

Ruggine gialla et nera

La situazione attuale in Europa

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Siti di monitoraggio delle ruggini nei test VCU, 2020

La rete copre tutta
l'Europa, per ottenere
un'alta probabilità di
trovare nuove razze di
patogeni.

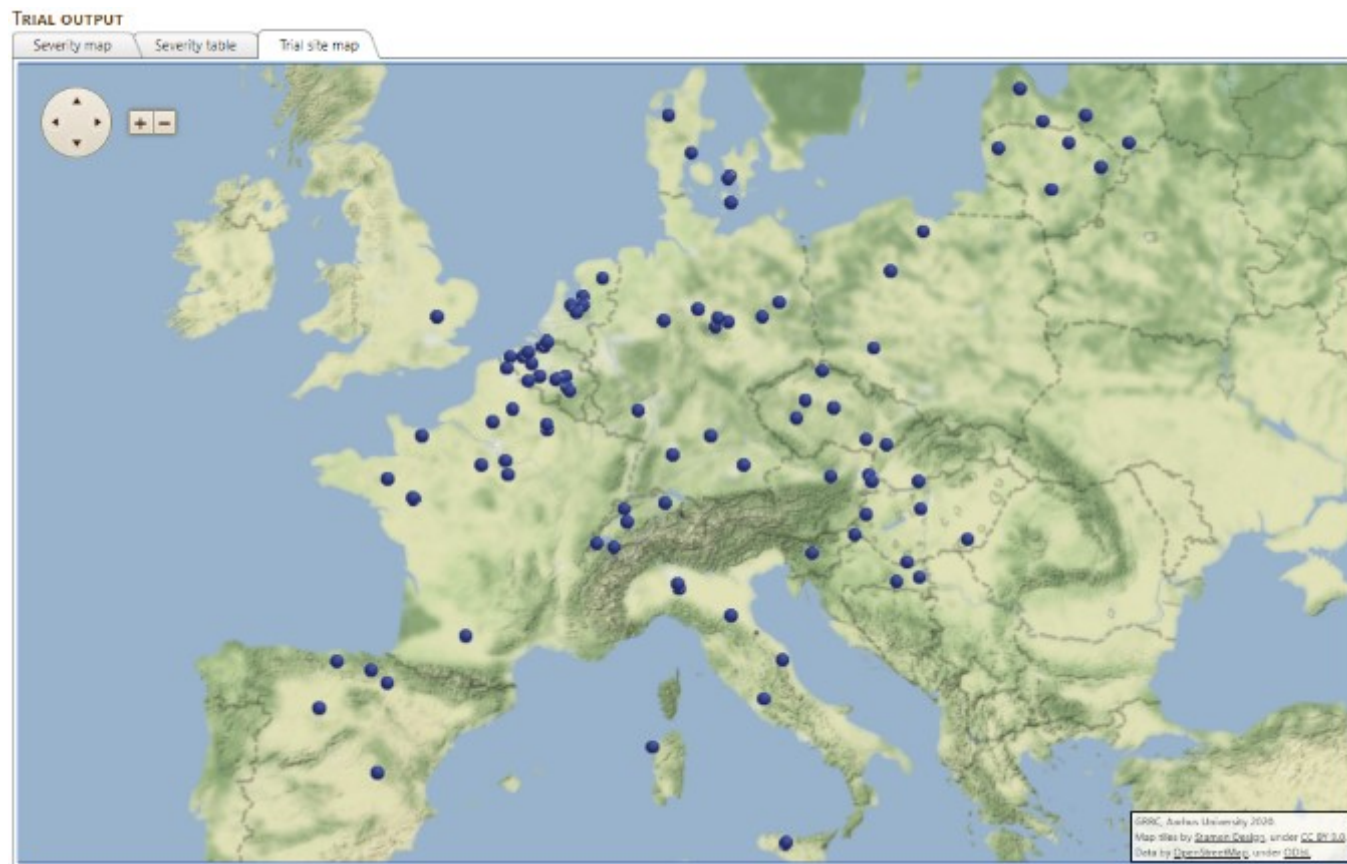
Aumento costante del
numero di paesi
implicati

