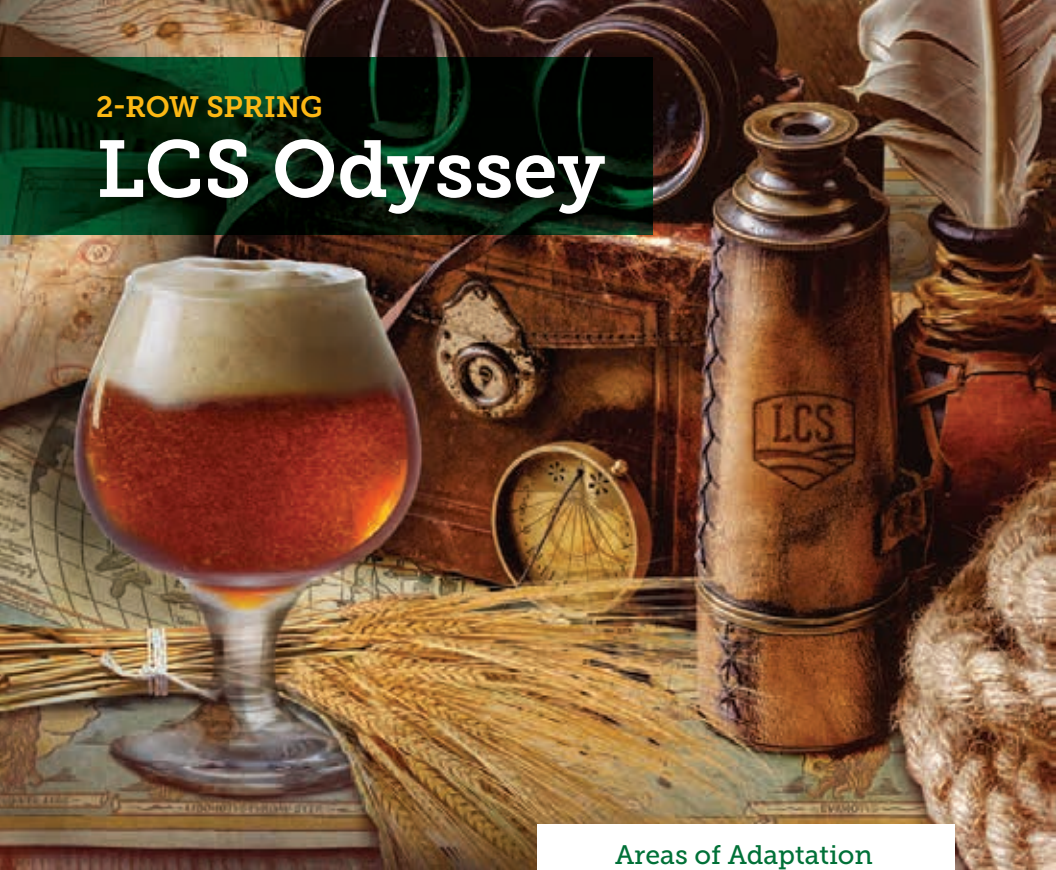


2-ROW SPRING

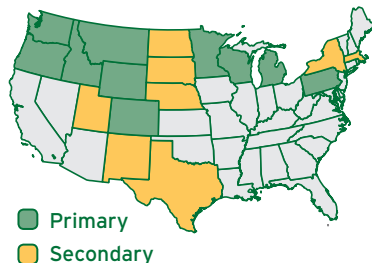
LCS Odyssey



An Adventure in Craft Barley

LCS Odyssey is a must-have variety for distillers, as it is the only malting barley variety available in the United States today rated as non-GN (zero glycosidic nitrile content).

Areas of Adaptation



Malting & Brewing LCS Odyssey



Malting Specifications

Specification	2016 LCS ¹ Fort Collins, Colorado	2016 MSU ² Bozeman, Montana	2015 MSU ³ Combined Michigan	2013 AMBA ⁴ Idaho Falls, Idaho	2013 AMBA ⁴ Pullman, Washington
	Barley				
Plump (On 6/64) (%)	97.0	99.9	97.8	97.9	94.5
Moisture (%)	10.4	-	15.0	8.1	8.6
Total Protein (% d.b.)	10.9	13.6	10.8	10.7	10.3
Pre-Harvest Sprouting (RVA)	154	-	142	-	-
DON (ppm)	< 0.1	-	0.0	-	-
Malt					
Extract, Fine Grind (% d.b.)	82.4	79.0	83.2	82.9	81.2
Wort Color (Deg. Lov.)	1.56	1.90	2.45	1.66	1.88
Diastatic Power (Deg. L)	110	127	77	125	124
Alpha Amylase (D.U.)	54.9	44.7	62.0	61.5	60.4
Soluble Protein (% d.b.)	4.40	3.62	4.25	4.78	4.14
Total Protein (% d.b.)	11.1	13.6	10.7	11.5	10.9
Soluble/Total Protein (% d.b.)	39.6	27.5	42.6	41.8	37.8
Beta-Glucan (ppm)	82	190	56	76	78
Free Amino Nitrogen (FAN)	160	105	214	192	179

