



Fresh Fruit and Fungicide Use

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Statistical Analysis

- Determine if differences exist between research results and real life usage
 - Most research done on small scale plots under controlled conditions
 - Much of the research is done in NJ, MA, and WI
 - Still exists a need to do fungicide research in WA, OR, and BC
- Hasn't been done before because it is complicated (yields, grower practices, etc.)
- DISCLAIMER: We are looking at 1 yr only from WA... it will become more robust as we add years and locations to the data set

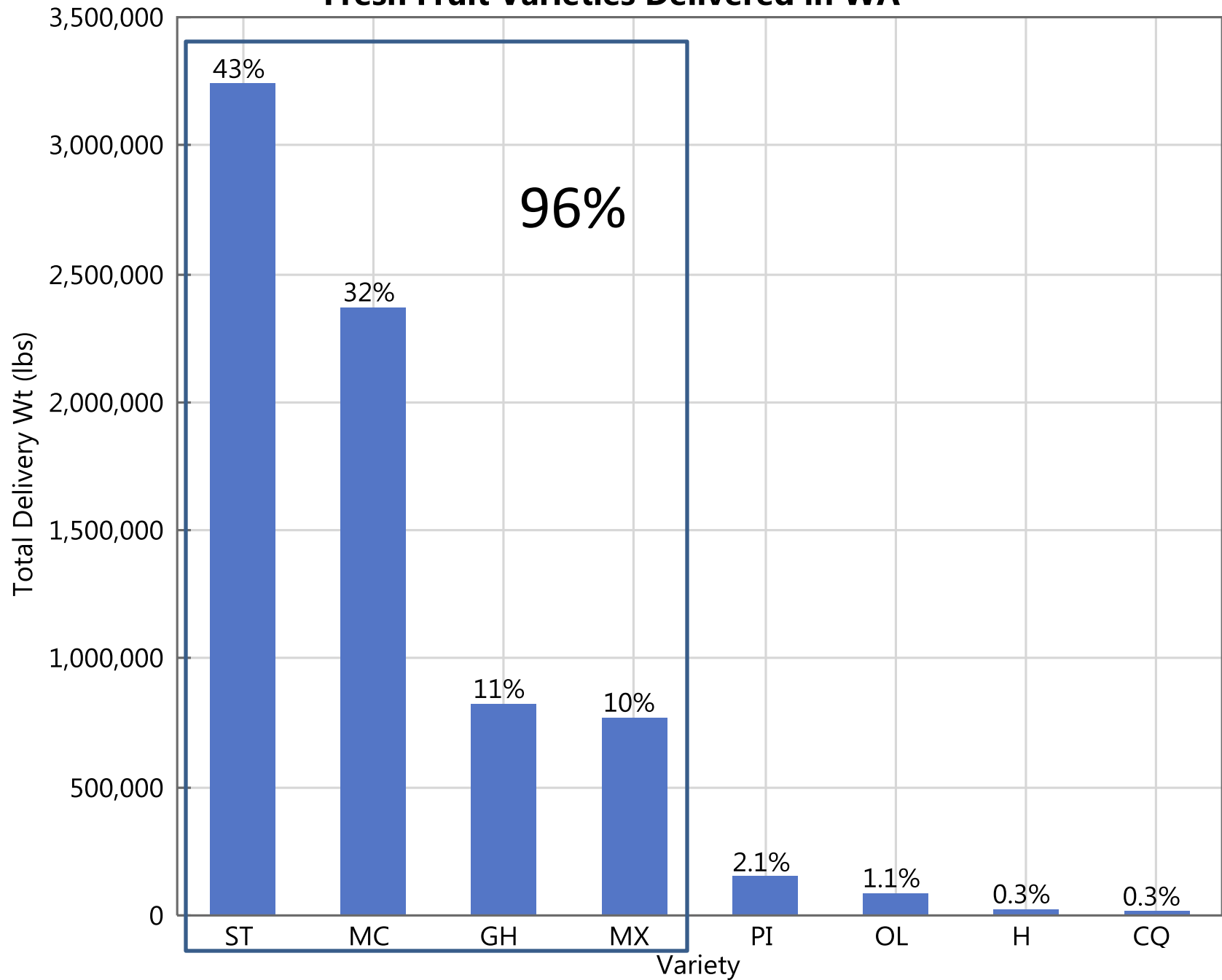
Outline

1. Fresh fruit data reporting for 2015
2. What research told us to do (2015)...
3. Fungicide programs – what looks to work and what doesn't
4. Why do fungicide uses differ so much in practice?
5. Summary/Review

