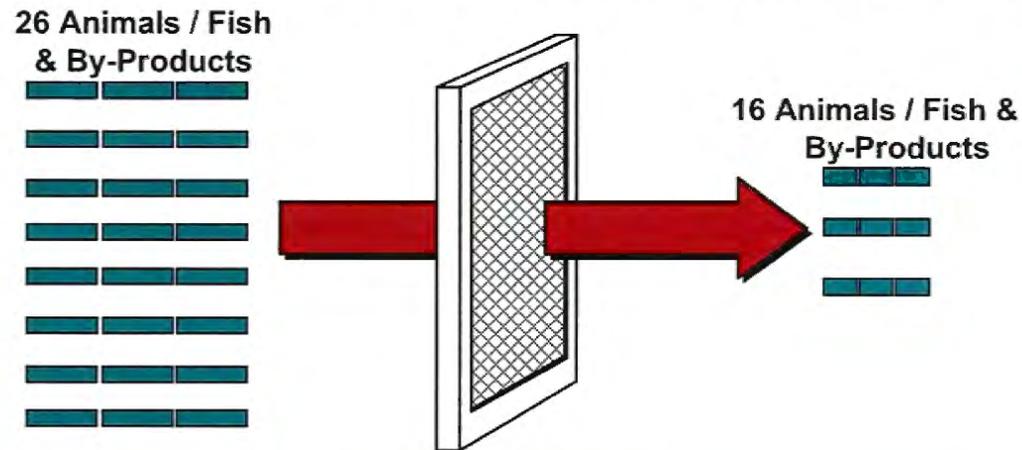


NPV for Each Fish and Accompanying By-Products  
(Euros)

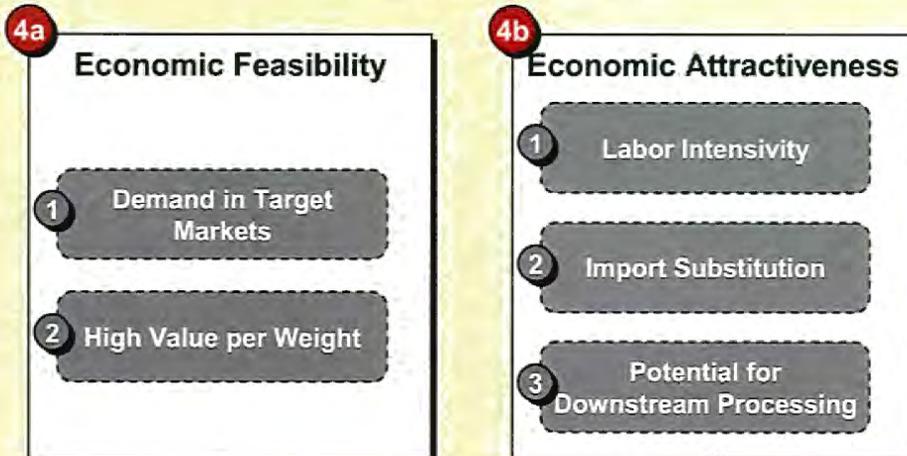


# These 26 animal and fish by-products were further filtered according to economic feasibility and economic attractiveness...

## Filtering Methodology to Identify Top 16 Animals/Fish & By-Products



### Five Dimensional Filter



### Filtering Method Overview

- ▶ This filter ranks the primary by-products from the top 26 animals / fish according to their:
  - Economic feasibility
  - Economic attractiveness
- ▶ Economic feasibility identifies and prioritizes:
  - By-products from animals / fish with the highest demand in the EU market
  - By-products with the highest EU import price per ton
- ▶ Economic attractiveness identifies and prioritizes:
  - Animals / fishes that can be highly labor intensive
  - By-products from animals / fish that are currently imported but could be produced locally instead
  - By-products from animals / fish that have greater potential for high-value processing
- ▶ The final ranking of animals and their by-products is derived from the consolidation of these five filters, and leads to the selection of the top 16 animals / fish and their by-products

## ...using a combination of agriculture databases and expert analysis to determine the results of each filter

### Calculation Methodology and Data Sources

		Calculation Methodology	Data Source	Weight
4A. Economic Feasibility	1. Demand in Target Markets	▶ Ranked and prioritized primary by-products from animals / fish into quartiles in order of decreasing import demand by the EU (27)	▶ US International Trade Commission, TradeMap, EuroStat, FAO Fishery, <a href="http://www.fishbase.org">www.fishbase.org</a> , BAH Analysis	20%
	2. High Value per Weight	▶ Ranked and prioritized primary by-products from animals / fish into quartiles in order of decreasing import value per ton to the EU (27)	▶ TradeMap; European Price Report, FAO GLOBEFISH, EuroStat, FAO Fishery, <a href="http://www.fishbase.org">www.fishbase.org</a> , BAH Analysis	10%
4B. Economic Attractiveness	1. Labor Intensity	<ul style="list-style-type: none"> <li>▶ Highly labor intensive animals requiring 8 or more people per hectare per year to raise and maintain animals received the highest ranking value while animals requiring fewer than 4 people received the lowest ranking value</li> <li>▶ Highly labor intensive fish requiring more than 500 hours per hectare per year to raise and maintain fish received the highest ranking value while fish requiring fewer than 250 hours received the lowest ranking value</li> </ul>	▶ Surveyed Livestock and Fisheries Experts, BAH Analysis	25%
	2. Import Substitution	▶ If the import value is greater than 250,000 Euros for by-products of animals / fish that can be raised in Kosovo, the animal / fish by-product received a higher ranking	▶ Kosovo Customs Data, BAH Analysis	25%
	3. Potential for Downstream Processing	▶ Animals / fish whose primary by-product could be further processed in Kosovo given available inputs, minimal start up and operating costs, and sufficient labor received the highest ranking value, while animals / fish whose primary by-product would be difficult to further process in Kosovo given hard to obtain inputs, significant start up and operating costs, and lack of qualified labor received the lowest ranking value	▶ Surveyed Livestock and Fisheries Experts, BAH Analysis	20%

After combining the filters on a weighted basis, we identified 16 potential high-value, economically attractive and feasible animals / fish and their by-products

Selection of 13 Strategic Animals & Primary By-Products

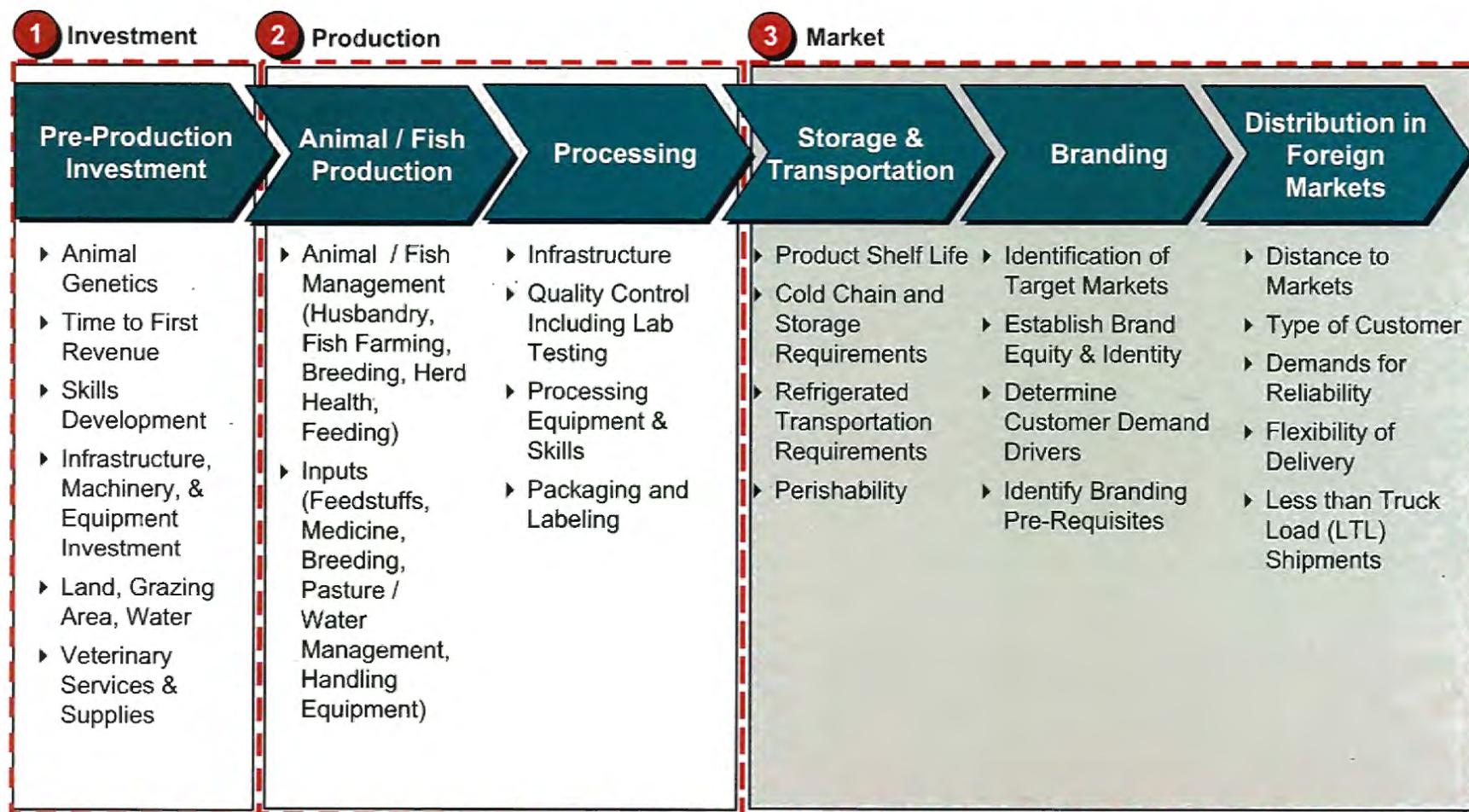
Animal & Primary By-Product	Target Market Demand <small>20%</small>	High Value/Weight <small>10%</small>	Labor Intensity <small>25%</small>	Import Substitution <small>25%</small>	Downstream Processing <small>20%</small>	Weighted Score	Rank
Chicken (Meat)	0.75	0.25	1	1	1	0.8750	1
Dairy cows (Milk)	1	0.75	0.67	1	0.67	0.8265	2
Turkey (Meat)	0.75	0.25	0.67	1	1	0.7925	3
Swine (Meat)	1	0.25	0.67	1	0.67	0.7765	4
Beef Cattle (Meat)	1	0.75	0.33	1	0.67	0.7415	5
Chicken (Layer)	1	0.25	1	0.25	1	0.7375	6
Pheasant (Meat)	0.5	0.75	1	0.25	1	0.6875	7
Duck (Meat)	0.5	0.5	1	0.25	1	0.6625	8
Geese (Meat)	0.5	0.5	1	0.25	1	0.6625	9
Sheep (Meat)	0.75	0.75	0.67	0.25	1	0.6550	10
Goats (Meat)	0.5	0.5	0.67	0.25	1	0.5800	11
Deer (Meat)	1	1	0.33	0.25	0.67	0.5790	12
Llamas (Meat)	0.5	1	0.67	0.25	0.67	0.5640	13

Selection of 3 Strategic Fish & Primary By-Products

Fishery & Primary By-Product	Target Market Demand <small>20%</small>	High Value/Weight <small>10%</small>	Labor Intensity <small>25%</small>	Import Substitution <small>25%</small>	Downstream Processing <small>20%</small>	Weighted Score	Rank
Trout (fresh fillet/meat)	1	0.5	0.67	0.25	1	0.680	1
Sturgeon (fresh fillet/meat)	0.5	0.75	0.67	0.25	1	0.605	2
Carp (fresh fillet/meat)	0.75	0.5	0.67	0.25	0.67	0.564	3

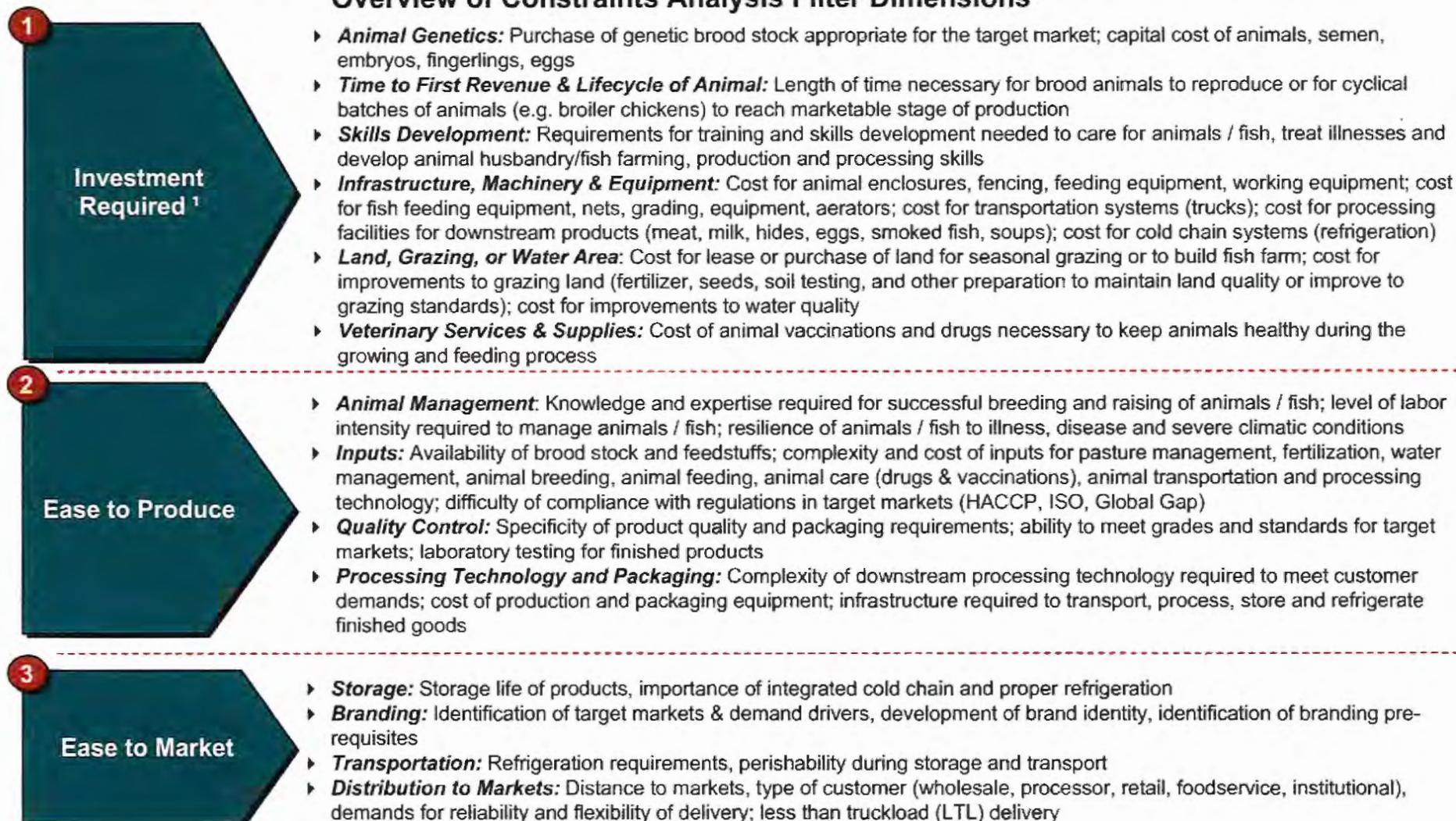
# We further analyzed the remaining animals / fish across the agriculture value chain to better understand the challenges and opportunities facing agricultural providers and exporters

## Investment, Production, and Market Considerations Along the Animal / Fish Product Value Chain



## More specifically, this final Constraints Analysis filter focused on investment required, ease to produce, and ease to market

### Overview of Constraints Analysis Filter Dimensions



Note. (1) Detailed investment costs for production and processing are found in the quantitative model  
Source: BAH Analysis

## We developed a scale that defined required investment criteria and characteristics...

### Required Investment Ranking Description

Weight	Description
	<ul style="list-style-type: none"> <li>▶ Almost no time is required until first offspring or by-products are produced</li> <li>▶ Long productive life of the animal / fish</li> <li>▶ Expertise for animal husbandry/fish farming or downstream processing already exists</li> <li>▶ Minimal cost for inputs, equipment or production and processing facilities</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Minimal time is required until first offspring or by-products are produced</li> <li>▶ Relatively longer productive life of the animal / fish</li> <li>▶ Expertise for animal husbandry/fish farming or downstream processing already exists or can be obtained with minimal difficulty</li> <li>▶ Reasonable costs for inputs, equipment or production and processing facilities</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Slightly longer amount of time is required until the first offspring or by-products are produced</li> <li>▶ Relatively shorter productive life of the animal / fish</li> <li>▶ Some expertise with animal husbandry/fish farming or downstream processing already exists, but additional expertise will be obtained with greater difficulty</li> <li>▶ Higher costs for inputs, equipment or production and processing facilities</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Significant time is required until the first offspring or by-products are produced</li> <li>▶ Short productive life of the animal / fish</li> <li>▶ Little expertise or familiarity with animal husbandry/fish farming or downstream processing</li> <li>▶ Prohibitive costs for inputs, equipment or production and processing facilities</li> </ul>

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
Beef Cattle	Multi annual	2 years	Up to 8 years	4,000 Euro/Ha	140,000 Euro	
	<p><b>Animal Genetics:</b> Appropriate animal genetics are available in the region, but must be introduced through breed stock, semen and/or embryos.</p> <p><b>Skill Development:</b> Very little additional knowledge is required for animal production. Specialized skills for downstream slaughter and processing requires moderate training.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Working equipment (squeeze chutes, pens &amp; panels) for production. Outdoor lots with concrete feeding bunkers for finishing (fattening). Downstream processing facilities for slaughter and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> Requires land for grazing (One 545 kg cow plus her calf requires 12 kg forage per day on a dry matter basis). Dry lots for feeding (26 m<sup>2</sup> per animal, with dirt mounds).</p> <p><b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ante- and post-mortem inspection of animals at processing.</p>					
Dairy Cattle	Multi annual	2 years	Up to 8 years	45,000 Euro/Ha	115,000 Euro	
	<p><b>Animal Genetics:</b> More productive animals (i.e. Jersey, Guernsey) are available in the region, but must be introduced to gain competitiveness.</p> <p><b>Skill Development:</b> Very simple system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Partially enclosed area for animal feeding and rest (32.5 m<sup>2</sup> per animal). Modern milking parlors, collection and pre-cooling systems are needed, along with downstream processing facilities with modern equipment for high-value production (UHT milk &amp; specialty products) and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> Limited grazing land is required, although daily access to pastures is desirable.</p> <p><b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ongoing veterinary support and medicines for injured or ill animals (foot problems, infections &amp; sores).</p>					

Note: (\*)Production investment cost includes infrastructure, machinery, equipment and animal genetics\* Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included

Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
Sheep	Multi annual	2 years	Up to 5 years	3,000 Euro/Ha	91,000 Euro	●
	<p><b>Animal Genetics:</b> Appropriate animal genetics already exist in the country.  <b>Skill Development:</b> Very little additional knowledge is required for animal production. Specialized skills for downstream slaughter and processing requires moderate training.  <b>Infrastructure, Machinery &amp; Equipment Needed:</b> Working equipment (squeeze chutes, pens &amp; panels) for production. Outdoor lots with concrete feeding bunkers for finishing (fattening). Downstream processing facilities for slaughter and packaging requires HACCP oversight.  <b>Land, Grazing or Water Area:</b> Requires land for grazing (One 70 kg ewe plus her lamb(s) requires 2.4 kg forage per day on a dry matter basis). Dry lots for feeding (1.86 m<sup>2</sup> per animal, with dirt mounds).  <b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ante- and post-mortem inspection of animals at processing.</p>					
Goat	Multi annual	2 years	Up to 5 years	3,000 Euro/Ha	91,000 Euro	●
	<p><b>Animal Genetics:</b> Appropriate animal genetics already exist in the country.  <b>Skill Development:</b> Very little additional knowledge is required for animal production. Specialized skills for downstream slaughter and processing requires moderate training.  <b>Infrastructure, Machinery &amp; Equipment Needed:</b> Working equipment (squeeze chutes, pens &amp; panels) for production. Outdoor lots with concrete feeding bunkers for finishing (fattening). Downstream processing facilities for slaughter and packaging requires HACCP oversight.  <b>Land, Grazing or Water Area:</b> Requires land for grazing (One 60 kg doe plus her kid(s) requires 1.8 kg forage per day on a dry matter basis). Dry lots for feeding (1.5 m<sup>2</sup> per animal, with dirt mounds).  <b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ante- and post-mortem inspection of animals at processing.</p>					

Note: (\*)Production investment cost includes infrastructure, machinery, equipment, and animal genetics; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included  
Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
	Multi annual	2 years	Up to 6 years	74,000 Euro/Ha	140,000 Euro	
<b>Swine</b>						<p><b>Animal Genetics:</b> Appropriate animal genetics already exist in the country and neighbouring countries.</p> <p><b>Skill Development:</b> Moderately simple three-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training. Production is labor intensive.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Enclosed building for each phase of production (farrowing, feeding &amp; finishing), watering systems, and waste material handling systems. Finishing animals require 1.9 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed (smoked meat and/or sausage) products and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> No grazing land is required. Adequate land for three-site enclosures is required.</p> <p><b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ongoing veterinary support and medicines for injured or ill animals (foot problems, infections &amp; sores). Ante- and post-mortem inspection of animals at processing.</p>
	Multi annual	2 years	Up to 6 years	3,000 Euro/Ha	135,000 Euro	
<b>Llama</b>						<p><b>Animal Genetics:</b> Animal genetics are hard to locate; may not be available in the region and must be imported.</p> <p><b>Skill Development:</b> Very limited knowledge and understanding of the breed, so skill development is required. Specialized skills for downstream processing requires moderate training.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Animals are pasture raised, so little infrastructure is needed. Pens and panels for shearing and working animals are not costly. Downstream processing facilities with modern equipment for fresh meat products and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> Grazing land is required, although mountain pastures are adequate.</p> <p><b>Veterinary Services &amp; Supplies:</b> Twice annual vaccinations for standard animal diseases. Ante- and post-mortem inspection of animals at processing.</p>

Note: (\*)Production investment cost includes infrastructure, machinery, equipment, and animal genetics; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included

Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
Broiler Chicken	Annual	Immediate	45 Days	105,000 Euro/Ha	112,000 Euro	
	<p><b>Animal Genetics:</b> Day old chicks must be imported for each batch of production. Adequate genetics available from nearby countries.</p> <p><b>Skill Development:</b> Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training. Production is labor intensive.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Enclosed building for production, climate control and watering systems. Birds require 0.23 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed meat products and packaging requires HACCP oversight. Initial investment is very high, but return on investment is accelerated due to multiple batches of birds per year and short time to market.</p> <p><b>Land, Grazing or Water Area:</b> No grazing land is required. Adequate land for enclosures is required.</p> <p><b>Veterinary Services &amp; Supplies:</b> Vaccinations for standard animal diseases for each lot of birds. Ante- and post-mortem inspection of animals at processing.</p>					
Laying Hen	Annual	Immediate	45 Days	40,000 Euro/Ha	40,000 Euro	
	<p><b>Animal Genetics:</b> Day old chicks must be imported for each batch of production. Adequate genetics available from nearby countries.</p> <p><b>Skill Development:</b> Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires minimal training. Production is labor intensive.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Enclosed building for production, climate control and watering systems. Birds require 0.23 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh egg grading and packaging. Initial investment is less than with broiler chickens, but the value of the finished products (eggs) has less value.</p> <p><b>Land, Grazing or Water Area:</b> No grazing land is required. Adequate land for enclosures is required.</p> <p><b>Veterinary Services &amp; Supplies:</b> Vaccinations for standard animal diseases for each lot of birds.</p>					

\* Note: (\*)Production investment cost includes infrastructure, machinery, equipment and animal genetics. Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included  
Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
	Annual	Immediate	126 Days	70,000 Euro/Ha	62,000 Euro	
Turkey						
	Annual	Immediate	112 Days	105,000 Euro/Ha	112,000 Euro	
Pheasant						

**Animal Genetics:** Day old chicks must be imported for each batch of production. Supply of live chicks may not be available from nearby countries.

**Skill Development:** Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing of meat requires moderate training. Production is labor intensive.

**Infrastructure, Machinery & Equipment Needed:** Enclosed building for production, climate control and watering systems. Birds require 0.93 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed meat products and packaging requires HACCP oversight. Infrastructure cost is the same as with broiler chickens, but with less cycles of birds per year.

**Land, Grazing or Water Area:** No grazing land is required. Adequate land for enclosures is required.

**Veterinary Services & Supplies:** Vaccinations for standard animal diseases for each lot of birds. Ante- and post-mortem inspection of animals at processing.

**Animal Genetics:** Day old chicks must be imported for each batch of production. Adequate genetics may not be readily available in the region, resulting in a high investment cost to import chicks.

**Skill Development:** Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training. Production is labor intensive.

**Infrastructure, Machinery & Equipment Needed:** Enclosed building for production, climate control and watering systems. Birds require 0.23 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed meat products and packaging requires HACCP oversight.

**Land, Grazing or Water Area:** No grazing land is required. Adequate land for enclosures is required.

**Veterinary Services & Supplies:** Vaccinations for standard animal diseases for each lot of birds. Ante- and post-mortem inspection of animals at processing.

Note: (\*)Production investment cost includes infrastructure, machinery equipment, and animal genetics; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included

Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
Geese	Annual	Immediate	112 Days	80,000 Euro/Ha	62,000 Euro	
	<p><b>Animal Genetics:</b> Day old chicks must be imported for each batch of production. Adequate genetics may not be readily available in the region.</p> <p><b>Skill Development:</b> Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training. Production is labor intensive.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Enclosed building for production, climate control and watering systems. Birds require 0.50 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed meat products and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> No grazing land is required. Adequate land for enclosures is required.</p> <p><b>Veterinary Services &amp; Supplies:</b> Vaccinations for standard animal diseases for each lot of birds. Ante- and post-mortem inspection of animals at processing.</p>					
Ducks	Annual	Immediate	112 Days	80,000 Euro/Ha	62,000 Euro	
	<p><b>Animal Genetics:</b> Day old chicks must be imported for each batch of production. Adequate genetics available from nearby countries.</p> <p><b>Skill Development:</b> Very simple one-stage (site) system for production, so minimal additional training is needed. Specialized skills for downstream processing requires moderate training. Production is labor intensive.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Enclosed building for production, climate control and watering systems. Birds require 0.50 m<sup>2</sup> per animal. Downstream processing facilities with modern equipment for fresh and processed meat products and packaging requires HACCP oversight.</p> <p><b>Land, Grazing or Water Area:</b> No grazing land is required. Adequate land for enclosures is required.</p> <p><b>Veterinary Services &amp; Supplies:</b> Vaccinations for standard animal diseases for each lot of birds. Ante- and post-mortem inspection of animals at processing.</p>					

Note: (\*)Production investment cost includes infrastructure, machinery, equipment, and animal genetics; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included

Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
	Annual	Immediate	45 Days	3,000 Euro/Ha	110,000 Euro	

#### Deer

**Animal Genetics:** Animal genetics must be imported, but may not be available in the region.

**Skill Development:** Very simple pasture production system, however limited knowledge about commercial production is available locally, so considerable additional training is needed. Specialized skills for downstream processing requires moderate training.

**Infrastructure, Machinery & Equipment Needed:** Limited infrastructure for production is needed. Panels and chutes for handling animals. Downstream processing facilities with modern equipment for fresh meat products and packaging requires HACCP oversight.

**Land, Grazing or Water Area:** Grazing land is required. Mountain pastures are adequate provided they are properly fenced.

**Veterinary Services & Supplies:** Twice annual vaccinations for standard animal diseases. Ante- and post-mortem inspection of animals at processing.

Note: (\*)Production investment cost includes infrastructure, machinery, equipment, and animal genetics; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included

Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
Carp	Multi annual	2 years	Up to 8 years	30,000 Euro/Ha	8,000 Euro	
	<p><b>Animal Genetics:</b> Some fish broodstock already exists in the country. May consider importing additional broodstock to introduce different varieties that are more disease-resistant and/or grow faster.</p> <p><b>Skill Development:</b> Minimal additional training is needed to build hatcheries. Moderate training is required to teach specialized skills for 1) disease awareness and prevention and 2) any additional downstream processing techniques introduced in Kosovo (e.g. gutting, de-scaling, scoring to break bones). Additional focus needs to be placed on improving performance of existing carp farms.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Development of a fish farm will require a pond water system, cages for raising fish (optional), aeration device, and tanks to treat fingerlings for diseases and prepare them prior to placement in the pond. Required harvesting equipment includes seine nets, ice machine, and tanks.</p> <p><b>Land, Grazing, or Water Area:</b> Land is required to excavate ponds, preferably with high clay content which helps hold water. Construction of hatcheries would require additional land works; Unpolluted water would be needed to fill ponds and operate hatcheries.</p> <p><b>Veterinary Services &amp; Supplies:</b> Fish disease specialist and veterinary care needed.</p>					
Trout	Multi annual	2 years	Up to 5 years	58,000 Euro/Ha	35,000 Euro	
	<p><b>Animal Genetics:</b> Fish broodstock already exists for rainbow trout; may consider importing additional trout varieties with select genetic characteristics (e.g. those grow quickly, are disease resistant, achieve maximum % of fish fillet to total fish weight).</p> <p><b>Skill Development:</b> Minimal additional training is required to build hatcheries and maintain fish production. Specialized skills for disease awareness and prevention and downstream processing (e.g. gutting, de-scaling, smoking) require moderate training.</p> <p><b>Infrastructure, Machinery &amp; Equipment Needed:</b> Development of additional fish farms will require a raceway water system, cages for raising fish (optional), aeration device, and tanks to treat fingerlings for diseases and prepare them prior to placement in the pond; required equipment includes nets, ice machine, and tanks. Specialized processing equipment may include filleting, de-skinning, and gutting machines.</p> <p><b>Land, Grazing, or Water Area:</b> Land is required for raceway and hatchery construction; also required abundant supply of cool, clean water to fill raceways and operate hatcheries.</p> <p><b>Veterinary Services &amp; Supplies:</b> Fish disease specialist and veterinary care needed.</p>					

Note: (\*)Production investment cost includes infrastructure, machinery equipment; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included. Source: BAH Analysis

## ...and analyzed the potential for Kosovo to develop animals / fish according to required investments (cont'd)

### Required Investment Analysis and Rank

Animal	Type of Production	Time to First Offspring	Productive Life	Investment Cost*		Score
				Production	Processing	
	Multi annual	8 years	Up to 25 years	58,000 Euro/Ha	41,000 Euro	

#### Sturgeon

**Animal Genetics:** All fish broodstock must be imported from countries such as Russia, Hungary, Romania, etc.

**Skill Development:** Moderate training is required for hatchery production of fingerlings given the slightly more complicated and demanding procedures for sturgeon. Specialized skills for downstream processing of fillets (e.g. gutting, de-scaling) is required. To introduce caviar production, knowledge is needed to extract eggs from female without killing the fish and to treat the eggs.

**Infrastructure, Machinery & Equipment Needed:** Creation of a fish farm required ponds or raceway water system, aeration device, and tanks to treat fingerlings for diseases and prepare them prior to placement in the pond; required harvesting equipment includes nets, ice machine, and tanks. Specialized processing equipment may include filleting, de-skinning, and gutting machines.

**Land, Grazing, or Water Area:** Land is required to excavate ponds, preferably with high clay content which helps hold water. Any land type is sufficient for raceway and hatchery construction. Abundant, clean water is needed to operate raceways and hatcheries and to fill ponds.

**Veterinary Services & Supplies:** Fish disease specialist and veterinary care needed.

Note: (\*)Production investment cost includes infrastructure, machinery, equipment; Processing investment costs include infrastructure, equipment, cold chain systems and refrigerated transportation and storage. Land cost not included.

Source: BAH Analysis

## We also created a scale that outlined the possible ease of production components and levels...

### Ease of Production Ranking Description

Weight	Description
	<ul style="list-style-type: none"> <li>▶ Extensive expertise exists for overall animal management and by-product processing</li> <li>▶ Input costs are minimal; input requirements are straightforward; inputs are available locally or can be imported at a reasonable cost; and, regulatory compliance is easily obtained</li> <li>▶ Product quality, grade, and packaging requirements are minimal and easily obtainable</li> <li>▶ Simple processing technology/procedures; minimal and inexpensive infrastructure requirements</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Sufficient expertise exists for overall animal management and by-product processing</li> <li>▶ Input costs are reasonable; input requirements are understandable; inputs are available locally or can be imported at a moderate cost; and, regulatory compliance can be obtained</li> <li>▶ Product quality, grade and packaging requirements are manageable and obtainable</li> <li>▶ Understandable technology/procedures; reasonable infrastructure requirements</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Some expertise exists for overall animal management and by-product processing</li> <li>▶ Input costs are higher; input requirements can be unclear; inputs are available but must imported at a high cost; and, regulatory compliance can require significant effort</li> <li>▶ Product quality, grade and packaging requirements can be extensive and can be difficult to obtain</li> <li>▶ Several processing technology/procedures; significant infrastructure requirements</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Minimal expertise exists for overall animal management and by-product processing</li> <li>▶ Input costs are prohibitive; input requirements are unclear; inputs are unavailable at any cost; and, regulatory compliance requires significant effort</li> <li>▶ Product quality, grade and packaging requirements are extensive and difficult to obtain</li> <li>▶ Extensive, complicated technology/procedures; prohibitive infrastructure requirements</li> </ul>

