

Northern Corn Issues

International Crops Expo
Grand Forks, ND
February 19, 2009

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The Minnesota Hybrid Corn Silage Evaluation Program evaluates the silage potential of corn hybrids in Minnesota. The goal of the program is to provide unbiased forage yield and quality information for educational and marketing programs.

The program is financed in part by entry fees from private seed companies that chose to enter hybrids for testing. These companies are listed in this publication. Results presented are from corn silage performance trials in regions of extensive corn silage use: southeastern, central and west-central Minnesota. The locations are in important dairy regions of Minnesota.

Test Sites

Silage hybrids entered in the southeast or central region trials were tested at two sites within each region. Hybrids entered in the west-central region were tested at one site. Sites within regions were as follows:

Southeast Dairy Region:
LaCrescent (Houston County)
Rochester (Olmsted County)

Central Dairy Region:
Paynesville (Stearns County)
Melrose (Stearns County)

West-Central Dairy Region:
Ottertail (Otter Tail County)

Test Procedure

Southeast and Central
Design: Plots were established at LaCrescent, Rochester, Paynesville and Melrose in randomized complete block designs with four replications. Hybrids were planted at 33,000 seeds per acre with 30-inch row spacing on May 3 at the SE sites (LaCrescent and Rochester) and May 7 at the Central MN sites (Paynesville and Melrose). Plant nutrients as manure or inorganic fertilizer were applied according to University of Minnesota recommendation. Cultivation and herbicides applied by University of Minnesota recommendation were used to control weeds.

Harvesting: Plots were harvested and whole-plant herbage sampled for dry matter and forage quality analysis at each site. Each test site was harvested when the average whole-plant moisture across entries was estimated to be 65%. In 2008, harvest dates at LaCrescent, Rochester, Paynesville and Melrose were September 9, September 16, September 23 and September 26, respectively.

West-Central

Design: Plots near Ottertail were established May 8 under center-pivot irrigation in a randomized complete block design with three replications. Hybrids were planted at 35,700 seeds per acre with 30-inch row spacing. Fertilizer was fall-applied liquid manure at 8,000 gallons per acre plus 25 gallons per acre 28% in July. Pre-emergent herbicide was applied to control weeds.

Harvesting: Plots were harvested and whole-plant herbage sampled for yield and forage quality analysis on September 24.

Results Provided

Tables 1-5 summarize hybrid yield and forage quality results from LaCrescent, Rochester, Paynesville, Melrose and Ottertail, respectively.

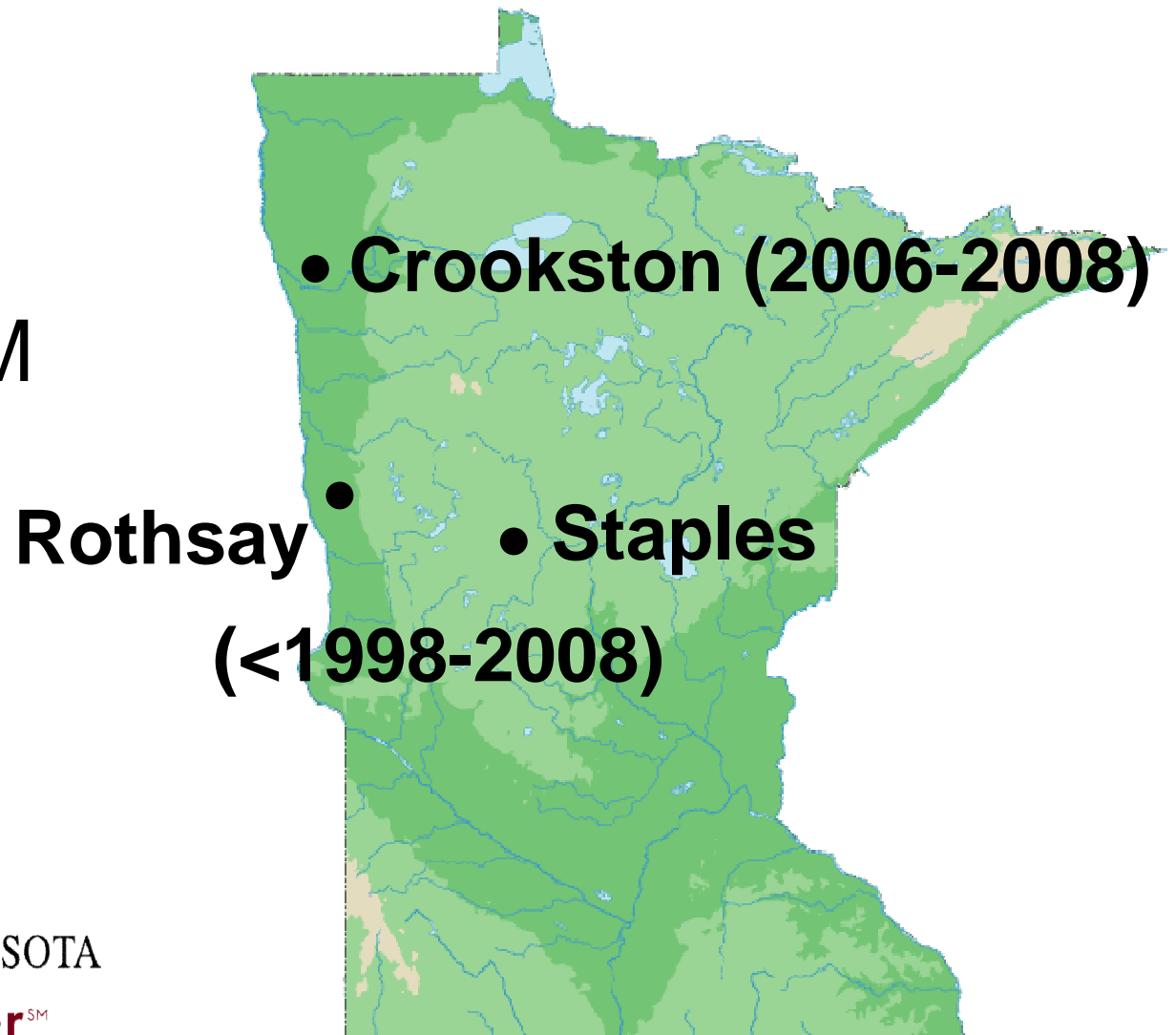
Companies participating in 2008 hybrid corn silage performance trials.

Crop Production Services (VIGORO)	220 Bottmiller Dr, Wadena Industrial Park, Wadena, MN 56482	www.cropproductionservices.com
Dairyland Seed Co, Inc.	P O Box 958, West Bend, WI 53095	www.dairylandseed.com
Dekalb (Monsanto Co)	800 N Lindberg Blvd., St Louis, MO 63167	www.dekalb.com
Fielder's Choice Direct	306 North Main, P O Box 898, Monticello, IN 47960	www.fielderschoicedirect.com
Garst Seed Company	2369 330th St, Slater, IA 50244	www.garst.seed
Gold Country Seed Inc.	16506 Hwy 15 North, P O Box 604, Hutchinson, MN 55350	www.goldcountryseed.com
Golden Harvest Seeds, Inc.	100 JC Robinson Blvd, P O Box 307, Waterloo, NE 68069	www.goldenharvestseeds.com
Heartland Hybrids	850 1st St North, P O Box J, Dassel, MN 55325	www.heartlandhybrids.com
Hyland Seeds	2 Hyland Drive, Bienenheim, Ontario, Canada N0P 1A0	www.hylandseeds.com
La Coop Federee (ELITE)	9001 Blvd de l' Acadia, Bureau 200, Montreal, Quebec, Canada H4N 3H7	www.coopfed.qc.ca
Legacy Seeds, Inc.	210 Pine Street, Waupaca, WI 54981	www.legacyseeds.com
Mycogen Seeds	9330 Zionsville Rd, Indianapolis, IN 46268	www.mycogen.com
Nu Tech Seed Co.	307 3rd Street, Alice, ND 58031	www.yieldleader.com
Pioneer Hi-Bred, International	7000 NW 62nd Ave, Johnston, IA 50131	www.pioneer.com
Producers Hybrids	P.O. Box C, Battle Creek, NE 68715	www.producershybrids.com
Renk Seed Co.	6800 Wilburn Road, Sun Prairie, WI 53590	www.renkseed.com
Trelay Seeds	11623 State Road 80N, Livingston, WI 53554	www.trelay.com
Wensman Seed Co.	Box 190, Wadena, MN 56482	www.wensmanseed.com

