Focus on Forage

Optimizing forage production in Wisconsin

Managing for High Quality Corn Silage

Top Ten Corn Silage Production Strategies – Jerry Clark, Extension Chippewa County

Panel Discussion - Mike Jenson and Carlyle Westendorp, 2020 World Forage Superbowl winners in corn silage

Fine Tuning Conservation – Ashley Blackburn, Nutrient and Pest Management Program

Wednesdays – January 13 through March 3 – 12:30 to 1:30 pm
Register at https://go.wisc.edu/334pqz

NPM

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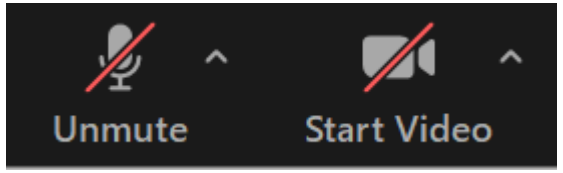
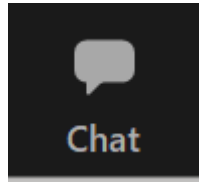
Webinar Recommendations

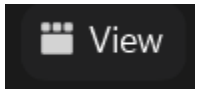
- Please keep microphones and videos off



- Enter questions in chat at any time



- If you'd like to change your Zoom screen view, you can click on "View" on the upper right hand-side for options.



- CCA Credits are available – QR Code available at end of webinar

- If you have technical difficulties, post them in the chat or email Scott Reuss at scott.reuss@wisc.edu

Top Ten Corn Silage Management Strategies

Jerry Clark
Division of Extension
University of Wisconsin-Madison
Chippewa County

Management Strategies

1. Hybrid Selection
2. Harvest Timing
3. Trade-off exists between yield and quality
4. Early Planting Date
5. Increase Planting Population
6. Pest Management
7. Adequate Soil Fertility
8. Crop Rotation
9. Cut at right height, right length, and process kernels
10. Fill storage rapidly, pack well, cover quickly

Sources: Dr. Joe Lauer, University of Wisconsin-Madison Department of Agronomy

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#1a Weather

- ✓We can’t control
- ✓Spring dry enough for early planting, wet enough to promote emergence, activate herbicides
- ✓Timely rain in summer, sunshine, warm days, cool nights
- ✓Fall – mild weather to slow dry down, dry to not rut soils

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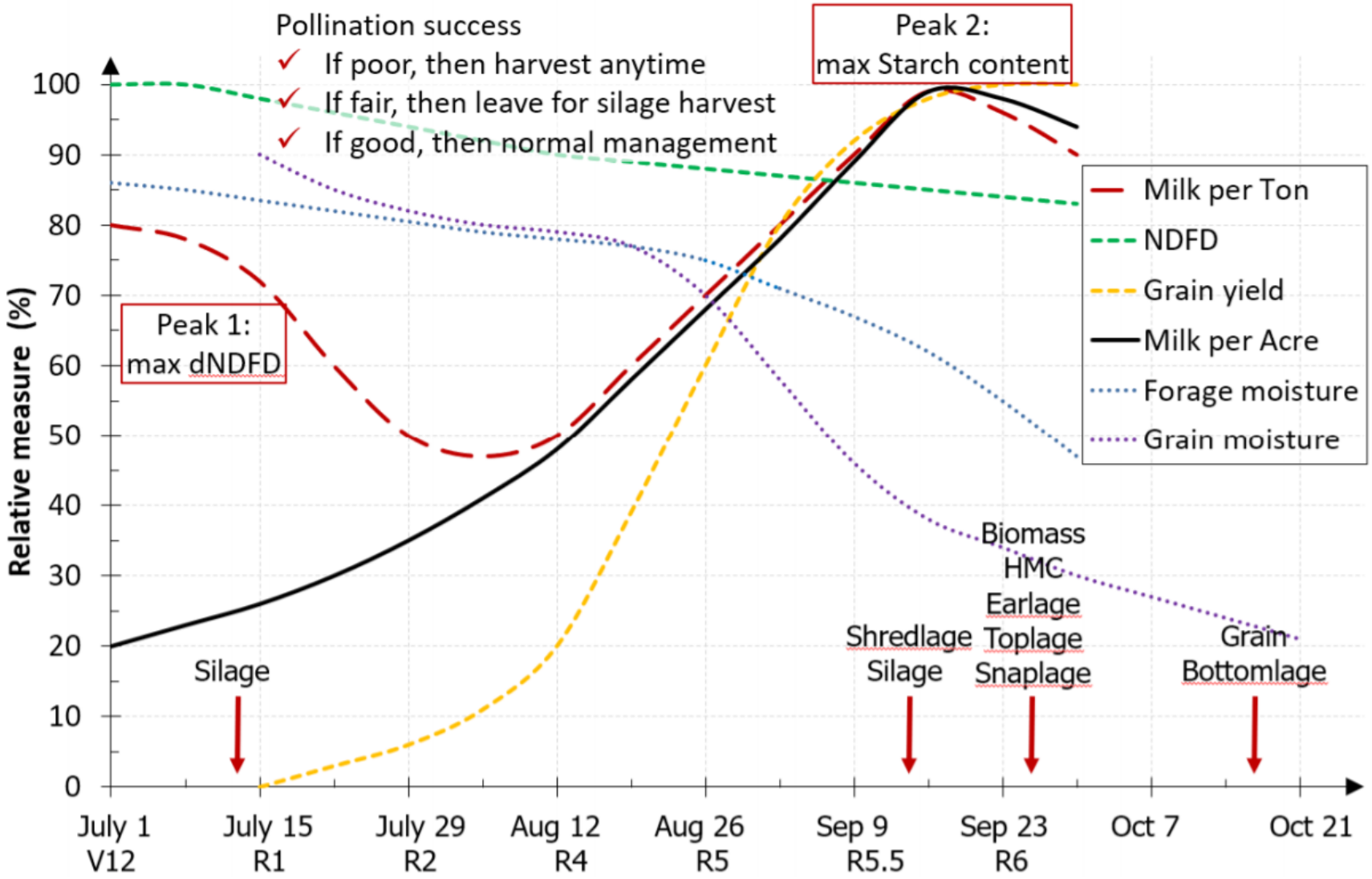

Figure 1. Normal Pattern of Corn Forage and Grain Development in Wisconsin.

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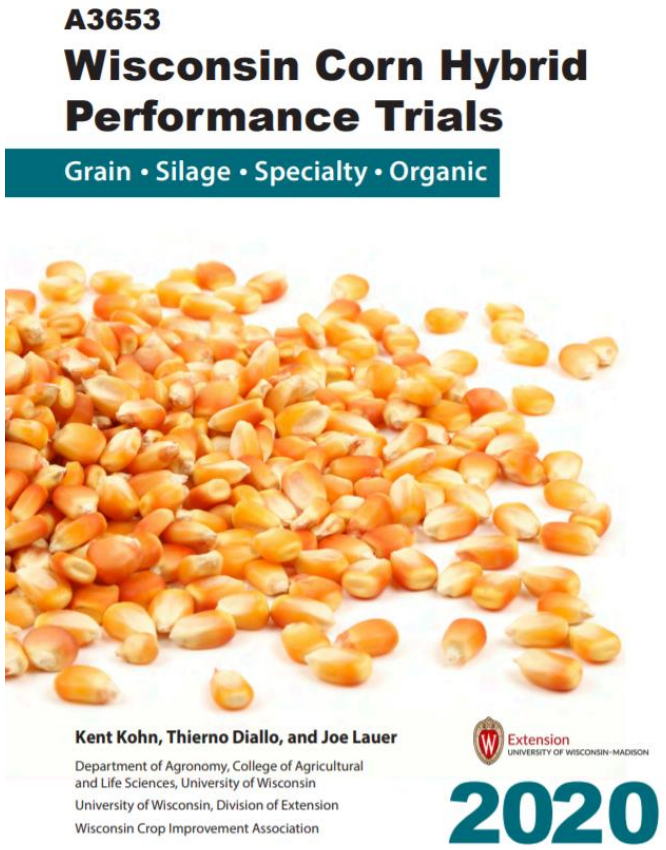
#1 Hybrid Selection

- ✓Yield
- ✓Forage quality
- ✓Moisture
- ✓Lodging resistance
- ✓Pest Resistance
- ✓Specialty genes
  (management, markets, etc.)



