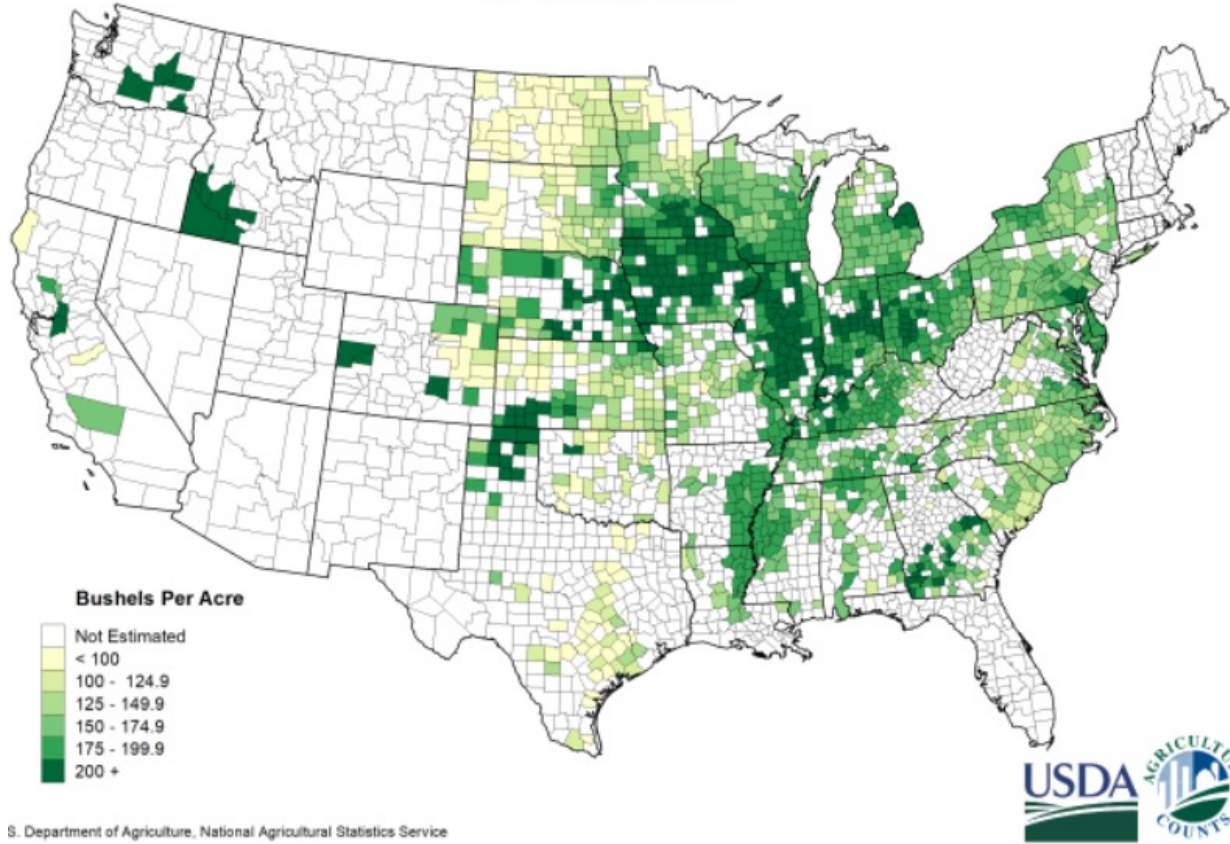
An aerial photograph of a winter agricultural field. The ground is covered in patches of snow and ice, with rows of young green plants emerging. The field is divided into sections by narrow paths or furrows. The overall scene is a mix of white snow, dark brown soil, and vibrant green vegetation.

Could winter barley be a path forward to greater resilience and sustainability?

