



EVA
European Evaluation Network



DATAEM- DOĞU AKDENİZ (EASTERN MEDITERANEAN) AGRICULTURAL RESEARCH INSTITUTE)

Gönül Cömertpay

Maize Breeding and Genetics

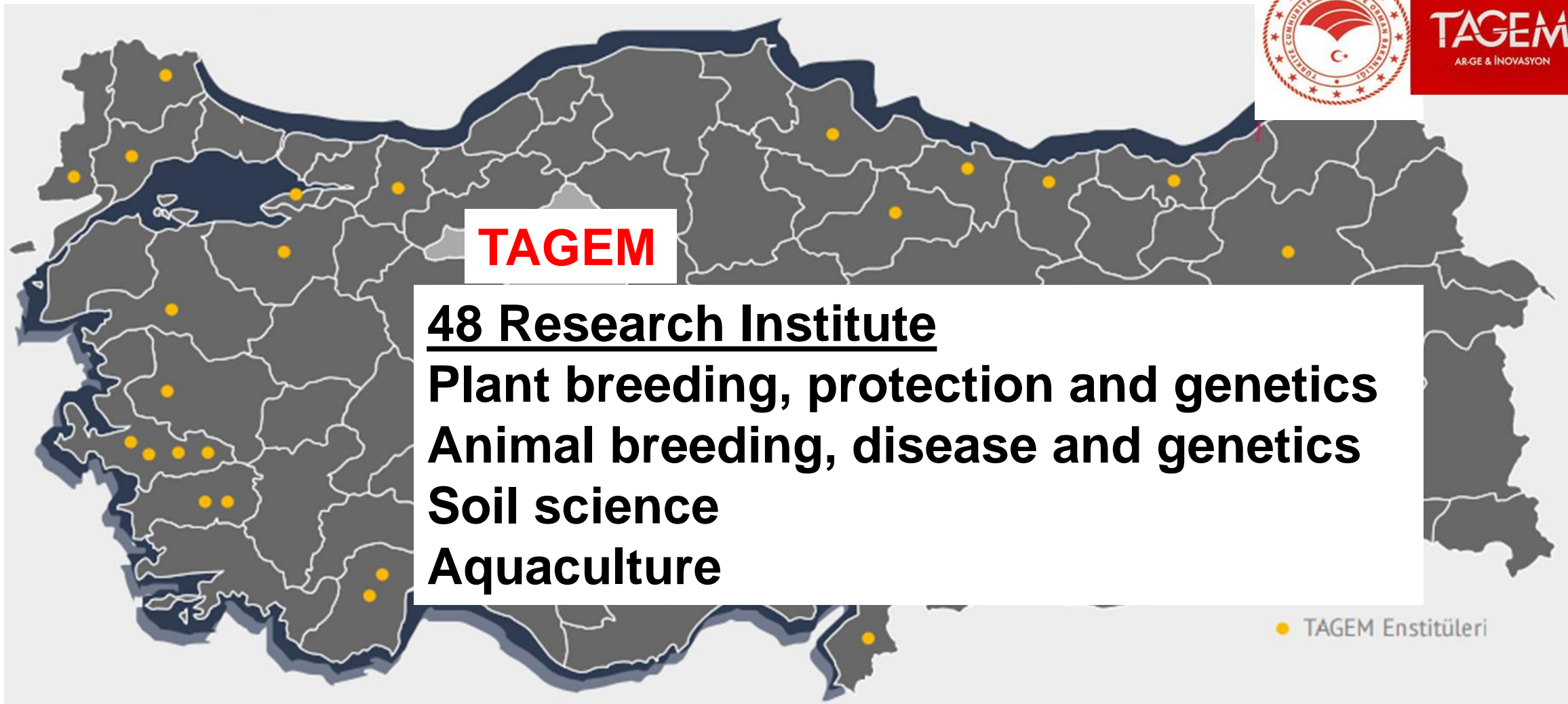
EVA Maize – Malanirs Kickoff

26-27 February, 2025

Bergamo, Italy



TAGEM (General Directorate of Agricultural Research And Policies)



