



**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine

Winter Cereal Varieties 2019




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10th September 2019

National Crops Forum, Kilshee.

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Overview

Winter Wheat

Winter Barley

Winter Oats

Winter cereal growing season 2018/19



- Early sowing autumn 2018

Mild winter / early spring

May ~ 50% of normal rainfall



Winter Wheat 2019

8 Recommended List Trial sites (3 centres plus 5 on-farm)

20 Varieties in RL

18 newer varieties in NL trials

Control varieties: JB Diego and Bennington

No longer in trial: Avatar, KWS Lilli, KWS Lumos.

4 Disease observation trials – no fungicide

3 Hi Nitrogen lodging trials (HiN) – extra N

Winter Wheat One Year Results 2019



	Mean	BN	KN	MPK	CW	Cork	CKC	Louth	TY
Mean of Controls t/ha (t/ac)	11.82	11.74	10.95	12.03	11.72	10.74	12.38	11.85	13.14
	4.78	4.75	4.43	4.87	4.74	4.35	5.01	4.79	5.32
JB Diego©	98	100	95	99	99	97	100	100	97
Bennington ©	102	100	105	101	101	103	100	100	103
Costello	96	94	97	95	92	96	97	102	96
Torp	103	106	102	103	111	103	102	101	100
KWS Conros	95	96	100	95	100	89	93	99	93
Graham	105	104	107	101	108	102	107	107	104
Password	102	104	102	101	108	97	97	107	100
Celulle	93	99	94	89	95	86	90	97	97
KWS Scimitar	102	104	104	101	101	101	99	110	99
Sowing Date		19/10/18	18/10/18	18/10/18	16/10/18	19/10/18	31/10/18	16/10/18	15/10/18
Previous Crop		Winter Oats	Spring beans	Winter oats	OSR	Maize	Winter wheat	Spring oats	Winter Oats

Winter Wheat One Year Results 2019



	Mean	BN	KN	MK	CW	Cork	CKC	Louth	TY
Mean of Controls t/ha (t/ac)	11.82	11.74	10.95	12.03	11.72	10.74	12.38	11.85	13.14
	4.78	4.75	4.43	4.87	4.74	4.35	5.01	4.79	5.32
LG Skyscraper	103	104	103	99	108	99	107	111	95
SY Insitor	105	105	108	103	107	102	106	108	102
SJ L635	98	99	91	100	94	97	104	107	88
LGWD 14-11155-D	95	96	97	93	94	97	98	89	94
Chevignon	100	99	99	97	109	91	98	104	102
KWS Donovan	102	103	97	104	102	105	104	103	100
Sanremo	96	101	92	98	99	92	97	99	92
NOS 511192.39	91	90	86	92	89	95	89	94	93
LG Stook	98	99	98	99	97	102	98	104	89
KWS W359	96	92	103	96	92	97	94	100	97
Sowing Date		19/10/18	18/10/18	18/10/18	16/10/18	19/10/18	31/10/18	16/10/18	15/10/18
Previous Crop		Winter Oats	Spring beans	Winter oats	OSR	Maize	Winter wheat	Spring oats	Winter Oats



Winter Wheat RL Trial 2017-2019 Relative Yields

Variety	Yr	Seed Avail %	Parentage	Yield		
				2019 <small>100=11.82t/ha</small>	2018 <small>100=9.79t/ha</small>	2017 <small>100=12.3t/ha</small>
JB Diego©	R	10	3851b2 x STRU2374	98	101	100
Bennington©	R	16	Alchemy x Battalion	102	103	103
Costello	R	29	CPBTW151 x CPBT W134	96	100	100
Torp	R	5	Ambition x Symbol	103	100	104
KWS Conros	PR	9	Skalmaje x CPBT W134	95	102	101
Graham	C	23	Premio x Expert	105	105	(106)
Password	C		Hereford x Torp	102	101	(102)
Celulle	C	5	Nogal x Almirante	93	100	(93)
KWS Scimitar	C		Cougar x KWS Rowan	102	101	(103)



Winter Wheat RL Trial 2017-2019 Relative Yields

Variety	Parentage	Yield		
		2019 <small>100=11.82t/ha</small>	2018 <small>100=9.79t/ha</small>	2017 <small>100=12.3t/ha</small>
LG Skyscraper	(Cassius x NAWW29) x KWS Santiago	103	104	
SY Insitor	Hereford x AB111-1011	105	104	
SJ L635	Substance x Tobak	98	103	
LGWD 14-11155-D	Kalahari x NIC06-5211-A	95	(107)	
Chevignon	Chevron x Boisseau	100	(103)	
KWS Donovan	Tobak x Anapolis	102	(104)	
Sanremo	Boisseau x Solehio	96	(102)	
NOS 511192.39	A4096 x Torp	91	(103)	
LG Stook	(Avatar x Inferno) x Cougar	98	(103)	
KWS W359	KWS W213 x Costello	96	(102)	

