Diversity of local pig breeds and production systems for high quality traditional products and sustainable pork chains

Luca Fontanesi

Department of Agricultural and Food Sciences
Division of Animal Sciences
University of Bologna
Bologna, Italy

luca.fontanesi@unibo.it

ALMA MATER STUDIORUM A.D. 1088
UNIVERSITÀ DI BOLOGNA

Funded by European Union
Horizon 2020
Grant agreement No 634476

Diversity of local pig breeds and production systems for high quality traditional products and sustainable pork chains

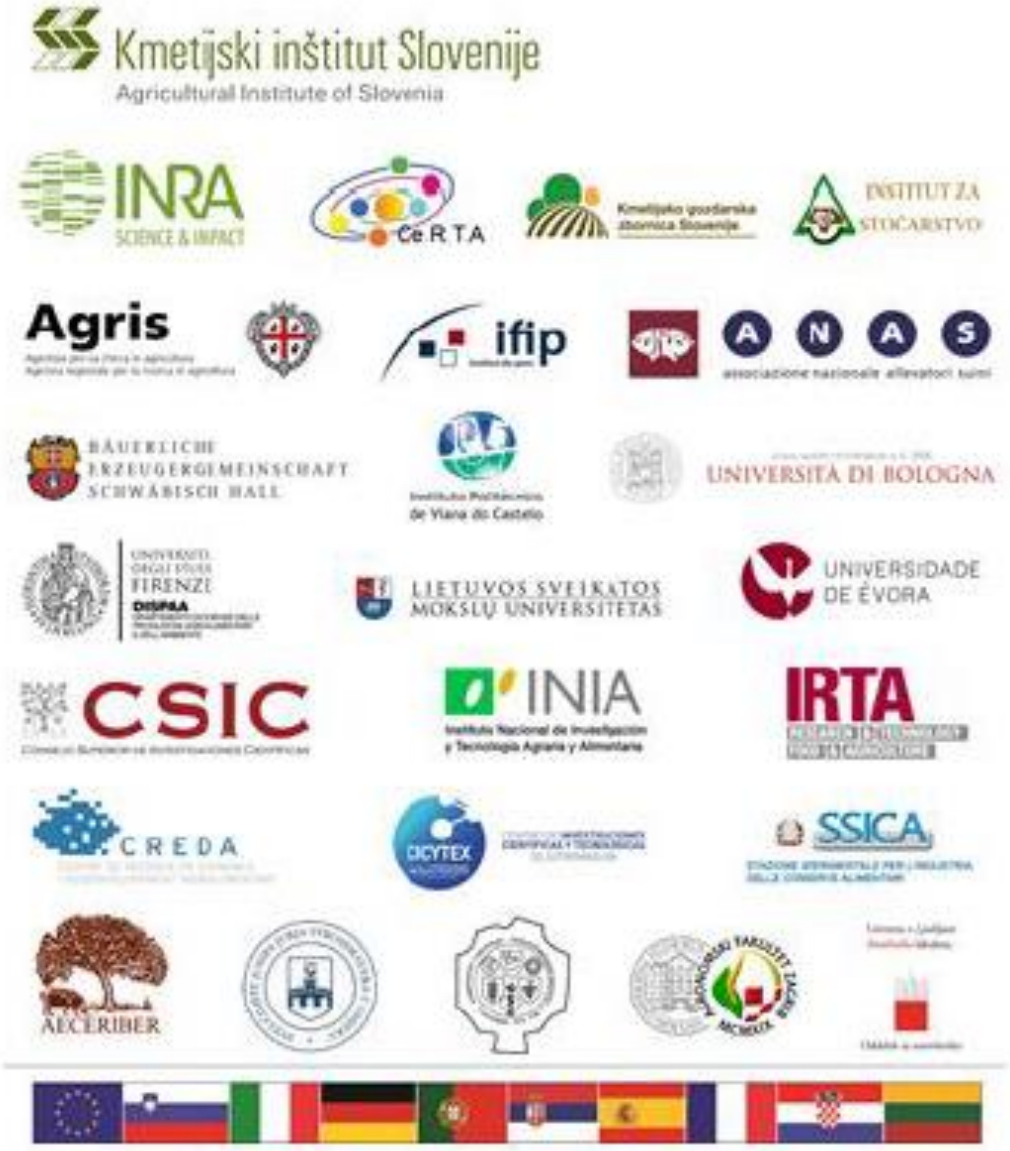
Call: SFS-07a-2014
Traditional resources for agricultural diversity and the food chain