TAGEM

48 Research Institute

Plant breeding, protection and genetics

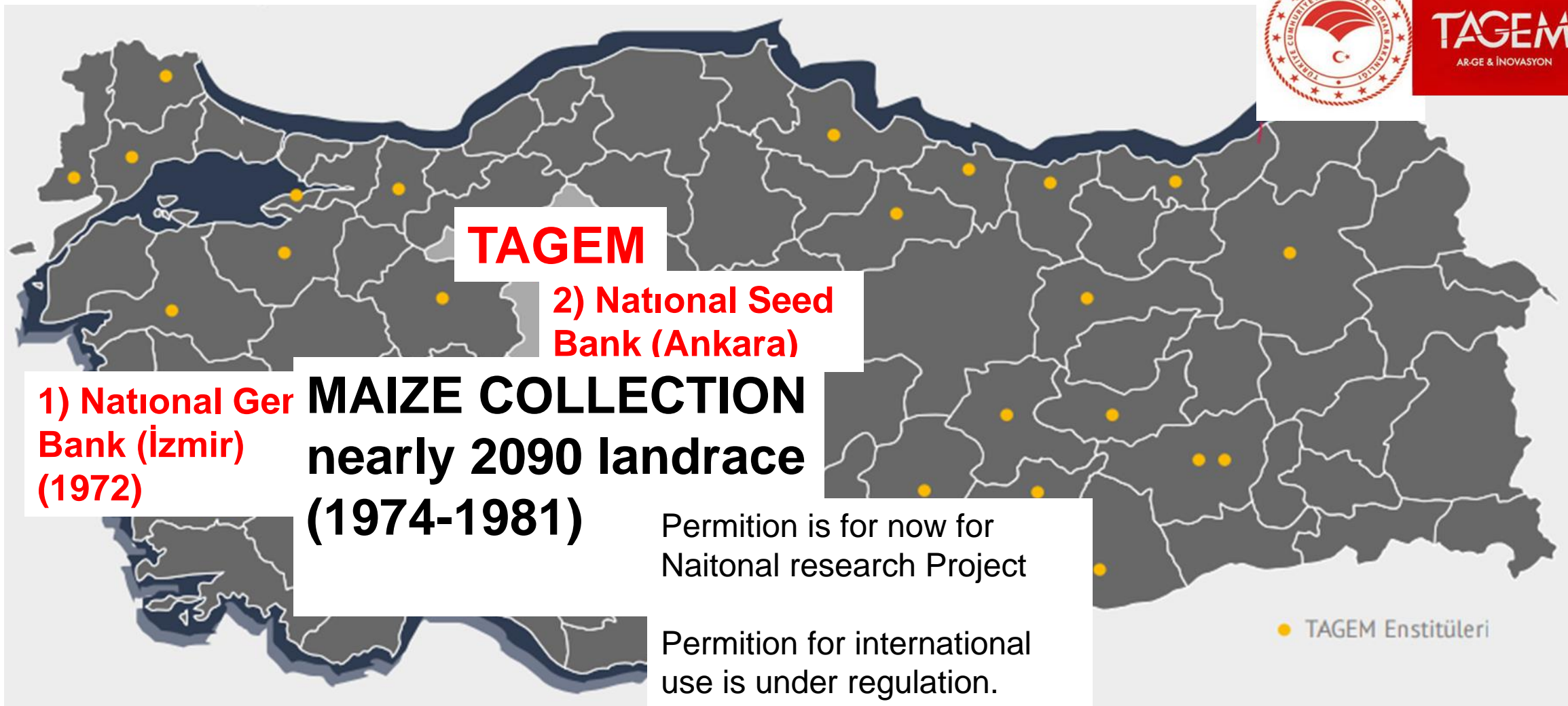
Animal breeding, disease and genetics

Soil science

Aquaculture

● TAGEM Enstitüleri

TAGEM (General Directorate of Agricultural Research And Policies)



1) National Ger Bank (İzmir) (1972)

MAIZE COLLECTION
nearly 2090 landrace
(1974-1981)

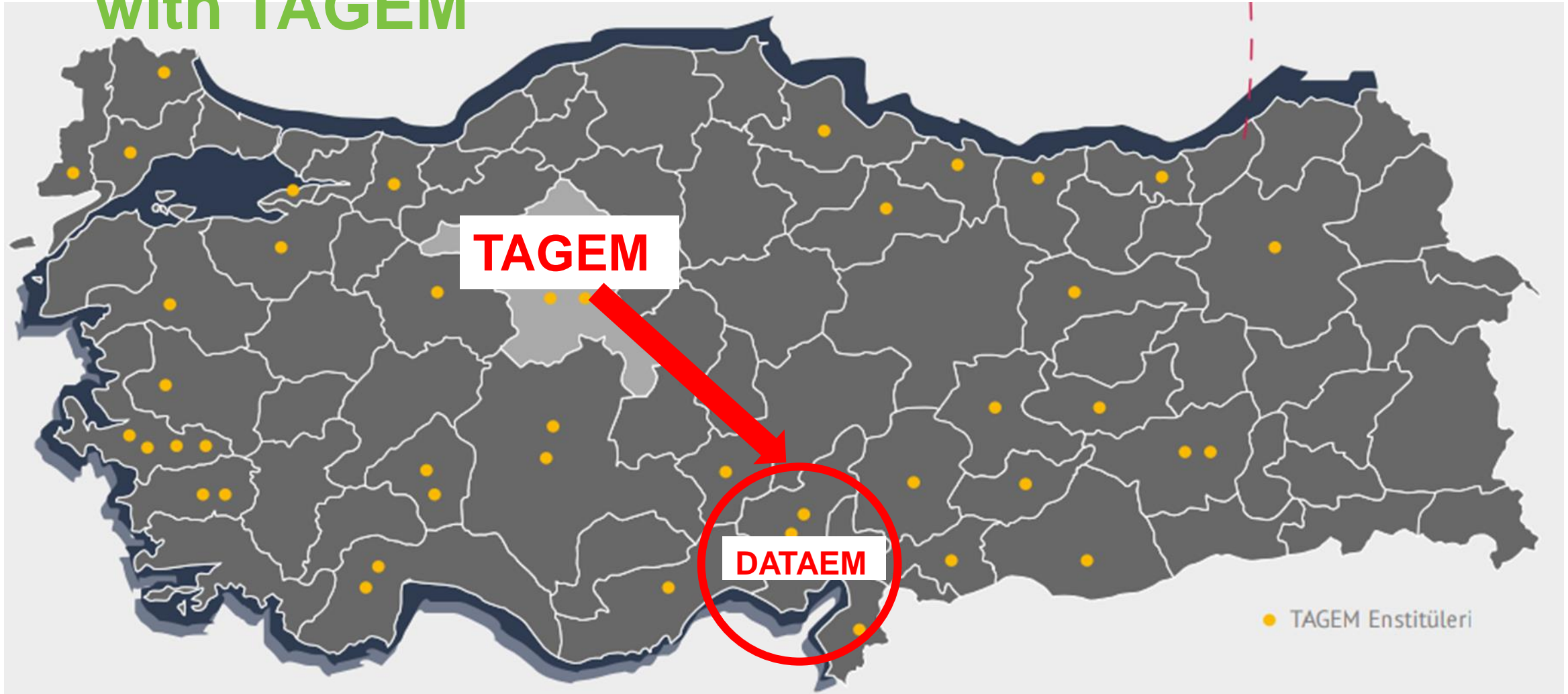
TAGEM

2) National Seed Bank (Ankara)

