

Red Sunflower Seed Weevils: Are they susceptible to pyrethroids?

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Red sunflower seed weevils

- Annual pest of SD sunflower
- Severe infestations can result in 50-80% of achenes being infested
 - Larvae feed on developing seed
- Primarily managed using foliar insecticides



The problem?

- Field outbreaks 10-100x over threshold
- Reported field failures



Red sunflower seed weevils

- 47 insecticides labeled for management
 - 29 with pyrethroid a.i.
 - 5 with at least one pyrethroid a.i.
 - 13 with organophosphate a.i.

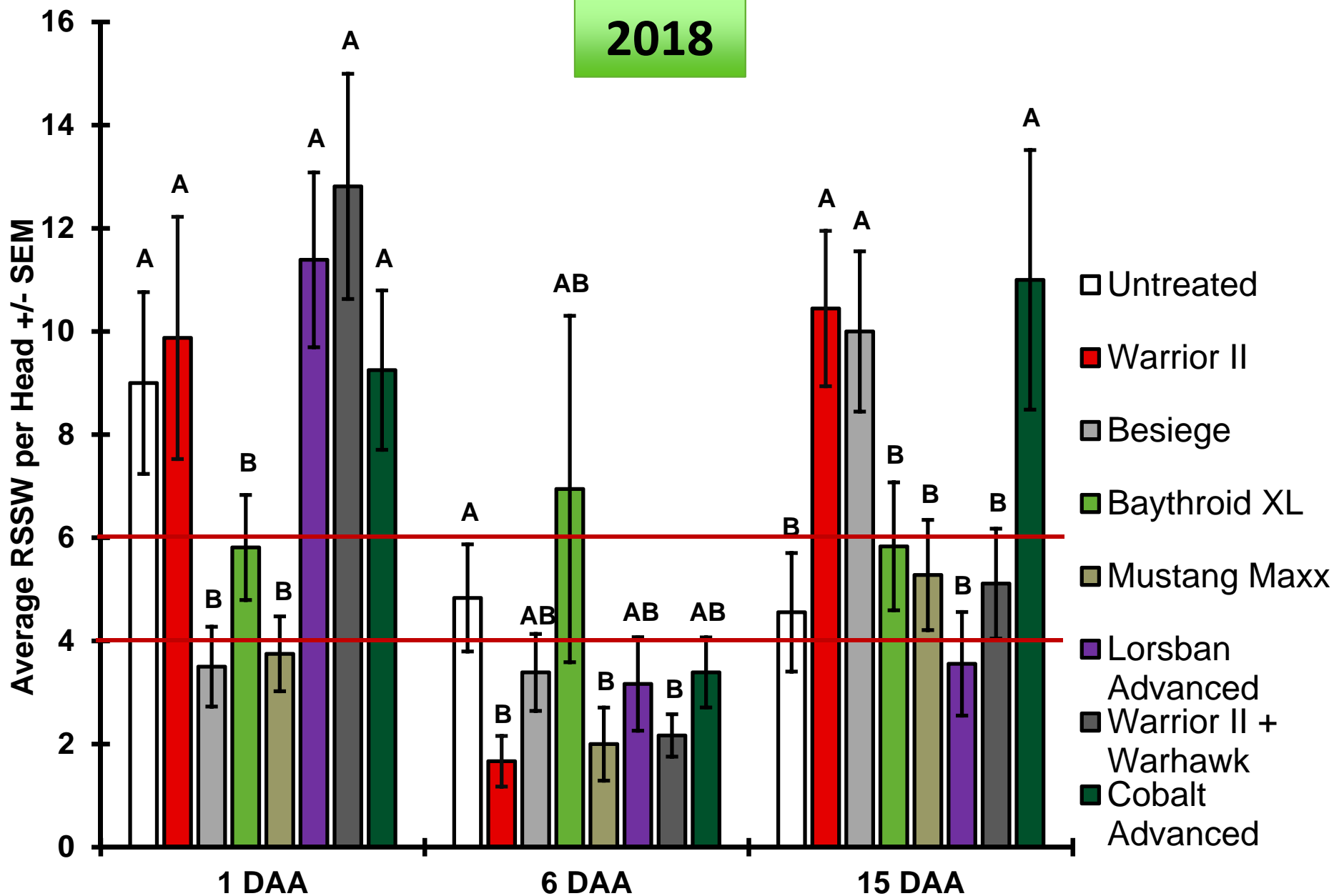
- 2017, 2018: Multiple reports of pyrethroid failures

- Is it resistance? Fields were retreated before sampling could occur.

