

Spring Cereal Varieties For 2016

Seamus Kearney

Crops Evaluation and Certification Division

Moorepark



Content

- Spring Barley Trial results.
- Spring Barley 2016 Recommended List.
- Malting Barley variety selection.
- Varieties to look out for.
- Malting Barley Grain Skinning.
- Null Lox.
- Spring Sowing List 16.



Spring Barley Trials 2015

Spring Barley RL trial

- 18 varieties, 7 trial sites
- Control Varieties: **Propino** and **Mickle**.
- Mean yield of controls: 8.9 T/Ha (3.6 t/ac)
4 candidate varieties eligible for 2016 List

Spring Barley NL1 trial (Screening new varieties)

16 Varieties, 5 trial sites

Mean yield of controls: 8.5/Ha (3.4 t/ac)

Spring Barley NL2 trial (Screening new varieties)

15 Varieties, 5 trial sites

Mean yield of controls: 8.5 T/Ha (3.4 t/ac)

63 Varieties (38 UK, 9 D, 9 DK, 4 Fr, 2 NL, 1 AN other)



Department of
**Agriculture,
Food and the Marine**

An Roinn
**Talmhaíochta,
Bia agus Mara**

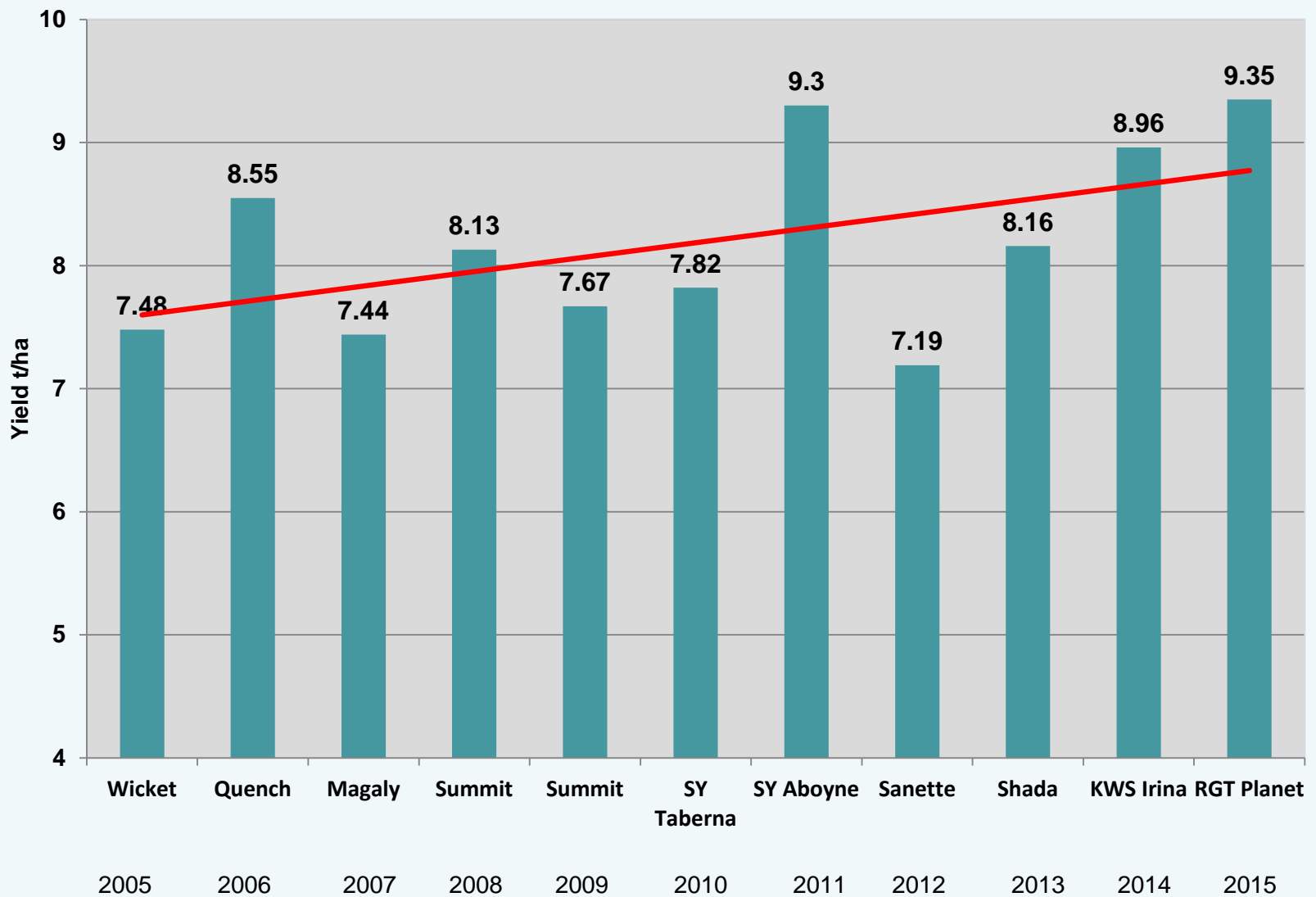
Spring Barley RL 2015 Yield Results

Controls: Propino & Mickle – 8.9 t/ha (3.6t/ac)

Variety	Relative Yield	Variety	Relative Yield
Propino	99	Scholar	101
Mickle	101	Milford	97
Frontier	100	Sienna	101
SY Taberna	98	Olympus	100
KWS Irina	100	Dragoon	103
Sanette	101	SJ123825	99
Soldo*	98	Laureate	104
Shada	101	RGT Planet	105
Paustian	99	KWS Amadora	96

Highest Spring Barley Variety Yield 2005-2015

One Year Results



Variation in trial performance around Harvest 2015

	Backeston	Cork	Kildalton	Laois	Moorepark	Wexford (New Ross)	Wexford (Clohamon)
Mean Yield t/ha	10.2	7.7	7.5	10.4	8.3	9.1	9.1
Yield Relative to Trial mean (8.9t/ha= 100)	115	87	84	117	93	102	102
Weather details:	Dublin Airport	Roches Point	Johnstown Castle	Oakpark	Moorepark	Johnstown Castle	Johnstown Castle
Rainfall (mm): May, June, July, August	273.9	421.3	350.8	281.5	346.3	350.8	350.8
Rainfall as % of average (100= 334.76 mm)	97	150	125	100	123	125	125
Solar Radiation as % of average <small>(100= 203,049 joules/cm²)</small>	101	104	104	99	92	104	104
Temperature as % of average <small>(100= 13.02 degrees C)</small>	97	102	99	101	101	99	99

Spring Barley Recommended list 2016

Recommended List 2015	Eligible Varieties for 2016 RL
Frontier (R)	Scholar
KWS Irina (R)	Milford
Mickle (R)	Sienna
Propino (R)	Olympus
Quench (R)	
Sanette (R)	
SY Taberna (R)	
Paustian (PR)	
Shada (PR)	
Soldo (PR)	

