



Agricultural University of Tirana

Albanian Gene Bank

**First Meeting of the ECPGR Maize Working
Group**

2-3 December 2019, Belgrade, Serbia

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CONTENT

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ALBANIA



Population (2015):
4.000 000
Area : 28 713 km2

The Republic of Albania, is a country in Southeastern Europe which borders Montenegro to the northwest, Kosovo to the northeast, Macedonia to the east, and Greece to the south and south east.

Short profile of the Agricultural University of Tirana

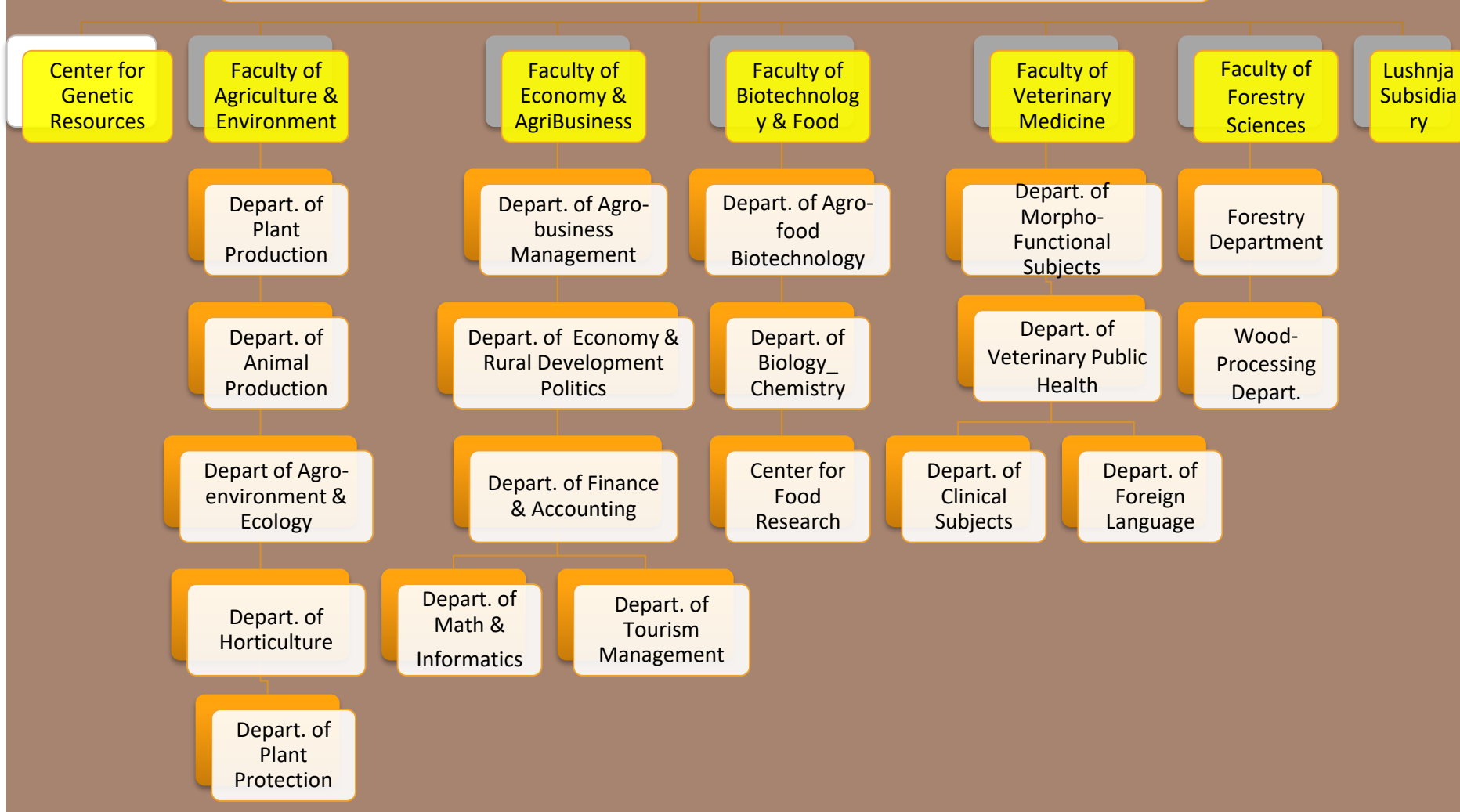
is a unique centre of its own kind in providing under-graduate and graduate education, as well as scientific research, training and extension services in the fields of agriculture and food.