Malt House Analysis¹

Chitting (%)	Steep Out Moisture (%)	Malt Yield (%)	96-Hour Acrospire Count				
			0-1/4	>1/4-1/2	>1/2-3/4	>3/4-1	>1
95	45.4	91.3	0	30	35	35	0

¹ LCS data, obtained from Hartwick College:

hartwick.edu/about-us/centers-institutes/center-for-craft-food-and-beverage/

² Data obtained from Montana State University: plantsciences.montana.edu/crops/index.html

³ Data obtained from Michigan State University: msue.anr.msu.edu/topic/malting_barley/research

⁴ Data obtained from the American Malting Barley Association: ambainc.org/

By the Numbers

Non-producer of GN (glycosidic nitrile)

#1 choice
for cereal cyst nematode resistance

Highest yielding variety in 2016 Montana State University trials

Growing LCS Odyssey

Yield & Protein Content

	MEAN ▶		
3-Year WSU High Rainfall	LCS Odyssey 107.0 bu/ac yield Trial Avg. 101.9 bu/ac		105% of mean
	Associated protein content: 11.8%		
3-Year WSU Med. Rainfall	LCS Odyssey 84.9 bu/ac yield Trial Avg. 76.3 bu/ac		111% of mean
	Associated protein content: 12.6%		
3-Year WSU Low Rainfall	LCS Odyssey 72.9 bu/ac yield Trial Avg. 59.1 bu/ac		123% of mean
	Associated protein content: 13.6%		
2-Year OSU	LCS Odyssey 88.9 bu/ac yield Trial Avg. 80.3 bu/ac		111% of mean
	Associated protein content: 12.5%		
2016 UI North	LCS Odyssey 126.8 bu/ac yield Trial Avg. 111.7 bu/ac		113% of mean
	Associated protein content: N/A		
2-Year UI South	LCS Odyssey 142.8 bu/ac yield Trial Avg. 128.7 bu/ac		111% of mean
	Associated protein content: 11.5%		
2016 MSU (MT) Irrigated	LCS Odyssey 130.4 bu/ac yield Trial Avg. 112.0 bu/ac		116% of mean
	Associated protein content: 10.0%		
2016 MSU (MT) Dryland	LCS Odyssey 101.7 bu/ac yield Trial Avg. 86.6 bu/ac		117% of mean
	Associated protein content: 11.7%		
2016 UMN	LCS Odyssey 108.6 bu/ac yield Trial Avg. 94.4 bu/ac		115% of mean
	Associated protein content: N/A		
3-Year MSU (MI)	LCS Odyssey 79.7 bu/ac yield Trial Avg. 72.7 bu/ac		110% of mean
	Associated protein content: 10.9%		

Agronomic Features

University of Idaho South				Oregon State		
	TW (lb/bu)	Height (in)	Heading		TW (lb/bu)	Height (in)
LCS Odyssey	48.4	28.7	3.2	LCS Odyssey	50.2	26.3
CDC Copeland	49.1	34.3	0.5	Full Pint	53.5	25.2
AAC Synergy	48.5	32.7	-1.1	CDC Copeland	50.3	29.0
AC Metcalfe	50.0	33.7	-1.5	AAC Synergy	52.8	29.4
Moravian 69	46.0	27.0	3.2			

Montana State						
	Irrigated			Dryland		
	TW (lb/bu)	Height (in)	Heading	TW (lb/bu)	Height (in)	Heading
LCS Odyssey	52.6	26.7	4.2	53.4	25.1	3.1
CDC Copeland	53.9	31.9	2.2	53.3	27.8	1.3
AC Metcalfe	54.0	32.6	-1.8	53.6	29.5	-1.1
AAC Synergy	52.5	31.7	0.2	53.0	28.7	-0.5

University of Minnesota			
	Lodging (1-9)	Height (in)	Heading (DOM*)
LCS Odyssey	3.4	29.0	2.6
ND Genesis	3.2	35.2	-0.9
AC Metcalfe	4.9	35.0	0.6
AAC Synergy	3.7	34.2	1.1

Michigan State				
	TW (lb/bu)	Height (in)	Heading (DOM*)	PHS (RVA)
LCS Odyssey	49.2	22.9	1.3	142.3
CDC Copeland	37.2	24.0	1.7	77.8
AC Metcalfe	50.3	25.6	-1.0	51.7
AAC Synergy	50.4	24.7	-1.7	36.7

Washington State				
		TW (lb/bu)	Height (in)	Heading (DOM*)
High Rainfall	LCS Odyssey	51.7	28.7	8.0
	CDC Copeland	51.4	38.0	8.4
Medium Rainfall	LCS Odyssey	52.7	27.0	1.0
	CDC Copeland	51.6	35.0	3.5
Low Rainfall	LCS Odyssey	53.1	26.5	1.0
	CDC Copeland	52.5	34.0	3.0

Data sets are available in their entirety at individual university websites. Links to these websites are listed on **page 32** of this guide. *Days off mean of trial