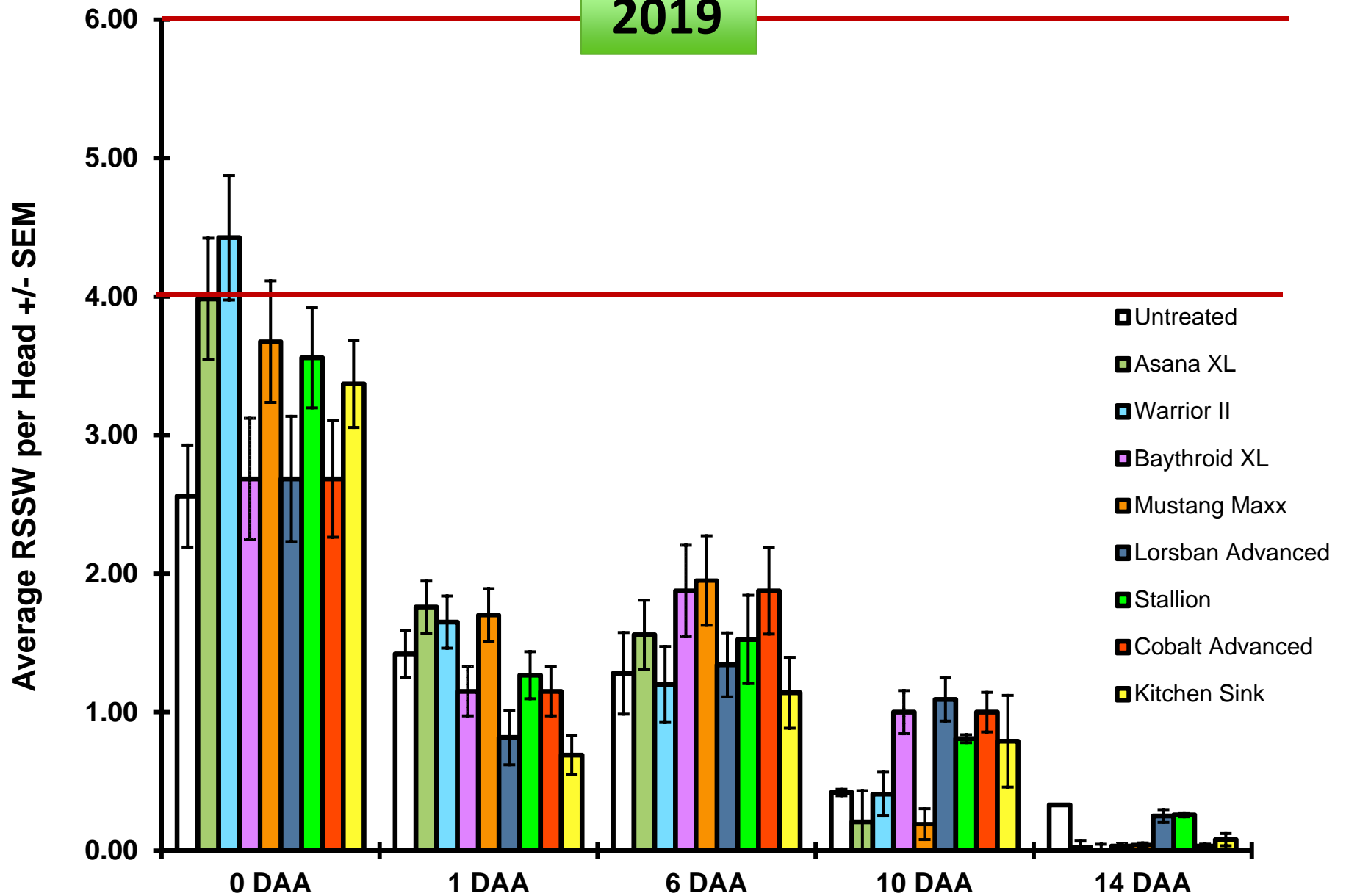
Did the sprays work?