The number of students enrolled at AUT with reference to the academic year 2018-2019 reached a peak of some 12000 students



Tempus

Agricultural University of Tirana



OVERVIEW OF THE STATUS OF GENETIC RESOURCES IN AGRICULTURE

The overall and long term changes in structure and methods in agriculture are the most significant developments affecting the state of genetic diversity in the agricultural sector.

The majority of farmers, mainly in the lowland area, which is the main and most intensive area of Albanian agriculture, use modern commercial varieties of agricultural and horticultural crops and base their agriculture on intensified production methods.

OVERVIEW OF THE STATUS OF GENETIC RESOURCES IN AGRICULTURE

As a result of the distance from the markets and poor road infrastructure, farmers in hilly and mountain areas have been able to preserve the local varieties based on the long tradition of growing specific crops that have a specific taste and resistance to pests and diseases and good adaptability to specific climatic and soil conditions. But the main difficulty faced in allowing for the continued cultivation of these landraces has been the fact that during the last years the young population of these areas has migrated to urban areas

Albanian Gene-Bank

- Since 2006 the Albanian Gene-Bank has been a part of the Agricultural University of Tirana.
- The Albanian Gene-Bank and the Plant Genetic Resources (PGR) network in Albania is established in order to reinforce the long term conservation of plant genetic resources and promote the utilisation activities.
- Albanian Gene-Bank is the only centre in Albania for ex situ conservation of plant genetic resources.

Agricultural University of Tirana (AUT)

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graph TD; AUT[Agricultural University of Tirana (AUT)] --> AGB[Albanian Gene Bank (AGB)]; AGB --> FRG["Field research group (ex situ conservation of Cereals, Map-s and Forages)"]; AGB --> HG["Horticulture group (vegetables, Fruits, trees, grape, olive, citrus)"]; AGB --> DRG["Documentation Research group"];
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Albanian Gene Bank (AGB)

Field research group (*ex situ* conservation of Cereals, Map-s and Forages)

Horticulture group (vegetables, Fruits, trees, grape, olive, citrus)

Documentation Research group

Albanian Gene-Bank

Activities:

- Planning and undertaking of germplasm exploration and collection at national level
- Proper handling of all collected germplasm samples
- Long term conservation of germplasm and its timely regeneration
- Research on characterization and evaluation on specific traits of germplasm
- Introduction and sustainable use of germplasm
- Exchange of germplasm and information at national and international level
- Etc.,

Albanian Gene-Bank

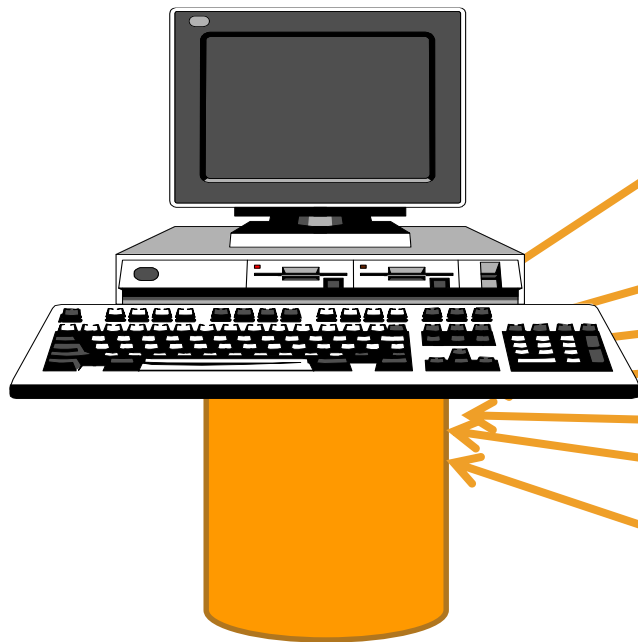
- Its operations are regulated in accordance with international standards and supported by the **South East European Development Network (SEEDNet)**.
- The main partners of the national PGR network are: Agricultural University of Tirana (AUT), all the Agricultural Technology Transfer Centres (ATTC-s) and other stakeholders.
- Overall aim is to promote the conservation and sustainable use of PGR for food and agriculture in Albania