Speed of development



Fast	Medium	Slow
Cellule	JB Diego	KWS Conros
	Bennington	Costello
	Torp	
	Graham	

Resistance to Septoria

High

- NOS 511192.39
- Torp
- KWS Scimitar
- Password

Med

- Bennington
- SY Insitor
- Graham

Low

- KWS Conros
- Costello
- JB Diego
- LG Skyscraper
- Cellule



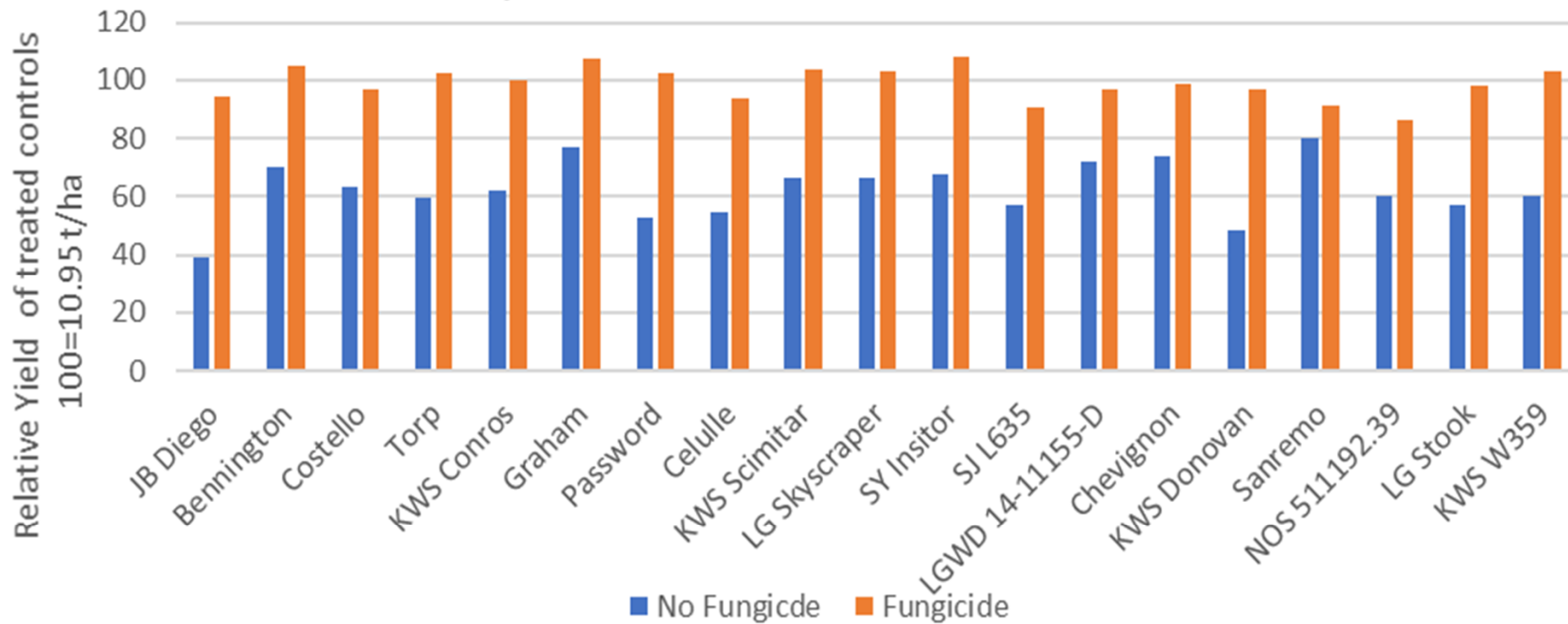


Moorepark No Fungicide 2018-2019

	2018 Relative to treated controls 100= 10.21t/ha	2019 Relative to treated controls 100=12.03t/ha
	MK ONLY HIGH SEPTORIA, + some Mildew	Septoria + some YR
JB Diego	82	76
Bennington	93	96
Costello	80	77
Torp	99	93
KWS Conros	81	86
Graham	93	97
Password	91	93
Celulle	78	67
KWS Scimitar	85	90
LG Skyscraper	81	79
SY Insitor	94	99



Kildalton Untreated Trial vs Fungicide Treated Trial. Septoria > Brown Rust > Yellow Rust



Resistance to Mildew

High

- Costello
- KWS Conros
- Graham
- Bennington

Med

- KWS Scimitar
- JB Diego

Low

- Torp





Yellow Rust 2019

High Pressure season across Europe

Earlier sowing

Mild winter

UKCPVS run by NIAB Inoculate trials to test resistance to Yellow rust

- Seedling stage ~ up to stem extension
- Adult resistance
- Costello identified by UKCPVS as currently resistant at both stages
- CPBT W134 parent of Costello and KWS Conros
- NIAB will publish update in early 2020

