



White blister - fungicide efficacies & control

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syngenta


Peracto
Knowledge through Experience

HAL

Know-how for Horticulture™

White blister - *Albugo candida*

Peronosporales, Oomycetes

- downy mildew, related to *Pythium* & *Phytophthora*

Tasmania 2003



Oospores - thick wall, long-term survival in soil, > 3 years, optimum 13C, primary infections



Zoosporangia - thin wall spores in blister lesion, rapid spread & epidemics in secondary infections

White blister control

- No fungicides - currently registered for white blister on brassicas
- Temporary permit use (Ridomil Gold MZ, copper)
- Long term use - product registration
- Permits - residue only, no efficacy

Objectives

- Identify effective fungicides & their rates for white blister control
- Collate efficacy & residue data for registration
- Brassica & leafy brassica crops

Efficacy trials in Tasmania & Victoria over 2 seasons

- Bravo ®
- Amistar®
- Ridomil Gold MZ ®
- Ridomil Gold Plus ®

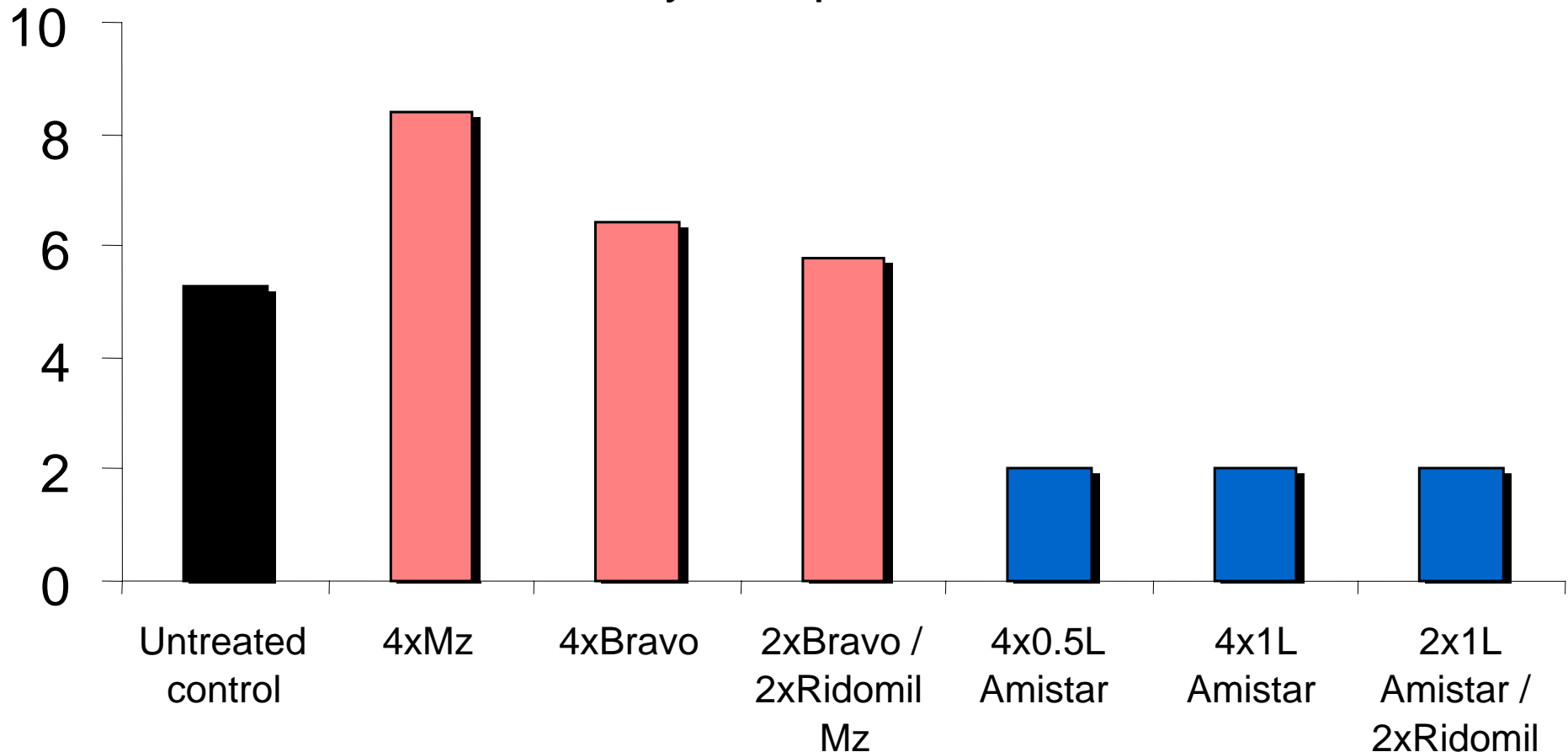
- pyraclostrobin (Cabrio ®)
- Filan ®
- BAS 516 (Cabrio + Filan)
- BAS 536 (Cabrio + DMM)