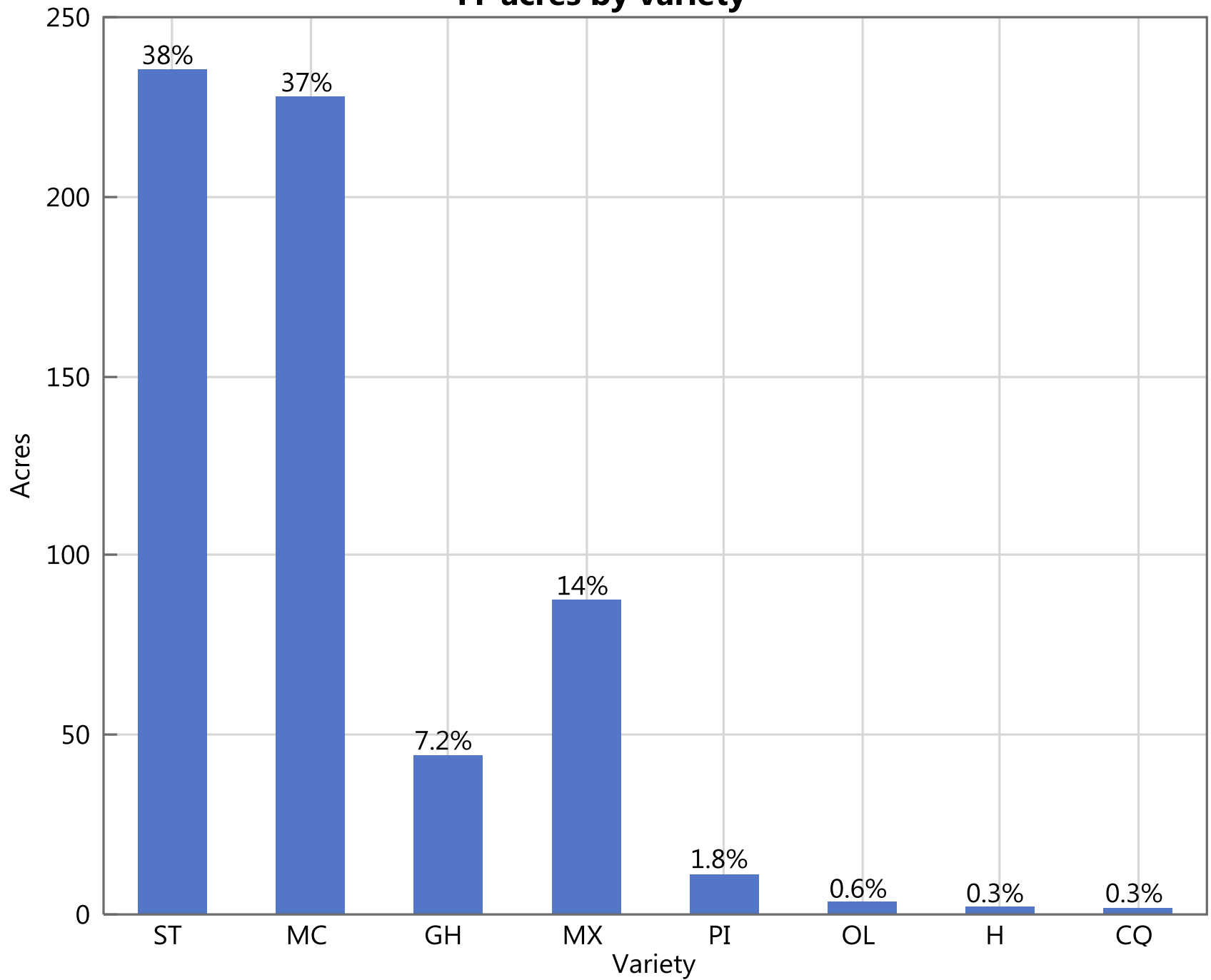
Section 1

FRESH FRUIT DATA REPORTING FOR 2015

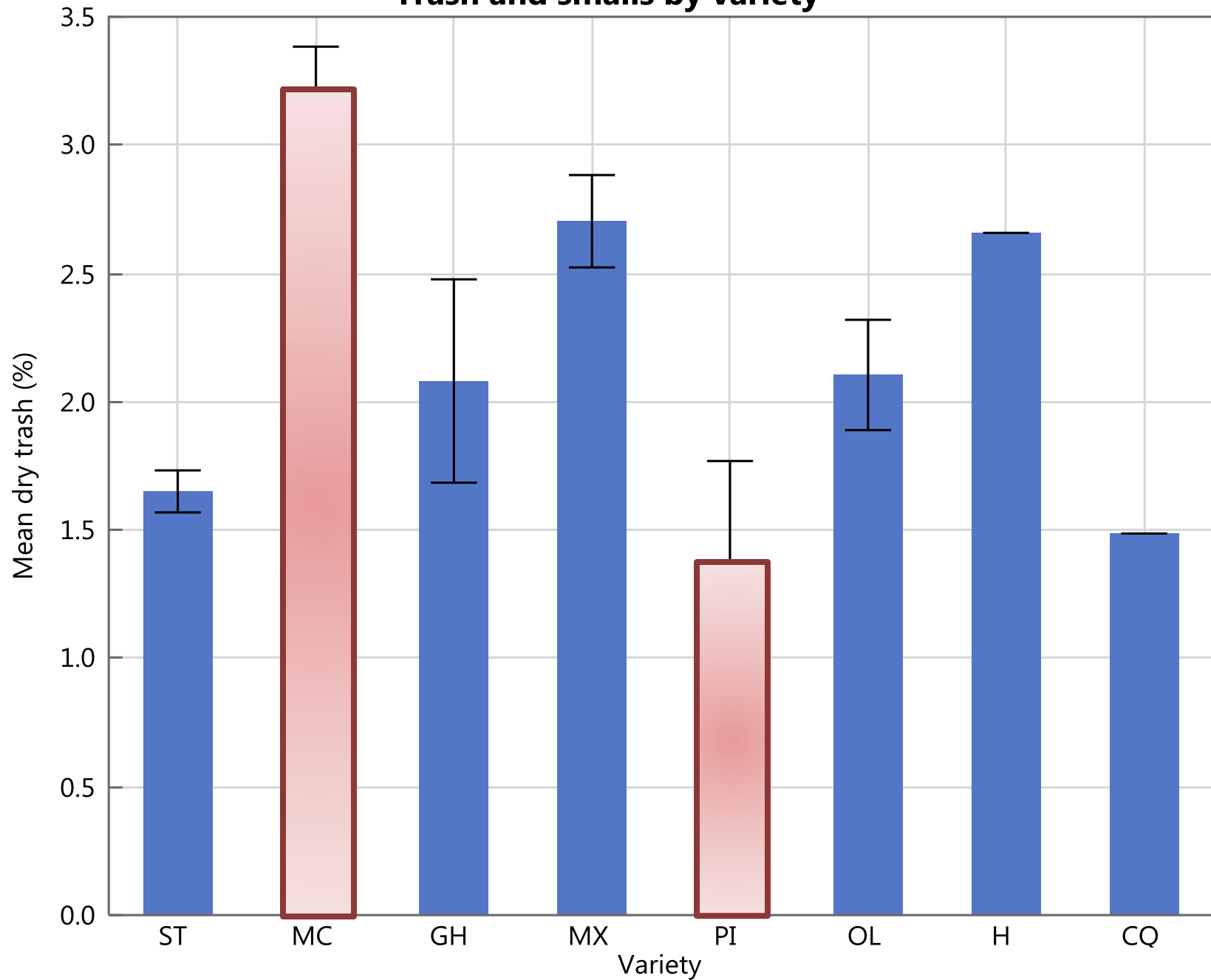
Fresh Fruit Varieties Delivered in WA



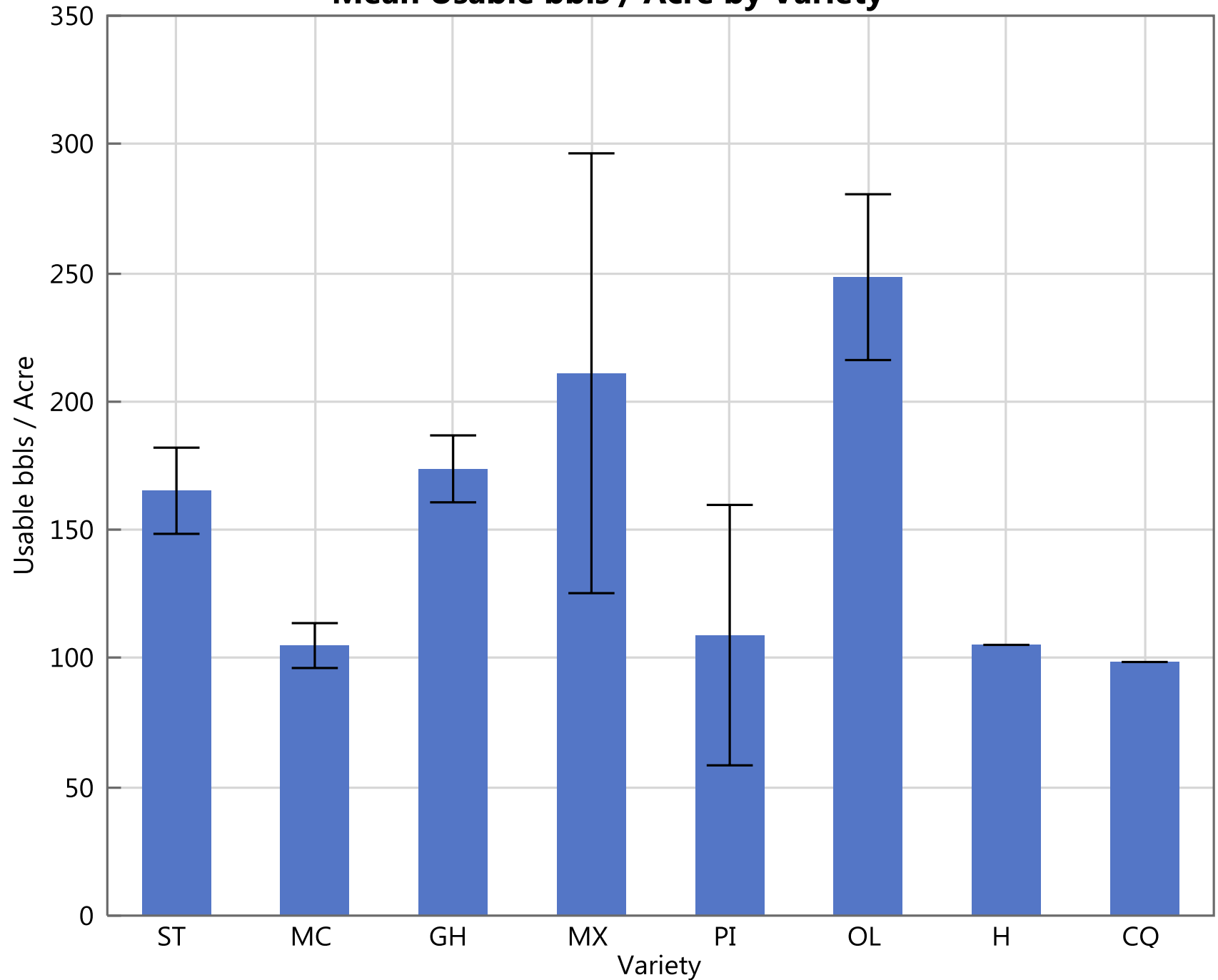
FF acres by variety



Trash and smalls by variety



Mean Usable bbls / Acre by Variety



FF Keeping Quality – At delivery (0 weeks)