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Beef Cattle	<p><b>Animal Management:</b> Some additional knowledge and expertise is required to manage beef cattle breeding and feeding systems (including ration development). Animals are very durable and do well year-round in outdoor conditions.</p> <p><b>Inputs:</b> Requires access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements), soil inputs to maintain grazing lands (seeds &amp; fertilizer), animal drugs as well as equipment for downstream processing. Also requires the ability to transport finished animals to processing facilities.</p> <p><b>Quality Control:</b> Determination of finished animals (properly fattened) for slaughter requires training and experience. Quality control of finished products is highly specified and technical for export markets, especially for chilled meats.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is moderately specialized and requires modern infrastructure with HACCP approval as well as machinery to process, package, and label products.</p>	
Dairy Cattle	<p><b>Animal Management:</b> This animal requires minimal additional training for managing and milking, although expertise is required to manage artificial insemination (AI) and breeding cycles.</p> <p><b>Inputs:</b> Requires limited access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements), animal drugs as well as equipment for downstream processing. Also requires the ability to transport perishable raw milk to processing facilities. Capital for commercial milking parlors is significant, and requires a moderate size herd to justify investment.</p> <p><b>Quality Control:</b> Handling of raw milk requires training and oversight, and quality control of finished product processing is critical to adequate shelf life and finished product quality. Raw milk is highly perishable.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing requires special equipment for milk processing, and is moderately specialized. All processing must be done with HACCP approval (currently 35% of production is HACCP certified) and machinery to process, package, and label products. Modern infrastructure is necessary for proper hygiene.</p>	
Sheep	<p><b>Animal Management:</b> No additional knowledge is needed to manage the animals, and the animal is very durable and resilient in local conditions, although ewes are generally housed indoors during the lambing season.</p> <p><b>Inputs:</b> Requires access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements), soil inputs to maintain grazing lands (seeds &amp; fertilizer), animal drugs as well as equipment for downstream processing. Also requires the ability to transport finished animals to processing facilities.</p> <p><b>Quality Control:</b> Quality control of finished products, especially adherence to target carcass weights, is important to retain access to export markets.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is fairly simplistic (carcass basis) but still requires modern infrastructure with HACCP approval as well as machinery to process, package, and label products.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Goats	<p><b>Animal Management:</b> No additional knowledge is needed to manage the animals, and the animal is very durable and resilient in local conditions.</p> <p><b>Inputs:</b> Requires access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements), soil inputs to maintain grazing lands (seeds &amp; fertilizer), animal drugs as well as equipment for downstream processing. Also requires the ability to transport finished animals to processing facilities.</p> <p><b>Quality Control:</b> Quality control of finished products, especially adherence to target carcass weights, is important to retain access to target markets.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is fairly simplistic (carcass basis) but still requires modern infrastructure with HACCP approval as well as machinery to process, package, and label products.</p>	
Swine	<p><b>Animal Management:</b> This animal requires three-site production and considerable expertise in animal husbandry. Animals in confinement are prone to respiratory diseases and must be carefully managed.</p> <p><b>Inputs:</b> Requires considerable infrastructure, feed inputs and climate controlled environments. Waste management requires a considerable amount of water and processing.</p> <p><b>Quality Control:</b> Selection of live animals for slaughter requires training and experience. Quality control of finished products is highly specified and technical for export markets.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is moderately specialized and requires modern infrastructure with HACCP approval as well as machinery to process, package, and label products. Swine must be processed in a dedicated facility and can not share space with beef, sheep, goat or other species at slaughter.</p>	
Llama	<p><b>Animal Management:</b> Additional knowledge and expertise is required to manage this breed, and experienced personnel are most likely NOT available in the region. Additional training and oversight would be required to establish commercial Llama operations in the country.</p> <p><b>Inputs:</b> Requires access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements), soil inputs to maintain grazing lands (seeds &amp; fertilizer), animal drugs as well as equipment for downstream processing. Also requires the ability to transport finished animals to processing facilities.</p> <p><b>Quality Control:</b> Selection of live animals for slaughter requires training and experience. Lack of familiarity with finished products or specifications will complicate the ease to produce. Quality control of finished products is highly specified and technical for export markets.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is unique to other animals, and requires modern infrastructure with HACCP approval as well as machinery to process, package, and label products.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Broiler Chicken	<p><b>Animal Management:</b> Knowledge and expertise required to manage the animal is already in the country, thus little additional training is needed. Production is labor intensive.</p> <p><b>Inputs:</b> Requires climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with multiple groups of finished products per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control for export markets is challenging due to packaging methodology (not vacuum packaged), resulting in shorter shelf life. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants in live birds.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is different from other animals, and requires specialized equipment to remove feathers and clean birds. Packaging is simplistic compared to vacuum packaged products from other species, although HACCP certification is required.</p>	
Laying Hen	<p><b>Animal Management:</b> Managing this animal requires minimal additional training, although the animal is labor intensive to manage.</p> <p><b>Inputs:</b> Requires climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with daily production of eggs throughout per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control of finished products is simple and requires limited investment. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants on egg surfaces.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is very simple and requires little infrastructure or machinery to package products.</p>	
Turkey	<p><b>Animal Management:</b> Knowledge and expertise required to manage the animal is similar to broiler chickens, and is in the country, thus little additional training is needed. Production is labor intensive.</p> <p><b>Inputs:</b> Requires climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with multiple groups of finished products per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control for export markets is challenging due to packaging methodology (not vacuum packaged), resulting in shorter shelf life. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants in live birds.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is similar to broiler chickens, and requires specialized equipment to remove feathers and clean birds. Packaging is simplistic compared to vacuum packaged products, from other species, although HACCP certification is required.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Pheasant	<p><b>Animal Management:</b> Knowledge and expertise required to manage the animal is similar to broiler chickens, and is in the country, thus little additional training is needed. Production is labor intensive.</p> <p><b>Inputs:</b> Similar to other birds, requiring climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with multiple groups of finished products per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control of finished products can be challenging due to lack of familiarity with market demands. Packaging technology may be primitive (if similar to poultry), which makes quality control more difficult and shelf life shorter. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants in live birds.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is fairly simple without vacuum packaging, but the equipment required to clean and de-feather the birds requires training. Modern infrastructure with HACCP certification is required.</p>	
Duck	<p><b>Animal Management:</b> Knowledge and expertise required to manage the animal is similar to broiler chickens, and is in the country, thus little additional training is needed. Production is labor intensive.</p> <p><b>Inputs:</b> Similar to other birds, requiring climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with multiple groups of finished products per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control of finished products can be challenging due to lack of familiarity with market demands. Packaging technology may be primitive (if similar to poultry), which makes quality control more difficult and shelf life shorter. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants in live birds.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is fairly simple without vacuum packaging, but the equipment required to clean and de-feather the birds requires training. Modern infrastructure with HACCP certification is required.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Geese	<p><b>Animal Management:</b> Knowledge and expertise required to manage the animal is similar to broiler chickens, and is in the country, thus little additional training is needed. Production is labor intensive.</p> <p><b>Inputs:</b> Similar to other birds, requiring climate controlled infrastructure, watering systems and concentrated feedstuffs. High cost of start up and stocking can be balanced with multiple groups of finished products per year (rapid turn around of capital).</p> <p><b>Quality Control:</b> Quality control of finished products can be challenging due to lack of familiarity with market demands. Packaging technology may be primitive (if similar to poultry), which makes quality control more difficult and shelf life shorter. Food safety can be challenging with mass production systems and the high percentage of bacterial contaminants in live birds.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is fairly simple without vacuum packaging, but the equipment required to clean and de-feather the birds requires training. Modern infrastructure with HACCP certification is required.</p>	
Deer	<p><b>Animal Management:</b> Additional knowledge and expertise is required to manage this breed, and experienced personnel are most likely not available in the region. Additional training and oversight would be required to establish commercial deer operations in the country.</p> <p><b>Inputs:</b> Requires access to pastures and an available supply of feed inputs (forage, concentrated grain and supplements) during the winter months, soil inputs to maintain grazing lands (seeds &amp; fertilizer), animal drugs as well as equipment for downstream processing. Importing the breed stock may prove challenging and time consuming.</p> <p><b>Quality Control:</b> Limited knowledge of processing standards or product attributes, thus quality control will be challenging. Little knowledge of customer specifications or export market demands will limit their success.</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing is similar to other mammals, but will require close attention to detail and additional training. Processing will require modern infrastructure with HACCP certification as well as machinery to process, package, and label products. Most of the products would be destined for export markets, requiring a high degree of branding and packaging technology.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Carp	<p><b>Fish Management:</b> Easy to spawn and raise. Reasonably disease resistant. Tolerant of temperature extremes. Can be raised in farm ponds with low levels of inputs (i.e. feedstuff and broodstock) as well as intensively in ponds and cages. Slightly less labor intensive if raised in ponds.</p> <p><b>Inputs:</b> Can use inexpensive local feedstuffs like barley, wheat, corn, etc. Local fingerling production exists. Vaccinations may be necessary to prevent and treat illnesses and minimize spread to other fish.</p> <p><b>Quality Control:</b> Currently no HACCP-certified production of carp exists. Exports to the EU will require a documentary check (examination of health certificate); identity check (visual inspection to confirm consistency between documents and products, verification for the presence of required sanitary marks [country of origin, approval number]); and, a physical check on the product itself (organoleptic control, packaging, temperature, it may include sampling and laboratory testing)</p> <p><b>Processing Technology &amp; Packaging:</b> Downstream processing, such as scoring to break the bones, is typically done by hand. Little packaging is required as carp are normally sold live or on ice.</p>	
Trout	<p><b>Fish Management:</b> Trout typically grows quickly in cool water and are reasonably disease resistant. Can be raised in farm ponds with low levels of inputs (i.e. feedstuff and broodstock) as well as intensively in raceways and cages. However, trout production requires more labor if raised in a raceway. Trout must be raised in cooler water as they are more temperature sensitive.</p> <p><b>Inputs:</b> No fish meal production currently occurs in country, so all fish meal would need to be imported. Requires specialized labor to spawn broodstock and raise eggs to reach the fingerling stage. Some local fingerling production exists in country, but will need to be supplemented by imported fingerlings. Vaccinations may be necessary to prevent and treat illnesses.</p> <p><b>Quality Control:</b> Currently no HACCP-certified production of trout exists, although the KFVA plans to receive approval to export fish to the EU by 2011. Exports to the EU will require a documentary check (examination of health certificate); identity check (visual inspection to confirm consistency between documents and products, verification for the presence of required sanitary marks [country of origin, approval number]); and, a physical check on the product itself (organoleptic control, packaging, temperature, it may include sampling and laboratory testing)</p> <p><b>Processing Technology &amp; Packaging:</b> Specialized processing equipment may include filleting, de-skinning, and gutting machines. Downstream processing facilities for gutting and packaging requires HACCP oversight. Fairly simple packaging, including vacuum-packed plastic packaging, can be used for processing.</p>	

## ...and analyzed the potential for Kosovo to develop each animal / fish based on ease of production (cont'd)

### Ease of Production Analysis and Rank

Animal	Explanation	Score
Sturgeon	<p><b>Fish Management:</b> Sturgeon typically grows slowly and takes 3 to 4 years to reach marketable size. Can be raised in farm ponds with low levels of inputs (i.e. feedstuff and broodstock) as well as intensively in raceways and cages. Fish raised in raceways are more labor intensive than ponds, while hatcheries are highly labor intensive. Sturgeon are reasonably tolerant to water temperatures.</p> <p><b>Inputs:</b> Requires imported fish meal/fish oil made from marine fish such as menhaden and pilchards. Requires specialized labor to spawn broodstock and raise eggs to reach the fingerling stage. Fingerlings will need to be imported. Vaccinations may be necessary to prevent and treat illnesses.</p> <p><b>Quality Control:</b> Exports to the EU will require a documentary check (examination of health certificate); identity check (visual inspection to confirm consistency between documents and products, verification for the presence of required sanitary marks [country of origin, approval number]); and, a physical check on the product itself (organoleptic control, packaging, temperature, it may include sampling and laboratory testing)</p> <p><b>Processing Technology &amp; Packaging:</b> Specialized processing equipment may include filleting, de-skinning, and gutting machines. Downstream processing facilities for gutting and packaging requires HACCP oversight. Fairly simple packaging, including vacuum-packed plastic packaging, can be used for processing. Canning machinery is typically used for caviar.</p>	

For the final component of the Constraints Analysis, we created a scale that defined the level of difficulty in getting products to market...

### Ease to Market Ranking Description

Weight	Description
	<ul style="list-style-type: none"> <li>▶ Long product fresh storage life, minimal storage requirements</li> <li>▶ Low perishability, minimal transport requirements</li> <li>▶ Close proximity to markets, reliable demand, flexible delivery</li> <li>▶ Target markets well known; brand equity, identity and pre-requisites are well established</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Relatively long fresh product storage life, reasonable storage requirements</li> <li>▶ Relatively low perishability, reasonable transport requirements</li> <li>▶ Relatively close proximity to markets, fairly reliable demand and flexible delivery</li> <li>▶ Target markets relatively well known; brand equity, identity and pre-requisites are fairly easy to establish</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Relatively short fresh product storage life, several storage requirements</li> <li>▶ Relatively high perishability, several transport requirements</li> <li>▶ Relatively significant distance to markets, fairly unreliable demand and inflexible delivery</li> <li>▶ Target markets not known; brand equity, identity and pre-requisites are not established</li> </ul>
	<ul style="list-style-type: none"> <li>▶ Short fresh product storage life, extensive storage requirements</li> <li>▶ High perishability, extensive transport requirements</li> <li>▶ Significant distance to markets, unreliable demand, inflexible delivery</li> <li>▶ Target markets currently do not exist (no demand for products); brand equity, identity and pre-requisites will be difficult to establish</li> </ul>

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings

### Ease to Market Analysis and Rank

Animal	Explanation	Score
Beef Cattle	<p><b>Storage:</b> Vacuum packaged products have a chilled storage life of 60 days or frozen storage life of up to 12 months, provided cold chain systems are in place. Further processed (smoked or cooked) meat items have very long shelf life potential.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Since target markets are both domestic and export, long distance and local transportation options are both necessary.</p> <p><b>Brand Equity:</b> Very few markets have been identified in the region and EU, and brand equity for locally produced beef is low. Desired product attributes are well known.</p> <p><b>Distribution to Markets:</b> Given saturation of exporters in frozen and fresh markets, little opportunity exists for Kosovo to enter and establish a presence in the market. Chilled products may be more appropriate for local markets. Less than truckload (LTL) orders could be problematic.</p>	
Dairy Cattle	<p><b>Storage:</b> Most products are marketed chilled or further processed (UHT). Limited frozen demand for products. Chilled storage life is relatively short (30 days), whereas UHT products have long shelf life and stability.</p> <p><b>Transportation:</b> Refrigeration required for all chilled products and any distances. Chilled products are highly perishable.</p> <p><b>Brand Equity:</b> Low brand equity for local products such as cheese and yogurt; however, improvements to increase shelf life could be made. Considerable work to be done to convince local consumers to consume local fresh milk products.</p> <p><b>Distribution to Markets:</b> The majority of distribution would be to local markets in the short term; potential exists for UHT products to regional markets if proportion of HACCP certified production could increase.</p>	
Sheep	<p><b>Storage:</b> Most products are sold in carcass form, so shelf life of perishable (chilled) products is short (30 days) under ideal cold chain conditions.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Since target markets are both domestic and export, long distance and local transportation options are both necessary.</p> <p><b>Brand Equity:</b> Multiple target markets in the region and EU exist, although brand equity for high quality lamb is relatively low. Desired product attributes are well known. Size and quality specifications must be met on a consistent basis to sustain export sales.</p> <p><b>Distribution to Markets:</b> Export market sales are seasonal (spring), so alternative marketing channels (domestic or other export areas) must be developed or expanded.</p>	

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings (cont'd)

### Ease to Market Analysis and Rank

Animal	Explanation	Score
Goat	<p><b>Storage:</b> Most products are sold in carcass form, so shelf life of perishable (chilled) products is short (30 days) under ideal cold chain conditions.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Since target markets are both domestic and export, long distance and local transportation options are both necessary. Distribution is similar to sheep, although demand is anticipated to be less.</p> <p><b>Brand Equity:</b> Multiple target markets in the region and EU exist, although brand equity for high quality goat is relatively low. Desired product attributes are well known. Size and quality specifications must be met on a consistent basis to sustain export sales.</p> <p><b>Distribution to Markets:</b> Export market sales are seasonal (spring), so alternative marketing channels (domestic or other export areas) must be developed or expanded.</p>	
Swine	<p><b>Storage:</b> Vacuum packaged products have a chilled storage life of 60 days or frozen storage life of up to 12 months, provided cold chain systems are in place. Further processed (smoked, cured or cooked) meat items have very long shelf life potential.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable.</p> <p><b>Brand Equity:</b> Target markets in the region exist, although pork consumption is limited due to religious demographics. Brand equity and demand for fresh pork is very low. Desired product attributes are well known.</p> <p><b>Distribution to Markets:</b> Chilled distribution to regional markets is reasonable provided LTL issues are solved and refrigerated transportation is available. Frozen distribution to export markets is likely.</p>	
Llama	<p><b>Storage:</b> Vacuum packaged products have a chilled storage life of 60 days or frozen storage life of up to 12 months, provided cold chain systems are in place.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Since target markets are both domestic and export, long distance and local transportation options are both necessary.</p> <p><b>Brand Equity:</b> Target markets in the region and EU have not been discovered or explored. Brand equity for fresh llama is nonexistent. Desired product attributes are currently unknown.</p> <p><b>Distribution to Markets:</b> Proximity to export markets is unknown and local demand does not currently exist. Chilled export distribution will be challenging. Less than truckload (LTL) deliveries could be problematic.</p>	

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings (cont'd)

### Ease to Market Analysis and Rank

Animal	Explanation	Score
Broiler Chicken	<p><b>Storage:</b> Products are not vacuum packaged, so chilled products have a storage life of 30 days or frozen storage life of up to 6 months, provided cold chain systems are in place. Further processed (smoked, cured or cooked) meat items have very long shelf life potential.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are more perishable than vacuum packaged products from other species, so frozen exports are likely.</p> <p><b>Brand Equity:</b> Target markets in the region and domestically exist, although concerns over local sanitation standards must be overcome. Brand equity for local chicken is moderate to low. Desired product attributes are well known.</p> <p><b>Distribution to Markets:</b> Inexpensive frozen chicken from international sources is widely available in the region, so primary target markets will be for chilled meat locally.</p>	
Laying Hen	<p><b>Storage:</b> Shelf life for eggs under refrigeration is about 30 days, although eggs are not commonly integrated into the cold chain and thus have shorter usable shelf life.</p> <p><b>Transportation:</b> Refrigeration suggested for all distances, modest perishability. Local transportation is adequate, since exports are not anticipated.</p> <p><b>Brand Equity:</b> The primary target market for eggs is the local market, since eggs are not commonly imported or exported. Brand equity for locally produced eggs is relatively low, due to safety concerns. Quality parameters are known, but improvements in packaging and image are needed.</p> <p><b>Distribution to Markets:</b> The majority of distribution would be to local markets. Localized distribution would most likely be unrefrigerated, with flexible delivery possible.</p>	
Turkey	<p><b>Storage:</b> Products are not vacuum packaged, so chilled products have a storage life of 30 days or frozen storage life of up to 6 months, provided cold chain systems are in place. Further processed (smoked, cured or cooked) meat items have very long shelf life potential.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are more perishable than vacuum packaged products from other species.</p> <p><b>Brand Equity:</b> Target markets in the region exist but have not been explored. Little is known about existing demand for turkey meat. Brand equity for local turkey is low, since turkey meat is not a commonly consumed protein at the present time. Desired product attributes are well known.</p> <p><b>Distribution to Markets:</b> Initial market potential is local, with growth in to export markets as they are identified.</p>	

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings (cont'd)

### Ease to Market Analysis and Rank

Animal	Explanation	Score
Pheasant	<p><b>Storage:</b> Products are not vacuum packaged, so chilled products have a storage life of 30 days or frozen storage life of up to 6 months, provided cold chain systems are in place.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Chilled products are more perishable than vacuum packaged products from other species, so frozen exports are likely.</p> <p><b>Brand Equity:</b> Target markets have not been discovered or explored. Brand equity for pheasant is nonexistent at the present time. Desired product attributes are unknown. Primary target market would be local consumers with some potential for exports.</p> <p><b>Distribution to Markets:</b> Local markets are the likely initial targets, with growth into export areas once they are discovered or developed. Less than truckload (LTL) to the EU could be problematic.</p>	
Duck	<p><b>Storage:</b> Products are not vacuum packaged, so chilled products have a storage life of 30 days or frozen storage life of up to 6 months, provided cold chain systems are in place.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Chilled products are more perishable than vacuum packaged products from other species, so frozen exports are likely.</p> <p><b>Brand Equity:</b> Target markets have not been discovered or explored. Brand equity for duck is nonexistent at the present time. Desired product attributes are unknown. Primary target market would be local consumers with some potential for exports.</p> <p><b>Distribution to Markets:</b> Local markets are the likely initial targets, with growth into export areas once they are discovered or developed. Less than truckload (LTL) to the EU could be problematic.</p>	

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings (cont'd)

### Ease to Market Analysis and Rank

Animal	Explanation	Score
Geese	<p><b>Storage:</b> Products are not vacuum packaged, so chilled products have a storage life of 30 days or frozen storage life of up to 6 months, provided cold chain systems are in place.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable. Chilled products are more perishable than vacuum packaged products from other species, so frozen exports are likely.</p> <p><b>Brand Equity:</b> Target markets have not been discovered or explored. Brand equity for geese is nonexistent at the present time. Desired product attributes are unknown. Primary target market would be local consumers with some potential for exports.</p> <p><b>Distribution to Markets:</b> Local markets are the likely initial targets, with growth into export areas once they are discovered or developed. Less than truckload (LTL) to the EU could be problematic.</p>	
Deer	<p><b>Storage:</b> Vacuum packaged chilled products have a storage life of 60 days or frozen storage life of up to 12 months, provided cold chain systems are in place.</p> <p><b>Transportation:</b> Refrigeration required for all products and distances, chilled products are highly perishable.</p> <p><b>Brand Equity:</b> Target markets have not been discovered or explored. Brand equity for venison is nonexistent at the present time. Desired product attributes are unknown. Primary target market would be local consumers with moderate potential for exports to the EU.</p> <p><b>Distribution to Markets:</b> Local markets are the likely initial targets, with growth into export areas like Germany once they are discovered or developed. Less than truckload (LTL) to the EU could be problematic.</p>	

