

'Second wheat syndrome'

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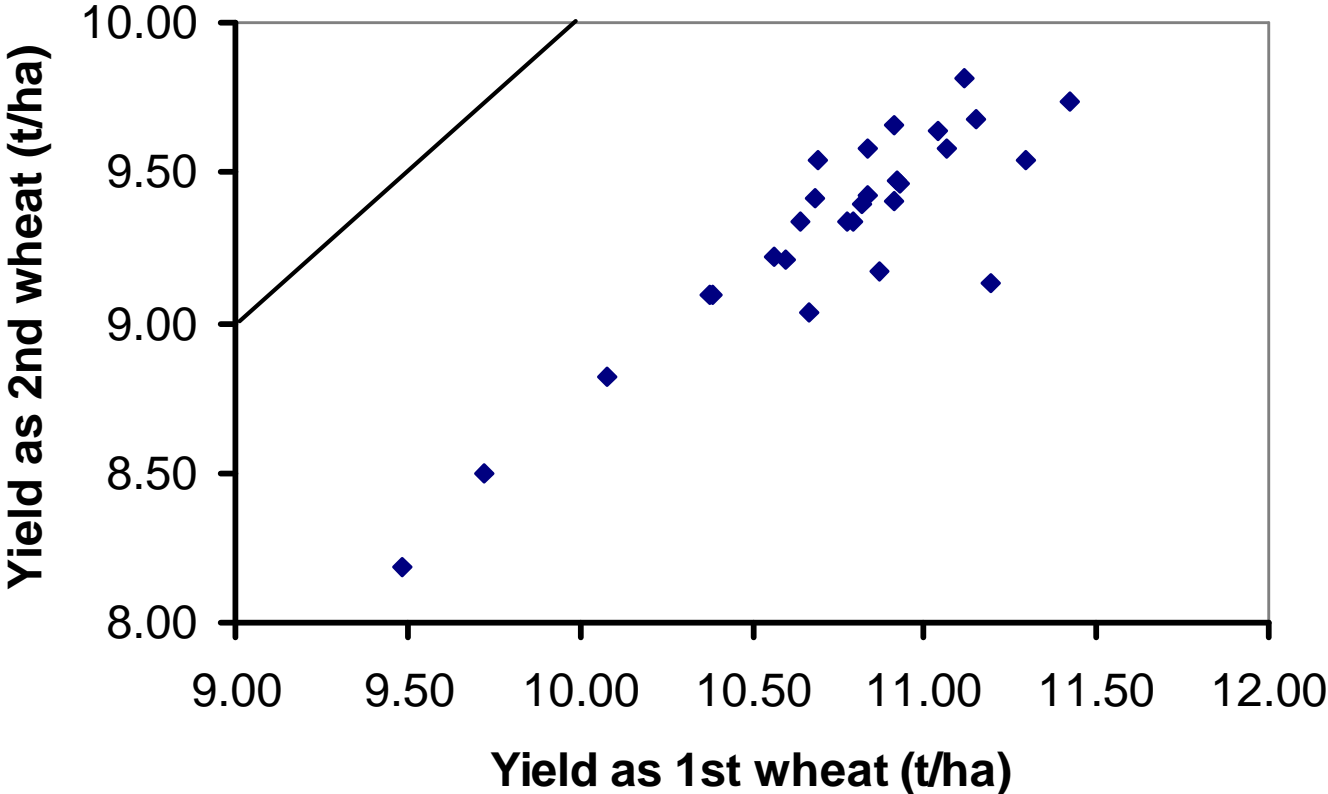
Mechanisms ?

- Resistance
- Disease dilution
- Tolerance

Sources of genetic variation ?