- Mancozeb
- Phosphorous acid
- Copper hydroxide vs copper oxychloride

Werribee, Victoria - 2004

4 x foliar sprays at 7 day intervals

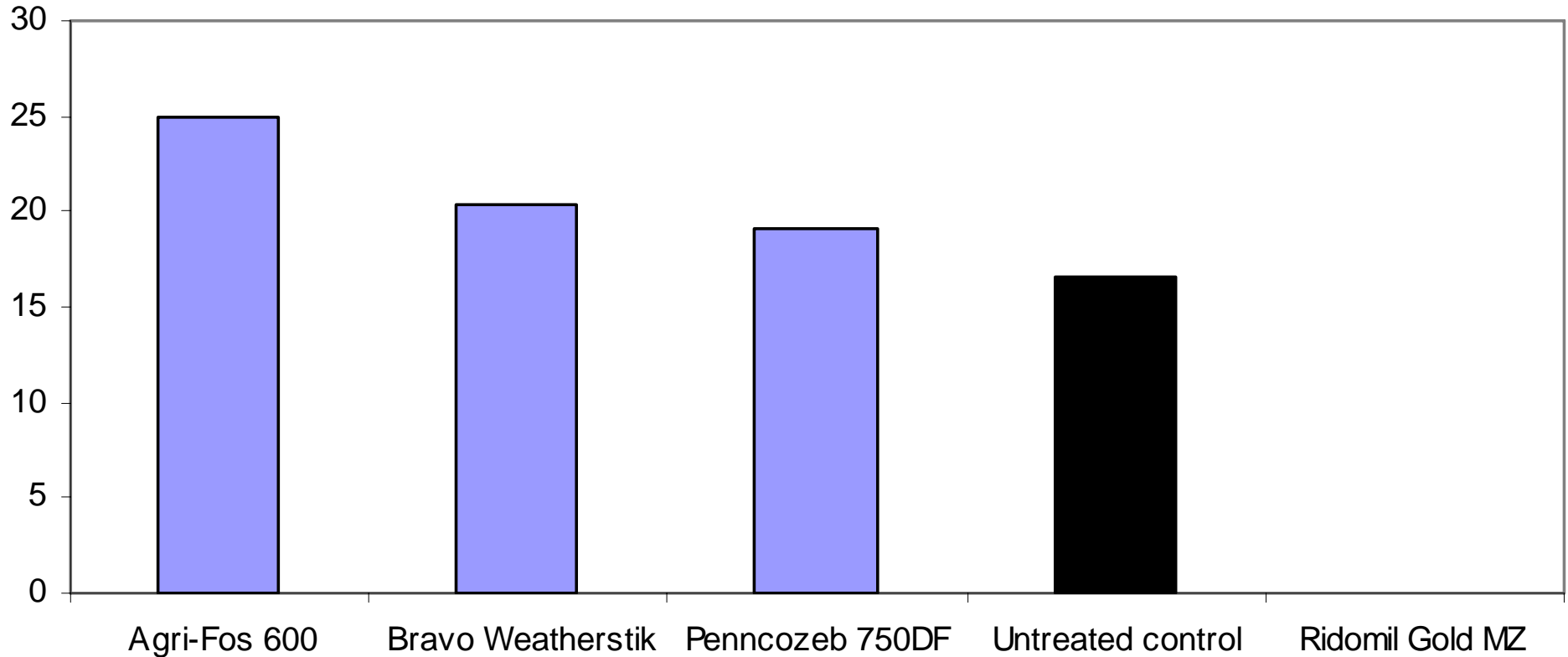
White blister severity – % plant area infected