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#1 Hybrid Selection

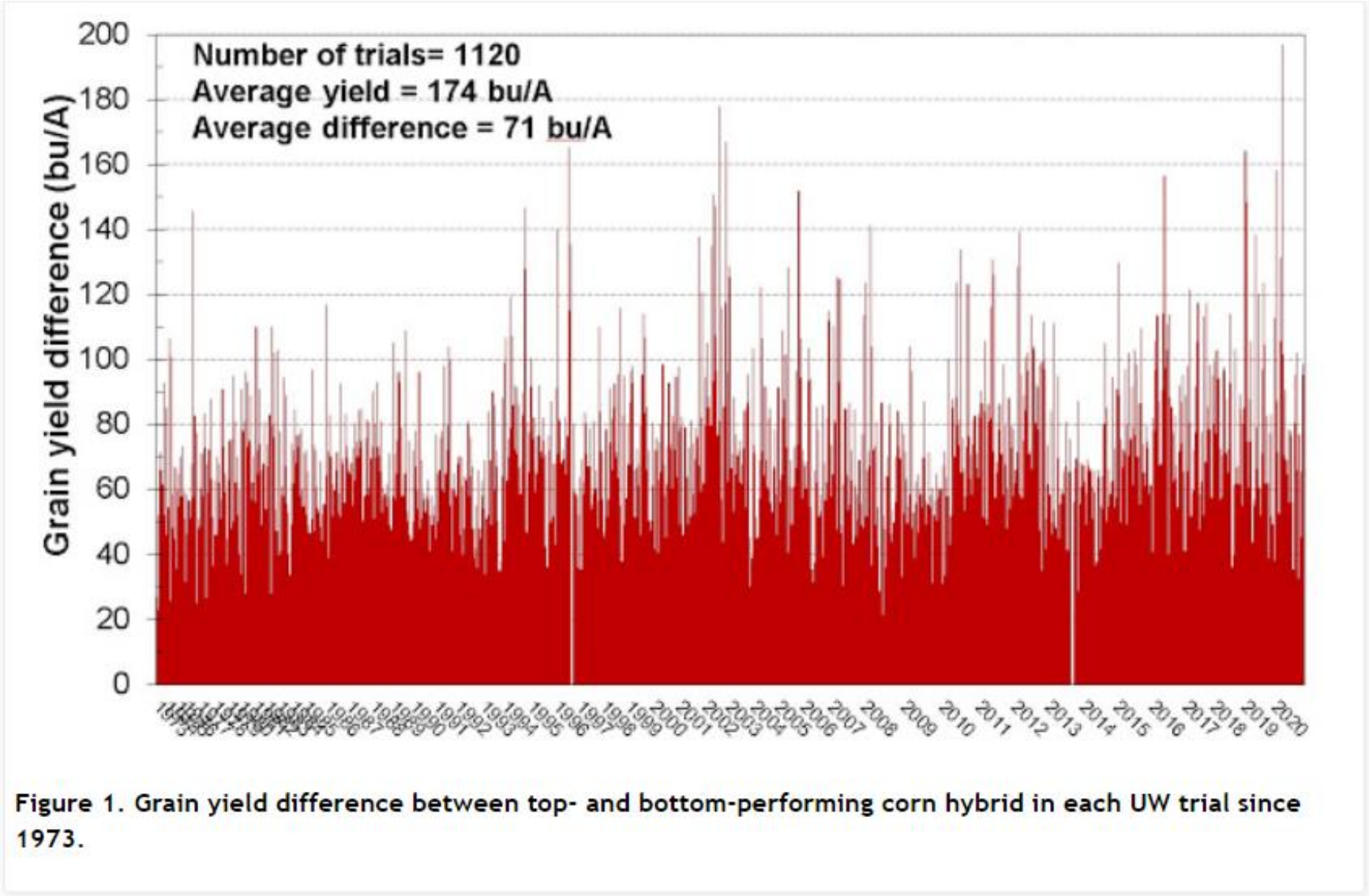

Figure 1. Grain yield difference between top- and bottom-performing corn hybrid in each UW trial since 1973.

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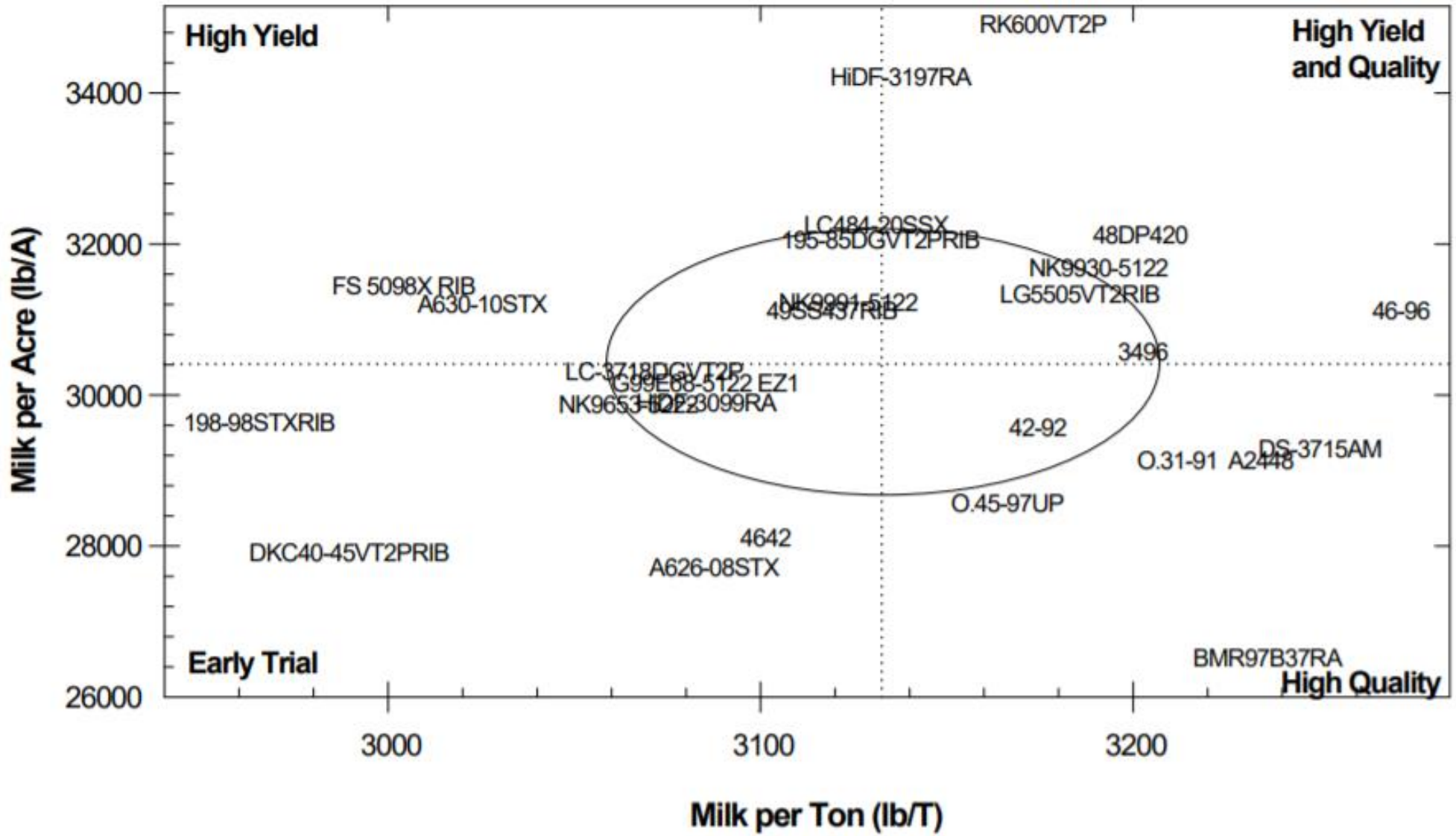
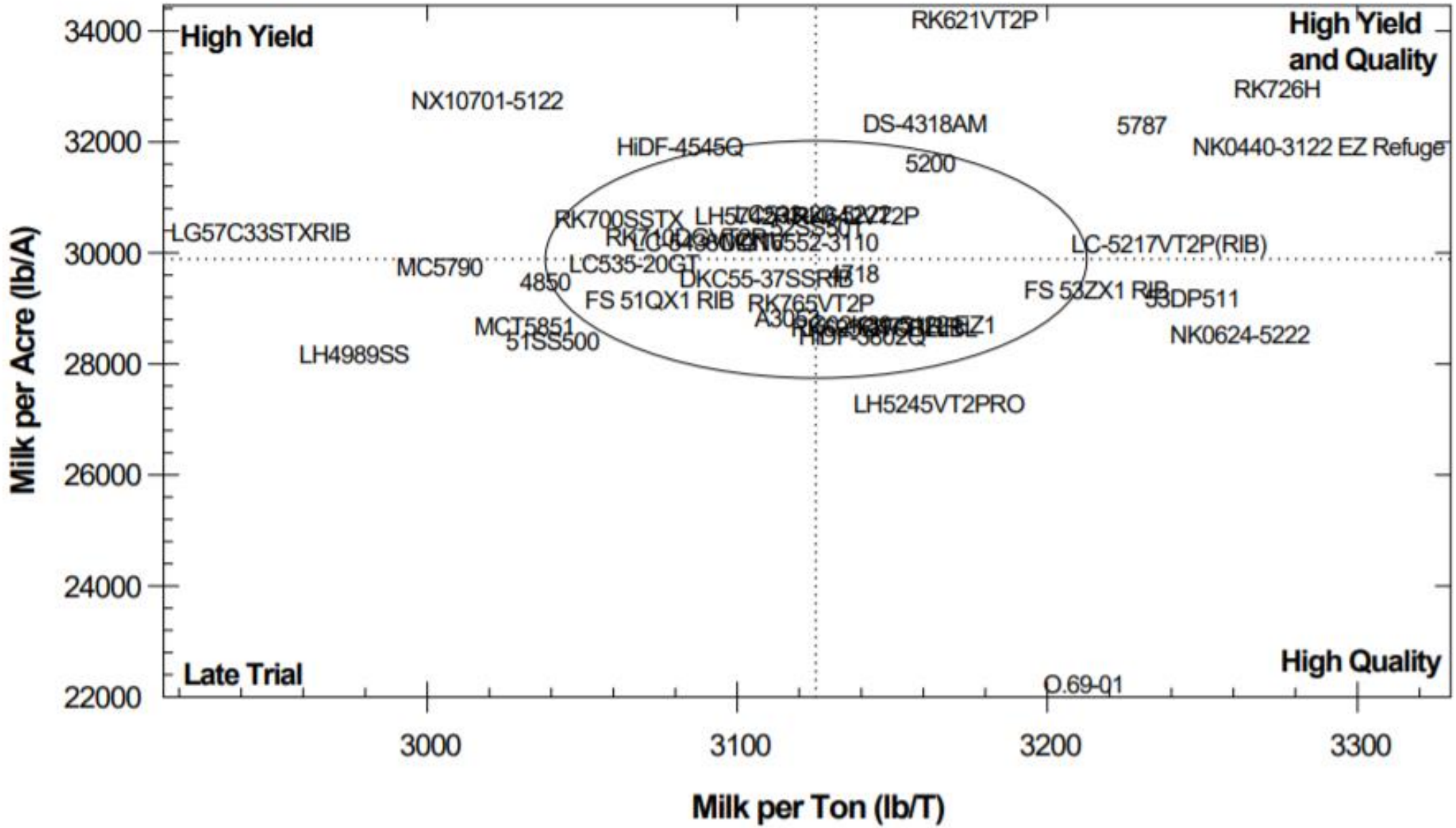
Figure 4. Relationship between Milk per Acre and Milk per Ton of corn hybrids in North Central Wisconsin during 2020.