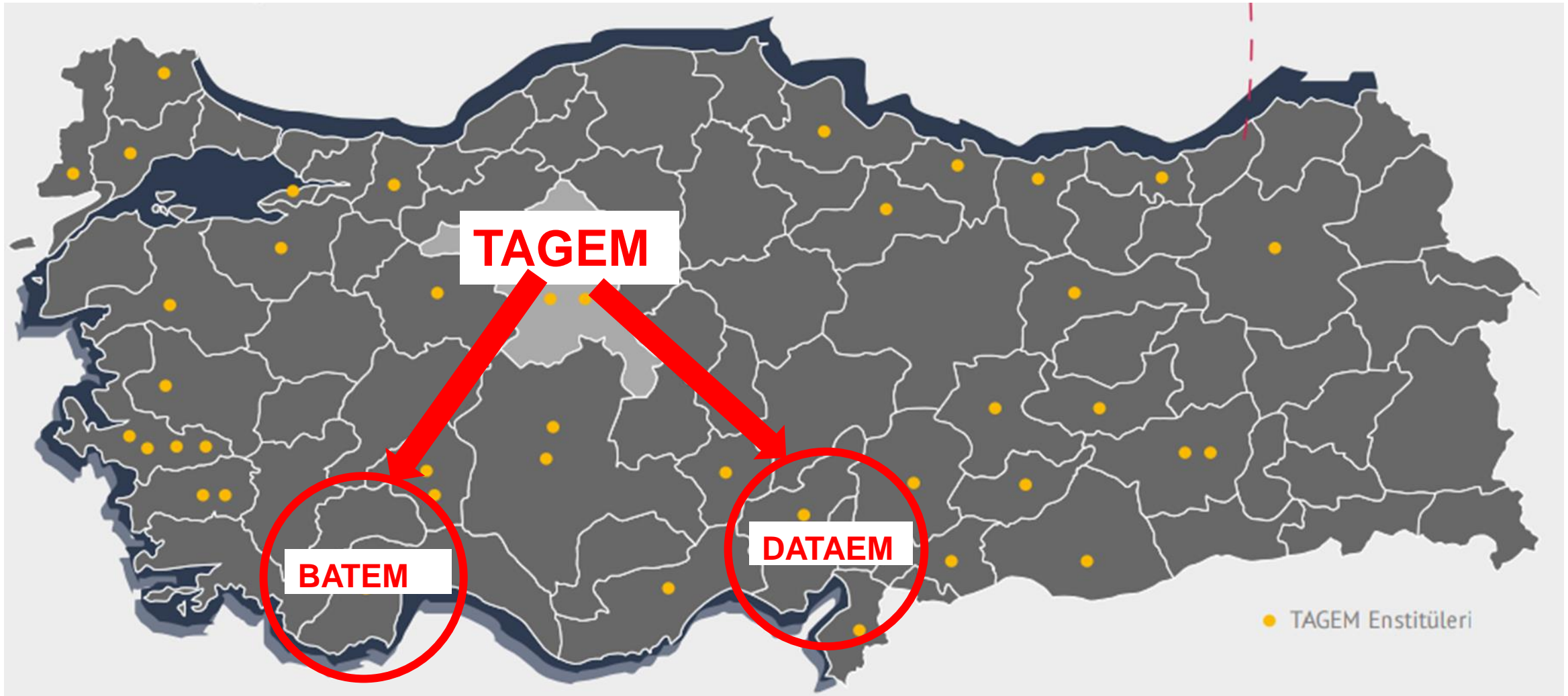
Permission is for now for National research Project

Permission for international use is under regulation.

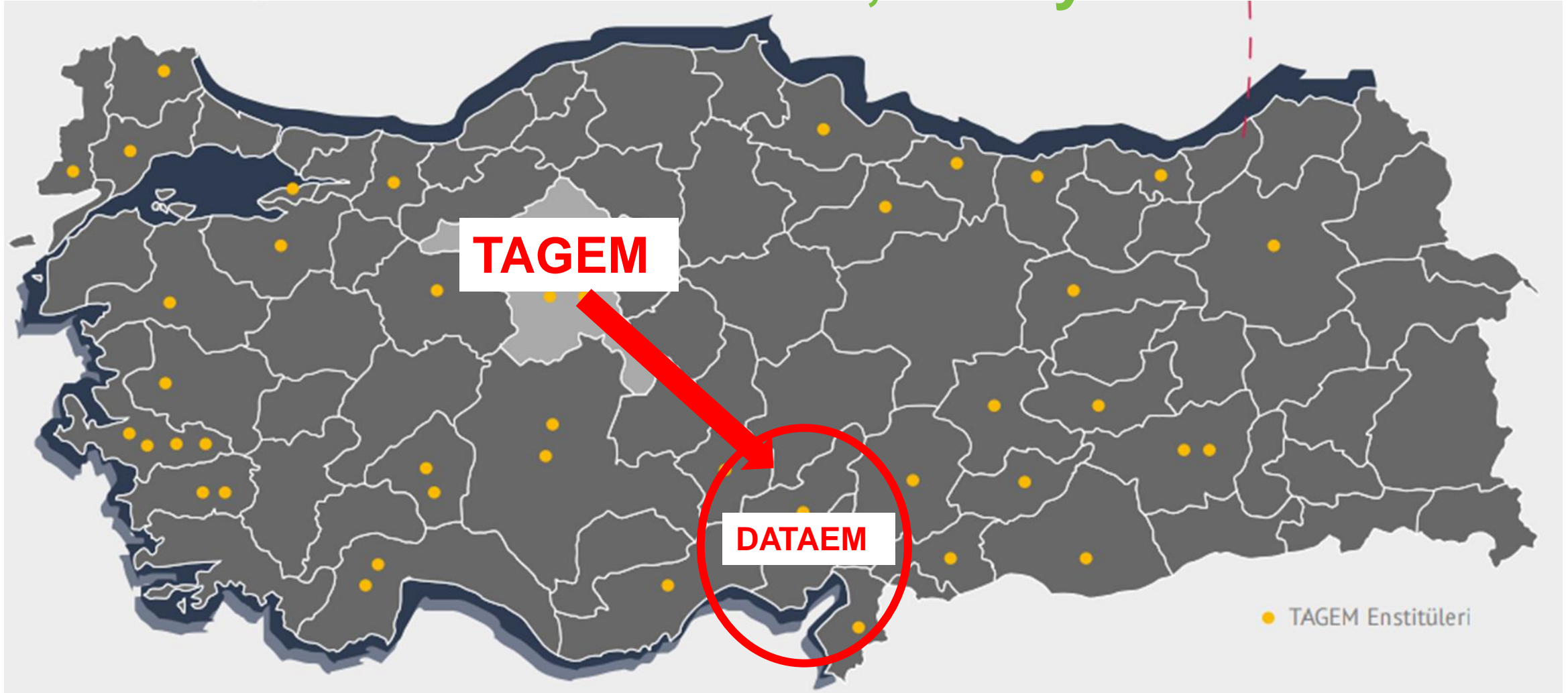
Eastern Mediterranean Agricultural Research Institute Adana, Turkiye, an institute affiliated with TAGEM