## ...and analyzed the potential for Kosovo to develop animals / fish based on the ease to market rankings (cont'd)

### Ease to Market Analysis and Rank

Fish	Explanation	Score
Carp	<p><b>Storage:</b> Fish meat is perishable and needs refrigeration. Guttled, fresh and chilled products have a storage life of up to one week, while frozen products have a storage life of 12-18 months, provided cold chain systems are in place.</p> <p><b>Brand Equity:</b> Carp products in Kosovo as well as elsewhere in the world tend to have a low brand equity. There are abundant supplies of carp products from other EU countries, with no recognized brand dominating the market.</p> <p><b>Transportation:</b> Tanker trucks with aeration are needed to transport live fish. Time limit to transport live fish is 48 hours maximum. However, chilled and frozen fish products represent the majority of carp products transported; they must be transported along a cold storage infrastructure (e.g. trucks, facilities).</p> <p><b>Distribution to Markets:</b> Live fish can be sold in Kosovo and in the region, while frozen fish can be sold to Western European and Eastern European markets. Products can be purchased by every type of customer (wholesalers, processors, etc.). Less than truckload (LTL) shipments to the EU could be economically prohibitive.</p>	
Trout	<p><b>Storage:</b> Fish meat is perishable and needs refrigeration unless dried or smoked. Smoked trout has storage life of 60 to 90 days and does not need to be refrigerated. Fresh, chilled products have a storage life of up to one week, while frozen products have a storage life of up to 12-18 months, provided cold chain systems are in place.</p> <p><b>Brand Equity:</b> There is an abundant supply of trout products from EU countries, but a slightly higher brand equity for trout products worldwide when compared to carp.</p> <p><b>Transportation:</b> Fish are typically not transported live. For chilled and frozen fish products, cold storage trucks, other transport mechanisms (as needed), and facilities are required for all distances.</p> <p><b>Distribution to Markets:</b> Chilled, frozen, or smoked fish can be sold to European and Middle East markets. Less than truckload (LTL) shipments to the EU could be economically prohibitive.</p>	
Sturgeon	<p><b>Storage:</b> Sturgeon products (caviar and chilled/frozen meat) are perishable and need refrigeration. Shelf life for gutted, fresh, chilled meat is one week, while the shelf life of gutted, cleaned, frozen meat is 12-18 months. Refrigerated caviar has a storage life of 4-6 weeks.</p> <p><b>Brand Equity:</b> Caviar has a high brand equity. High quality brands are noted for their larger, black color, and freshness. There is competition in caviar production mainly from countries bordering the Caspian Sea. Sturgeon fish meat has a much higher brand equity in comparison to carp and trout.</p> <p><b>Transportation:</b> For chilled and frozen fish products, cold storage trucks, other transport mechanisms (as needed), and facilities are required for all distances. Cold chain systems are also required to transport canned caviar.</p> <p><b>Distribution to Markets:</b> World-wide demand for caviar. Frozen fish can be sold in European (Germany, Italy). Less than truckload (LTL) shipments are less likely to be prohibitive given high unit cost of products.</p>	

**Based on this final analysis, seven strategic animals / fish and their by-products were identified: chicken (layers and broilers), sheep (meat), dairy cows, turkey, trout and sturgeon**

### Selection of 5 Strategic Animals & Primary By-Products

Animal	Filter 4 – Economic		Step 5 – Value Chain Constraints			Step 6
	Top 20 Rank	Weighting	Investment Required	Ease to Produce	Ease of Market Access	Final Rank
Chicken (Layer)	6	1.5				1
Chicken (Meat)	1	0.25				2
Sheep (Meat)	10	2.25				3
Dairy Cows (Milk)	2	0.5				4
Turkey (Meat)	3	0.75				4
Beef Cattle (Meat)	5	1.25				6
Goats (Meat)	11	2.5				7
Deer (Meat)	12	2.5				8
Swine (Meat)	4	1				9
Duck (Meat)	8	2				10
Geese (Meat)	8	2				11
Pheasant (Meat)	7	1.75				12
Llama (Meat)	13	2.75				13

### Selection of 2 Strategic Fish & Primary By-Products

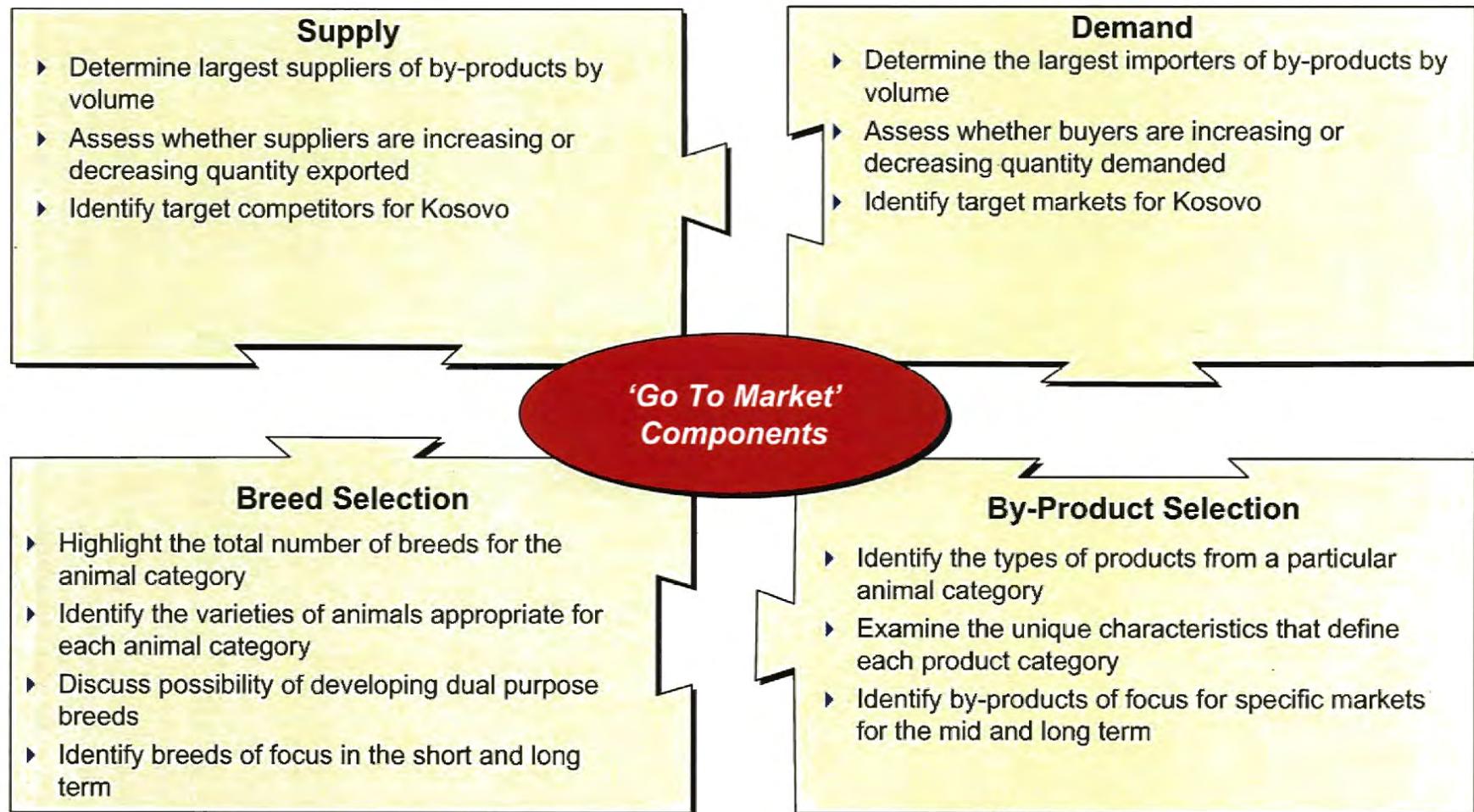
Fish	Filter 4 – Economic		Step 5 – Value Chain Constraints			Step 6
	Top 20 Rank	Weighting	Investment Required	Ease to Produce	Ease of Market Access	Final Rank
Trout (fresh fillet/meat)	1	0.25				1
Sturgeon (fresh fillet/meat)	2	0.50				2
Carp (fresh fillet/meat)	3	0.75				3

Note: Top 20 ranking determined by economic feasibility and attractiveness filter; Harvey ball scale is as follows: 1- 2- 3- 4-

Source: BAH Analysis

# Finally, we created 'Go To Market' snapshots which include four main components for the top seven animal / fish: supply, demand, breed selection, and by-product selection

## Overview of 'Go To Market' Components





Although import and exports of fresh eggs are concentrated in the EU, they can be transported long distances if packaging and temperature requirements are met

### 'Go To Market' Snapshot – Layer Hens for Eggs

#### Supply

- ▶ The Netherlands (26%), Spain (10%), Poland (10%), and Germany (8%) were **the top exporters of eggs in 2008** in the world
- ▶ Despite the perishability and fragility of eggs, **they can be exported if properly packaged and maintained in a temperature range of 1-4 degrees Celsius**

#### Demand

- ▶ Approximately 1M tons of eggs were imported around the world in 2008
- ▶ Germany (30%), the Netherlands (11%), and Iraq (10%) **were the top importers of eggs**

#### Breed Types

- ▶ There are an estimated 90 registered breeds of chickens in the world, many of which are suitable as commercial laying hens
  - **Most common breeds** are Leghorn, Rhode Island Red, Red Star, Black Star, Light Sussex, Barred Rock, Plymouth Barred Rock
- ▶ Most breeds are dual purpose, with proficiency in laying and meat production
- ▶ **Selection of layers can depend** on the type of eggs desired, including egg size, egg color and bird productivity

#### By-Product Type

- ▶ Layer hens are primarily raised for egg production, although when the hens are finished with their productive lifecycle, **the "spent hens" are generally used for meat production**
- ▶ Aside from fresh eggs, egg products are used for the baking industry, such as egg powder, egg yolks, as well as cracked or unshelled eggs

#### Comments

- ▶ Exports and imports of the **fresh egg market are largely concentrated in the EU**
- ▶ While perishability and fragility may be a driver for determining target destination markets, **fresh eggs can maintain a prolonged shelf of 30-60 days if transported under proper temperature conditions**
- ▶ Many of the **common breeds can also be used for chicken meat**, thereby increasing the use for farmers, and are also considered the most productive

Note: HS040700 (Eggs, bird, in shell, fresh, preserved or cooked) used for supply and demand data; Numbers listed include all bird eggs, but assume vast majority of eggs are from laying hens; Assume 95% of 1.1M tons of commercial imports is dedicated to layer hens. Source: TradeMap, 2008



# Imports and exports markets for frozen and fresh chicken are largely fragmented around the world; however, countries in the Gulf are the largest importers of frozen chicken

## 'Go To Market' Snapshot – Broiler Chickens for Meat

### Supply

- ▶ The **largest exporters of fresh, chilled whole chicken** in the world are the US (19%), China (18%), and the Netherlands (13%)
- ▶ The **largest exporters in whole, frozen chicken** in the world are Brazil (67%), France (10%), Argentina (5%), and the US (4%)

### Demand

- ▶ The UK (15%), Hong Kong (12%), and Germany (8%) are the **top importers of fresh, chilled whole chicken**
  - Approximately **238K tons of fresh, chilled whole chicken were imported** around the world in 2008
- ▶ Saudi Arabia (16%), United Arab Emirates (7%), and Kuwait (6%) are the **top importers of frozen, whole chicken**
  - Approximately **2.6M tons of frozen, whole chicken were imported worldwide** in 2008

### Breed Types

- ▶ There are an estimated 90 registered breeds of chickens in the world
  - The most **popular breeds are Cornish, Plymouth Barred Rock, Rhode Island Red**
- ▶ Broilers are **often used for dual-purpose**, with the most popular breeds being Plymouth Barred Rock and Rhode Island Red

### By-Product Type

- ▶ Broiler chickens are primarily raised for meat, which can be used for the following primary purposes:
  1. Whole carcasses
  2. Parts, from the cut up carcass
  3. Processed chicken products, such as sausage, smoked meats, or breaded products

### Comments

- ▶ The market for chicken meat is primarily comprised of **two by-products, fresh / chilled chicken and frozen meat**. The frozen **chicken import market is more than 10 times the size of the fresh chicken market**, largely due to constraints around perishability
- ▶ Export and import markets for frozen and fresh chicken are largely fragmented across the globe; however, the Gulf represents the largest import market for frozen chicken
- ▶ **Dual purpose breeds are often used for farms that are launching production activities** as they can produce quality meat and eggs



# The EU market for fresh lamb meat is driven by exports and imports from countries in the region; however, Australia and New Zealand are the largest suppliers of all by-products

## 'Go To Market' Snapshot – Sheep for Meat

Supply	Demand	Breed Types	By-Product Type
<ul style="list-style-type: none"> <li>▶ New Zealand (42%) and Australia (30%) are the <b>leading exporters of meat products from sheep</b> in the world               <ul style="list-style-type: none"> <li>– The UK and Ireland supplied over 93% of France's fresh/chilled lamb carcasses in 2008</li> <li>– Spain (25%), the UK (26%), and Macedonia (12%) supplied the majority of Italy's fresh/chilled lamb carcasses</li> </ul> </li> <li>▶ New Zealand and Australia account for over <b>62% of uncombed wool exports</b></li> </ul>	<ul style="list-style-type: none"> <li>▶ France (11%), the UK (10%), and the US (7%) were the <b>largest importers of fresh, chilled, or frozen sheep meat products</b> in the world               <ul style="list-style-type: none"> <li>– In terms of the world market for fresh/chilled lamb carcasses and half carcasses, France imported over 61% of total volume while of Italy accounted for 10%</li> </ul> </li> <li>▶ China (39%), India (11%), and Italy (8%), Germany (7%), Czech Republic (4%), Turkey (4%) are the <b>largest importers of wool</b></li> </ul>	<ul style="list-style-type: none"> <li>▶ There are an estimated <b>225 registered breeds of sheep in the world</b> <ul style="list-style-type: none"> <li>– Breeds are very location specific, with few "global" breeds but many small regional breeds</li> <li>– The <b>most popular breeds are Hampshire and Suffolk</b></li> </ul> </li> <li>▶ Many breeds are called "dual purpose", since they are proficient in at least two of the three purposes listed above</li> </ul>	<ul style="list-style-type: none"> <li>▶ Lamb are raised primarily for meat carcasses</li> <li>▶ Sheep are raised for three primary by-products:               <ol style="list-style-type: none"> <li>1. Meat, including carcasses and cuts</li> <li>2. Wool</li> <li>3. Milk for dairy products such as cheese, fresh milk and other specialty items</li> </ol> </li> </ul>

### Comments

- ▶ The **market for sheep products predominantly consists of meat and wool**. Milk, cheese and other dairy products are considered specialty items
- ▶ While New Zealand and Australia are the largest providers of all sheep products in the world, **countries in the EU largely supply and purchase fresh meat products from neighboring countries in the region**
- ▶ The largest importers of wool are concentrated in Asia as well as the EU

Note: Worldwide demand and supply given for HS0204 (Meat of Sheep or Goats) but excluded goat meat (HS020450), HS020410 (fresh/chilled lamb carcasses); HS 5101 (wool, not carded or combed); Source: TradeMap, 2008



# The market for turkey meat consists of fresh and frozen varieties, with major exporting and importing countries dispersed around the world

## 'Go To Market' Snapshot – Turkey for Meat

### Supply

- ▶ France (38%), Italy (27%), the US (9%), and Israel (7%) are **the largest suppliers of fresh or chilled whole turkey**
- ▶ The US (38%), France (24%), and Brazil (9%) are **the largest exporters of frozen, whole turkey**

### Demand

- ▶ Spain (31%), Mexico (15%), and the UK (9%) are **the largest importers of fresh or chilled whole turkey**
  - The world imported 34.9K tons of fresh or chilled whole turkey in 2008
- ▶ Qatar (14%), Germany (11%), Mexico (11%), and UAE (7%) are **the top importers of frozen, whole turkey**
  - The world imported 50.5K tons of frozen, whole turkey in 2008

### Breed Types

- ▶ There are **only 8 registered breeds of turkeys in the United States**, although many other variants and/or unregistered breeds elsewhere in the world
  - The most common breeds are **Broad Breasted White, Broad Breasted Bronze, White Holland**

### By-Product Type

- ▶ Turkeys **are primarily raised for meat**, which can be used for the following primary purposes:
  1. Whole carcasses
  2. Parts, from the cut up carcass
  3. Processed turkey products, such as sausage, smoked meats, or breaded products
  4. Turkeys are primarily raised for their meat, with limited
- ▶ Turkey feathers **can be used as low-cost animal feed** (once ground into feather meal for ruminants)

### Comments

- ▶ The market for turkey meat largely consists of fresh and frozen turkey. In aggregate, **the fresh market accounts for 41% of total imports** around the world
- ▶ The **market for exports and imports is fragmented**, with France and the US representing one of the largest exporters for fresh and frozen turkey, and Mexico maintaining one of the highest demand levels for both
- ▶ The most common breeds are also **white breeds, which are known for producing higher yields**



# The dairy market is concentrated in the EU with Germany, Italy, UK and Spain representing the largest importers of un-sweetened / un-concentrated milk, cheese and yogurt

## 'Go To Market' Snapshot – Cows for Dairy

Supply	Demand	Breed Types	By-Product Type
<ul style="list-style-type: none"> <li>▶ The <b>top exporters of milk and cream (that is not concentrated or sweetened)</b> in the world are Germany (25%), France (11%), Belgium (8%), Austria (7%), and Czech Republic (7%)</li> <li>▶ The <b>top exporters of milk and cream (that is concentrated or sweetened)</b> are New Zealand (16%), Germany (10%), Netherlands (9%), and US (8%)</li> <li>▶ <b>Top exporters of cheese</b> are Germany (19%), Netherlands (13%) and France (13%)</li> <li>▶ <b>Top exporters of yogurt</b> are Germany (28%), France (20%) and Austria (11%)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Italy (22%), Germany (20%), Spain (9%), and Belgium (8%) are the <b>largest importers of milk and cream that is not concentrated or sweetened</b></li> <li>▶ The Netherlands (7%), Algeria (5%), and the United Arab Emirates (4%) are the <b>largest importers of milk and cream that is concentrated or sweetened</b></li> <li>▶ <b>Top importers of cheese</b> are Germany (13%), UK (9%) and Italy (9%)</li> <li>▶ <b>Top importers of yogurt</b> are Spain (13%), UK (11%) and Italy (9%)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Of the 112 most popular commercial cattle breeds, about 34 are commonly used dairy breeds; the most popular include <b>Jersey, Guernsey, Holstein, Simmental</b></li> <li>▶ Approximately <b>80% of dairy breeds can be used as "dual purpose,"</b> which have adequate milk production along with offspring that are reasonable for meat production, but the quality (percent milk fat and muscle quality) is lower than single-purpose breeds of dairy or beef. The <b>best dual-purpose breeds are Holstein and Simmental</b> and represent approximately 75% of dual purpose breed usage</li> </ul>	<ul style="list-style-type: none"> <li>▶ Dairy production can be specialized into the following categories:               <ol style="list-style-type: none"> <li>1. Fresh milk and cream</li> <li>2. UHT milk</li> <li>3. Further processed products such as yogurt and cheese</li> </ol> </li> </ul>

### Comments

- ▶ Dairy production predominantly consists of **fresh milk / cream and UHT milk**. Both types are either un-concentrated / un-sweetened or concentrated / sweetened. The most **common processed dairy products are yogurt and cheese**
- ▶ The top exporters and importers of **un-sweetened / un-concentrated milk, cheese and yogurt are concentrated in the EU**. Germany, France and Austria represent the largest exporters, while Germany, Italy, Spain and the UK represent some of the largest importers
- ▶ Popularity of Holstein and Simmental breeds is driven by both ability to develop quality products and use them as dual purpose