Resistance to Yellow Rust

High

- Costello
- KWS Conros

Med

- Graham
- SY Insitor
- LG Skyscraper
- Password
- Cellule

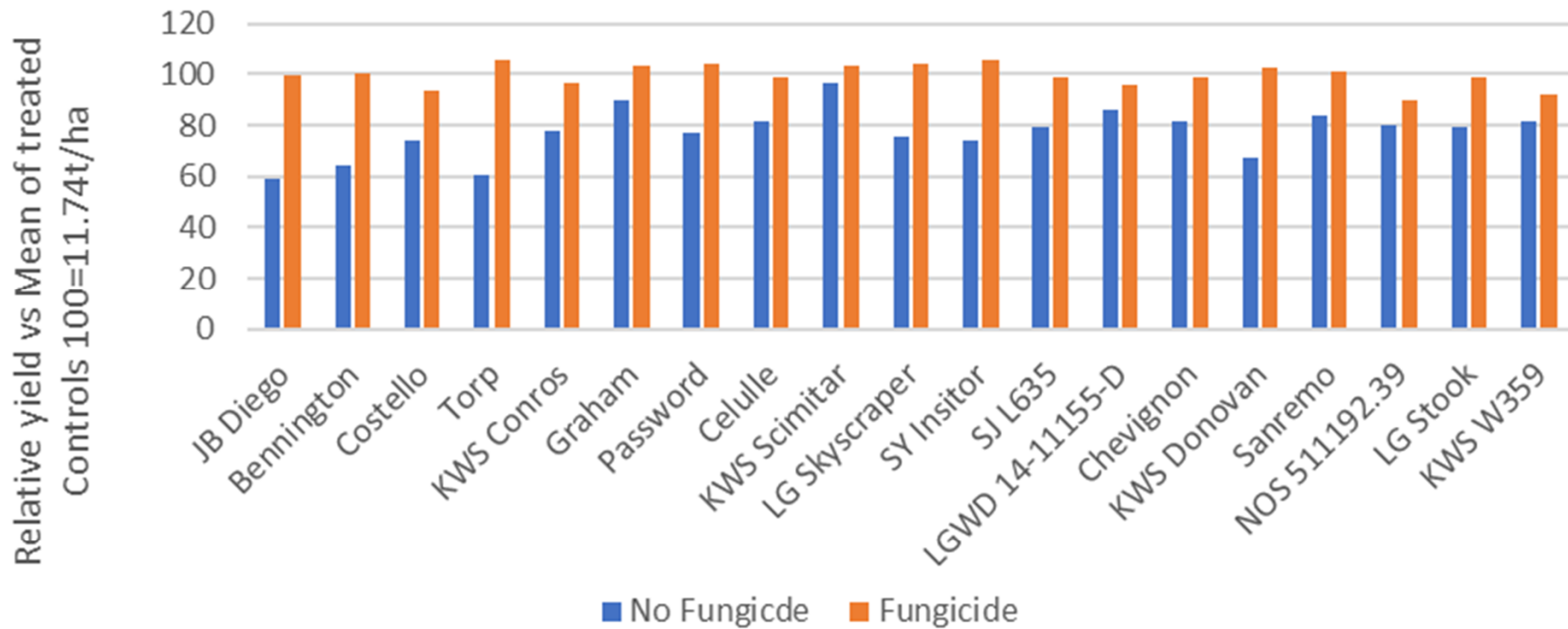
Low

- KWS Scimitar
- Torp
- Bennington
- JB Diego
- Garrus

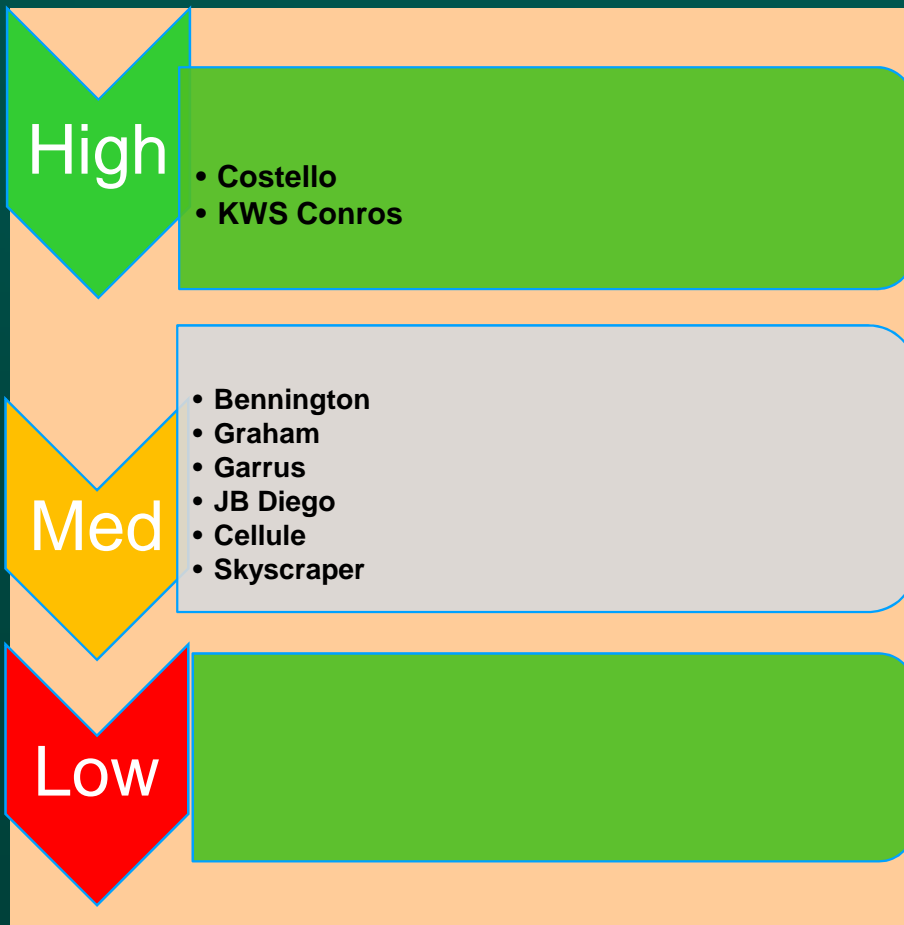




Backweston Fungicide Treated Trial vs Untreated Trial. Yellow Rust > Brown Rust > Septoria



