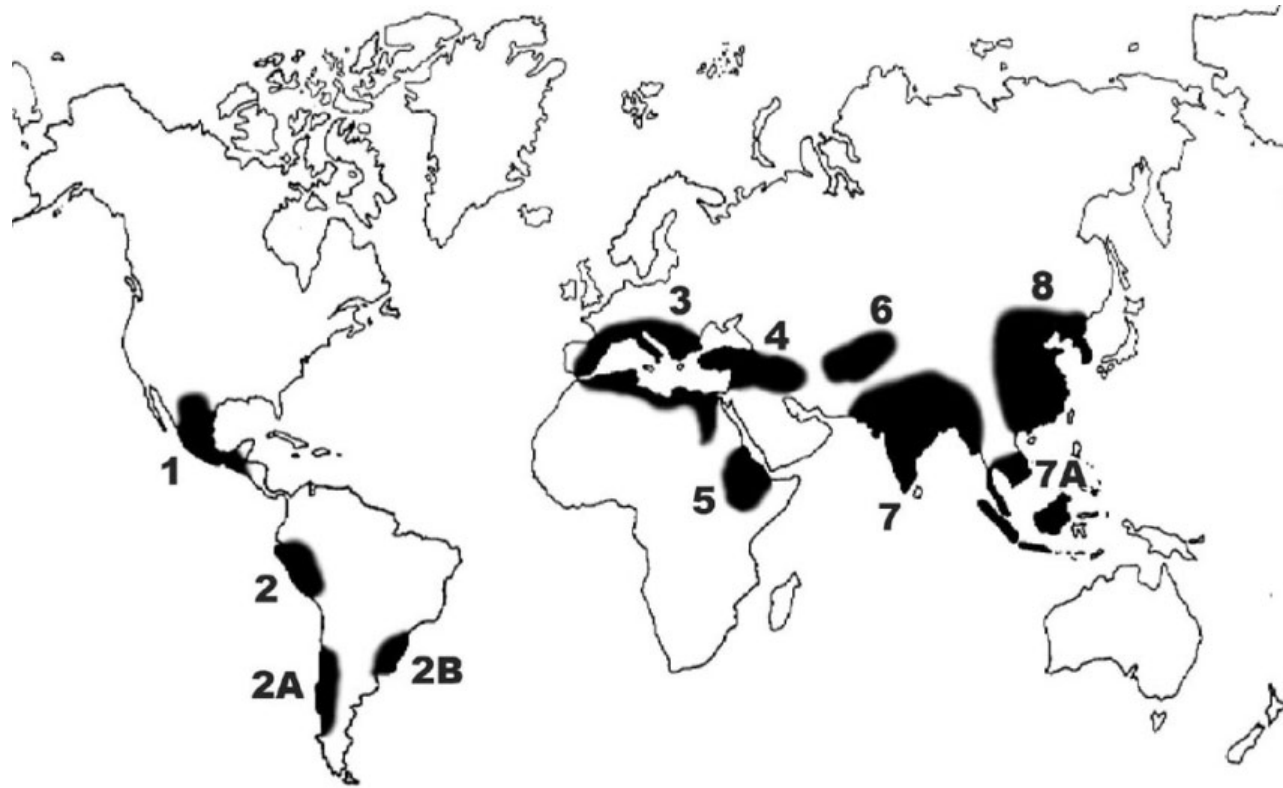


**NATIONAL INVENTORY
FOR THE *EX SITU* CONSERVATION OF
PLANT GENETIC RESOURCES IN TURKEY**

Abdullah Inal
Head of PGR Dept.
Genebank Manager
AARI-Turkey

Centers of origin for crop plants (Vavilov, 1926)