2017: 5

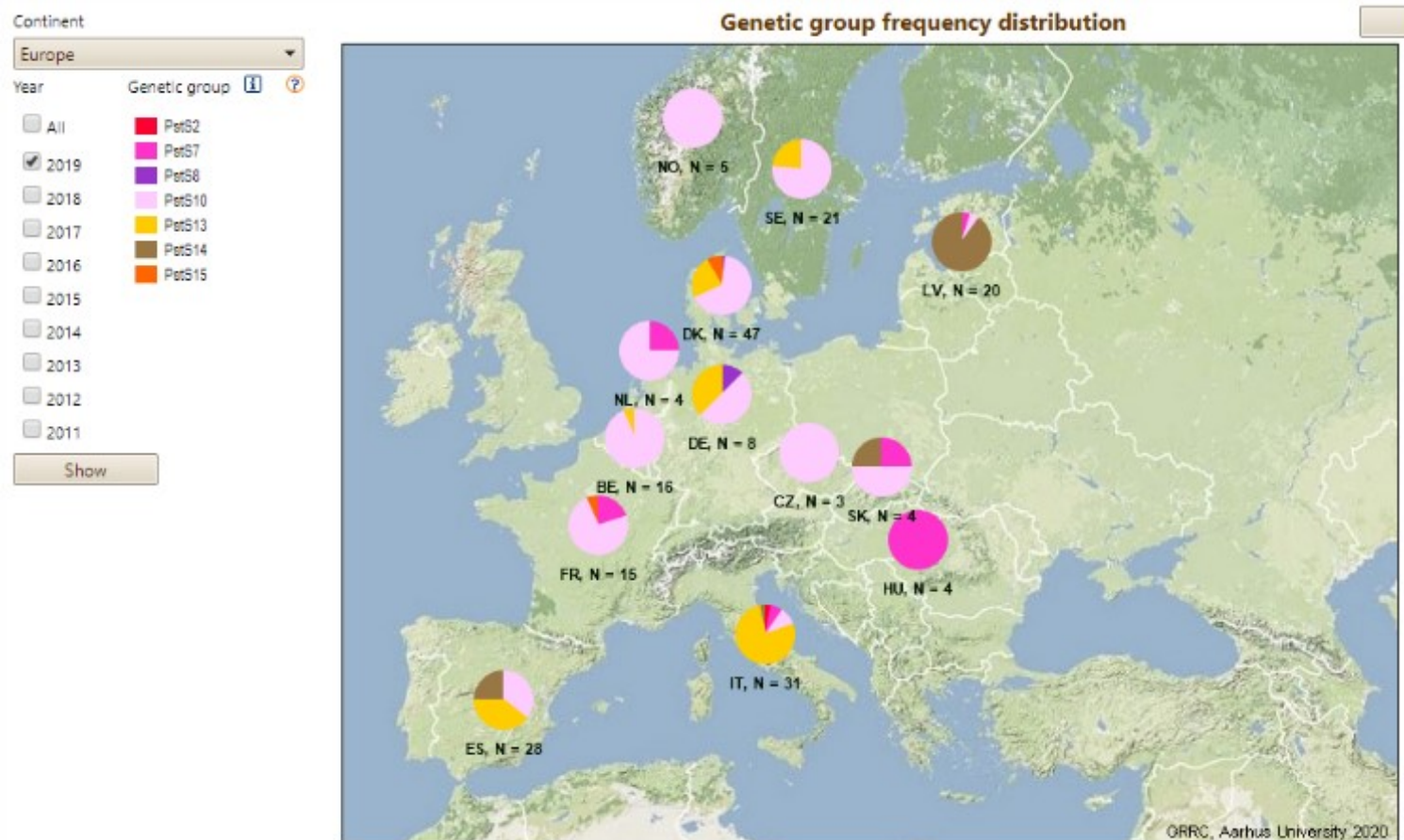
2018: 9

2019: 13

Nel 2019, virulenze
analizzate su >400
isolati.



