

## 2019 GUIDE TO GRAIN CHARACTERS

◆ **VARIETY GROUPS** - Admixture between groups can be identified using morphological characters.

<b>2 ROW, LONG HAIRE D RACHILLA, ILNS ABSENT OR RARELY PRESENT 1 – 2 PER GRAIN, GLABRUM, CLASPING LODICULES</b>											
<b>California</b>		<b>Cosmopolitan</b>		<b>Explorer</b>		<b>Fairing</b>		<b>KWS Infinity</b>		<b>KWS Irina</b>	
<b>KWS Sassy</b>		<b>Ovation</b>		<b>Scholar</b>		<b>Surge</b>		<b>Talisman</b>		<b>Waggon</b>	
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<b>2 ROW, LONG HAIRE D RACHILLA, PILOSUM, CLASPING LODICULES</b>			<b>2 ROW, LONG HAIRE D RACHILLA, ILNS PRESENT 3 – &gt; 10 PER GRAIN, GLABRUM, CLASPING LODICULES</b>								
<b>KWS Cassia</b>	<b>KWS Glacier</b>	<b>Memento</b>	<b>Cassata</b>	<b>Craft</b>	<b>Electrum</b>	<b>KWS Creswell</b>	<b>KWS Orwell</b>	<b>KWS Tower</b>	<b>Pearl</b>	<b>SY Venture</b>	
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<b>2 ROW, LONG HAIRE D RACHILLA, FRONTAL/LATERAL LODICULES</b>			<b>6 ROW, LONG HAIRE D RACHILLA, ILNS PRESENT 5 – &gt; 10 PER GRAIN, (Median Grain Only)</b>								
<b>Golden Promise</b>			<b>Bazooka</b>		<b>Belfry</b>		<b>Funky</b>		<b>KWS Astaire</b>		<b>Sunningdale</b>
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<b>2 ROW, SHORT HAIRE D RACHILLA, ILNS ABSENT OR RARELY PRESENT 1 – 2 PER GRAIN, CLASPING LODICULES, GLABRUM</b>											
<b>Brioni</b>		<b>Chronicle</b>		<b>Concerto</b>		<b>Embrace</b>		<b>Hacker</b>		<b>Laureate</b>	<b>LG Diablo</b>
<b>LG Tomahawk</b>		<b>Olympus</b>		<b>Propino</b>		<b>RGT Asteroid</b>		<b>RGT Planet</b>		<b>Sienna</b>	
<b>Page 5</b>											
<b>2 ROW, SHORT HAIRE D RACHILLA, ILNS PRESENT 5 – &gt; 10 PER GRAIN, CLASPING LODICULES, GLABRUM</b>											
<b>Westminster</b>											
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2 ROW, LONG HAired RACHILLA, ILNS ABSENT OR RARELY PRESENT 1 – 2 PER GRAIN, GLABRUM, CLASPING LODICULES								
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
<b>California</b>	White	M – S	M	Medium	Medium	Weak to medium	Absent	OLNS moderate
<b>Cosmopolitan</b>	White	M – L	N – M	Fine	Medium	Absent	Weak	OLNS sparse
<b>Explorer</b>	White	L	W	Fine	Medium	Absent to very weak	No data available	OLNS absent to very sparse
<b>Fairing</b>	White	M	M	Coarse	Medium	Absent to very weak	Medium	OLNS moderate
<b>KWS Infinity</b>	White	M	M – N	Fine	Medium	Medium	Absent	OLNS numerous
<b>KWS Irina</b>	White	M – L	M	Medium	Medium	Weak	Medium	OLNS moderate
<b>KWS Sassy</b>	White	M	N - M	Coarse	Shallow	Medium	Weak	OLNS moderate
<b>Ovation</b>	White	M	W	Medium	Medium	Absent to very weak	Weak	OLNS moderate
<b>Scholar</b>	White	M	M	Fine	Shallow	Medium	Weak to medium	Rachilla tip hairs short. OLNS sparse
<b>Surge</b>	Weakly blue	M	M	Medium	Medium	Weak	Absent to very weak	OLNS numerous
<b>Talisman</b>	White	M	M	Coarse	Medium	Medium	Medium to strong	OLNS numerous
<b>Waggon</b>	White	M – L	M – N	Fine	Medium to shallow	Medium	Medium	OLNS sparse

ILNS – Inner Lateral Nerve Spicules OLNS - Outer Lateral Nerve Spicules VC - Ventral Crease M - Medium S - Short L - Long.