Albanian Gen Bank *Network*

- **Albanian Gen Bank at Agricultural University of Tirana, is National Coordinator Institutions for PGR.**
- Gene bank of Albania provides and practises realization of the tasks resulting from National Programme on Conservation of Plant Genetic Resources for Food and Agriculture and Regulation No. /2008 with co-operation ***ATTC centres and local focal points.***



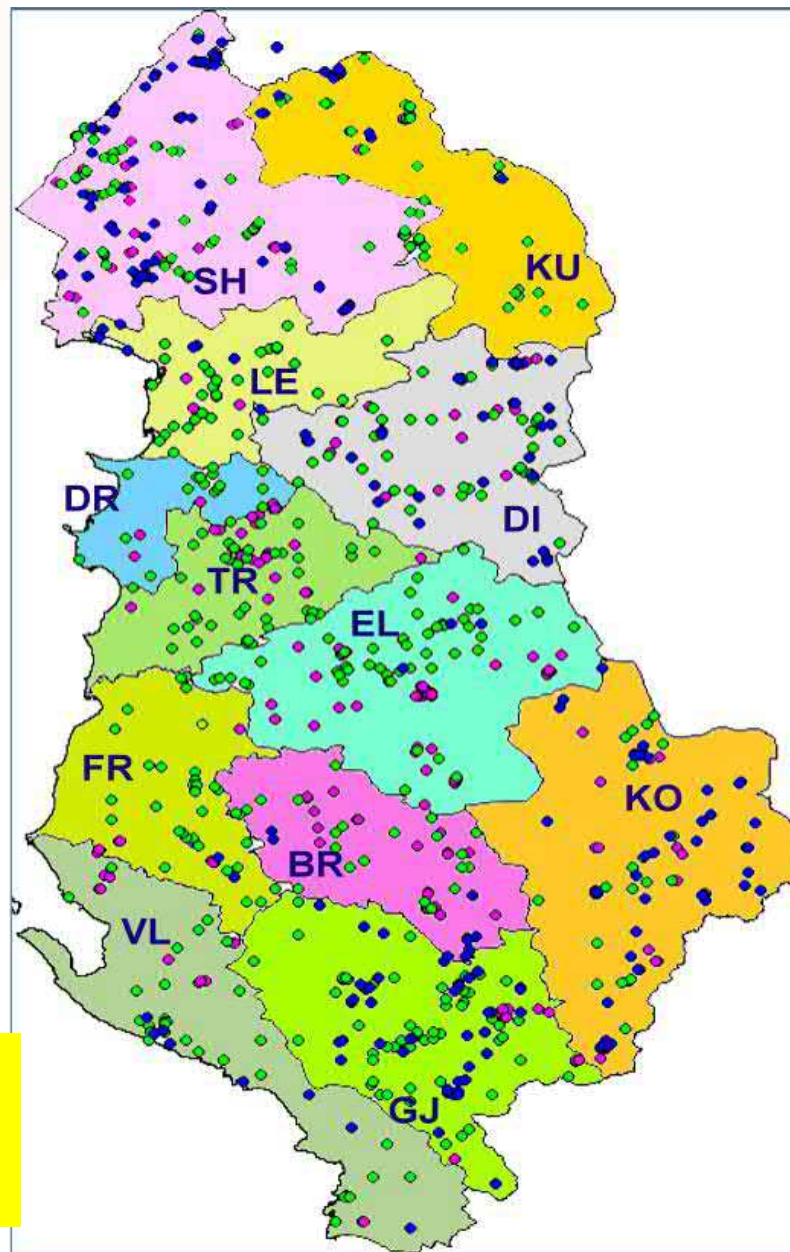
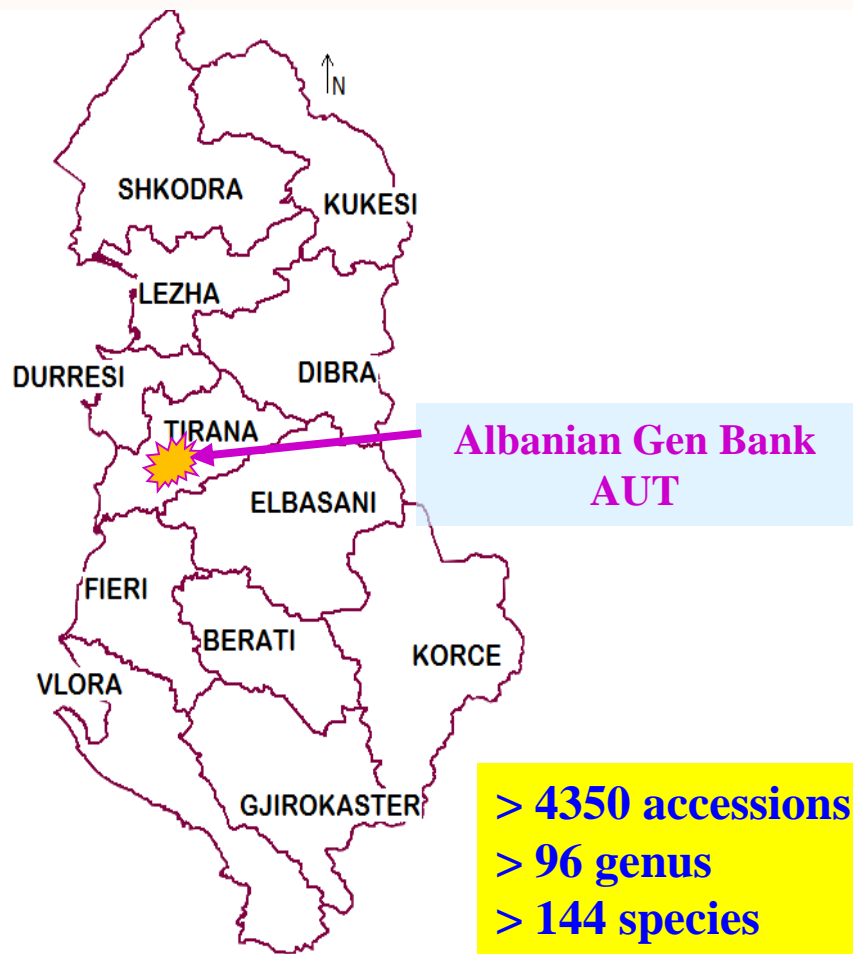
National Centre of Documentation