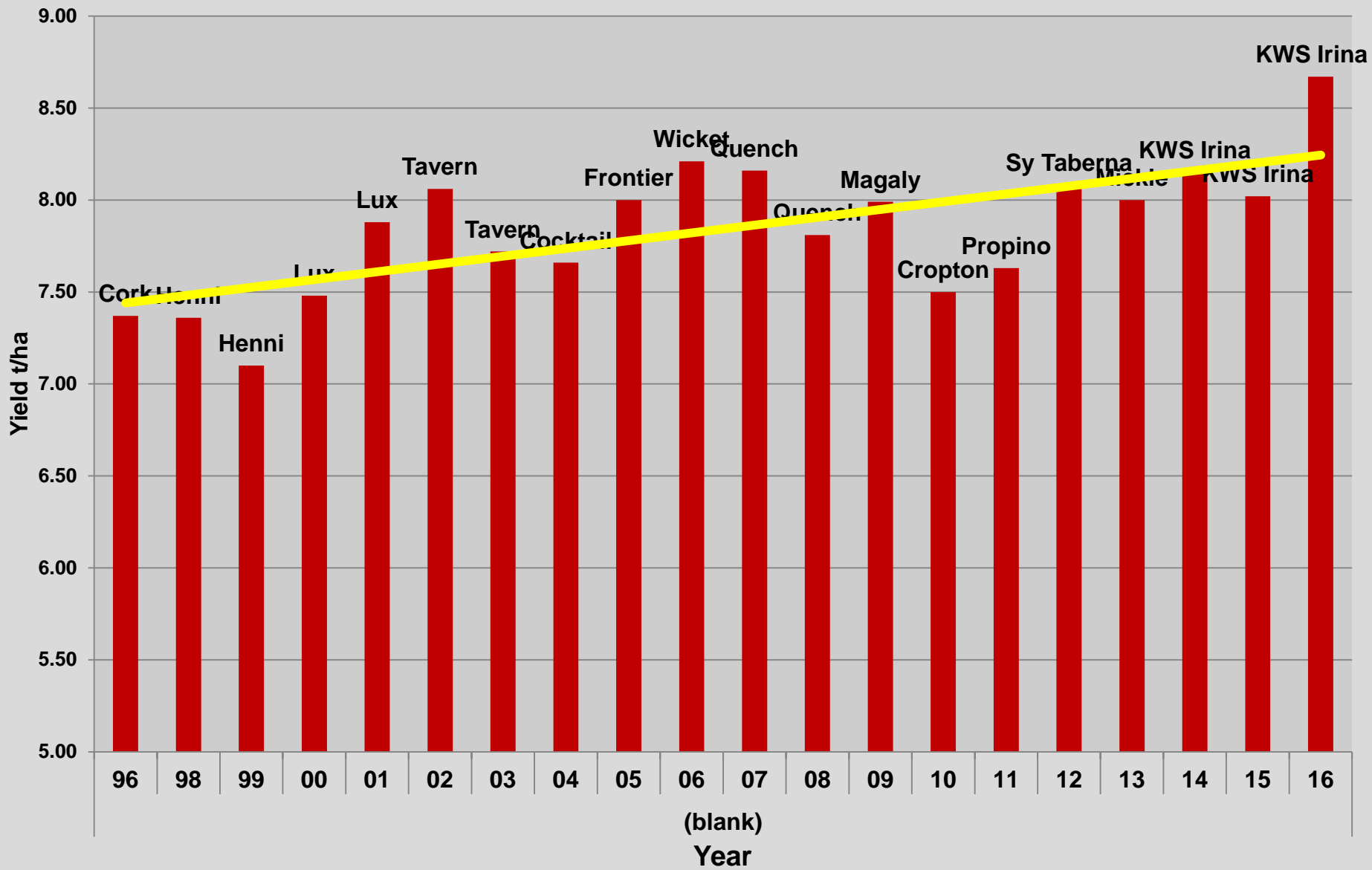
Agronomic & Quality Characteristics 100= 8.5t/ha (3.43t/ac)	2016 Recommended List						Provisionally Recommended	
	Frontier	KWS Irina	Mickle	Propino	Sanette	SY Taberna	Paustian	Soldo
Relative Yield	97	102	101	99	101	99	99	98
Straw Height	62.1	67.5	65.0	75.4	68.0	76.2	70.8	69.3
Reistance to Lodging	5	7	7	5	7	7	6	6*
Straw Breakdown	5	7	6	5	5	5	6	5
Earliness of ripening	7	6	7	6	5	5	5	7

Agronomic & Quality Characteristics	Recommended						Provisionally Recommended	
	Frontier	KWS Irina	Mickle	Propino	Sanette	SY Taberna	Paustian	Soldo*
Mildew	4	8	5	6	8	7	8	8
<i>Rhynco</i>	5	6*	7	6	7	7	7	6
B. Rust	6	6	5	5	5	6	7	7
N. Blotch	7	8	7	5	7	6	6	7
TGW*	50.7	49.9	49.8	52.3	50.4	50.2	50.0	53.3
KPH	66.6	64.3	67.2	66.7	65.9	68.0*	66.7	66.9
Screenings (<2.25mm)	3.3	3.5	2.6	1.7	2.9	2.7	2.7	2.8
Year First Listed	2005	2014	2013	2011	2014	2012	2015	2014

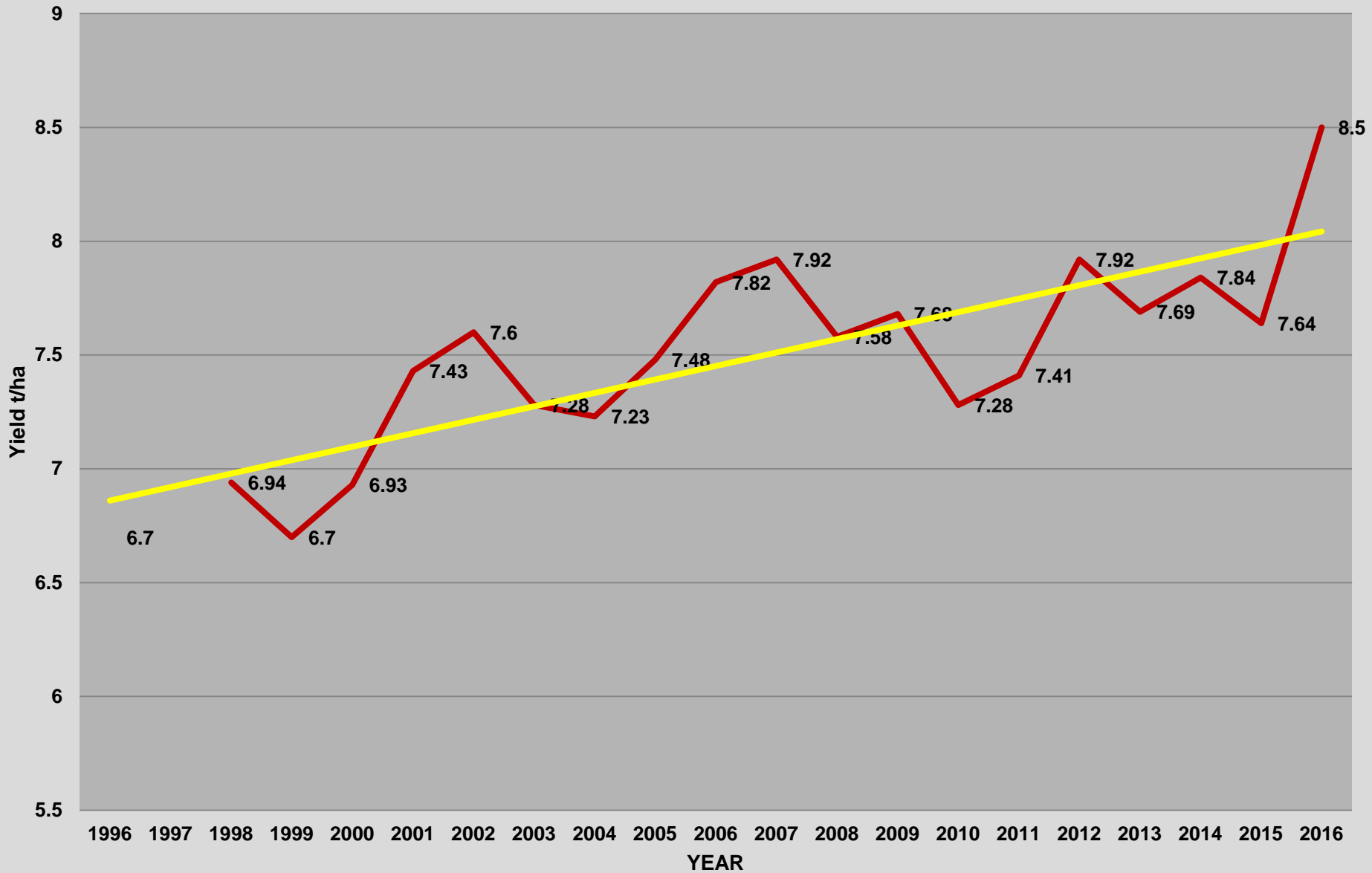
Variety 3 year Trial yields.	RL Status	RL Yield 2016 (C = 8.5 t/ha)	Yield 15 (C= 8.9 t/ha) C = Propino /Mickle	Yield 14 (C= 8.3 t/ha) C = Propino /Quench	Yield 13 (C= 8.0 t/ha) C = Propino /Quench
Propino	R	99	99	101	99
Mickle	R	101	101	100	99
Frontier	R	97	100	100	101
SY Taberna	R	99	98	101	101
KWS Irina	R	102	100	102	100
Sanette	R	101	101	104	100
Soldo	PR	98	98	101	99
Shada*	—	(102)	101	106	102
Paustian	PR	99	99*	103	102

