



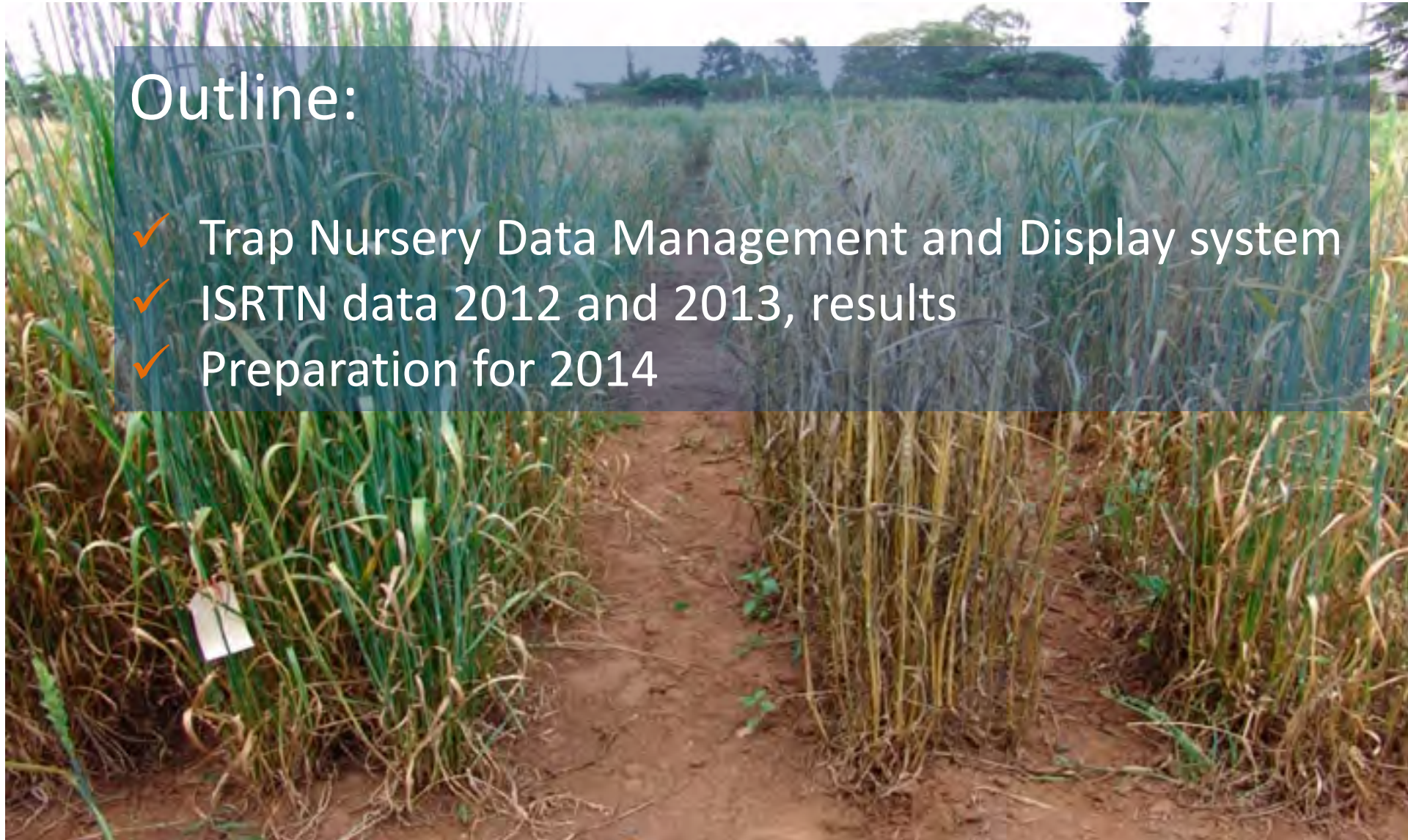
Trap Nursery Update

Kumarse Nazari, David Hodson & Jens G. Hansen



Outline:

- ✓ Trap Nursery Data Management and Display system
- ✓ ISRTN data 2012 and 2013, results
- ✓ Preparation for 2014



WHEAT RUST TOOLBOX



Under construction

ANALYSING TOOL

Infected trial map Cultivar map Cultivar rank list Gene map Gene rank list Gene rank chart

Show

Year

2013 2012

Select trials with severity on Morocco higher than

20

Seeds for 44 trials were distributed. Results returned from 24 of these trials. In 12 trials, severity in at least one of the Morocco plots were 20% or higher.

Legend: ● Trials infected ● Trials not infected ● No data





Photo: Kumarse Nazari

Jens G. Hansen, Poul Lassen, Kumarse Nazari & David Hodson

DRAFT version, 15 August, 2013

DRRW Activity 23.a, Global Cereal Rust Monitoring System (GCRMS), sub-task:
"Development of a web based trap nursery data management and display system"

TN Data management system – Why?

Organised by ICARDA (Kumarse Nazari) and CIMMYT. Part of DRRW

1. Hunting the new – early warning! Reference isolates to GRRC
2. Indicate what pathotypes are present, where they occur and, at what frequency?
3. Indicate and / or confirm when pathogenic changes relate to commercial cultivars / mega cultivars
4. Act as early warning to extension and advisory services involved in cultivar recommendation
5. Provide the pathotypes to be used in breeding nursery

Results

Show the system with real data.
Focus on 2012 results

Table 2. Number of trials and return rate

Year	No of SR trials	No of returns	Return rate	No Trials with Infection*
2012	44	24	55%	12 of 24 (50%)
2013	49	8**	16%	5 of 8 (63%)

*Trials with infection on one or more of Morocco Check cultivar reps of 20%

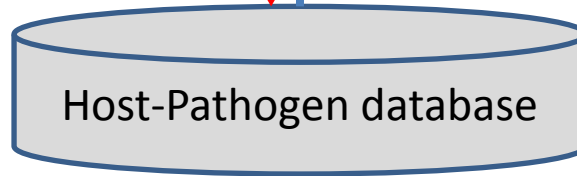
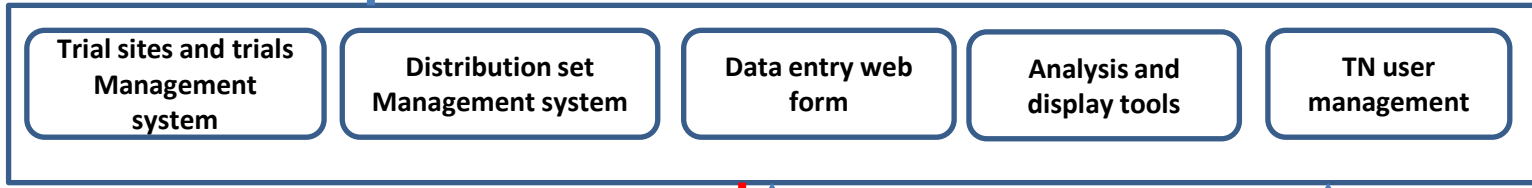
** Status on 12 August 2013

Data providers
And
Expert panel



Integrate with
other data

Expert panel
PDF Report
Resistance Gene effectiveness





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ANALYSING TOOL

Infected trial map Cultivar map Cultivar rank list Gene map Gene rank list Gene rank chart

Year 2013 2012 Select trials with severity on Morocco equal to or higher than

Show Cultivar type Differential Mega Select cultivar

Select cultivar with severity equal to or lower than Select cultivar with infection type equal to or lower than

In 12 trials, severity in at least one of the Morocco plots were 20% or higher.

In 7 of those trials, severity was equal to or lower than 10% and infection type equal to or lower than MR for the cultivar selected: 'Sr31 (Benno)/6*LMPG-6 DK42'.