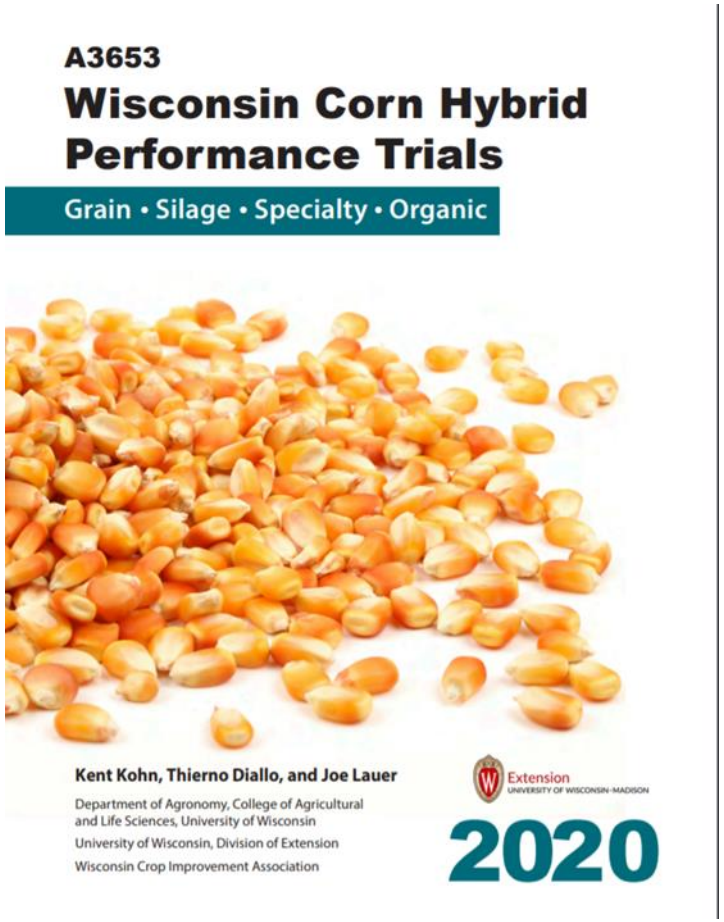



High Yield
High Yield and Quality
Late Trial
High Quality
RK621VT2P
RK726H
NX10701-5122
DS-4318AM
5787
HiDF-4545Q
NK0440-3122 EZ Refuge
5200
LG57C33STXRIB
RK700SSTX
LC-5217VT2P(RIB)
MC5790
LC535-20GT
4850
DKC55-37SSRIB
FS 53ZX1 RIB
FS 51QX1 RIB
RK765VT2P
MCT5851
51SS500
NK0624-5222
LH4989SS
LH5245VT2PRO
O.69-01
Milk per Acre (lb/A)
34000
32000
30000
28000
26000
24000
22000
3000
3100
3200
3300
Milk per Ton (lb/T)

#1 Hybrid Selection

What makes a good forage?

- ✓ High yield
- ✓ High energy (high digestibility)
- ✓ High intake (high fiber)
- ✓ High protein
- ✓ Proper moisture at harvest



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#2 Harvest Timing

- ✓Too wet
  - ✓Reduced yield
  - ✓Souring
  - ✓Seepage
  - ✓Low intake by dairy cows
- ✓Too Dry
  - ✓Reduced yield
  - ✓Cause molds to develop
  - ✓Lowers digestability

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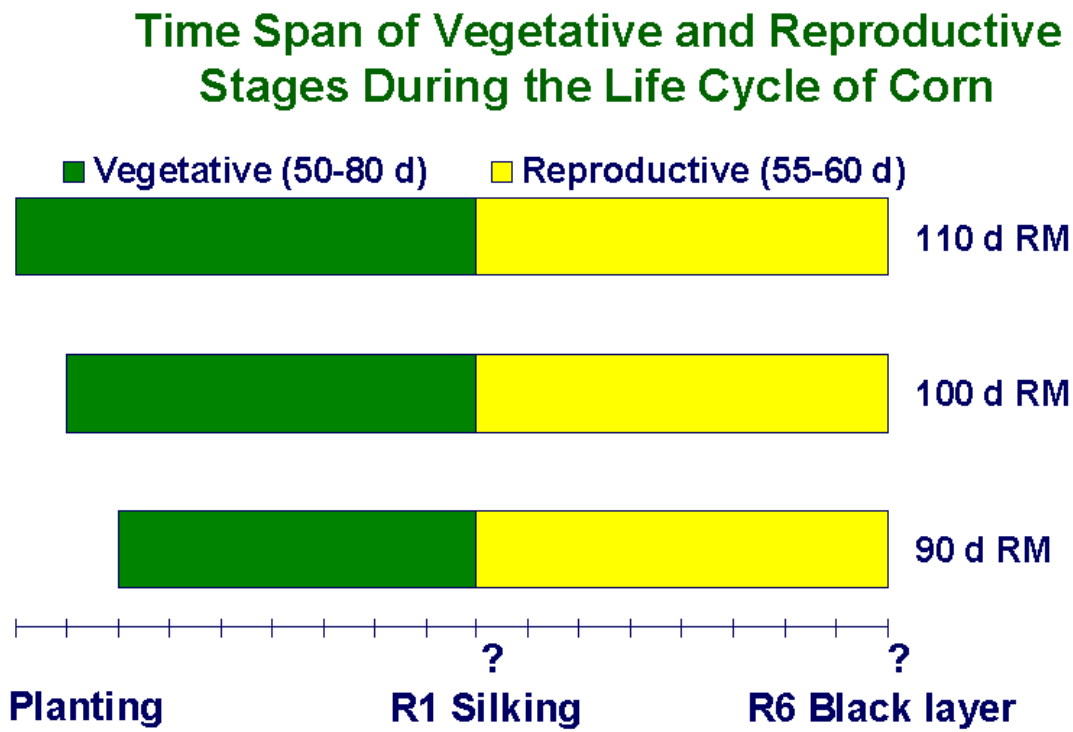
#2 Harvest Timing

- ✓If timing is missed, all for nothing?
- ✓Note tasseling (silking) date
- ✓Kernels at 50% milkline 42-47 days after silking