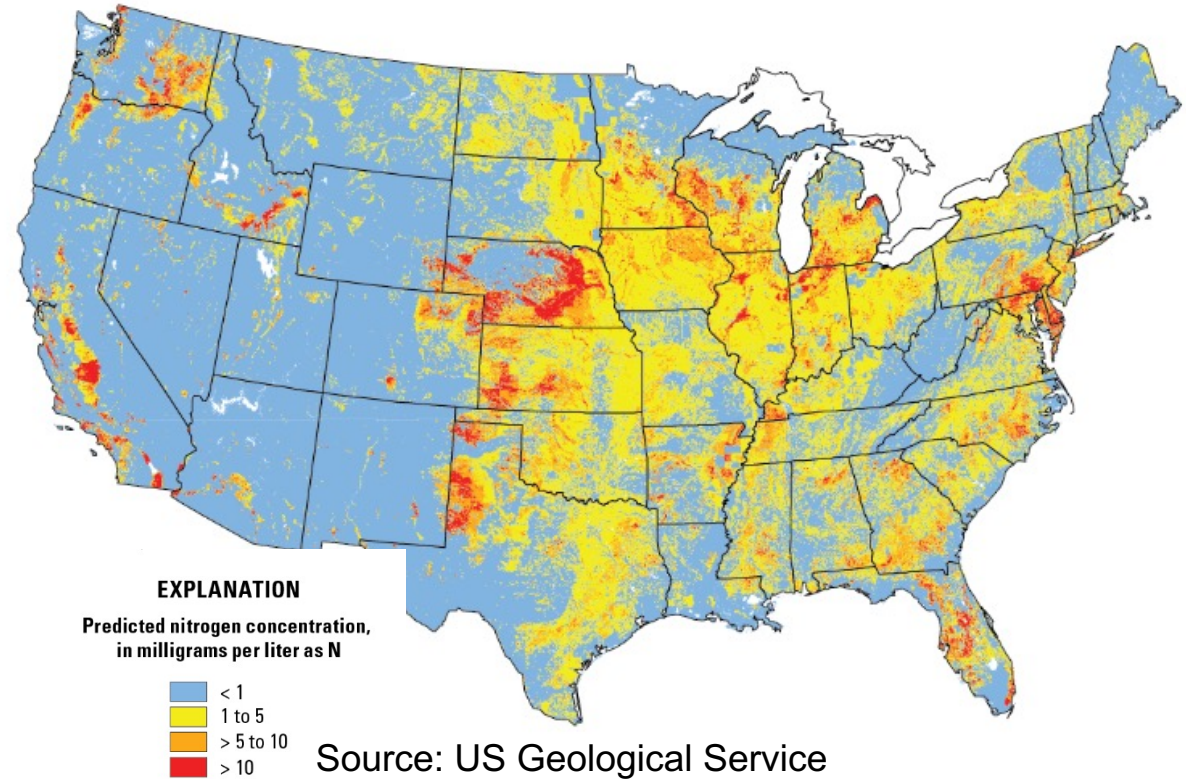
Kevin Smith
University of Minnesota

Annual crop agricultural contributes to nitrate pollution

Corn for Grain 2021
Yield Per Harvested Acre by County
for Selected States



Predicted nitrate in shallow, recently recharged groundwater



Consequences: Soil and water quality impairment