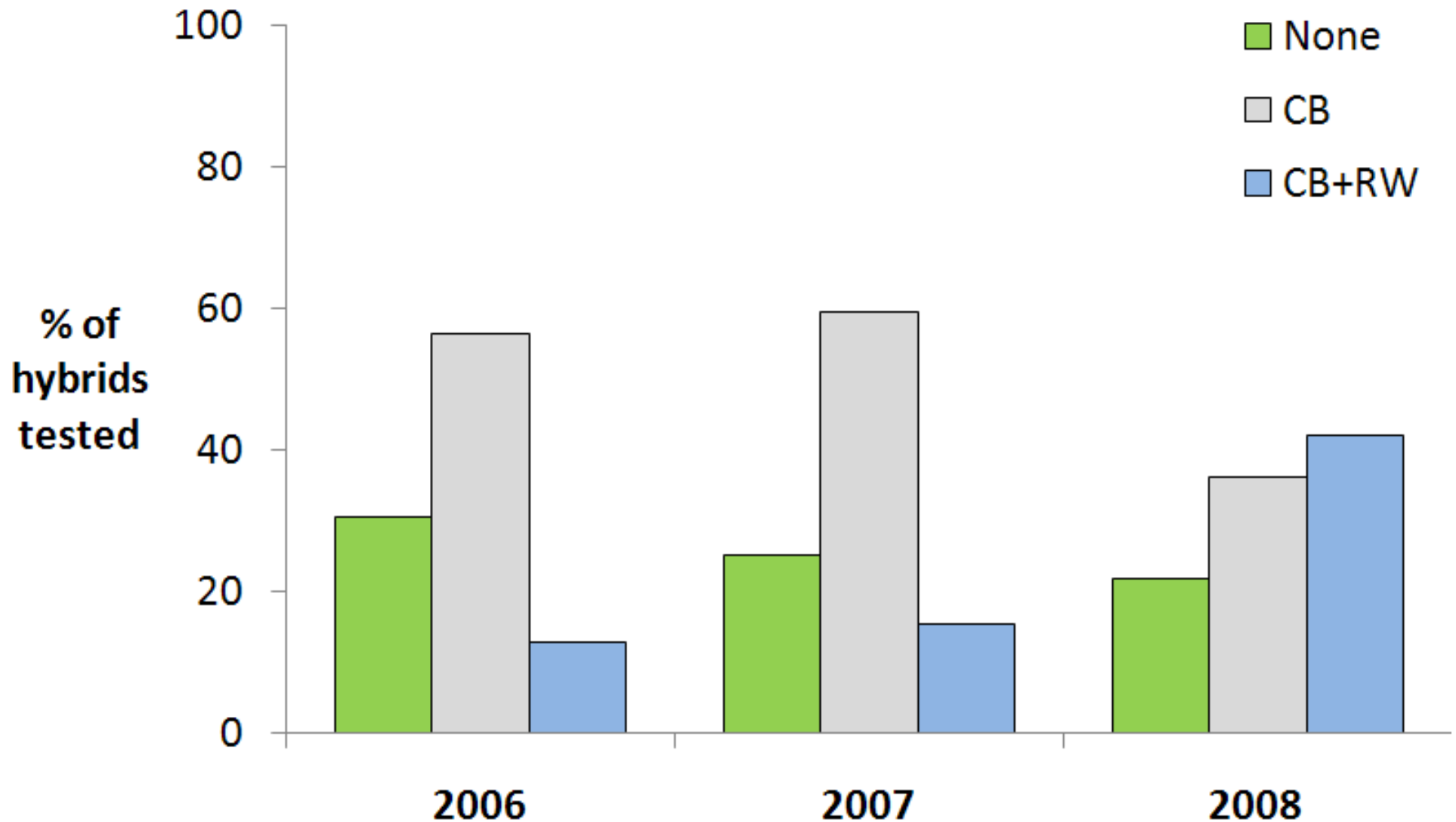


Minnesota Corn Hybrid Trials

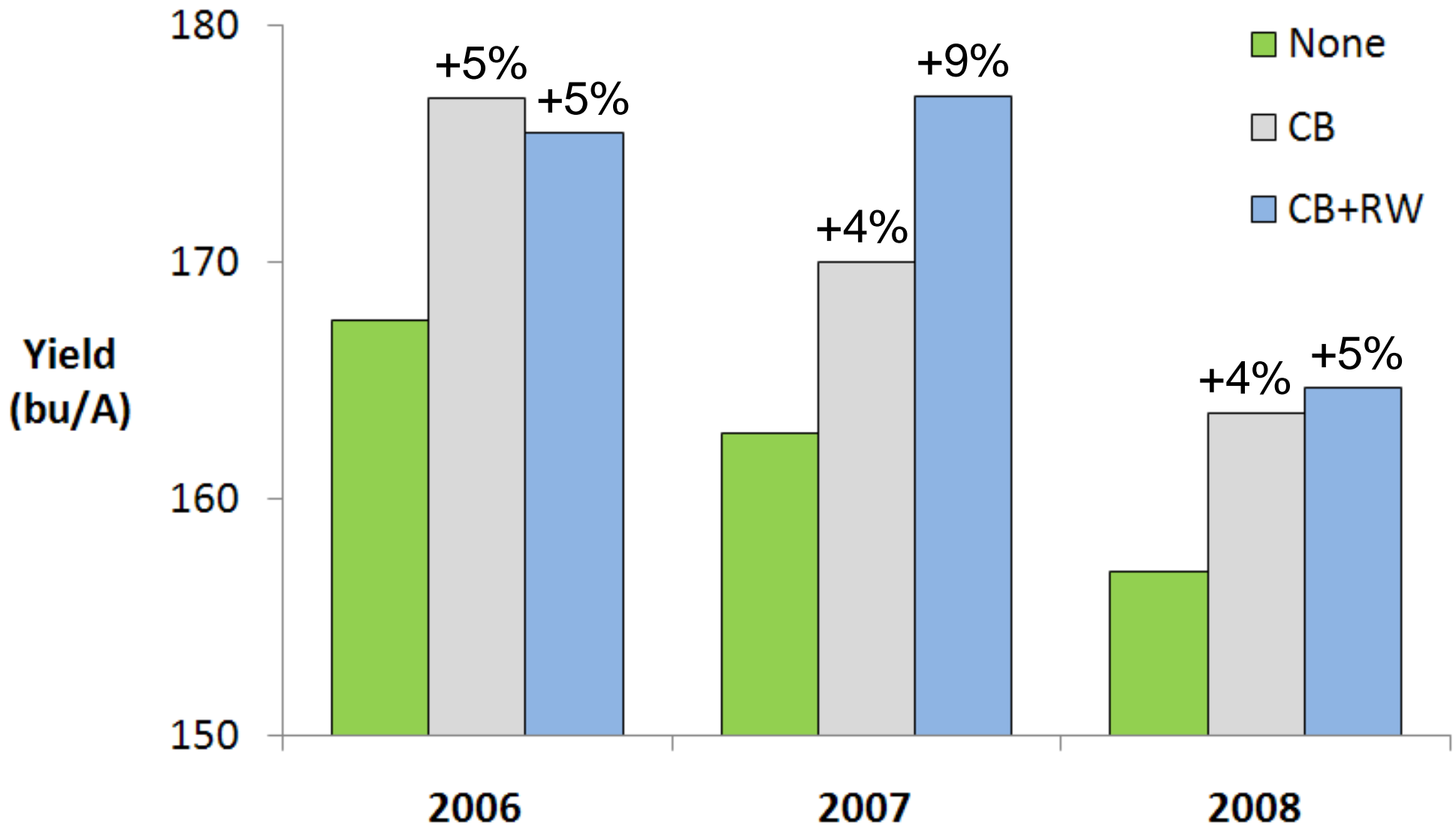
- 71 to 129 hybrids tested annually at all locations
- 78 to 97 day RM



Insect Resistance of Hybrids Tested (Crookston, Rothsay, & Staples)

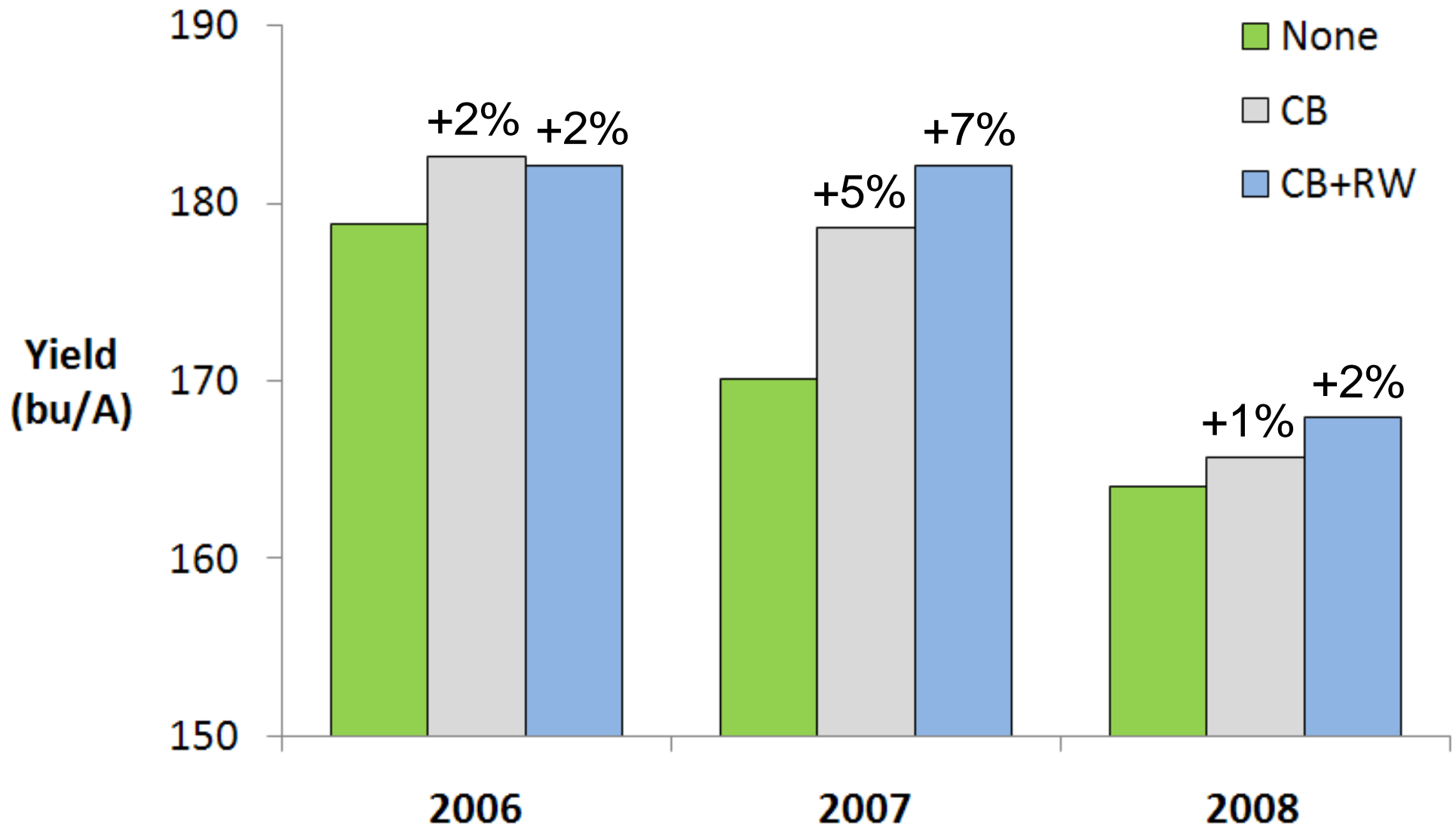


83-87 Day Hybrids (Crookston, Rothsay, & Staples)

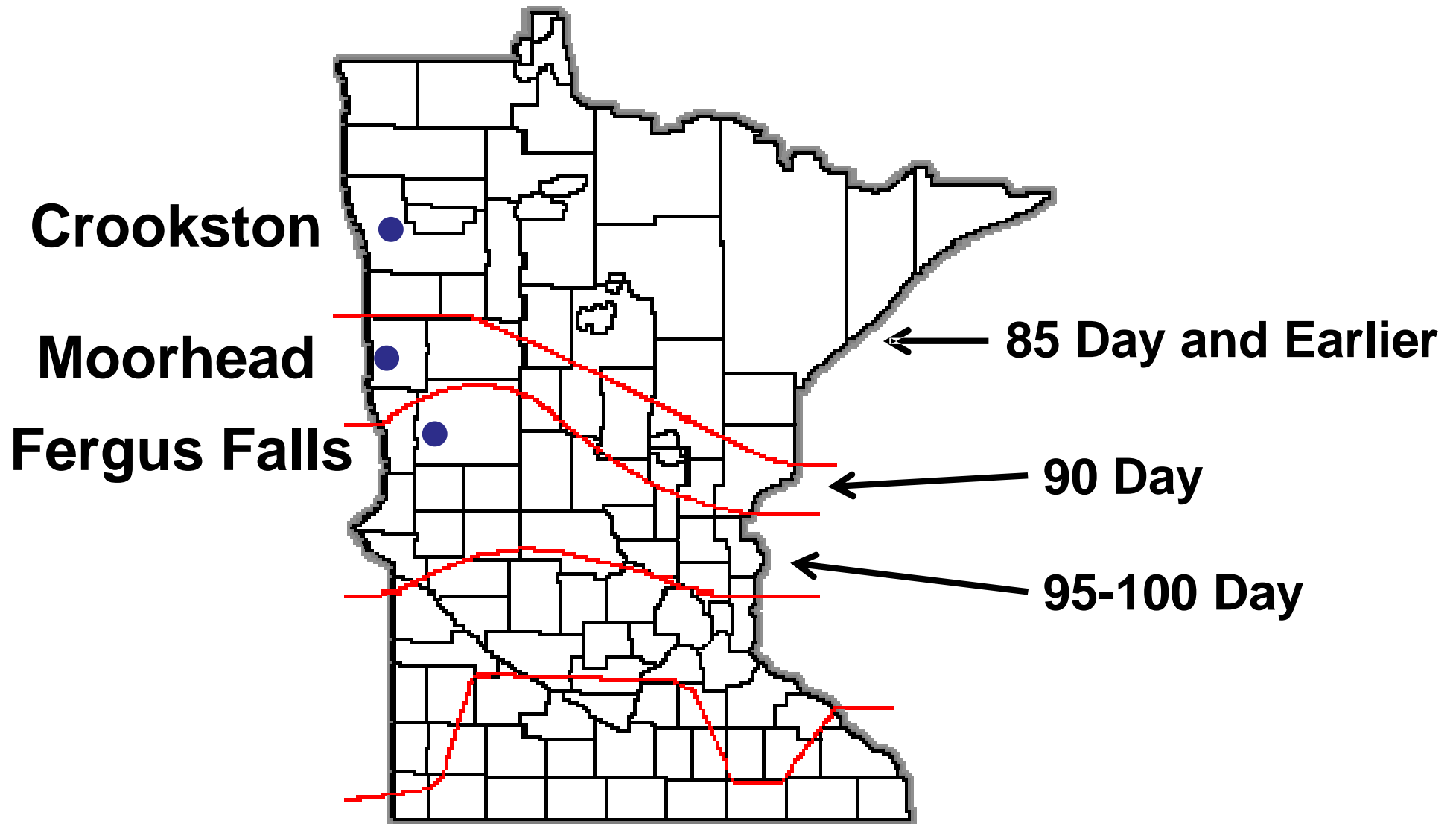


88-92 Day Hybrids

(Crookston, Rothsay, & Staples)