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#2 Harvest Timing

If timing missed, season is all for nothing

Kind of like the double-doink

1. Paid to grow the crop
2. Now missed the quality window

https://www.youtube.com/watch?v=BICgLiBy46o

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#2 Harvest Timing

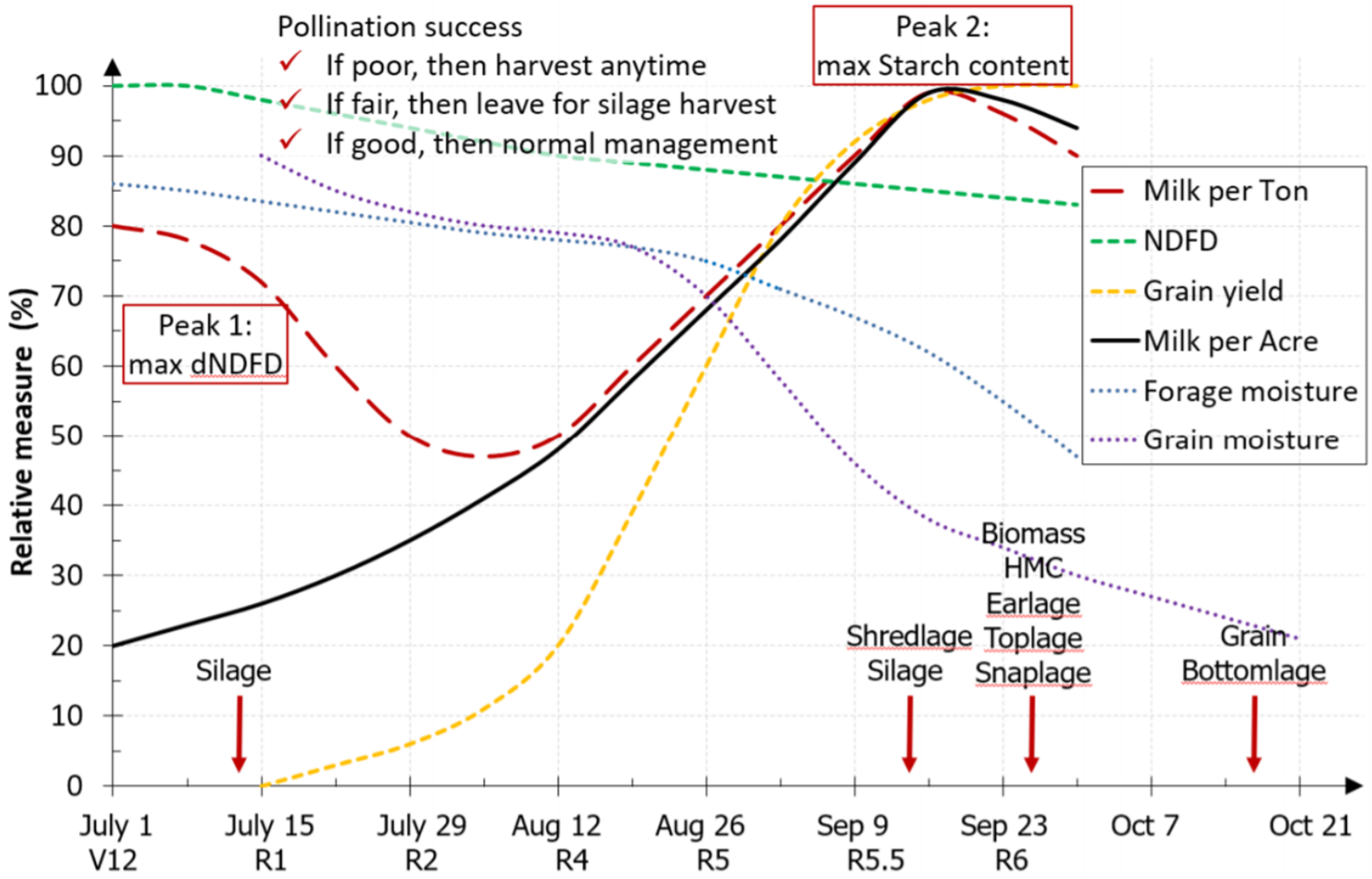

Figure 1. Normal Pattern of Corn Forage and Grain Development in Wisconsin.

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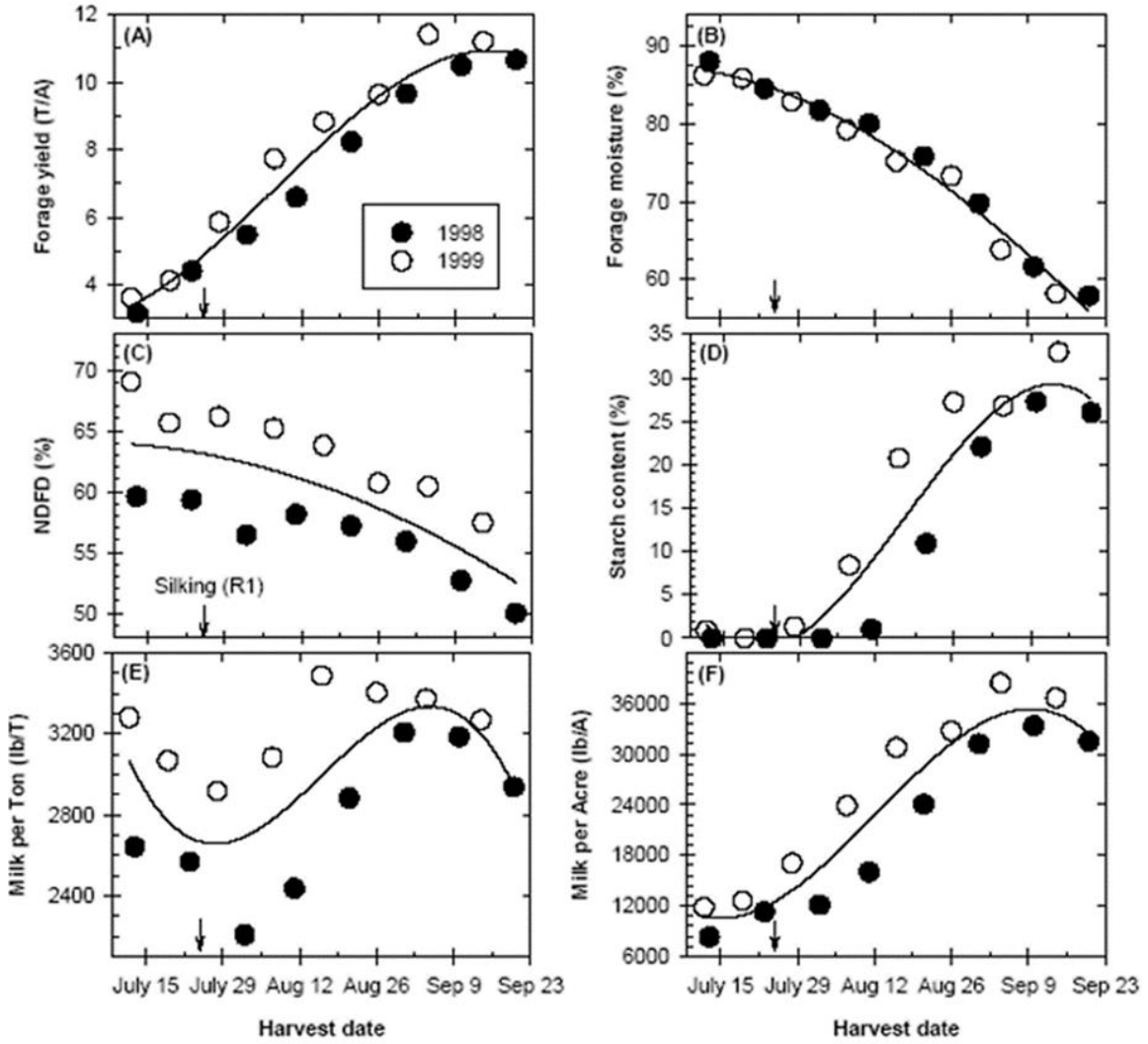
#3 Tradeoff exists between yield and quality



Changes in corn forage yield and quality with harvest date

Each value = mean of 4 hybrids and 4 reps

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#4 Early Planting Date

- Priceless
  - ✓ “Sets up the season”
- Focus on seedbed and date not soil temperature
- Follow local extension recommendations
  - ✓Crop insurance requirements
- Disadvantages of early planting
  - Seedling diseases
  - Late spring frost