DATAEM (Malanirs) and BATEM (Minelandiv)



DATAEM-Eastern Mediterranean Agricultural Research Institute Adana, Turkiye



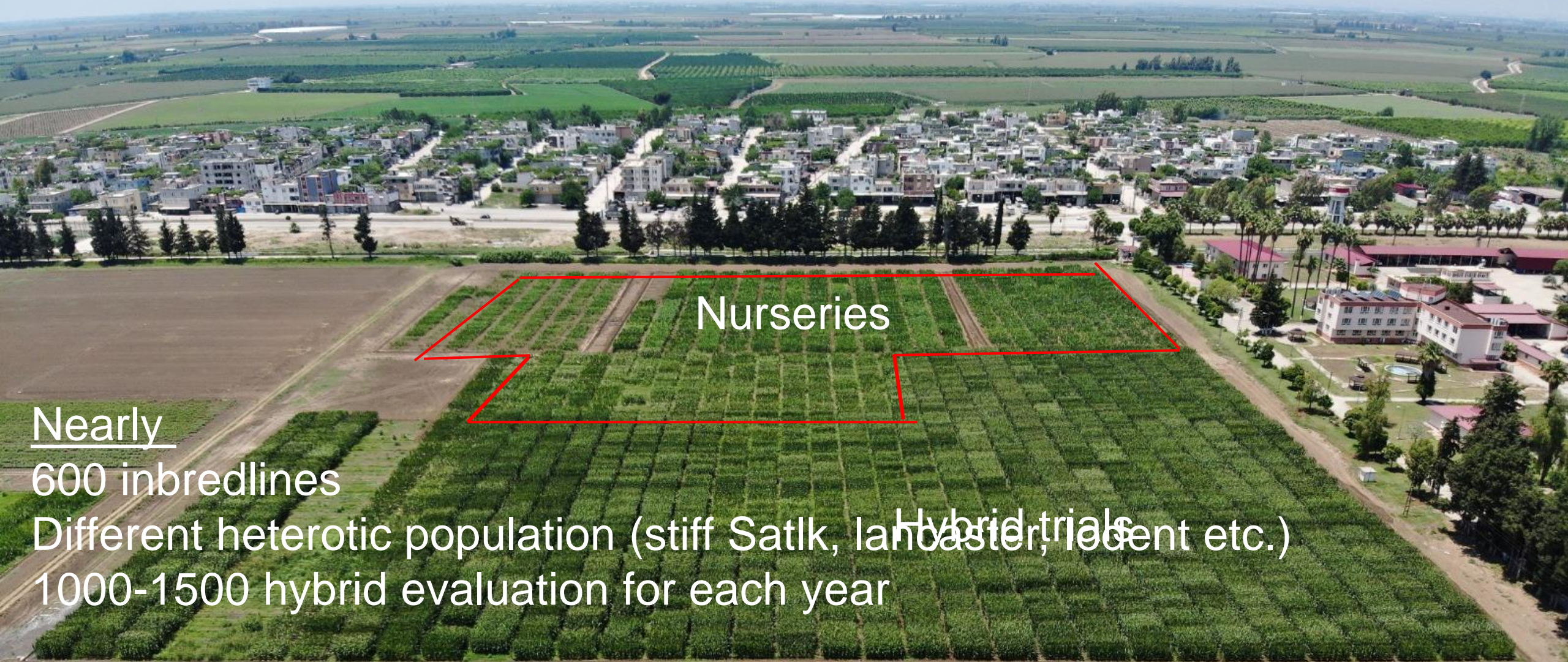
Eastern Mediterranean Agricultural Research Institute (DATAEM), Adana, TURKIYE



The institute's research and production area is 500 hectares



Our breeding Program



Nurseries

Nearly
600 inbredlines

Different heterotic population (stiff Satk, Lancaster, etc.)
1000-1500 hybrid evaluation for each year

