

RETAIL FRESH SECTOR

VARIETY DESCRIPTION



Patrick MASSAT

Product Manager Retail Fresh

2018-2019

CONFIDENTIAL



HZA 05-112

I EARLY BAKER



Traditional



Retail fresh



HZA 05-112

I EARLY BAKER

JANINE x CARRERA



Traditional



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About HZA 05-112 (MARISOL)

AGRONOMIC CHARACTERISTICS

MATURITY	77 – Early (90 Days)
YIELD MATURE	High
TUBER SIZE	Large
TUBER SHAPE	Oval
NUMBER of TUBER per PLANT	11 Tubers per plant
SKIN COLOUR	Yellow
DORMANCY PERIOD	51 - Medium
COOKING TYPE	AB – Firm (21)
TXT Disintegration :	76 N/100g
TXT Bite :	58 J/100g
INTERNAL BRUISING	16 - Sensitive
DRY MATTER CONTENT	17,6 %
FLESH AFTER COOKING	Light Yellow
FRYING QUALITY	54
REDUCING SUGARS (mg/100mg)	534 mg/100g
EMERGENCE	Normal

RESISTANCE PACKAGE

FOLIAGE BLIGHT	38 - Susceptible
TUBER BLIGHT	64 - Slightly susceptible
COMMON SCAB	71 - Resistant
POWDERY SCAB	64 - Slightly susceptible
PVYN	16 - Susceptible
YNTN TUBER TOLERANCE	99 - Tolerant

PCN RESISTANCE	Type	Ro1	Ro2/3	Pa2	Pa3
	Value	9	6	-	-
WART DISEASE	Fysio	F1	F2	F6	F18
	Value	-	1	1	1



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VARIETY	STADIUM	GENITORS		PRODUCT PROFILE CODE1	PRODUCT PROFILE	VARIETY DESCRIPTION																	COOKING QUALITY										FRYING QUALITY						
		MOTHER	FATHER			MATURITY	DORMANCY PERIOD	RELATIVE YIELD	YIELD/M2	DRY MATTER CONTENT (%)	EARLY BULKING (AUDPC Size > 45mm)	TUBERS PER PLANT	TUBER SIZE	SIZE DISTRIBUTION	SHAPE	SHAPE UNIFORMITY	FLESH COLOUR	SKIN COLOUR	BRIGHTNESS SKIN COLOUR	SMOOTHNESS SKIN	OVERALL IMPRESSION	TOTAL REDUCING SUGARS mg/100g	% REDUCING SUGARS	TOTAL SUGARS mg/100g	COOKING TYPE	FLESH COLOUR AFTER COOKING	AFTER COOKING DARKENING	BLACKSPOT BRUISING	BLACKSPOT BRUISING INDEXED	ENZYMATIC BROWNING	TEXTURE BITE(N/100g)	DESINTEGRATION(I/100g)	TASTE	DM RAW	DM COOKED	DELTA DM RAW VS. COOKED	UNDERWATERWEIGHT	GREY DISCOLORATION AFTER PREFRY (8°C)	END FRY COLOR (8°C)
ADORA	1	PRIMURA	ALCMARIA	863	Early baker	82	65	86	52	18.3	34	9	83	70	O	66	LY	Y	72	66	61	484	81	594	17	57	70	10	8	62	65	84	6	18.2	18.7	5	332	68	55
CARLITA	1	JAERLA	PROVITA	863	Early baker	75	65	101	62	18.0	44	7	87	73	ROO	67	LY	Y	68	63	62	566	78	725	18	67	70	7	5	69	71	92		18.2	18.5	3	326	69	55
COLOMBA	1	CARRERA	AGATA	862	Early lux	80	38	104	63	16.8	38	12	82	69	ROO	70	LY	Y	76	72	68	739	79	933	18	67	72	5	4	61	46	57	6	16.3	16.3	0	301	69	47
PRIMABELLE	1	CARRERA	AGATA	862	Early lux	83	50	100	57	16.7	27	13	82	68	O	69	LY	Y	81	77	66	567	70	815	13	69	71	3	2	51	50	65	6	17.0	17.3	3	299	68	44
HZA 05- 112	91	JANINE	CARRERA	863	Early baker	77	51	108	66	19.1	27	11	83	68	O	68	LY	Y	76	73	66	428	79	545	21	65	72	19	16	59	58	76	6	20.0	19.4	-6	347	71	54

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VARIETY	STADIUM	GENITORS		PRODUCT PROFILE_CODE1	PRODUCT PROFILE	PHYSIOLOGICAL DISORDERS			FUNGI & OOMYCETES					B.	PHOMA	VIRUSES					NEMATODES			METRIBUZIN TOLERANCE				
		MOTHER	FATHER			PRODUCT PROFILE_CODE1	PRODUCT PROFILE	LITTLE POTATO DISORDER	SPEED OF GREENING	INTERNAL DEFECTS	EARLY BLIGHT (Alternaria solani)	LATE BLIGHT TUBER (LAB - BLUE 13)	LATE BLIGHT FOLIAGE (BLUE 13)			POWDERY SCAB	SILVER SCURF	DRY ROT (F. sambucinum (sulphureum))	COMMON SCAB	VIRUS YN VISIBILITY	POTATO VIRUS Y TOTAL	PVYNTN : Potato Virus Y (necrotic strains responsible of tuber necrotic) (PTNRD)	PMTV (Potato MOP TOP Virus)		TRV : Tobacco Rattle tobravirus (SPRAING)	RO1	RO2	RO4
ADORA	1	PRIMURA	ALCMARIA	863	Early baker	70	56	84	52	66	35	53	45	65	46	56	67	16	88		95	9	1	9	1			
CARLITA	1	JAERLA	PROVITA	863	Early baker	45	51	78	55	61	55	54	40	64	60	45	63	10	84		89	9	8	7	1			68
COLOMBA	1	CARRERA	AGATA	862	Early lux	34	62	86	63	40	38	64	46	29	69	69	60	20	99	66	87	9	6	9	8			45
PRIMABELLE	1	CARRERA	AGATA	862	Early lux	50	59	85	90	53	24	59	41	37	65	73	71	22	99	68	93	9	9	9	9			
HZA 05- 112	91	JANINE	CARRERA	863	Early baker	70	58	79	50	64	38	64	36	44	71	97	66	16	99	60	77	9	4	9				50