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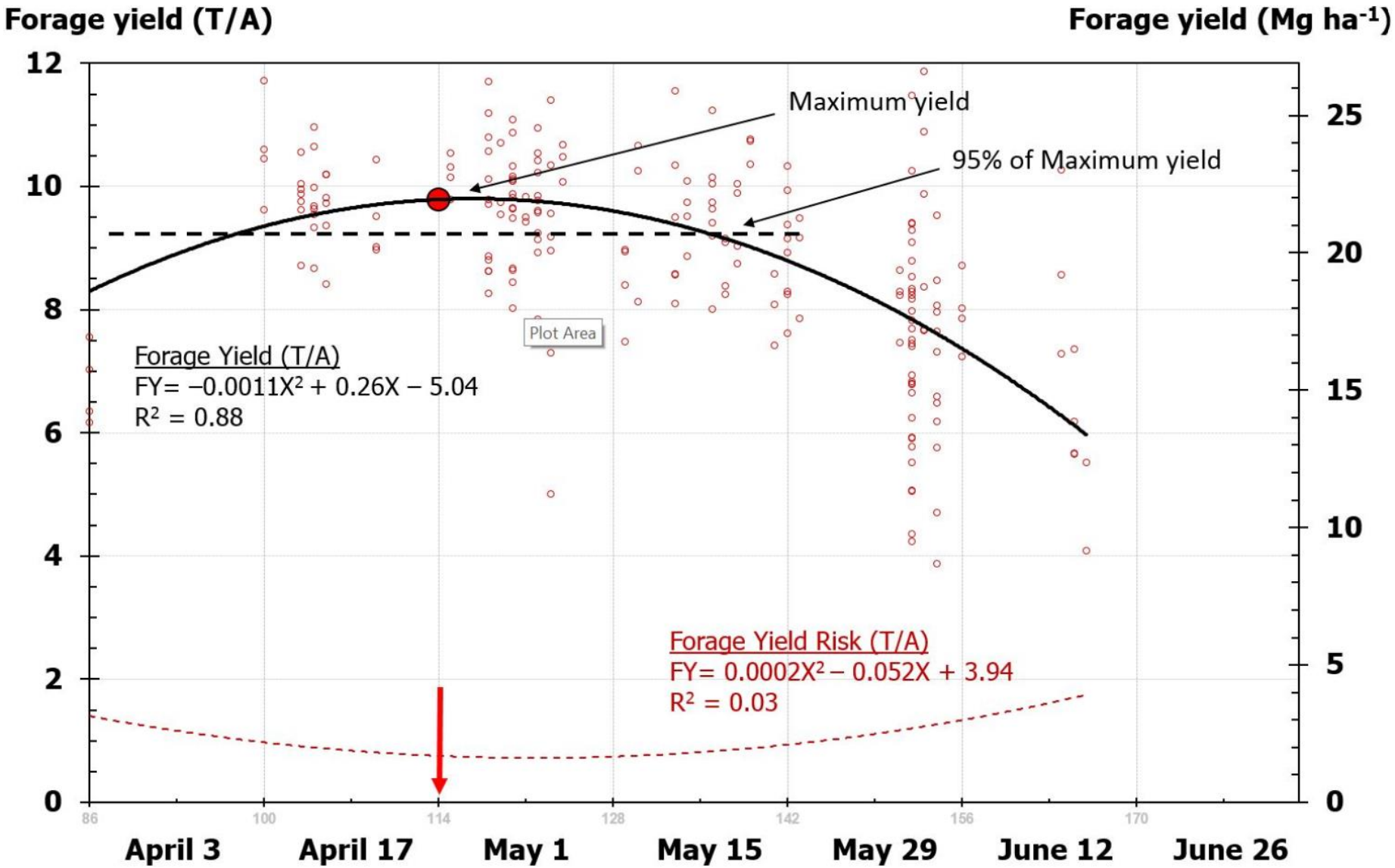
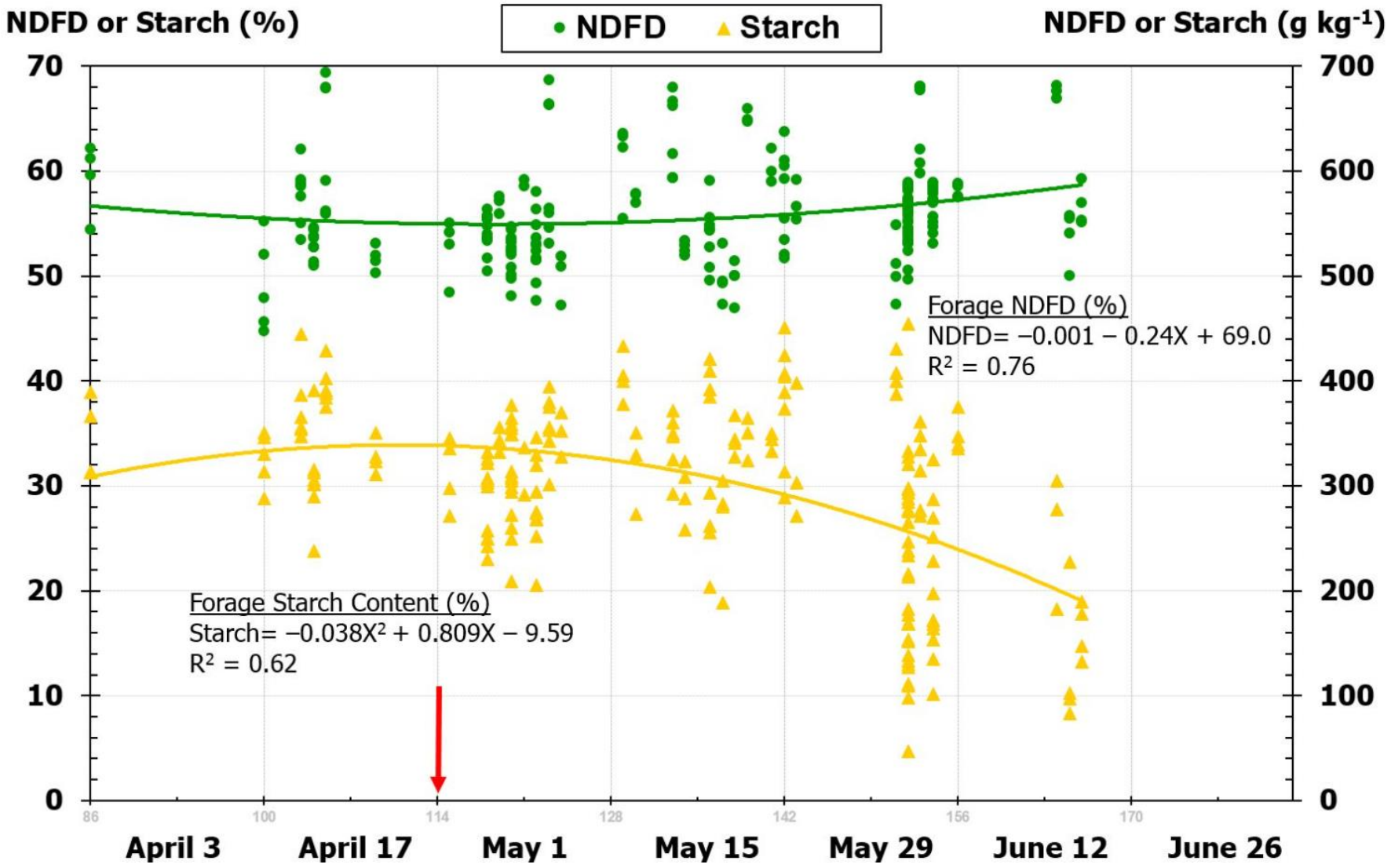
#4 Early Planting Date



#4 Early Planting Date



#5 Increase Planting Population

- ✓Most potential to move to new yield plateau
- ✓Plant densities are increasing with new hybrids
- ✓Generally 5,000 to 8,000 more seeds per acre for forage than grain

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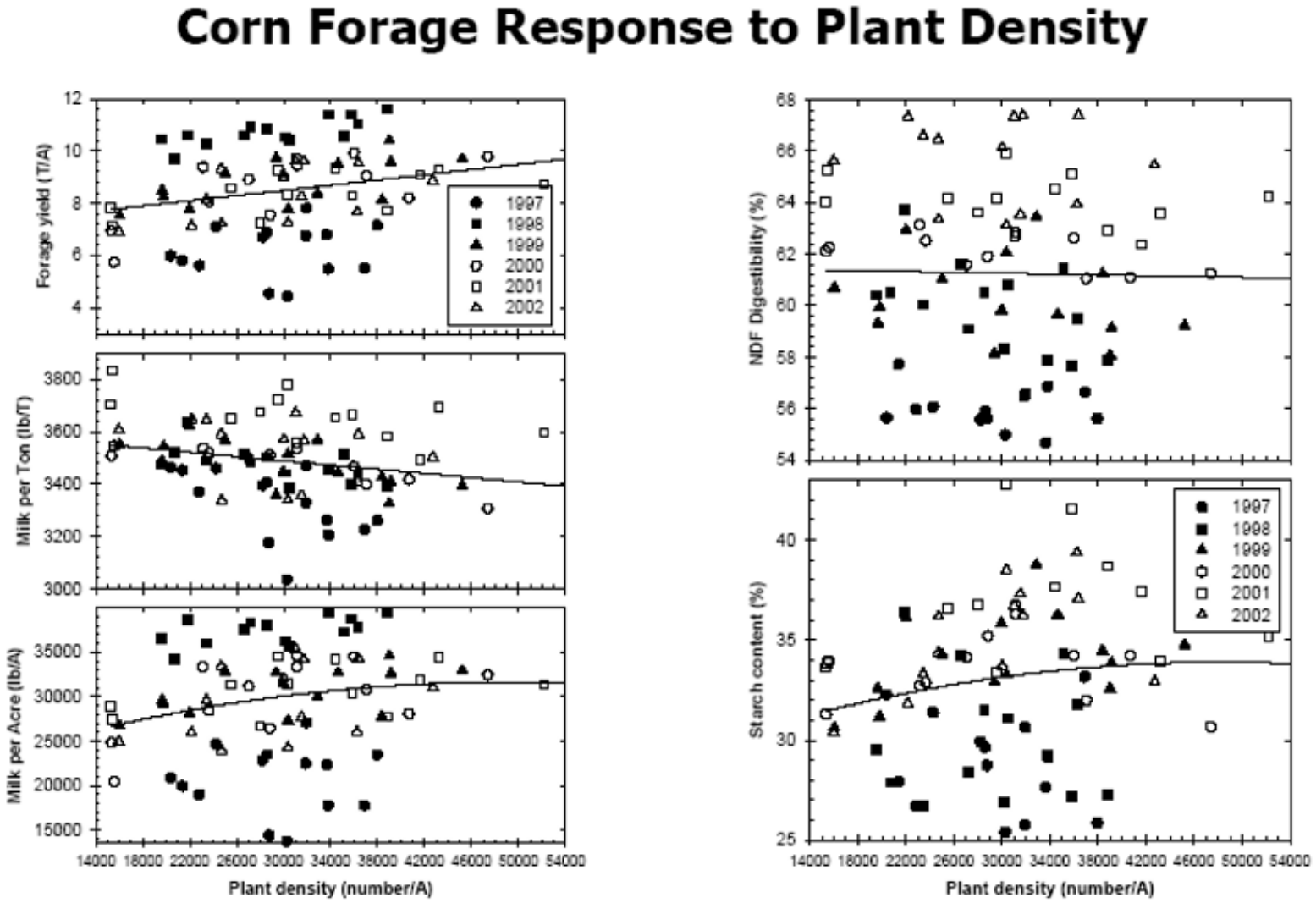
#5 Increase Planting Population



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#5 Increase Planting Population