Hybrid trials



DATAEM MAIZE INBREDLINES

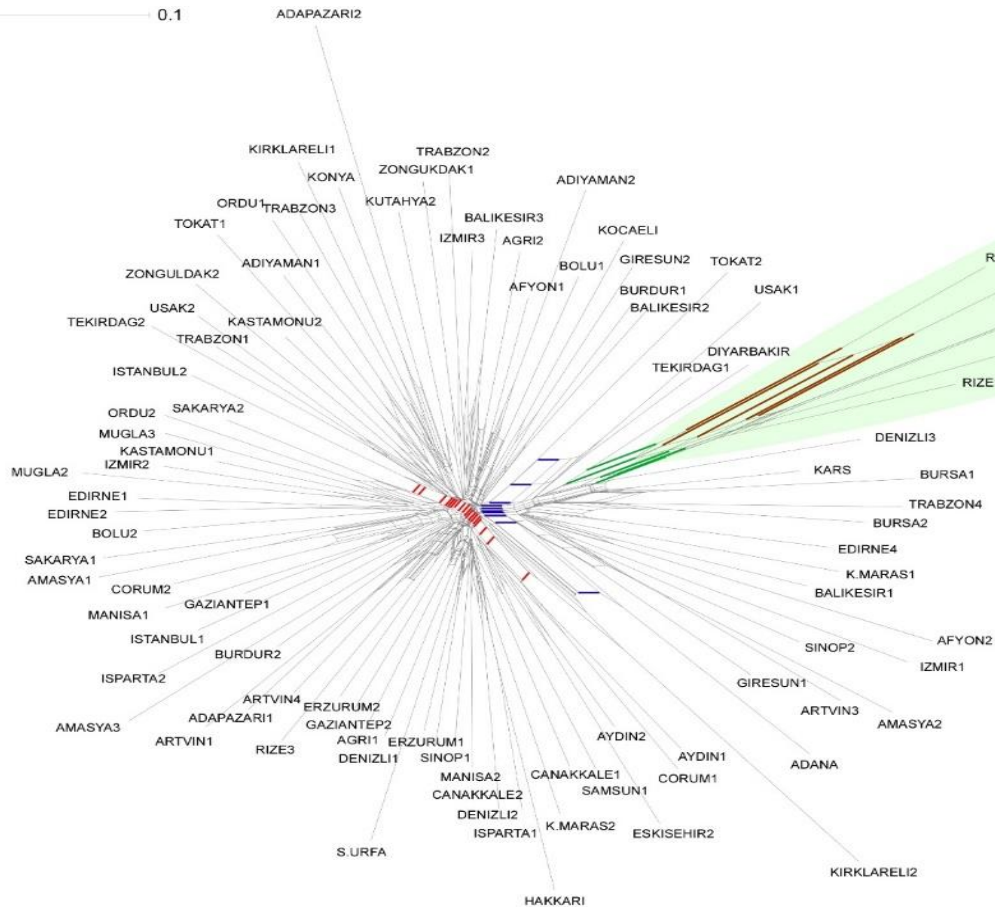


DATAEM

Hybrid trials



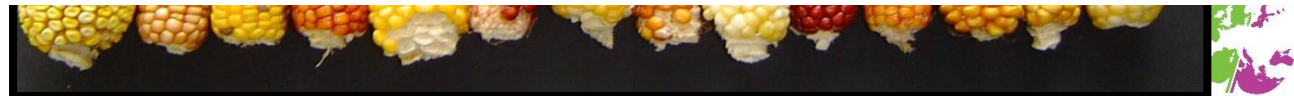
Diversity of Turkish Maize Landraces Based on Fluorescent Labelled SSR Markers



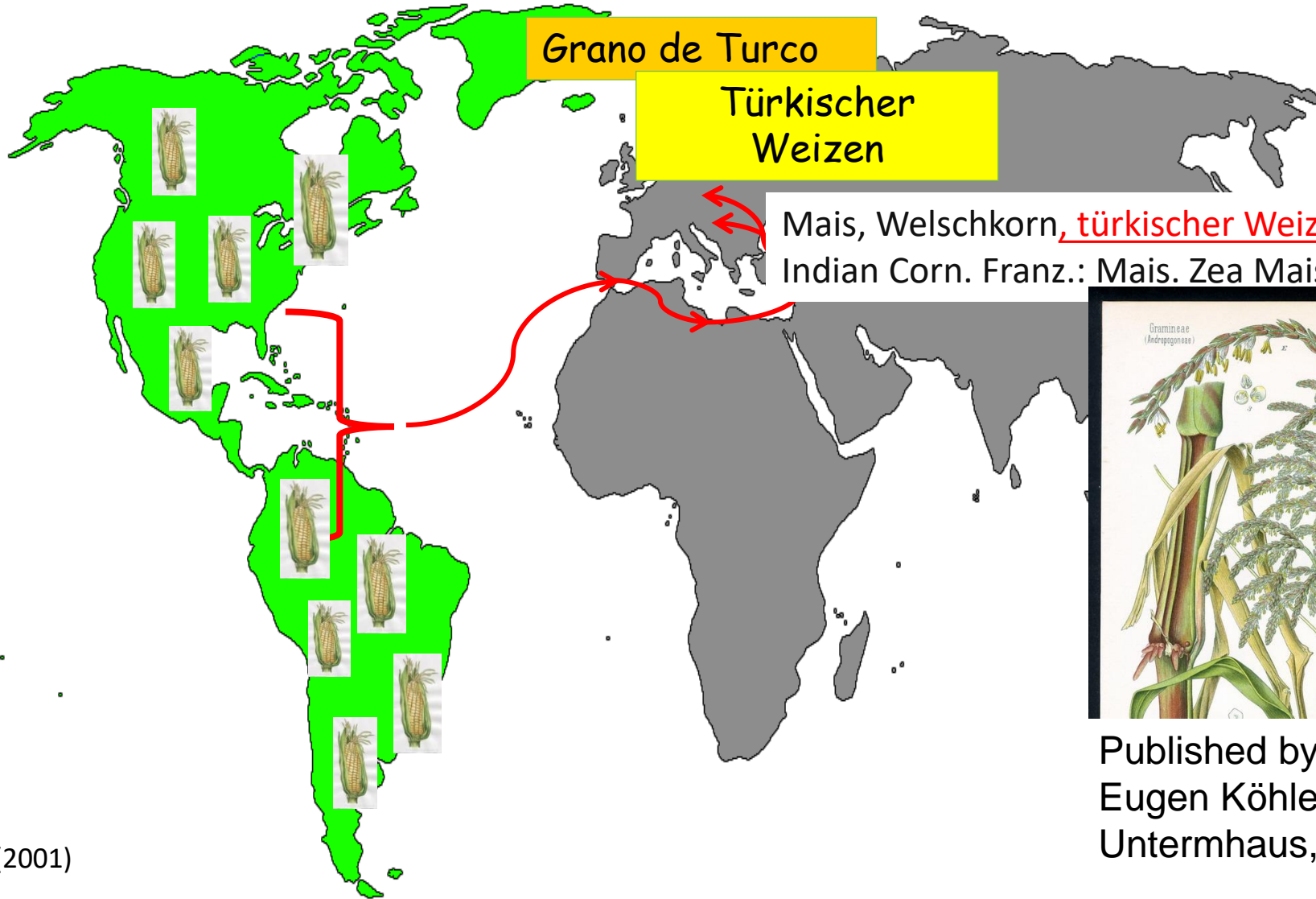
Plant Mol Biol Rep (2012) 30:261–274
DOI 10.1007/s11105-011-0332-3

