

2017 VARIETAL RECOMMENDATION

Approved for Recommendation 2/26/2017

SY INGMAR

Syngenta Seeds, Inc. requests that 'SY Ingmar' hard red spring wheat be considered for a variety recommendation in the state of Montana. We move that 'SY Ingmar' be recommended for irrigated and dryland in all districts.

'SY Ingmar' is a hollow stemmed, hard red spring wheat developed by Syngenta Seeds, Inc. and released to AgriPro Associates in 2015. PVP, Title V certificate was issued in 2015. 'SY Ingmar' was derived from the cross 00S0313-15/'SY Soren'. It has medium maturity and very good test weight. It is a short semidwarf, similar to SY Soren. Straw strength is very good between 'Brennan' and 'SY Soren'. It is resistant to stem rust and moderately resistant to leaf rust. Tolerance to Fusarium head blight has been intermediate. Protein levels have been very high, averaging almost 1% higher than 'Vida'. Overall bread baking characteristics are very good.

'SY Ingmar' has shown good adaptation across the Northern Plains including Montana. It has been tested in MSU trials for the last three seasons. Its best performance has been in dryland trials in Huntley, Moccasin, Havre, and Sidney. It compares favorable for yield and/or protein to the predominant varieties grown in these areas. Limited data is available under irrigation but 'SY Ingmar' would provide very good tolerance to Fusarium head blight compared to many of the currently grown varieties (See Syngenta Fusarium data below).

Table 1. Grain yield (Bu/Ac) of SY INGMAR compared to other commonly grown cultivars in Montana. For combined analysis from 2014 to 2016, the number of entries used in the analysis was 20. For sites where only one year was analyzed, the number of entries was 64.

Location	Kalispell	Bozeman	Huntley	Moccasin	Conrad	Havre	Sidney (dry)	Sidney (irri)	Mean
Year	14-16	14-16	14,16	14-16	14-16	14-16	14,16	14-16	N=22
SY INGMAR	98.5	52.9	63.5	31.5	65.7	43.3	44.5	74.2	59.3
REEDER	105.1	52.9	64.8	34.4	74.4	44.2	<u>48.4</u>	78.5	62.8
MCNEAL	102.7	51.8	61.9	<u>34.6</u>	68.3	41.4	43.7	75.8	60.0
CHOTEAU	99.2	53.0	64.1	30.3	61.3	38.8	42.7	77.4	58.4
VIDA	<u>110.2</u>	<u>62.5</u>	66.6	32.8	<u>74.5</u>	<u>44.8</u>	47.4	71.2	<u>63.7</u>
DUCLAIR	106.4	52.5	<u>71.4</u>	32.9	68.1	42.9	45.4	<u>81.4</u>	62.6
EGAN	108.6	46.5	62.7	31.2	66.5	41.1	35.6	73.1	58.2
Mean	101.7	53.5	61.9	32.8	68.6	41.7	41.7	74.1	59.5
Probability (Line)	<0.001	<0.001	NS	NS	<0.05	<0.001	<0.05	<0.01	<0.001
L.S.D.(5%)	11.4	7.0	-	-	10.6	5.7	10.5	11.4	3.9

Table 2. Grain protein content (%) of SY INGMAR compared to other commonly grown cultivars in Montana. For combined analysis from 2014 to 2016, the number of entries used in the analysis was 20. For sites where only one year was analyzed, the number of entries was 64.

Location	Kalispell	Bozeman	Huntley	Moccasin	Conrad	Havre	Sidney (dry)	Sidney (irri)	Mean
Year	14-16	14-16	14,16	14-16	14-16	14-16	14,16	14-16	N=22
SY INGMAR	15.8	15.6	16.0	15.3	14.1	16.2	12.6	15.0	15.1
REEDER	14.8	15.4	15.0	13.9	13.6	16.1	12.1	15.2	14.5
MCNEAL	14.8	15.1	15.4	14.7	13.8	16.1	12.4	14.2	14.5
CHOTEAU	14.7	15.5	15.1	15.0	13.8	16.2	12.4	14.7	14.7
VIDA	15.0	14.8	14.6	14.1	13.2	15.8	12.2	15.0	14.3
DUCLAIR	15.0	14.6	15.0	14.1	13.7	16.0	11.8	14.2	14.3
EGAN	<u>16.1</u>	<u>16.9</u>	<u>17.3</u>	<u>16.5</u>	<u>14.9</u>	<u>17.6</u>	<u>13.3</u>	<u>16.0</u>	<u>16.1</u>
Mean	15.0	15.1	15.2	14.7	13.8	16.2	12.2	14.7	14.6
Probability (Line)	<0.001	<0.001	NS	NS	<0.001	<0.001	NS	<0.001	<0.001
L.S.D.(5%)	0.8	0.6	-	-	0.8	0.6	-	0.7	0.4