Legend: ● Resistance effective ● Resistance not effective



WHEAT RUST TOOLBOX



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ANALYSING TOOL

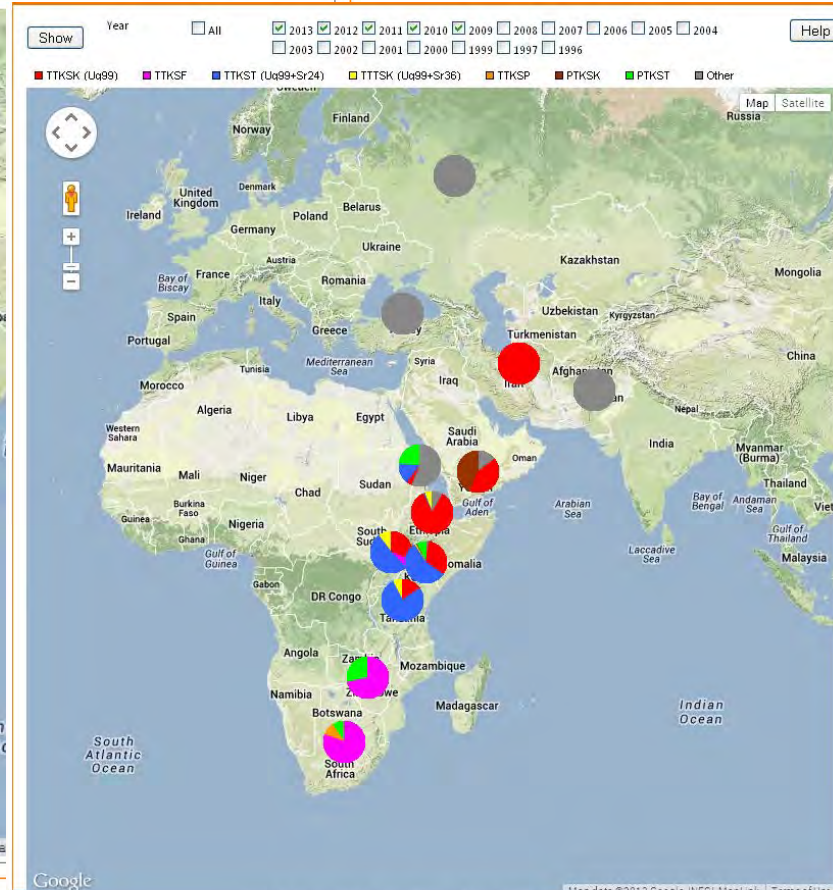
Infected trial map
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Year 2013 2012
 Select trials with severity on Morocco equal to or higher than

Gene
Select cultivar with severity equal to or lower than
Select cultivar with infection type equal to or lower than

In 12 trials, severity in at least one of the Morocco plots were 20% or higher.
 In 6 of those trials, severity was equal to or lower than 10% and infection type equal to or lower than MR for at least one of the cultivars containing the gene 'Sr31'