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BREEDING FIELDS/TRIALS, ITALY / July 2018

ITABOL 6 2018; HZA 05-112 ; Stage: 91



ITASCA 6 2018; HZA 05-112 ; Stage: 91



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DEMO FIELD, Napoli Area, ITALY / May 2018



 **HZPC**
Growing with our potatoes

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DEMO FIELD, PORTUGAL / July 2017



Remarks :

- High pressure on Rhizoctonia : the infection on the HZA 05-112 was slightly high. Nevertheless FORTUS was also quite impacted.

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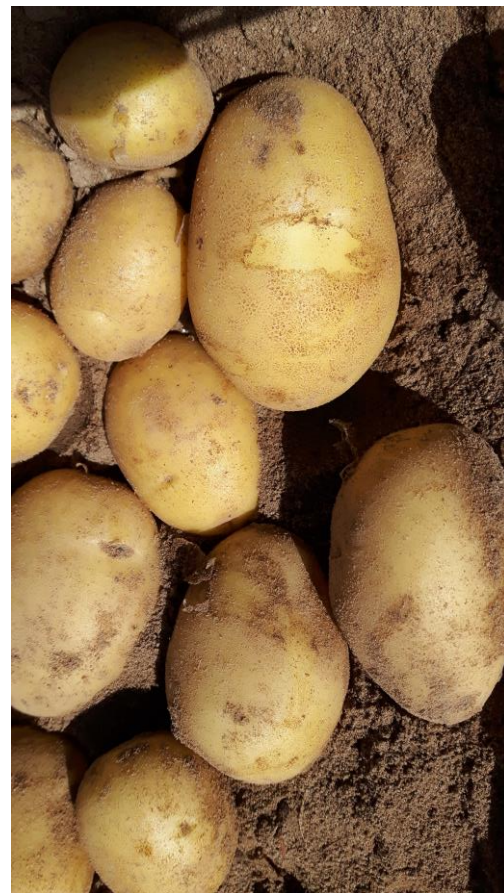


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DEMO FIELD, PORTUGAL / May 2018



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About HZA 05-112

Key benefits

- ✓ **Early bulking variety**
- ✓ Very good resistance to Common scab (71)
- ✓ **Robust variety** with great resistant to stressful conditions
Good frost resistance
- ✓ **Suitable for the Early market** asking for less washability and for which skin off is not an issue.

Attention points

- ✓ **Skin quality :**
 - when the tubers stay too long in the soil, the skin quality can go down.
 - Browning on the skin is quite fast after harvesting as ADORA
- ✓ Sensitive to bruising (16)
- ✓ Sensitive to Alternaria
- ✓ Shape can be not always regular and uniform. But better than ADORA
- ✓ The skin set seems to be not very fast



HZA 05-112
washed 36 hours
after harvesting



HZA 05-112

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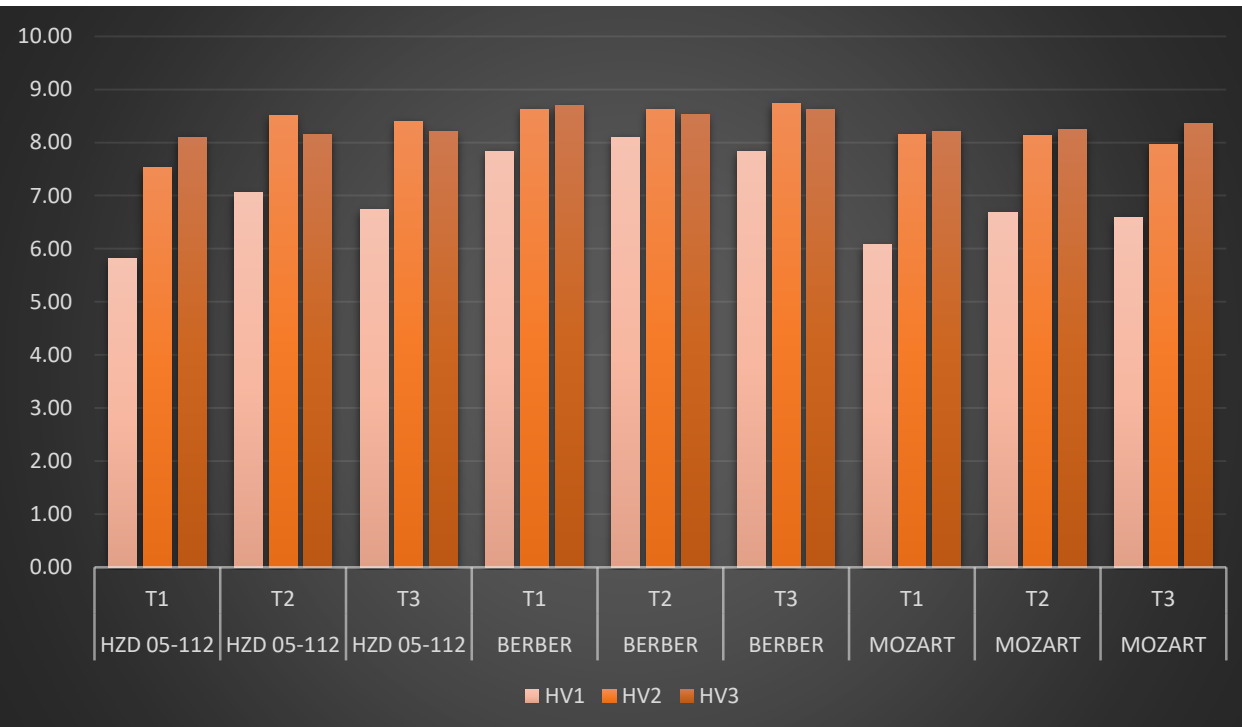