Variety 3 year Trial yields.	<i>Yield had variety entered Recommended List 2016</i>	Yield 15 (C= 8.9 t/ha) C = Propino /Mickle	Yield 14 (C= 7.59 t/ha) C = Frontier /Quench	Yield 13 (C= 7.30 t/ha) C = Frontier /Quench
Scholar	(101)	101	102	102
Milford	(98)	97	103	98
Sienna	(101)	101	104	(101)
Olympus	(101)	100	104	(99)
Dragoon		103	(105)	(96)
SJ123825		99	(106)	(97)
Laureate		104	(104)	
RGT Planet		105	(107)	
KWS Amadora		96	(101)	

Highest Individual Spring Barley Variety Yields on Recommended Lists 1996-2016



Recommended List Control Yields 1996-2016



Spring Barley Malting Trial.

- Trial reinstated in 2011.
- Small scale relative to past (3/4 sites).
- Constantly evolving.
- Useful indicator of older variety performance(Sebastian).
- Varieties that don't make RL or not being continued in RL Trial (Azalea, Overture)
- Sienna/Olympus?
- Retain varieties with strong malt merit.

‘varieties must be as good or better than current standard for RL’.

Malting Variety Selection

- All varieties submitted to DAFM have 'potential'.
- Commercial aim- Multi use varieties.
 - Pan European (Soldo ↓)
- Varieties in RL/NL programme.
- Malting Barley Committee:
Meets 3 times annually (2 main meetings).
- Malting Barley Descriptive List.
- Increase interest in Non GN varieties.

Malting Barley Committee.

- 2015 trial results discussed and analysed in November.
- Some varieties being discontinued (Agent/Breeder/DAFM), others may only continue in trial based on micro malting results.
- Samples list decided from (2 sites) for Micro Malting.
- In Feb. micro malt results discussed.
- Decision taken on merit of varieties and batch brew varieties.
- Ex 2011 harvest- 400t Propino and 400t SY Taberna.
- Ex 2015 harvest- Sienna and Olympus (In progress)
- Ex 2016 harvest?. Depends on Micro results and seed availability.

2015 Micro Malt Results (NL)

Spring Irish Barley National List 1 2015

Variety	E EX2db	MOI	TN dry	E TSnd	E KI	DPWK dry	DU dry	E B-GLUCW	E FAN/12P	FRI	HOM	%	Yield
WEXFORD SB NL1 2015 (WXM NL1 15)													
Propino	85.1	3.6	1.48	0.70	47.2	258	53.0	92	226	93.9	97.8	99	8.91
Gangway	83.6	3.6	1.56	0.62	39.7	276	58.8	138	204	94.7	96.9	100	9.00
Origin	84.2	3.3	1.45	0.62	42.6	260	51.3	181	200	90.0	96.0	100	9.00
NORD13/1107 (Wylander)	83.6	3.4	1.43	0.63	44.4	245	61.0	66	200	98.9	99.7	104	9.36
WPB 08W148 01	81.7	3.5	1.54	0.71	46.1	250	45.1	217	209	88.9	95.3	97	8.73
SY413-372 (Dioptric)	83.4	3.3	1.48	0.71	48.1	269	55.2	158	229	92.1	95.7	101	9.09
SY414-395	83.8	3.4	1.47	0.72	49.0	273	51.2	49	246	98.3	99.5	105	9.45
SY414-396	83.0	3.3	1.48	0.73	49.3	286	48.8	63	242	96.8	98.9	101	9.09
12130MZI	82.7	3.6	1.52	0.62	41.0	175	46.3	112	211	96.6	98.4	101	9.09

Spring Irish Barley National List 2 2015

Variety	E EX2db	MOI	TN dry	E TSnd	E KI	DPWK dry	DU dry	E B-GLUCW	E FAN/12P	FRI	HOM	%	Yield
WEXFORD SB NL2 2015 (WXM NL2 15)													
Propino	84.5	4.4	1.52	0.64	42.0	276	52.4	96	205	95.8	98.8	99	9.21
KWS13-207	83.9	3.5	1.45	0.65	45.1	256	53.0	91	223	95.0	97.6	95	8.84
SY413-345	83.1	3.7	1.51	0.62	40.9	215	48.4	154	190	93.6	96.4	104	9.67
SY414-400	84.1	3.6	1.44	0.60	41.6	265	49.3	162	190	91.9	97.2	105	9.77
SY414-402	84.3	3.5	1.52	0.62	40.2	204	43.8	200	191	87.8	95.0	100	9.30

2014 Micro Malting Results (RL)

Spring Irish Barley Recommended List 2014 (RL)