Mean Poor 0 wk (%)

15

10

5

0

ST

MC

GH

MX

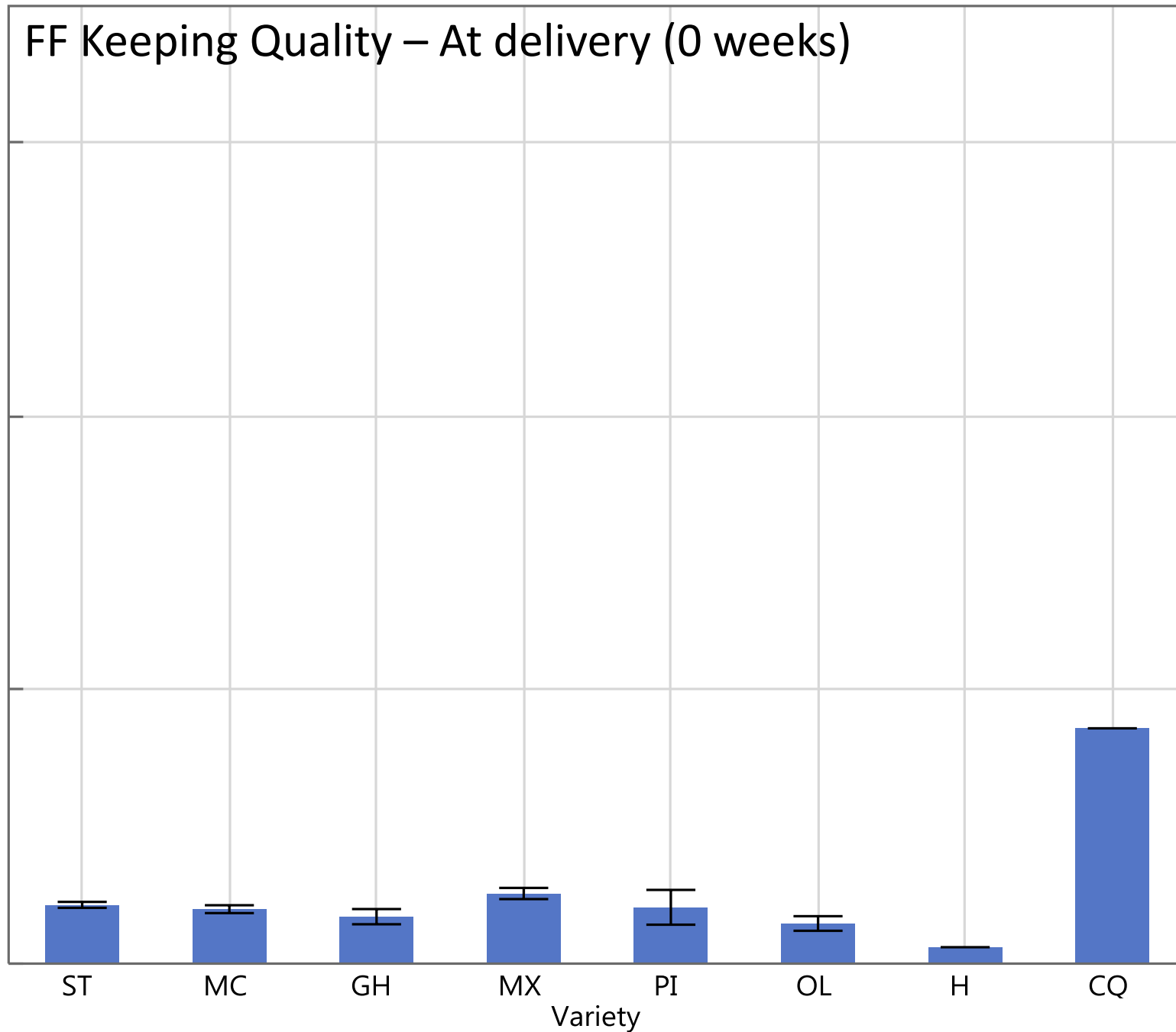
PI

OL

H

CQ

Variety



FF Keeping Quality – 3 weeks

Mean Poor 3 wk (%)

15

10

5

0

ST

MC

GH

MX

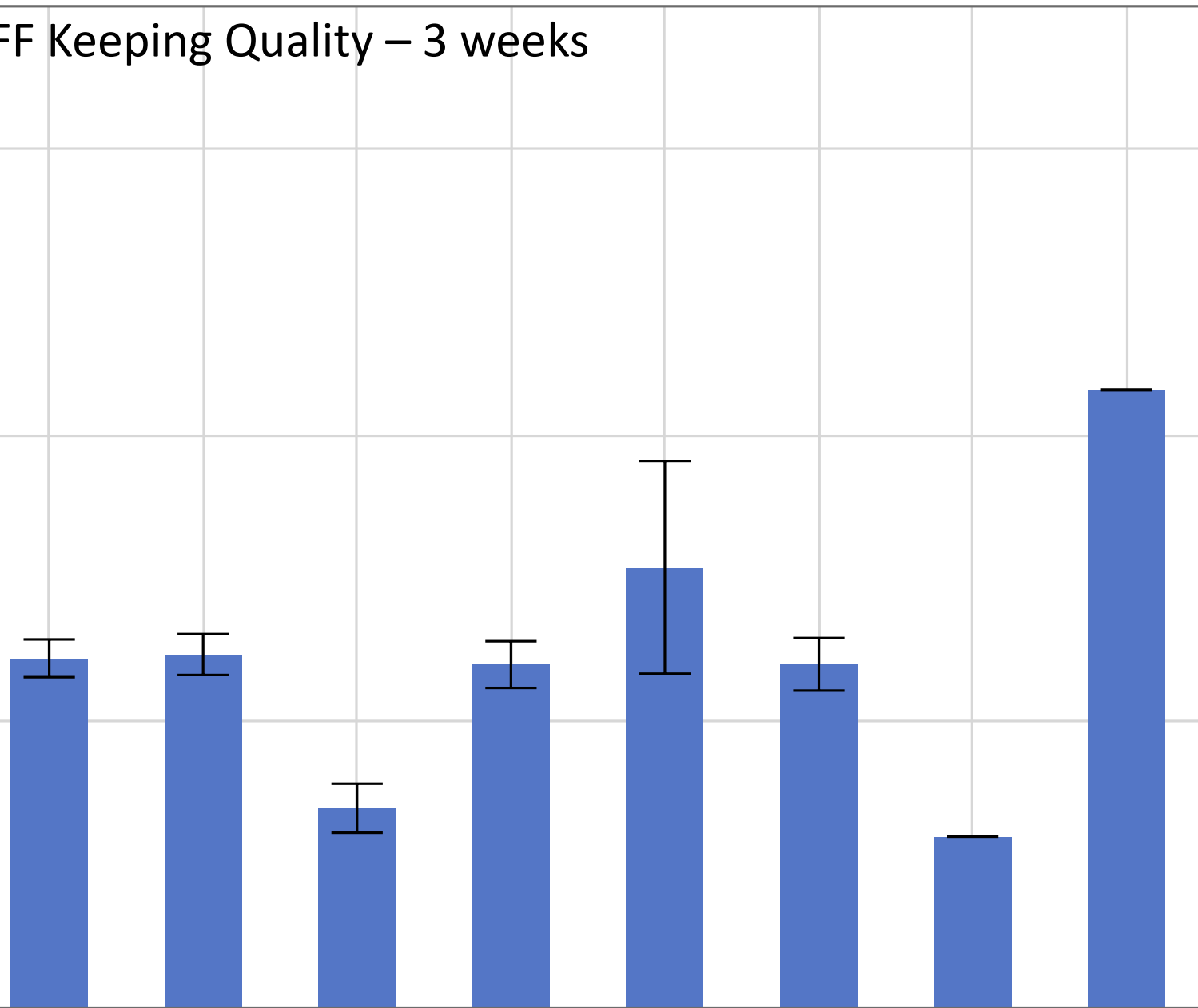
PI

OL

H

CQ

Variety



FF Keeping Quality – 6 weeks

Mean Poor 6 wk (%)