Start of the action *01/04/2015*
Duration*: 48 months*
Budget: *3.4 million EURO*

ALMA MATER STUDIORUM A.D. 1088
UNIVERSITÀ DI BOLOGNA

Funded by European Union
Horizon 2020
Grant agreement No 634476

TREASURE



Coordinator:
KIS-Agricultural Institute of Slovenia
Marjeta Čandek-Potokar

Vice Coordinator:
University of Bologna
Luca Fontanesi

25 partners from 9 countries

Funded by European Union
Horizon 2020
Grant agreement No 634476

WP1	**Genetic characterisation** of local pig breeds, esp. untapped, and development of DNA tools (authentication, traceability, conservation and breeding programs)
WP2	**Multicriteria evaluation of production systems, nutrition** (nutritional requirements of local pig breeds, use of locally available feeding resources), innovative **management** strategies and **environmental impacts**
WP3	**Quality and healthiness attributes of regional pork products** in line with consumer demands including innovations in traditional products
WP4	**Socio-economic perspective:** Cost/benefit analysis at different levels of the chain and for the society, and research of market potential and strategies for regional high quality products
WP5	**Measures to maximise impact** – activities of dissemination and knowledge exchange between actors and also joint ventures (TM)

Funded by European Union
Horizon 2020
Grant agreement No 634476

TREASURE

WP1	**Genetic characterisation** of local pig breeds, esp. untapped, and development of DNA tools (authentication, traceability, conservation and breeding programs)
WP2	**Multicriteria evaluation of production systems, nutrition** (nutritional requirements of local pig breeds, use of locally available feeding resources), innovative **management** strategies and **environmental impacts**
WP3	**Quality and healthines… …regional pork products** in line with consumer dem… …itional products
WP4	**Socio-eco**… …at different levels of the chain and fo… …otential and strategies for regional high qu…
WP5	**Measures to maximis… …pact** – activities of dissemination and knowledge exchange between actors and also joint ventures (TM)

European collective trademark for local pig products

Funded by European Union
Horizon 2020
Grant agreement No 634476

WP1	**Genetic characterisation** of local pig breeds, esp. untapped, and development of DNA tools (authentication, traceability, conservation and breeding programs)
WP2	**Multicriteria evaluation of production systems, nutrition** (nutritional requirements of local pig breeds, use of locally available feeding resources), innovative **management** strategies and **environmental impacts**
WP3	**Quality and healthiness attributes of regional pork products** in line with consumer demands including innovations in traditional products
WP4	**Socio-economic perspective:** Cost/benefit analysis at different levels of the chain and for the society, and research of market potential and strategies for regional high quality products
WP5	**Measures to maximise impact** – activities of dissemination and knowledge exchange between actors and also joint ventures (TM)