**National Focal Point
(AGB)**



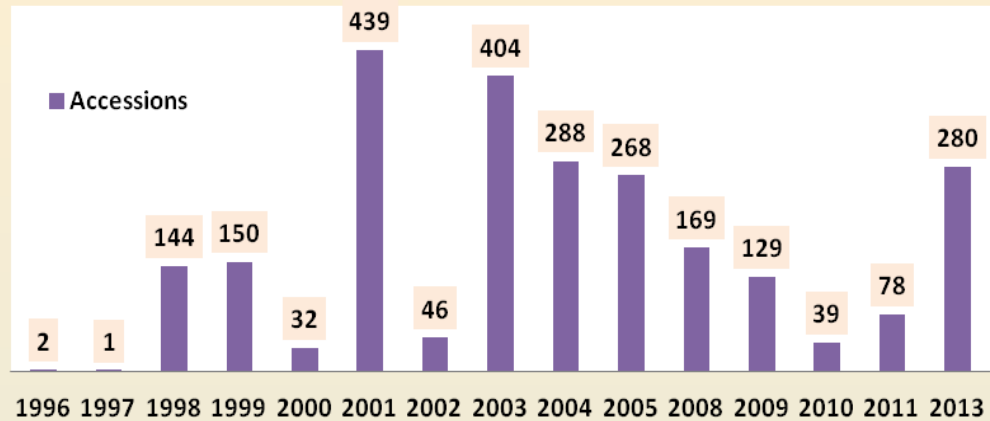
Distribution of Gene Bank accessions in our National Inventory



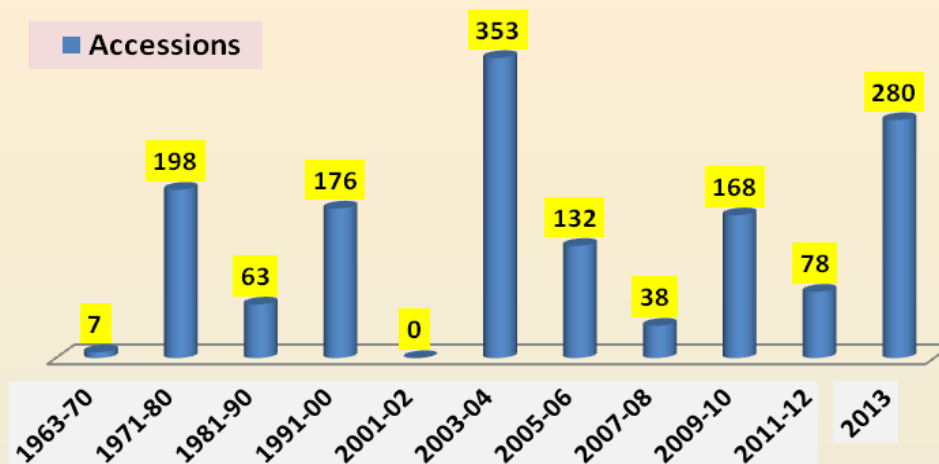
ALBANIA NATIONAL INVENTORY (NI)

Code: ALB017; Institute: Albania Gene Bank, Accessions:

Acquisition date of accessions in genebank



Accessions summary by collecting date



Inventory of Gene Bank

- **ex-situ** conservation over 4350 accessions of different species.
- **Accepted** in years: 1998, 2003-2005, 2008-2010, 2013-2019.
- **Storage**: in 10 standard equipments (freezers). at -18°C (3–7 % seed moisture content). all accessions are stored as = **base collection**.



National Inventory

- 96 genus
- 144 species

From these:

- 3317 accessions ex situ seed collection
- 1028 accessions ex situ field collection (AGB; Vlore; Korçe)





Genbank facilities



Albanian Gene Bank (AGB) is integrated on Eurisco system for documentation of Plant Genetic Resources