1 Mexico-Guatemala 2 Peru-Ecuador-Bolivia 2A Southern Chile 2B Southern Brazil

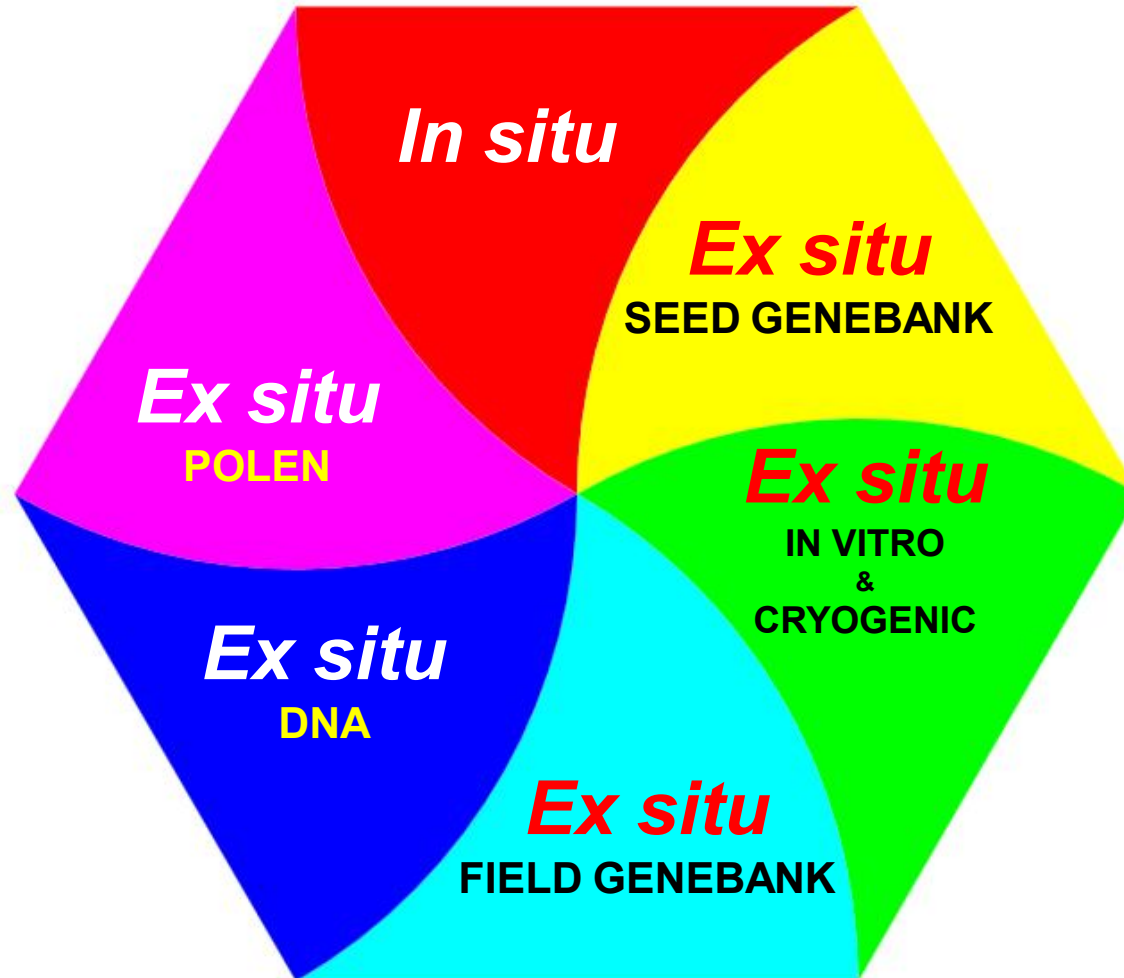
3 Mediterranean 4 Middle East 5 Ethiopia 6 Central Asia