15
10
5
0

ST

MC

GH

MX

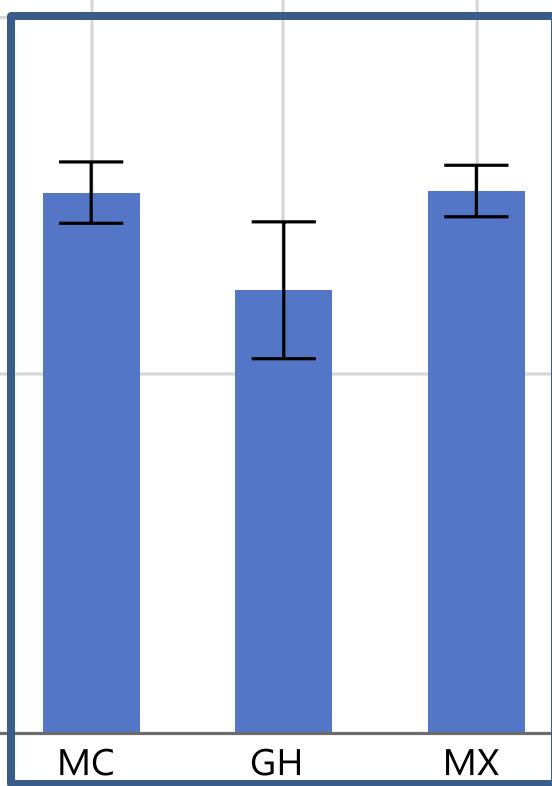
PI

OL

H

CQ

Variety



Section 2: Slides from North America Fruit Rot Working Group

Peter V. Oudemans (Rutgers University) and Erika S. Rojas (University of Massachusetts)

WHAT RESEARCH TOLD US TO DO (2014-5)

For areas with **moderate** to **high** fruit rot pressure Standard Approach

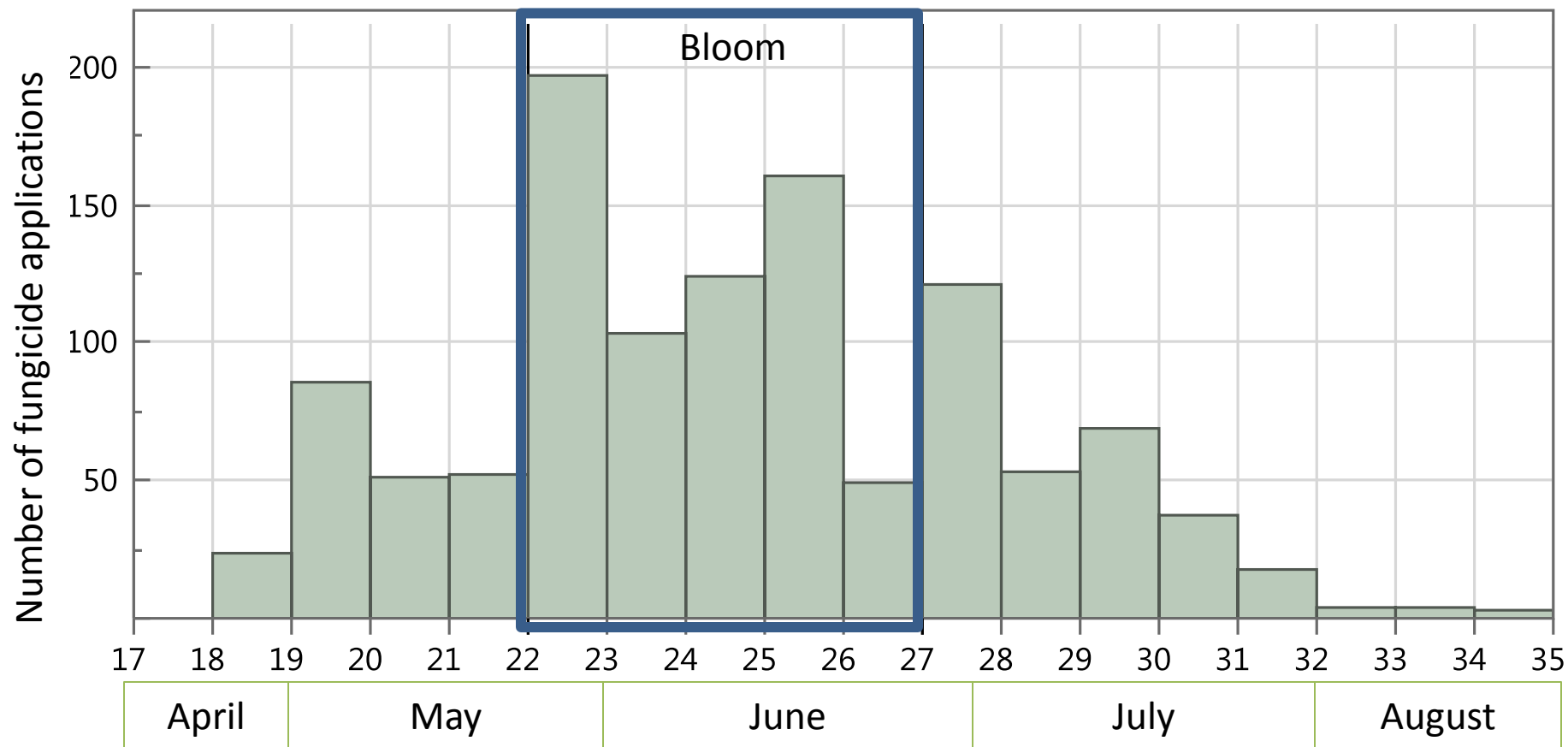
- Indar/Abound combination – make two applications at 7-10 day intervals ending before termination of bloom
- Substitute Indar with Proline if applications are not made via **aerial application**
- Apply 1-3 applications of Bravo (**non-export qualified**) or Mancozeb at 10 -14 day intervals (start counting after the final Indar/Abound treatment)

Fungicide scenarios for 2015

In bloom 1	In bloom 2	Out of bloom 1	Out of bloom 2	Out of bloom 3	Scenario
Indar/Abound or Proline/Abound	Indar/Abound or Proline/Abound	Dithane	Dithane	Dithane	Fruit rot plus severe twig blight
Indar/Abound or Proline/Abound	Indar/Abound or Proline/Abound	Dithane	Dithane		Fruit rot plus mild-moderate twig blight
Indar/Abound or Proline/Abound	Indar/Abound or Proline/Abound	Dithane			Fruit rot plus resistance management