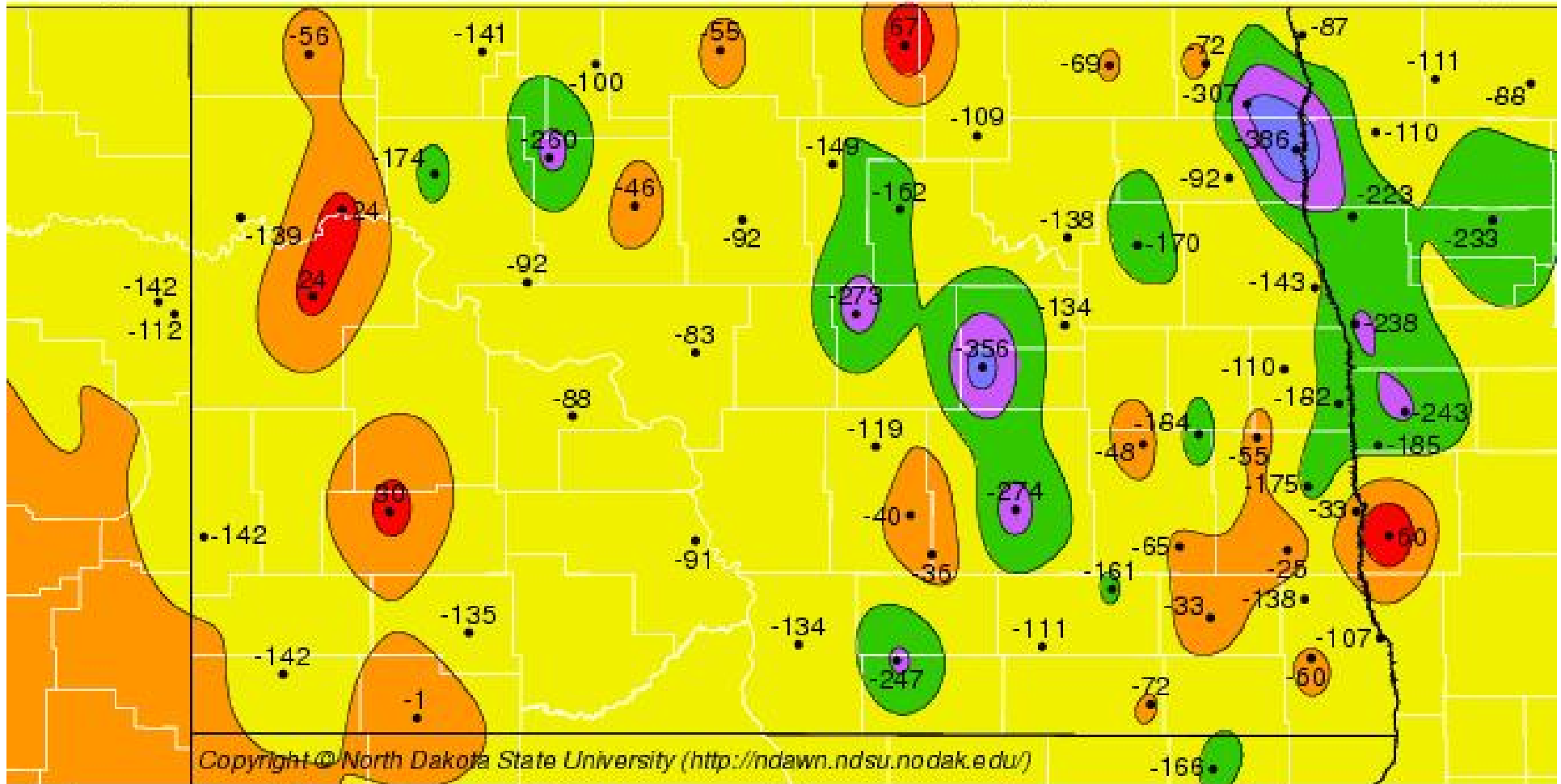


Maximum recommended full-season corn maturities

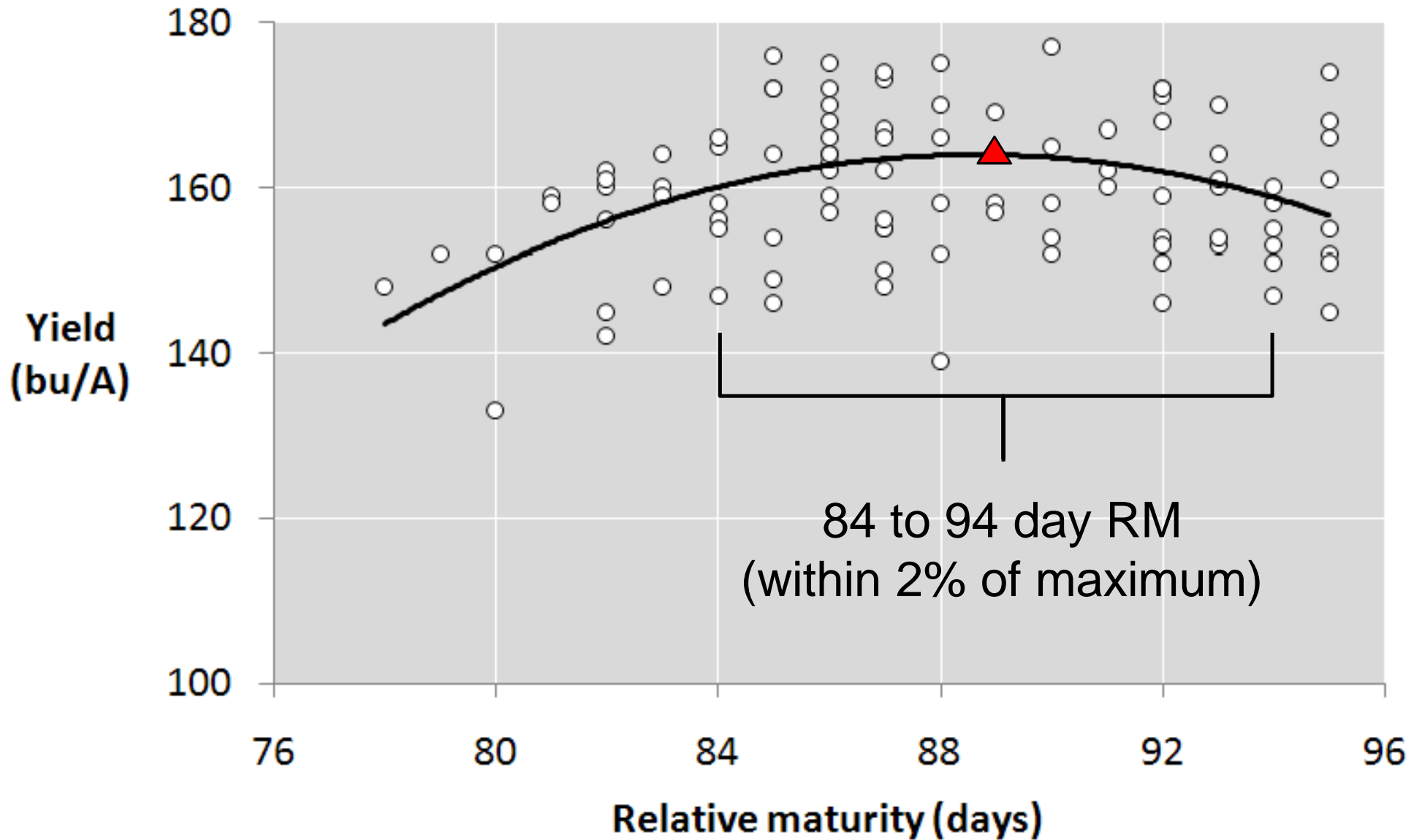


GDD Departure from Normal, 2008

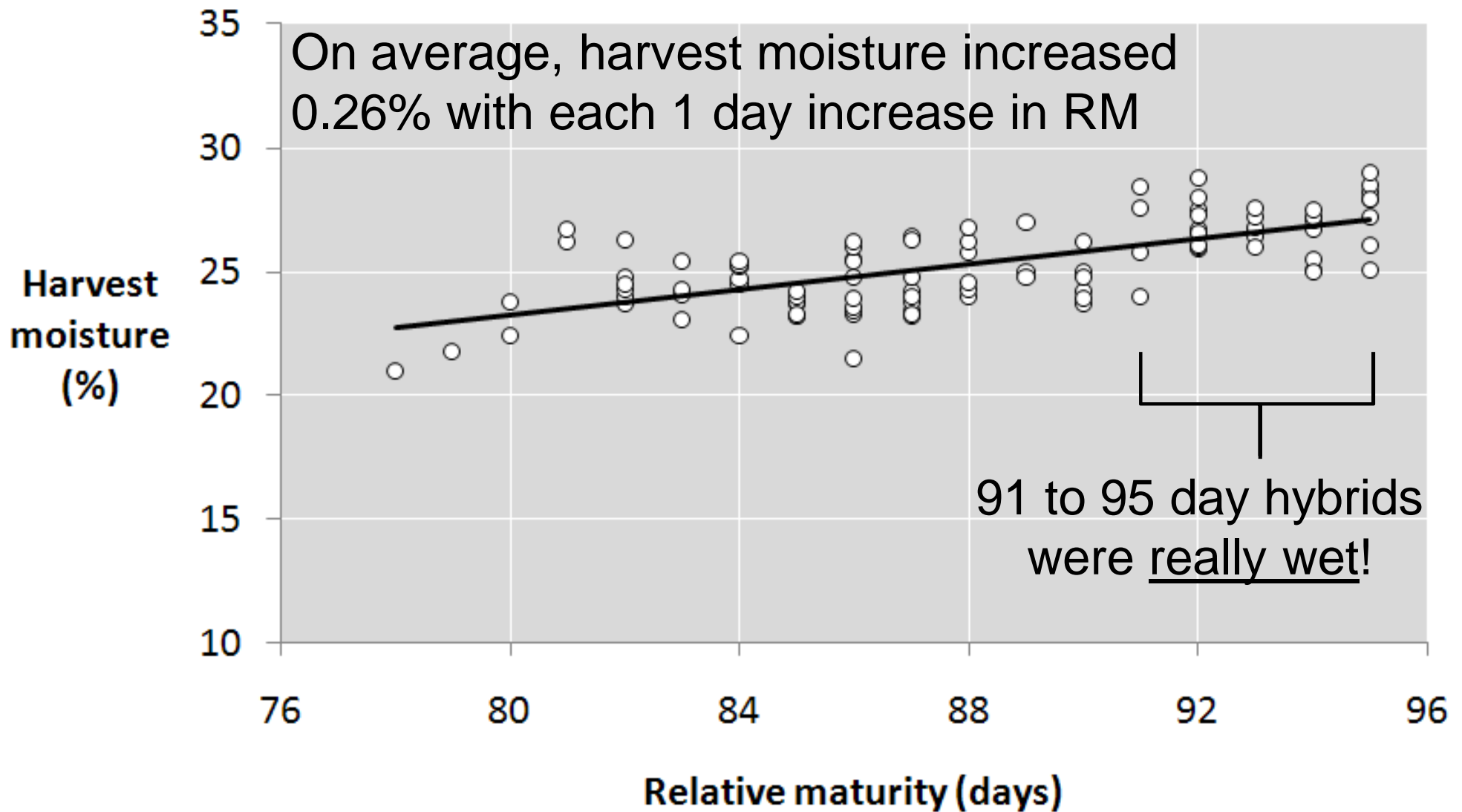
Departure From Normal Corn Accumulated GDD (°F) (2008-05-02 - 2008-10-25)