Resistance to Lodging



Cellule vs Costello vs Skyscraper (HiN 18)



Graham (HiN) vs Standard RL Trial



Resistance to Sprouting

High

- Costello
- Cellule
- SJ L635
- KWS Conros

Med

- Graham
- Kws 359
- JB Diego
- Torp

Low

- Sy Insitor
- NOS 511193.39
- LG Skyscraper
- Bennington
- LG Stook
- Chevignon
- Password
- KWS Scimitar
- Garrus



WHEAT KPH 2019 (8 sites)



Costello	78.4
LGWD 14-11155-D	76.7
KWS Donovan	76.6
KWS W359	76.5
Celulle	76.3
KWS Conros	76.1
Chevignon	75.6
Sanremo	75.3
SY Insitor	75.2
JB Diego	75.1
Graham	75.1
Bennington	74.7
LG Stook	74.6
LG Skyscraper	74.3
NOS	
511192.39	73.6
Password	73.5
KWS Scimitar	73.3
Garrus	73.2
SJ L635	73.2
Torp	72.7





Winter Barley 2019

- 7 Recommended List Trial sites (3 centres plus 4 on-farm)

19 Varieties in RL

17 newer varieties in NL trials

Control varieties: KWS Cassia, KWS Tower and Quadra

Four Disease observation trials – no fungicide

Three Ramularia trials – No Bravo

BYDV

Three Hi Nitrogen lodging trials (HiN) – extra N

Winter Barley One Year Results 2019



	Mean	BN	MK	KN	LH	OY	WD	CK
Mean of Controls t/ha (t/ac)	9.48	7.62	10.15	8.92	12.31	9.60	8.73	9.07
	3.84	3.08	4.11	3.61	4.98	3.89	3.53	3.67
KWS Cassia ©	94	89	93	107	95	88	91	93
KWS Tower ©	93	94	101	79	98	100	90	83
Quadra ©	114	117	107	114	107	112	120	123
KWS Infinity	95	86	96	103	98	95	95	94
KWS Kosmos	115	124	108	123	106	117	118	116
Pixel	111	119	97	114	105	114	120	112
Belfry	116	120	109	117	113	117	119	121
Bazooka	114	119	106	117	107	111	117	125
Sowing Date		09/10/18	05/10/18	04/10/18	02/10/18	06/10/18	09/10/18	06/10/18
Previous Crop		W oats	W wheat	W oats	W barley	W barley	W wheat	W barley

Winter Barley One Year Results 2019



	Mean	BN	MK	KN	LH	OY	WD	CK
Mean of Controls t/ha (t/ac)	9.48	7.62	10.15	8.92	12.31	9.60	8.73	9.07
	3.84	3.08	4.11	3.61	4.98	3.89	3.53	3.67
KWS Carneval	95	81	99	98	100	94	93	96
Libra	110	115	108	112	104	109	111	115
KWS Orbit	111	136	104	100	106	113	111	117
LG Casting	102	113	96	101	100	94	108	103
Valerie	100	108	97	105	102	95	101	92
NOS 911.015-60	101	100	102	104	103	91	101	106
Sowing Date		09/10/18	05/10/18	04/10/18	02/10/18	06/10/18	09/10/18	06/10/18
Previous Crop		W oats	W wheat	W oats	W barley	W barley	W wheat	W barley



Winter Barley RL Trial 2017-2019 Relative Yields

Variety	Yr	Ear	Seed %*	Parentage	Yield		
					2019 100=9.48t/ha	2018 100=9.24t/ha	2017 100=9.22t/ha*
KWS Cassia ©	R	2R	24	(Eden x Carat) x Saffron	94	97	97
KWS Tower ©	R	2R	12	Saffron x Retriever	93	100	100
Quadra ©	R	6R (H)		F1 Hybrid	114	104	109
KWS Infinity	R	2R	22	Retriever x KWS Cassia	95	97	102
KWS Kosmos	R	6R	3	G1530/06 x KWS Meridian	115	103	106
Pixel	PR	6R	7	Etincel x (Henriette x Limpid)	111	103	110
Belfry	PR	6R (H)	9	F1 Hybrid	116	107	111
Bazooka	PR	6R (H)	6	F1 Hybrid	114	104	112
©=Control in 2019 *Area of Seed in certification.							



Winter Barley RL Trial 2017-2019 Relative Yields

Variety	Yr	Ear	Seed %*	Parentage	Yield		
					2019 100=9.48t/ha	2018 100=9.24t/ha	2017 100=9.22t/ha
KWS Carneval	C	2R	2	(Florentine x California) x KWS Glacier	95	99	98
Libra	C	6R (H)		F1 Hybrid	110	105	(108)
KWS Orbit	C	6R		(LP 6-826 KWS Meridian) x KWS Tonic	111	105	(108)
LG Casting	C	2R	2	California x NSL07-6654-D	102	101	(103)
Valerie	C	2R	14	207-589 x Sandra	100	101	(100)
NOS 911.015-60	C	2R		Zirene x California	101	99	(99)
C= Candidate		*Area of Seed in certification.					