Forth, Tasmania - 2004

3 foliar sprays

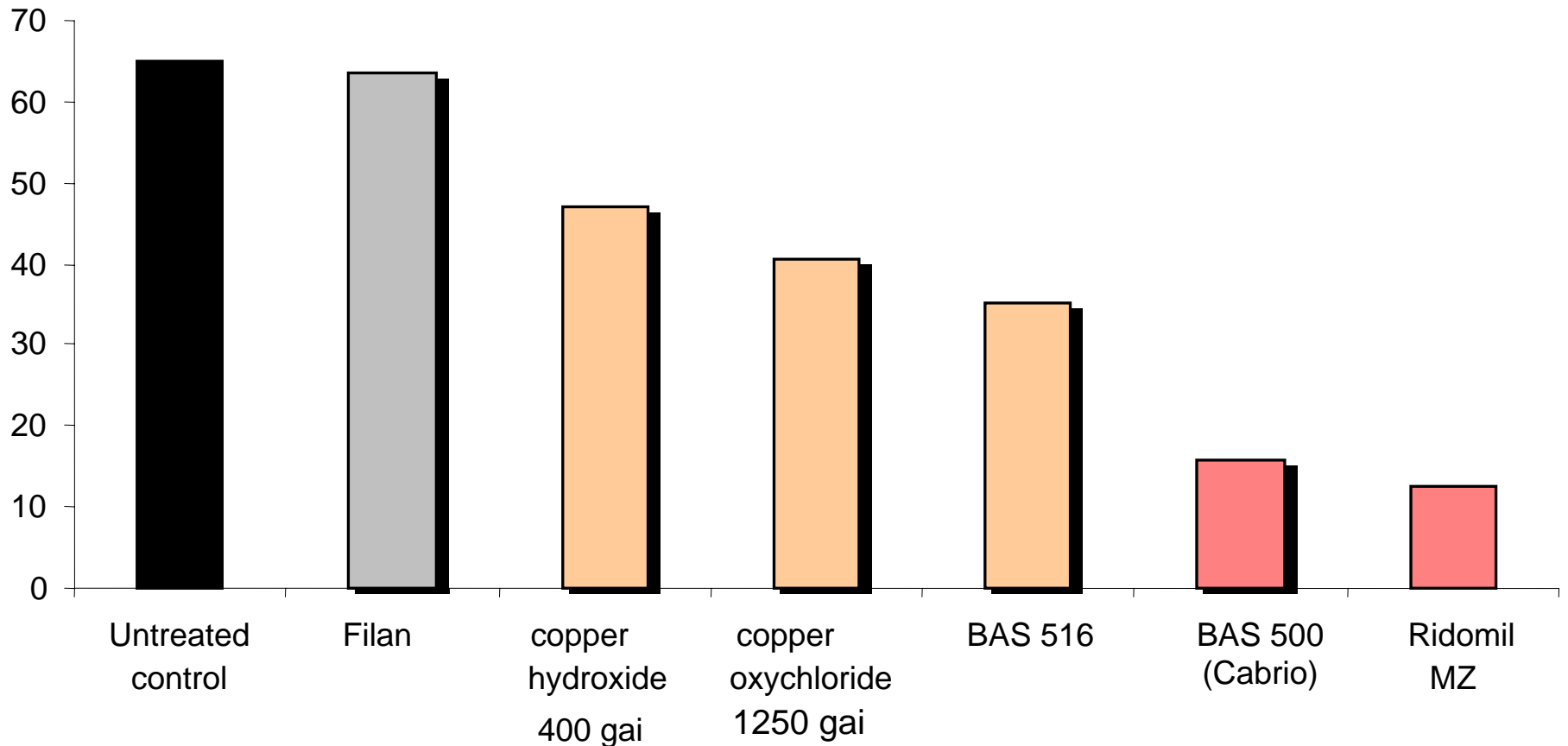
% Broccoli heads with white blister (27/04/04)