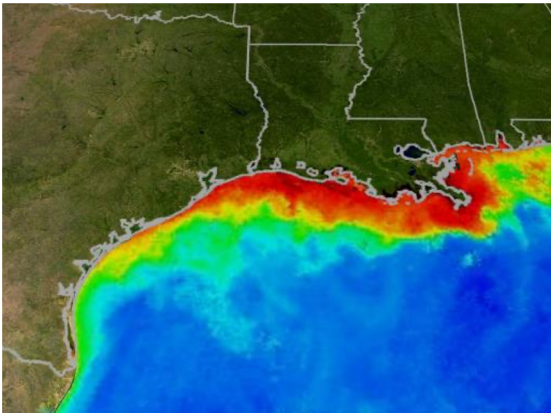


Image: John G. White, Stevens County, MN, 12/2020

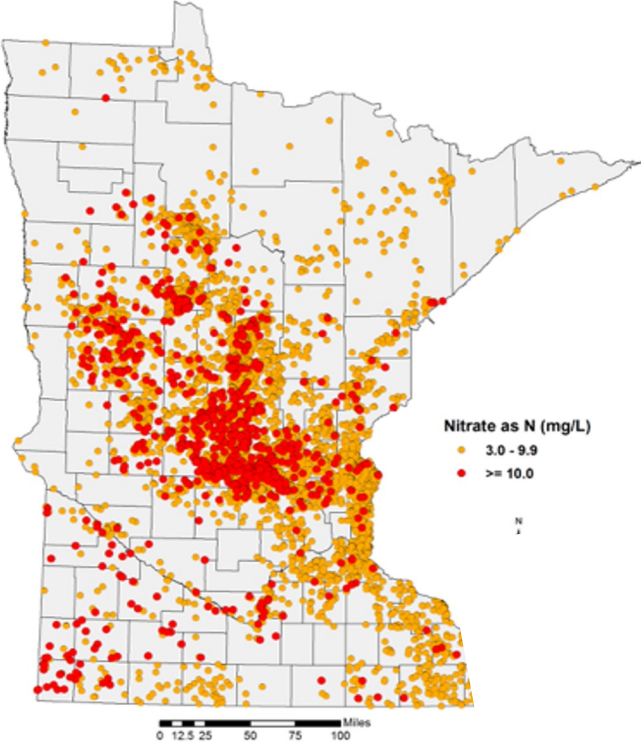
Catastrophic Soil Erosion



Gulf of Mexico Hypoxia



Nitrate Contamination in Drinking Water Wells



Prepared by the Minnesota Department of Health, October 21, 2014



Fall planted barley can produce higher yields for producers