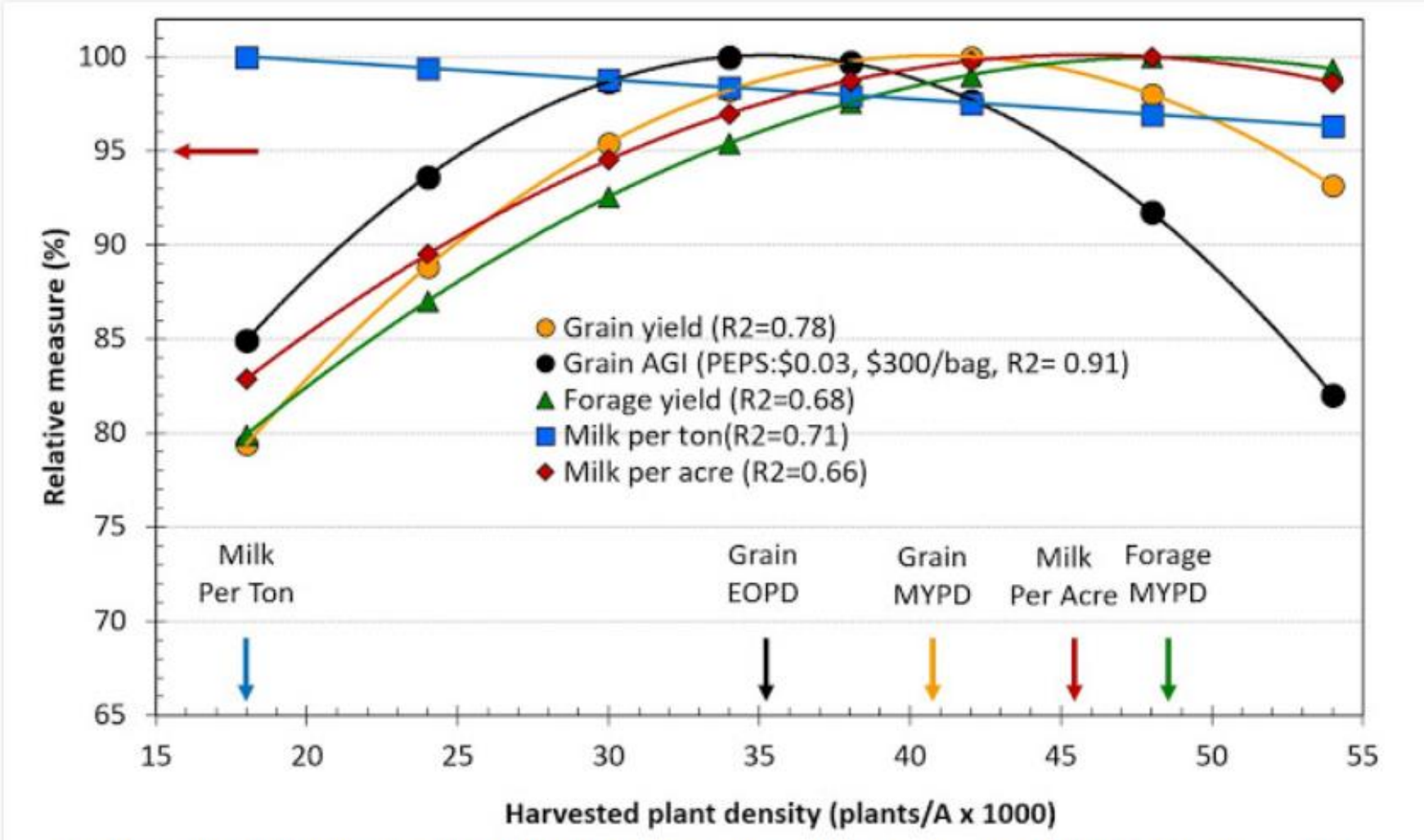
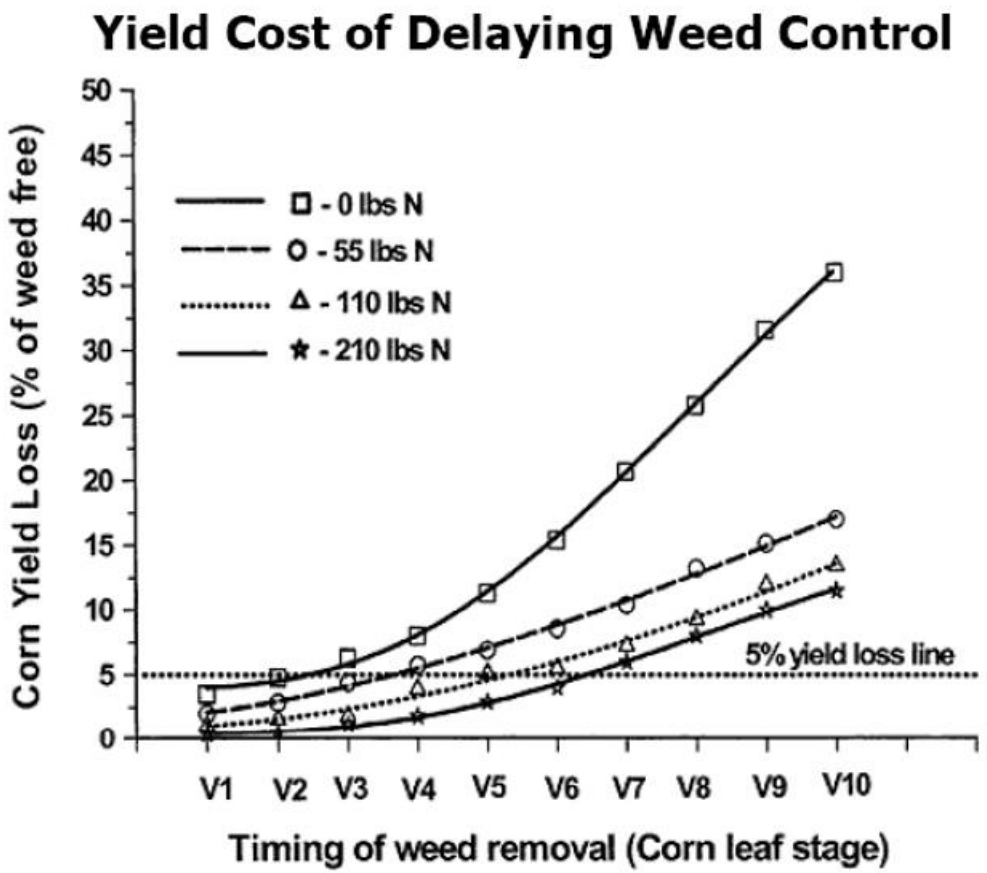


Figure 2. Relationship between corn plant density and grain yield, economic optimum (AGI), forage yield, Milk/Ton, and Milk/Acre. Data source: Lauer (Arlington 2008-2017).

#6 Pest Control

- ✓Timeliness is everything
- ✓Control weeds early
  - ✓Critical periods of competition
  - ✓Timing
  - ✓Weed density



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#6 Pest Control

Insect Management

- ✓Scout
- ✓Be timely
- ✓Insects are adapting
  - ✓Northern Corn Rootworm
  - ✓Western Corn Rootworm
  - ✓Western Bean Cutworm
  - ✓European Corn Rootworm

Disease Management

- ✓What is good for the crop is good for the pest
- ✓Scout for
  - ✓Tar spot
  - ✓Northern Corn Leaf Blight
  - ✓Ear rots

#7 Adequate Soil Fertility

- ✓Not the place to cut costs
- ✓Soil test and only apply needed nutrients
  - ✓Use cheapest form of fertilizer per unit of N, P, K (might be manure)
  - ✓Use manure and legume credits
  - ✓Don’t cut back on N unless already overapplying
  - ✓Only use micronutrients if soil test recommends

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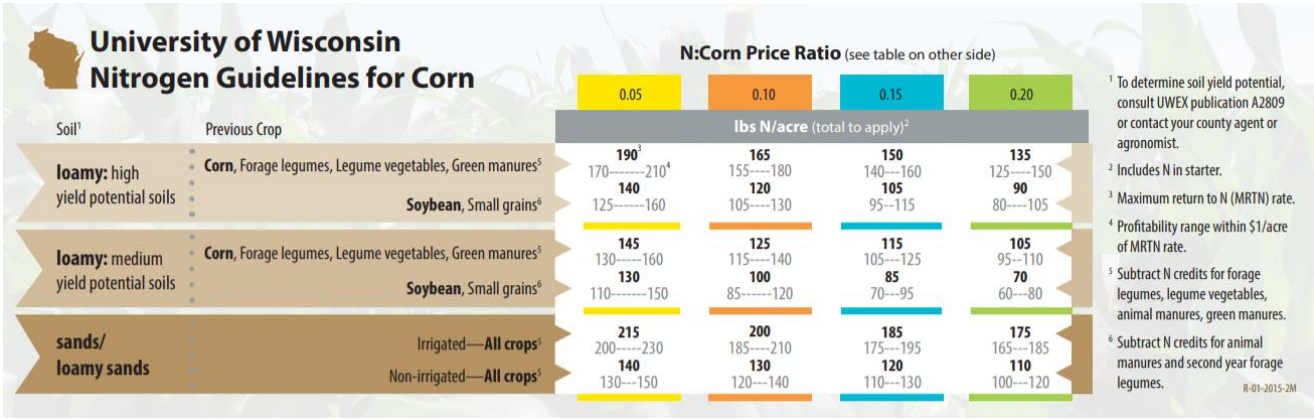
Use Corn N Rate Calculator
Apple App Store
Google Play



University of Wisconsin Nitrogen Guidelines for Corn

N:Corn Price Ratio (see table on other side)

Soil[1]	Previous Crop	0.05	0.10	0.15	0.20
		lbs N/acre (total to apply)[2]			
loamy: high yield potential soils	**Corn**, Forage legumes, Legume vegetables, Green manures[5]	**190**[3] 170-------210[4]	**165** 155----180	**150** 140---160	**135** 125----150
	Soybean, Small grains[6]	**140** 125------160	**120** 105----130	**105** 95--115	**90** 80----105
loamy: medium yield potential soils	**Corn**, Forage legumes, Legume vegetables, Green manures[5]	**145** 130-----160	**125** 115----140	**115** 105---125	**105** 95--110
	Soybean, Small grains[6]	**130** 110-------150	**100** 85------120	**85** 70---95	**70** 60---80
sands/ loamy sands	Irrigated—**All crops**[5]	**215** 200-----230	**200** 185----210	**185** 175---195	**175** 165---185
	Non-irrigated—**All crops**[5]	**140** 130---150	**130** 120---140	**120** 110---130	**110** 100---120

[1] To determine soil yield potential, consult UWEX publication A2809 or contact your county agent or agronomist.
[2] Includes N in starter.
[3] Maximum return to N (MRTN) rate.
[4] Profitability range within $1/acre of MRTN rate.
[5] Subtract N credits for forage legumes, legume vegetables, animal manures, green manures.
[6] Subtract N credits for animal manures and second year forage legumes.