Winter Barley 2019

- Ramularia :

Scoring difficult vs general spots and blotch

Interaction stress events

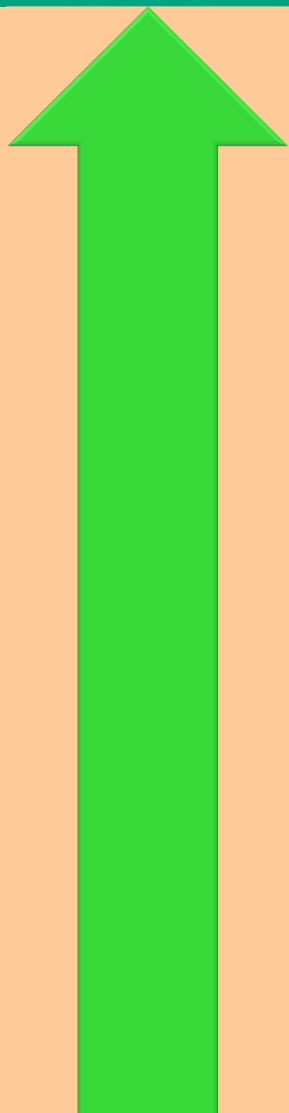
Ramularia trials - Reduced fungicide:

Scores related to maturity on a particular day.
Disease scores no major differences: narrow spread.

2020: No Bravo will be used on our RL trials at Backweston, Kildalton and Moorepark.

BYDV: One BYDV tolerant variety in NL trial this year. 6 row conventional.
Will go forward to Rec List trial.

Ramularia Disease Score Rank- High Best



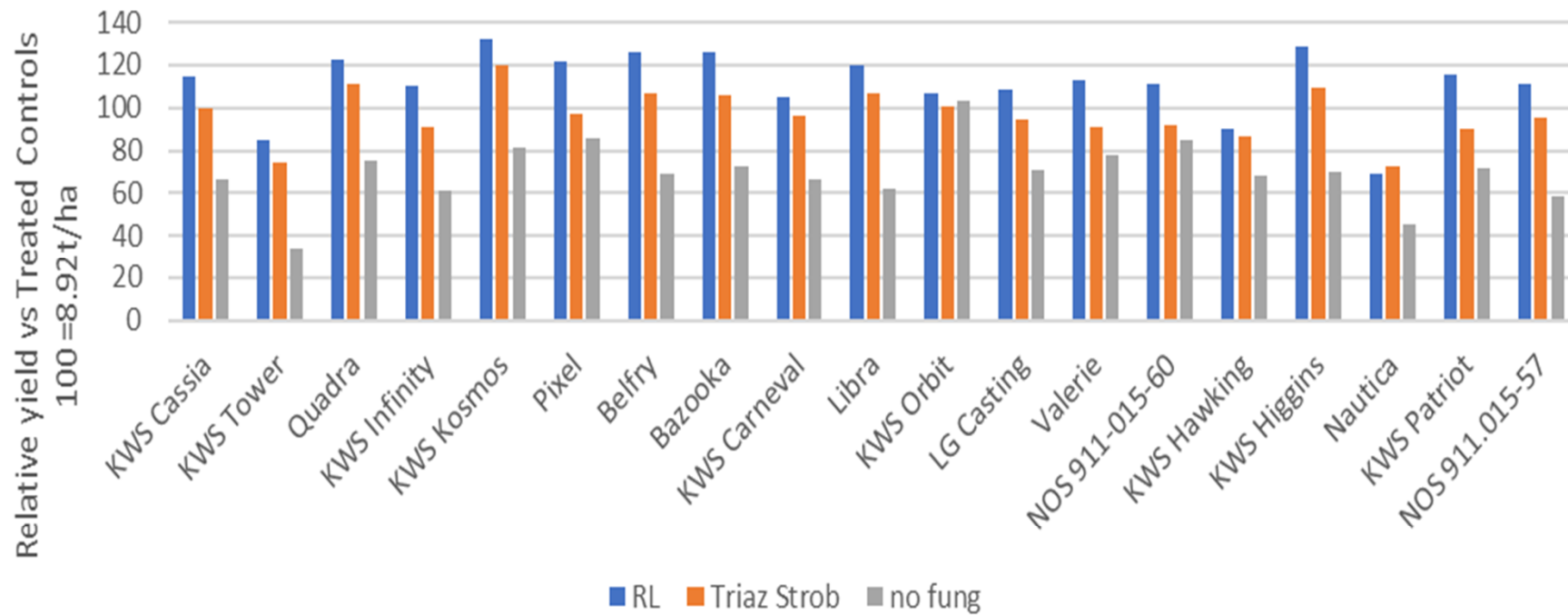
Belfry
NOS911.015-60
KWS Cassia
Bazooka
NOS911.015-57
Quadra
Libra
KWS Higgins
KWS Infinity
LG Casting
KWS Kosmos
Nautica
KWS Tower
KWS Patriot
KWS Carneval
KWS Hawking
Valerie
KWS Orbit
Pixel

- Caution:
- Reliability??
- Narrow spread: 1.5 points on a 1-9
- Disease develops after ear emergence - Early maturing varieties at a disadvantage when assessing on a given day?