7 Indo-Burma 7A Siam-Malaya-Java 8 China.

Center of Origin: Crop Wild Relatives

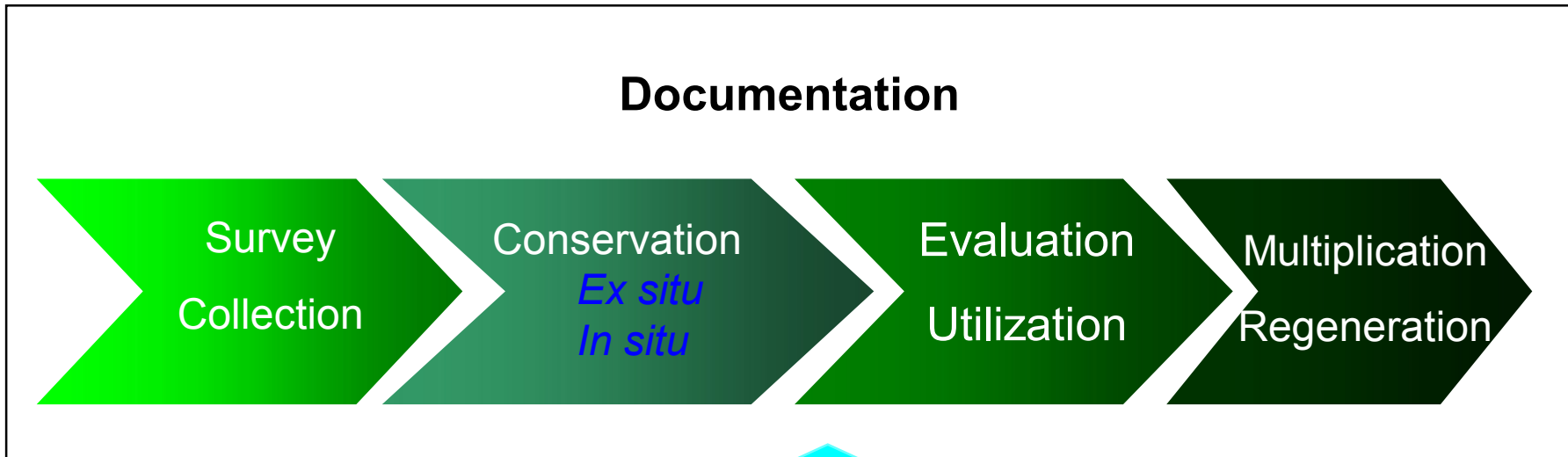
| | |
|-------------------------|---|
| Cereals | <i>Wheat, Barley, Oats, Rye</i> |
| Food legumes | <i>Pea, Chickpea, Lentil</i> |
| Forages | <i>Vetch, grasspea</i> |
| Industrial Crops | <i>Beets, Flax</i> |
| Vegetables | <i>Carrots, Lettuce, Brassicas, Celery, Radish, Mustard</i> |
| Fruits | <i>Plum, Apple, Pear, Almond, Hazelnut, Pistachio, Olive, Cornel cherry, Cherries, Berries (Blackberry, Strawberry etc..)</i> |