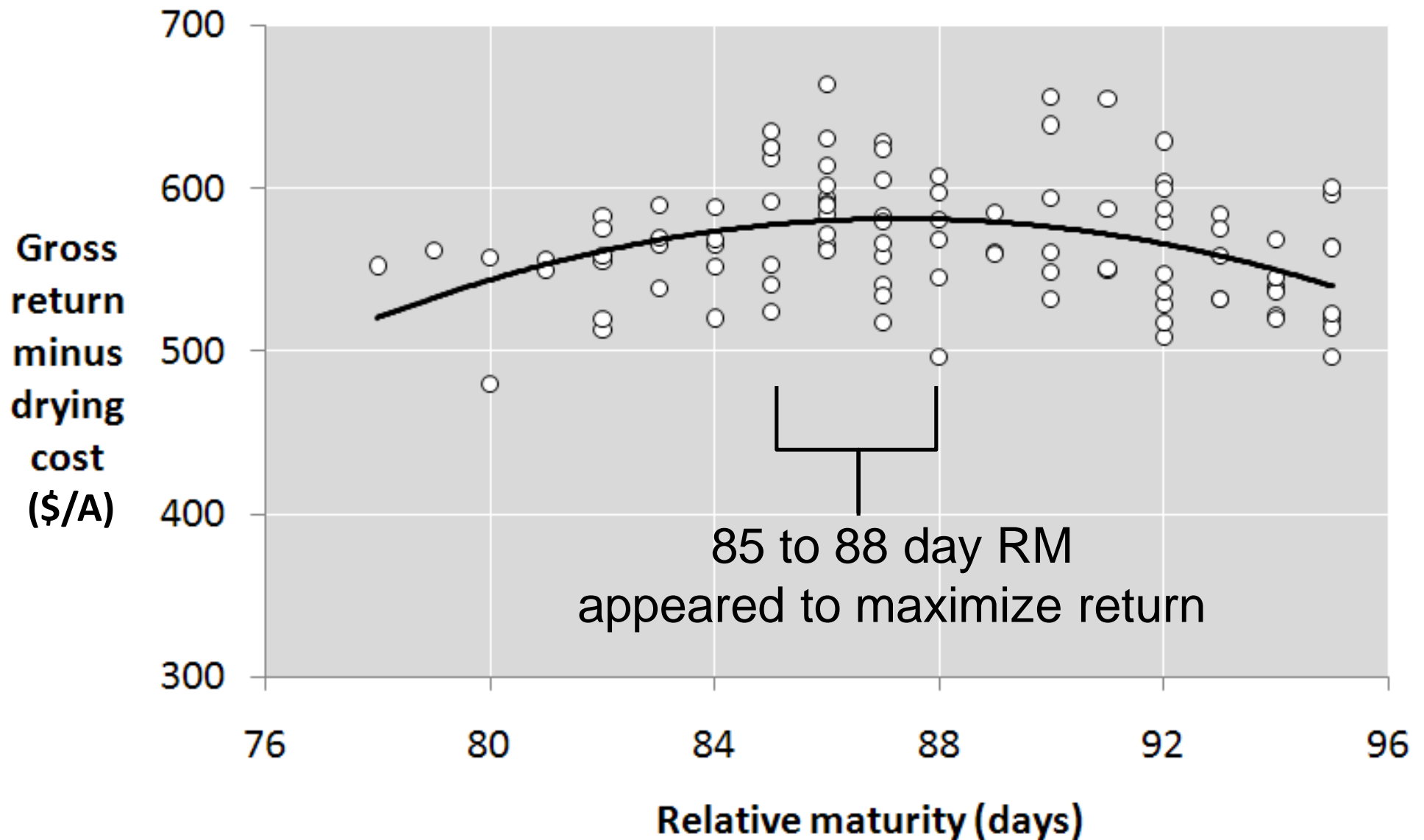
Crookston, 2008



Crookston, 2008

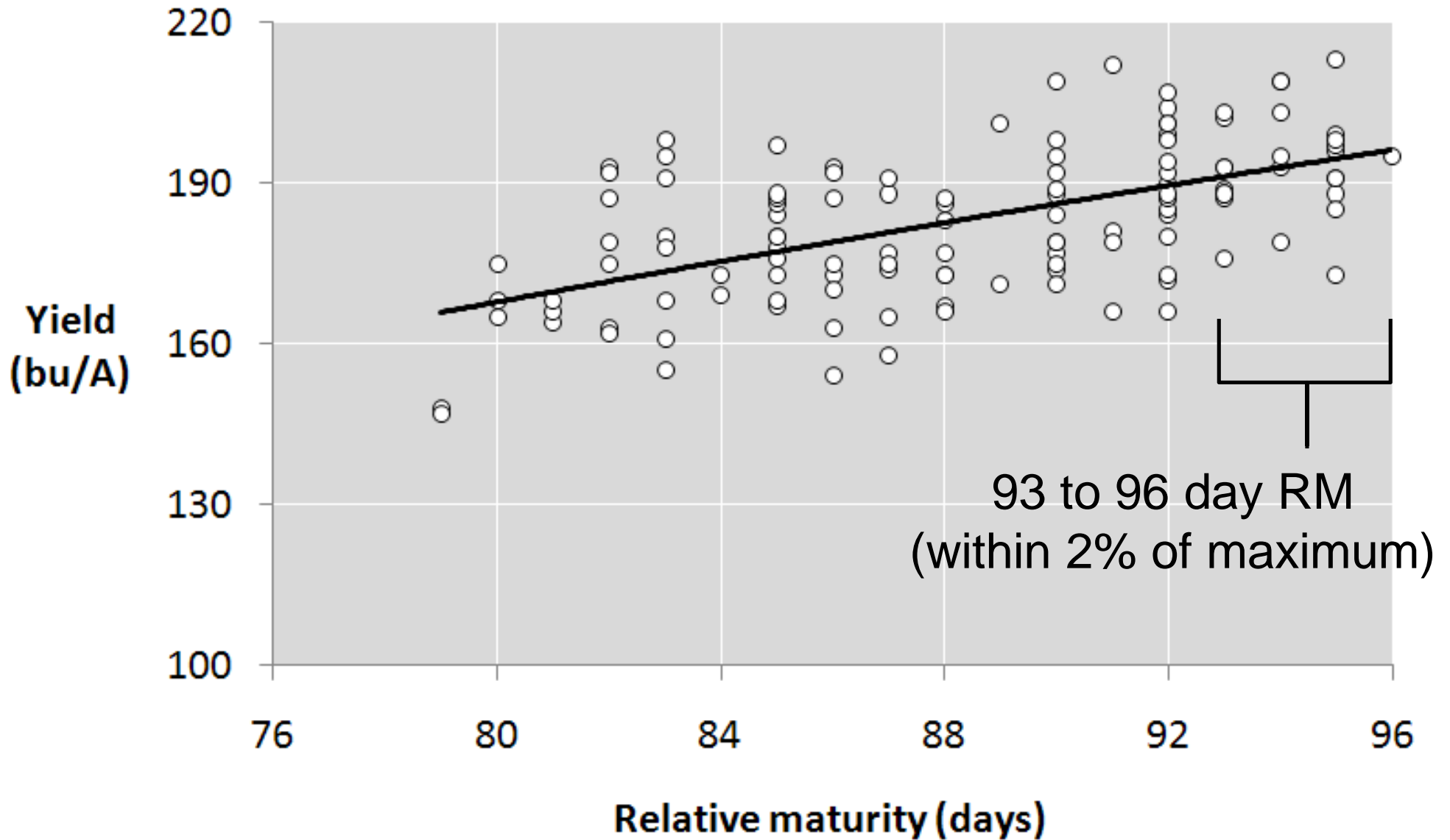


Crookston, 2008

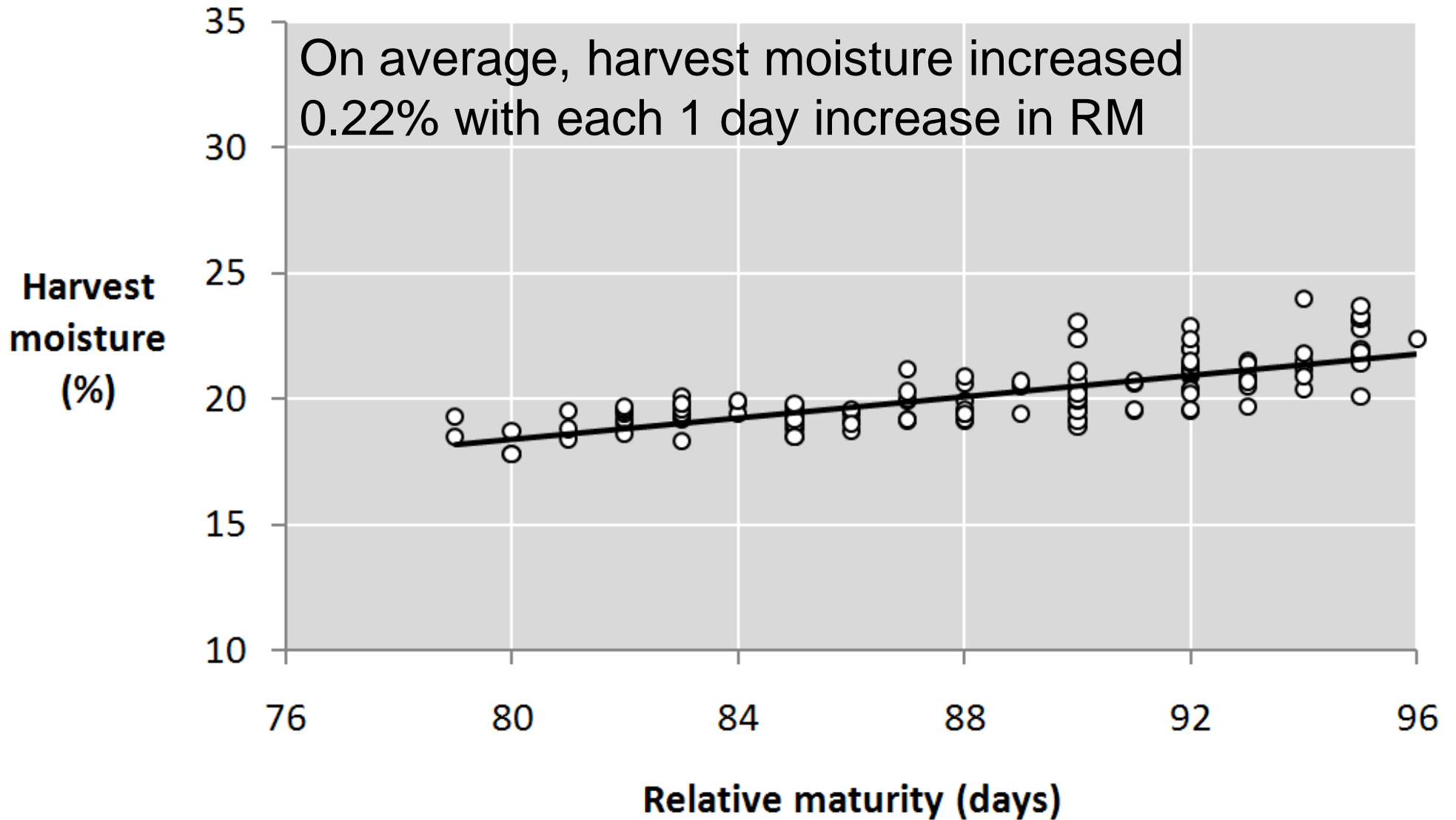


Assumed \$4.00/bu and \$0.045/point/bu