Forth, Tasmania - 2005

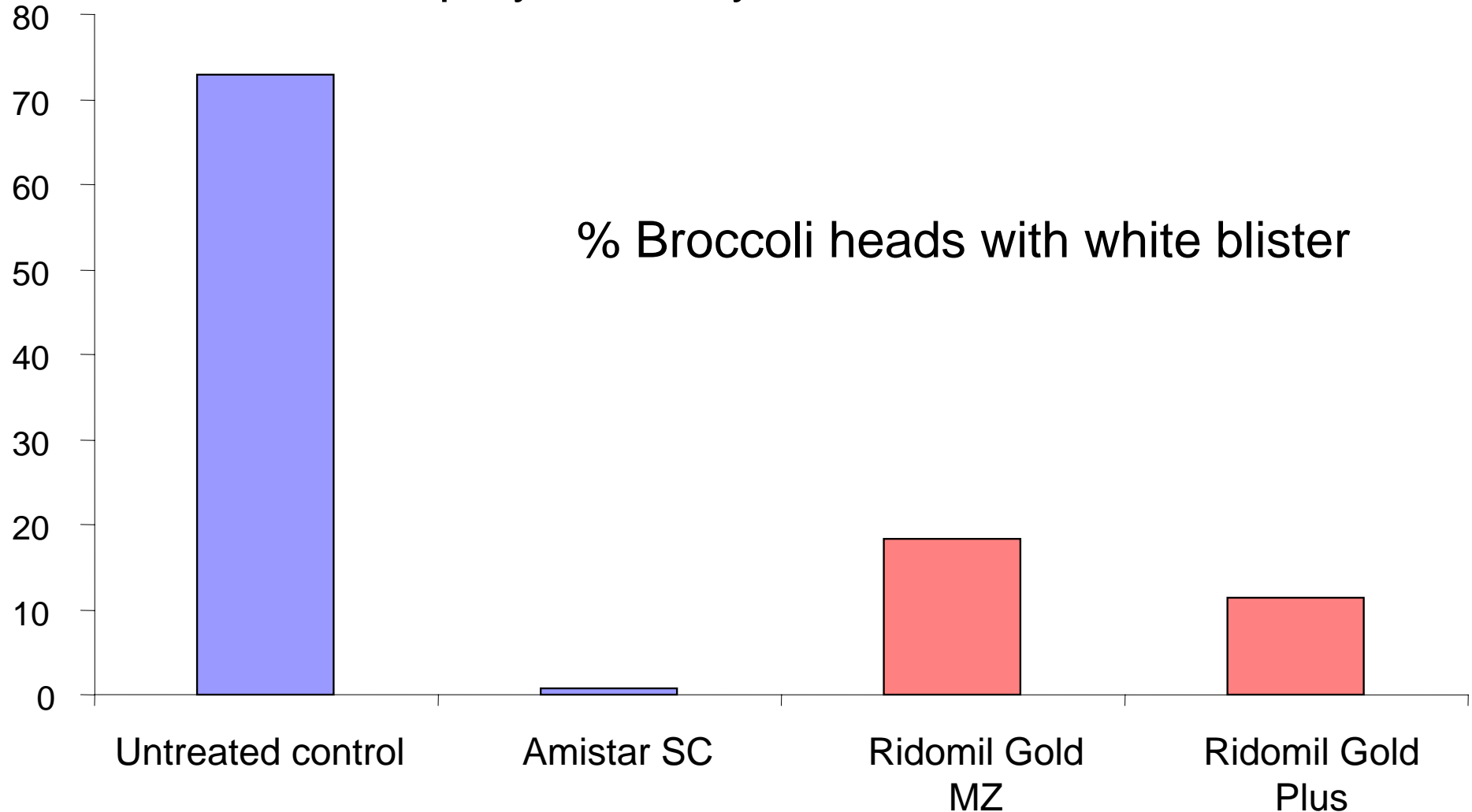
3 foliar sprays at 7 day intervals

% Plants infected by white blister



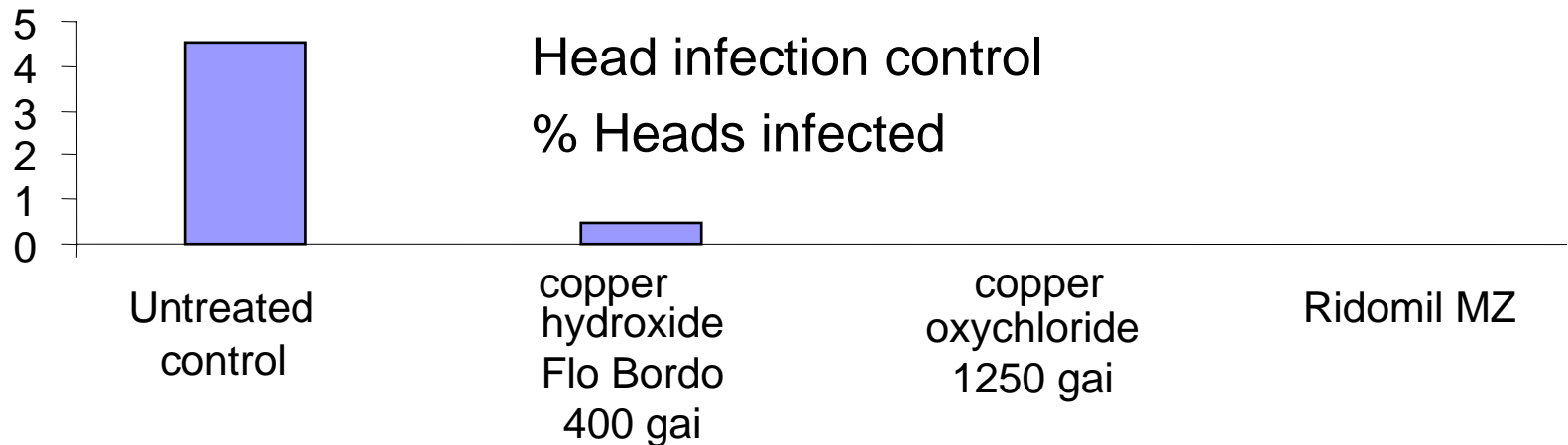
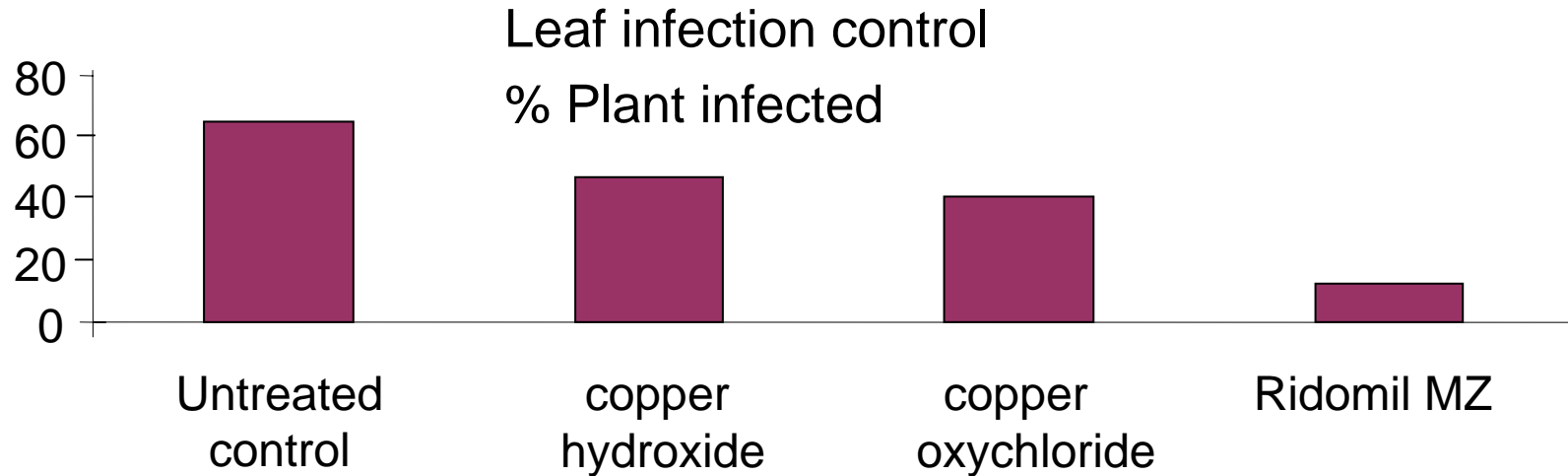
Werribee, Victoria - 2005

4 x foliar sprays at 7 day intervals



Copper – prevents head infection

3 x foliar sprays at 7 day intervals



Fungicide efficacies

- ✓ Ridomil Gold MZ
- ✓ Ridomil Gold Plus
- ✓ Amistar
- ✓ Copper
- ✓ Cabrio

- X Bravo, Filan, Mancozeb – poor efficacy
- X Phosphorous acid – poor efficacy

- Acrobat - not supported, permit use for seedlings
- Other new chemistry ?