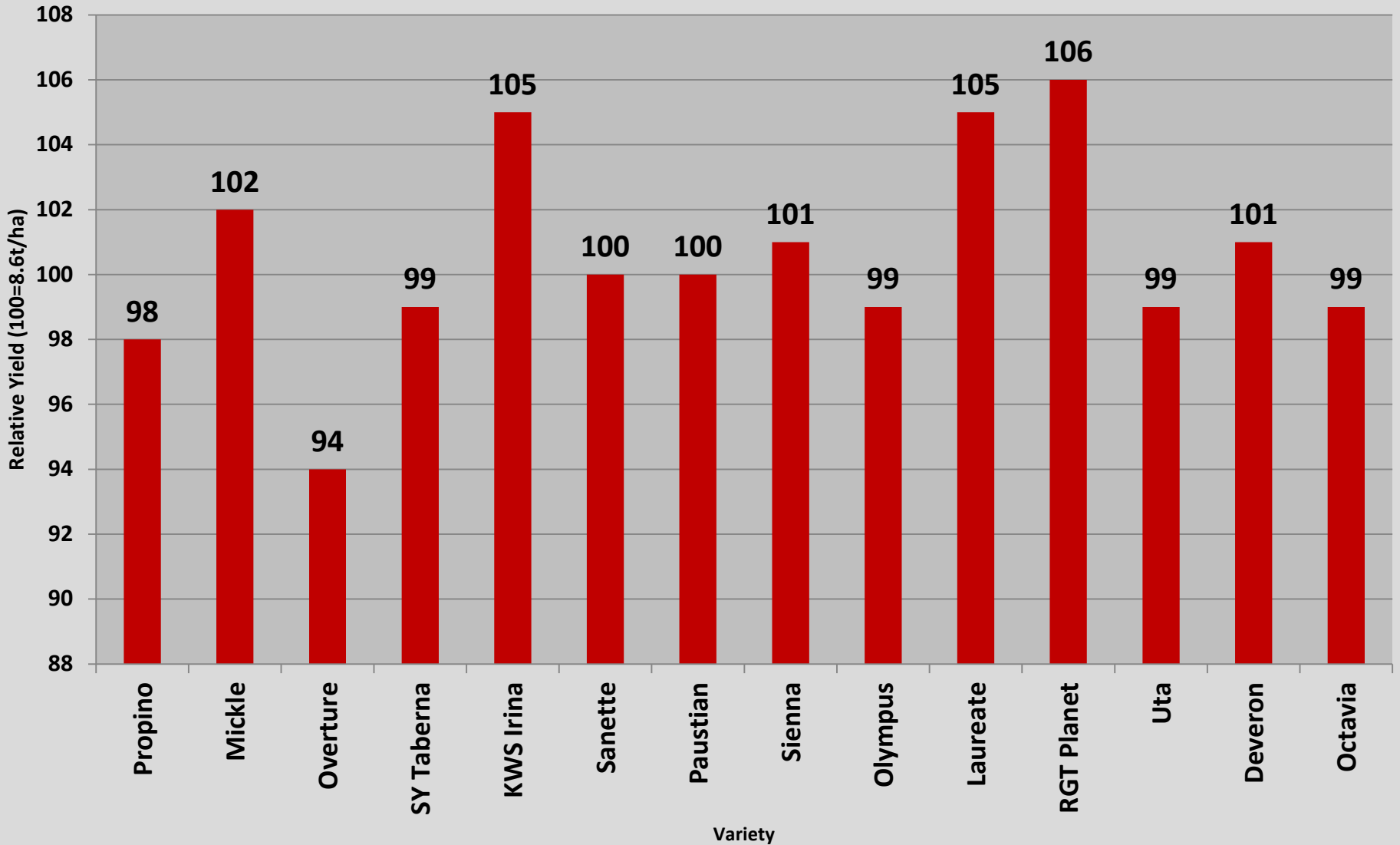
		Variety	I EX2d	MOI	I COL	TP dry	I TSNd	I KI(SNR)	DPWK db	DU db	I B-GLUCW	E FAN/12P	FRI	HOM	I F/UBR	I PSY2ai	Yield	
		WEXFORD															%	
DISTILLING	WEXFORD	PROPINO set 1	83.8	3.9	2.5	8.7	0.51	36.7	307	57.4	115	154	96.2	98.6	87.1	425.0	102	
		Olympus (non-GN)	83.4	3.8	2.7	8.6	0.5	36.2	294	45.5	88	144	96.3	99.3	87.8	427.0	108	
		Sienna (non-GN)	83.5	3.8	2.9	8.4	0.62	46.3	285	47.6	108	159	92.2	98.1	87.8	427.0	107	
		Deveron (non-GN)	82.6	3.6	2.8	8.8	0.50	35.5	247	43.6	124	135	94.3	98.7	87.5	418.0	100	
		SY412-305 (non-GN)	83.2	3.8	2.6	8.6	0.47	34.1	207	40.1	134	141	91.1	98.8	87.6	425.0	100	
			MOOREPARK															%
	MOOREPARK	PROPINO set 2	82.7	4.5	2.7	9.4	0.57	38.0	359	58.4	212	165	87.4	97.8	87.0	416.0	101	
		Olympus (non-GN)	82.1	4.3	2.8	9.1	0.52	35.9	406	50.9	224	160	86.5	96.6	87.4	410.0	104	
		Sienna (non-GN)	83.5	4.4	2.8	8.9	0.58	40.8	376	49.3	266	170	88.6	98.6	87.1	421.0	108	
		Deveron (non-GN)	81.6	4.2	2.9	9.1	0.54	37.0	363	50.7	203	160	84.7	98.6	87.4	414.0	101	
SY412-305 (non-GN)		81.9	4.4	2.7	9.3	0.56	37.8	276	43.8	250	157	86.0	97.9	86.4	410.0	105		
		WEXFORD															%	
BREWING	WEXFORD	PROPINO set 3	86.1	4	2.7	8.2	0.65	49.6	302	62.5	130	191	98.0	99.4				102
		Olympus (non-GN)	84.2	4	2.8	8.6	0.6	44.0	333	55.2	111	190	95.0	98.6				108
		Sienna	84.6	4	2.8	8.4	0.67	50.0	302	54.2	172	197	94.0	98.5				107
		Deveron	83.2	3.7	2.8	8.8	0.6	42.4	270	50.9	176	177	92.0	98.4				100
		SY412-305	84.7	4	2.7	8.6	0.60	43.7	240	46.9	181	175	95.0	99.5				100
		Shada = feed	83.7	4	3.1	8.2	0.52	39.9	240	53.1	134	180	96.0	99.6				101
			MOOREPARK															%
	MOOREPARK	PROPINO set 4	83.8	3.9	2.7	8.9	0.69	48.4	385	69.7	144	211	94.0	99.4				101
		Olympus (non-GN)	83.8	4	2.7	8.8	0.63	45.0	406	56.3	184	204	94.0	98.5				104
		Sienna	85.1	3.7	2.7	9.0	0.68	47.4	363	60.2	258	209	93.0	99.5				108
Deveron		82.4	3.6	2.8	9.9	0.65	41.2	342	57.1	243	199	89.0	99.4				101	
SY412-305		83.5	3.9	2.7	9.2	0.66	44.8	271	52.0	212	215	93.0	99.1				105	

2014 Micro Malting Results (NL)

Spring Irish Barley National List 1 (NL1)

		Variety	I EX2d	MOI	I COL	TP dry	I 75Nd	SNR	DPWK db	DU db	I B-GLUCW	E FAN/12P	FRI	HOM	I F/UBR	I PSY2ai	Yield	
		WEXFORD															%	
DIS	PROPINO set 1	83.8	3.9	2.5	8.7	0.51	36.6	307	57.4	115	154	96.2	98.6	87.1	425.0	99		
	Laureate (SY412-328)	83.9	3.9	2.9	9.2	0.53	36.0	261	57.9	127	158	95.8	99.0	87.9	430.0	103		
BREWING	WEXFORD		Variety	E EX2d	MOI	E COL	TP dry	E 75Nd	E KI	DPWK db	DU db	E B-GLUCW	E FAN/12P	FRI	HOM			%
	WEXFORD															%		
	PROPINO set 3	86.1	4	2.7	8.2	0.65	49.6	302	62.5	130	191	98.0	99.4	99				
	Laureate (SY412-328)	85.2	4.1	3.2	9.3	0.68	45.4	302	66.7	137	220	98.0	99.6	103				
	RGT Planet	85.2	4.1	3.3	8.8	0.64	45.2	302	67.8	126	204	93.0	98.2	102				
	PROPINO set 4	83.8	3.9	2.7	8.9	0.69	48.4	385	69.7	144	211	94.0	99.4	99				
	NORD11-2412 (Uta)	85.2	4.1	3.4	8.6	0.69	50.3	313	75.1	130	224	95.0	99.2	98				
	PROPINO set 5	85	4	2.7	8.5	0.6	44.1	302	63.5	94	207	94.0	98.2	99				
	LW07W093-02	85.6	4	3	8.6	0.74	54.0	281	66.7	78	248	97.0	99.2	98				
	Hacker	84	4	2.6	8.7	0.59	42.6	281	64.6	108	191	95.0	99.4	99				

Malting Trial Result 2015



Malting Barley 2016

- 4 varieties on descriptive list 2016

Propino **98**, SY Taberna **98**, Overture **94**, KWS Irina **102**

- Maltsters intentions for 2016:

- MCI: Propino, Overture, RGT Planet

- Boortmalt: KWS Irina, Propino, Olympus, RGT Planet.

- Sebastian discontinued. SY Taberna? Sienna?