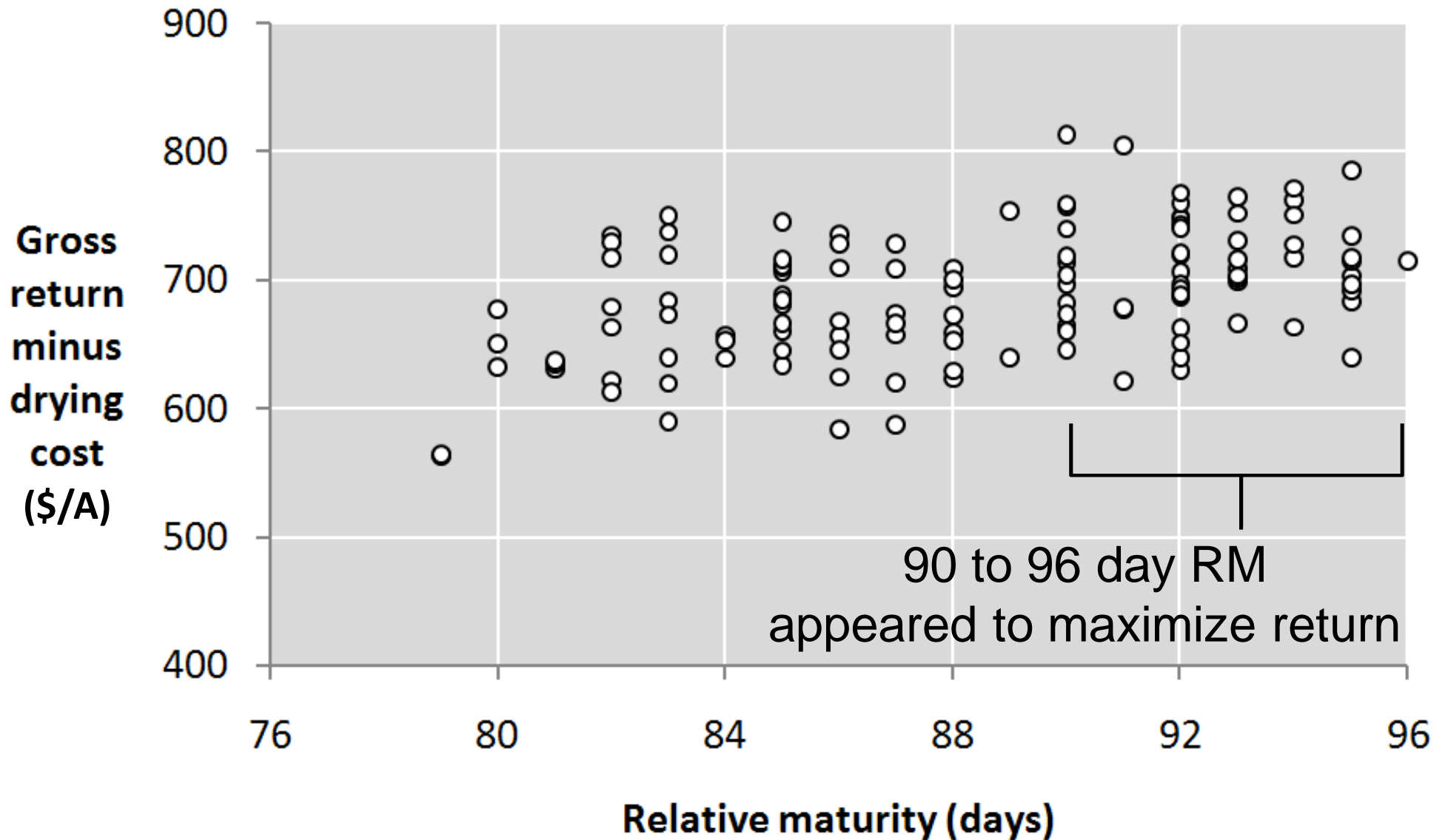
Crookston, 2007



Crookston, 2007

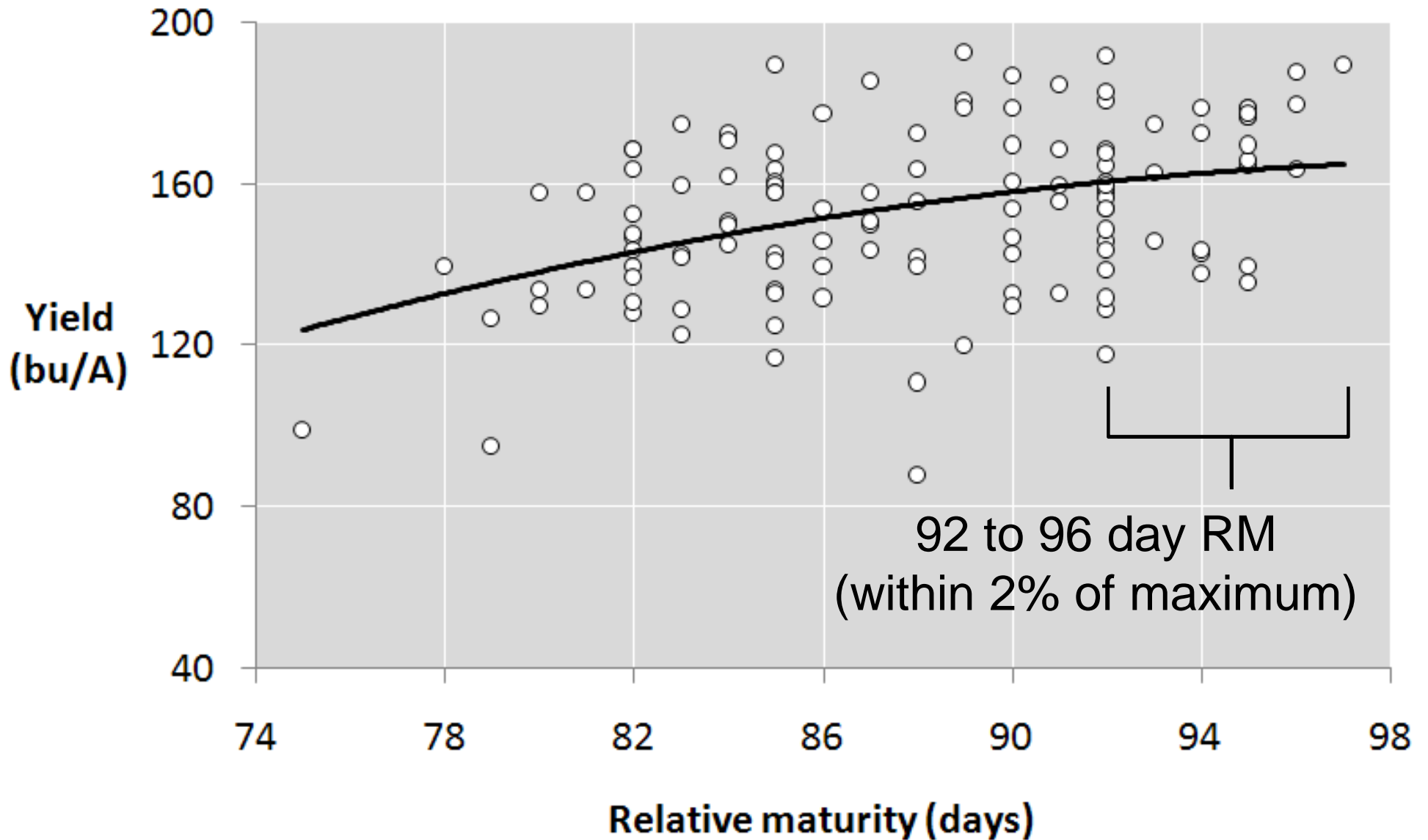


Crookston, 2007

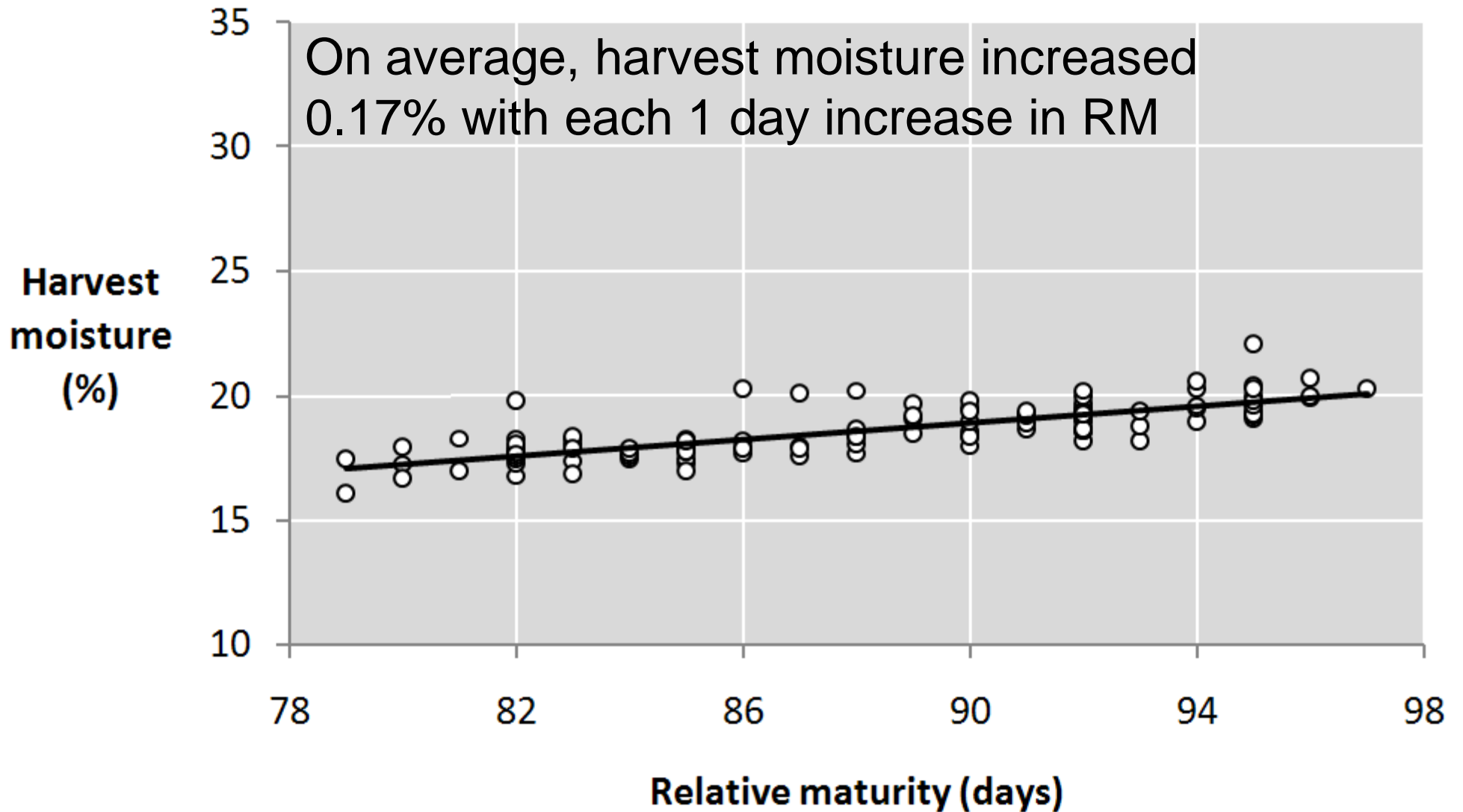


Assumed \$4.00/bu and \$0.045/point/bu