Funded by European Union
Horizon 2020
Grant agreement No 634476

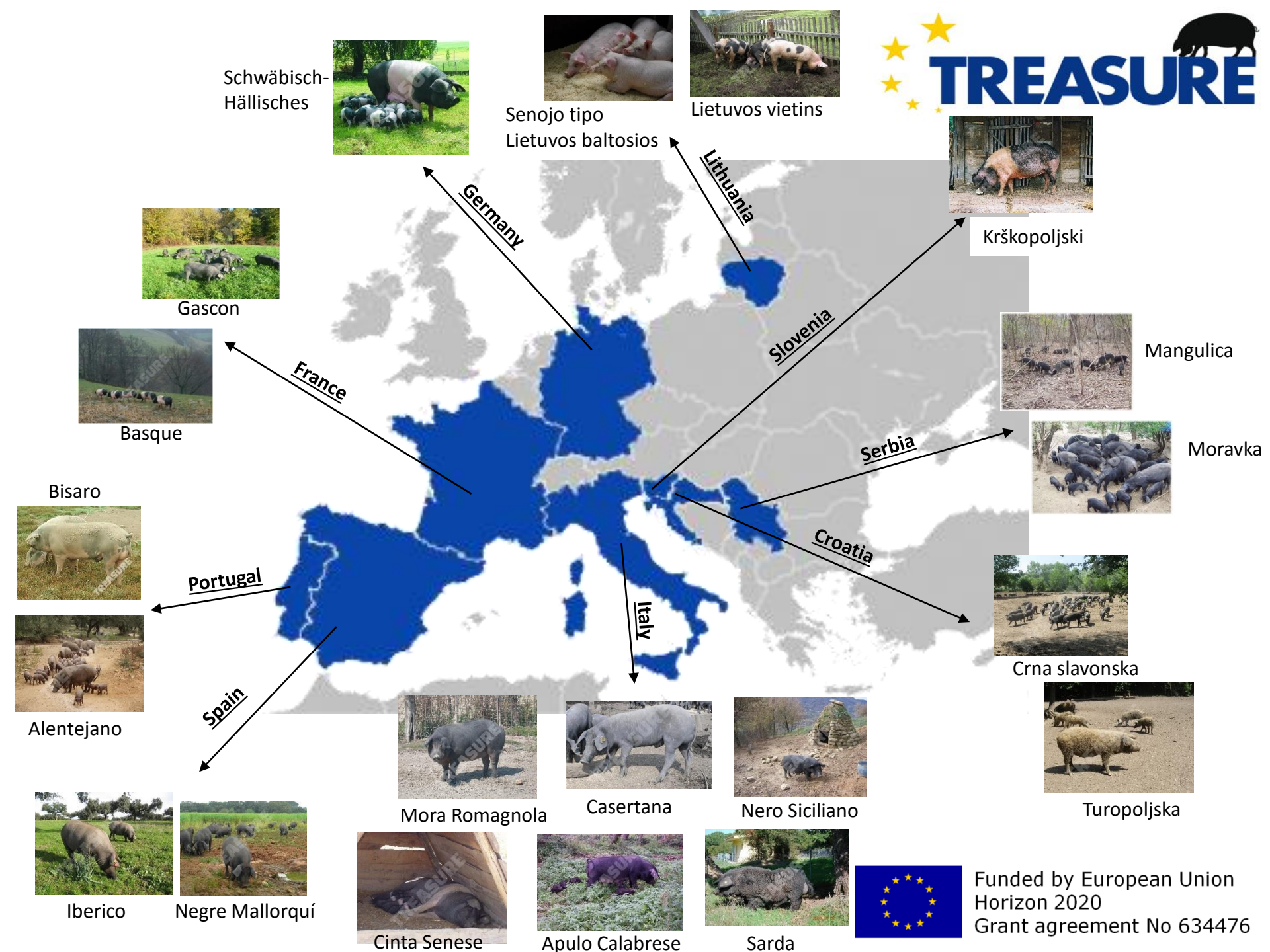
WP1
Phenotypic and genetic characterization of regional autochthonous pig populations in Europe

WP1 leader: Luca Fontanesi (UNIBO)
Deputy: Cristina Ovilo (INIA)

Funded by European Union
Horizon 2020
Grant agreement No 634476

Country	Original name of the breed	Other names
Germany	Schwäbisch-Hällisches	Schwäbisch-Hällisches
Spain	Ibérico	Iberian
Spain	Negre Mallorquí	Black Majorcan
France	Gascon	Gascon
France	Basque	Basque
Croatia	Crna slavonska	Black Slavonian
Croatia	Turopoljska	Turopolje
Italy	Cinta Senese	Cinta Senese, Cinta, Cinto, Cinto Toscano, Cinturello Umbro, Cinturino Umbro
Italy	Mora Romagnola	Mora Romagnola
Italy	Sarda	Sarda
Italy	Apulo Calabrese	Apulo Calabrese, Calabrese, Nero Abruzzese, Nero Calabrese, Nero dei Lepini, Nero dei Monti Dauni Meridionali, Nero dei Monti Lepini, Nero di Calabria, Nero di Capitanata, Nero Lucano, Nero Maremmano, Nero Pugliese, Nero Reatino, Pugliese
Italy	Casertana	Casertana, Maiale di Teano, Teanese, Pelatella
Italy	Nero Siciliano	Nero dei Nebrodi, Nero delle Madonie, Nero dell'Etna
Lithuania	Lietuvos vietines	Lithuanian indigenous wattle
Llithuania	Senojo tipo Lietuvos baltosios	Old type Lithuanian White
Portugal	Bisaro/Bisara	Bisaro
Portogal	Alentejano/ Alentejana	Alentejano
Serbia	Mangulica	Mangalitsa
Serbia	Moravka	Moravka
Slovenia	Krškopoljski/ Krškopoljska	Krškopolje