New Malting Varieties for 2016

- Olympus
- Lodging/Node Break
- Ramularia
- KPH – 64.4(2012/Shada?)
- TGW – 48.4
- Scr – 4.1
- Not added to RL 16
- Non GN
- Excellent malting results
- 3 year Yield - 101
- RGT Planet
- Lodging
- No major disease weakness
- KPH – (66)
- TGW – (53.2)
- Scr – (2.1)
- Eligible for RL 17
- Excellent malting results
- 3 year Yield - (105)

Potential Malting Varieties

- Sienna?
 - ❖ Good on disease to date
 - ❖ Tall
 - ❖ Lodging
 - ❖ Excellent KPH – 68.3
 - ❖ TGW – 52.4
 - ❖ Scr – 2.0
 - ❖ Not added to RL 16
 - ❖ Non GN
 - ❖ 3 year Yield - 101
- In trial 2016
 - Laureate
 - Gangway
 - Wylander
 - Dioptric
 - Limona

Node Break- KWS Irina



Mickle



Sienna



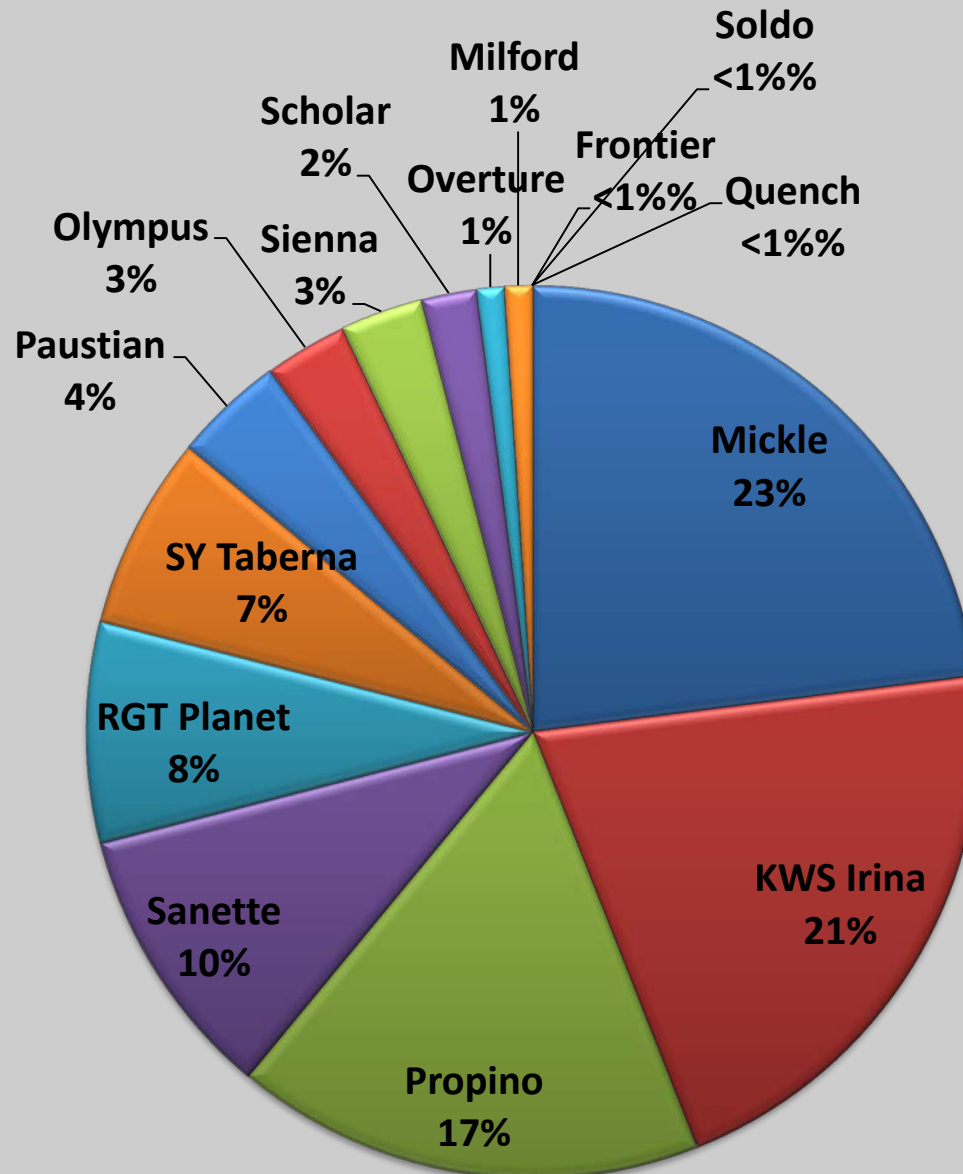
Olympus



Fusarium

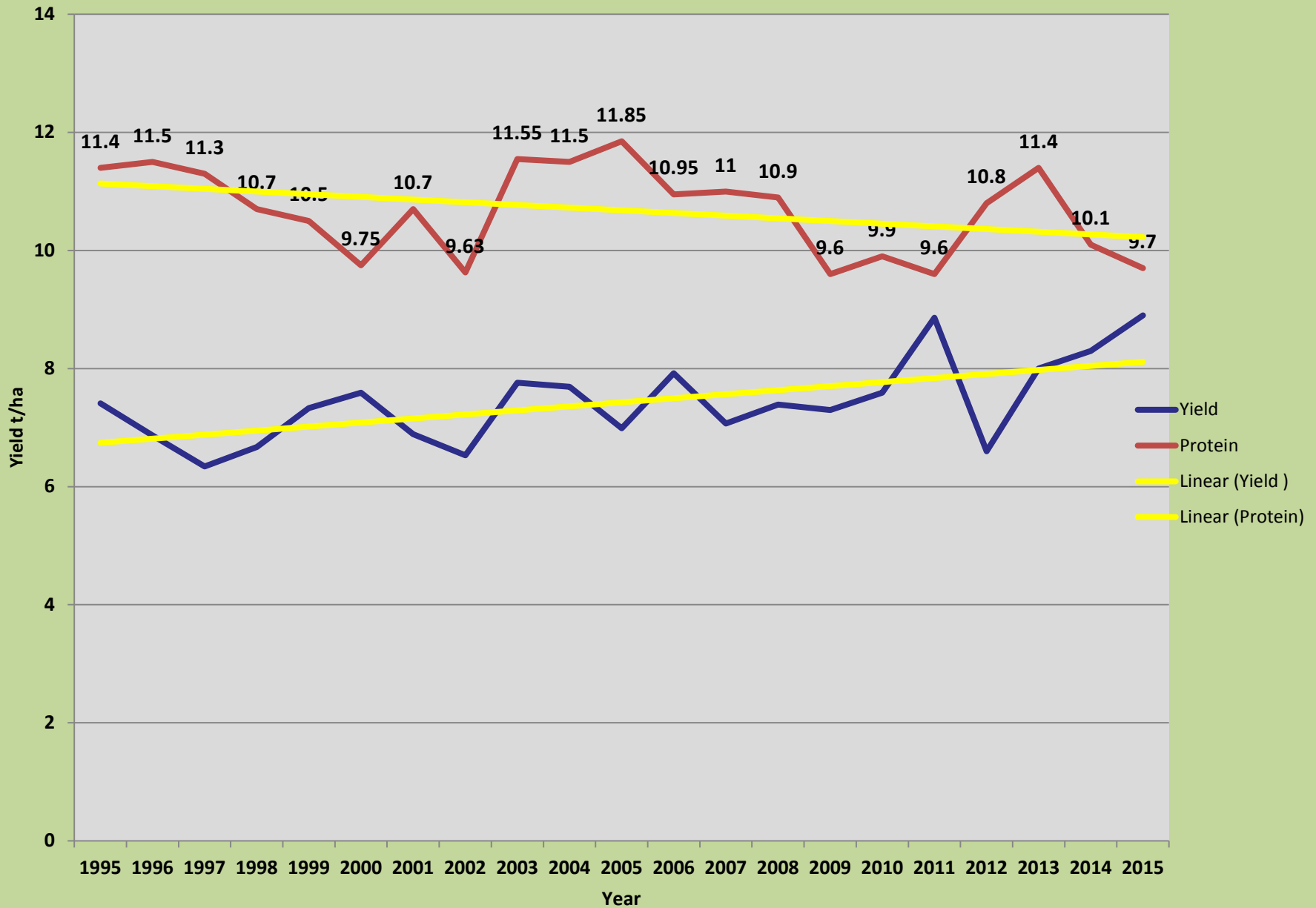


Spring Barley Seed Availability 2016



Spring Barley Protein and Yield Trends 1995-2015

One year Results



Malting V Distilling Trial 2015

Laois 123 unitsN/ac V 98 unitsN/ac

Variety	t/ha	t/ac	Relative yield	Variety	t/ha	t/ac	Relative yield
PROPINO	9.30	3.76	97	PROPINO	8.74	3.54	98
MICKLE	9.83	3.98	103	MICKLE	9.03	3.65	102
OVERTURE	9.50	3.84	99	OVERTURE	8.86	3.58	100
SY TABERNA	9.43	3.82	99	SY TABERNA	8.31	3.36	94
KWS IRINA	9.98	4.04	104	KWS IRINA	9.16	3.71	103
SANETTE	9.71	3.93	101	SANETTE	8.90	3.60	100
PAUSTIAN	9.91	4.01	104	PAUSTIAN	8.91	3.61	100
		100= 9.56t/ha (3.87t/ac)				100= 8.89t/ha (3.60t/ac)	
KPH: 69.5 Protein: 9.2				KPH: 67.6 Protein: 8.3			

Moorepark Malting v HIN Trial 2011