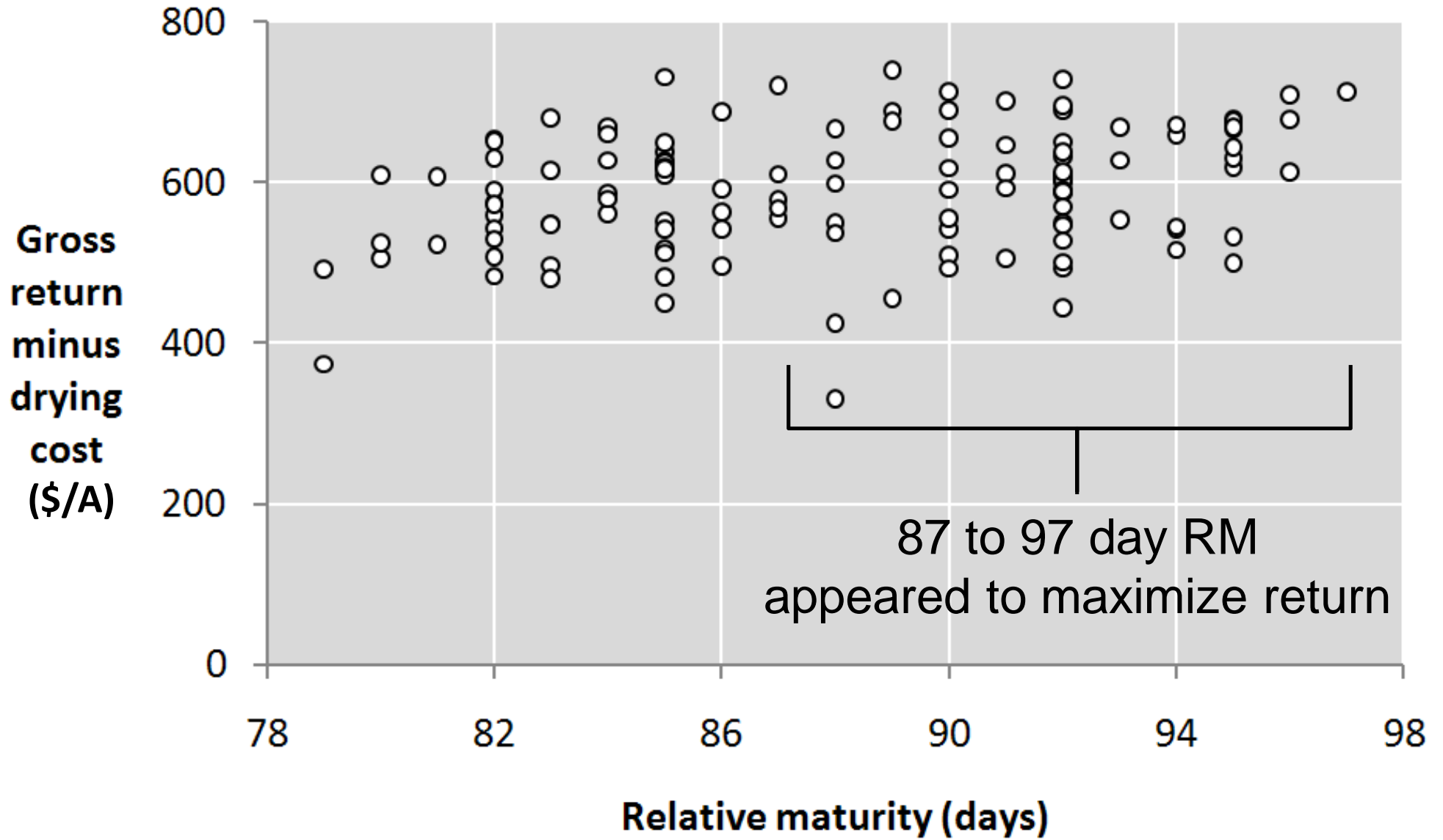
Crookston, 2006



Crookston, 2006



Crookston, 2006



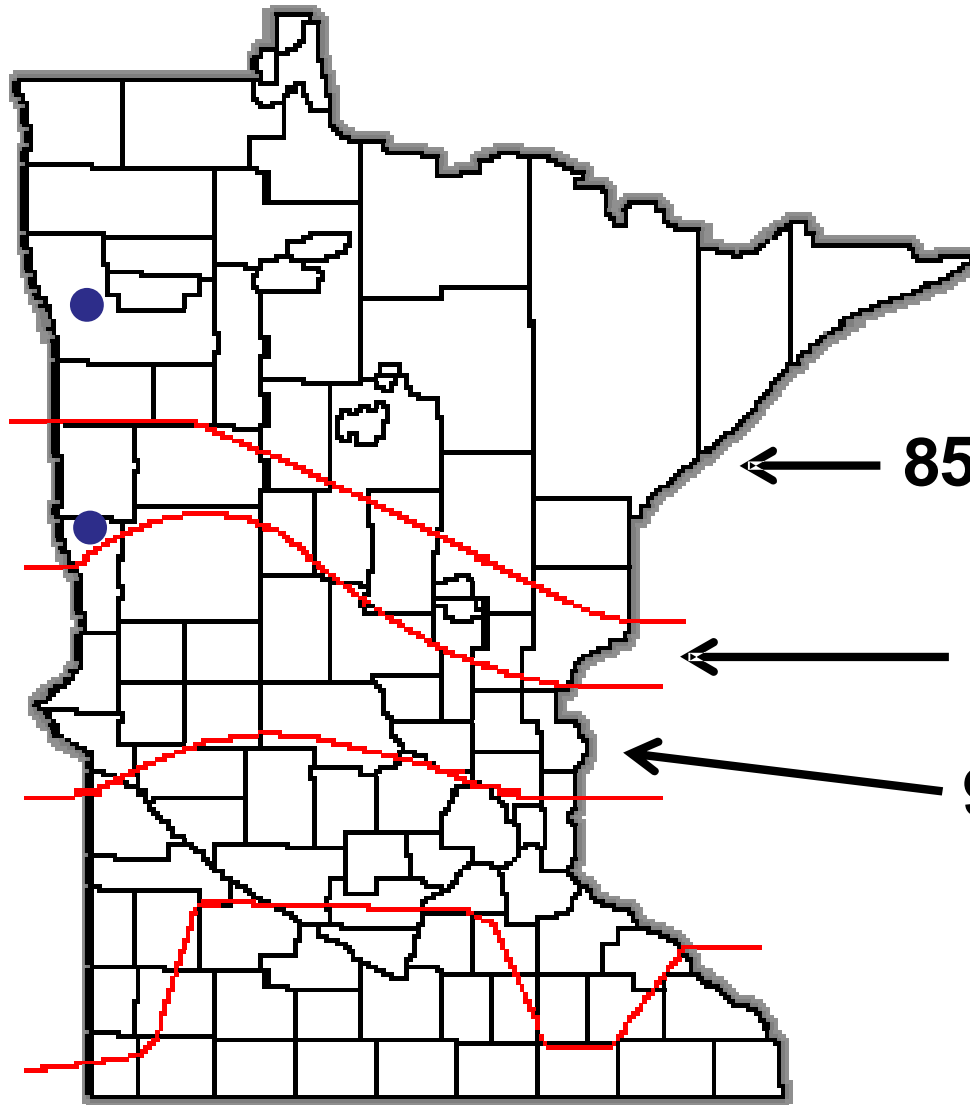
Assumed \$4.00/bu and \$0.045/point/bu

Optimum RM for Rothsay? (100 miles south of Crookston)