Funded by European Union
Horizon 2020
Grant agreement No 634476


TREASURE
Schwäbisch-Hällisches
Senojo tipo Lietuvos baltosios
Lietuvos vietins
Germany
Lithuania
Krškopoljski
Gascon
Slovenia
Mangulica
Basque
France
Serbia
Moravka
Bisaro
Portugal
Croatia
Crna slavonska
Italy
Alentejano
Spain
Turopoljska
Mora Romagnola
Casertana
Nero Siciliano
Iberico
Negre Mallorquí
Cinta Senese
Apulo Calabrese
Sarda
Funded by European Union Horizon 2020
Grant agreement No 634476

Objectives of WP1

- Describe the singularity of local pig breeds at phenotypic, genomic and functional level
- Evaluate the adaptation of local pig populations to agro-climatic conditions
- Develop new methodologies for the management of the local pig populations
- Develop DNA based tools for animal and meat traceability and authentication

Funded by European Union
Horizon 2020
Grant agreement No 634476

TASKS

Preparatory

Task 1.1 Phenotypic characterisation of regional autochthonous pig breeds with special attention to the untapped populations

Genomics

Task 1.2 Genetic analyses of the untapped pig populations with High Density SNP chips (MANAGEMENT TOOL) to determine basic genetic parameters

Task 1.3 Allele frequencies of known major genes in regional autochthonous pig populations

Task 1.4 Identification of genome regions or genes responsible of adaptive traits and resilience through the comparison of genomes of local, well adapted breeds with the ones of the commercial breeds

Task 1.5 Identification of DNA markers useful for breed authentication and traceability

Pilot

Task 1.6 Pilot functional studies through gene expression analyses

Task 1.7 Pilot characterisation of intestinal microbiota

Funded by European Union
Horizon 2020
Grant agreement No 634476

WP1 Task 1.1

Task	Milestone/Deliverable	Objective	Progress
1.1	**D1.1 (Month 18) Public**	List of relevant contacts and publications	Delivered
	M1.2 (Month 18)	Sampling of biological material for DNA analyses	Delivered
	D1.3 (Month 18) Public	Phenotypic and demographic characterization	Delivered
	MS4 (Month 4)	Experiments confirmed, scheduled and data collection protocols prepared, questionnaire sent over	Delivered

Funded by European Union
Horizon 2020
Grant agreement No 634476

A few results/achievements already obtained:

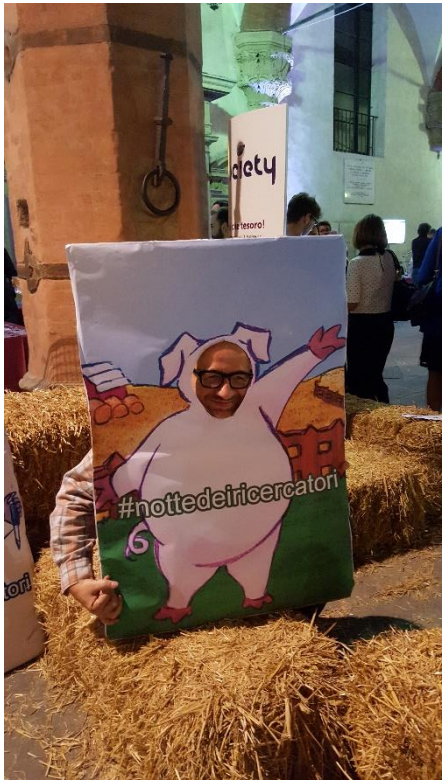
1) Identification of genes affecting the presence/absence of hairs in Casertana
2) Identification of genes affecting the shape of the tail in pigs
3) Identification of a gene marker for product authentication of Cinta Senese pigs
4) Genomic inbreeding coefficients in Italian local pig breeds
5) DNA repository of local pig breeds
6) Genotyping database of local and cosmopolitan pig breeds

Funded by European Union
Horizon 2020
Grant agreement No 634476

Follow us at:

http://treasure.kis.si/

@Treasure_H2020



Thank you for your attention

Funded by European Union
Horizon 2020
Grant agreement No 634476