Fall Planted

Spring Planted

2020

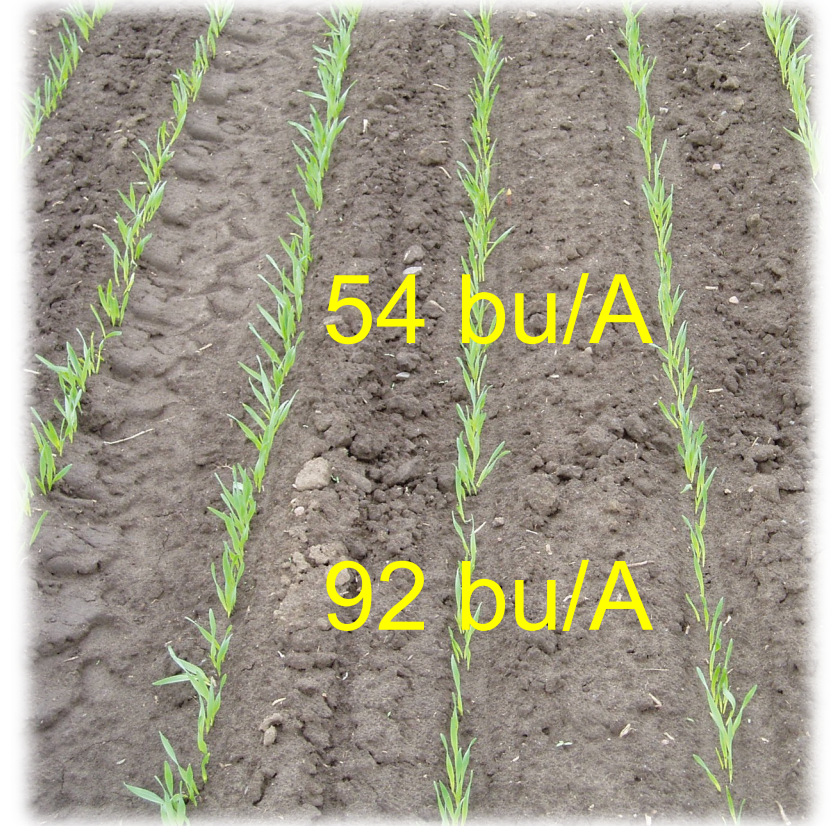
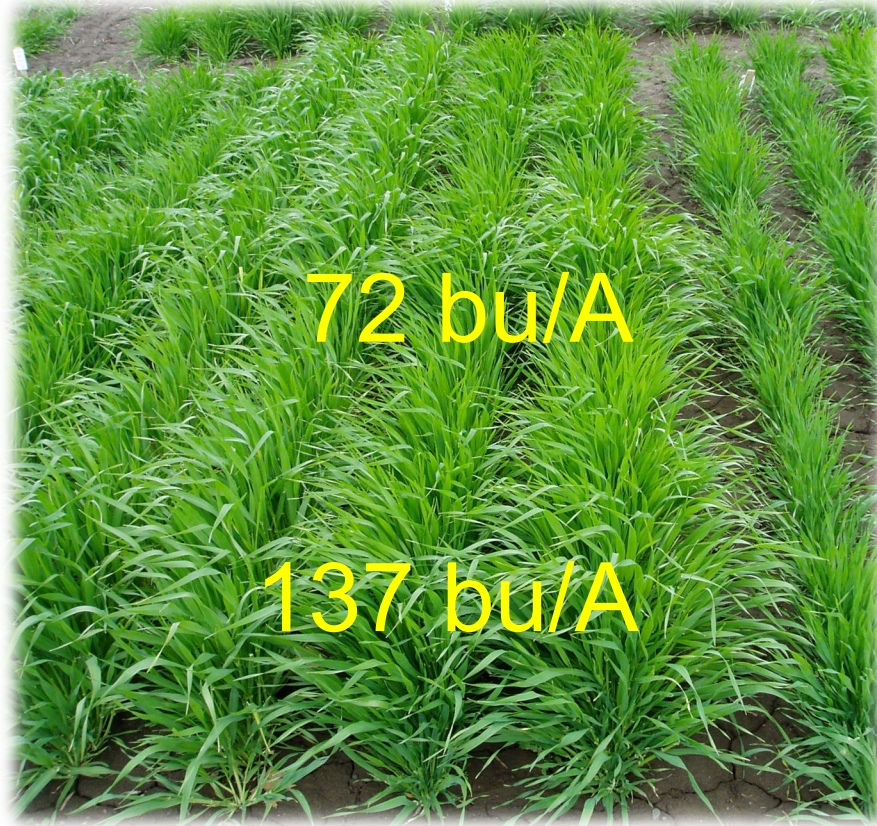
72 bu/A

54 bu/A

2021

137 bu/A

92 bu/A



Photos taken April 26

2020: 33% increase

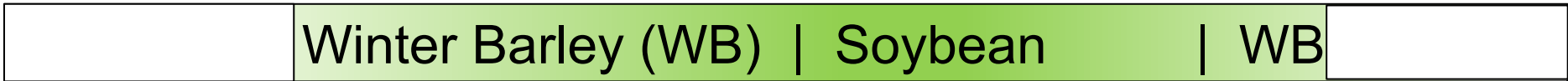
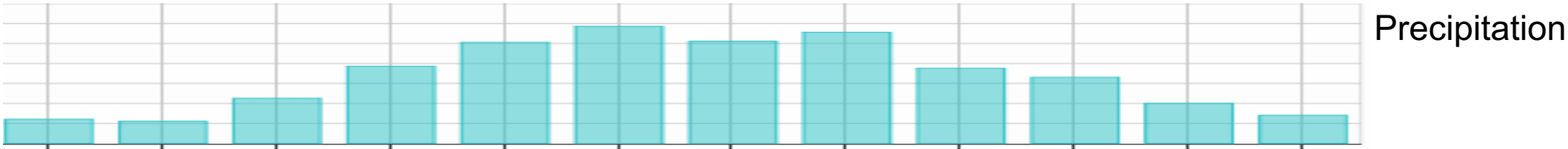
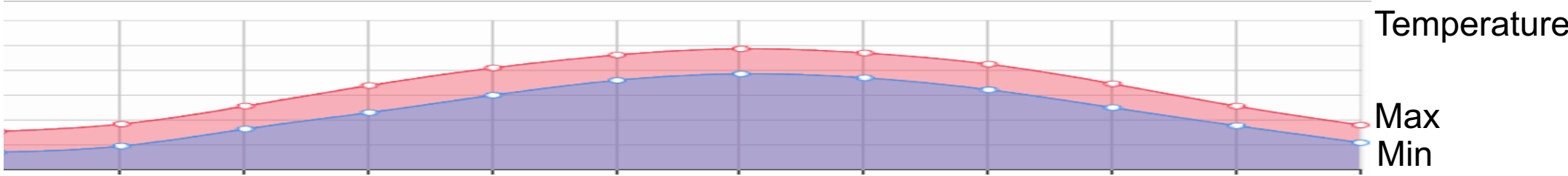
2021: 49% increase