Legend: ● Resistance effective ● Resistance not effective



WHEAT RUST TOOLBOX



Home Wheat Rust survey Wheat Rust isolates Barberry **Trap nurseries** Partners

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ANALYSING TOOL

Infected trial map

Cultivar map

Cultivar rank list

Gene map

Gene rank list

Gene rank chart

Year

2013 2012

Select trials with severity on Morocco higher than

20

Show

Gene

Sr31

Country	Trial site	Cultivar	Disease severity	Infection type
Kenya	Eldoret	Bacanora = Kauz's'	60	S
Kenya	Eldoret	Cham 8	70	S
Kenya	Eldoret	PBW343 = Attila with Sr31	20	MR
Kenya	Eldoret	Seri 82	20	MS-S
Kenya	Eldoret	Siouxland	0	N/A
Kenya	Eldoret	Sisson	0	N/A
Kenya	Eldoret	Sr31 (Benno)/6*LMPG-6 DK42	20	MS-S
Egypt	Gemmeiza	Bacanora = Kauz's'	0	N/A
Egypt	Gemmeiza	Cham 8	0	N/A
Egypt	Gemmeiza	PBW343 = Attila with Sr31	0	N/A
Egypt	Gemmeiza	Seri 82	0	N/A
Egypt	Gemmeiza	Siouxland	0	N/A
Egypt	Gemmeiza	Sisson	0	N/A
Egypt	Gemmeiza	Sr31 (Benno)/6*LMPG-6 DK42	0	N/A
South Africa	Greytown	Bacanora = Kauz's'	30	MS
South Africa	Greytown	Cham 8	1	R

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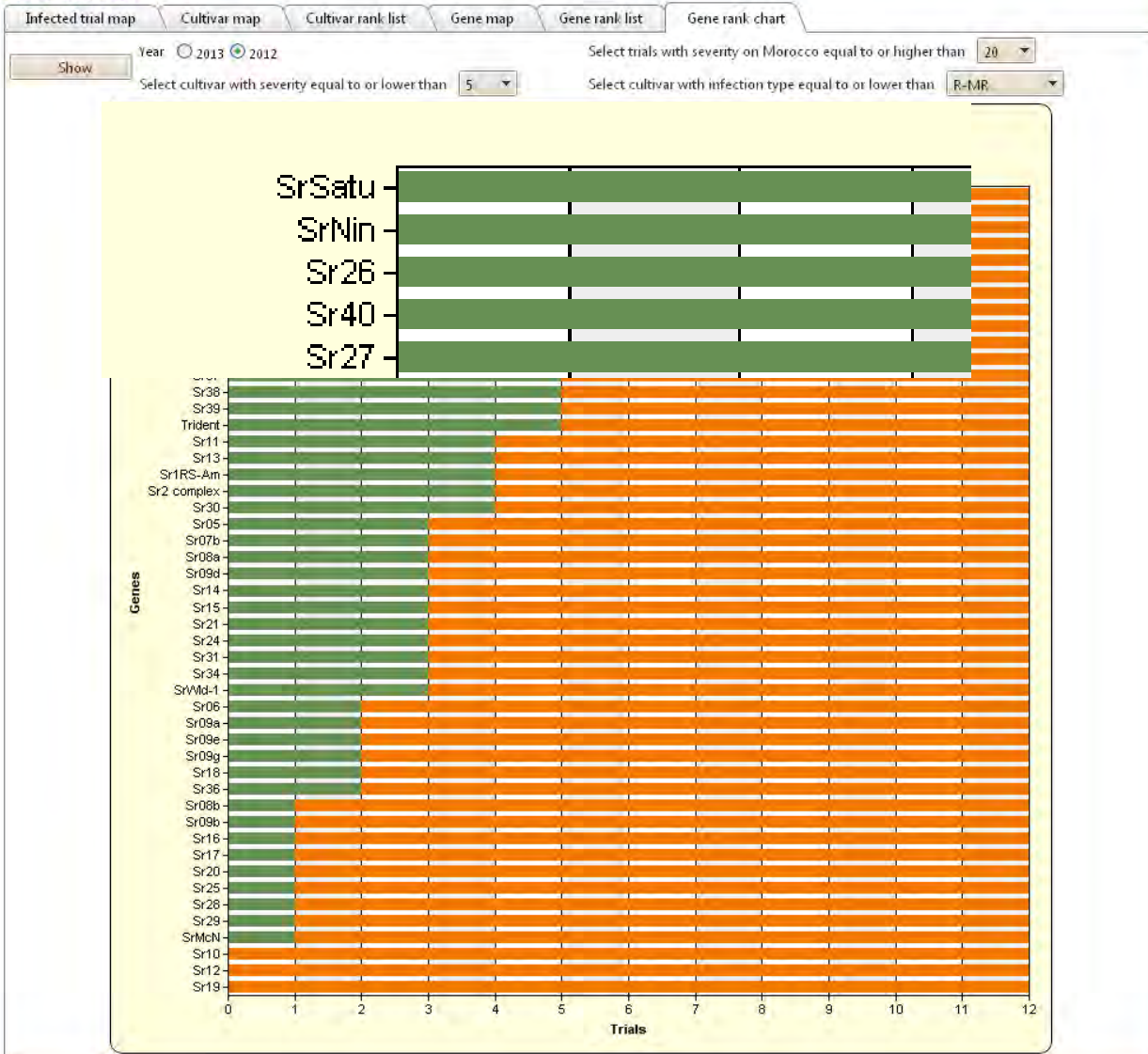
Sr31

