

MEMORANDUM

TO: *Prairie Recommending Committee for Pulse and Special Crops*

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SUBJECT: Request for Support for Registration of Medium Red Lentil Line 7005-3

Lentil line 7005-3 was tested for two years in the Lentil Registration Recommendation Trial (LRRT) in 2020-21. Two year agronomic and disease performance data summaries in those trials are included in the accompanying Tables 1 and 2. The final cross resulting in development of 7005-3 was made in 2014. 7005-3 is tolerant to imidazolinone herbicide. Table 1 (10 site years) indicates the yield of 7005-3 was 109% of CDC Maxim. Table 3-4 indicate the yield is 118% of medium red (MR) check CDC KR-2 and 96% of MR check CDC Sublime. Flowering time, maturity, and plant height are similar to all the market class checks. Seed thickness is 20% greater than that of CDC Maxim and both MR checks, making de-hulling more efficient and mechanical damage less prevalent.

Strengths: High yield compared to SR check CDC Maxim and MR check CDC KR-2.
Noticeably thicker seed than CDC Maxim and both MR checks making 7005-3 more favourable for the de-hulling market.
Tolerant to imidazolinone herbicide.
Seed coat characteristics are similar to CDC Maxim.

Neutral: Similar agronomic and maturity characteristics compared to CDC Maxim and MR check CDC Sublime.
Similar disease resistance characteristics compared to CDC Maxim and both MR checks.

Weakness: Single (2021) year data showing 4% lower yielding than MR check CDC Sublime.

Figure 1. Visual comparison of seeds of 7005-3, CDC Sublime and CDC Maxim

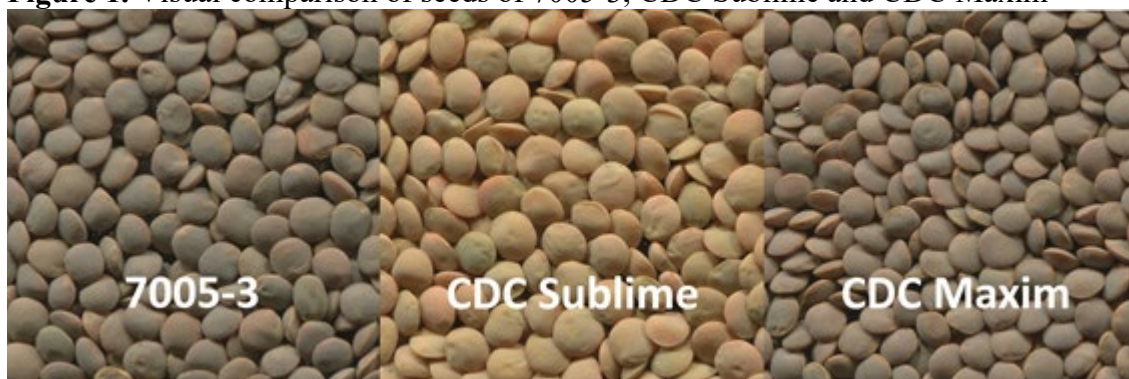


Table 1. Two year summary of agronomic performance of medium red lentil 7005-3 in the 2020-2021 Lentil RRT A in western Canada

Market class	Line	Yield kg/ha	Yield		Seed weight (g/1000)	Days to flower	Days to mature	Lodging (1-5)	Plant height (cm)	% Seed over							slotted 2.6mm >6.5/64
			% of MC-C	% of Maxim						Round Hole (64th inch)							
			6.0mm >15/64	5.6mm >14/64						5.2mm >13/64	4.8mm >12/64	4.4mm >11/64	4.0mm >10/64	3.6mm >9/64			
SR	CDC Maxim	2181	100	100	41	55	98	1.4	39	0	6	30	43	16	3	1	21
MR	7005-3	2373	*	109	46	56	98	1.8	42	1	16	40	30	9	2	1	50

[] indicates number of sites
 MC-C = Market class check
 Market Classes: SR - small red; MR - medium red
 * No medium red (MR) two year market class check therefore comparisons made to small red (SR) check CDC Maxim

Table 2. Two year disease summary of medium red lentil 7005-3 in the 2020-2021 Lentil RRT A in western Canada

Market class	Line	Ascochyta		Anthracnose			
		2020	2021	2020		2021	
		Mean (%)	Mean (%)	Race 1 Mean (%)	Race 0 Mean (%)	Race 1 Mean (%)	Race 0 Mean (%)
SR	CDC Maxim	43.1	20.0	90	82	68	95
MR	7005-3	50.0	16.3	75	82	46	95
	Robin	21.9	16.9	29	86	11	95
	Eston	65.6	48.1	92	86	87	95
	LR59-81				46		50

*Eston and Robin included as disease checks
 Disease testing was conducted indoors

Table 3. Agronomic performance summary for entries in the 2021 Lentil RRT A in western Canada

Market class	Line	Years in Trial	Seed coat	Cotyledon colour	Yield		Days to flower	Days to mature	Seed weight g/1000	Plant Height (cm)	% seed over			2021 Disease Ratings			
					kg/ha	% of Maxim					round	slotted	Indoor (%)	Race 0 Indoor (%)	Race 1 Indoor (%)		
					MC check	MC-C					* >15/64	* >12/64	>6.5/64				
SR	CDC Maxim	MC-C	GY	R	1214	100	100	58	101	45	32	84	30	20.0	95	68	
MR	CDC Sublime	MC-C	G	R	1542	100	127	60	103	55	38	37	95	32	22.5	90	66
MR	7005-3	2	GY	R	1473	96	121	60	103	44	36	2	83	54	16.3	95	46

Market Classes: SR-small red; MR-medium red
 MC-C indicates market class check
 Seed coat colour: GY - grey; G - green
 Cotyledon Colour: R - Red
 *% Seed Over Round : LG,LR = % >15/64; SR, SG, ESR, GC % >12/64
 AB = Ascochyta blight; AN = Anthracnose

Table 4. Agronomic and disease summary for 7005-3 medium red lentil in the 2020 Lentil RRT in western Canada

Market class	Line	Years in Trial	Seed coat	Cotyledon colour	Yield		Days to flower	Days to mature	Lodging (1-5)	Seed weight g/1000	Plant Height (cm)	% seed over			2020 Disease Ratings		
					kg/ha	% of Maxim						round	slotted	Indoor (%)	Race 0 Indoor (%)	Race 1 Indoor (%)	
					KR-2	MC-C						* >15/64	* >12/64	>6.5/64			
SR	CDC Maxim	MC-C	GY	R	2787	100	100	53	96	1.4	38	42	76	11	43.1	90	82
MR	CDC KR-2	MC-C	GY	R	2521	100	90	55	98	1.6	51	43	23	15	45.0	82	81
MR	7005-3	1	GY	R	2973	118	107	54	95	1.8	47	45	0	92	50	75	82

[] indicates number of sites
 Market Classes: SR-small red; MR-medium red
 MC-C indicates market class check
 Seed coat colour: GY - grey
 Cotyledon Colour: R - Red
 *% Seed Over Round : LG,LR = % >15/64; SR, SG, ESR, GC % >12/64
 AB = Ascochyta blight; AN = Anthracnose