Section 3

FUNGICIDE PROGRAMS – WHAT LOOKS TO WORK AND WHAT DOESN'T



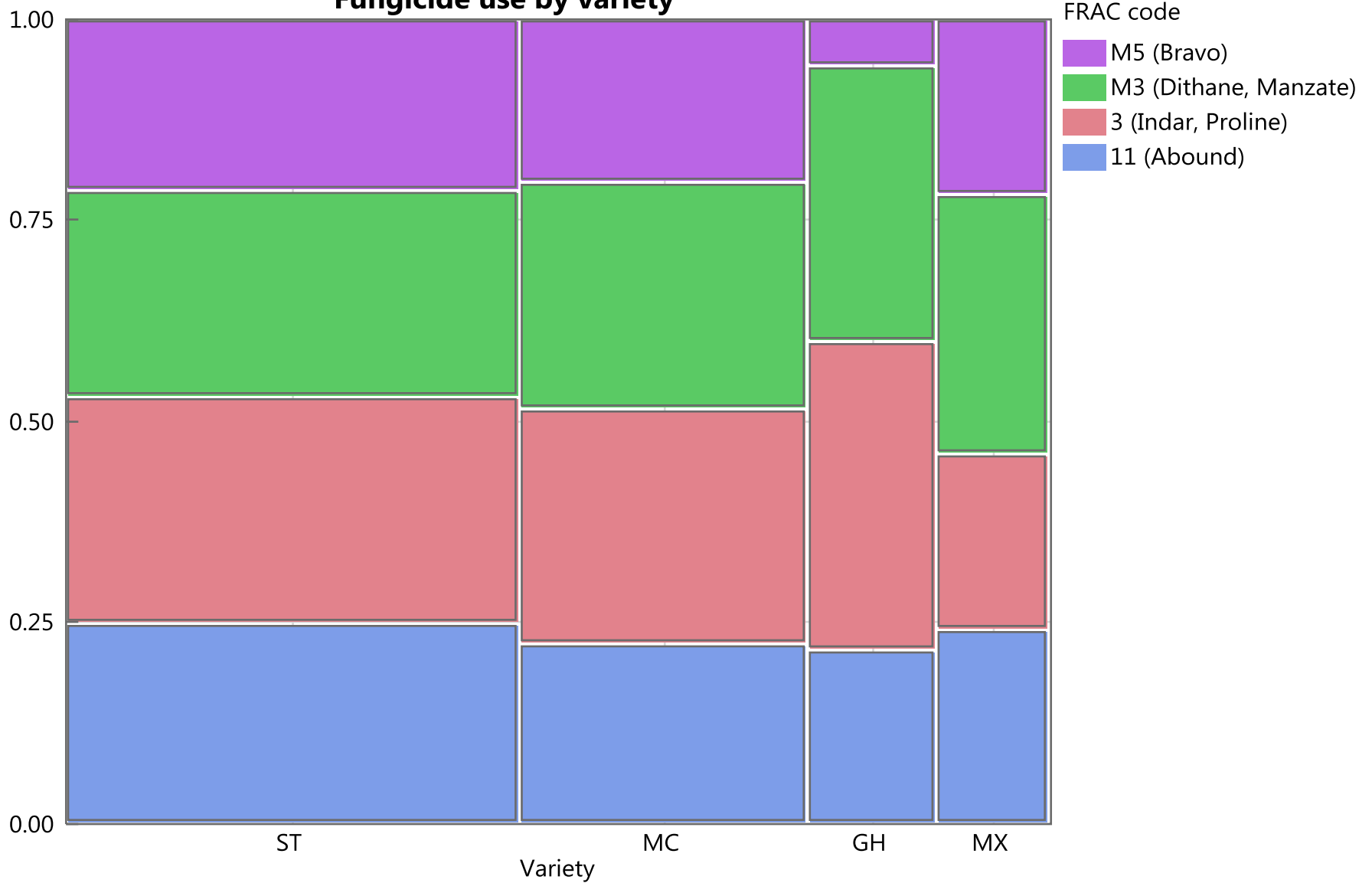
71 different fungicide application rotations
using 9 fungicides

Fungicide Applications by Variety

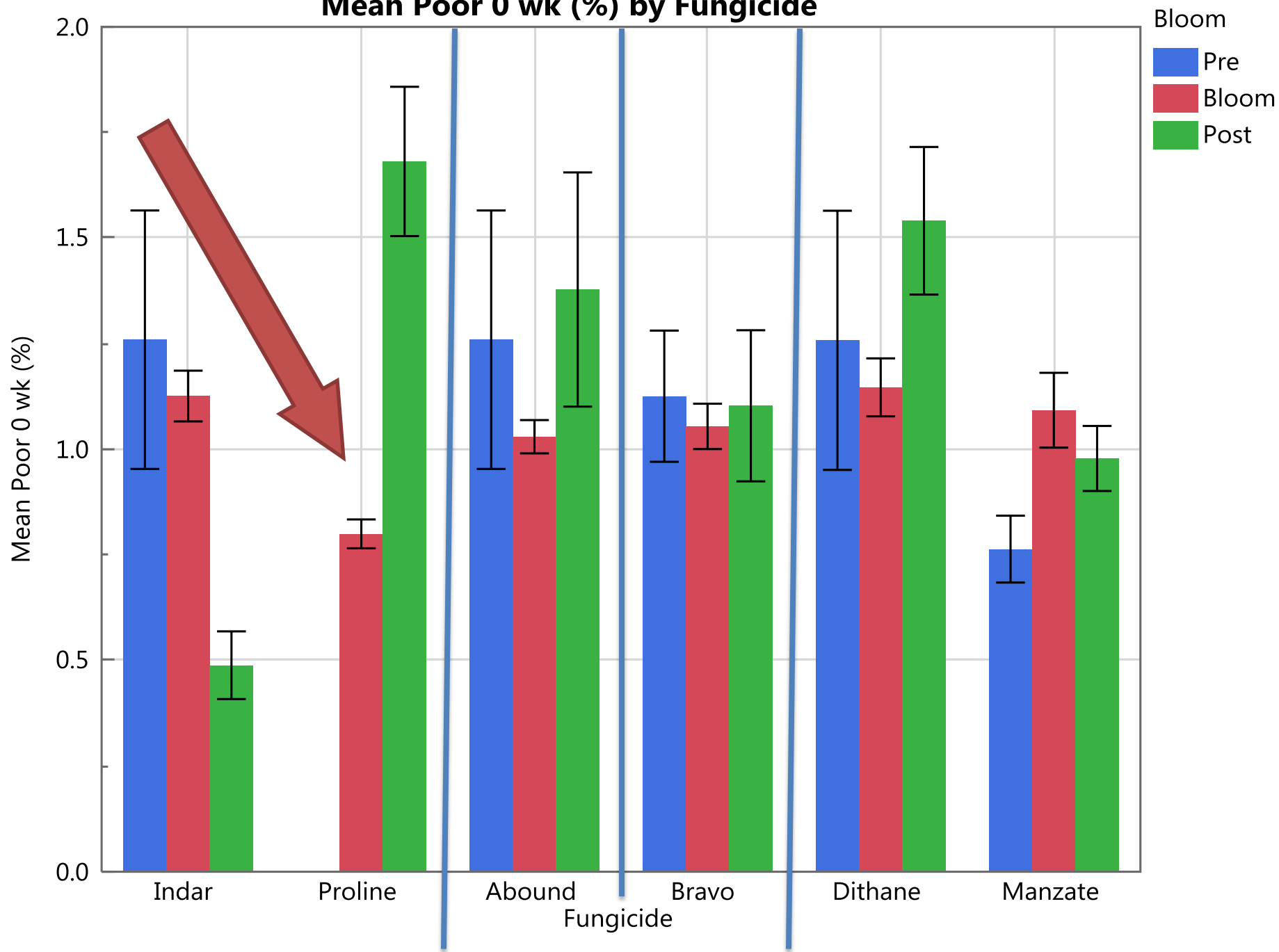
	Variety								
FRAC Code	ST	MC	GH	MX	PI	OL	H	CQ	Total
11 (Abound)	110	63	27	27	5	2	0	1	235
3 (Indar, Proline)	124	81	48	24	9	0	2	1	289
M1 (Nucop, Kocide)	76	42	2	21	4	2	1	0	148
M3 (Dithane, Manzate)	114	79	43	36	4	2	1	2	281
M5 (Bravo)	93	56	7	24	4	4	0	2	190
Totals	517	321	127	132	26	10	4	6	1,143

- 58 Grower contracts
- 249 Fresh Fruit beds delivered
- 4.6 applications per bed on average
- 5 Delivery beds had no reported fungicide applications
- 4 Delivery beds reported 9 fungicide applications