Genus		Taxons		Accessions		[Search]	
A c c e s s i o n s							
C	4	5	A	C	B	C	D
E	F	G	H	I	J	K	L
M	N	R	S	T	V		
GBK	Accession	Accession name	Origin	Taxon			
AGB	AGB360		ALB	Triticum durum			[select]
AGB	AGB418		ALB	Triticum aestivum			[select]
AGB	AGB36		ALB	Hordeum vulgare			[select]
AGB	AGB230		ALB	Triticum monococcum			[select]
AGB	AGB231		ALB	Triticum monococcum			[select]
AGB	AGB232		ALB	Triticum monococcum			[select]
AGB	AGB233		ALB	Triticum monococcum			[select]
AGB	AGB234		ALB	Triticum monococcum			[select]
AGB	AGB235		ALB	Triticum monococcum			[select]
AGB	AGB236		ALB	Triticum monococcum			[select]
AGB	AGB237		ALB	Triticum monococcum			[select]
AGB	AGB238		ALB	Triticum monococcum			[select]
AGB	AGB239		ALB	Triticum aestivum			[select]
AGB	AGB240		ALB	Triticum aestivum			[select]
AGB	AGB241		ALB	Triticum aestivum			[select]
AGB	AGB242		ALB	Triticum aestivum			[select]
AGB	AGB243		ALB	Triticum aestivum			[select]
AGB	AGB244		ALB	Triticum aestivum			[select]
AGB	AGB245		ALB	Triticum aestivum			[select]
AGB	AGB246		ALB	Triticum aestivum			[select]
AGB	AGB247		ALB	Triticum aestivum			[select]
AGB	AGB248		ALB	Triticum aestivum			[select]
AGB	AGB249		ALB	Triticum aestivum			[select]

Situation of ex situ accessions of maize in Genbank



Base collection: 689 accessions

From these: 503 populations

186 lines

Maize accessions collected during years for Genbank:

- 410 accessions during 1999-2005
- 76 accessions during 2008-2010
- 17 accessions, after 2010

Lines: 100 lines in 2003-2005

86 lines in 2008

Regeneration and characterization of gene bank accessions

Until now:

- Regenerations: 144 accessions
- Characterizations: 144 accessions

Why is needed?

- Collections in different periods have lead to duplication
- Part of collection is placed in Gene Banks since 1998 (old material)
- **Problems**
- Slow rate of regeneration
- Maize is plant with cross pollination
- Not possible to establish isolated environment (regeneration cages) due to lack of funds.



Diversity of Maize population in Albania

- A high diversity occurs among cereal crops, especially for maize, cultivated in the country.
- Good examples are the widespread landraces of maize “Reçi”, “Sulova”, “Çelike”, “Morave”, “Gushtak”).
- For market sale and fodder, farmers produce corn with commercial hybrids, while for family consumption they maintain and use local landraces, which are the favorite ones because of their specific taste.
- They have been used for many generations for the preparation of traditional dishes, mainly in celebration of traditional holidays.
- In the central part of Albania "Summer Day" (14th March), of ancient origin, is celebrated each year.

Diversity of Maize population in Albania

- The distinctive sign of this celebration is cooking ballakumes, a very special dessert prepared with corn flour, which, for more than three centuries, it has been considered as a local corn landrace "Sulova".
- This landrace in the villages of Sulovo is sown in more than 300 hectares.
- In the northern part of the country, the flour of corn "Reçi" is used for the preparation of a special bake which is served on the table treated with fermented milk.
- This corn in the villages of this area is sown in more than 200 ha.
- The corn landraces mature early

USE OF OLD VARIETIES OF MAIZE

In the frame of Agri– Tourism Development in Albania, it is needed to promote traditional varieties

They are:

- nutritive,
- tasteful,
- With special qualities,
- It promotes small scale farmers in mountain areas

Why traditional varieties?

- They are part of local heritage,
- They are preferred for agri - tourism and traditional market
- Sustainable production;
- Resistance against biotic and abiotic factors
- Low use of plant protection products

Traditional cultivars in Albania

In Albania, many traditional cultivars play an important role in agricultural production.

The surveys carried out in the regions with a high diversity of local varieties (mainly in hilly and mountain areas), indicates that the area cultivated with local varieties accounts for about:

- 60% of the total crop area of beans
- 30% of maize
- 50% of the total crop area of vegetables.



UNIVERSITETI BUJQËSOR I TIRANËS
INSTITUTI I RESURSEVE GJENETIKE TE BIMËVE

KATALOGU I VARIETETEVE TË FERMERIT



Catalogue of farmer varieties

December 2018

- 152 varieties
- To support the development of Agri – Tourism

***Thank you for your
attention***