COMPLEMENTARY APPROACHES FOR THE CONSERVATION OF PLANT GENETIC RESOURCES



National Plant Genetic Resources Research Program

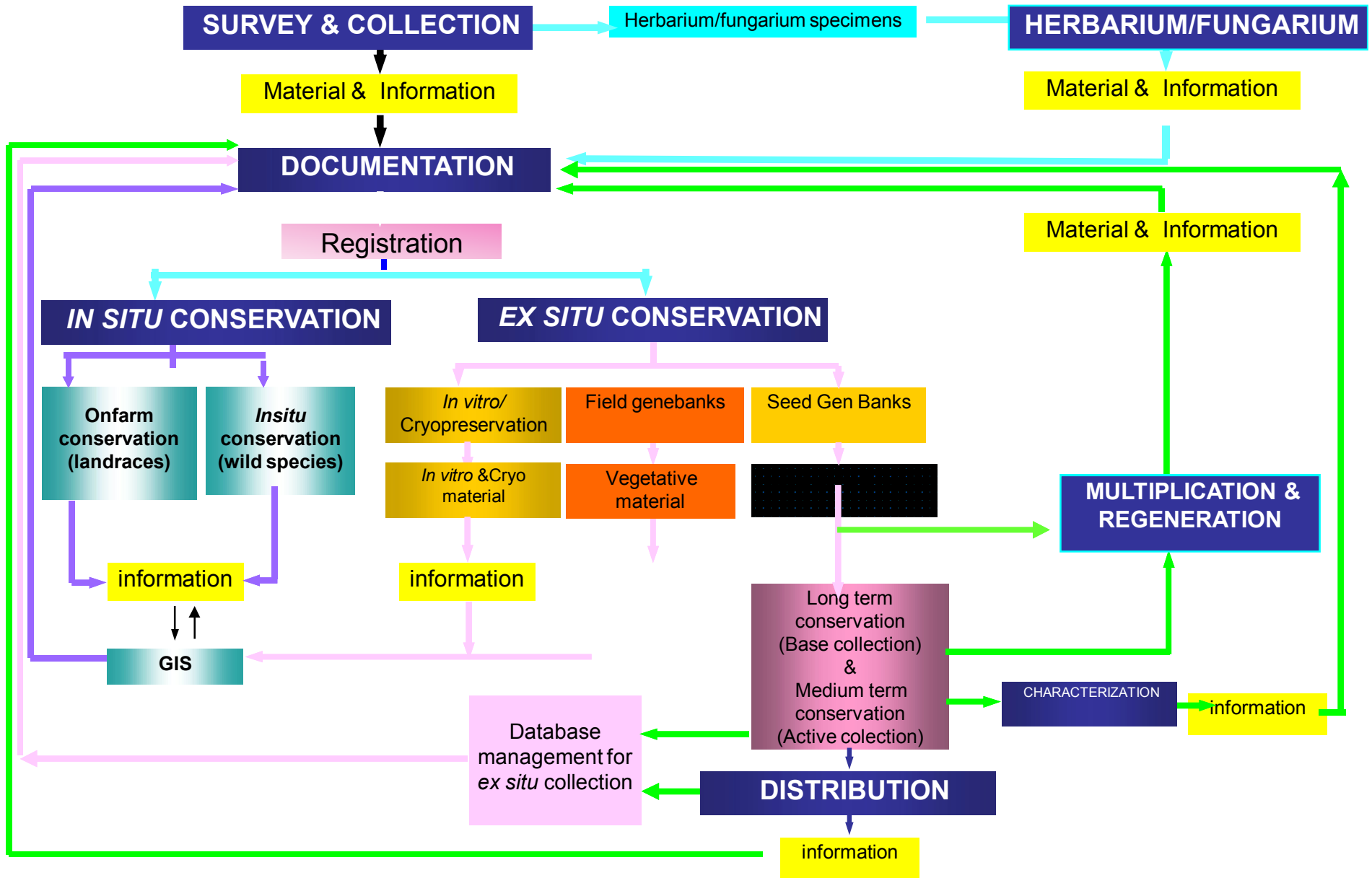
NPGRRP



Land races
Wild and weedy relatives
Economically important other species
Endemic plants
Type of the material



FLOW CHART FOR MATERIAL AND INFORMATION IN NPGRRP



Ex Situ Conservation of PGR in Turkey

SEED GENE BANKS

AARI Genebank

FCCRI Genebank

FIELD GENE BANKS

CRYOPRESERVATION



Seed Genebanks of Turkey

AARI Genebank



Seed Genebanks of Turkey

FCCRI Genebank



Conservation facilities at AARI Genebank

| | Short-term Storage | Medium-term Storage | Long-term Storage |
|----------------------------------|--------------------|---------------------|-------------------|
| Temperature (°C) | +4 | 0 | -20 |
| Moisture (%) | 6 - 8 | 6 - 8 | 6 |
| Storage volume (m ³) | 80 | 240 | 80 |
| Space available | Yes | Yes | Yes |
| Viability monitoring | - | 5 y | 10 y |



Field Genebanks of Turkey

More than 8.000 accessions

18 research institutes including AARI

Punica spp.

Prunus spp.