Country	Trial site	Cultivar	Disease severity	Infection type
Egypt	Sids	Sisson	0	N/A
Egypt	Sids	Sr31 (Benno)/6*LMPG-6 DK42	0	N/A
Syrian Arab Republic	Tel Hadya	Bacanora = Kauz's'	1	R
Syrian Arab Republic	Tel Hadya	Cham 8	1	R
Syrian Arab Republic	Tel Hadya	PBW343 = Attila with Sr31	1	R
Syrian Arab Republic	Tel Hadya	Seri 82	5	R
Syrian Arab Republic	Tel Hadya	Siouxland	10	R
Syrian Arab Republic	Tel Hadya	Sisson	1	R
Syrian Arab Republic	Tel Hadya	Sr31 (Benno)/6*LMPG-6 DK42	5	R
Pakistan	Thatta	Bacanora = Kauz's'	0	N/A
Pakistan	Thatta	Cham 8	0	N/A
Pakistan	Thatta	PBW343 = Attila with Sr31	0	N/A
Pakistan	Thatta	Seri 82	0	N/A
Pakistan	Thatta	Siouxland	0	N/A
Pakistan	Thatta	Sisson	0	N/A
Pakistan	Thatta	Sr31 (Benno)/6*LMPG-6 DK42	0	N/A



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Test criteria set: (dynamic)

2012 results 44 (24 return)

Attack on Morocco $\geq 20\%$

Severity on cultivar $\leq 5\%$

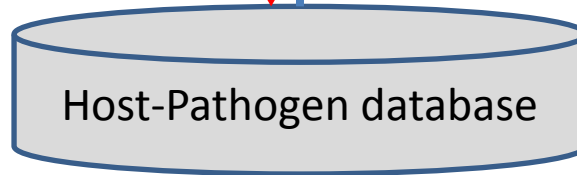
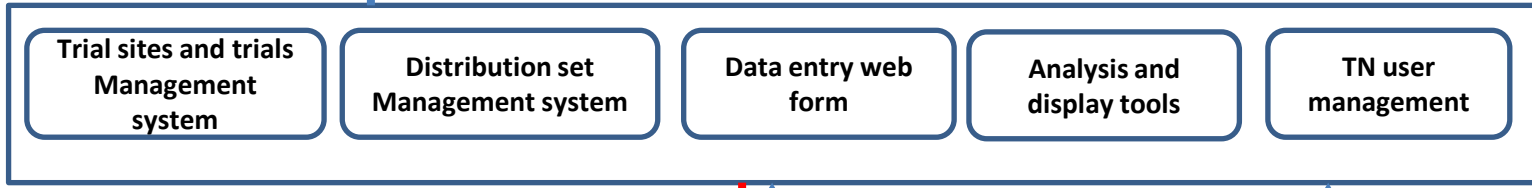
Infection type $\leq R-MR$

Data providers
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Expert panel



Integrate with
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Expert panel
PDF Report
Resistance Gene effectiveness



The expert panel:

Robert Park

Yue Jin

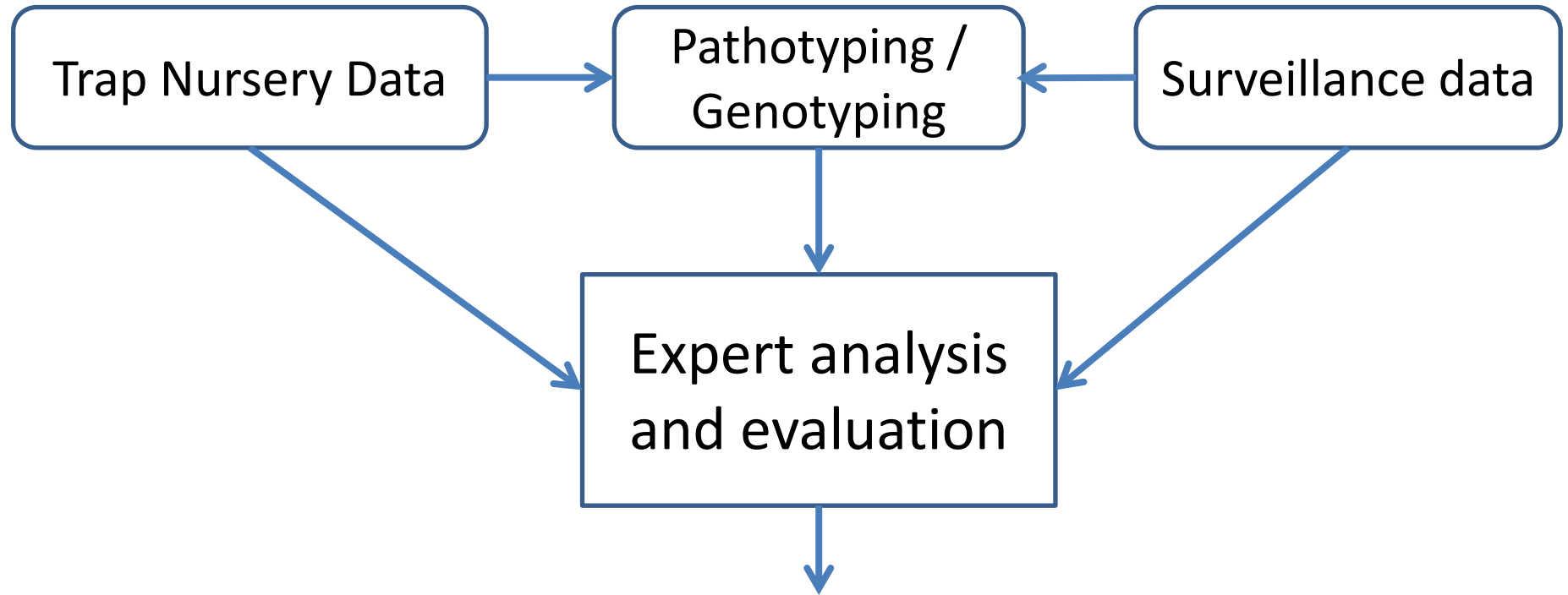
Tom Fetch

Zakkie Pretoius

Mogens Hovemøller

Dave Hodson

Requires a sampling strategy!!!



- PDF reports about resistance gene effectiveness
- (Level and Stability of Resistance – Feed into Decision Support System for chemical control)

TN 2014

- In 2014: TOTAL SETS SENT TO NARS = 241 (Stem, Leaf and Stripe)
- All can get TN distribution set
- Update of the distribution set is needed
- Data responsible should upload own results into the toolbox.
- Also upload data if the trial was not infected
- Data providers will get access to the Wheat Rust Toolbox analysing tools.
- Expert group provide pdf report on gene effectiveness

Best regards from Kumarse that could not be here



Izmir, 2013, Seed multiplication of rust differential sets and Trap Nurseries



Izmir, 2013, International TN seed preparation