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SKIN SET TRIALS RESULTS

Skin Set trial from 2014 to 2017 (Germany & Portugal) | 110 Observations

	T1 / 90 DAP			T2 / 97 DAP			T3 / 104 DAP		
	HV1	HV2	HV3	HV1	HV2	HV3	HV1	HV2	HV3
HZA 05-112	5.81	7.53	8.10	7.05	8.51	8.16	6.73	8.40	8.20
BERBER (Early control)	7.84	8.63	8.69	8.10	8.63	8.53	7.84	8.74	8.63
MOZART (Late control)	6.08	8.15	8.20	6.68	8.14	8.24	6.59	7.97	8.36



There is no effect of the crop killing on the skin set. On the contrary a significant effect exist between skin set and the harvesting moment.

According to statistical analysis, HZA 05-112 seems to behave like MOZART.

Indeed there is no significant difference between MOZART and HZA 05-112 ($p < 0.05$).

On the contrary significant differences exist between BERBER and HZA 05-112 ($p > 0.05$).

Based on some observation sandy soil are better on the set up of the skin to compare with heavy clay soil.

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SKIN SET TRIALS RESULTS

		Skin Set (HK+1 week)	Skin Set (HK+2 weeks)	Skin Set (HK+3 weeks)	% Gradient Skin Set (1 week)	% Gradient Skin Set (2 weeks)	% Gradient Skin Set (3 weeks)
HZD 05-112	T1	5.81	7.53	8.10	3.19	1.47	0.90
HZD 05-112	T2	7.05	8.51	8.16	1.95	0.49	0.84
HZD 05-112	T3	6.73	8.40	8.20	2.27	0.60	0.80
BERBER	T1	7.84	8.63	8.69	1.16	0.37	0.31
BERBER	T2	8.10	8.63	8.53	0.90	0.37	0.47
BERBER	T3	7.84	8.74	8.63	1.16	0.26	0.37
MOZART	T1	6.08	8.15	8.20	2.92	0.85	0.80
MOZART	T2	6.68	8.14	8.24	2.32	0.86	0.76
MOZART	T3	6.59	7.97	8.36	2.41	1.03	0.64



To evaluate how fast is the Skin set after the crop killing we can use the absolute percentage :

X is the number of week after crop killing / X = 1 ; 2 ; 3

$$\% \text{Gradient SH (X weeks)} = \text{Final Skin Set [9]} - \text{Skin Set [Harvest + X weeks]}$$

Smaller the value is, more the skin set is fast.

BERBER can be use as a early control and MOZART as a late control.

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EARLY BULKING TEST

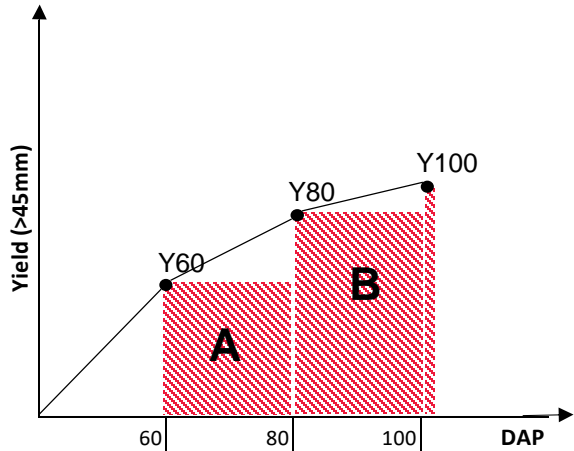
Early Bulking trials from 2014 and 2015 (Bant & Lauwersoog, Netherlands)

Observation are done on the Yield 45+ from 5 plants / 2 repetitions. The trial is always planted on 1st of May.

The AUDPC (Area Under Disease Progress Curve) measures the disease throughout a period.

The AUDPC is the area that is determined by the sum of trapezes under the curve.

The Yield start after around 60 DAP : from this moment we can evaluate the earliness of the tuber bulking.



$$A = \frac{(Y_{60} + Y_{80})}{2} * (T_2 - T_1)$$

$$B = \frac{(Y_{80} + Y_{100})}{2} * (T_3 - T_2)$$

AUDPC (size > 45mm) = A + B

	2015	2014	AVERAGE (2 Years)
ADORA	36.5	16.0	26.25
PRIMABELLE	34.0	18.0	26.0
HZA 05-112	36.5	16.0	26.25
CARLITA	48.5	32.5	40.5

Higher the value is, earlier is the tuber bulking.