Kildalton Full Fungicide Trial vs Reduced Fung Trial vs No Fung Trial

Caution: One site only. Comparing across trials. Straw breakdown



Resistance to Rhynchosporium

High

- NOS911.015-60
- KWS Higgins
- KWS Kosmos
- KWS Carneval
- KWS Hawking
- NOS911.015-57
- Belfry
- Bazooka
- Libra
- KWS Orbit

Med

- Pixel
- KWS Tower
- KWS Infinity
- KWS Carneval

Low

- KWS Cassia



Resistance to Mildew

High

- KWS Orbit
- KWS Kosmos
- KWS Higgins
- LG Casting

Med

- Pixel
- KWS Tower
- Quadra
- Valerie
- Belfry
- Bazooka

Low

- KWS Cassia
- KWS Infinity
- KWS Carnival
- Libra



Resistance to Net Blotch

High

- KWS Cassia
- Quadra
- KWS Infinity
- Bazooka
- Libra
- KWS Orbit
- LG Casting
- Valerie
- KWS Higgins
- KWS Patriot
- NOS911.015-57

Med

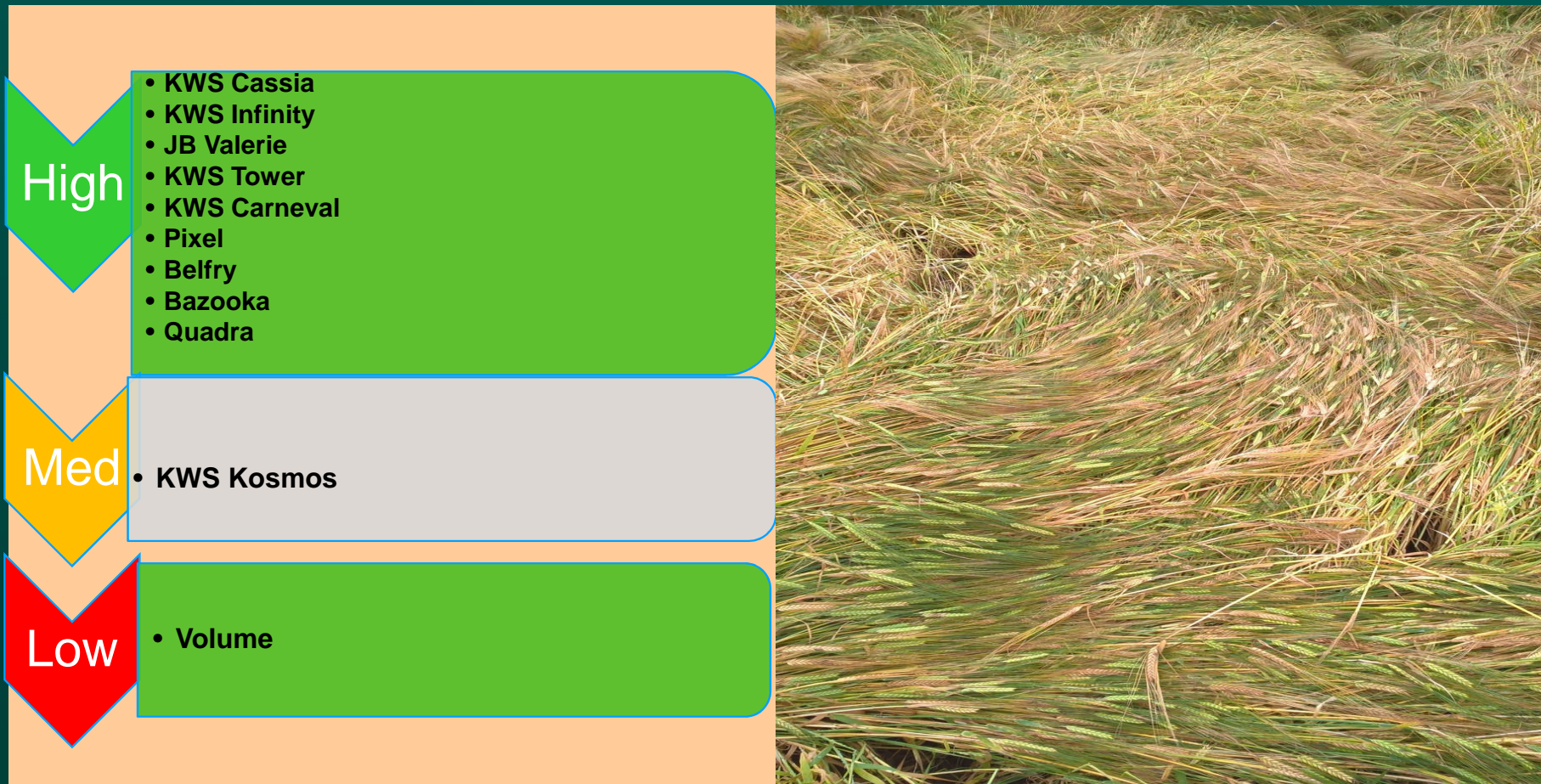
- NOS911.015-60
- KWS Kosmos
- KWS Hawking
- Belfry
- KWS Carneval
- Pixel