Note: 0401 (milk and cream, not concentrated nor sweetened) and 0402 (milk and cream, concentrated or sweetened) used for demand and supply. Note milk includes dairy cows, sheep, goats, etc. Assume market distribution totals for all dairy animals is the same as for dairy cows. Total imports for milk and cream (not concentrated or sweetened) is 9.4M tons. Total imports for milk and cream (concentrated and/or sweetened) is 5.2M tons. Assume dairy cows represent at least 85% of milk and cream import category (8M for not concentrated and 4.5M for concentrated.) Source: TradeMap, 2008 108



# The market for cattle meat consists of fresh and frozen categories; top fresh meat exporters and importers are concentrated in the EU while the frozen market is fragmented

## 'Go To Market' Snapshot – Cattle for Beef

Supply	Demand	Breed Types	By-Product Type
<ul style="list-style-type: none"> <li>▶ The <b>largest exporters of fresh, chilled bovine meat in the world</b> are the Netherlands (10%), Germany (10%), and Canada (9%)</li> <li>▶ The <b>top exporters of frozen bovine meat in the world</b> are Brazil (27%), Australia (20%), India (13%), and New Zealand (10%)</li> </ul>	<ul style="list-style-type: none"> <li>▶ The <b>top importers of fresh, chilled bovine meat in the world</b> are Italy (13%), France (9%), Netherlands (9%), and Mexico (9%)</li> <li>▶ The <b>top importers of frozen bovine meat in the world</b> are Egypt (47%), Russia (12%), and the US (7%)</li> <li>▶ Demand for frozen block meat is strong, with usage for additional processing and direct sale to consumers</li> </ul>	<ul style="list-style-type: none"> <li>▶ There are approximately 800 different breeds of cattle recognized worldwide. Of these, 112 are well-known commercial breeds in one of two classes – <i>Bos taurus</i> or <i>Bos indicus</i></li> <li>▶ There are about <b>53 beef breeds suitable for warm and cold climates</b>, and ideal for production of meat</li> <li>▶ The <b>most common breed types are Angus, Charolais, Hereford and Simmental</b></li> <li>▶ Veal types include <b>"bob" veal</b> is a very young animals, only a few weeks old and weighing between 75 and 150 pounds live; <b>traditional veal</b>, weighing 200 to 500 pounds; and <b>"baby beef"</b>, weighing 500 to 800 pounds. Industry portions are 10%, 60% and 30% respectively</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Meat production can be specialized into one of three categories:</b> <ol style="list-style-type: none"> <li>1. Chilled meat production</li> <li>2. Frozen boxed meat for further processing</li> <li>3. Further processed products, such as sausage, smoked and dried meats</li> </ol> </li> </ul>

### Comments

- ▶ The market for **unprocessed cattle meat consists of two main categories**: fresh chilled bovine meat and frozen bovine meat. The meat can be further used to developed specialty processed products such as sausage, smoked and dried meats
- ▶ The **largest exporters and importers of fresh meat** in the world are countries located in the **EU**, while the frozen meat market is largely fragmented
- ▶ The popularity of the most **common breeds** stems from the fact that they are considered the **most productive categories**

Note. HS0201 (Meat of bovine animals, fresh or chilled) and HS0202 (Meat of bovine animals, frozen) used for demand and supply. Note bovine includes beef, dairy, bison, etc. Assume market distribution for beef is the same as bovine. Total fresh bovine imports is 3M tons. Total frozen bovine imports is 6.4M tons. Source: TradeMap, 2008

# With the exception of Chile, the major exporters and importers of fresh and frozen trout are Scandinavian countries



## 'Go To Market' Snapshot – Trout for Meat / Fillet

Supply	Demand	Species Types	By-Product Type
<ul style="list-style-type: none"> <li>▶ The <b>major exporters of fresh, chilled trout</b> in the world are Norway (64%), Sweden (8%) and Denmark (7%)</li> <li>▶ The <b>major exporters of frozen trout</b> are Chile (60%), Norway (22%) and Denmark (8%)</li> </ul>	<ul style="list-style-type: none"> <li>▶ The <b>Russian Federation accounted for 48% of the world's fresh trout</b> in 2008, followed by Finland (10%) and Ukraine (4%)               <ul style="list-style-type: none"> <li>– The world imported 65.5K tons of fresh, chilled trout in 2008</li> </ul> </li> <li>▶ Japan (40%), Russian Federation (21%), and Thailand (10%) <b>are the top importers of frozen trout</b> <ul style="list-style-type: none"> <li>– The world imported 134.5K tons of frozen trout in 2008</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ There <b>20 registered trout species worldwide</b> that are organized into three genus categories               <ol style="list-style-type: none"> <li>1. Salmo (e.g. Brown Trout, Ohrid Trout)</li> <li>2. Onporhynchus (e.g. Rainbow Trout)</li> <li>3. Salvelinus (e.g. Brook Trout)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▶ Trout are <b>primarily raised for meat</b>, which can be used for the following primary purposes:               <ol style="list-style-type: none"> <li>1. Fresh, chilled meat</li> <li>2. Frozen meat</li> <li>3. Processed trout products, such as smoked trout</li> </ol> </li> </ul>

### Comments

- ▶ The market for unprocessed trout meat consists of **fresh, chilled meat and frozen meat**. Fish meat can be further developed into **processed products, such as smoked trout**
- ▶ The **major exporters of fresh and frozen trout are predominantly Scandinavian countries**, with the exception of Chile who dominates the majority of the frozen market. **Russia represents one of the largest importers of both fresh and frozen trout**
- ▶ Consumer preferences for trout are **based on country of origin a preference for conventional or organic farming. Demand is driven by product type** (i.e. fresh, frozen, smoked) rather than species type.

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
- ▶ Recommendations to Improve Kosovo's Animal Product Sector
  - Recommended Animal Product Mix for Kosovo
  - Initiatives & Action Plan for Implementation
  - Reaching Overall Potential in Local Markets

# As part of the initial AgStrat study, we identified 21 initiatives to support reforms in the agriculture sector in Kosovo

## Overview of Proposed Initiatives



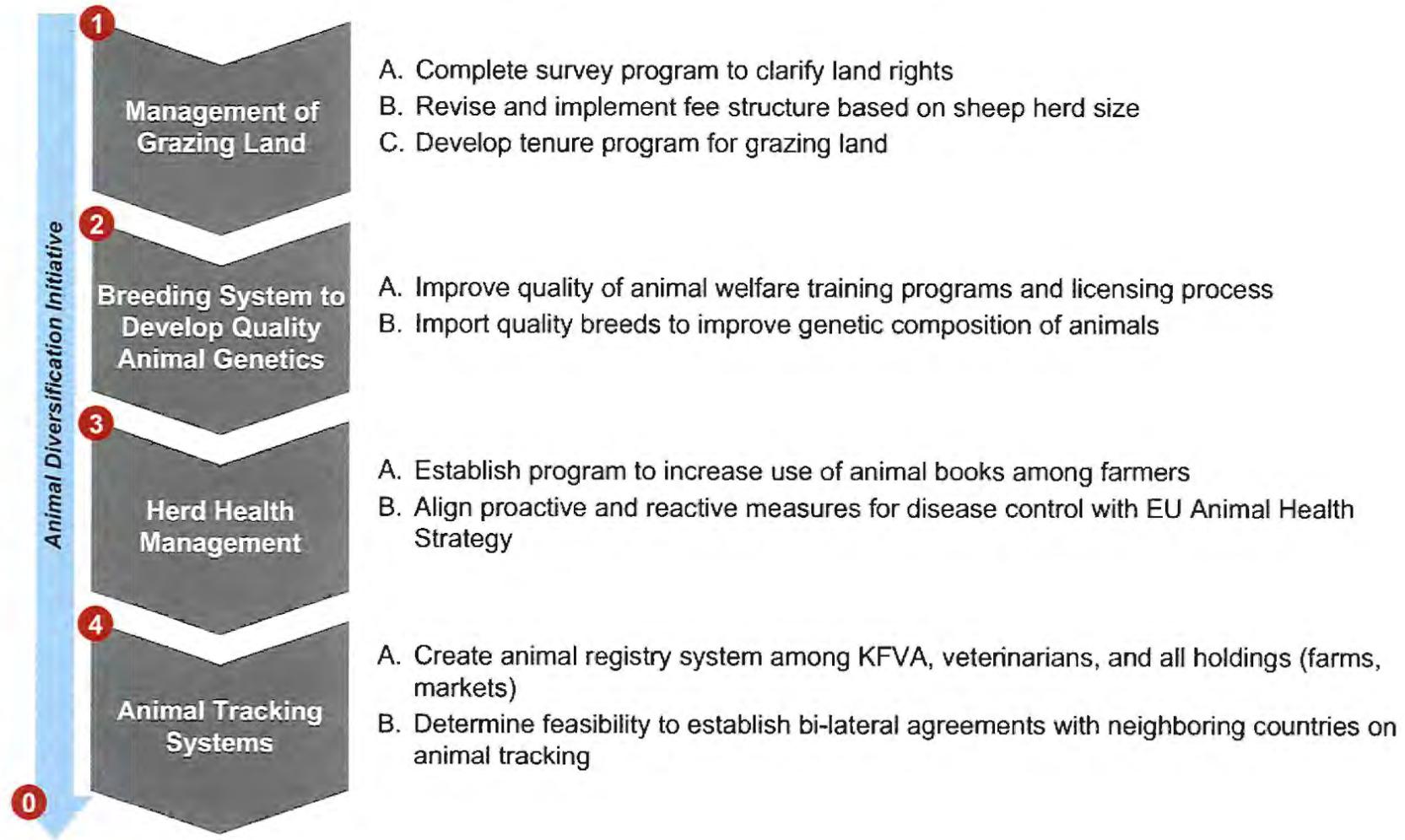
# These initiatives should be extended to support reforms in the animal and fish products sectors

## Adaption of Proposed Initiatives from Horticulture Strategy

<p><b>Leveraging Small Farmers Potential</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 1A:</b> Include assistance for associations, such as KDPA and KAMP, to develop value-added services</li> <li>▶ <b>Initiative 1B:</b> Provide extension services and training for farmers to properly develop high quality feedstuff (including mixing rations) and apply modern techniques for feedstuff application</li> <li>▶ <b>Initiative 1C:</b> Expand guarantee program to provide financial assistance for 1) dairy processors to improve cooling and collection systems and 2) meat producers to upgrade slaughter and processing systems</li> </ul>
<p><b>Demand-Driven Focus</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 2B:</b> Enlarge scope of market intelligence system to include prices of animal products, and include dairy and meat producers and processors in communication program</li> <li>▶ <b>Initiative 2C:</b> Increase linkages among stakeholders in value chain by providing technical assistance to establish supply contracts between producers and processors</li> </ul>
<p><b>Infrastructure Capacity Building</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 3:</b> Expand scope of infrastructure programs (i.e. technical assistance, marketing plans, financial products) to include improvement of slaughter and processing facilities to increase proportion of HACCP-certified production</li> </ul>
<p><b>Transportation</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 4A:</b> Include farm to market access for producers of animal products in the cost-benefit analysis to determine prioritization of road investments</li> <li>▶ <b>Initiative 4C:</b> Expand scope of Tirana highway cost analysis to include shipping routes that impact freighters of animal by-products</li> </ul>
<p><b>Government Agriculture Regulations</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 5A:</b> Strengthen organizational capacity to comply with HACCP, ISO and IFS standards; improve inspection systems for production and processing plants</li> <li>▶ <b>Initiative 5C:</b> Expand scope of inputs to include feedstuff for animals; develop more comprehensive policies for “guarantee analysis” of feedstuff</li> </ul>
<p><b>Trade Access</b></p>	<ul style="list-style-type: none"> <li>▶ <b>Initiative 6B:</b> Include analysis of dairy and meat product subsidies from neighboring countries in order to develop effective trade responses; examine issues with disproportionate tariff structure on raw ingredients of feedstuff (16% VAT) versus final form products</li> </ul>

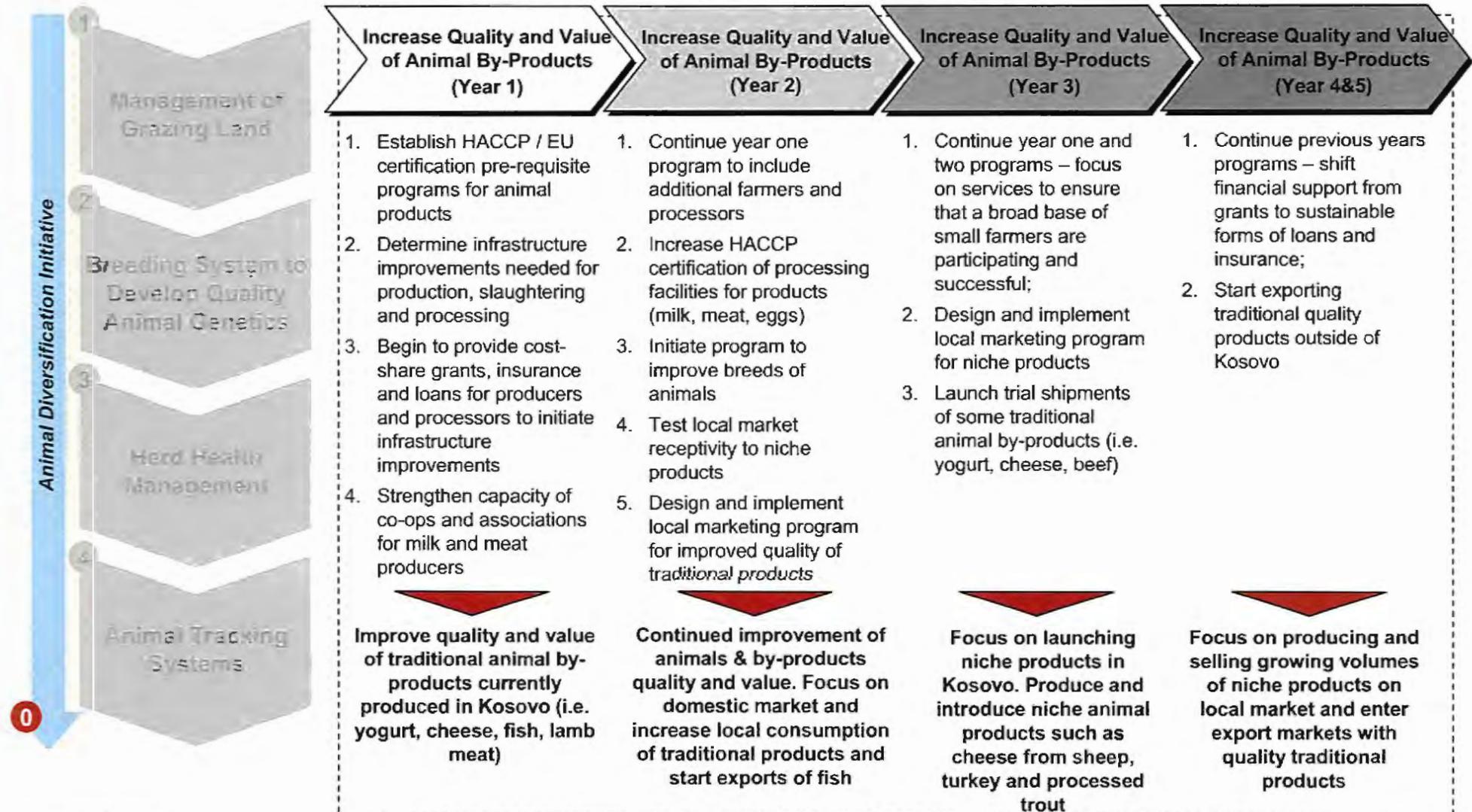
# We have also developed an additional nine recommendations covering four areas specific to animal products

## Overview of Proposed Initiatives for Animal Products



# The overall goal of the diversification strategy is to increase local consumption, replace imports significantly by the end of the second year and transition to a focus on exports in years 4 and 5

## Overview of Proposed Initiatives for Animal Products



# Animal-specific strategies focus on import substitution, domestic market expansion and exports

## Overview of Animal / Fish Specific Strategies

	Substitute Imports	Expand Domestic Market	Export	Comments
Laying Hen (eggs)		✓		<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Little imports and low domestic consumption; Konisoni plant built according to HACCP</li> <li>▶ <b>Strategy:</b> 1) Immediate: Increase local market size with current breeds (Hyline &amp; Isa) 2) Mid-term: introduce new breeds (Leghorn) and expand industry to provide processed egg products for baking</li> </ul>
Broilers (meat)	✓			<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Saturated frozen market; opportunities in fresh chicken market through cost reduction</li> <li>▶ <b>Strategy:</b> 1) Immediate: Increase local fresh market and displace frozen consumption of imports by achieving economies of scale to decrease production costs and retail price of fresh chicken 2) Mid/long-term: introduce new breeds (Cornish) and enter regional export markets with fresh and processed goods</li> </ul>
Sheep (meat)		✓		<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Niche brand appeal; inter-EU trade common; low domestic consumption compared to region</li> <li>▶ <b>Strategy:</b> 1) Immediate: increase local market consumption of fresh lamb and start wool exports; 2) Long-term: enter regional &amp; EU export markets for chilled meat &amp; increase production of specialty items</li> </ul>
Turkey (meat)	✓	✓		<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Large imports (355 MT) of turkey; low implementation costs from chicken processing facilities</li> <li>▶ <b>Strategy:</b> 1) Immediate: develop local taste for fresh turkey consumption by playing on US brand; 2) Long-term: enter regional export markets for fresh turkey and create local market for processed products</li> </ul>
Dairy Cows (milk)	✓			<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Low consumption of domestic goods; price competitive with imports; 35% HACCP production</li> <li>▶ <b>Strategy:</b> 1) Immediate: develop quality milk products (UHT milk, yogurt, cheese) to change local perception, increase shelf life of goods, thereby increasing consumption of domestic goods; 2) Mid/long-term: enter regional and EU export markets for processed milk products</li> </ul>
Trout (fresh/frozen fillet)		✓	✓	<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Candidate for EU certification in 2011; ability to develop niche products</li> <li>▶ <b>Strategy:</b> 1) Immediate: increase domestic consumption of trout by marketing to consumer tastes and start exports to regional countries 2) Mid-term: exports of fresh trout to EU markets and introduce processed products locally 3) Long-term: introduce processed trout to regional and EU markets</li> </ul>
Sturgeon (fresh/frozen fillet)		✓		<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Fillets command high prices on international market; sturgeon can be raised using similar facilities (raceways) as trout</li> <li>▶ <b>Strategy:</b> 1) Mid-term: develop local market for sturgeon by focusing on the high quality of the fish; 2) Long-term: enter regional export markets for fresh meat / fillets and acquire EU certification</li> </ul>



# The immediate focus for eggs is to increase local consumption of fresh eggs

## Animal Specific Strategies: Laying Hen (eggs)

Strategy & Rationale
<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> Companies, such as Konisoni, have already established a presence as quality providers in the local market and have built processing facilities according to HACCP guidelines; minimal imports and low domestic consumption (7kg per capita per year in Kosovo compared to 15.4 kg per capita per year in Europe) creates an opportunity to increase domestic consumption</li> <li>▶ <b>Strategy:</b> Focus on increasing local market size immediately with current breeds (Hyline &amp; Isa). As many supermarkets source eggs from small producers, work with them to improve quality and shelf life. Introduce new breeds (Leghorn) in Year 2, and expand industry to provide processed egg products for baking companies; in the Years 4-5, develop specialized egg type and technologies</li> </ul>