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GROWING SEASON



Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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JUNE 2



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JUNE 18



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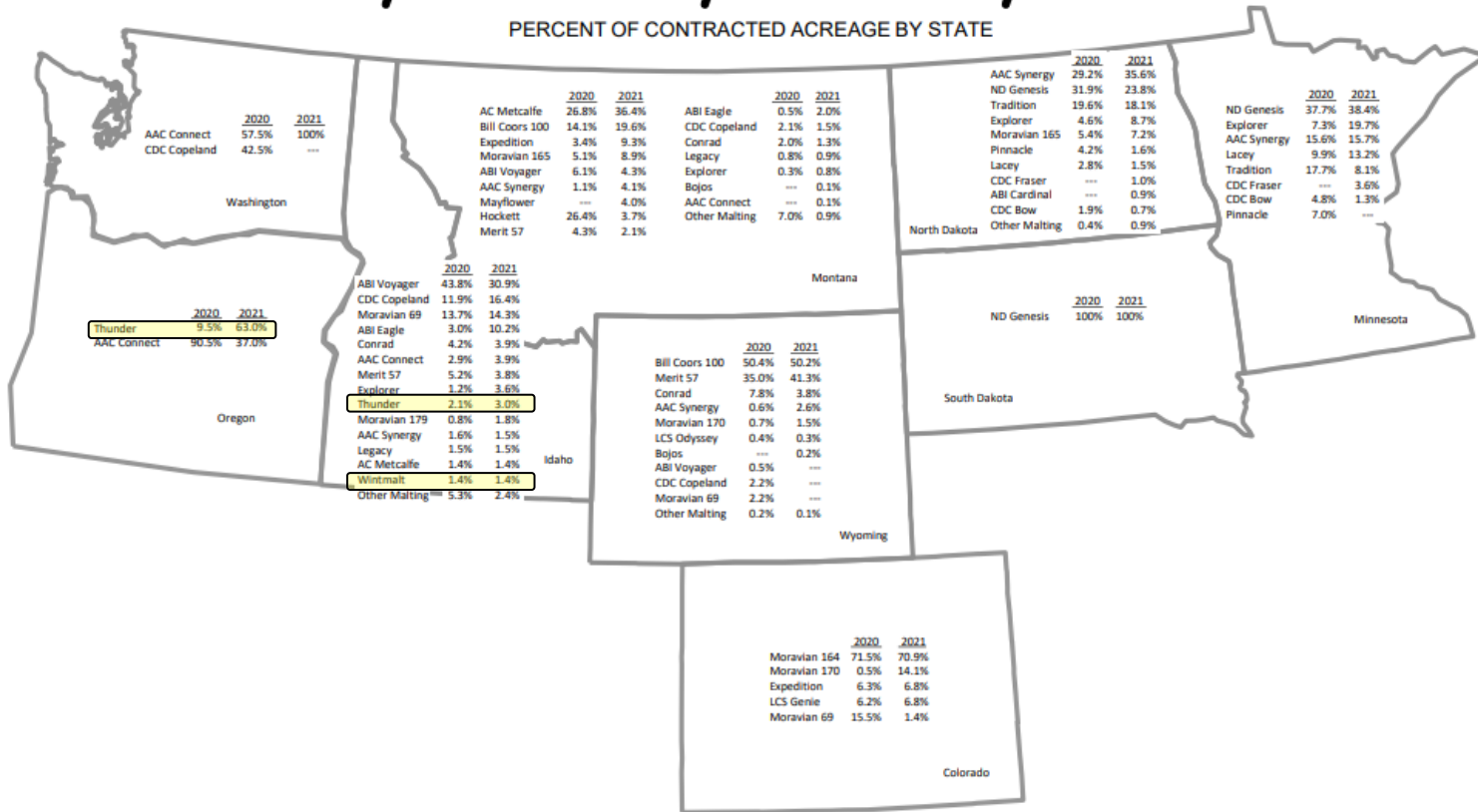
JUNE 27