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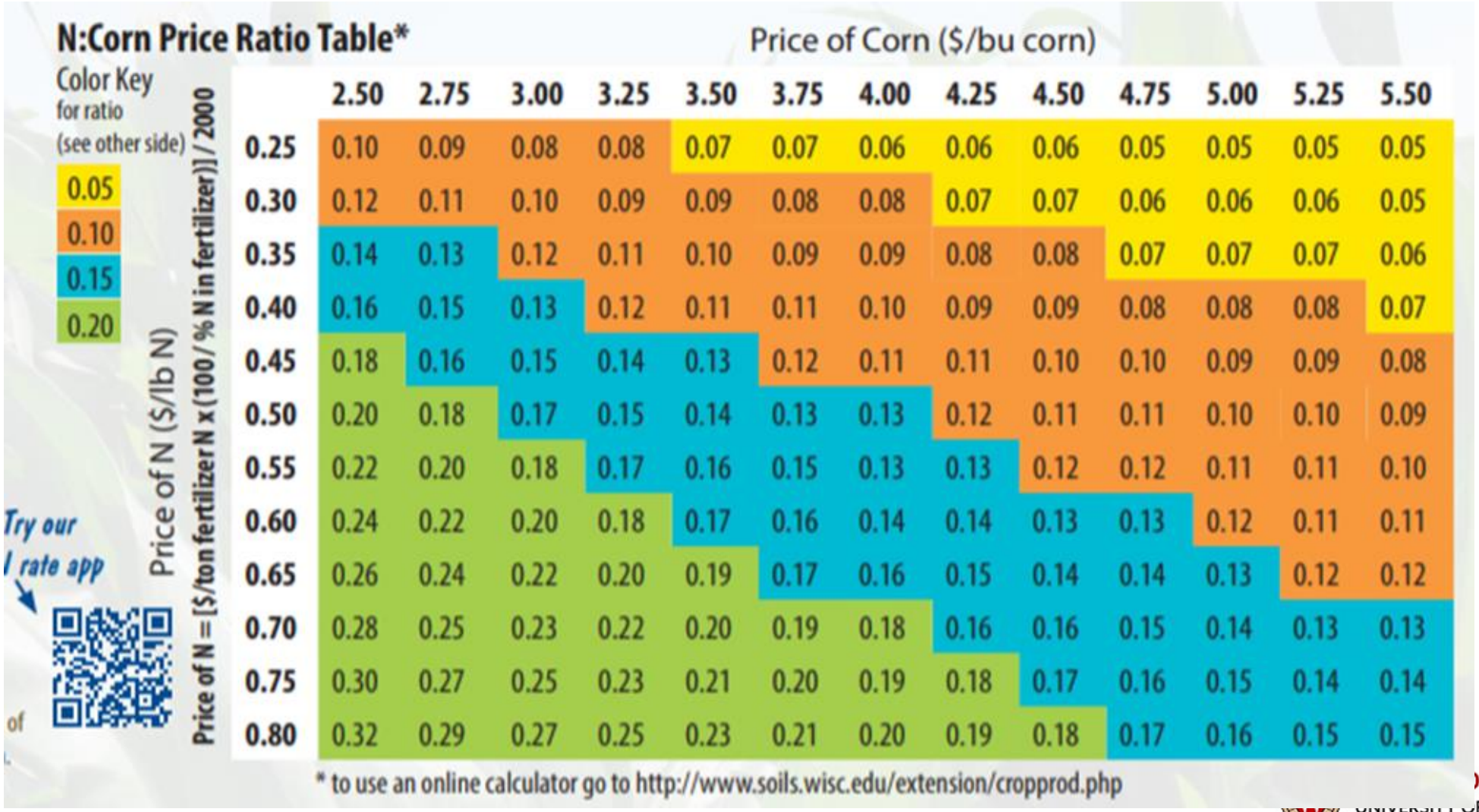
#7 Adequate Soil Fertility



N:Corn Price Ratio Table*

Color Key for ratio (see other side)

0.05
0.10
0.15
0.20

Price of N ($/lb N)

Price of N = [$/ton fertilizer N x (100 / % N in fertilizer)] / 2000

Price of Corn ($/bu corn)

	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50
0.25	0.10	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.05
0.30	0.12	0.11	0.10	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.05
0.35	0.14	0.13	0.12	0.11	0.10	0.09	0.09	0.08	0.08	0.07	0.07	0.07	0.06
0.40	0.16	0.15	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08	0.08	0.08	0.07
0.45	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.10	0.09	0.09	0.08
0.50	0.20	0.18	0.17	0.15	0.14	0.13	0.13	0.12	0.11	0.11	0.10	0.10	0.09
0.55	0.22	0.20	0.18	0.17	0.16	0.15	0.13	0.13	0.12	0.12	0.11	0.11	0.10
0.60	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.14	0.13	0.13	0.12	0.11	0.11
0.65	0.26	0.24	0.22	0.20	0.19	0.17	0.16	0.15	0.14	0.14	0.13	0.12	0.12
0.70	0.28	0.25	0.23	0.22	0.20	0.19	0.18	0.16	0.16	0.15	0.14	0.13	0.13
0.75	0.30	0.27	0.25	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.14
0.80	0.32	0.29	0.27	0.25	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.15

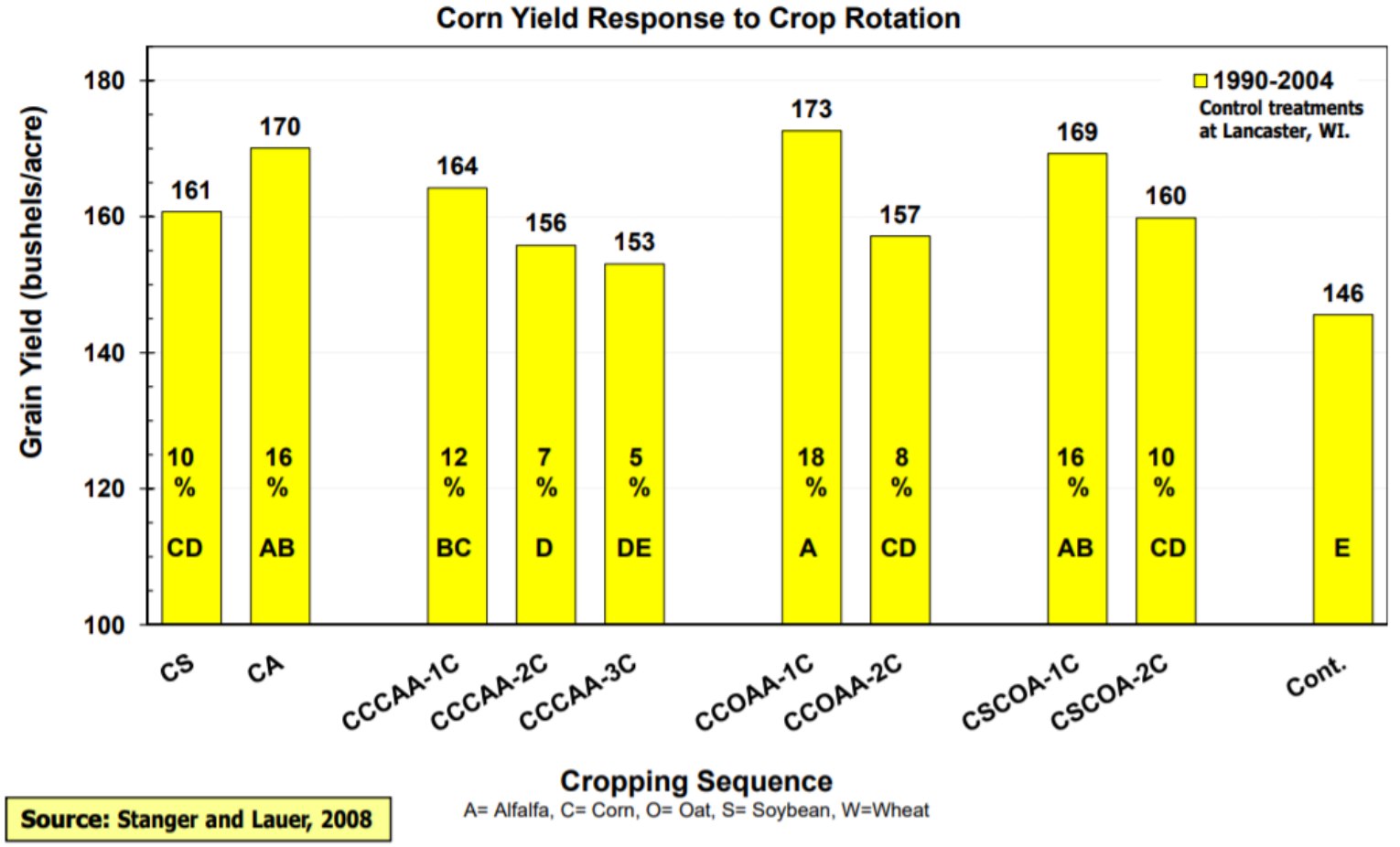
Try our
rate app

of

* to use an online calculator go to http://www.soils.wisc.edu/extension/cropprod.php