ADORA (34) & CARLITA (45) are the most early bulking varieties we have in our portfolio (control varieties)

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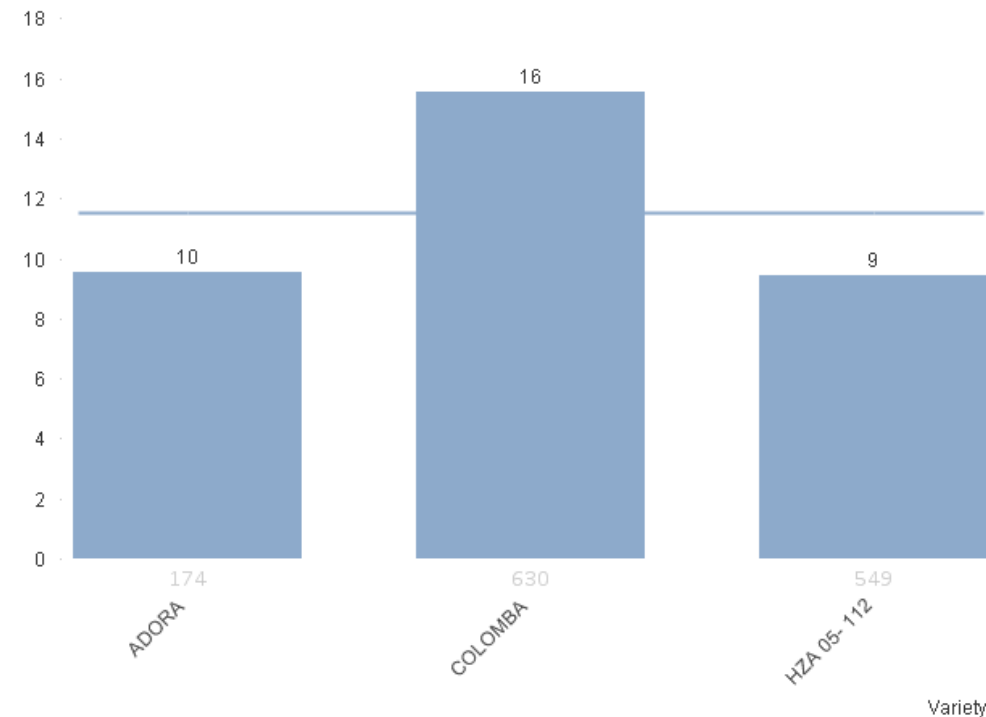
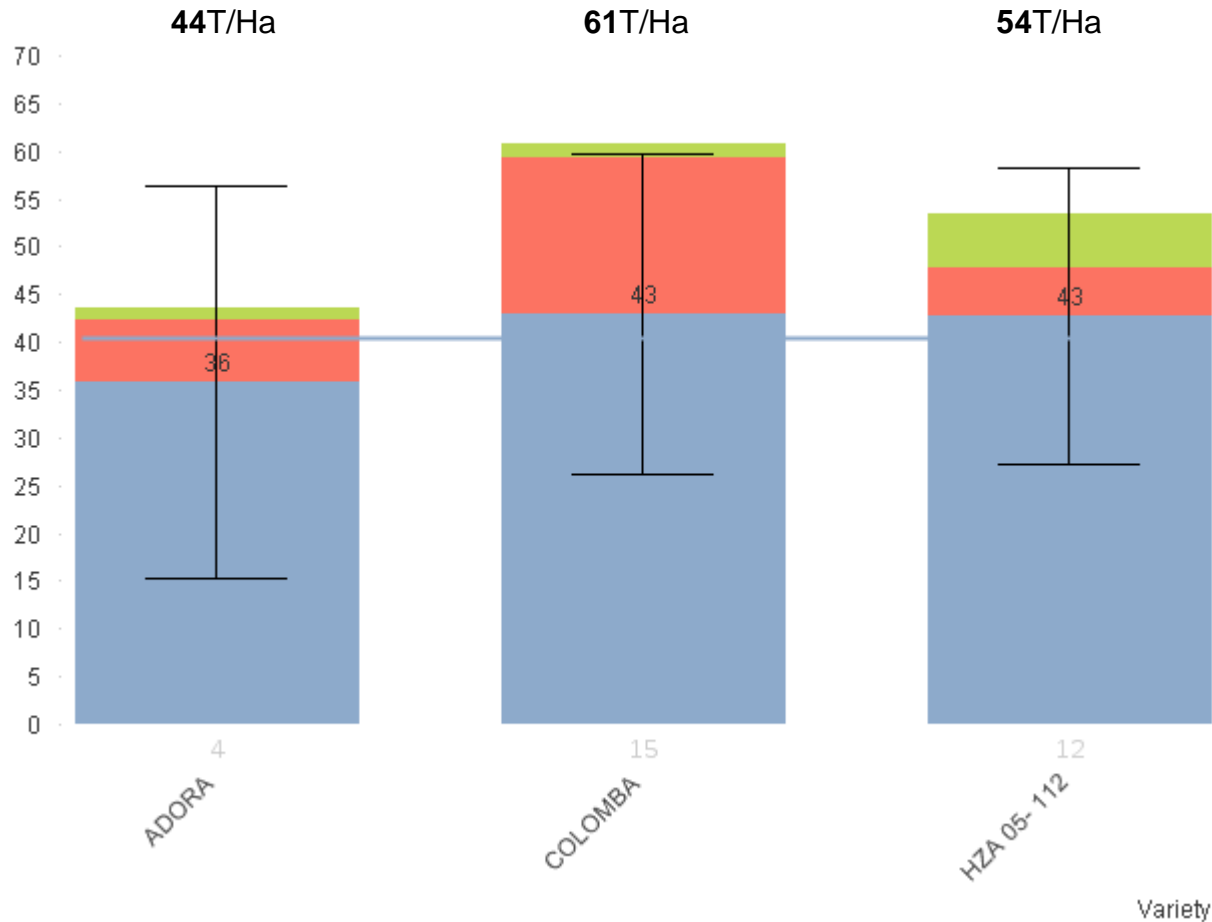
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AGROMOMIC PERFORMANCES : GRADING & YIELD