Target Competition	Markets to Target	Breeds of Focus	By-Products of Focus
<ul style="list-style-type: none"> <li>▶ Given that fresh eggs are hardly imported into Kosovo, domestic producers will compete among themselves</li> </ul>	<ul style="list-style-type: none"> <li>▶ Increase local per capita egg consumption</li> <li>▶ Increase local commercial use of egg by-products (e.g. baking)</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Short-term:</b> Existing breeds, Hyline and Isa</li> <li>▶ <b>Long-term:</b> Commercial layer breeds such as Leghorn, Rhode Island Red, Red Star, Black Star, Light Sussex, Barred Rock or Plymouth Barred Rock</li> </ul>	<ul style="list-style-type: none"> <li>▶ <b>Immediate:</b> Fresh eggs for local consumers</li> <li>▶ <b>Mid-term:</b> Processed egg products for local baking industries</li> <li>▶ <b>Long-term:</b> Use advanced technology (spray drying, separating) to develop more specialized egg types</li> </ul>

Timeline for Implementation			
Year 1	Year 2	Year 3	Year 4 & 5
	Focus on increasing domestic market size using local breeds	Processed egg products for baking	
	Introduce new breeds (Leghorn)		Introduce specialized egg types

Sources : BAH Analysis



# The strategy for chicken is substitution of imported frozen chicken with domestic fresh chicken

## Animal Specific Strategies: Broiler Chicken (meat)

Strategy & Rationale
<ul style="list-style-type: none"> <li>▶ <b>Rationale:</b> The market for frozen chicken is already saturated by exporters who can produce and distribute products at low cost (97% of the market is frozen chicken imports). As local companies have established themselves as quality providers in the domestic fresh chicken market, they should focus on increasing market share of fresh chicken</li> <li>▶ <b>Strategy:</b> In the first 3 years, focus on increasing the size of the local fresh chicken market by displacing consumption of frozen chicken, which will require marketing to change consumer perception and achieving economies of scale to bring down production and retail costs (currently fresh chicken costs €2.20 / kg while frozen chicken costs €0.90 / kg). Use existing breeds (Ross &amp; Hubbard) and then introduce new breeds (Cornish) in Year 2. In Year 4-5, enter regional export markets with fresh chicken and processed products.</li> </ul>

**Target Competition**

- ▶ Regionally produced fresh chicken (i.e. Croatia, Slovenia, Slovakia)
- ▶ Indirect competition from Brazil of frozen chicken imports

**Markets to Target**

- ▶ Transition local consumers from frozen to local fresh chicken
- ▶ Displace local fresh production in region (e.g. Serbia, Croatia, Macedonia) with locally produced goods

**Breeds of Focus**

- ▶ **Short-term:** Existing breeds such as Ross and Hubbard
- ▶ **Long-term:** Commercial meat breeds such as Cornish or Plymouth Barred Rock (most common meat breeds)

**By-Products of Focus**

- ▶ **Immediate & Mid-Term:** Chilled carcasses for local market
- ▶ **Long-term:** Chilled carcasses for regional market and further processed products (e.g. sausage) for local consumption

Timeline for Implementation			
Year 1	Year 2	Year 3	Year 4 & 5
	Increase size of local fresh chicken market & displace frozen market using local breeds (Ross & Hubbard)		
	Introduce new breeds (Cornish)		Export fresh meat & processed products to regional markets



# The strategy for sheep is to focus on increasing domestic consumption of fresh meat

## Animal Specific Strategies: Sheep (meat)

### Strategy & Rationale

- ▶ **Rationale:** Countries in the EU market largely export / import lamb with regional countries (Macedonia is one of the largest suppliers to Italy); large diversity of sheep breeds create a niche appeal for both fresh meat and cheese; low domestic consumption provides opportunity to increase local market size (Kosovo per capita consumption is .3kg per year compared to European average of 2.7 kg); currently, wool is not high quality and value chain is broken among producers traders; however, exports represent an extra income source if quality can be improved through hybridization and farmers are linked with retailers (Czech Republic and Turkey are the 4<sup>th</sup> and 5<sup>th</sup> largest importers in the world)
- ▶ **Strategy:** Focus immediately on increasing market size of fresh chilled lamb meat using existing local breeds and exports of wool; in Year 3, start to improve the genetic composition by introducing European meat breeds, Suffolk and Hampshire, and increase production of specialty items; in Years 4-5, enter regional and EU export markets for chilled meat

#### Target Competition

- ▶ Regional countries such as Macedonia and Greece

#### Markets to Target

- ▶ Domestic sales of fresh, chilled lamb carcasses and dairy products
- ▶ Export sales of wool to European markets such as Czech Republic and Turkey
- ▶ Export sales of fresh, chilled lamb to Italy, Greece, EU countries

#### Breeds of Focus

- ▶ **Short Term:** Existing local breeds with niche appeal, such as Lacaune, Bardhoka and Pramenka
- ▶ **Long Term:** Hybridize current breeds with Suffolk & Hampshire to improve quality of meat and wool

#### By-Products of Focus

- ▶ **Immediate:** Chilled carcasses from young spring lambs and other sheep meat for local market; exports of wool to regional countries
- ▶ **Mid-term:** Specialty cheese items for local consumption
- ▶ **Long-term:** Chilled meat exports to region and EU

### Timeline for Implementation

Year 1	Year 2	Year 3	Year 4 & 5
Increase market size of fresh chilled lamb meat using existing local breeds			Export meat to EU and region
Enter wool export markets (as a side activity to meat)			
	Introduce new breeds (Suffolk )	Increase production of niche goods	



# Kosovo can create a market for fresh turkey, displace frozen imports and export to Albania

## Animal Specific Strategies: Turkey (meat)

### Strategy & Rationale

- ▶ **Rationale:** Imports of turkey meat were approximately 355 tons in 2009, more than 6 times size of sheep meat imports; as a result, Kosovo can increase market share through import substitution; turkey production is similar to chicken, which will enable Kosovo to produce by-products at relatively low costs and with a shorter learning curve; since the product is associated with the US, brand equity increases among domestic consumers
- ▶ **Strategy:** Introduce turkey breeds (i.e. Broad Breasted White) and develop a local taste and market for fresh turkey through active marketing campaign by playing on the US brand; in Year 3, enter regional export markets for fresh turkey; and, in Years 4-5 develop local market for processed products like fresh turkey cutlets and smoked turkey breasts and displace frozen meat imports

#### Target Competition

- ▶ France and Italy for supply of fresh turkey in the region
- ▶ France and Brazil for supply of frozen turkey

#### Markets to Target

- ▶ Local fresh, chilled consumption
- ▶ Regional markets such as Albania where there is a growing market for turkey (35 MT of fresh turkey were imported in 2008)
- ▶ Displace imports of frozen turkey with locally produced frozen turkey

#### Breeds of Focus

- ▶ Commercial meat breeds such as Broad Breasted White, Broad Breasted Bronze or White Holland

#### By-Products of Focus

- ▶ **Mid-term:** Chilled carcasses and chilled cuts for local distribution
- ▶ **Long-term:** Chilled carcasses and cuts for regional and EU markets; processed products (e.g. smoked turkey breasts and cutlets) for local consumption

### Timeline for Implementation

Year 1	Year 2	Year 3	Year 4 & 5
Introduce turkey breeds		Export fresh meat to region	
	Develop domestic market for fresh turkey		Displace frozen meat imports
			Local market for processed goods



# By increasing the shelf life and consumer perception surrounding the quality of processed milk products, Kosovo can capture market share from imports

## Animal Specific Strategies: Dairy Cows (milk)

### Strategy & Rationale

- ▶ **Rationale:** Approximately 35% of current dairy production comes from HACCP certified plants, showing that investments have already been made to develop quality products; UHT milk is price competitive with imports (€.77 for 1 liter of local brand vs. €.82 and €.86 for local brands in Croatia and Slovenia) and no evidence of dumping exists; however, yogurt and cheese are not price competitive, and little is consumed domestically because of shorter shelf life and perception of lesser quality compared to imported goods
- ▶ **Strategy:** In the first three years, continue to improve quality of milk products (UHT milk, yogurt, cheese) and increase shelf life of goods; develop marketing campaign to improve consumer perceptions; improve production techniques to lower cost of yogurt, cheese and other dairy products, and displace imports of processed products; in Year 2, introduce Jersey / Guernsey breeds to transition from dual to single purpose cows to increase milk quality; in Year 3 enter regional export markets for processed milk products; in Years 4-5, enter EU markets

#### Target Competition

- ▶ Imported UHT milk, cheese, and other dairy products from regional competitors (Croatia, Slovenia, Slovakia)
- ▶ EU exporters of milk, cheese and yogurt

#### Markets to Target

- ▶ Local retail markets for processed dairy products (UHT milk, yogurt, cheese)
- ▶ Regional retail markets for processed dairy products

#### Breeds of Focus

- ▶ **Short Term:** Existing dairy breeds, including Holstein, Simmental
- ▶ **Long Term:** Jersey and Guernsey

#### By-Products of Focus

- ▶ **Short-term:** Processed cheese, UHT and yogurt for local markets; meat by-products from dairy cows
- ▶ **Long-term:** Processed cheese, UHT and yogurt exports to regional markets

### Timeline for Implementation

Year 1	Year 2	Year 3	Year 4 & 5
	Displace imports of processed dairy and meat products focusing on dual-purpose breeds (Holstein)		
	Introduce pure dairy breeds (Jersey)	Exports of processed dairy goods to regional countries	Exports of processed dairy goods to EU countries



# The strategy for trout is to continue to develop local consumption and to increase regional exports

## Fish Specific Strategies: Trout (meat/fillet)

### Strategy & Rationale

- ▶ **Rationale:** Plans are in place for at least two trout processing plants to receive EU certification by 2011; also, Kosovo has the opportunity to develop quality niche products and market them to local consumers
- ▶ **Strategy:** Focus on increasing the market size of fresh trout by targeting local consumers through active marketing and launching exports to regional countries in the short-term; in Year 3, start exports of fresh trout to EU markets and introduce processed products in local market; in Years 4-5, introduce processed trout to regional and EU markets

#### Target Competition

- ▶ Scandinavian countries for fresh, chilled trout
- ▶ Frozen trout imports from regional countries for domestic market

#### Markets to Target

- ▶ Local fresh, chilled consumption
- ▶ Regional and EU fresh, chilled consumption

#### Breeds of Focus

- ▶ **Short-term:** Rainbow and Brown Trout (existing local varieties)
- ▶ **Long-term:** Consider introducing Triploid Rainbow Trout (does not reproduce and can grow faster)

#### By-Products of Focus

- ▶ **Short-term:** Chilled trout for local market and regional markets
- ▶ **Mid-term:** Chilled, fresh trout for EU markets; processed trout for local market
- ▶ **Long-term:** Processed trout products for regional and EU markets

### Timeline for Implementation

Year 1	Year 2	Year 3	Year 4 & 5
	Increase local market share of trout	Export fresh trout to EU	
	Start exports of fresh trout to region	Displace imports of frozen trout	Exports of processed trout products to EU and region
		Processed goods to local market	



Given the similarity in production and processing to trout, sturgeon will be introduced to the local market in the mid-term and exported to regional markets in the long-term

### Fish Specific Strategies: Sturgeon (meat/fillet)

#### Strategy & Rationale

- ▶ **Rationale:** Sturgeon is a niche product that can be produced in Kosovo using similar production and processing facilities as trout; high prices for sturgeon fillets (current EU price is €12 kg for fresh and €6.50 for frozen) make the fillets a desirable commodity
- ▶ **Strategy:** Immediately introduce species of sturgeon, such as white sturgeon, to raise in Kosovo; in Year 3, start to develop local market for fresh fillets and meat by marketing the high quality; and in Years 4-5, start exports to regional markets for fresh meat and fillets, and acquire EU certification to enter EU markets after 5 years

#### Target Competition

- ▶ European producers (France, Italy, Spain, Germany) and Russia for fresh sturgeon meat

#### Markets to Target

- ▶ Local domestic consumption for fresh fillets and meat
- ▶ Regional and EU consumption of fresh fillets / meat

#### Breeds of Focus

- ▶ Commercial species such as White sturgeon, Adriatic sturgeon and Siberian sturgeon

#### By-Products of Focus

- ▶ **Mid-term:** Chilled sturgeon for local markets
- ▶ **Long-term:** Chilled sturgeon for regional markets; after Year 5, start exports to the EU market

#### Timeline for Implementation

Year 1	Year 2	Year 3	Year 4 & 5
Introduce commercial species of sturgeon		Create local demand for sturgeon	Export to regional markets

# Improved management of grazing land will include a survey program, reforms to the fee structure administration and development of a tenure program

## Initiative 1: Improve Management of Grazing Land

Description
<ul style="list-style-type: none"> <li>▶ Currently, the majority of sheep farmers use publically-owned low pasture grazing land approximately six months of the year. However, fees for use of the land are applied by the Forestry Agency irregularly and ownership structure between the SOE and MAFRD is unclear. In some cases, MAFRD has allowed public use of SOE land. Finally, approximately one-third of the land is left unused by farmers because it is considered poor quality for grazing</li> <li>▶ We propose a three-part effort to improve management and quality of grazing land: 1) complete a survey program of land rights; 2) reform fee structure for grazing; and, 3) develop a tenure program for farmers to retain ownership of the most productive grazing land.</li> </ul>

Key Counterparts
<ul style="list-style-type: none"> <li>▶ <b>MAFRD</b>: oversight of land tenure program; determine use of low-quality grazing land</li> <li>▶ <b>Kosovo Cadastral Agency</b>: complete survey of grazing land ownership rights</li> <li>▶ <b>Forestry Agency</b>: reform management of grazing land and administer fee system to farmers</li> <li>▶ <b>Donors</b>: Provide technical and monetary assistance for survey program and tenure program</li> </ul>

Implementation Steps
<ul style="list-style-type: none"> <li>A. Complete survey program to clarify land rights                             <ol style="list-style-type: none"> <li>1. Aggregate and update all land ownership information into automated registry system at Kosovo Cadastral Agency</li> <li>2. Develop and launch program to survey, validate and reconcile land ownership information</li> <li>3. For disputes between MAFRD and private owners, forward cases to adjudication process</li> </ol> </li> <li>B. Revise / implement fee structure based on sheep herd size                             <ol style="list-style-type: none"> <li>1. Complete exhaustive analysis of fees received in Forest Agency's six municipal offices compared to volume of sheep grazing on public lands</li> <li>2. Analyze and recommend market rate for fee structure based on herd size and farmer willingness to pay</li> <li>3. Recommend revised organizational model in Forest Agency to collect fees on proactive basis</li> <li>4. Develop communication campaign to make farmers aware of new fee system</li> </ol> </li> <li>C. Develop tenure program for grazing land                             <ol style="list-style-type: none"> <li>1. Design tenure review process, including survey program of quality land, land appraisal structure, negotiation process between farmer and MAFRD</li> <li>2. Complete survey of potentially low-quality land that could be transitioned to government and determine secondary uses</li> <li>3. Develop marketing campaign to increase awareness among farmers and launch program</li> </ol> </li> </ul>



# Strengthening the breeding system will be achieved through two main programs: improving animal welfare programs and importing quality breeds to enhance genetic composition

## Initiative 2: Strengthen Breeding System to Develop Quality Animal Genetics

### Description

- ▶ Although birthing rates for some animals, such as dairy cattle, sheep and swine, have grown, annual birthing rates are lower than best practice averages. In addition, the artificial insemination success rate is lower than regional and benchmark countries. These statistics show that the breeding system is weak compared to benchmark countries. Part of the problem can be attributed to the lack of breeding services provided by technicians and veterinarians, as well as general lack of knowledge among farmers.
- ▶ We propose a two-part effort to improve the breeding system: 1) improve quality of animal welfare training programs; and 2) start program to import quality breeds to improve genetic composition.

### Key Counterparts

- ▶ **MARFD**: oversee reforms to the training programs and licensing process
- ▶ **KFVA**: oversee the health and management of imported breeds into Kosovo
- ▶ **University of Pristina**: implement reforms to veterinarian / technician training programs for licensing
- ▶ **Donors**: provide technical and monetary assistance for improving training and importing quality animals

### Implementation Steps

- A. Improve quality of animal welfare training programs and licensing process
  1. Complete exhaustive analysis of current training programs and licensing process provided by the public system for veterinarians and technicians
  2. Determine gaps in the training and weaknesses according to international best practice models
  3. Recommend new course structure and licensing requirements
  4. Determine funding requirements and sources to implement changes
- B. Import quality breeds to improve genetic composition of animals
  1. Devise timeline and plan to reach target genetic composition levels for each animal population over the next five years
  2. Determine target breeds and best sources for importing animals according to the plan
  3. Assess funding requirements to import quality animals for target farms and determine sources
  4. Set-up animal management system to ensure that health and quality of imported animals are maintained
  5. Launch program and monitor health of animals and quality of by-products; determine if any changes are required in imported breeds or animal management

# Two programs will facilitate creation of an effective herd health management system: increasing the use of animal books among farmers and developing an animal health strategy for Kosovo

## Initiative 3: Create Effective Herd Health Management System

### Description

- ▶ Statistics show that while Kosovo has proportionately fewer cases of certain animals diseases than neighboring countries, such as brucellosis, the prevalence of disease is growing. In addition, the proportion of animals which are vaccinated is lower than benchmark countries. While KFVA has launched a program to introduce vaccinations for additional animal diseases, it does not track the health of all animals
- ▶ Weak herd health management will hinder Kosovo from raising genetically strong animals, which are critical in developing quality by-products that are competitive on local and international markets. As a result, we propose: 1) increasing the use of animal health books among farmers and 2) aligning KFVA's methods for disease control with the EU Animal Health Strategy

### Key Counterparts

- ▶ **MAFRD**: oversee animal book outreach program for farmers in the field
- ▶ **KFVA**: oversee development of Kosovo Animal Health Strategy
- ▶ **Donors (particularly EC)**: help determine gaps in meeting EU Animal Health Strategy and provide additional technical / monetary assistance to address gaps

### Implementation Steps

- A. Establish program to increase use of animal books among farmers
  1. Complete exhaustive scan of farmers to determine proportion using animal books to track the health of their herd / populations
  2. Assess weaknesses and reasons for farmers not actively using animal books
  3. Develop program that includes on-site interventions, publications, training programs and access to technical advisors
  4. Determine funding sources and partners for program
  5. Launch program and monitor effectiveness
- B. Align proactive and reactive measures for disease control with EU Animal Health Strategy
  1. Work with European Commission to determine all interventions that are taking place to improve disease control
  2. Determine gaps in current efforts in comparison with EU Animal Health Strategy
  3. Draft Kosovo Animal Health Strategy to support proactive and reactive measures in EU strategy
  4. Determine plan to address gaps through additional interventions in order to fulfill strategy
  5. Assess funding requirements and donor participation required to meet plan
  6. Socialize Kosovo Animal Health Strategy and plan to address gaps; make changes as necessary
  7. Launch program and monitor effectiveness