Frequenza dei gruppi genetici di RG nel 2019



Le razze PstS10 and PstS13 prevalgono nei campi di grano in Europa

Distribuzione delle razze nel territorio europeo

Genetic groups on single locations

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Research Projects

Submission of isolates

Yellow Rust Tools - maps and charts

- Genetic groups on single locations
- Genetic groups frequency map
- Genetic groups frequency chart
- Race Frequency Map
- Races on single locations
- Races - Changes across years
- Disease Survey Mapper

Genetic group	Race	Pattern
PstS2	PstS2.v27	[-2,---,6,7,8,9,---,25,27,---]
PstS2	PstS2	[-2,---,6,7,8,9,---,25,---]
PstS2.v1	PstS2.v1	[1,2,---,6,7,8,9,---,25,---]
PstS2.v1.v27	PstS2.v1.v27	[1,2,---,6,7,8,9,---,25,27,---]
PstS2.v10	PstS2.v10	[-2,---,6,7,8,9,10,---,25,---]
PstS2.v10.v27	PstS2.v10.v27	[-2,---,6,7,8,9,10,---,25,27,---]
PstS2.v3	PstS2.v3	[-2,3,---,6,7,8,9,---,25,---]
PstS2.v3.v27	PstS2.v3.v27	[-2,3,---,6,7,8,9,---,25,27,---]
PstS7	Warrior	[1,2,3,4,---,6,7,---,9,---,17,25,---,32,Sp,Amb]
PstS8	Kranich	[1,2,3,---,6,7,8,9,---,17,25,---,32,---,Amb]
PstS10	Warrior(-)	[1,2,3,4,---,6,7,---,9,---,17,25,---,32,Sp,---]
	Kalmar	[1,2,3,4,---,6,7,---,9,---,17,25,---,32,Sp,---]
	Benchmark	[1,2,3,4,---,6,7,---,9,---,17,25,---,32,Sp,---]
PstS13	Triticale2015	[-2,---,6,7,8,9,---,---,Sp,---]
PstS14	PstS14	[-2,3,---,6,7,8,9,---,17,---,25,---,32,Sp,---]
PstS15	PstS15	[1,2,3,---,6,7,8,9,---,17,25,---,32,---,Amb]