Results from 2015 to 2018 ; Positioning Trial Southern Europe; 50-80 mm



PC
potatoes

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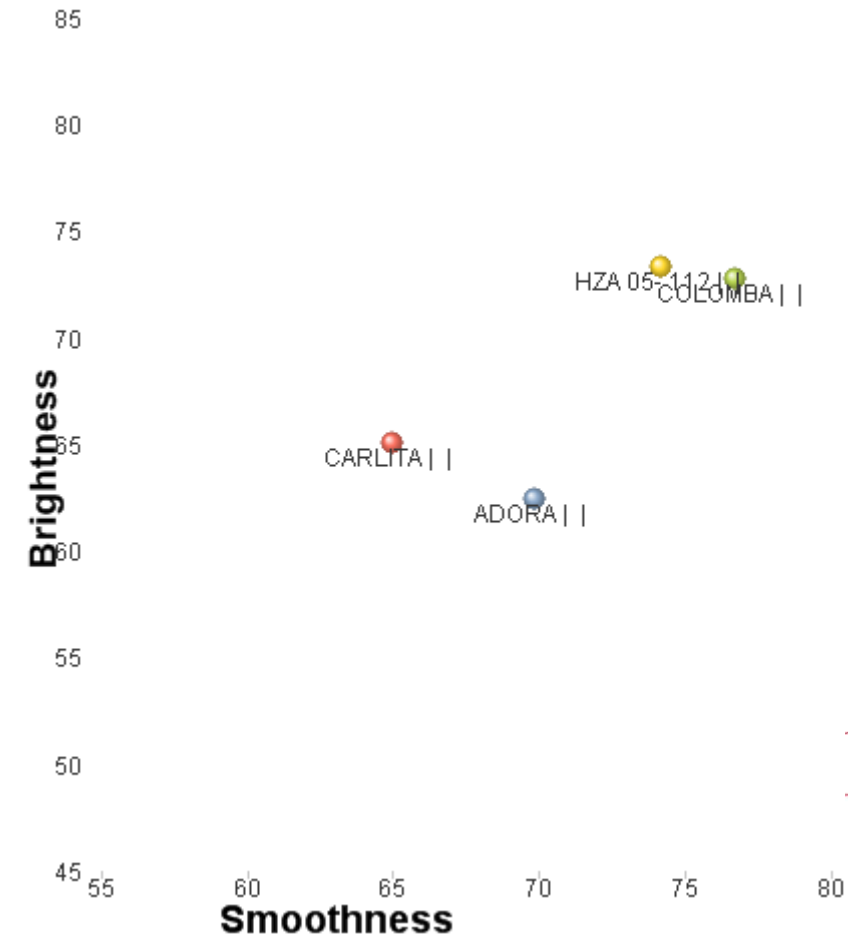
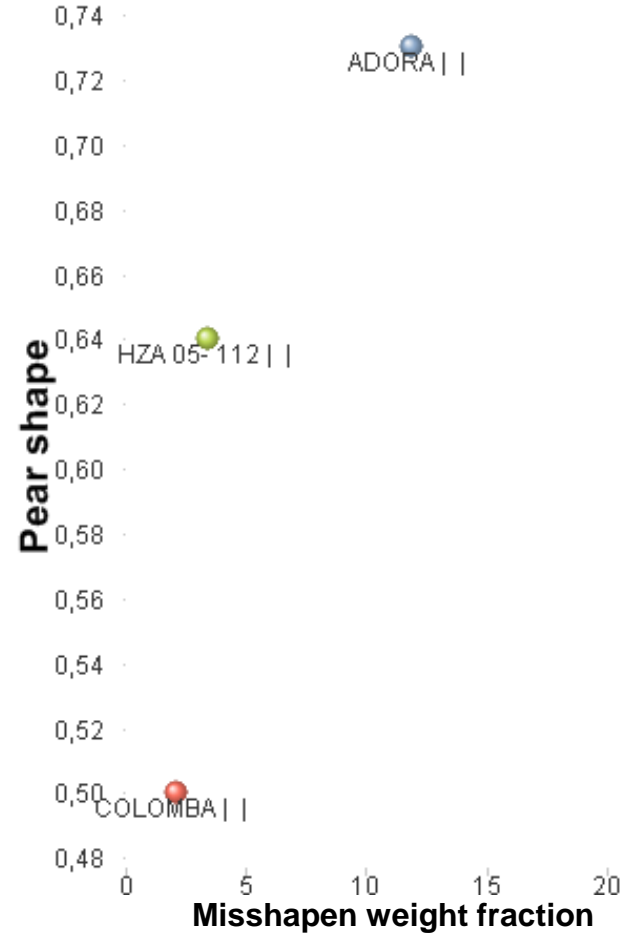
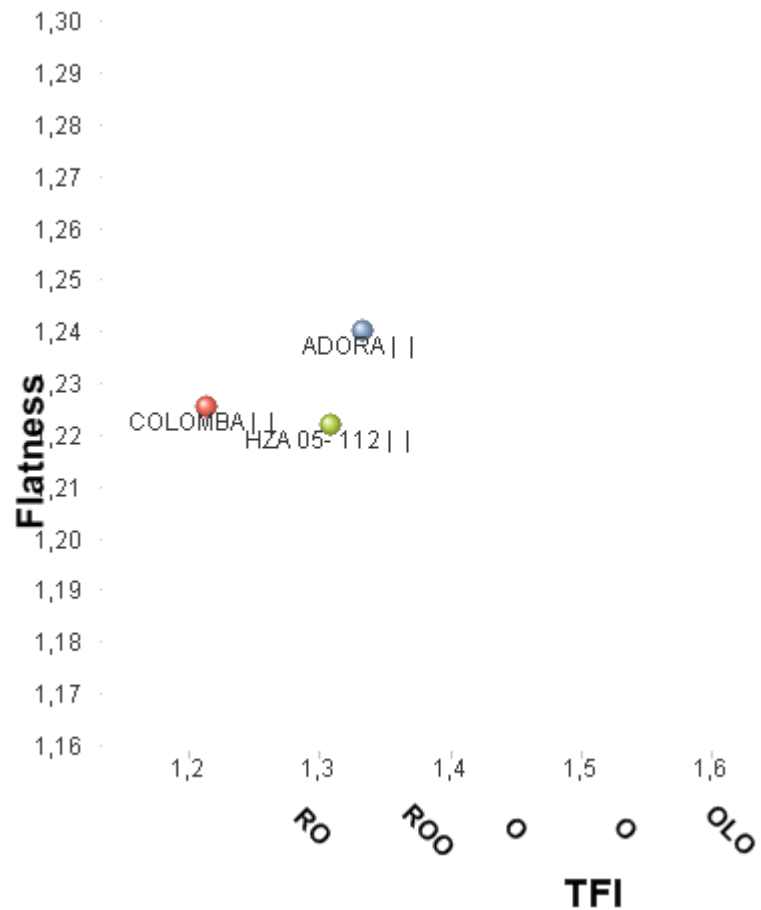