**Maximum
recommended
full-season
maturities**

Crookston

Rothsay

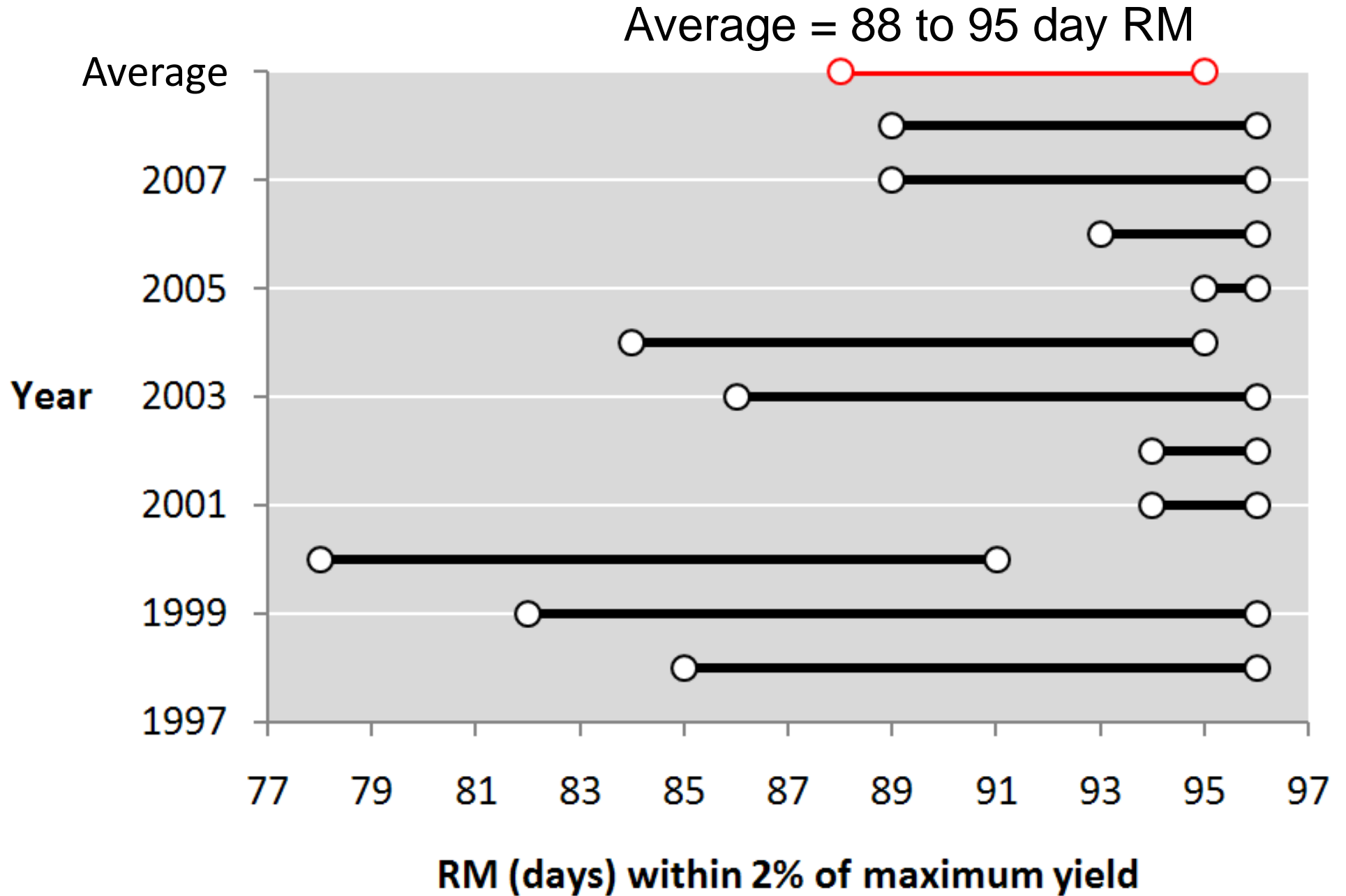


85 Day and Earlier

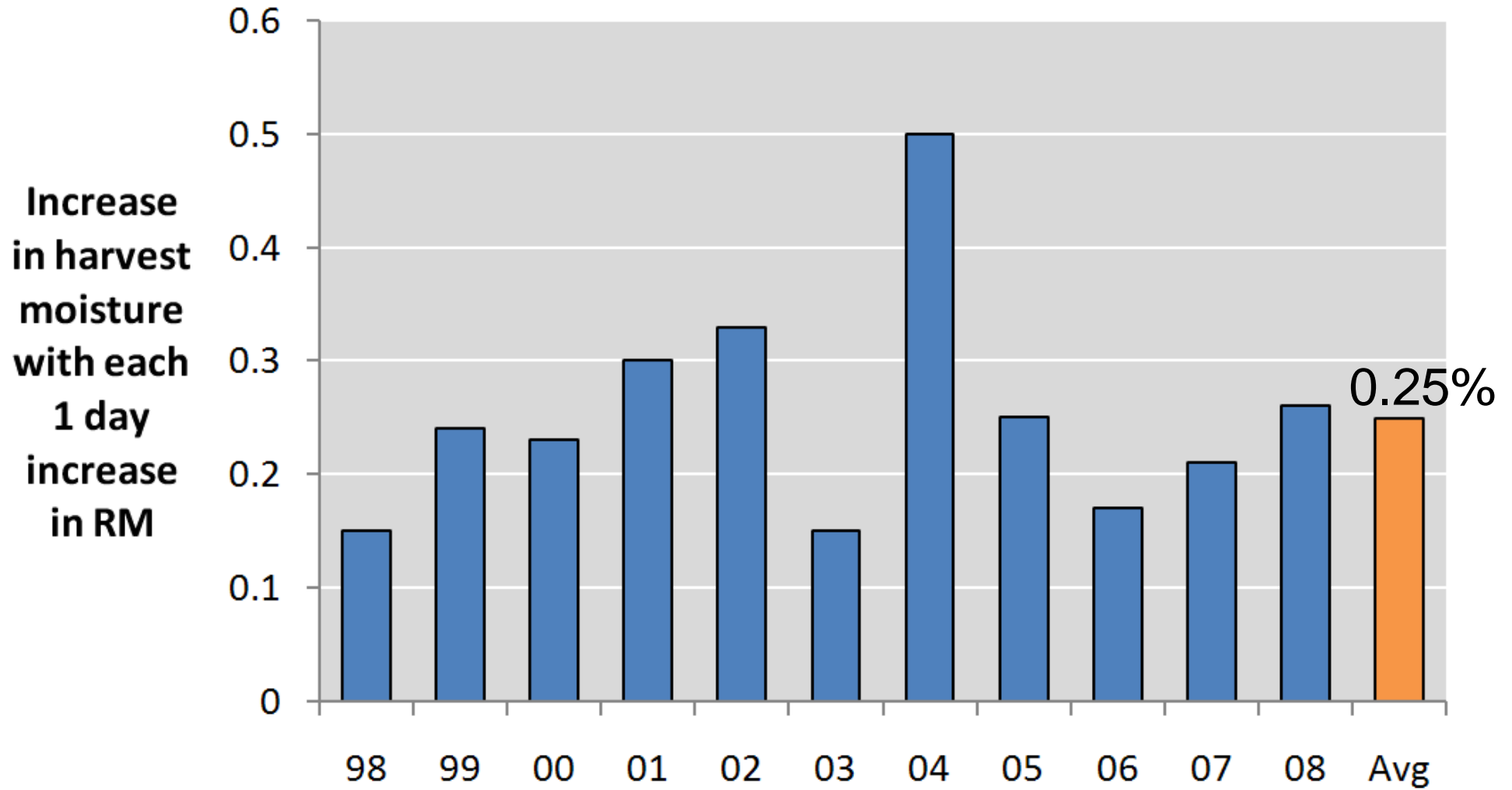
90 Day

95-100 Day

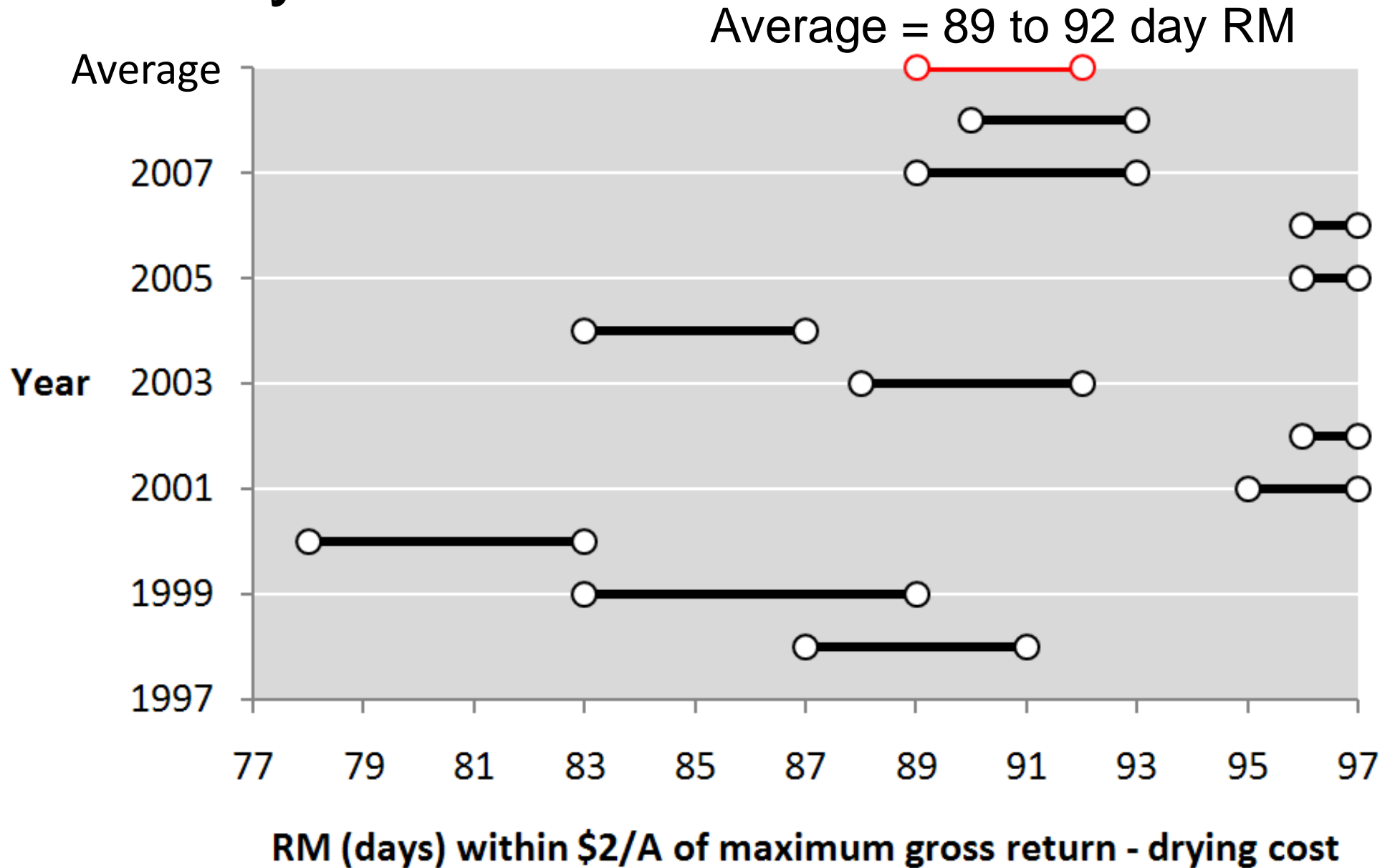
Rothsay



Rothsay – changes in harvest moisture with relative maturity



Rothsaya



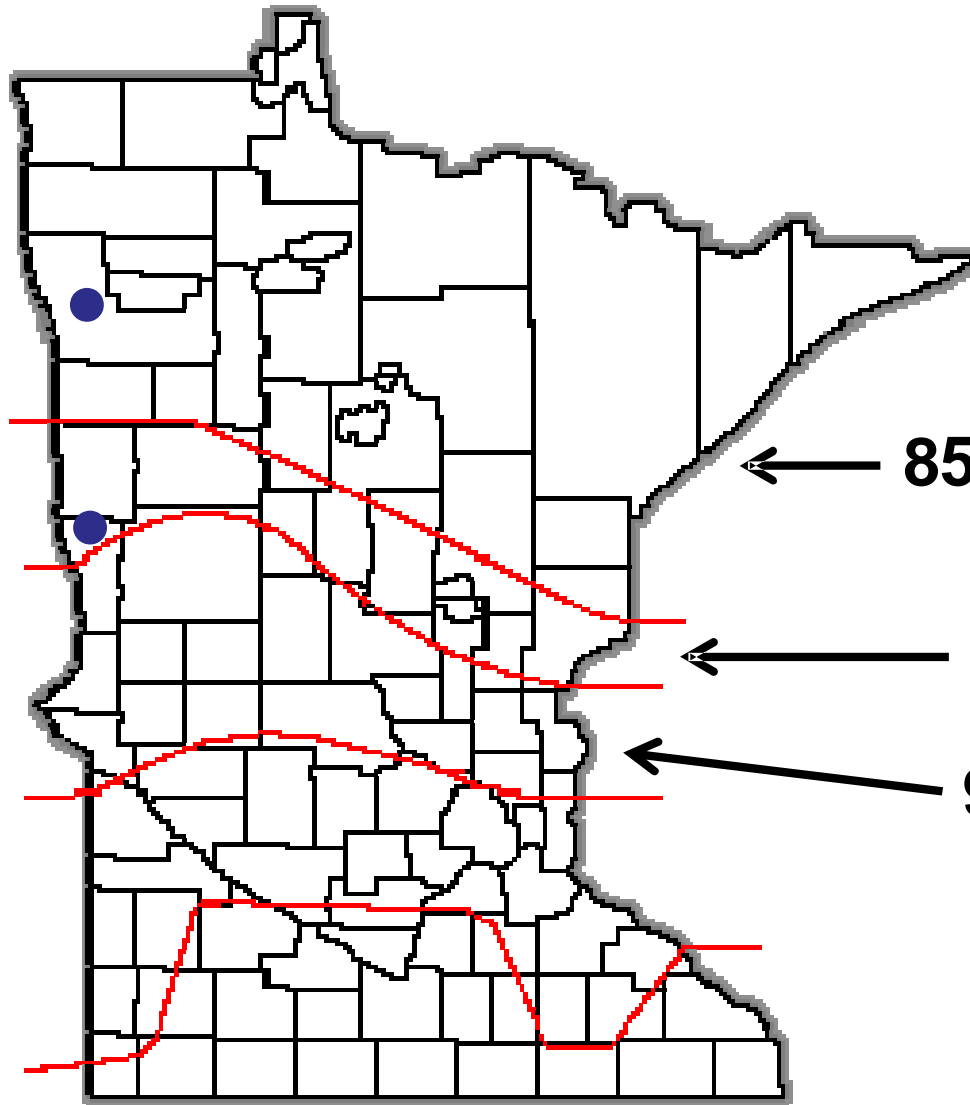
Assumed \$4.00/bu and \$0.045/point/bu

Economic optimum maturities (within \$2/acre)

Maximum recommended full-season maturities

Crookston,
2008:
(85-88 Day)

Rothsay,
11-yr avg:
(89-92 Day)



85 Day and Earlier

90 Day

95-100 Day

How Does Management Impact Maturity?