Diversity Assessment of Turkish Maize Landraces Based on Fluorescent Labelled SSR Markers

Gönül Cömertpay · Faheem S. Baloch ·
Benjamin Kilian · Ahmet C. Ülger · Hakan Özkan



The journey of the Maize for Turkiye



Leng et al. (1962)
Ögel (2000)
Brandolini and Brandolini (2001)



Published by Verlag Franz
Eugen Köhler, Gera-
Untermhaus, 1887-1898., 1898

Language: German

Second Edition
Specialty Corns
Edited by
Arnel R. Hallauer, Ph.D.



CRC Press

Boca Raton London New York Washington, D.C.

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2. Pioneer Prolific Composite (PRC) a.k.a. Iowa BS11

Dr. W.L. Brown and Mr. Karl H. Jarvis of Pioneer Hi-Bred Int'l. developed PRC. It is a prolific composite made up of nine open pollinated varieties and two semi-prolific, experimental, U.S. Corn Belt hybrids. The varieties were Argentine Pop, Caraway Pop, Clark Yellow Dent, Golden Prolific, Jarvis, Mexican June, Mosby Prolific, Neal Paymaster, Turkish Prolific Pop, and Whatley Prolific. The earliest inbred in the experimental hybrids was a B164 derivative.⁴ Because of the southern origin of much of the background, they enforced strong selection for lower plant and ear height (adaptedness) and for yellow endosperm. They selected for multiple ears on the main stem and against tillering of plants grown in isolated plots. They removed or detasseled undesirable plants before flowering. Selection continued near Johnston, IA for about 20 years. Pioneer Hi-Bred International gave PRC to Iowa State University, who designated it Iowa BS11. SMPR in Figure 14.2 is PRC Cycle 5 that was selected five generations for early flowering (55 of 1100) among plants grown at high plant density at Mankato, MN.^{4,67}

Weyhrich et al.⁶⁸ used Iowa BS11 as source material for comparing four or more cycles of seven different (six intra- and one inter-population) recurrent selection methods. For each method, they determined the relative effectiveness and relative cost for improving the genetic potential of this germplasm.

G. SUMMARY AND CONCLUSIONS

Adaptation is the sole driving force of evolution. Better adaptation to the environment means higher yield. Knowledge of previous geography and climate where a corn genotype was adapted, and how it was selected, helps the breeder select useful germplasm for breeding.