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PRESENTATION QUALITY : SHAPE REGULARITY & WASHABILITY



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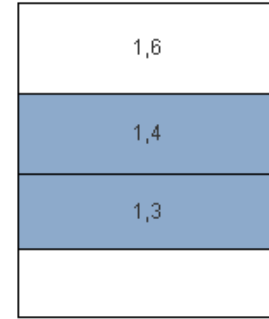
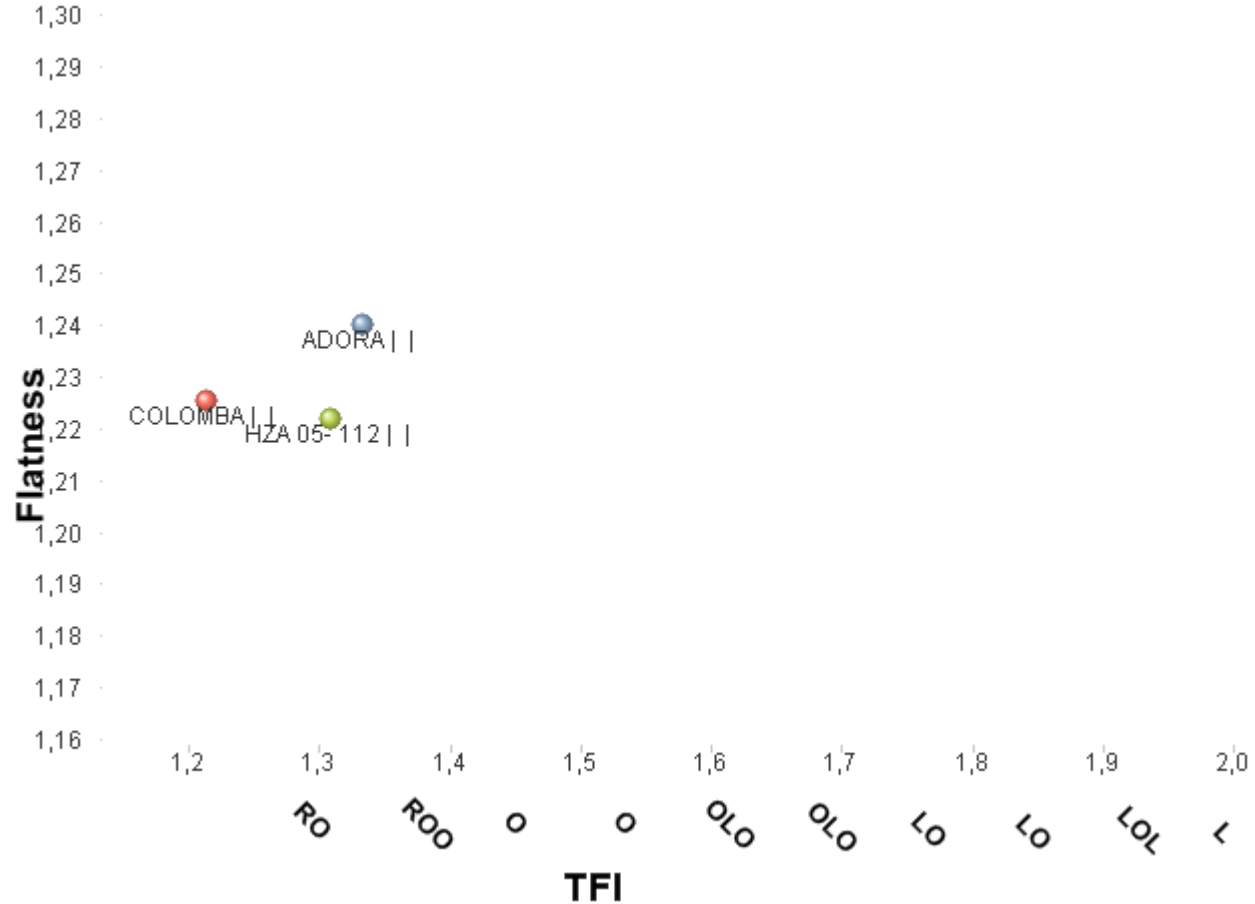