Year: 2019

Continent: Europe

Country: All countries selected

Genetic group: ☒ All ☒ PstS2 ☒ PstS7 ☒ PstS8 ☒ PstS10 ☒ PstS13 ☒ PstS14 ☒ PstS15

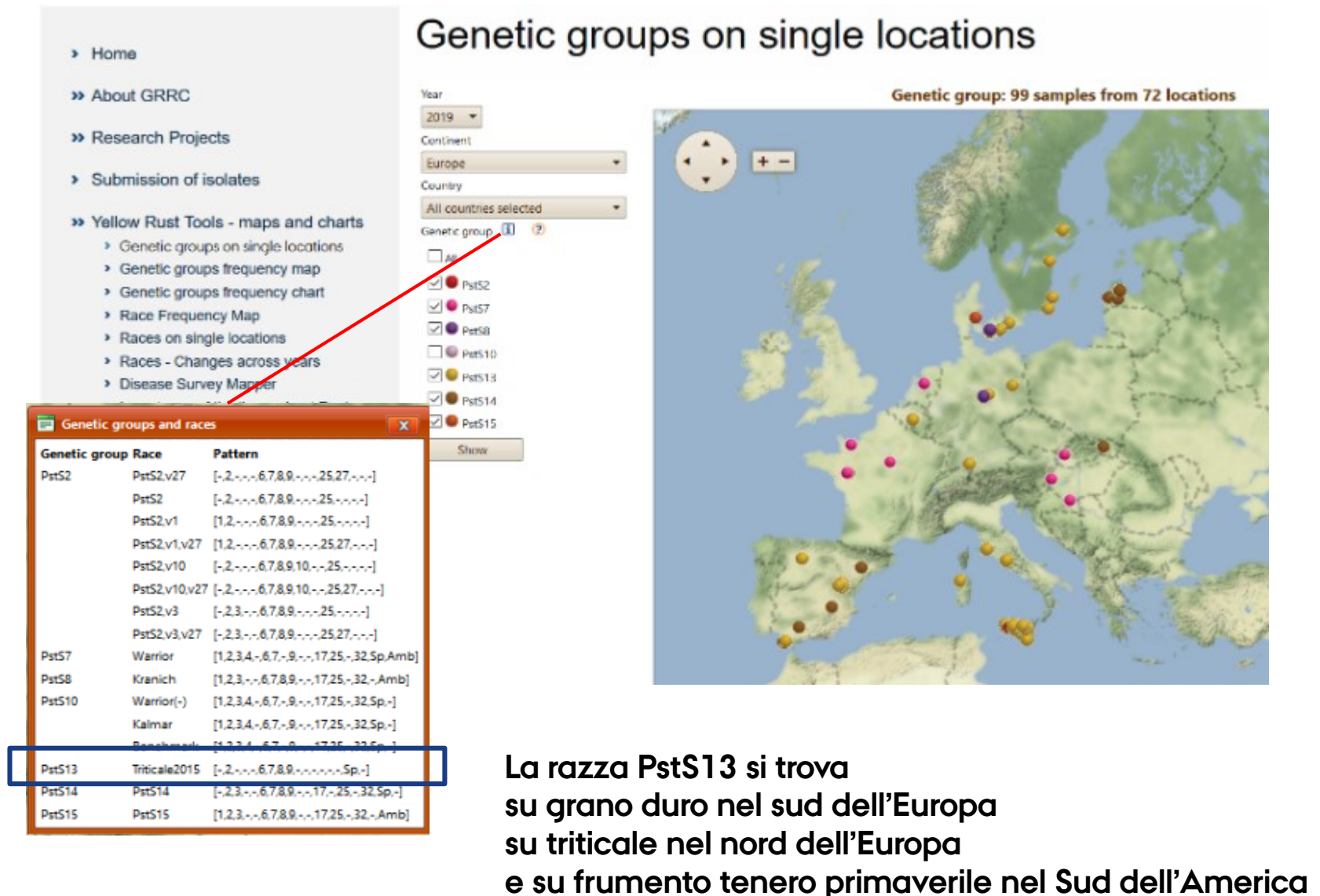
Show



www.wheatrust.org

Nuove razze evolvono dal gruppo genetico PstS10 races e si adattano a nuove varietà molto popolari tale Benchmark and Kalmar (in DK et UK)

La diffusione delle razze di RG



Scoperta di nuove razze: PstS15

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» Genetic groups frequency map