- Planting date
 - Lamberton
 - Waseca
- Foliar fungicide
 - Brownton
 - Lamberton



Crop Progress at Waseca, 2008

Planting date	GDD lost for delayed planting	Date of silking	Date of maturity
April 30	0	July 26	Sept. 23
May 14	92	July 30	Sept. 27
May 28	256	Aug. 5	Oct. 2



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Photo on July 2 at Waseca

Planted May 14 (V8; 41")

Planted April 30 (V10; 49")



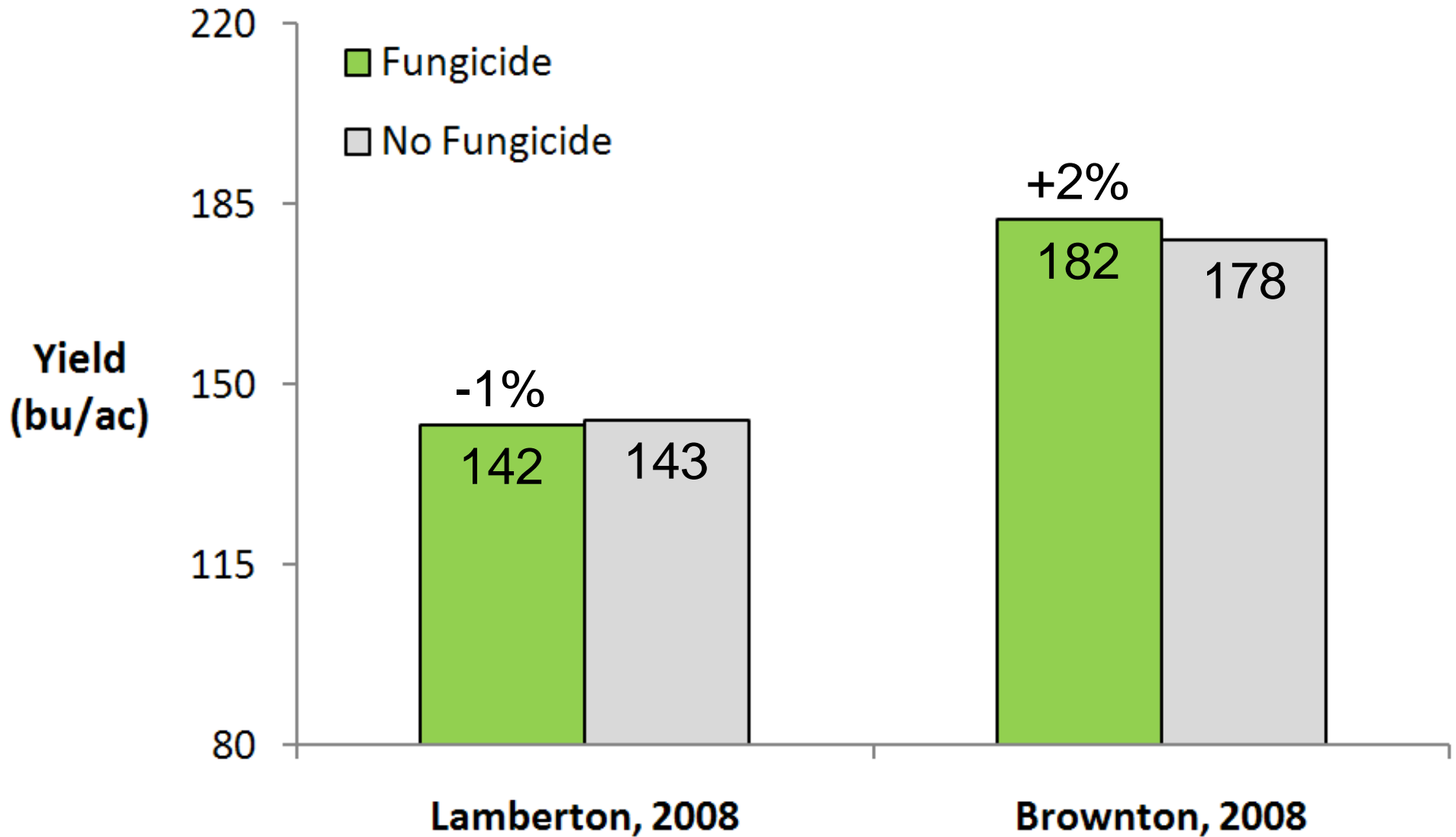
Avg. of Lamberton & Waseca, 2008

Planting date	Yield (bu/A)	Yield loss for late planting
Early May	204	0%
Mid-May	197	3%
Late May	170	17%



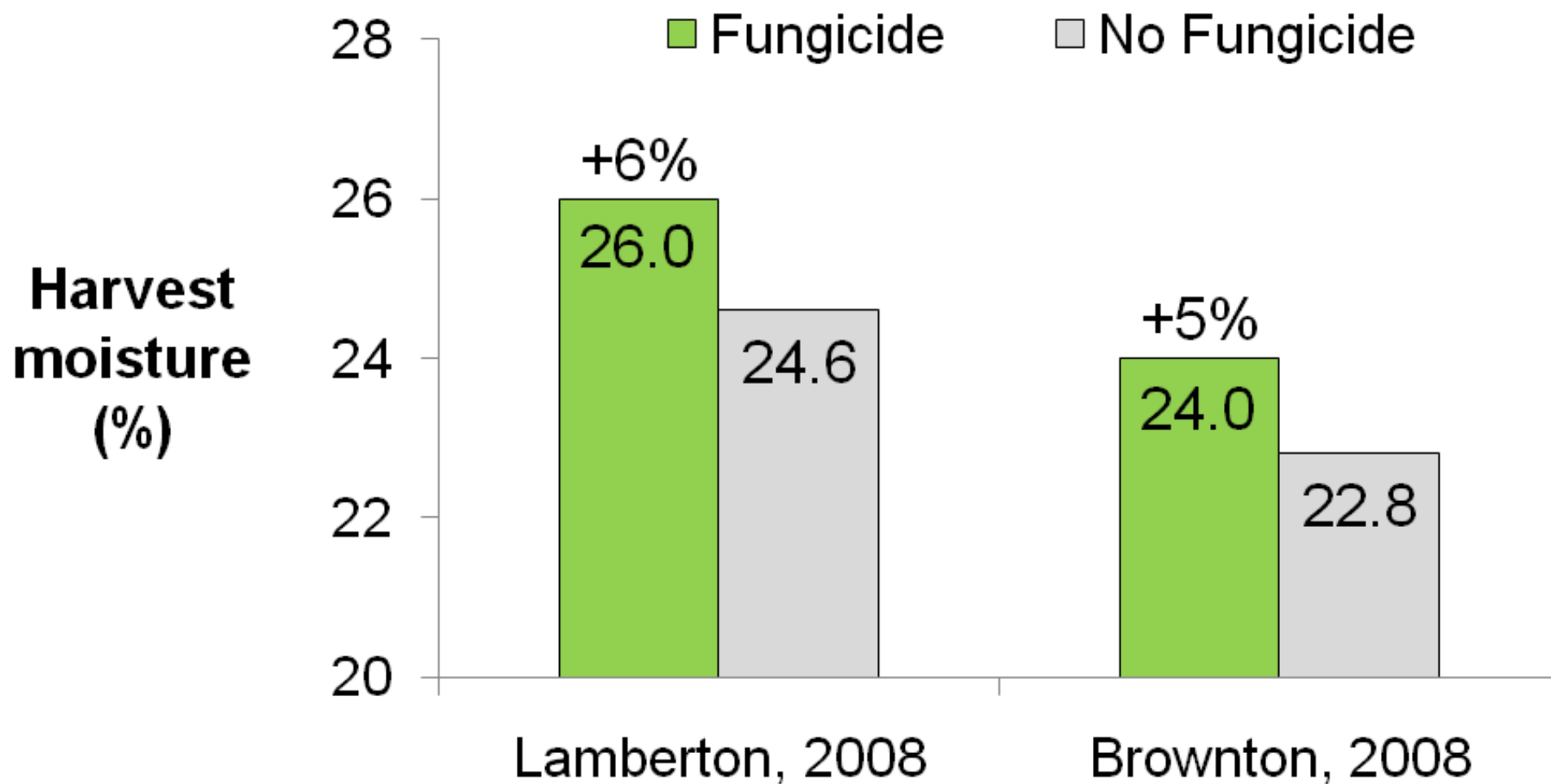
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Impact of Fungicide on Grain Yield



6 oz Headline/A + 0.25% v/v NIS at tasseling

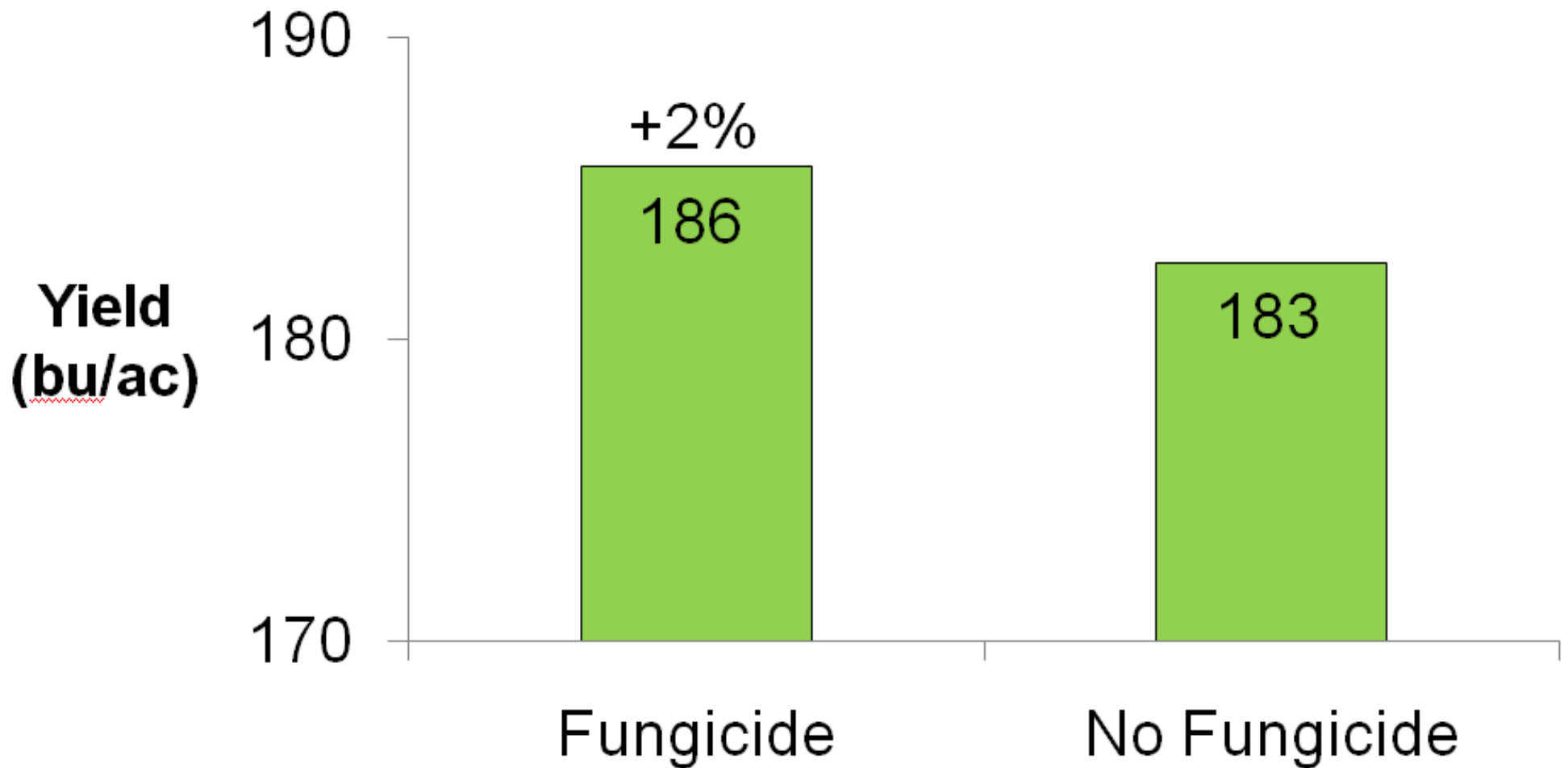
Impact of Fungicide on Harvest Moisture



6 oz Headline/A + 0.25% v/v NIS at tasseling

Crookston, 2008

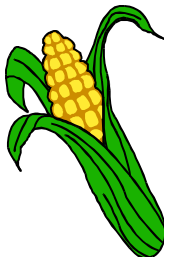
(avg. across 51 hybrids, 77-89 day RM)



Data from Russ Severson

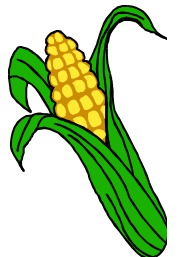
Summary

- Increased use of insect traits in northern hybrids
 - Hybrids with ECB resistance yielded 1 to 5% more than those without
 - Increases in yield with ECB+RW when compared to ECB alone have been small and variable
- Don't push corn maturity too much
 - Longer-season hybrids generally yield a little more
 - Longer-season hybrids are always wetter



Summary

- Economic optimum maturity
 - Can vary greatly from year-to-year
 - 85 to 88 day RM at Crookston (2008)
 - 89 to 92 day RM at Rothsay (1998 to 2008)
- Delaying planting 14 days delayed maturity 4 to 6 days (southern MN, 2008)
- Foliar fungicide
 - Does not appear economical
 - Can increase harvest moisture



Questions or Comments?

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