# Development of an effective tracking system will depend on creating an animal registry system and establishing bilateral agreements with neighboring countries to support tracking

## Initiative 4: Develop Animal Tracking Systems

### Description

- ▶ Currently, Kosovo is vulnerable to the illegal movement of cattle, sheep, goat and chicken across Serbian and Macedonian borders. The movement happens through three illegal forms: imports, transit / exports and grazing. As a result, Kosovo is susceptible to decreased genetic quality of animals from intermingling, increased spread of diseases and diminished ability to qualify for exports to the EU.
- ▶ We propose a two pronged effort to develop animal tracking systems: 1) create an exhaustive registry system and 2) assess the feasibility of establishing bi-lateral agreements to improve tracking of animals

### Key Counterparts

- ▶ **KFVA**: house automated registry system and oversee aggregation of information
- ▶ **MAFRD**: assist in survey of animal populations
- ▶ **Donors**: provide technical and monetary assistance for registry and bi-lateral agreements
- ▶ **Inter-ministerial committee**: review proposed bi-lateral agreements / stipulations and provide final approval

### Implementation Steps

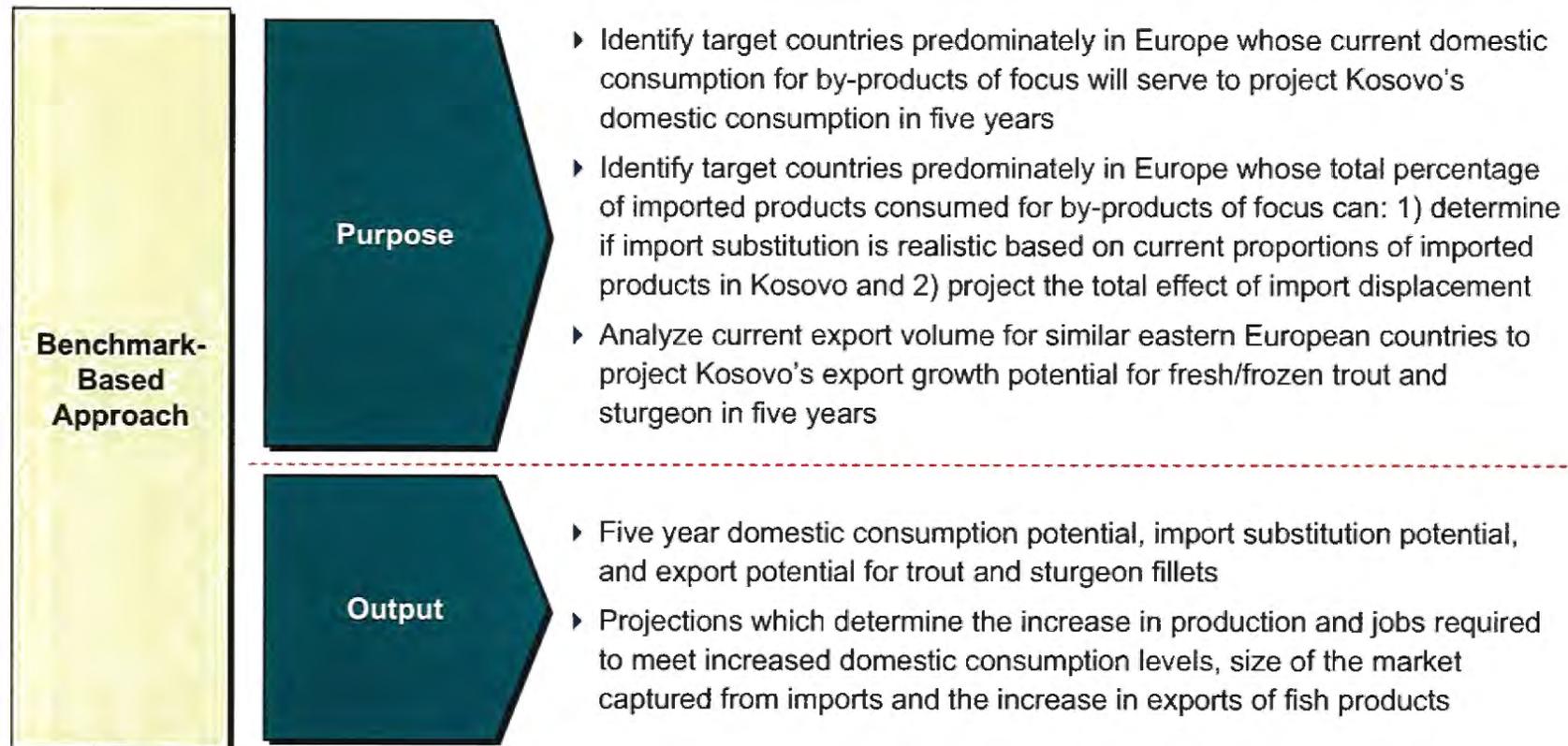
- A. Create animal registry system among KFVA, veterinarians, and all holdings (farms, markets)
  1. Develop automated registry system housed at KFVA with network links to regional offices, veterinarians and holdings to track all animal populations
  2. Aggregate all animal information (including breeding, deaths, vaccinations, diseases, subsidy payments, and veterinary procedures) into system
  3. Develop and launch program to survey, validate and update information for animal populations not in the system
  4. Establish and launch automated "push & pull" of data requirements into centralized system
  5. Develop and launch communication plan to make stakeholders aware of system and increase use
- B. Determine feasibility to establish bi-lateral agreements with neighboring countries on animal tracking
  1. Establish task force to examine illegal flows according to animal-type and border crossing
  2. Task force completes assessment to determine impact on animal diseases and impact to economy from illegal imports (i.e. price gouging)
  3. Task force develops recommendations for possible agreements and stipulations; socialize with inter-ministerial committee & secure buy-in
  4. Draft communiqué and submit to countries to launch negotiations; agree on steps to minimize illegal flows

## Table of Contents

- ▶ Overview of Deliverable
- ▶ Baseline Analysis of Animal Product Sector
- ▶ Recommendations to Improve Kosovo's Animal Product Sector
  - Recommended Animal Product Mix for Kosovo
  - Initiatives & Action Plan for Implementation
  - Reaching Overall Potential in Local Markets

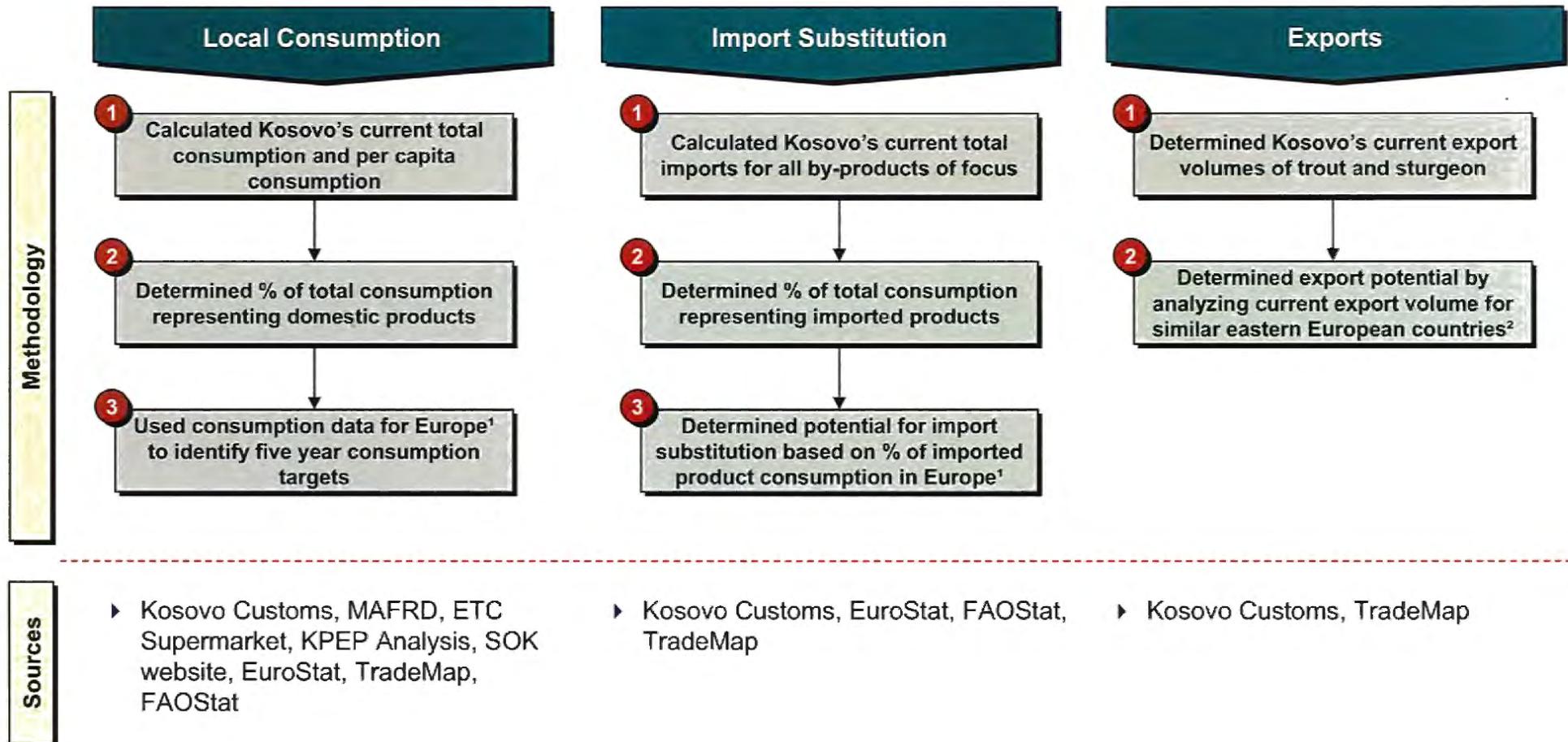
# The potential impact of reforms for the animal products sector was developed using a benchmark approach to measure the increase in production and employment over five years

## Approach to Project Potential Impact on Kosovo's Animal Products Sector



# The impact of increased production was calculated using three sources: local consumption, import substitution and exports

## Sources for Increasing Production of Animal Products



Note: (1) Countries analyzed in EuroStat included: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, United Kingdom, Croatia, Turkey

(2) Countries analyzed in FAOStat for fish included: Czech Republic, France, Italy, Serbia and Montenegro, Slovakia, Slovenia, Spain, Macedonia, Turkey, USA

Source: BAH Analysis

## For local consumption impact, we estimated potential per capita consumption by 2015 based on European benchmarks

Total Current Kosovo and Benchmark Per Capita Consumption Levels (Kg)

By-Product	Kosovo Total Per Capita Consumption in 2010 (Kg)	European Per Capita Consumption Benchmark (Kg)	Benchmark Target Assumptions
Milk	131 Kg	141.7 Kg	► Kosovo consumption of milk can increase slightly (e.g. benchmark listed is level in Ireland)
Beef	11.3 Kg	16.8 Kg	► Kosovo consumption of beef can reach the average consumption in Europe <sup>1</sup> in 2006
Lamb	0.4 Kg	2.7 Kg	► Kosovo consumption of lamb can reach the average consumption in Europe <sup>1</sup> in 2008
Chicken	16.6 Kg	24.6 Kg	► Kosovo consumption of chicken can reach the average consumption in Europe <sup>1</sup> in 2007
Turkey	0.2 Kg	2.5 Kg	► Turkey consumption represents 10% of chicken consumption
Eggs	7.3 Kg	15.4 Kg	► Kosovo consumption of eggs can reach the average consumption in Europe <sup>1</sup> in 2007
Trout	0.28 Kg	1.4 Kg	► Trout consumption is 8% of total seafood consumption for select countries <sup>2</sup>
Sturgeon	0 Kg	0.2 Kg	► Sturgeon consumption is 1% of total seafood consumption for select countries <sup>2</sup>

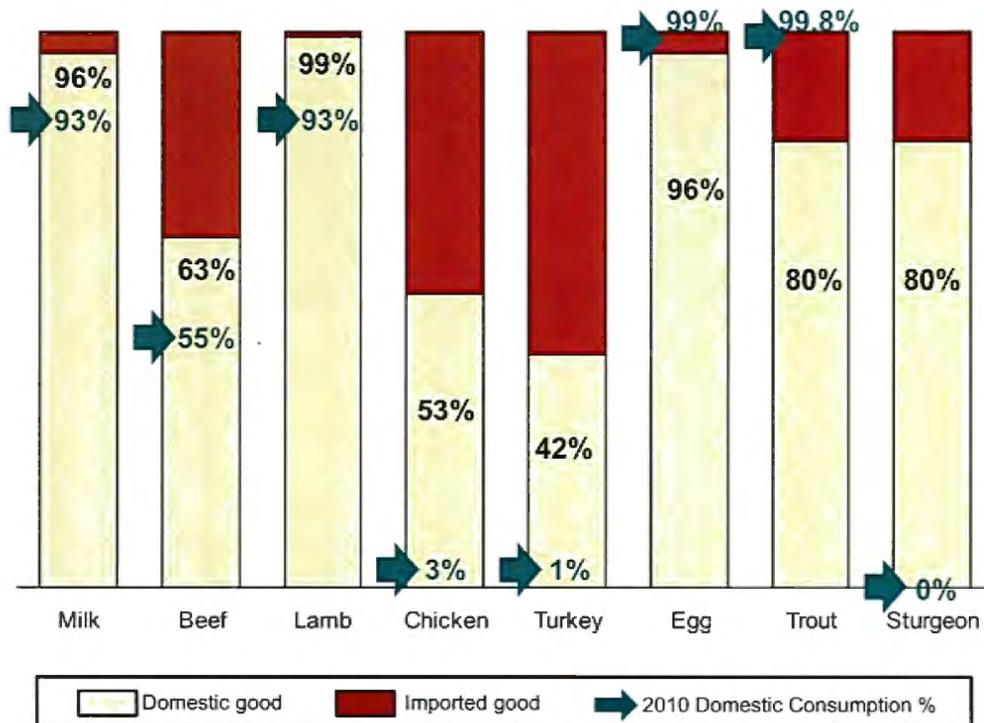
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(2) Countries analyzed in FAOStat for fish included: Czech Republic, France, Italy, Serbia and Montenegro, Slovakia, Slovenia, Spain, Macedonia, Turkey, USA

Source: EuroStat, FAOStat, MAFRD, Customs, ETC Supermarket, Konasoni, KPEP Analysis, BAH Analysis

# In the same way, for import substitution we forecasted target domestic market share by 2015 based on European benchmarks

Domestic vs. Imported Consumption Potential in Kosovo Based on Benchmarks (2015)

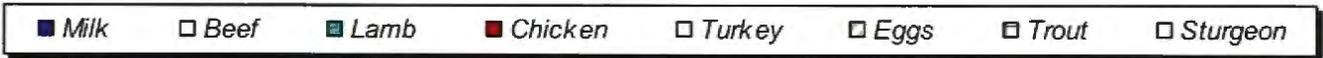
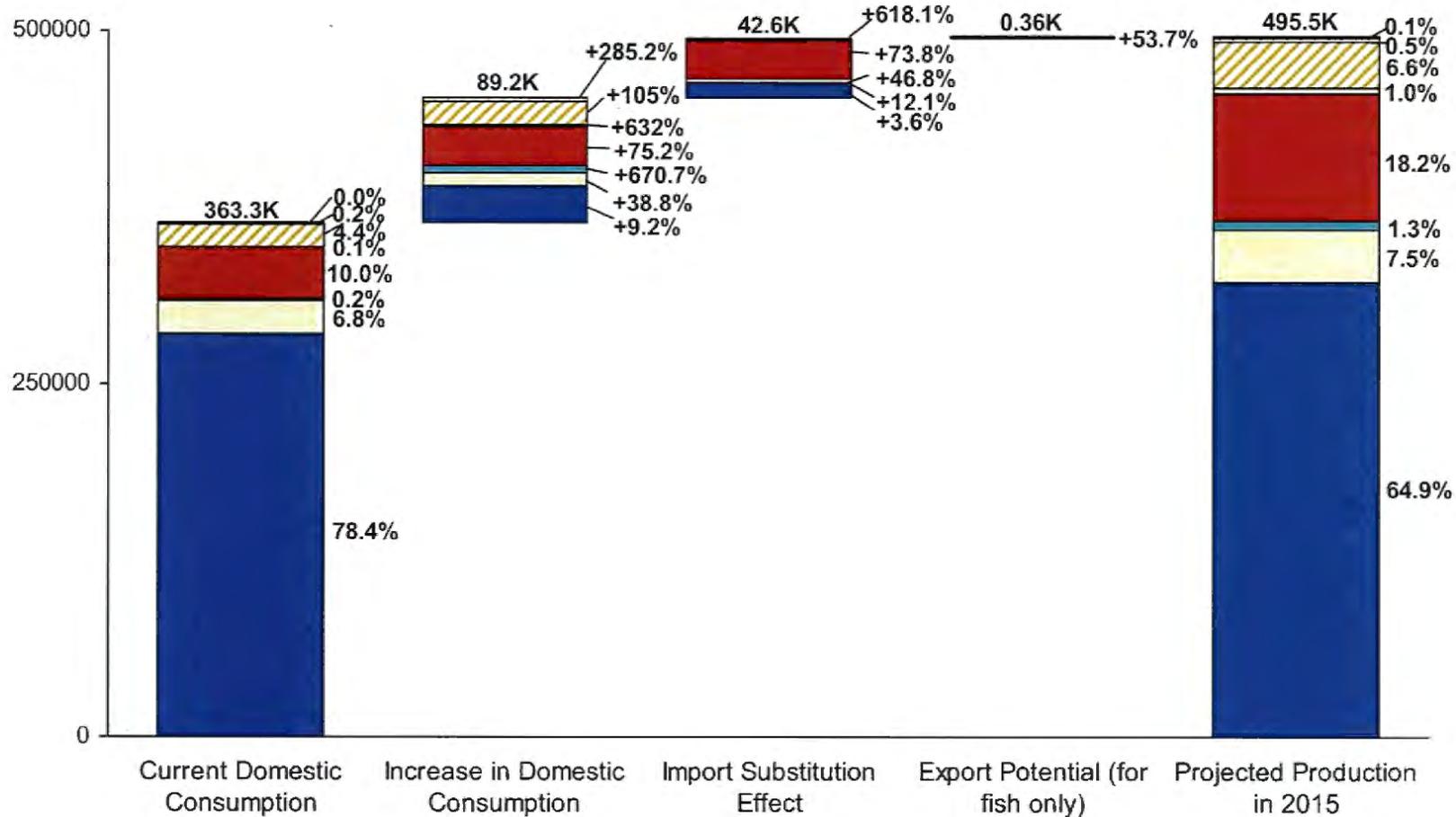