Genetic groups on single locations

Year

2019

Continent

Europe

Country

All countries selected

Genetic group

☐ All

☐ PstS2

☐ PstS7

☐ PstS8

☐ PstS10

☐ PstS13

☐ PstS14

☒ PstS15

Show

Genetic group: 4 samples from 3 locations

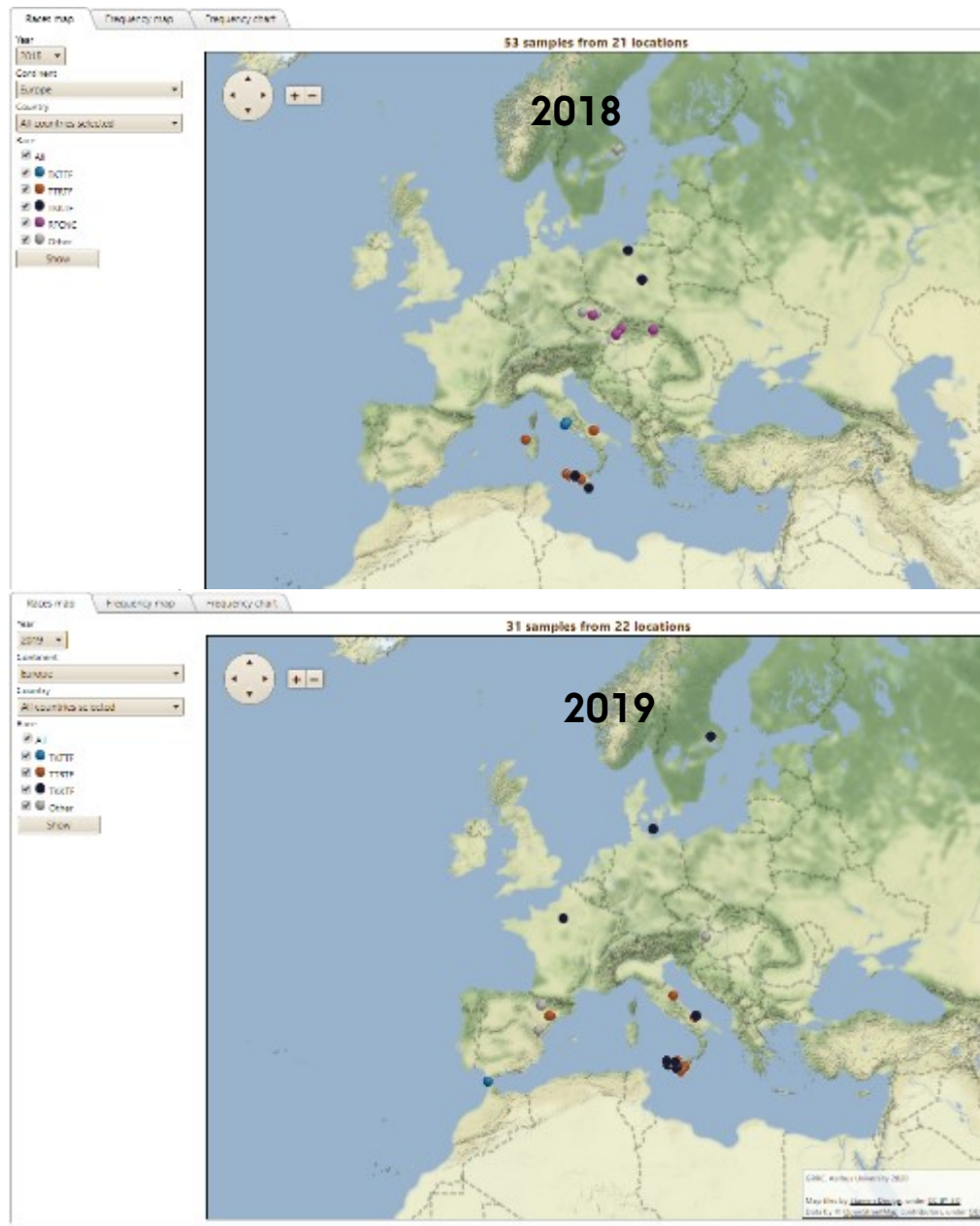


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PstS2.v1.v27	PstS2.v1.v27	[1,2,---,6,7,8,9,---,25,27,---]
PstS2.v10	PstS2.v10	[-2,---,6,7,8,9,10,---,25,---]
PstS2.v10.v27	PstS2.v10.v27	[-2,---,6,7,8,9,10,---,25,27,---]
PstS2.v3	PstS2.v3	[-2,3,---,6,7,8,9,---,25,---]
PstS2.v3.v27	PstS2.v3.v27	[-2,3,---,6,7,8,9,---,25,27,---]
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PstS14	PstS14	[-2,3,---,6,7,8,9,---,17,---,25,---,32,Sp,---]
PstS15	PstS15	[1,2,3,---,6,7,8,9,---,17,25,---,32,---,Amb]

Ceppo 2020 Vouvry (prima analisi): -,3,---,6,7,---,9,---,17,25,---,32,---, Amb (CH2020SK-001)

Ruggine nera in Europe 2018-2019

- La ruggine nera è presente nel Sud e nel Centro dell'Europa
- Le due razze prevalenti attualmente :
 - TTRTF (Razza trovata in Siciliana)
 - TKKTF (Razza trovata in Africa e nel Vicino Oriente)



Conclusioni

- Monitorando a multipli siti aumenta sensibilmente la probabilità di trovare precocemente nuove razze;
 - La razza PstS15 è stata isolata simultaneamente in Francia e in Danimarca.
 - Attualmente, stiamo studiando la capacità della razza PstS15 sulle varietà europee in serra e in campo (dove è indigena).
- La Sicilia e il Sud dell'Europa rimangono l'origine di nuove razze.
 - Non è chiara s'è il punto di entrata oppure la zona di formazione di nuove razze (> studio sui crespini).



RUSTWATCH

WHEAT RUST EARLY WARNING

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