Traditional

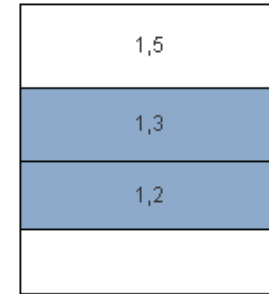


Retail fresh

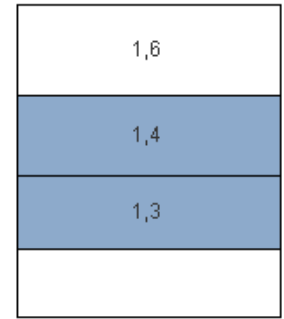
PRESENTATION QUALITY : SHAPE REGULARITY



ADORA



COLOMBA



HZA 05-112

Variety

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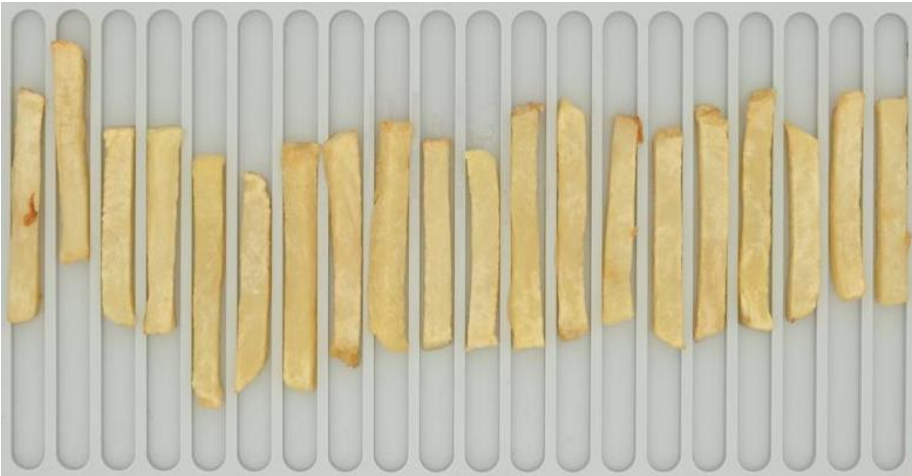


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COOKING QUALITY

2 months after Harvest (8°C)

NLDSWI 4R 2017 op 04-Dec-2017 ; HZA 05-112 ; Stage: 91



NLDSWI 4R 2017 op 04-Dec-17: HZA 05-112 ; Stage: 91



TEXTURE

	HZA 05-112	Firm cooking Standard	French Fries Standard
Bite (N/100g)	58	72	80
Disintegration (J/100 g)	76	93	104
Cooking Type	AB	A	AB/B

FRY QUALITY

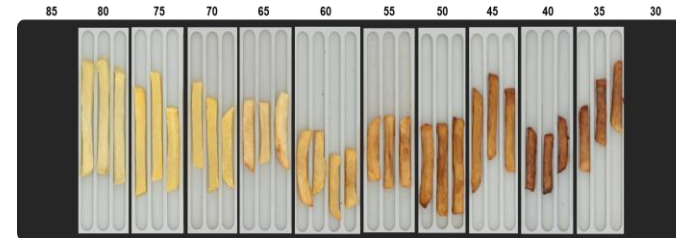
1 month after Harvest
Cold store at 8°C

END FRY COLOR

54

GREY AFTER PREFRYING

70



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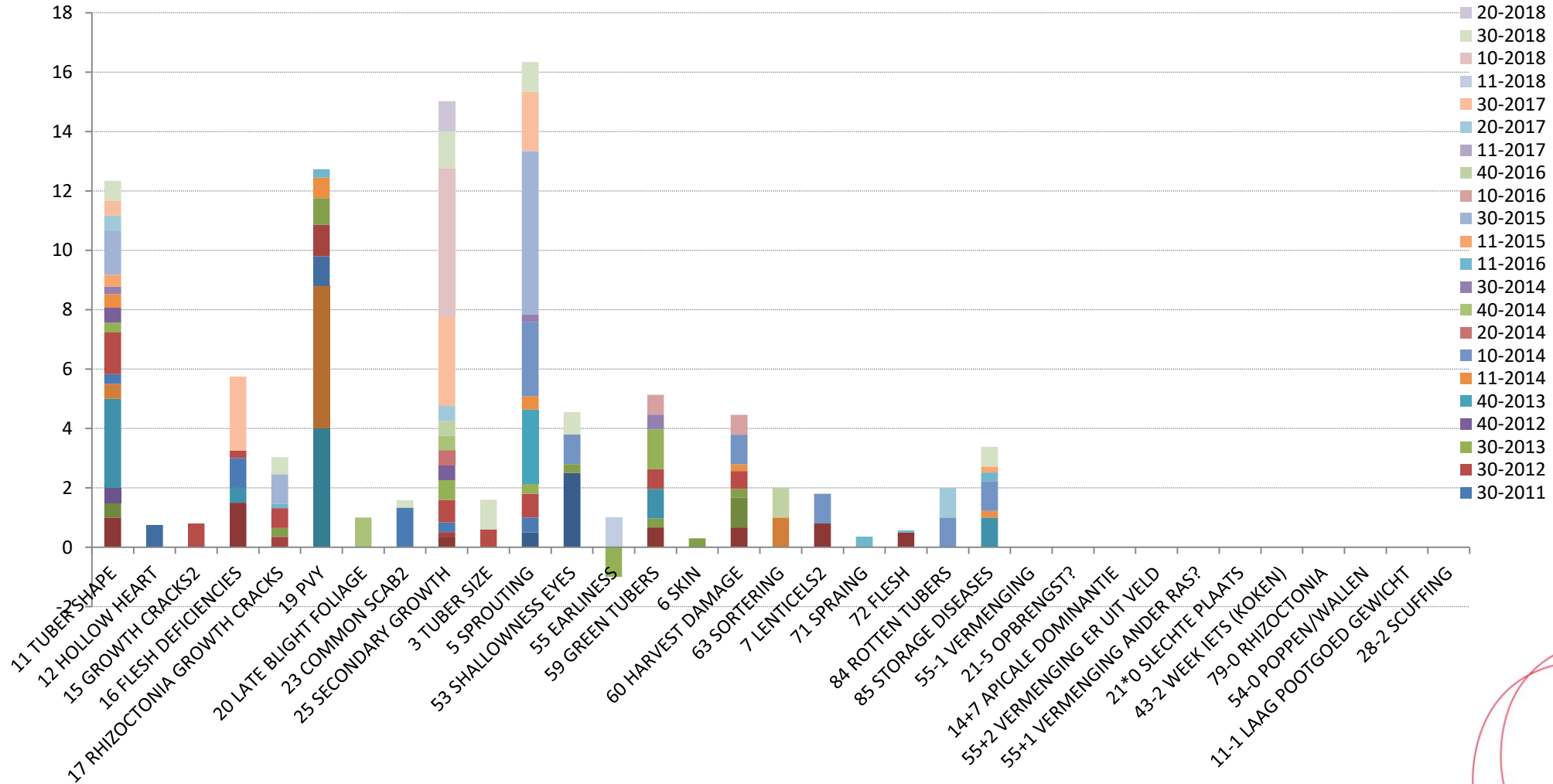