- Elite wheat varieties
- Un-adapted wheat
- Cereal species
- Wild grasses

CEL/HGCA Recommended List 2005



First wheat

Take-all Index

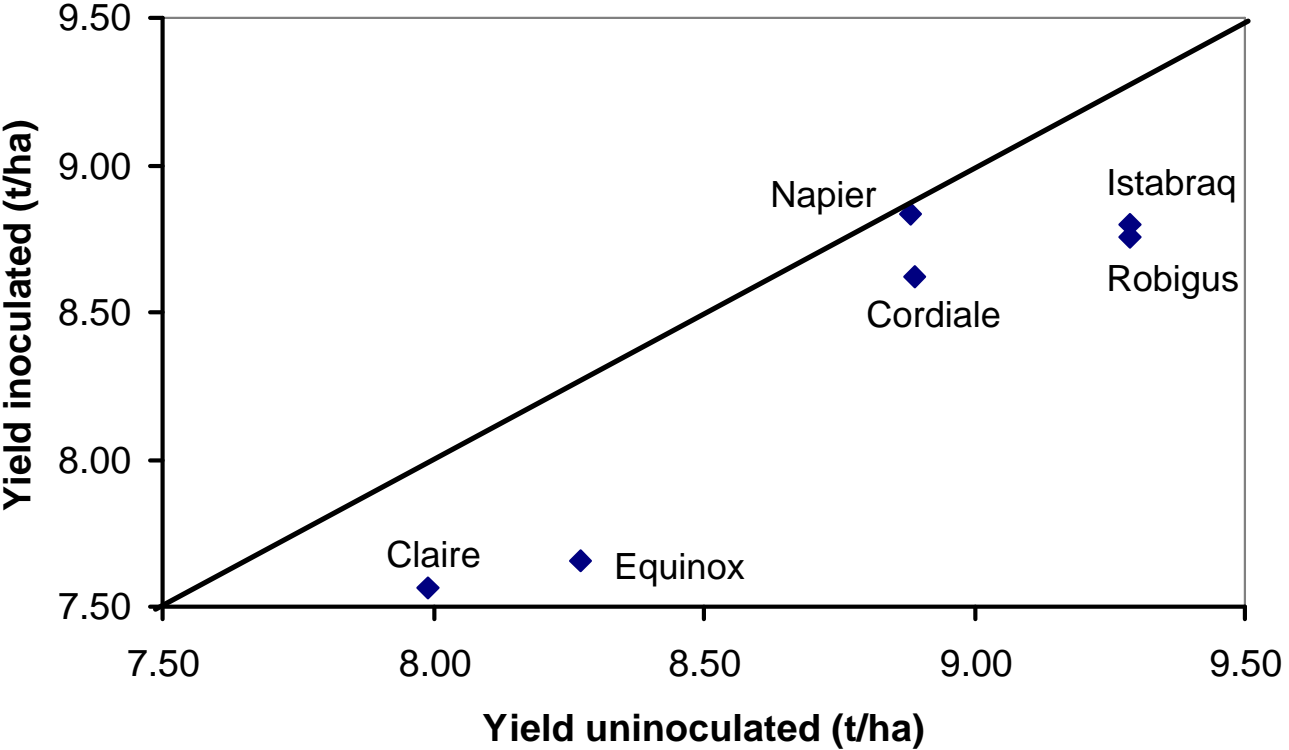
		Rosemaund		Cambridge	
		Uninoc	Inoc	Uninoc	Inoc
Claire		18.1	30.2	20.2	35.1
Equinox		21.9	34.6	21.8	31.9
Robigus		21.1	22.6	18.3	34.3
Cordiale		16.0	23.2	16.4	31.0
Istabraq		16.3	27.9	20.6	33.9
Napier		15.8	24.4	17.9	30.7
Mean		18.2	27.2	19.2	32.8
<i>Variety</i>	<i>p =</i>	<i>0.164</i>		<i>0.247</i>	
<i>Inoculation</i>	<i>p =</i>	<i><0.001</i>		<i><0.001</i>	
	<i>SED</i>	<i>2.17</i>		<i>1.14</i>	
<i>Interaction</i>	<i>p =</i>	<i>0.680</i>		<i>0.737</i>	

Second wheat

Take-all Index

	Rosemaund	Cambridge
Claire	7.5	35.6
Equinox	9.6	33.3
Robigus	8.1	31.5
Cordiale	5.7	27.2
Istabraq	6.5	35.1
Napier	7.5	27.4
Mean	7.5	31.7
<i>p</i> =	0.390	0.078
<i>SED</i>	1.82	3.53

ADAS Rosemaund 2005



Rank order with increasing take-all severity

	8		18		19		27		32		33	
	Ista	12.18	Ista	9.29	Nap	9.74	Nap	8.83	Nap	8.88	Nap	9.21
	Cor	12.02	Rob	9.29	Ista	9.64	Ista	8.80	Equ	8.49	Equ	9.13
	Equ	11.84	Cor	8.89	Equ	9.61	Rob	8.75	Rob	8.48	Rob	9.13
	Nap	11.69	Nap	8.88	Rob	9.54	Cor	8.62	Cla	8.41	Ista	8.90
	Rob	11.41	Equ	8.27	Cor	9.04	Equ	7.66	Ista	8.39	Cor	8.74
	Cla	10.76	Cla	7.99	Cla	8.88	Cla	7.57	Cor	8.29	Cla	8.50
	p	<0.001		<0.001		<0.001		<0.001		0.08		<0.001

Conclusions

Take-all severity:

- +/- inoculum significant
- No significant resistance
- Variety yields tested against low-moderate severity contrast

Conclusions

Yield:

- +/- inoculum significant but modest
- Single site - variety effects, no interactions
- Cross-site - changes in rank order with severity
- Variety differences not explained by resistance
- Need a bigger 'stretch' of severity

Future

2006 experiments:

- 1st/2nd wheat phased & +/- inoculum
- Split lattice with variety sub-plots
- Two sites, eight replicates

Take-all workshop