

Agata Rascio

**CREA-CI Centro di Ricerca per la Cerealicoltura e le Colture Industriali
Foggia - Italy**



TRISECA Meeting

3-4 October 2017, Radzikow, Poland



European
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SINCE 1970



Ex situ preservation consists of seed storage at 4°C and 40% RH to maintain long-term vitality and availability for use.



Consistency

Triticeae genus

About 3000 accessions including:

- landraces
- new and old varieties
- breeding lines
- mutants
- RIL populations

- Aegilops
- Agropyron
- Hordeum
- Secale
- Triticum

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Ancient genetic resources

routine activity at CREA-CI

1. Looking for historical data about local genetic resources
2. Regeneration, characterization and reintroduction
3. Selection within populations of “preservation varieties”
4. Interspecific crosses

2017 TRISECA activity at CREA-CI

Multiplication, regeneration and characterization in field (10m² plots) of ancient tetraploid wheat (14 accessions):

Triticum turgidum L. ssp. *Dicoccum*: 3 landraces

Triticum turgidum L. ssp. *Durum*: 3 ancient varieties and 8 landraces



May



June

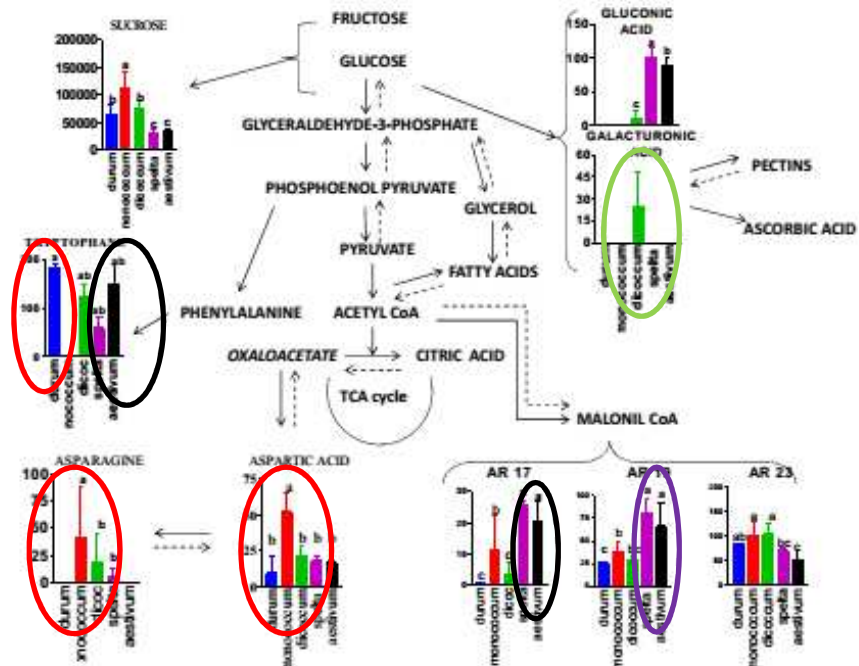


Fig. 2. Metabolic scheme including the relative abundances (Y axes; $\mu\text{g/g dwt}$) of the discriminant metabolites and tryptophan for these five wheat subspecies. Means with the same letters are not different according to Fisher's least significant difference.

Rascio, A., Beleggia, R., Platani, C., Nigro, F., Codianni, P., De Santis, G., ... & Fragasso, M. (2016). Metabolomic diversity for biochemical traits of Triticum sub-species. *Journal of Cereal Science*, 71, 224-229.

Rascio, A., Picchi, V., Naldi, J. P., Colecchia, S., De Santis, G., Gallo, A., ... & De Gara, L. (2015). Effects of temperature increase, through spring sowing, on antioxidant power and health-beneficial substances of old and new wheat varieties. *Journal of Cereal Science*, 61, 111-118.

ITA079

Farro landraces

DICOCCUM



SICILY landraces

DURUM



OLD VARIETIES



SARAGOLLA landraces



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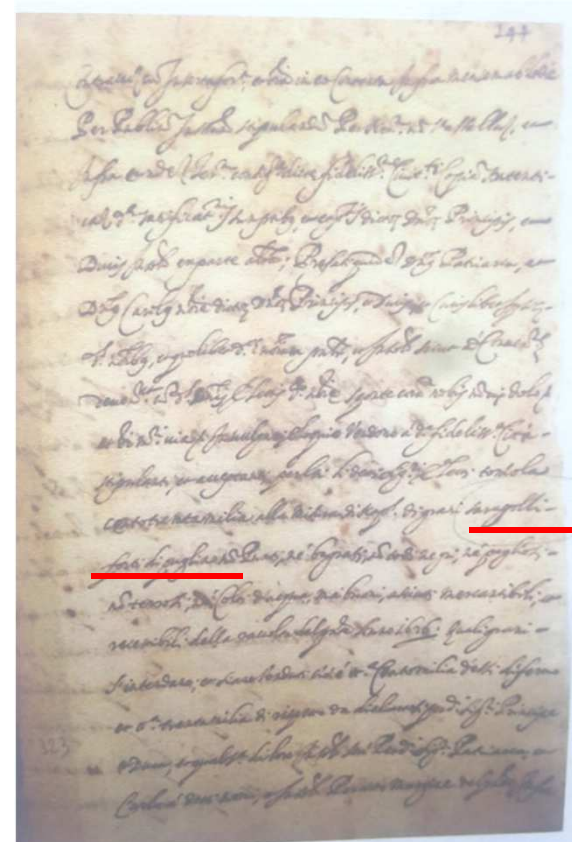
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Seventeenth century affidavit between the prince of San Severo (province of Foggia) and the Viceroy of Naples, for the sale of *Saragollo forte of Puglia*