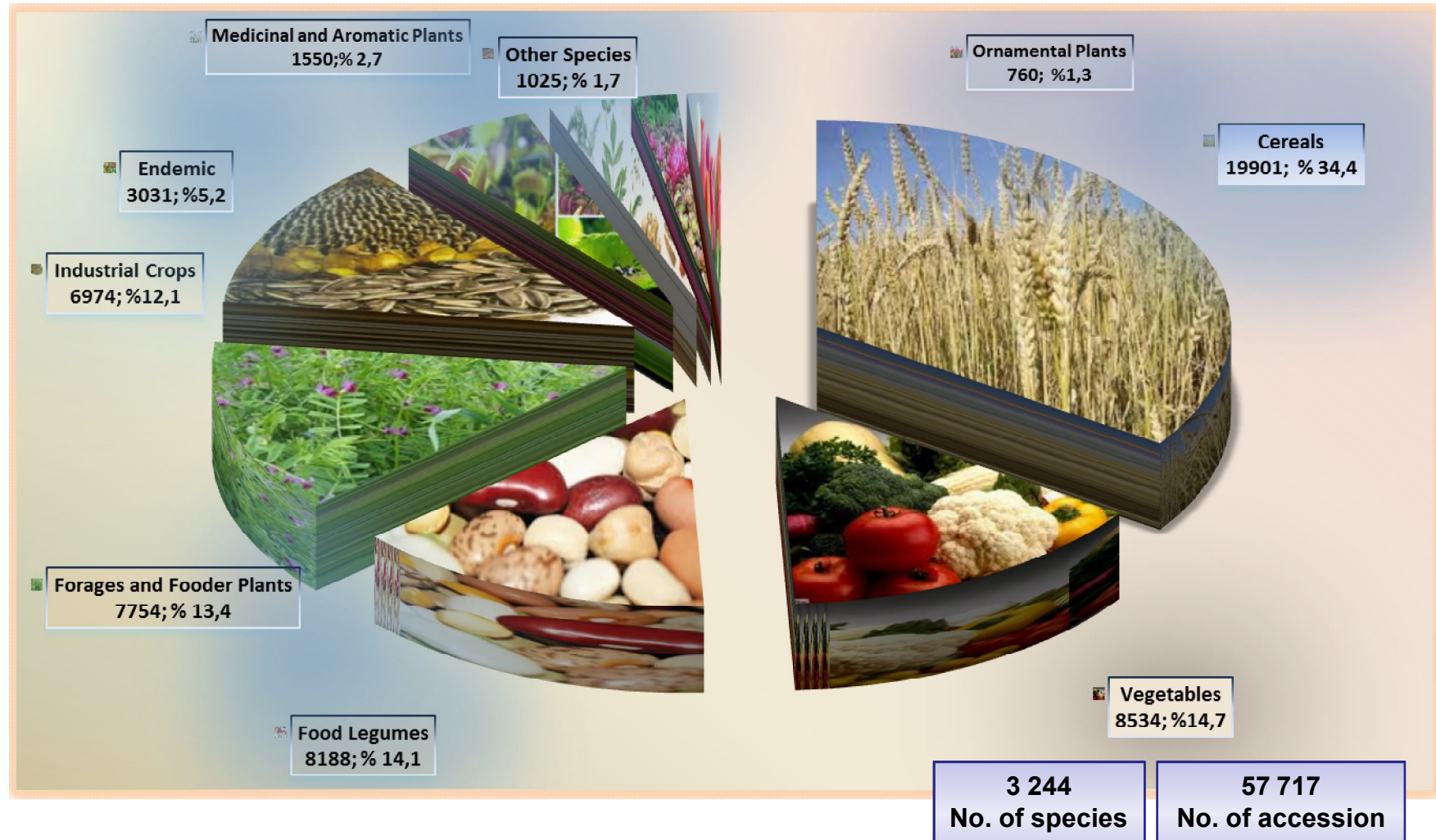
Castanea spp.

Amygdalus spp.

Cydonia spp.