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Barley Variety Survey - 2021

PERCENT OF CONTRACTED ACREAGE BY STATE



REPORT BASED UPON AN INDUSTRY SURVEY OF ACRES CONTRACTED BY VARIETY. PERCENTAGES BASED ON TOTAL REPORTED CONTRACTED ACRES.

American Malting Barley Association, Inc.

August, 2021

MAP PREPARED AND DISTRIBUTED BY:
American Malting Barley Association, Inc.
740 N. Plankinton Ave., Suite 830
Milwaukee, WI 53203 / (414) 272-4640

Very few winter varieties on the landscape

2022 recommended varieties

Two Row

Six Row

AAC Connect		
AAC Synergy		
ABI Cardinal	LCS Violetta*	
ABI Eagle	Mayflower	
ABI Growler	Merit 57	
ABI Voyager	Moravian 37	
AC Metcalfe	Moravian 69	
Bill Coors 100	Moravian 164	
CDC Copeland	Moravian 165	
Charles*	Moravian 170	
Conrad	Moravian 179	
Endeavor*	ND Genesis	
Expedition	Newdale	
Explorer	Pinnacle	
Flavia*	Puffin*	
Hockett	Regina*	
LCS Genie	Thunder*	
LCS Odyssey	Wintmalt*	
		Celebration
		Innovation
		Lacey
		Legacy
		Quest
		Thoroughbred*
		Tradition

* winter

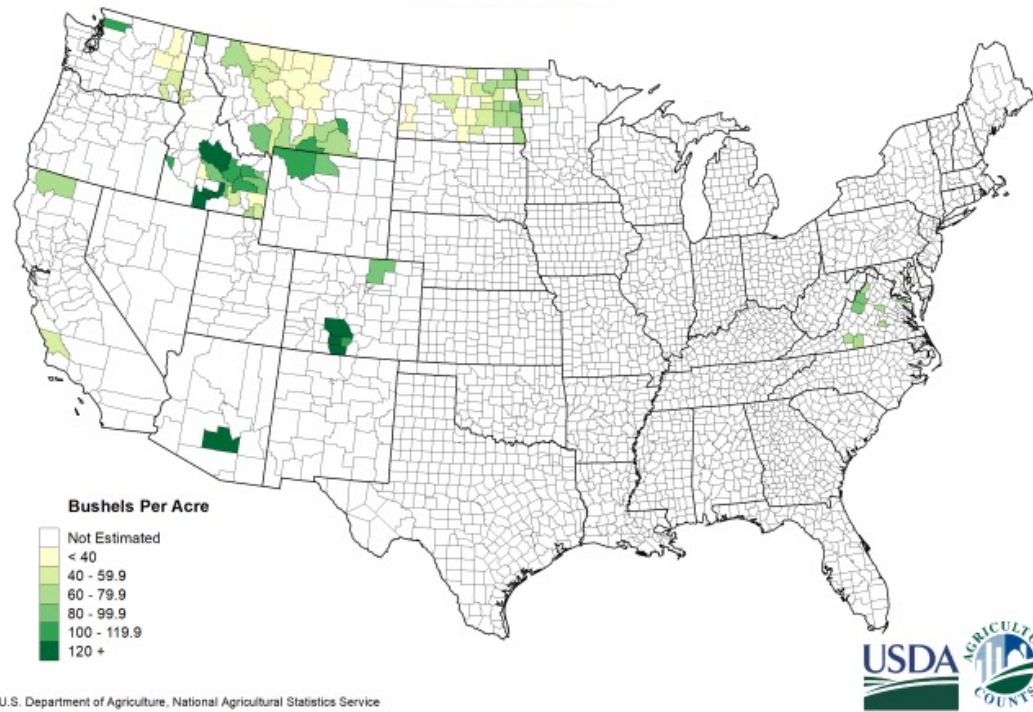
BREWING SUMMIT 2022
Providence, Rhode Island | August 14-16, 2022
Rhode Island Convention Center