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REMARKS & FEEDBACK:



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HZA 05-112 - SWOT ANALYSIS	POSITIVE FACTORS (To reach the goals)	NEGATIVE FACTORS (To reach the goals)
INTERNAL FACTORS (PROJECT)	STRENGTHS	WEAKNESSES
	<ul style="list-style-type: none"> - Better agronomic performance than ADORA & CARLITA : → High yield & high tuber number - Early bulking varieties - Common scab resistant - Strong variety against frost damage (ITALY) 	<ul style="list-style-type: none"> - Skin quality is not enough good for the RF Premium market. → not very bright (<< COLOMBA, PRIMABELLE), better than ADORA - Long skin set (3 weeks) / Seems to behave like MOZART - Irregular sizes : sometimes too big, sometimes too small
EXTERNAL FACTORS (ENVIRONMENT)	OPPORTUNITIES	THREATS
	<ul style="list-style-type: none"> - FRANCE : Early Market request for early varieties : Target : TRESOR / CARLITA / ADORA (40Ha of seed) / STARLETTE : around 2 600 Tons seed. - ITALY : ADORA, will be free next year Target : ADORA / ARIELLE : 1 000Tons - SPAIN & PORTUGAL : Secondary market - “Me too” variety too optimize customer variety portfolio - Variety for the fresh traditional market - Some early segment are asking for skin loss varieties 	<ul style="list-style-type: none"> - Skin quality requirements in the Premium top wash segment are too high. - Seed Production : The skin set seems to be a limitation due to an open room to diseases → the Fusarium risk is medium.

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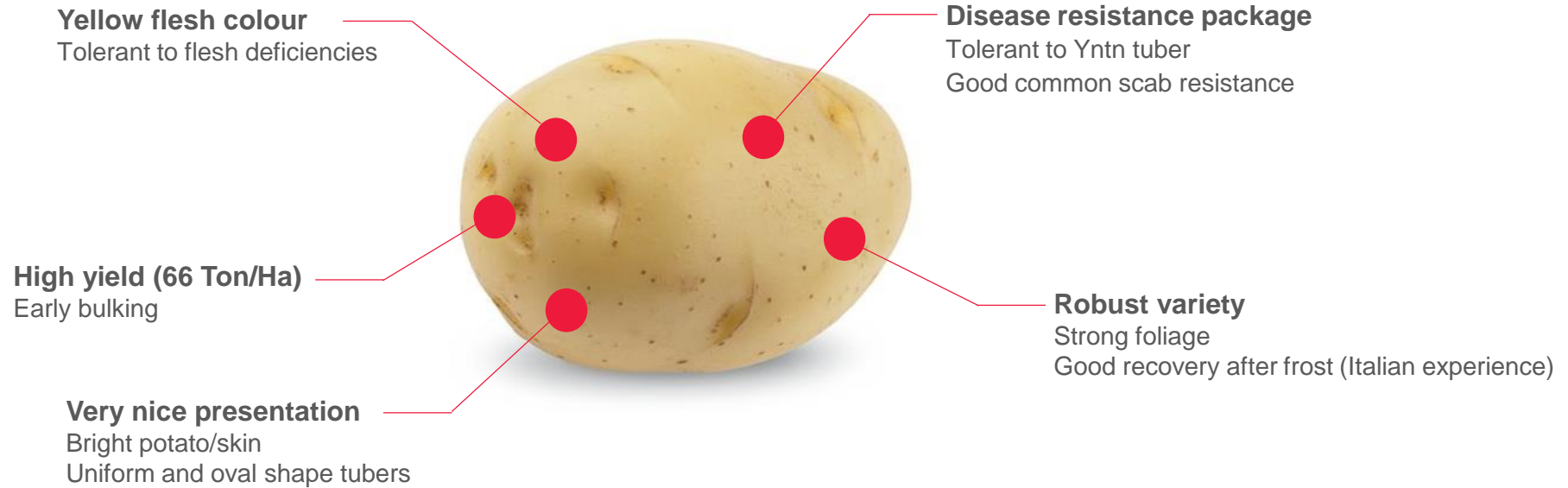


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Why I choose HZA 05-112 ?





Technical note

RETAIL FRESH PRODUCT MANAGEMENT

Patrick Massat
Product Manager Retail Fresh
M +31 6 – 12 95 53 61
E Patrick.Massat@hzpc.com

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www.hzpc.com