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2 ROW, LONG HAired RACHILLA, PILOSUM, CLASPING LODICULES									
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	ILNS	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
<b>KWS Cassia</b>	Strongly blue	S	M	Abs to pres 1- 2/grain	Fine	Medium	Absent	Absent	OLNS numerous
<b>KWS Glacier</b>	Strongly blue	S	M – W	Abs to pres 1- 2/grain	Fine	Medium	Weak	Absent	OLNS numerous
<b>Memento</b>	Blue	S – M	N – M	Present 1 – 3/grain	Medium	Medium	Weak	Absent	OLNS numerous

2 ROW, LONG HAired RACHILLA, ILNS PRESENT 3 – > 10 PER GRAIN, GLABRUM, CLASPING LODICULES									
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	ILNS	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
<b>Pearl</b>	Strongly blue	S – M	N – M	5 – 10 per grain	Medium	Medium to deep	Weak	Absent	OLNS numerous
<b>Cassata</b>	White	M	M	> 10 per grain	Fine	Medium	Absent	Medium	OLNS numerous
<b>Craft</b>	White	S – M	W	> 10 per grain	Coarse	Medium	Weak to medium	Strong	OLNS numerous
<b>Electrum</b>	White	S - M	M	> 10 per grain	Coarse	Medium	Weak	Weak	OLNS numerous
<b>KWS Creswell</b>	White	S – M	M	3 – 6 per grain	Fine	Shallow	Weak	Absent	OLNS numerous
<b>KWS Orwell</b>	White	S	M	3 – 6 per grain	Medium	Medium	Medium to strong	Absent	OLNS numerous
<b>KWS Tower</b>	White	M	M	3 – 6 per grain	Medium	Shallow	Weak	Absent	OLNS numerous
<b>SY Venture</b>	White	S	M	> 10 per grain	Fine	Medium	Absent	Strong	OLNS numerous

ILNS – Inner Lateral Nerve Spicules OLNS - Outer Lateral Nerve Spicules VC - Ventral Crease M - Medium S - Short L - Long

## 2019 GUIDE TO GRAIN CHARACTERS

2 ROW, LONG HAIRED RACHILLA, FRONTAL/LATERAL LODICULES								
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	Wrinkling	Base Type	VC Pit	Retained Anthocyanin	Other Features
Golden Promise	White	M	M – N	N/A	Plain	Absent	M	Small grain

6 ROW, LONG HAIRED RACHILLA, ILNS PRESENT 5 – > 10 PER GRAIN (Median Grain Only)									
Variety	Ventral Crease Hairs	Aleurone Colour	Rachilla Length	Ventral Crease Width	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
Bazooka	Present	Blue	S - M	M	Medium	Shallow	Absent to very weak	Absent to very weak	Hybrid. OLNS numerous
Belfry	Present	Blue	M	N – M	Medium	Shallow	Absent	Absent	Hybrid. OLNS numerous
Funky	Present	White	M	M – W	Fine	Shallow	Absent	Absent	OLNS numerous
KWS Astaire	Absent	Blue	S – M	N – M	Coarse	Medium	Absent	Absent	OLNS numerous
Sunningdale	Absent	Blue	S	M	Coarse	Medium	Absent	Absent	Hybrid. OLNS numerous

ILNS – Inner Lateral Nerve Spicules OLNS - Outer Lateral Nerve Spicules VC - Ventral Crease M - Medium S - Short L - Long.

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2 ROW, SHORT HAired RACHILLA, ILNS ABSENT OR RARELY PRESENT 1 – 2 PER GRAIN, CLASPING LODICULES, GLABRUM								
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
<b>Concerto</b>	Strongly blue*	M	M	Fine	Deep	Medium	Absent	OLNS sparse
<b>Brioni</b>	White	M – L	M	Medium	Shallow	Absent	Medium to strong	OLNS moderate
<b>Chronicle</b>	White	M – L	M	Coarse	Shallow	Absent to very weak	Medium to weak	OLNS sparse
<b>Embrace</b>	White	M – L	M	Coarse	Medium	Absent	Absent	OLNS sparse
<b>Hacker</b>	White	M – L	N – M	Medium to coarse	Shallow	Absent to very weak	Weak to medium	OLNS sparse
<b>Laureate</b>	White	M – L	N – M	Coarse	Medium	Medium	Weak to medium	OLNS sparse to moderate
<b>LG Diablo</b>	White	M	M	Coarse	Medium	Absent	Medium	OLNS moderate
<b>LG Tomahawk</b>	White	M	M	Coarse	Medium	Absent	Medium	OLNS sparse
<b>Olympus</b>	White	L – M	N – M	Fine	Medium	Medium	Weak	OLNS sparse
<b>Propino</b>	White	M	W	Coarse	Deep	Medium	Absent	OLNS sparse
<b>RGT Asteroid</b>	White	M	M	Coarse	Medium	Weak	Weak to medium	OLNS moderate
<b>RGT Planet</b>	White	M	M	Medium	Medium	Weak	Medium to strong	OLNS sparse
<b>Sienna</b>	White	M	M	Medium	Medium	Medium	Absent	OLNS sparse

\*In recent years, seed showing as weakly blue. ILNS – Inner Lateral Nerve Spicules OLNS - Outer Lateral Nerve Spicules VC - Ventral Crease M - Medium S - Short L - Long.

## 2019 GUIDE TO GRAIN CHARACTERS

2 ROW, SHORT HAired RACHILLA, ILNS PRESENT 5 – 10 PER GRAIN, CLASPING LODICULES, GLABRUM									
Variety	Aleurone Colour	Rachilla Length	Ventral Crease Width	ILNS	Wrinkling	Bevel	VC Pit	Retained Anthocyanin	Other Features
Westminster	White	L – M	M – W	> 10 per grain	Coarse	Deep	Weak	Absent	OLNS sparse to moderate

ILNS – Inner Lateral Nerve Spicules   OLNS - Outer Lateral Nerve Spicules   VC - Ventral Crease   M - Medium   S - Short   L - Long