Table 3. Agronomic characteristics of SY INGMAR compared to commonly grown cultivars in Montana from the Advanced Yield Trial grown from 2014 to 2016. For combined analysis from 2014 to 2016, the number of entries used in the analysis was 20.

Line /Variety	Heading Date (julian)	Plant Height (inches)	Test weight (lb/bu)	Solid Stem Score (5-25)	Saw fly cut (%)	Rust (%)	Lodging (0-9)
SY INGMAR	174.0	30.0	60.2	9.7	0.7	13.2	0.0
REEDER	173.6	<u>32.2</u>	<u>60.4</u>	7.9	1.5	15.3	0.0
MCNEAL	174.6	31.7	59.1	8.0	<u>3.3</u>	16.0	0.0
CHOTEAU	173.2	30.1	59.5	<u>19.3</u>	0.5	<u>21.0</u>	1.1
VIDA	174.2	31.4	59.1	11.8	1.3	18.9	<u>7.5</u>
DUCLAIR	<u>171.8</u>	31.6	58.9	16.4	0.4	18.4	0.2
EGAN	174.5	31.0	59.0	8.1	1.1	4.3	0.0
Mean	173.4	31.4	59.9	11.7	1.0	16.4	3.3
Probability (Line)	<0.001	<0.001	<0.001	<0.001	<0.05	NS	<0.05
LSD	0.6	1.2	0.5	4.2	1.6	-	9.8

Table 4. End-use quality of SY INGMAR compared to other popular varieties from 2014 to 2016.

Line / Variety	Flour Yield (%)	Flour Protein ((%, 14% m.b.))	Mixograph Tolerance	Mixing Time (min.)	Bake Mix Time (min.)	Bake Water Absorption (%)	Loaf Volume (cc)
SY INGMAR	71.5	14.1	4.9	7.3	15.3	80.2	1234
REEDER	70.5	13.7	3.1	3.6	6.3	75.9	1148
MCNEAL	68.9	13.5	5.2	7.4	13.9	77.8	1230
CHOTEAU	71.1	13.8	3.4	3.6	7.0	76.4	1170
VIDA	<u>72.4</u>	13.4	2.8	3.4	6.5	75.1	1172
DUCLAIR	70.7	13.4	4.4	4.6	8.4	75.3	1227
EGAN	69.3	<u>15.0</u>	<u>5.8</u>	<u>8.7</u>	<u>17.3</u>	<u>81.7</u>	<u>1340</u>
Mean	70.6	13.8	4.2	5.5	10.7	77.5	1217
Probability (Line)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
LSD	0.6	0.5	0.5	1.6	2.2	2.0	40.1

SYNGENTA DATA			
	FUSARIUM DATA		
	VISUAL²	FDK	
VARIETY	1-9	%	
BARLOW	4.7	6.3	
SY INGMAR	5.7	10.3	
FALLER	5.0	10.0	
SY SOREN	4.3	7.3	
BRENNAN	4.0	4.0	
GLENN	5.7	6.7	
MOTT	6.3	17.3	
VIDA	6.3	9.7	
SY TYRA	7.3	28.7	
CHOTEAU	8.0	33.3	
DUCLAIR	8.0	10.0	
MEAN	4.9	8.8	
NO. OF LOCS.	1	1	
¹ Locations: Beach, ND; Belfield, ND; Coleharbor, ND; New Leipzig, ND; Fairview, MT FDK = Fusarium Damaged Kernels Fusarium visual disease ratings : 1 = no disease			