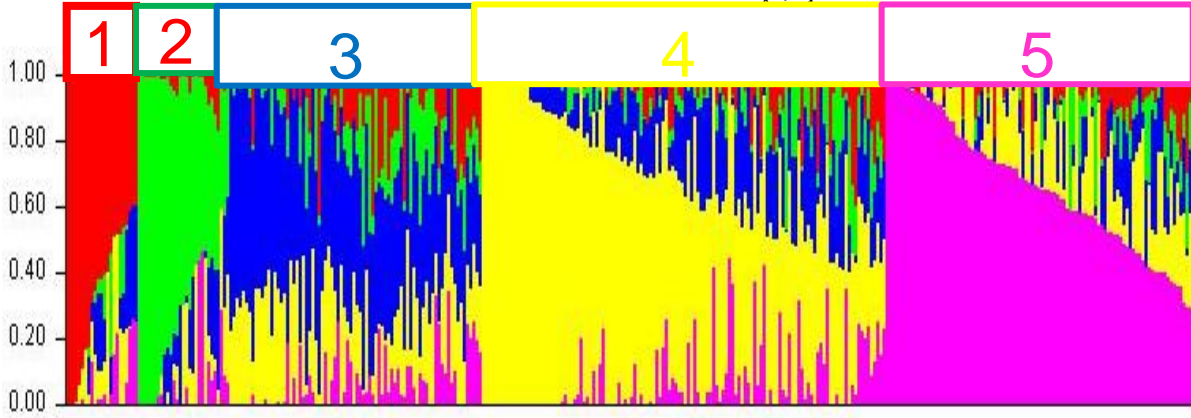
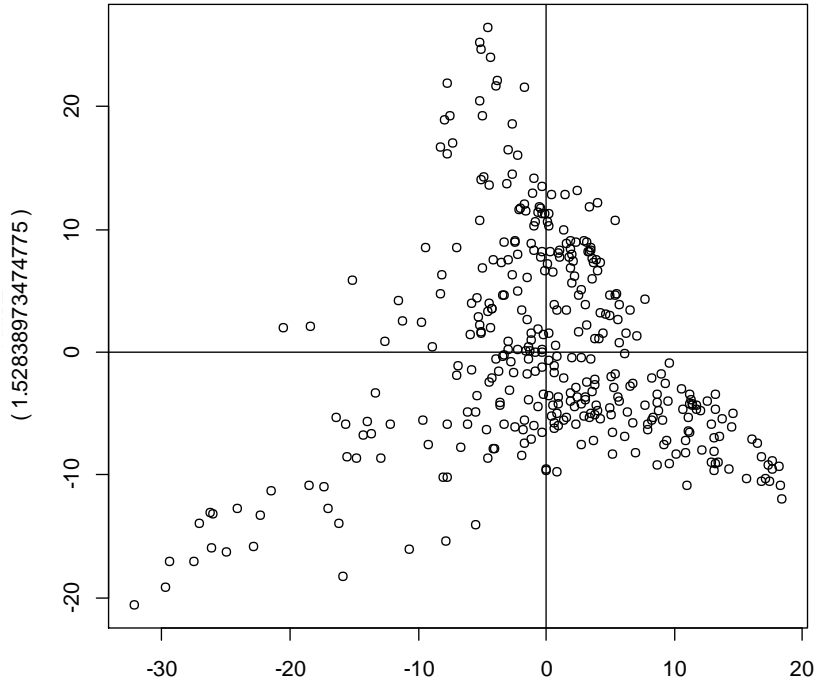
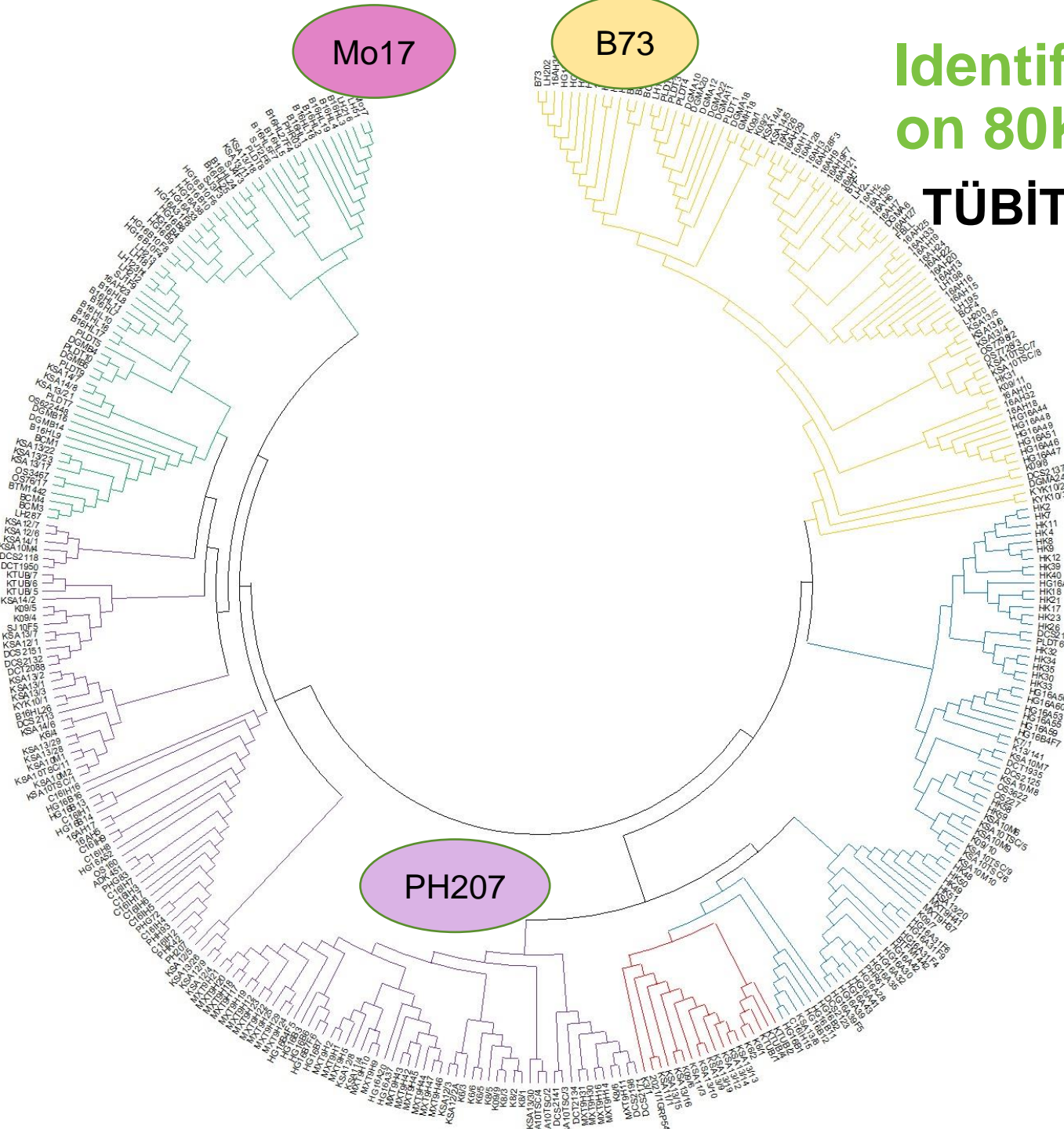
Reid Yellow Dent benefited from the mixing of early and late U.S. Corn Belt adaptedness genes. Iodent variety was Reid Yellow Dent selected for earlier flowering that provided better adaptedness to Iowa. Iowa and Minnesota rarely obtain enough rainfall in July and August; stored subsoil moisture saves the corn crop. Earlier flowering helped avoid drought. Cumulative selection (Figure 14.3) not only advanced the evolution of corn but also provided commercially useful inbreds at each step of the process. Lancaster Sure Crop is a flint that was repeatedly crossed to dents to increase its yield, and then selected for smooth, flinty ears. The flint kernels would be poor for feeding, but it may have been popular for milling (larger grits). Leaming Corn was selected for

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Identification of heterotic groups based on 80K of SNPs and heterosis breeding