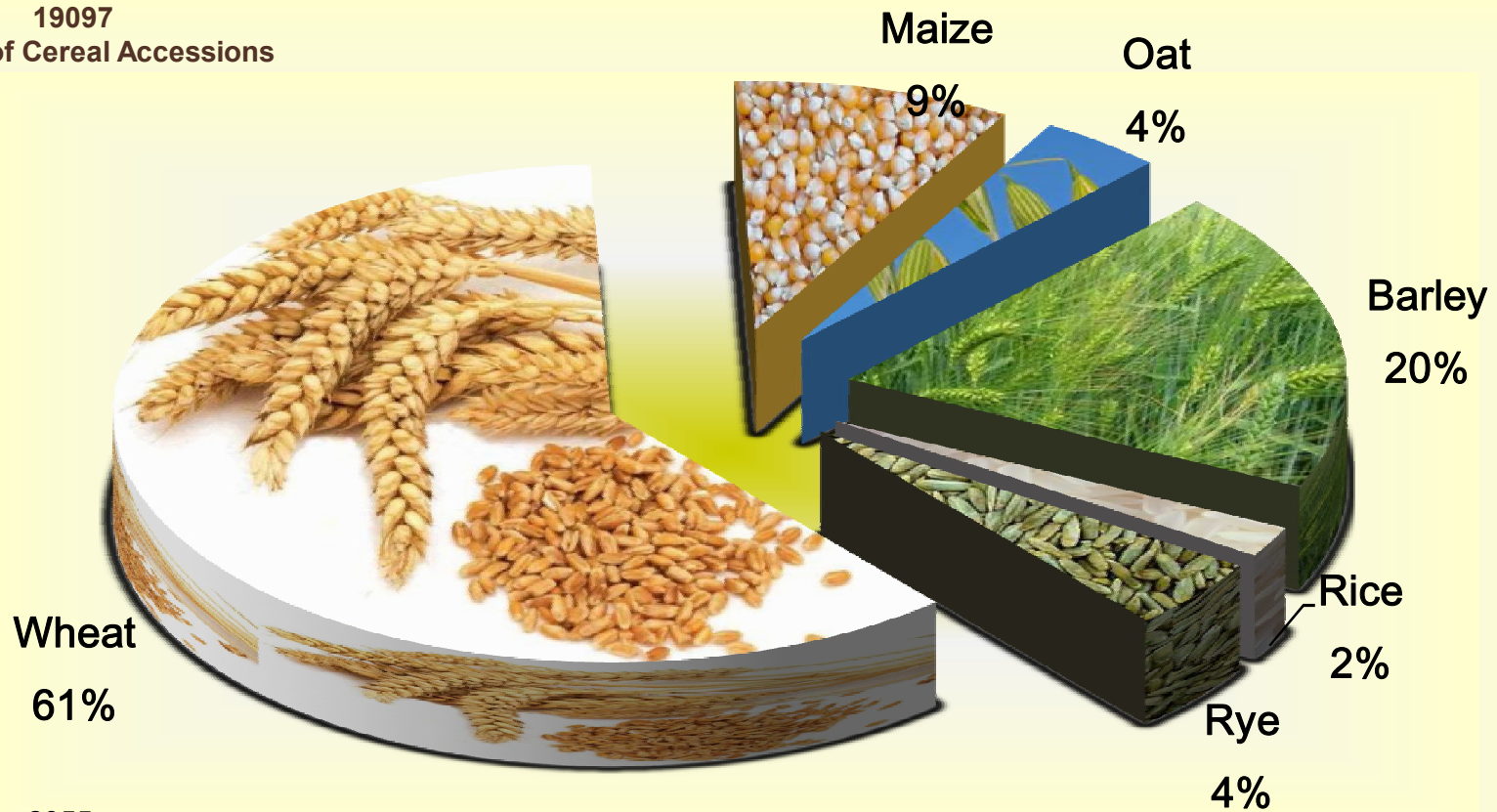
Number of accessions at AARI Gene Bank



Safe Duplicates at Turkish Seed genebank of FCCRI

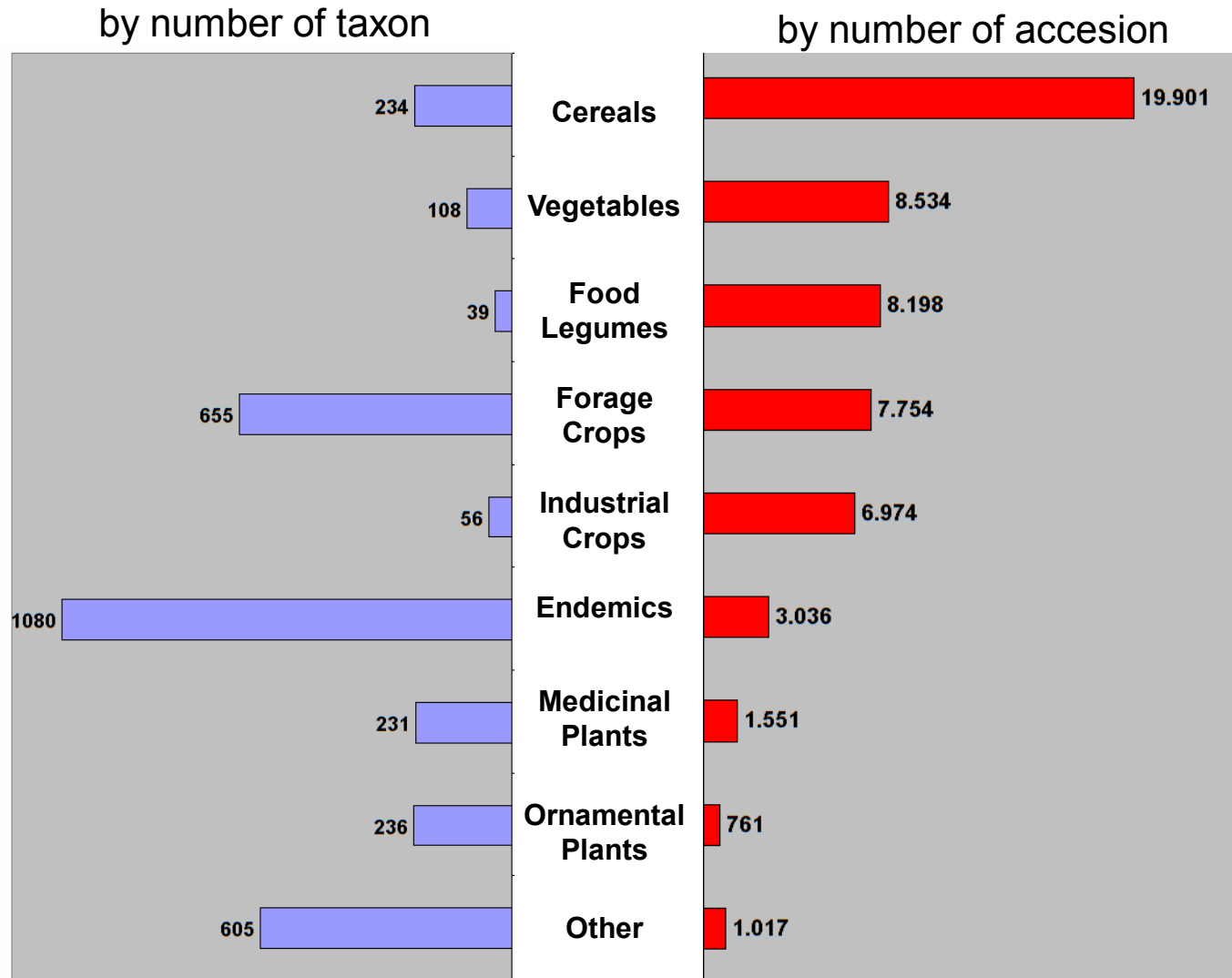
Cereals Collections at AARI Genebank

19097
Number of Cereal Accessions



Wild wheats: 2055
Cultivated wheats: 4447
TOTAL: 6502

Plant Groups of Accessions in AARI Genebank



PGR information available in electronic format

- **100 % of seed accessions**
- **75 % of vegetatively propagated plants**
 - Fruits (at AARI and other 17 institutes)
 - Mints - *Mentha* spp. (at AARI)
 - Garlic (at AARI)
 - Ornamentals (bulbs, rhizoms) at AARI
- **100% of genebank management data**
- **6% of characterization and evaluation data**
- **Not available on web**

National Inventory of Turkey in EURISCO

12.998 accessions uploaded (26 August 2008)

Avena sp., *Cicer* sp., *Hordeum* sp., *Lens* sp., *Phaseolus*
sp., *Secale* sp., *Triticum* sp.