By-Product	CAGR	Benchmark Target Assumptions
Milk	2.1%	Used average % of imported products consumed in the United Kingdom*
Beef	10.4%	Averaged % of imported products consumed in Europe <sup>1</sup> and Kosovo's current breakdown for beef
Lamb	66.8%	Used average % of imported products consumed in Romania*
Chicken	10.3%	Used average % of imported products consumed in Luxembourg for chicken
Turkey	96.7%	% of imported product consumption for turkey is 20% higher than chickens
Egg	20.6%	Used average % of imported products consumed in Croatia*
Trout	48.2%	Used average % of imported products consumed for Serbia, Montenegro, and Czech Republic; Kosovo can attain trout exports similar to current volumes of exported trout in Bulgaria (fresh) and Czech Republic (frozen)
Sturgeon	2305%	Sturgeon % breakdown of domestic vs. import consumption is same as trout; Sturgeon exports can reach 10% of fresh and frozen trout exports in five years

Note: Milk, beef, lamb, chicken, turkey are the by-products that have potential for import substitution given the current proportion of imports versus domestic consumption and comparative numbers for European countries  
 Note: (\*) Kosovo imports relatively lower volumes and % of milk, lamb, and eggs so selected a higher than average breakdown % of domestic versus import consumption; CAGR represents total consumption  
 Note: (1) Countries analyzed included: Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, United Kingdom, Croatia, Turkey  
 (2) Countries analyzed included: Czech Republic, France, Italy, Serbia and Montenegro, Slovakia, Slovenia, Spain, Macedonia, Turkey, USA  
 Source: EuroStat, TradeMap, FAOStat, BAH Analysis

# For each of the by-products, we expect an increase in market size; most products will capture part of the market from imports while trout and sturgeon will increase exports

Increase in Domestic Consumption, Import Substitution, and Exports  
(2010-2015, Tons)

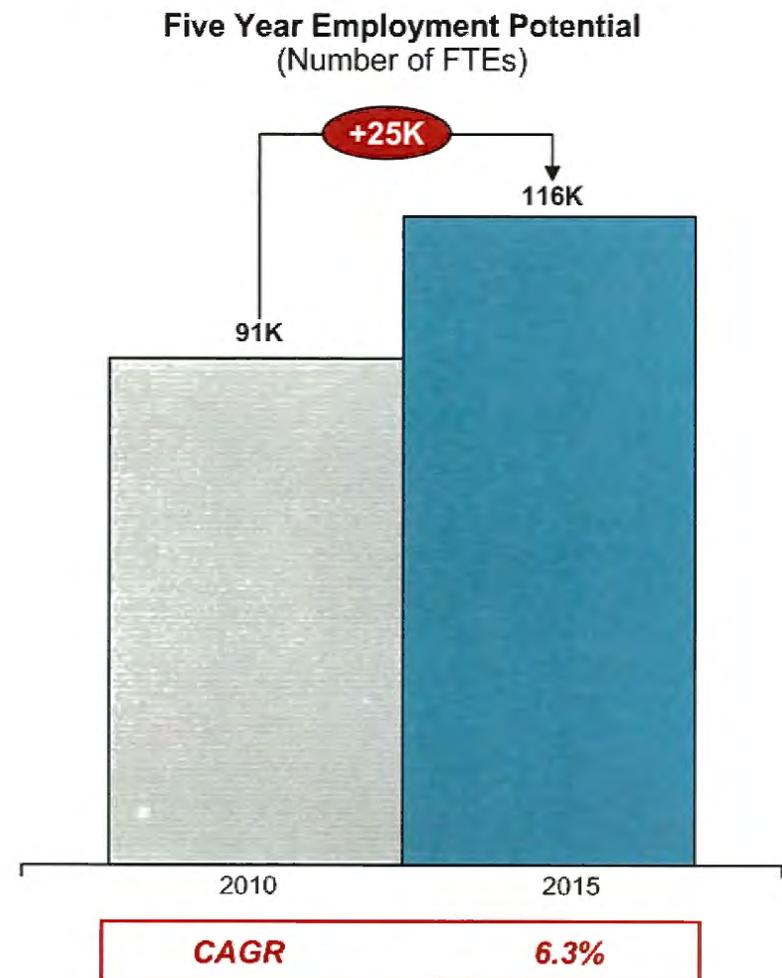
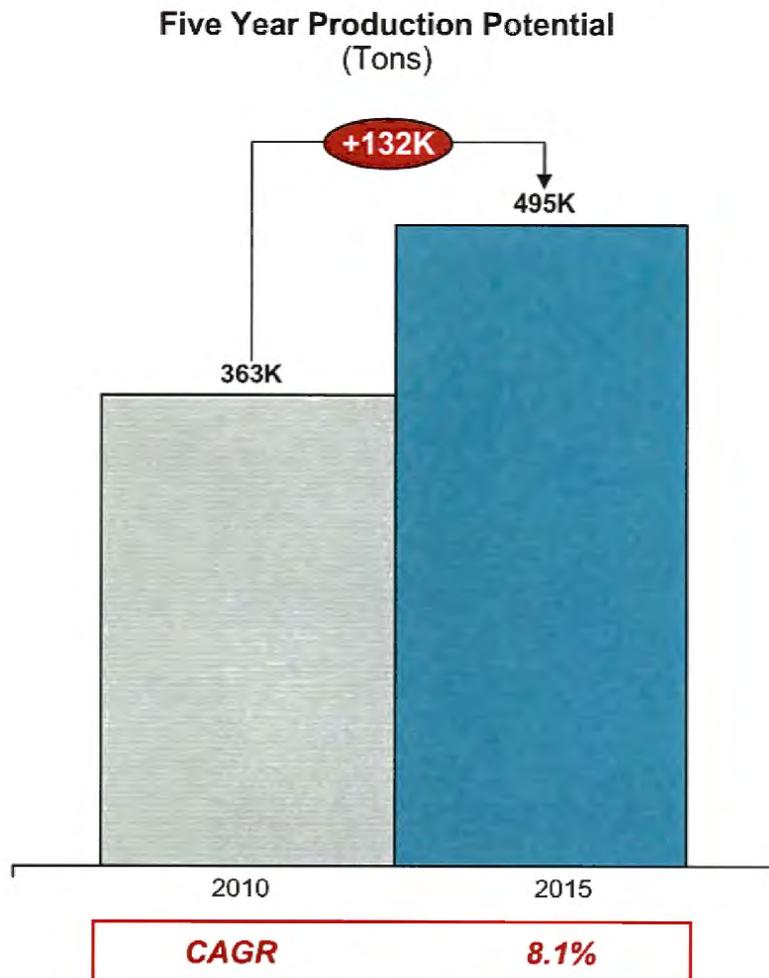


Source: BAH Analysis

Note: (\*) Sturgeon growth % are significant given that no sturgeon is currently consumed in Kosovo (i.e. no domestic production and no imports) and % are not shown here

**As a result, the growth in production of animal products is expected to be 132K tons over the next five years, and should create a total of 25K jobs**

### Impact to Kosovo's Animal Product Sector: Five Year Projections



*Note: Applied weighted average of Slovakia (25%) and Italy (75%) jobs/production value ratio equaling 0.00007 from AgStrat study  
Source: BAH Analysis*

## **Appendix: Kosovo Donor Mapping Summary**

# We received feedback from 11 donor organizations regarding their current and planned agriculture projects and aligned them to the 21 crop diversification initiatives outlined in the AgStrat study

## Donor Activity Alignment Snapshot

		USAID	European Commission	World Bank	DANIDA	Cooperation Swiss	Danish Embassy	DFID	Austrian Development Agency	IPKO	Government Cooperation/ Danish	Swiss Cooperation/ Swiss	KfW
<b>0. Diversification</b>	Crop Diversification Initiative					✓							
<b>1. Leveraging Small Farmers Potential</b>	A. Improve business viability and coordination of associations	✓						✓	✓	✓	✓		
	B. Introduce and strengthen extension system to promote traditional crops and improve diversity	✓		✓	✓	✓	✓			✓	✓		
	C. Increase and diversify types of financial products available to smallholder farmers	✓		✓	✓								✓
	D. Improve cadastral system and test effectiveness of pilot land consolidation program		✓	✓									
<b>2. Demand-Driven Focus</b>	A. Develop and launch donor coordination activities for agriculture	✓	✓			✓			✓				
	B. Create market intelligence system and communication plan		✓										
	C. Improve capacity of collection centers, pack houses and cold storage	✓	✓			✓			✓				
	D. Establish centralized organization to oversee marketing/export promotion of agriculture goods												
<b>3. Infrastructure Capacity Building</b>	A. Rehabilitate the large-scale irrigation system in Kosovo			✓									
	B. Increase use of small-scale irrigation systems			✓									
	C. Support development of greenhouses						✓						
	D. Increase energy competitiveness of the agriculture sector												
<b>4. Transport</b>	A. Prioritize and develop rural roads using cost-benefit analysis and PPPs												
	B. Develop air perishables plan and remove regulatory and market obstacles												
	C. Analyze and communicate cost advantages of the new Tirana highway												
<b>5. Government Agriculture Regulations</b>	A. Establish a centralized, strengthened organizational model for food safety and quality control	✓	✓										
	B. Help private quality control labs to achieve international certification		✓										
	C. Establish program to protect the environment against pesticide and input misuse			✓									
<b>6. Trade</b>	A. Develop institutional initiatives to facilitate trade and build capacity in the Gov't of Kosovo	✓	✓	✓									
	B. Develop and execute interim response to subsidies in neighboring countries												

Note: Alignment information should be confirmed with donor organizations: Plan to be launched by the Ministry of Agriculture not included since details have not been released  
Source: Surveyed Donor Community in Kosovo

# USAID is involved in several activities to leverage smallholder farmer potential, increase demand-driven focus, and improve trade

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
USAID	4 Years	01/10/09	30/09/13	\$17.8M, including a \$3.76M grants program	1a, 1b, 1c, 2a, 2c, 5a, 6a
	<p><b>Kosovo Private Enterprise Program (KPEP):</b> KPEP's goal is to improve the Competitiveness of Selected Sectors of the economy - Agriculture, Construction, Wood Processing, Forestry, ICT, Tourism, Recycling – through technical assistance, strengthening Business Support Services, improving the Business Enabling Environment and Workforce Development. KPEP manages a \$3.76 million grants program, the Strategic Activities Fund, which awards grants and subcontracts in furtherance of the project's objectives. KPEP also supports initiatives benefiting minorities, women, and microenterprises.</p> <p>For agriculture specifically, KPEP's goal is greater commercialization of agriculture and regional market penetration through meeting end-market demand. KPEP work in agriculture focuses on three areas: dairy; fruit and vegetables; non-wood forest products. In dairy, KPEP works to improve product quality and marketing, strengthen business to business relations, improve packaging, and support dairy policy development. In the fruit and vegetable sector, KPEP works to expand domestic market share and penetrate new export markets, develop vegetable collection centers, and improve vegetable production, collection, and processing.</p>				
	4 Years	August 2008	July 2012	\$625,000 lent to agriculture and agriculture processing each year	1c
<p><b>Kosovo SME Commercial Finance Fund (Crimson Finance Fund LLC (CFF):</b> CFF provides innovative, short-term working capital finance products to small and medium sized enterprises (SMEs) in Kosovo. The Fund directly targets the problem of the "missing middle," in which the vast majority of companies in developing countries cannot obtain short-term working capital financing needed to grow, employ more people, increase exports and become competitive and viable for the long-term. The fund utilizes purchase order finance financing to address the lending needs of the SME sector in Kosovo. CFF provides financing to all sectors of the economy and operates in all regions of Kosovo, but gives special attention to businesses that are not being adequately served by existing financial institutions, including agriculture, rural businesses, enterprises owned by women and minorities, and entrepreneurs.</p>					

# The European Commission will focus on six different projects in the agriculture sector through 2012...

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
European Commission	2 Years	22/02/2010	22/02/2012	1.5M Euros	1d
	<b>Land Use Support Project</b> : The overall objectives of the project are to assist the Ministry of Agriculture, Forestry and Rural Development (MAFRD) to implement its national strategy on land consolidation, to carry out an inventory and information system for agricultural land pollution and to establish a land register for a pilot region.				
	2 Years	To Be Determined	To Be Determined	5M Euros (EC Contribution)	2c, 5a
	<b>Rural Grants Project:</b> The project will aim to increase the contribution from the agricultural sector to enhancing rural development and in particular to increasing employment opportunities in rural areas. The specific objectives are to improve hygiene, quality and food safety standards in the milk and meat processing industry as well as fruit and vegetable processing in order to strengthen the competitiveness of the agricultural and rural development sector and increase the consumer confidence into local products.				
	14 Months	15/03/2010	15/05/2011	1.5M Euros	2a
	<b>Agricultural and Rural Development Policy Implementation Preparation Project:</b> The project purpose is to strengthen the administrative capacity of MAFRD to undertake short-term sector priorities and market-orientated reforms, including carrying out the coordination, monitoring and management of rural development funds available through the national ARDP 2007-2013 and the future IPA Rural Development Component .				
	1 Year	To Be Determined	To Be Determined	1M Euros	2b
	<b>Farmer Register System Establishment Project:</b> The project aims to strengthen the organizational capacity of SOK and MAFRD and to further align the statistics with EU standards. The project shall consolidate the internal activities that support production, communication, and distribution of statistics according to the EU on statistics best practices and standards to improve quality, sustainability and efficiency.				

## ...and will focus primarily on capacity building upon completion of the projects

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
European Commission	2 Years	18/03/2009	18/03/2011	2M Euros	5a, 5b, 6a
	<b>Food Safety and Veterinary Services Project:</b> The purpose of this project is to enhance the commercial and export potential of the agrobusiness food chain in Kosovo through improving controls on animal health, food safety and quality, in line with EU standards and technical requirements.				
	Call for proposals to be launched end of January /beginning of February 2010 with an application submission deadline of May 2010			7.4M Euros	Various
	<b>Regional Economic Development /EURED Grant Scheme Project:</b> The global objective of this Call for Proposals is to improve the conditions for balanced and sustainable economic development across all the economic regions of Kosovo. The specific objectives of this Call for Proposals are: to contribute to the consolidation of the five economic regions and the creation of a regional development framework in line with EU practices and to support economic regeneration, job creation and human resource development in the economic regions.				

*Note: Projects will all end in 2012. . Afterward, will focus on capacity building.  
Source: Surveyed Donor Community in Kosovo*

# The majority of World Bank projects focus on leveraging the potential of smallholder farmers and infrastructure capacity building

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
World Bank	5 Years	2010	2015	\$12.25M (55% credit, 45% grant)	1d
	<b>Real Estate Cadastre and Registration Project (RECAP):</b> This is a follow-up project to the business improvement technical grant. Specifically it will focus on the cadastre and registration system.				
	5 Years	2011	2016	\$9.7M (55% credit, 45% grant)	1b, 1c, 6a
	<b>Agriculture, Rural Development and Environment Project (KADEP) (preliminary name):</b> The project will provide support for EU accession (common agriculture policy), extension services, rural development grants, and project management.				
	5 Years	2011	2016	\$4.6M (100% grant)	1b, 5c
	<b>Global Environment Fund Project:</b> The Global Environment Fund is dedicated to the Danube black sea nutrient reduction system to address agriculture pollution and waste management, promote good agriculture practices, and provide rural advisory services. This project will also provide support for EU accession. This project will be fused with KARDEP.				
	1 Year	To Be Determined	To Be Determined	To Be Determined	3a, 3b
<b>Water Strategy Study:</b> The planned project is to conduct a strategy study for the water sector.					

# DANIDA, Swiss Cooperation, Danish Embassy, and DFID predominately focus on crop diversification, leveraging the potential of smallholder farmers, and demand-driven focus

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
DANIDA	5 Years	2008	2012	10.5M Euros	1b, 1c
	<b>Employment Promotion through Business and Skills Development Project:</b> The project currently works with the Ministry of Education and Science and Technology (MEST) to provide agriculture vocational training to enhance relevant business skills. This work includes the VET-agriculture project, the HPK-project, and a minor microfinance element.				
Swiss Cooperation / Inter-cooperation	3 Years	2010	2012	6.65M Swiss Francs (funded by the Swiss and Danish Government))	0,1b, 2a, 2c
	<b>Horticulture Promotion in Kosovo (HPK) Project:</b> The project employs a value chain approach. HPK supports the development of the value chains of vegetables (tomatoes, pepper, cabbage GH), fruits (apples, plum, cherry, pear and berries) and MAP. HPK also supports the development of advisory services for machinery, etc. and works with other public (e.g. MAFRD and UoP) and private (e.g. KCC, Kodda) institutions.				
Danish Embassy	5 Years	2008	2012	4M Euros	1b, 3c
	<b>Vocational Education Project:</b> The objective is to improve secondary (vocational) education and curriculum as well as link the educational curriculum directly to the demands of the labor market to ensure practical application (greenhouses, land, etc.).				
DFID	1 Year	Feb. 2010	Jan. 2011	Approximately £250K	1a
	<b>Private Sector Development Dialogue Support:</b> This project aims to build the capacity of Business Associations and their members to engage in effective policy dialogue with the Government on key substantive issues.				

# The Austrian Development Agency will support various initiatives through 2012 including vegetable processing improvement and association capacity building

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
Austrian Development Agency	3 Years	Feb. 2008	Dec. 2010	200K Euros	2c
	<b>Processing Project:</b> The project will focus on vegetable processing plants and has formed a business partnership with Kolm Pfluger-Etlinger and Shtime.				
	3 Years	Dec. 2009	Dec. 2012	2.6M Euros	Various
	<b>Suhareka Development Project:</b> This integrative project focuses on development in the Suhareka region in the agriculture sector.				
	3 Years	Jul. 2009	Dec. 2011	73K Euros	1a
	<b>Farmer Association Project:</b> The work provides support to farmer associations in Western Kosovo.				
	18 Months	Aug. 2009	Feb. 2011	1.5M Euros	2a
<b>Policy Implementation Project:</b> This work is dedicated to preparing for the implementation and management of agricultural and rural development policy in Kosovo. (EU Twinning Project KS 2008/IB/AG01, Leader Austria, Partners, Hungary and Slovenia)					

# Projects funded by IPKO, Swiss Cooperation / Danish Government, and KFW work toward leveraging the potential of smallholder farmers

Detailed Donor Activity Matrix

Organization	Duration	Start Date	End Date	Project Funding	Related Initiatives
IPKO	2 Years	Aug. 2009	July. 2011	900K Euros	1a, 1b
	<b>Development Assistance to Farmers in Remote Areas of Kosovo and Montenegro:</b> This project helps farmers in the mountainous regions of Dragash, Shterpce, Peja and Decan to adopt more modern farming techniques and create cooperatives and young farmers' clubs.				
Swiss Cooperation & Danish Government*	Unknown	Unknown	Unknown	Unknown	1a, 1b
	<b>Extension Services Project:</b> The goal of this project is to provide advisory services to create an entity to coordinate the development of the sector and identify change agents to improve extension services and impact.				
KFW*	Unknown	Unknown	Unknown	Up to 8M Euros	1c
	<b>Rural Finance Project:</b> The work will promote rural finance via the banking sector.				
Ministry of Agriculture*	Unknown	Unknown	Unknown	5M Euros	Various
	<b>Agriculture Plan:</b> It is expected that the Ministry will announce its agriculture plan shortly, including the overall focus, detailed activities, duration of work, and allocation of funds.				

Note: (\*) Project information for Swiss Cooperation & Danish Government, KFW, and Ministry of Agriculture needs to be confirmed and/or completed with funding organization  
Source: Surveyed Donor Community in Kosovo