Fungicide registrations

- Fungicide registrations 2007/08
 - ✓ Ridomil Gold Plus
 - ✓ Amistar SC @ 0.25 – 0.5 L/ha
 - ✓ Cabrio – permit use only

- Fungicide application program
 - ✓ Amistar
 - ✓ Ridomil
 - ✓ Copper (until harvest)



Fungicide Resistance Management

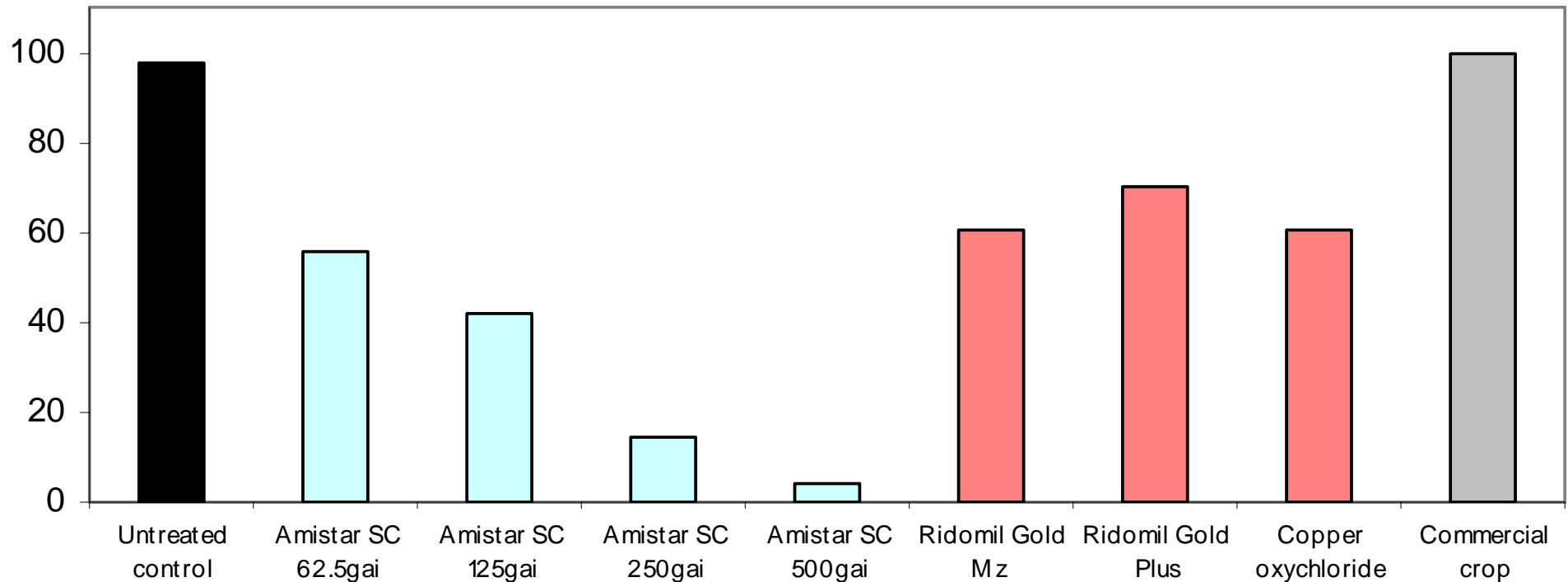
- Important to maintain and prolong the useful life of the most effective fungicides.
- Systemic fungicides - more effective, but also high-risk (Ridomil Gold MZ, Amistar, Cabrio).
- Use Amistar or Ridomil early - when the pathogen population is low.
- Apply two consecutive sprays of systemic fungicides at 7-10 day intervals.

