

Implementation of the ECPGR EVA network - maize

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Project proposal to Germany

- To be submitted 4 December 2019
- Objective: complementing existing networks (barley/wheat) + new component on Maize
- Covered costs:
 - Coordination
 - EURISCO development
 - Multiplication and distribution of accessions
 - Genotyping
 - Travel funds
 - Provision of core collection evaluation data to EURISCO
 - Other?

Scope

- Field testing in multiple sites looking at various phenotypic and agronomic traits

Disease resistance (Fusarium, Helminthosporium, Aspergillus), and abiotic stresses, drought, cold,

Crops and areas:

- Grain maize: Mid-late and Late maturity groups

Principles

- Evaluate LR, inbred lines per se, hybrids between inbred lines ??
- **Up to 250** maize accessions by each company in possibly **10** environments for two years
- Use same characterization / evaluation protocols (experiment set up; scoring methodology)
- Genotype all accessions (~~600k or 50k @ 100 Euro??~~)
- Include phenotypic + genotypic data in public central place (EURISCO) – 3 years embargo for non-partners
- SMTA

Potential partners

Breeding companies/ commercial breeding programmes:
6 from project plus Corteva , Syngenta F, Bayer D
Fito (E), Planta (I), Maize Research (Serbia); Polish
institute

Genebanks/Research institutes: France INRA; CREA; Maize
Research (Serbia), CSIC (E), INIAV (P), Suceava (R); IPK
(D); Albanian genbank; IPC (P)

Activities – broad term

Year 1 (2020): setting up of standards, acquisition, multiplication and redistribution of material (1st set)

Year 2 (2021): first round of evaluation (1st set); second round of acquisition, multiplication and redistribution (2nd set)

Year 3 (2022): second round of evaluation (1st set); first round of evaluation (2nd set); third round of acquisition, multiplication and redistribution (3rd set) [extra budget]

Year 4 (2023) [extra budget]: second round of evaluation (2nd set); first round of evaluation (3rd set)

Activities – detailed

- i. Obtain signature of EVA-Letter of Commitment by the partners
- ii. Annual meetings of consortium partners (first meeting with breeding **companies in March 2020??**)
- iii. Agreement on traits and type of progeny (to be evaluated during 2021, 2022 and 2023)
- iv. Design of the evaluation experiments, coordinated by Task Force (TF) including ...
- v. Selection of genebank accessions (at least **50 up to 125** accessions per year per each category) (to be repeated for 2 years)

Activities - continued

- vi. Draft of the Consortium Agreement by the Secretariat, in consultation with partners and obtaining related signatures
- vii. Dispatch of agreed accessions (50-100 seeds per accession) with SMTA to the multiplier institutes
- viii. Multiplication/hybrid seed production (with testers) of accessions by multipliers (ca. 30 euro per accession seed production with one tester)
- ix. Dispatch of multiplied accessions from multipliers to evaluators with SMTA (possibly about 10 environments for category and from multipliers to genotyping company/institute (i.e. INRA) – (end of summer 2020 and 2021)
- x. Agreement on evaluation protocols and data collection standards (ontologies), coordinated by TF, ...
- xi. Definition of genotyping methodology and selection of commercial provider (by TF including): see Alain's approach

Activities - continued

- xii. Analysis of database requirements by EURISCO staff and provision of special functionalities (intranet platform for the partners, with 3 years embargo before making data widely public, etc.)
- xiii. Carry out evaluation in multiple locations with the same accessions in each of the two maturity groups, during growing seasons 2021, 2022 and 2023 (extra budget)
- xiv. Dispatch of evaluation data based on agreed standard exchange formats from all the evaluation sites to the central repository (EURISCO), after harvests 2021, 2022 and 2023 (extra budget)

Activities - continued

- xv. Carry out the genotyping of selected accessions under evaluation each year (commercial provider) and dispatch of genotypic data from commercial provider to consortium partners
- xvi. Analysis of genotyping (INRA) and phenotyping data (i.e. Rosa) and data display through the EURISCO Intranet platform
- xvii. Promote inclusion of multiplied and evaluated accessions into AEGIS
- xviii. Plan for Network continuation of rolling activities after the end of the project

Annual budget (x3)

	Cost	Partners
Multiplication	30 X 125 X 2 (one tester) X 2 categories = 15 000 Euro	genebanks
Genotyping	250 x 65 E = 16250 Euro	INRA/service provider
Travel	9000 Euro	
Documentation of past evaluation data core collection	20 000 ? To be confirmed	Partners of resgen project: INRA; CSIC; INIAV; CREA; IPK
TOTAL	60250	