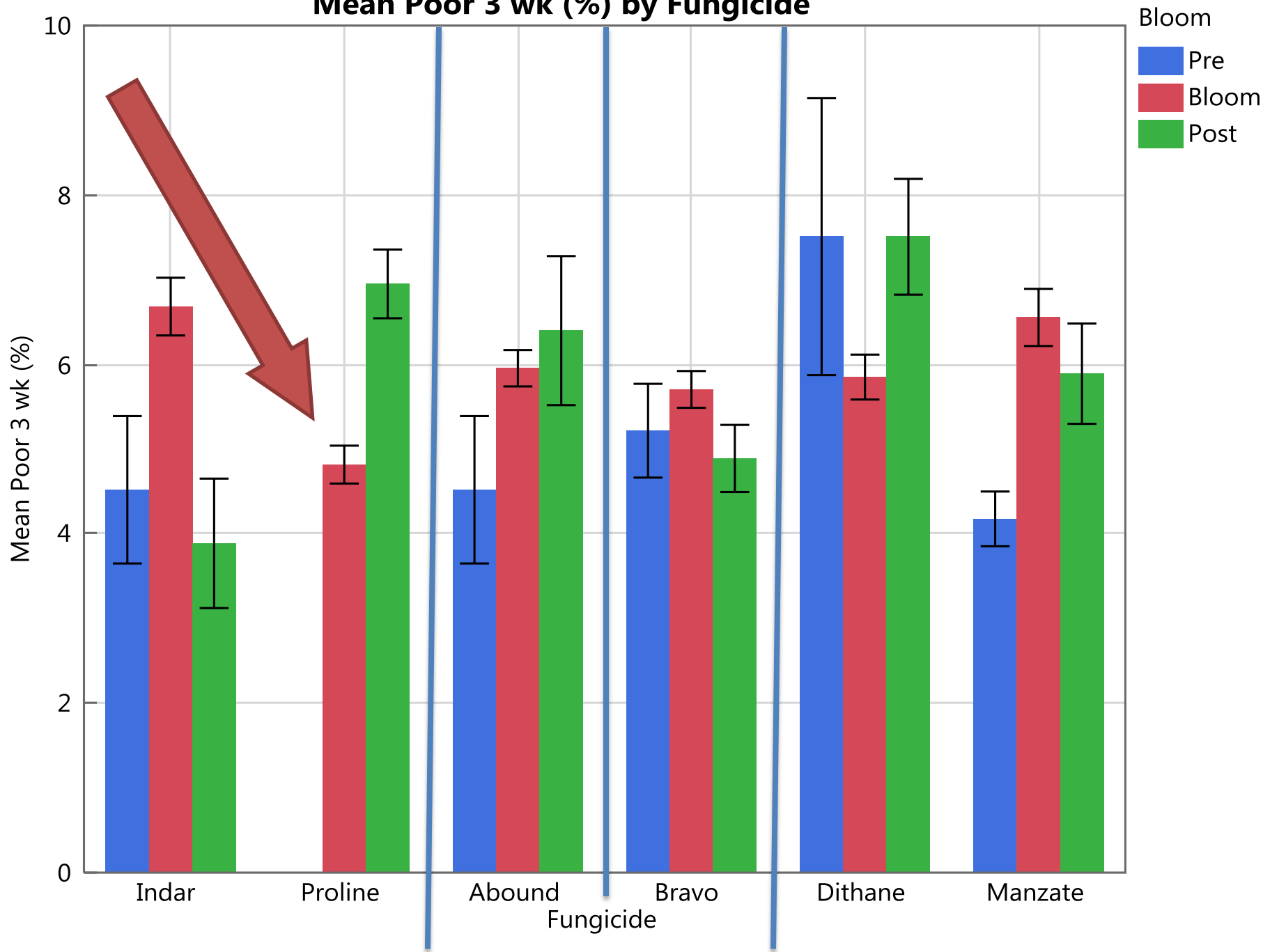
Fungicide use by variety



Mean Poor 0 wk (%) by Fungicide

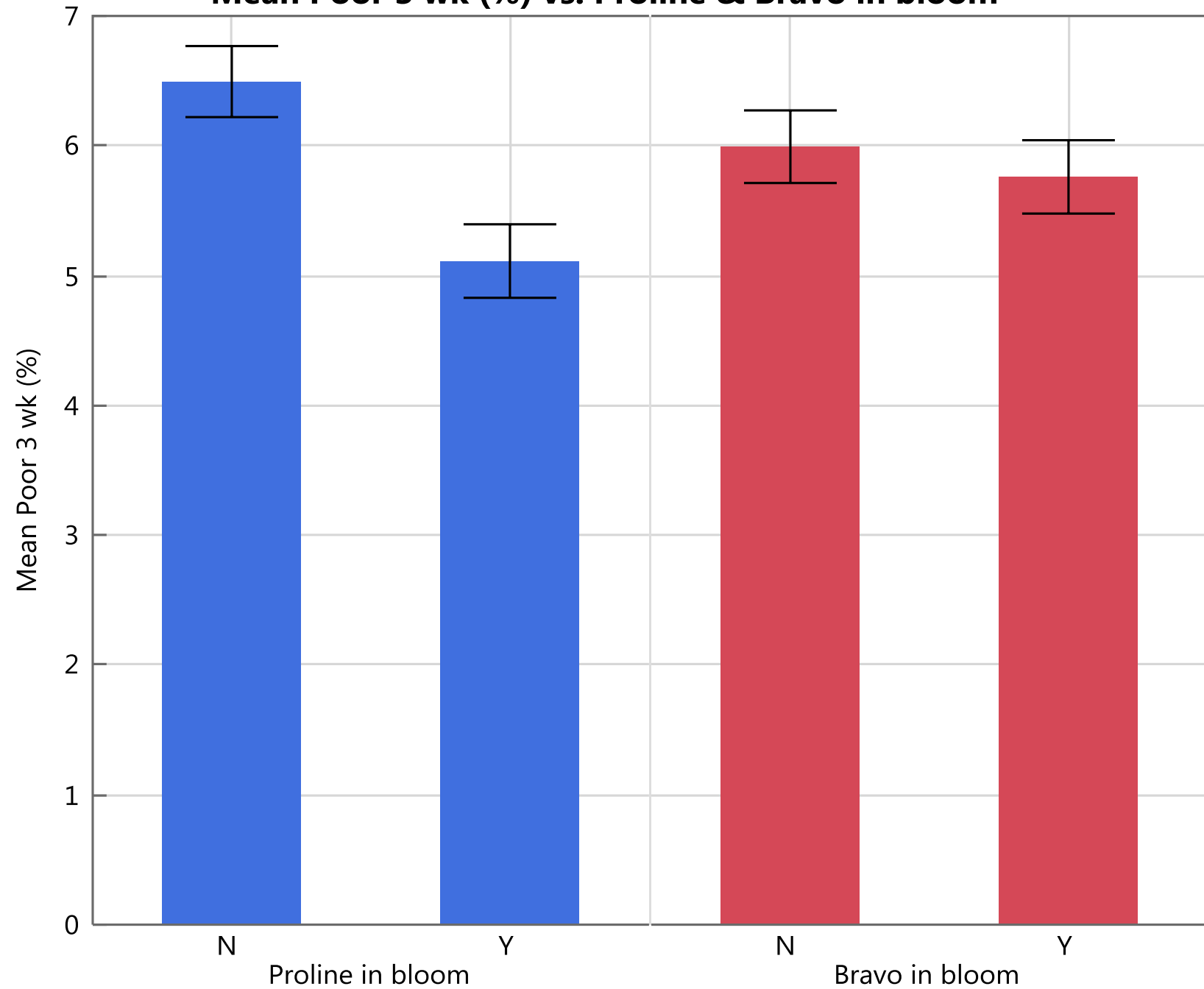


Mean Poor 3 wk (%) by Fungicide

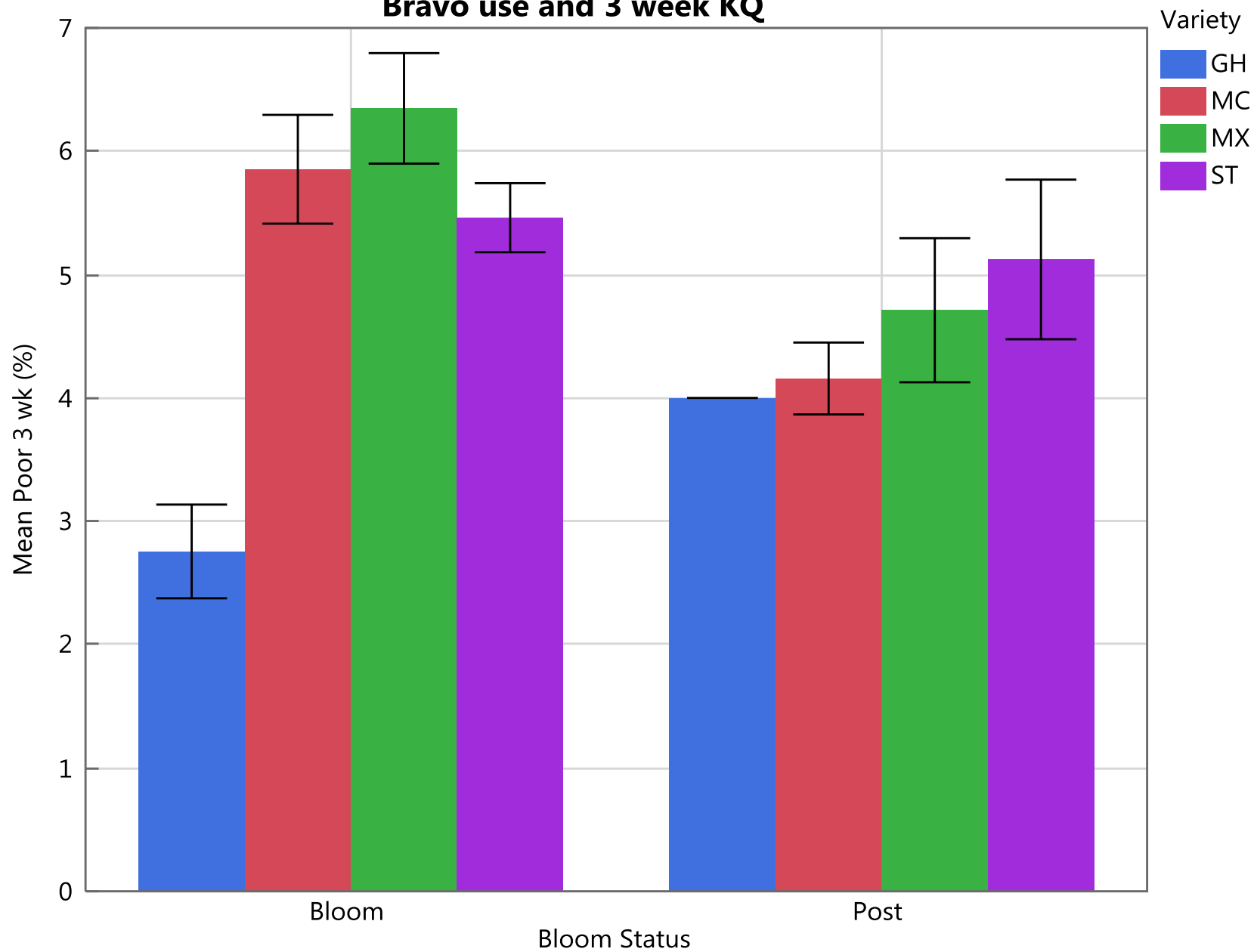


Mean Poor 3 wk (%) vs. Proline & Bravo in bloom

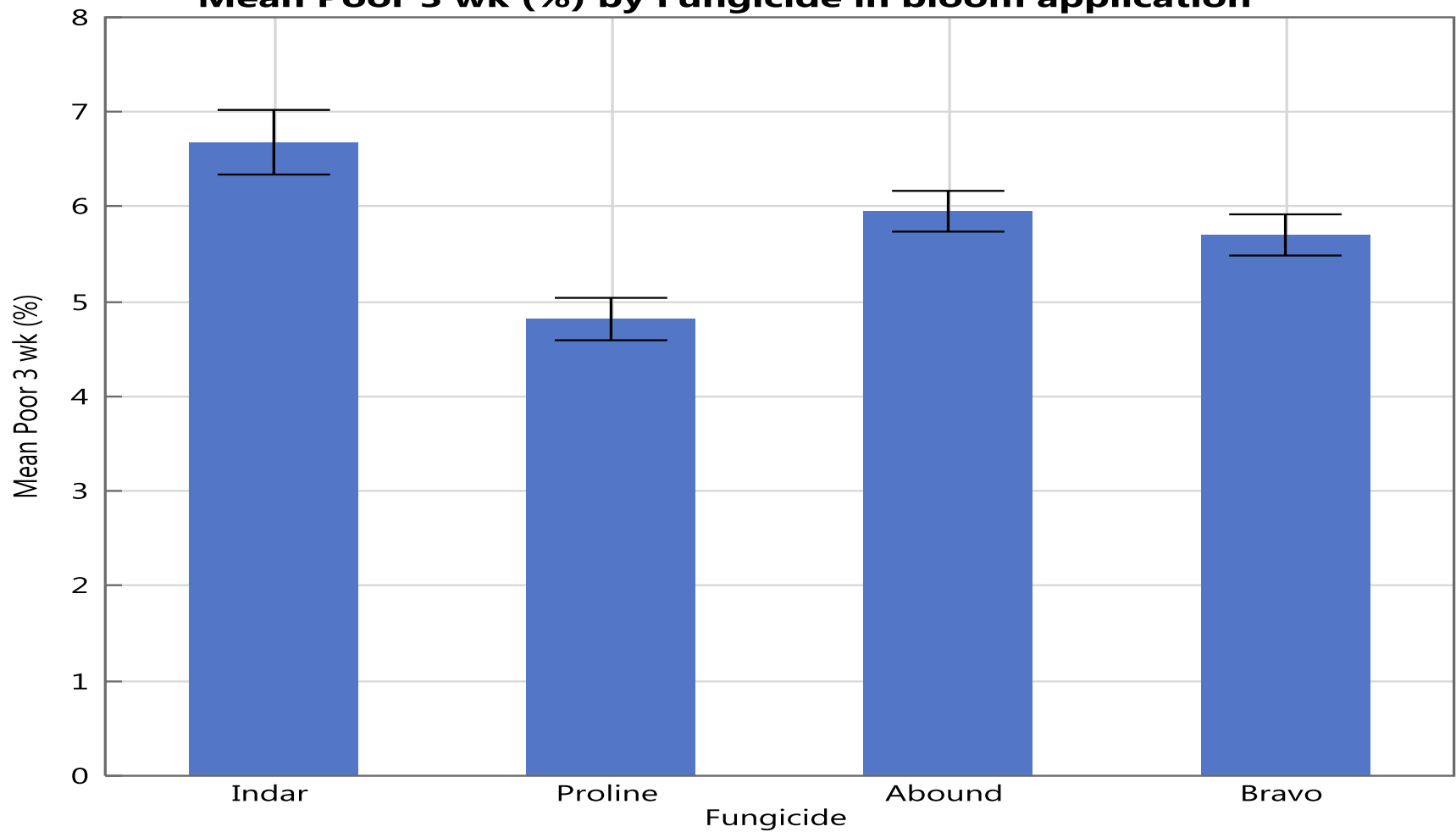
Bravo
Proline



Bravo use and 3 week KQ



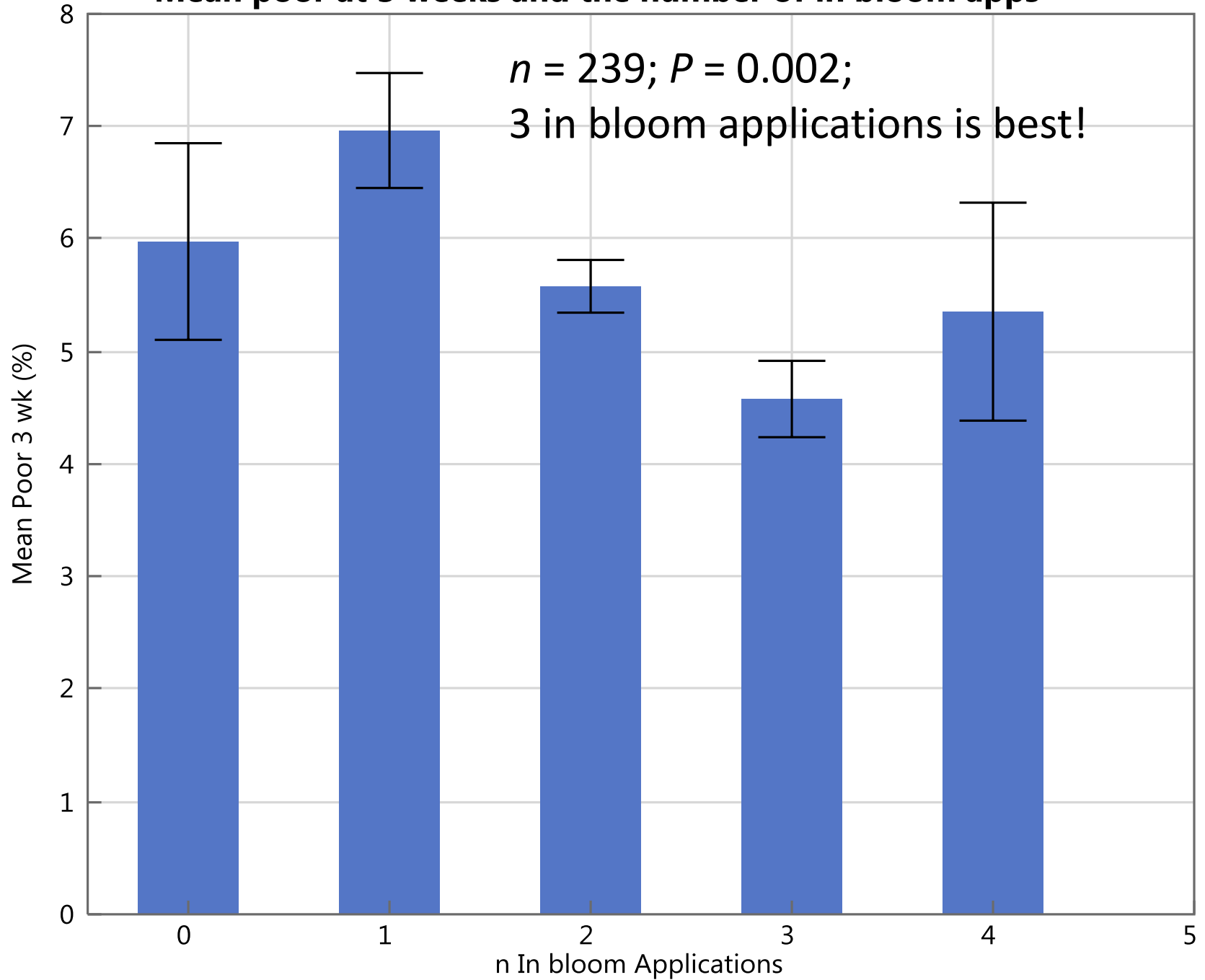
Mean Poor 3 wk (%) by Fungicide in bloom application



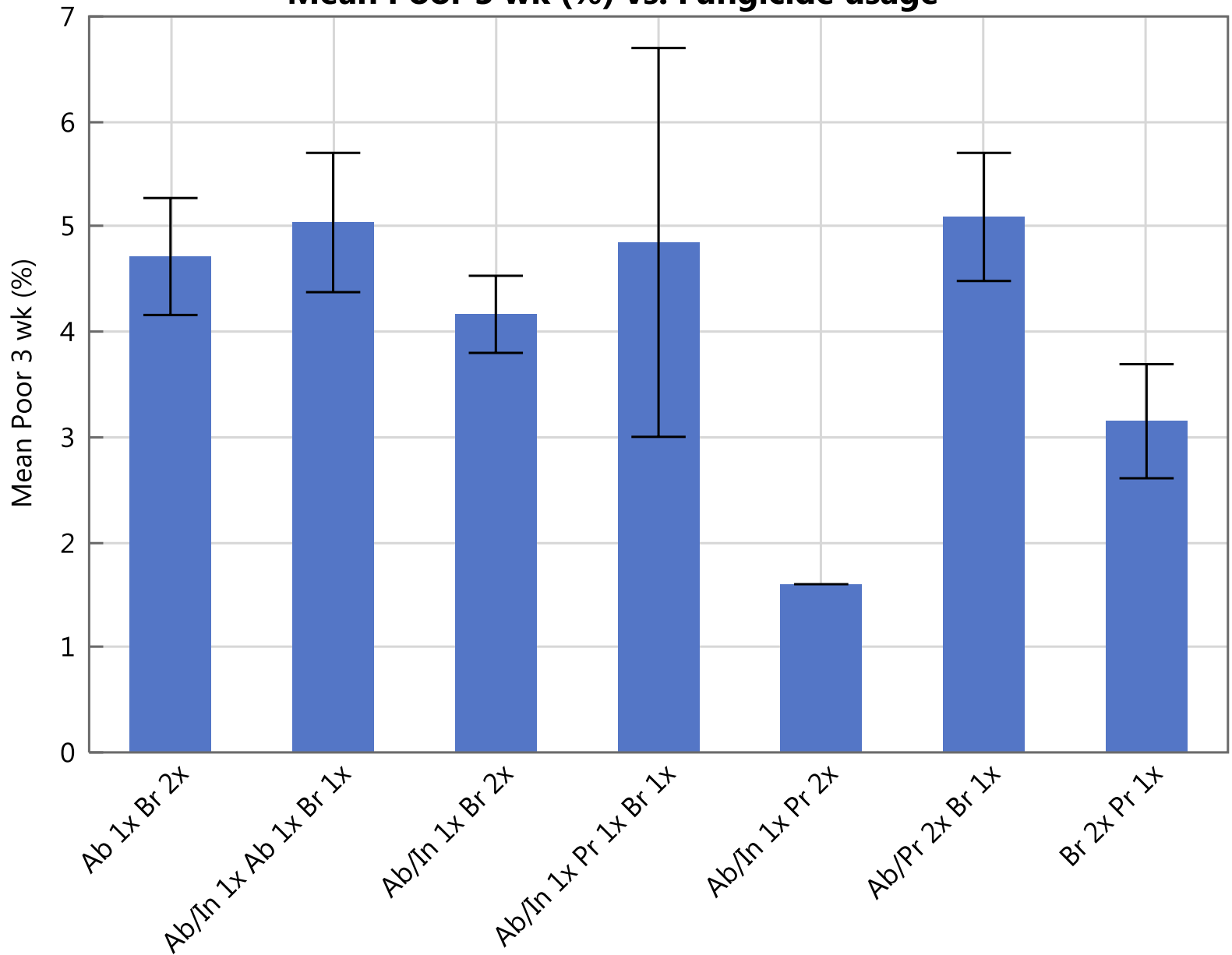
3 Week Keeping Quality for fungicides applied during bloom

1. Abound/Proline
2. Bravo* (depending on variety)
3. Abound/Indar

Mean poor at 3 weeks and the number of in bloom apps



Mean Poor 3 wk (%) vs. Fungicide usage



n = 33; P = 0.486;

No difference between these rotations!

Fungicide rotation in bloom

Section 4

WHY DO FUNGICIDE USES DIFFER SO MUCH IN PRACTICE?

What's going on?

- 71 different fungicide application patterns used by 58 growers on 249 beds...
- If we truly knew what worked, this number would be substantially reduced
- Variation exists between growers, acreage, manner of application (boom vs chemigation)
- With all these differences, however, we can still see some useful patterns...

Section 5

SUMMARY/REVIEW

What the data tells us for fresh fruit

- Pre-bloom
 - No clear preferences
- In bloom
 - 3 applications:
 - One initial combination of Abound/Proline or Abound/Indar
 - 2 applications of Bravo and/or Proline
- Post-bloom
 - Bravo >> Manzate > Dithane

Questions