Moriarty, Tasmania – Mar/Apr 2007

4 x foliar sprays at 7 day intervals



% Plants with white blister on top leaves

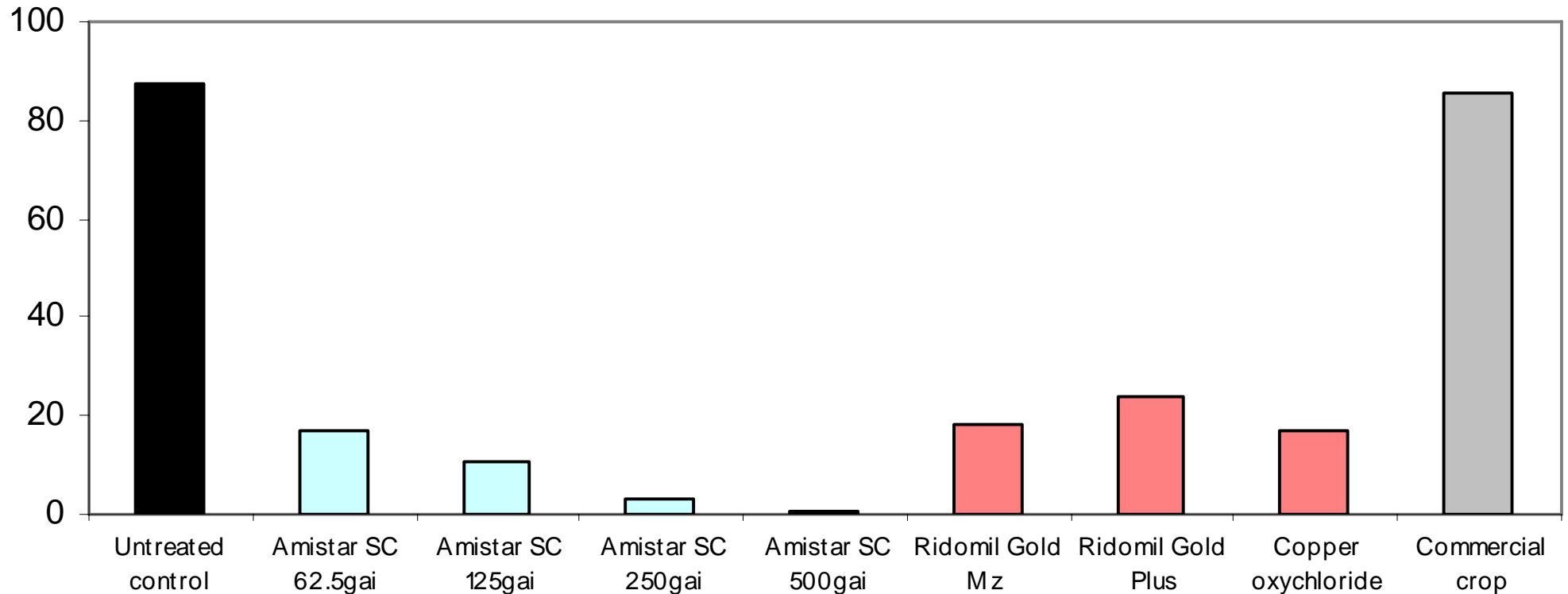


Moriarty, Tasmania – Mar/Apr 2007

4 x foliar sprays at 7 day intervals



% Leaf infection severity on top leaves



Fungicide efficacy

- Disease pressure & duration
- Consecutive planting of crops
- Tolerant varieties
- Fungicide type
- Spray timing & number of sprays
- Spraying conditions

Hot dry conditions

Systemic Fungicides

- Dry conditions - fungicide droplets dry very quickly.
- Active ingredients - cannot be absorb when dry.

Protectant Fungicides

- Dry conditions - deposits may be too thin and weather off easily.
- Therefore, no protection up to the next spray.

Rainfall

- Rain soon after an application can cause poor efficacy of a crop protection product
- Generally 2 - 3 hours without rain are needed for:
 - systemic fungicides absorption into leaf tissues
 - protectant fungicides to stick to leaf surface
- **Always refer to the label for the rainfast period**

Acknowledgments

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