Low

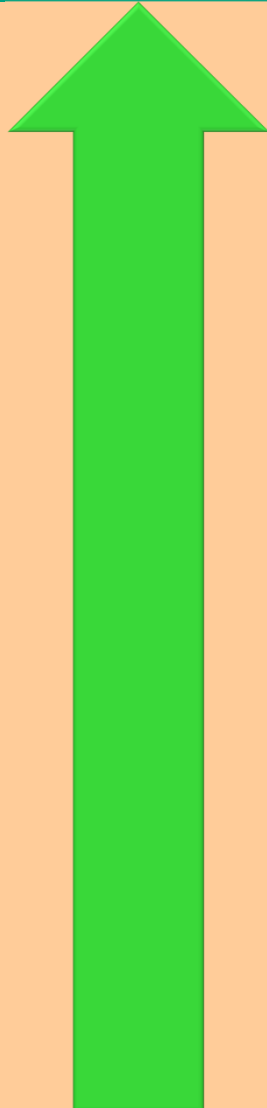
- Nautica
- KWS Tower



Resistance to Lodging



BARLEY KPH 2019 – 7 Sites



KWS Cassia	69.0
Libra	68.6
Valerie	67.9
Bazooka	67.8
Quadra	67.7
KWS Patriot	67.6
Belfry	66.9
NOS911.015-60	66.8
KWS Carneval	66.6
KWS Hawking	66.6
KWS Kosmos	66.5
KWS Higgins	66.1
LG Casting	66.0
NOS911.015-57	65.9
Nautica	65.9
KWS Infinity	65.8
KWS Tower	65.5
Pixel	65.2
KWS Orbit	63.8





Winter Oats 2019

- 5 Recommended / National List Trial sites (3 centres plus 2 on-farm)

12 Varieties in trial

Control varieties: Barra and Husky

3 Disease observation trials (Obs) – no fungicide

3 Hi Nitrogen lodging trials (HiN) – extra N



Winter Oats One Year Results 2019

	Mean	Backweston	Kildalton	Moorepark	Kildare	Offaly
Mean of Controls t/ha (t/ac)	7.85	9.17	7.70	7.10	6.80	8.51
	3.18	3.71	3.12	2.87	2.75	3.44
Barra ©	93	94	94	90	91	94
Husky ©	107	106	106	110	109	106
Keely	106	107	101	111	110	104
Delfin	117	114	103	129	123	116
RGT Southwark	110	106	126	107	107	103
WPB Isabel	107	94	123	110	98	111
Sowing Date		25/10/18	23/10/18	25/10/18	24/10/18	01/11/18
Previous Crop		Spring Barley	Spring barley	Spring wheat	Winter wheat	Winter barley



Winter Oats 2017-2019 Relative Yield

Variety	Spring / Winter	Yr	Seed %	Parentage	Yield		
					19	18	17
Barra ©	S	R	9	Selma x KM1MS	93	95	96
Husky ©	S	R	54	Firth x Freddy	107	105	105
Keely	S	R	2	06/114 x Scorpion	106	103	98
Delfin	S	PR	1	07/107 x Canyon	117	109	111
RGT Southwark	W	PR		(932536 x 24062) x 24082	110	99	95
WPB Isabel	S	C	33	LW 03W038-06 x Husky	107	99	101