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Winter barley could be grown over a wide geographic area

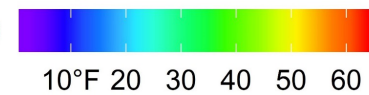
2021 Spring Barley Harvested Acres



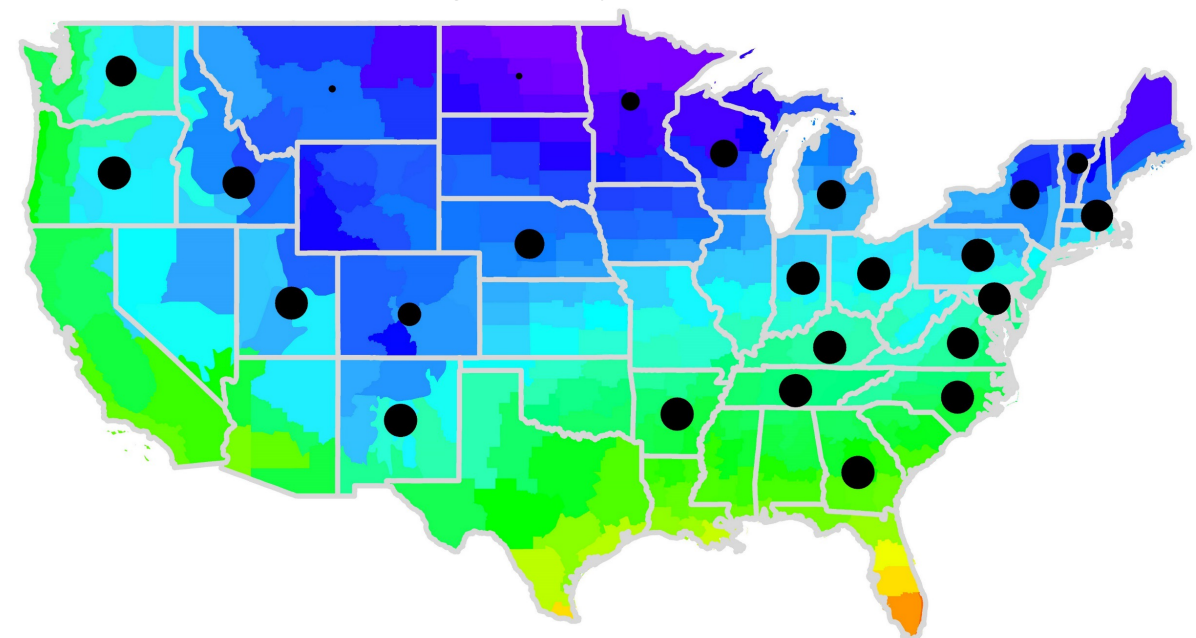
Average winter survival (2010-2017)



Average Dec-Feb temperature



Winter Malting Barley Trial



Winter barley could contribute to more resilient
and sustainable agriculture



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