M. Fiore (2013) *Saragollo triticum apulum*, Cooperativa Fortore, Torremaggiore)

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Saragolla landraces from two Italian regions:
Puglia and Abruzzo



Puglia



Abruzzo

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ITA384 : T. aestivum

ITA079: Tetraploid wheat species

Status of AEGIS candidate collection

Number of AEGIS accessions per country of origin

ECPG Activity	ORIGCTY	T. aestivum (6X)	T.spelta (6X)	tetraploid wheat species (4X)	T.Monococcum (2X)	Secale cereale
TRAID	ITA	183	-	1	-	-
TRISECA	ITA	-	-	14	-	-

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Summary of passport data (MCPD v2)

Country	Number of AEGIS accessions	INSTCODE	ACCENUMB	COLLNUMB
		100%	86%	100%
COLLCODE	GENUS	SPECIES	SPAUTHOR	SUBTAXA
100%	100%	100%	100%	100%
SUBTAUTHOR	CROPNAME	ACCENAME	ACQDATE	ORIGCTY
0%	100%	100%	100%	100%
COLLSITE	LATITUDE	LONGITUDE	ELEVATION	COLLDATE
100%	0%	0%	0%	0%
BREDCODE	SAMPSTAT	ANCEST	COLLSRC	DONORCODE
0%	100%	100%	100%	93%
DONORNUMB	OTHERNUMB	DUPLSITE	STORAGE	MLSSTAT
0%	100%	64%	100%	93%
REMARKS	GR_CLASS	PLOIDY	REG_YEAR	SYNONYM_
0%	0%	100%	0%	0%
EXP_CODE	SITE_DES	HERBAR_	PRINC_ATTR	ENTRY_DATE
0%	0%	0%	0%	0%
MAN_CENTER	AVAILAB	AEGISSTAT		
0%	100%	100%		

MANDATORY
OPTIONAL

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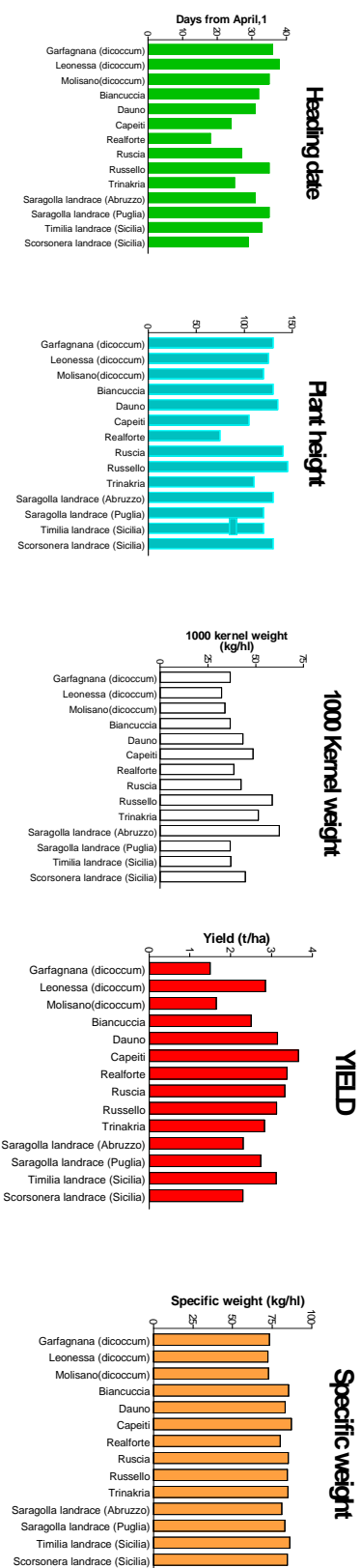


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Summary of Characterisation & Evaluation data

Country	Number of AEGIS accessions	II/I AWNEDNESS	II/2 GRAIN COLOUR
?	?	100%	100%
II/3 GLUME COLOUR	II/4 GLUME HAIRINESS	II/5 SPIKE DENSITY	II/6 PLANT HEIGHT
100%	0 %	100%	100?
II/7 1000-KERNEL WEIGHT	II/8 PROTEIN CONTENT	II/9 PRINCIPAL UTILIZATION	II/10 YIELD LEVEL
100%	0 %	100%	100%
II/11 LODGING INTENSITY	II/12 S TO STEM RUST	II/13 S TO STRIPE RUST	II/14 S TO LEAF RUST
100%	%?	%?	%?
II/15 S TO POWDERY MILDEW	II/16 S TO LEAF BLOTCH	II/17 S TO GLUME BLOTCH	II/18 S TO HEAD BLIGHT
%?	%?	%?	%?
II/19 S TO EYESPOT	II/20 S TO TAKE-ALL	II/21 S TO TAN SPOT	II/22 ZELENY TEST
%?	%?	%?	%?

Diversity within the AEGIS collection



	Heading date	Plant height	1000 kernel weight	Yield (T/ha)	Grain specific weight
Mean	30.64	122.5	43.11	2.748	81.78
Coefficient of variation (%)	18.08%	14.21%	21.42%	23.14%	6.34%

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DICOCCUM

FARRO landraces

Garfagnana

Leonessa

Molise



DURUM

SICILY landraces

Timilia

Scorsonera

Biancuccia

Realforte

Ruscia

Russello



OLD varieties

Trinakria

Daunolli

Capeiti8



SARAGOLLA landraces

Saragolla Abruzzo

Saragolla Puglia



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**Facilities of CREA-CI:
to characterize genetic resources**

Experimental fields

Normal soil



Saline soil



Growth chambers



Greenhouses



ITA079



Applied Physiology

Genomic



Metabolomics

Pasta-making and technological evaluation



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I must thank



Silvana Paone and Pasquale Codianni

for their helpful and valuable collaboration

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