RGT Southwark -True Winter variety early April 2018



OATS KPH



WPB Isabel Barra

Husky Keely

Delfin

RGT Southwark



Resistance to Crown Rust

High

- RGT Southwark
- WPB 11W224-11

Med

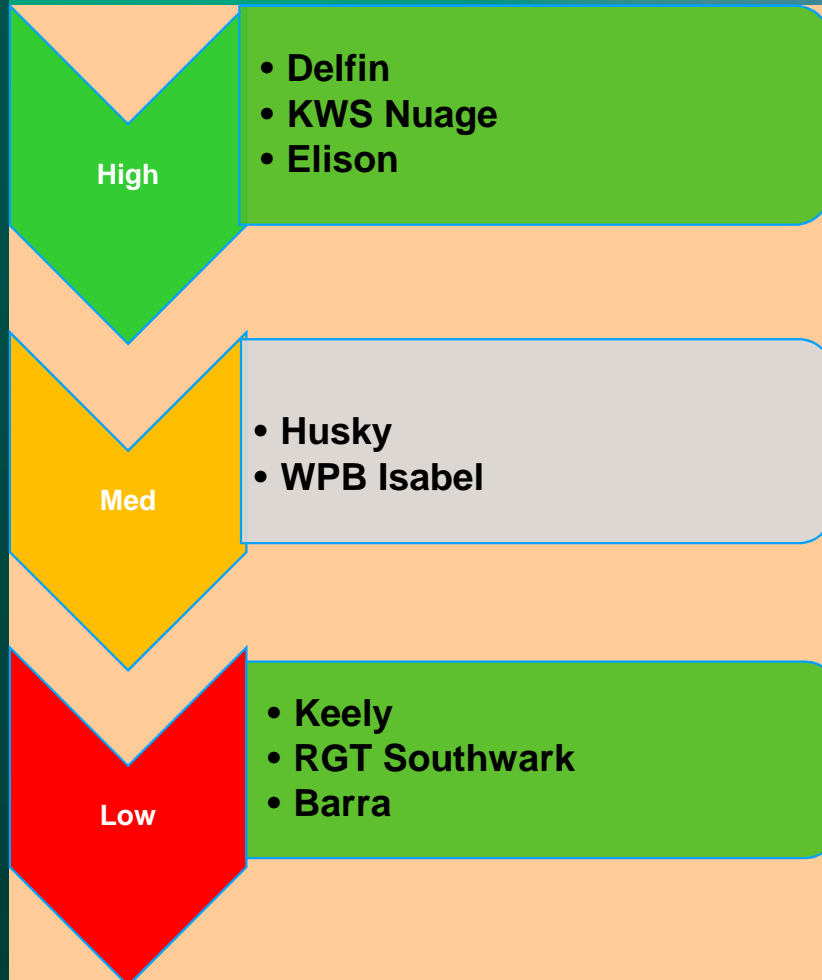
- WPB Isabel
- Keely

Low

- Husky
- Barra
- KWS Nuage
- Delfin
- Elison



Resistance to Mildew



Winter Oat Trial No Fungicide (Backweston 2018 Mildew + late C rust)



	Relative Yield as a % of fungicide treated Controls	Relative Yield as a % of fungicide treated Controls
	2019	2018
Barra	70	70
Husky	96	86
Keely	89	87
Delfin	100	106
RGT Southwark	74	74
WPB Isabel	84	88
Elison	89	96
Albi	90	100
WPB 09W057-01	97	87
KWS Nuage	114	
Mean Treated controls (Barra and Husky)	9.17 t/ha	8.66 t/ha

Winter Oat Trial No Fungicide (Moorepark : Mildew and Crown rust)

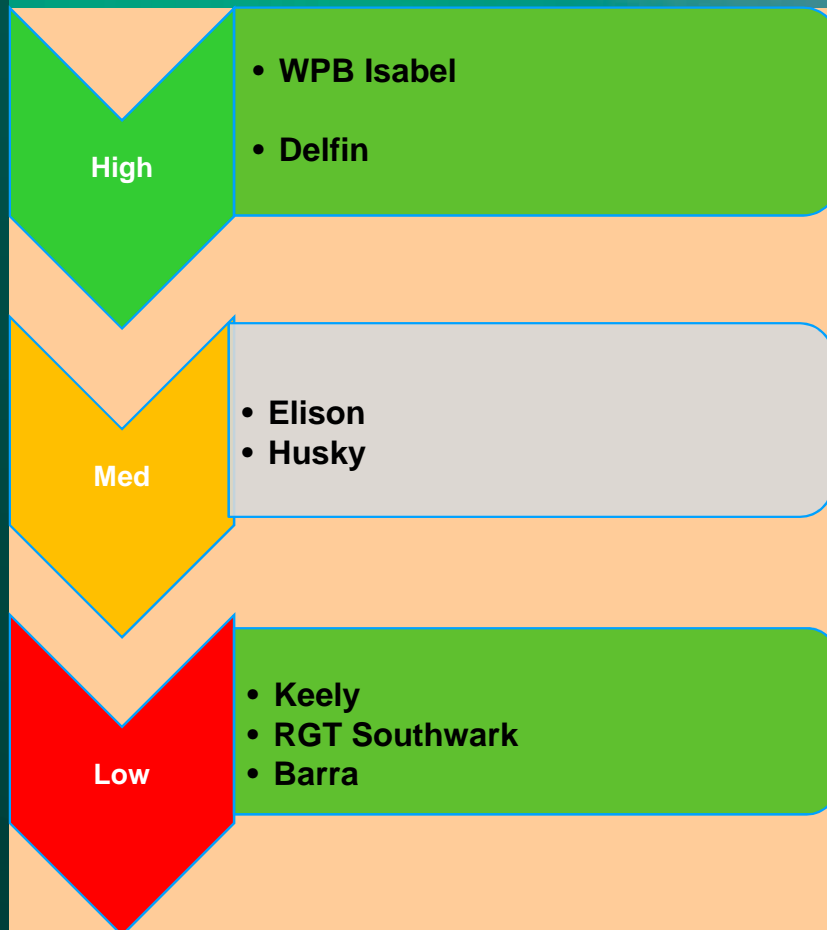


Moorepark 2019 - Mildew and Crown Rust	Relative Yield as a % of fungicide treated Controls
Barra	64
Husky	71
Keely	77
Delfin	58
RGT Southwark	91
WPB Isabel	80
Elison	53
Albi	71
WPB 09W057-01	95
Avenue	48
WPB 11W224-11	98
KWS Nuage	88
Mean treated controls Barra and Husky. 100 =7.1t/ha	100=7.1t/ha

WPB Isabel



Resistance to Lodging



Acknowledgements

- **Colleagues in Crops Policy Evaluation & Certification Division**
- **Seamus Kearney (Moorepark)**
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- **Angela Ryan (Backweston)**
- **Farmers who host our on-farm trials**





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