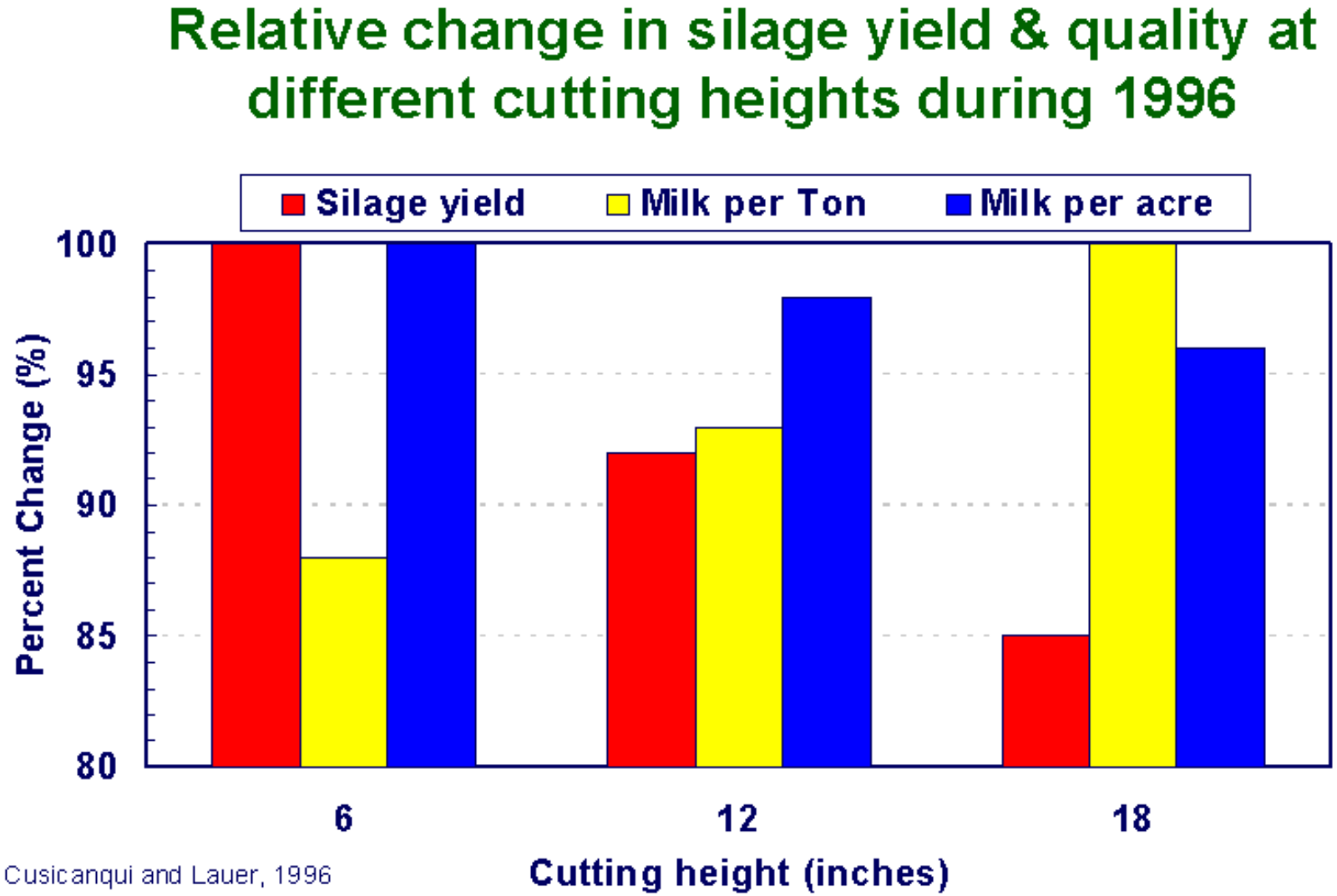
#8 Crop Rotation

At least two break years are needed to measure a response in the second crop phase ...



Source: Stanger and Lauer, 2008

#9 Cut at right height and length



#10 Fill rapidly, Pack well, Cover quickly

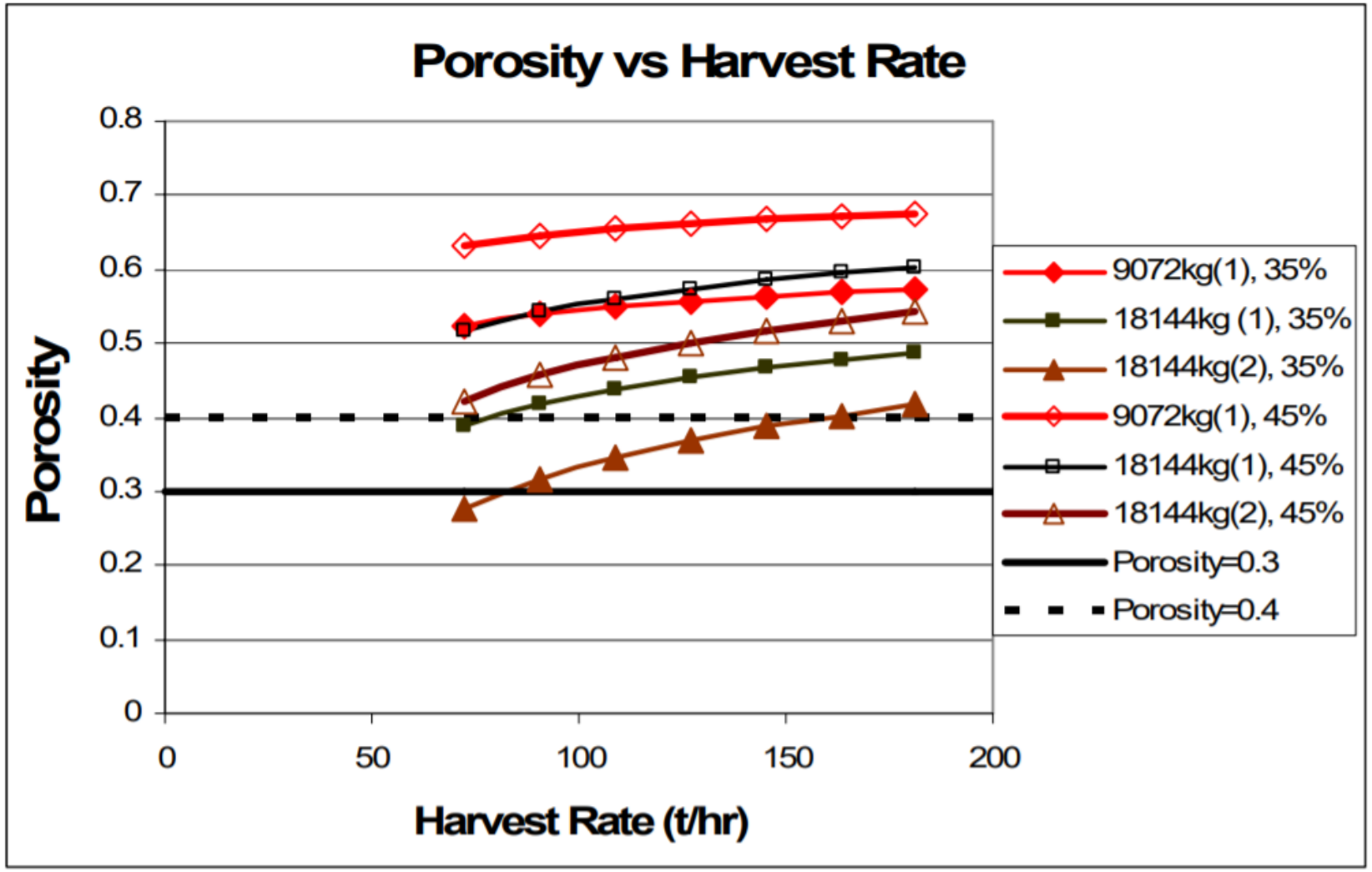


Figure 4. Porosity vs Harvest Rate for Different Tractor Weight (kg), (Number of Packing Tractors) and Dry Matter Content (%)

Brian J. Holmes[1] Richard E. Muck[2]

[1] Biological Systems Engineering Department, University of Wisconsin-Madison

[2] USDA, Agricultural Research Service, U.S. Dairy Forage Research Center, Madison, Wisconsin

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#10 Fill rapidly, Pack well, Cover quickly

Recommended moisture content (%) for corn stored in various types of storage structures.	
Horizontal Bunker/Pile Silos	70-75%
Bag Silos	70-60%
Upright Concrete Stave Silos	65-60%
Upright Oxygen Limiting Silos	60-50%

Management Practices

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Questions?

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