138 units V 177 units	t/ha Increase	% Relative yield	Protein increase %	% Relative Protein
Frontier	0.24	103	0.9	109
Quench	0.00	100	0.9	110
Cocktail	0.47	106	0.8	109
Cropton	0.30	103	1.0	111
Propino	0.30	103	0.8	109
Azalea	0.41	105	1.1	112
Genie	0.68	108	1.0	111
Chronicle	0.57	107	0.8	109
Shuffle	0.18	102	0.6	106
Shandy	0.29	103	0.7	107
Sebastian	-0.05	99	1.0	111
Streif	0.44	105	1.3	114
NFC Tipple	0.16	102	1.0	111
Westminster	1.41	119	0.9	110
	0.39	105	0.9	110

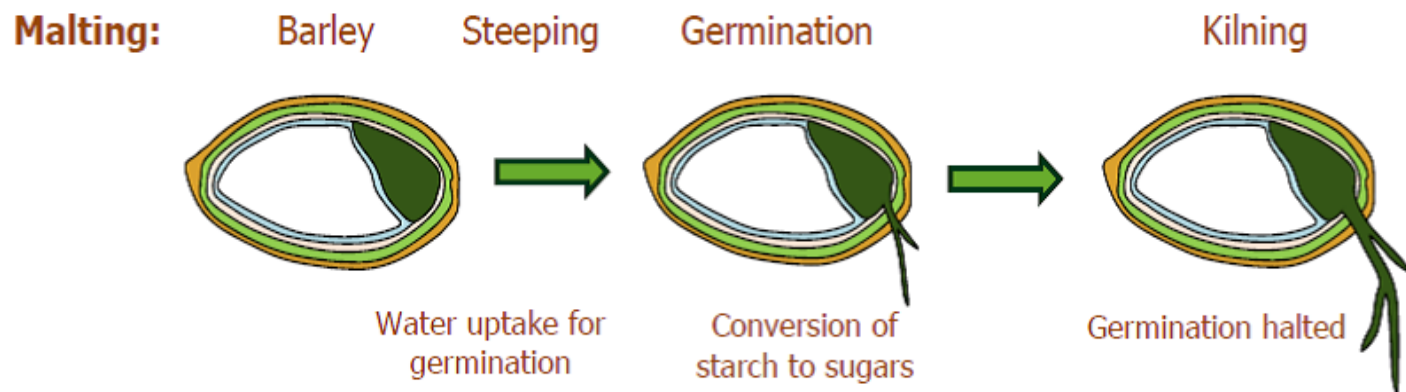
Grain Skinning

- Malting Barley defect
- Husk partially or completely detached (20%)
- Causes variability in germination
- Allows infection in exposed grain
- Affects malt colour – ‘3’ required for Lager
- Varietal effects: Not size related/Scottish survey
- Handling effects
- Agronomy effects

Husk adhesion and malting barley

Adequate husk adhesion is essential for malting

- ensures even germination and efficient malting
- required for wort filtration and “peaty” flavours



Assessing grain skinning

Subjective, poor years (2012 and 2015) have many grains with **loose husks**



Assessing grain skinning

Subjective, poor years (2012 and 2015) have many grains with **loose husks**



Assessing Grain Skinning

<20% Husk loss:



Assessing Grain Skinning

≥20% Husk loss:



Assessing Grain Skinning

$\geq 20\%$ Husk loss:



Assessing Grain Skinning

≥50% Husk loss:



Assessing Grain Skinning

100% Husk loss:



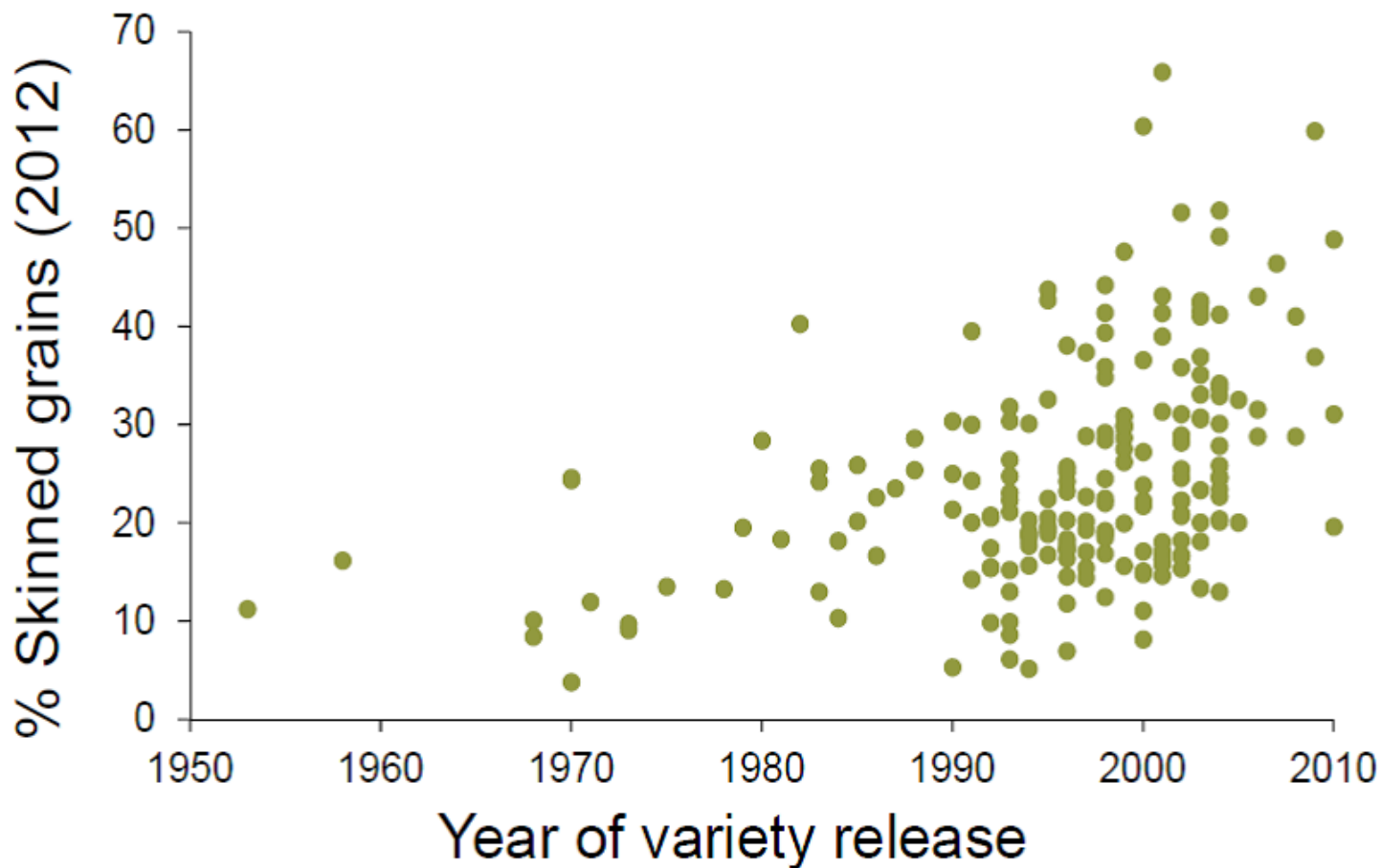
Assessing Grain Skinning

Husk present, but loose:



Variety age vs skinning

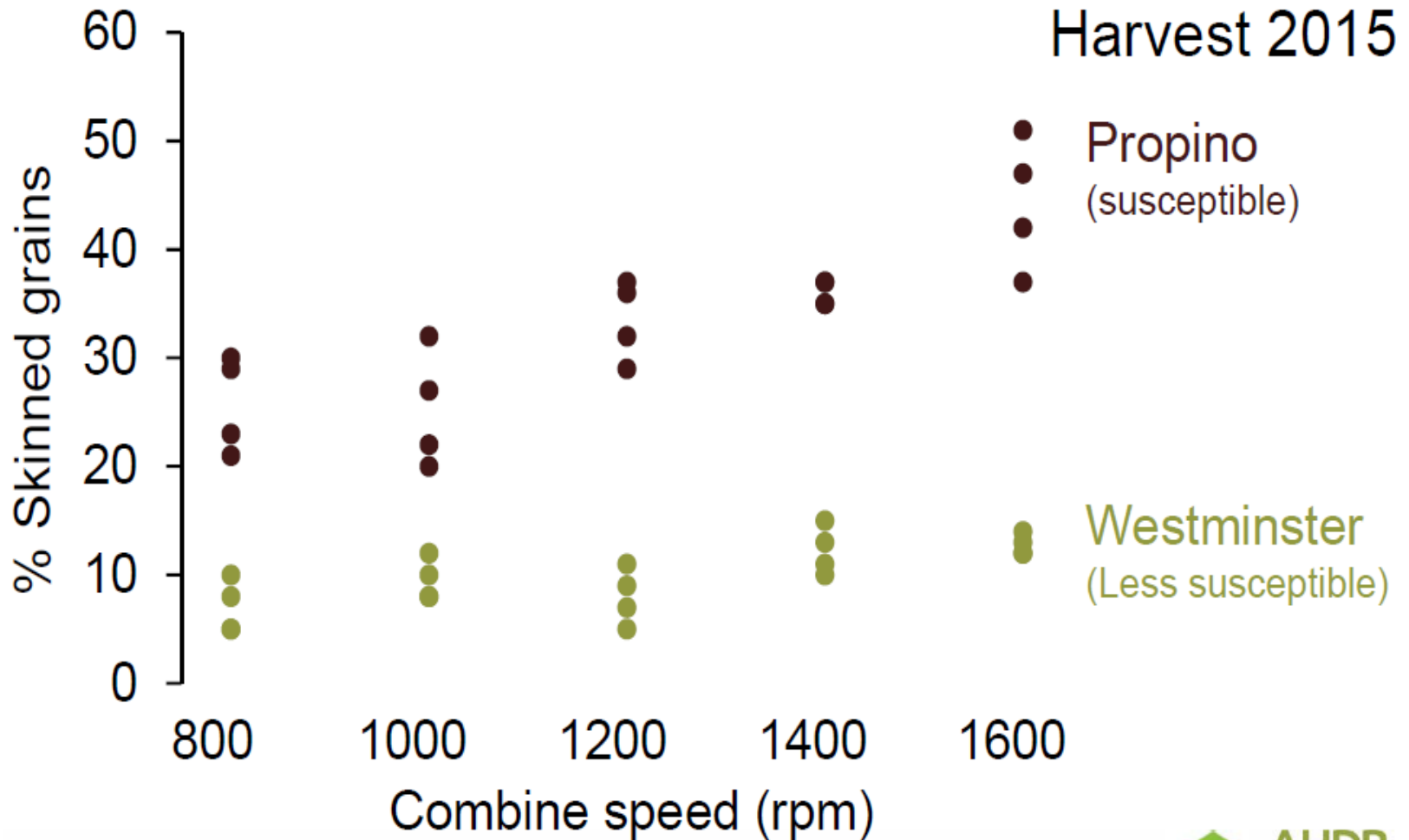
Are we breeding skinning into new varieties?



Source: BBSRC CIRC project, SRUC and JHI

Grain handling:

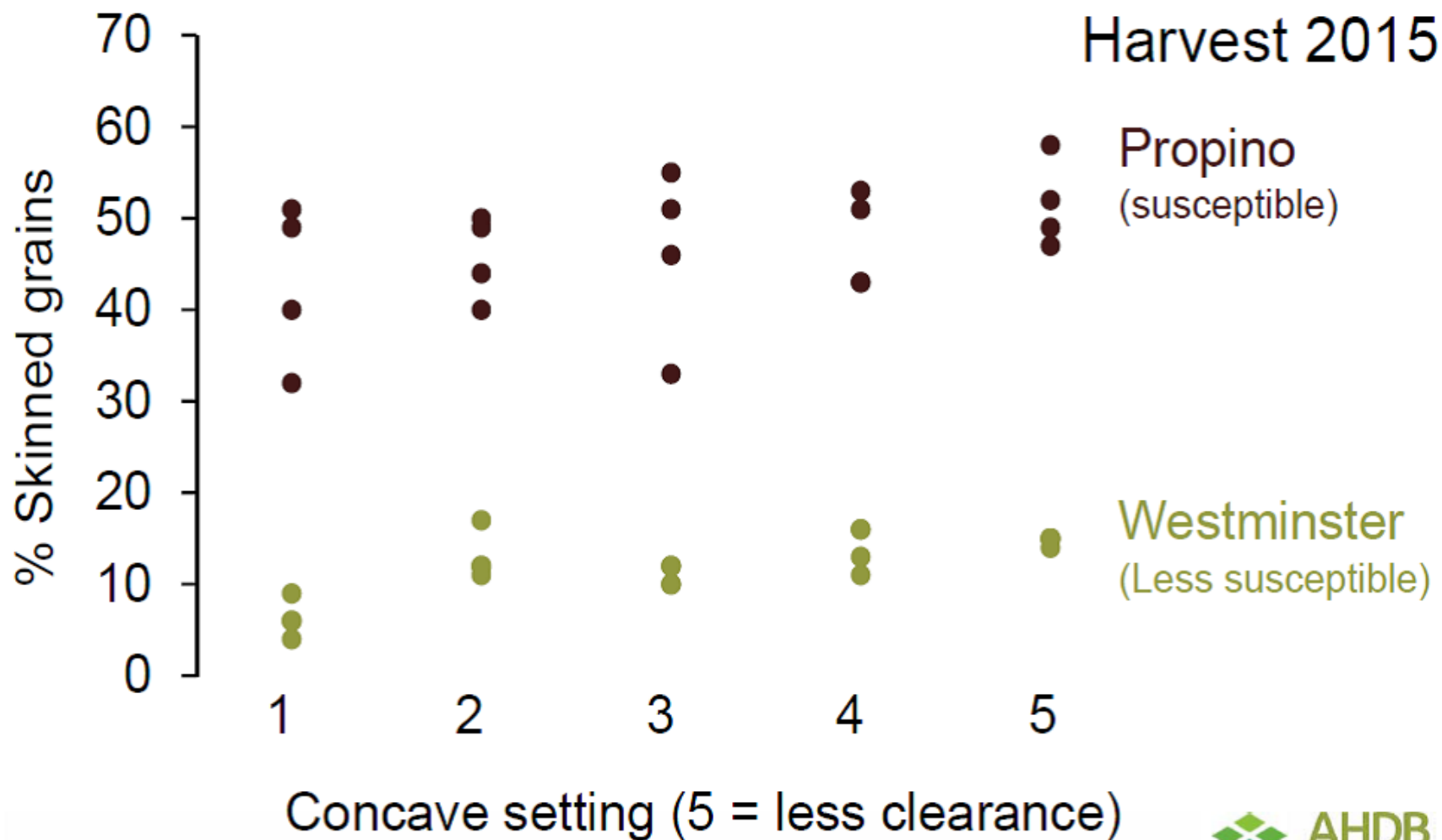
Combine harvester – drum speed



Source: AHDB grain skinning project, SRUC and Scottish Agronomy

Grain handling:

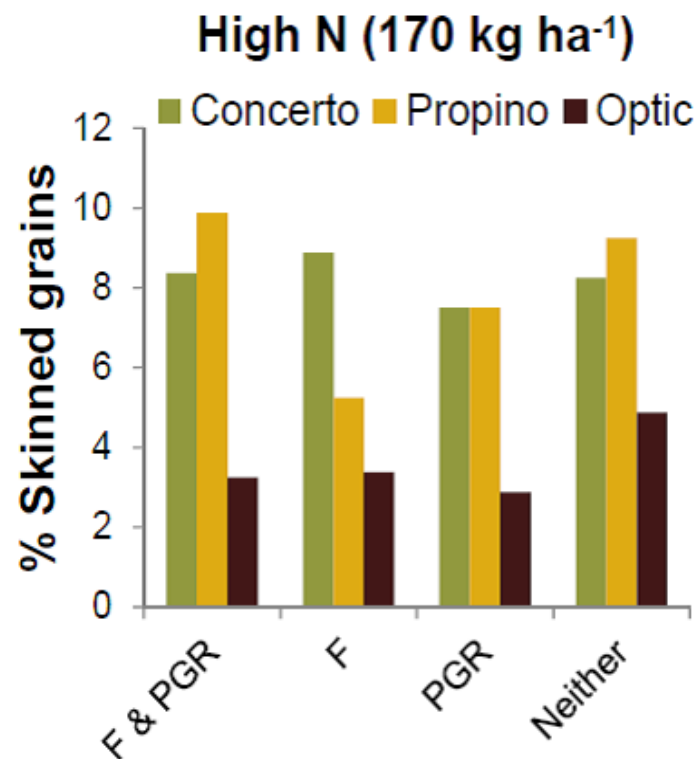
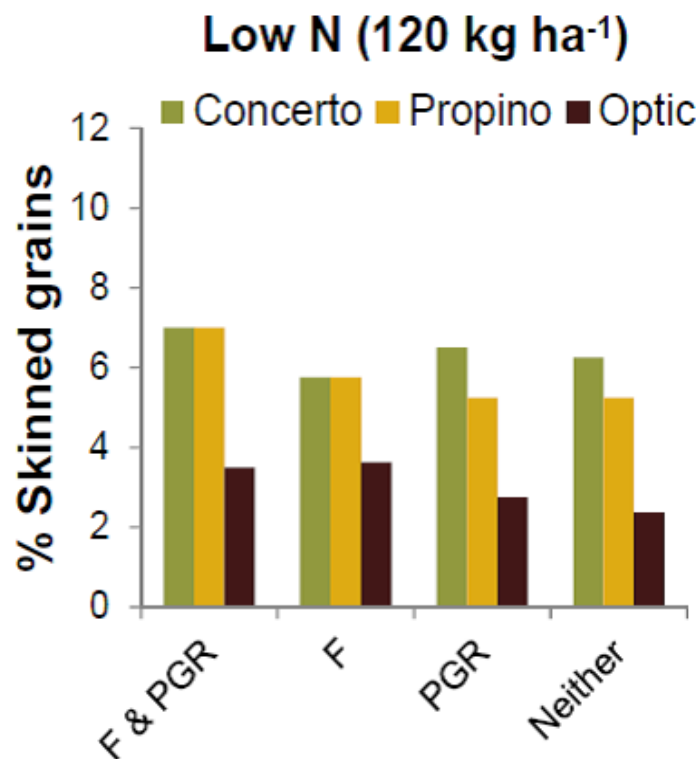
Combine harvester – concave setting



Agronomy

High N application may have increased skinning

No link with fungicide (F) or growth regulator (PGR) use



Grain skinning 2012: 2 scores

Variety	Grain skinning
Frontier	5
Quench	6
Cropton	4
Propino	4
SY Taberna	5
Overture	6
Mickle	5
Shada	7
KWS Irina	7
Soldo	6
Sanette	5



Department of
Agriculture,
Food and the
Marine

An Roinn
Talmhaíochta,
Bia agus Mara

Null Lox varieties

- Developed by Carlsberg Group Research, Denmark since 2001
- Conventionally bred- breed out 'LOX-1 enzyme'.
- 'Staling enzyme' - accelerates staling process.
- Improved flavour, stability and uniformity.
- Fresher for longer (shelf life?), better head retention.
- Cha Cha, Cherrio, Charmay
- First variety in NL2, 2016 - Chanson

Provisional RL Trial Sowing List 2016

	Variety	Yr	Agt	Breeder/ Country	Breeders Reference	Parentage	YIELD		
							16	15	14
1	Propino	R	ST	Syngenta UK	SY406-119	[Quench X NFC Tipple]		99	99
2	Mickle	R	ST	Syngenta UK	SY409-207	[Propino X Snakebite]		101	104
3	KWS Irina	R	ST	KWS D	KWS09-320	[Conchita X Quench]		100	108
4	SANETTE	R	ST	Syngenta UK	SY409-226	[Sumit X Yard]		101	104
5	Paustian	PR	GC	Sejet DK	SJ111609	[Zeppelin X Propino]		99	103
6	Laureate	2	ST	Syngenta UK	SY412-328	[Sanette X Concerto]		104	(104)
7	RGT Planet	2	GC	RAGT	LSB0769.3306	[Tamtam X Concerto]		105	(107)
8	Hacker	1	GC	Secobra	SC 85677	[Quench X Belgravia]		(102)	(101)
9	Gangway	1	GC	Sejet	SJ 136089	[Zeppelin x (Natasia x Kathinka)]		(104)	(103)
10	Wylander	1	GC	Nordsaat	NORD13/1107	[CPBT B85 x Marthe X Propino]		(103)	(102)

11	Dioptric	1	ST	Syngenta	SY 413372	[Scholar X Overture]		(102)	
12	SY 414-396	1	ST	Syngenta	SY 414396	[KWS Aurelia X Shaloo]		(101)	
13	Limona	1	G	Bruen D	12130MZ1	[(Concerto x Milford) X Quench]		(101)	
14	SJ 148178	1	GC	Sejet	SJ 148178	[Sanette x Odyssey]		(101)	
15	Flair	1	GC	Sejet	SJ148124	[(Tamtam x Overture) X Dacapo]		(97)	
16	SY 415-544	1	ST	Syngenta, UK	SY 415544				
17	SY 414-433	1	ST	Syngenta, UK	SY 414433				
18	SJ148536	1	GC	SEJET	SJ148536				

Winter Crops - The story so far...



- Spring Cereal Lists are available to download on DAFM website under Publications

www.agriculture.gov.ie