Difficulties in documentation of PGR and the NI

- NI of Turkey has a different format than EURISCO. NI requires the formulation of a standard according to EURISCO format.
- The old collection has missing passport data.
- The taxonomic data need revisions for standardization.
- Standard data entries of each crop for characterization and evaluation data sets
- Entry of molecular fingerprinting data
- Web enabling data base for internal networking with all institutes

Descriptors used for passport data in AARI PGR Documentatation System

National PGR Passport Data Descriptor

MCPD, Multi-Crop Passport Descriptors

EURISCO Descriptors for European Internet Search Catalogue

Characterization & Evaluation Data



- Characterization and evaluation data for accessions recorded during multiplication and regeneration.
- Descriptors of Bioversity International (IPGRI) and UPOV with some modifications
- Plant groups (cereals, food legumes, forage crops, vegetables, industrial crops, fruit and grape, medicinal and aromatic plants, ornamental plants) for C&E data

Number of characterization data at National Gene Bank in AARI

| Plant Group | No. of species | No. of accessions |
|-------------------------------|----------------|-------------------|
| Cereals | 3 | 1077 |
| Industrial crops | 12 | 580 |
| Vegetables | 5 | 516 |
| Forages and fodder plants | 1 | 50 |
| Food legumes | 5 | 1648 |
| Medicinal and aromatic plants | 32 | 401 |
| Total: | 58 | 4272 |



On-line searchable data bases by AARI

European Pepper Database <http://www.etae.gov.tr/Default.aspx?page=capsicum>

European Lentil Database <http://www.etae.gov.tr/Default.aspx?page=lens>

The screenshot shows the website for the European Pepper Database. The header includes the logo of the Ministry of Agriculture, Forestry and Climate Change and the Ege Agricultural Research Institute. The main content area is titled "Capsicum Veri Tabanı" and features a search interface with filters for "Institute Code" (set to TUR001) and "Arama Tipi" (set to Seginiz...). Below the search area is a table of data entries.

| ID | Nicode | Instcode | Accenumb | Genus | Species | Spauthor |
|------|--------|----------|----------|----------|---------|----------|
| 3438 | TUR | TUR001 | TR 15933 | Capsicum | annuum | L. |
| 3439 | TUR | TUR001 | TR 15934 | Capsicum | annuum | L. |
| 3440 | TUR | TUR001 | TR 26187 | Capsicum | annuum | L. |
| 3441 | TUR | TUR001 | TR 31529 | Capsicum | annuum | L. |
| 3442 | TUR | TUR001 | TR 31530 | Capsicum | annuum | L. |
| 3443 | TUR | TUR001 | TR 31531 | Capsicum | annuum | L. |
| 3444 | TUR | TUR001 | TR 31550 | Capsicum | annuum | L. |
| 3445 | TUR | TUR001 | TR 31551 | Capsicum | annuum | L. |
| 3446 | TUR | TUR001 | TR 31784 | Capsicum | annuum | L. |
| 3447 | TUR | TUR001 | TR 37075 | Capsicum | annuum | L. |

The screenshot shows the website for the European Lentil Database. The header includes the logo of the Ministry of Agriculture, Forestry and Climate Change and the Ege Agricultural Research Institute. The main content area is titled "LENS" and features a search interface with filters for "Cins İsmi" (set to Vicia) and "Cins" (set to Vicia). Below the search area is a table of data entries.

| ID | INSTNAME | GENUS | SPECIES | ORIGCTY |
|------|--|-------|-----------|--------------------|
| 8054 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Bulgaria |
| 8055 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Bulgaria |
| 8056 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Bulgaria |
| 8057 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Bulgaria |
| 8058 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Cyprus |
| 8059 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Russian Federation |
| 8060 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | evilia | Ukraine |
| 8061 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | monanthos | Australia |
| 8062 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | monanthos | Australia |
| 8063 | Institute of Plant Production n.a. V.Y. Yurjev of UAAS | Vicia | monanthos | Belgium |

thanks...

Abdullah İnal

Head, Dept. of Biodiversity and Genetic Resources
Aegean Agricultural Research Institute
Menemen, Izmir

abdullah.inal@gthb.gov.tr