TÜBİTAK Project: 1210313

Corn Inbredlines

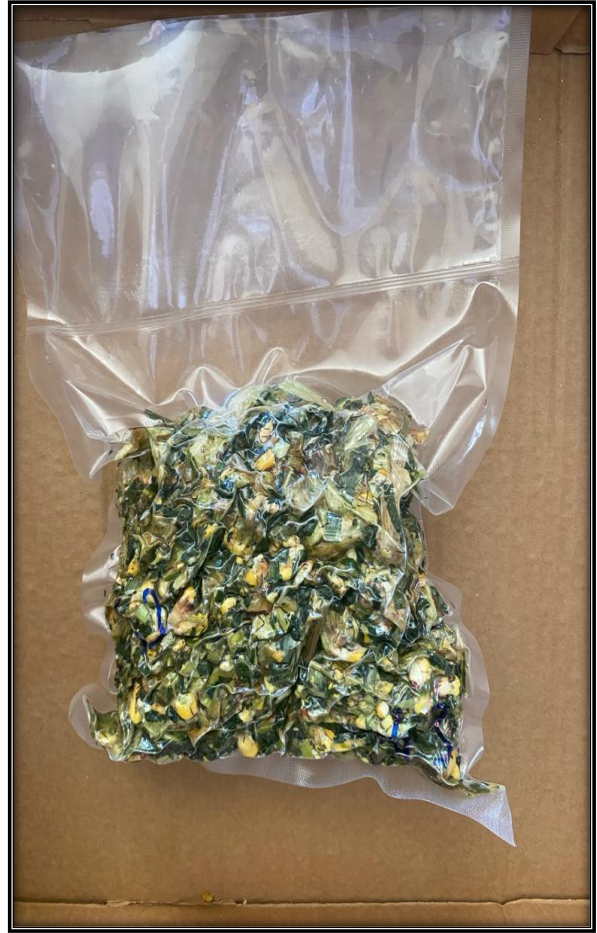




Hybrids screened for their yield and invitro digestibility

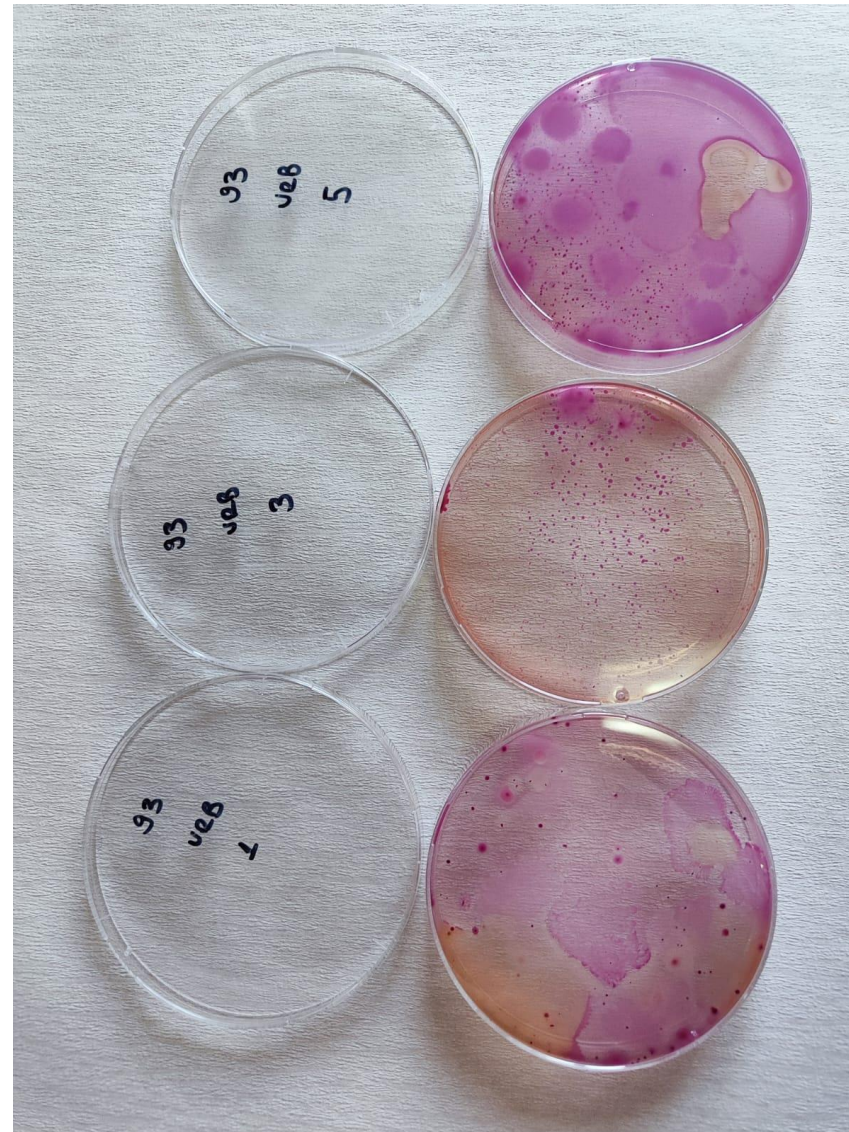
TÜBİTAK Project: 1210313





Hybrids screened epiphytic flora (Lactic acid bacterias..

TÜBİTAK Project: 121O313



TAGEM PROJECT: DETERMINATION OF FUSARIUM SPP. IN EASTERN MEDITERRANEAN



TAGEM PROJECT: FUSARIUM SPP. -IN EASTERN MEDITERRANEAN MAIZE PRDUCTION AREA



Control

F. verticilliodes

F. oxysporium

F. proliferatum

Fusarium inocuation to maize



EVA Maize/Malanirs

- 32 Turkish maize landraces (collection of DATAEM) were shared with INRA for MalaNirs and MineLandDiv Project
- MineLandDiv Project experiments conducted at BATEM in Antalya Turkiye and in 2024 Turkish maize landraces evaluated with whole collection of the Project for Heat tolerance.
- 2025- MalaNirs project experiment will conduct and evaluation will be made for NIRS and other characteristics in DATAEM Adana
- Data will be shared with consortium



Many thanks...

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