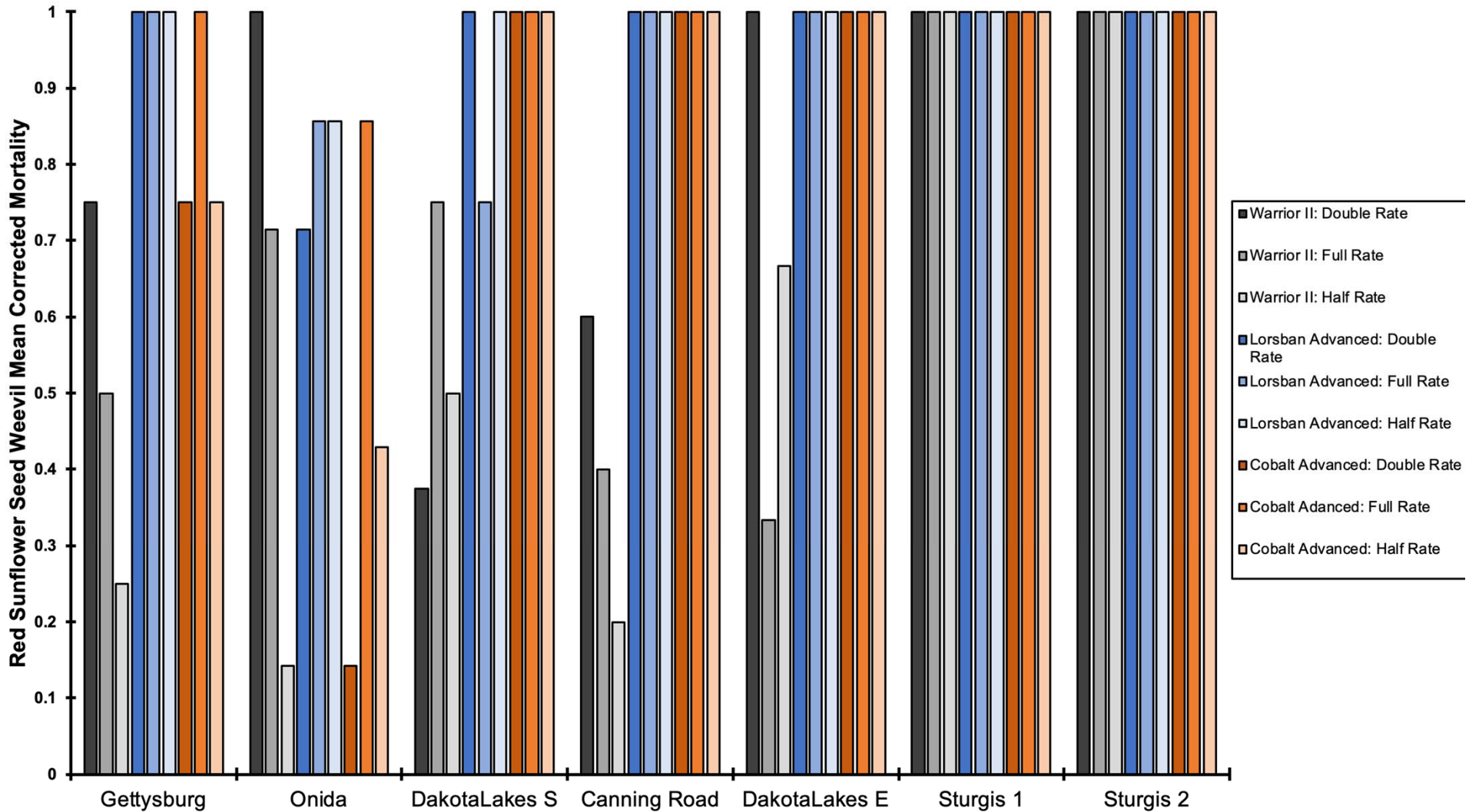
2018



2019



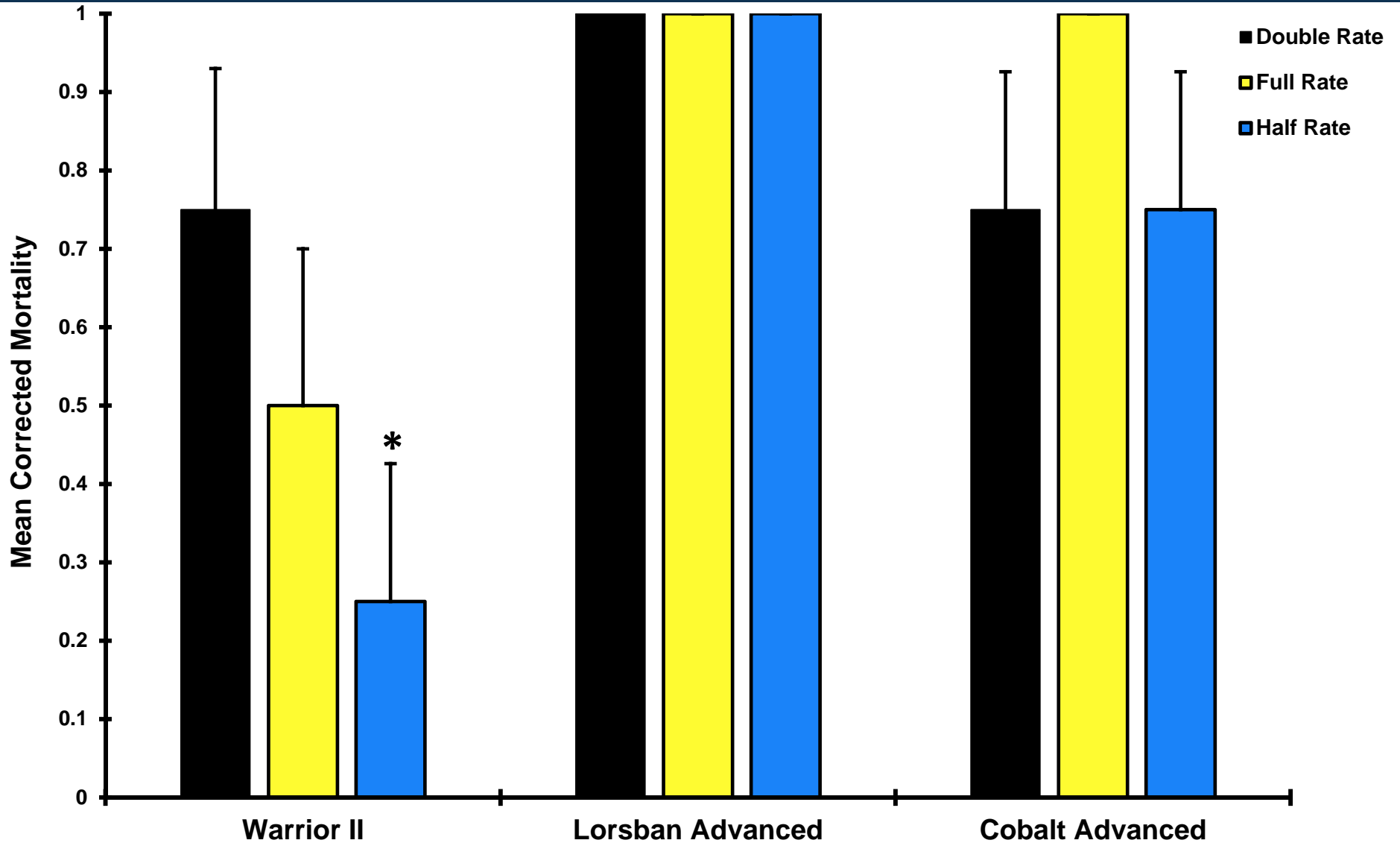
Glass Vial Test



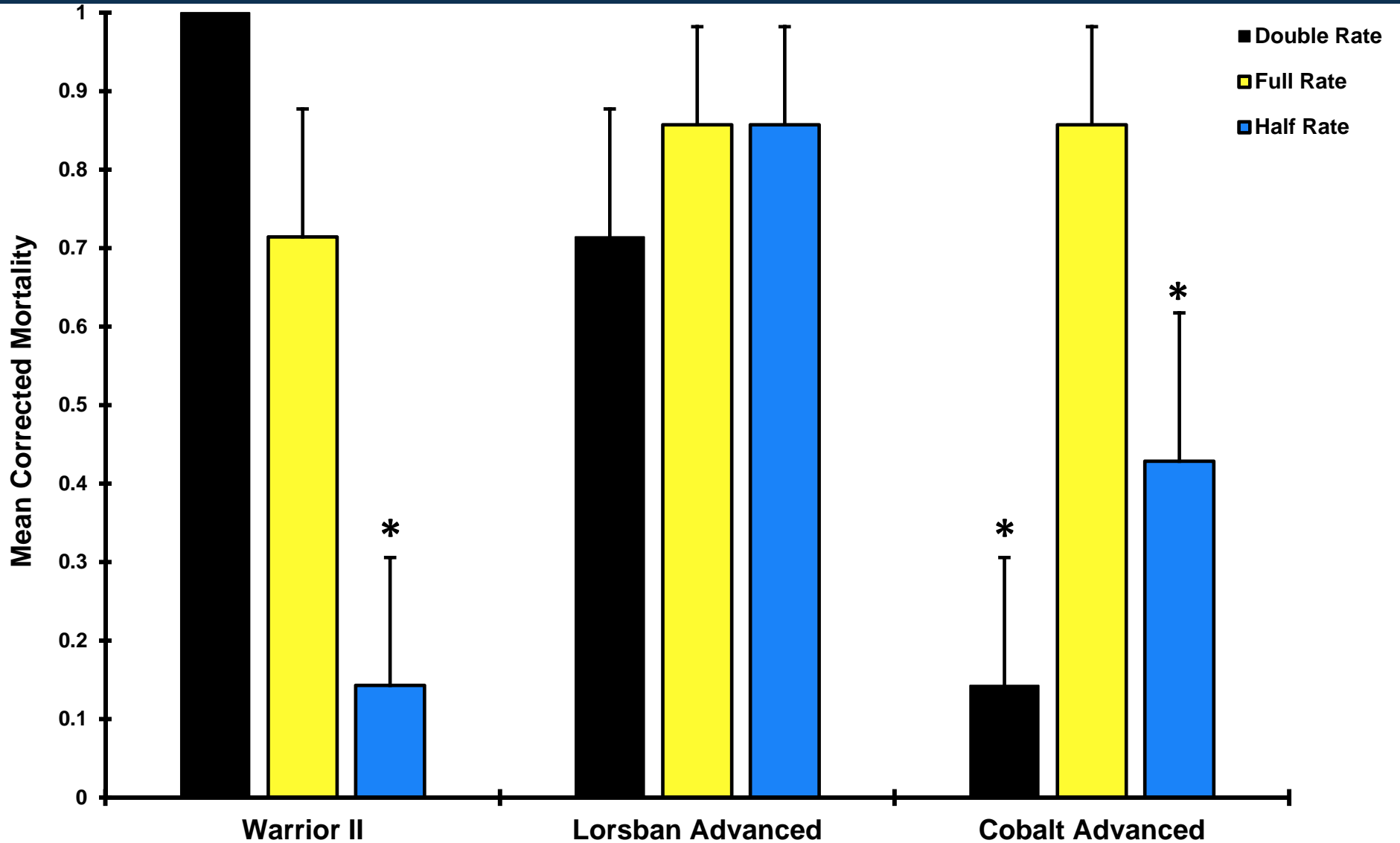
Rates of insecticides used for vials

- **Double:**
 - Warrior II: 3.84 fl/oz per acre
 - Lorsban Advanced: 6.0 pt per acre
 - Cobalt Advanced: 76 fl/oz per acre
- **Normal:**
 - Warrior II: 1.92 fl/oz per acre
 - Lorsban Advanced: 3.0 pt per acre
 - Cobalt Advanced: 38 fl/oz per acre
- **Half:**
 - Warrior II: 0.06 fl/oz per acre
 - Lorsban Advanced: 1.5 pt per acre
 - Cobalt Advanced: 19 fl/oz per acre

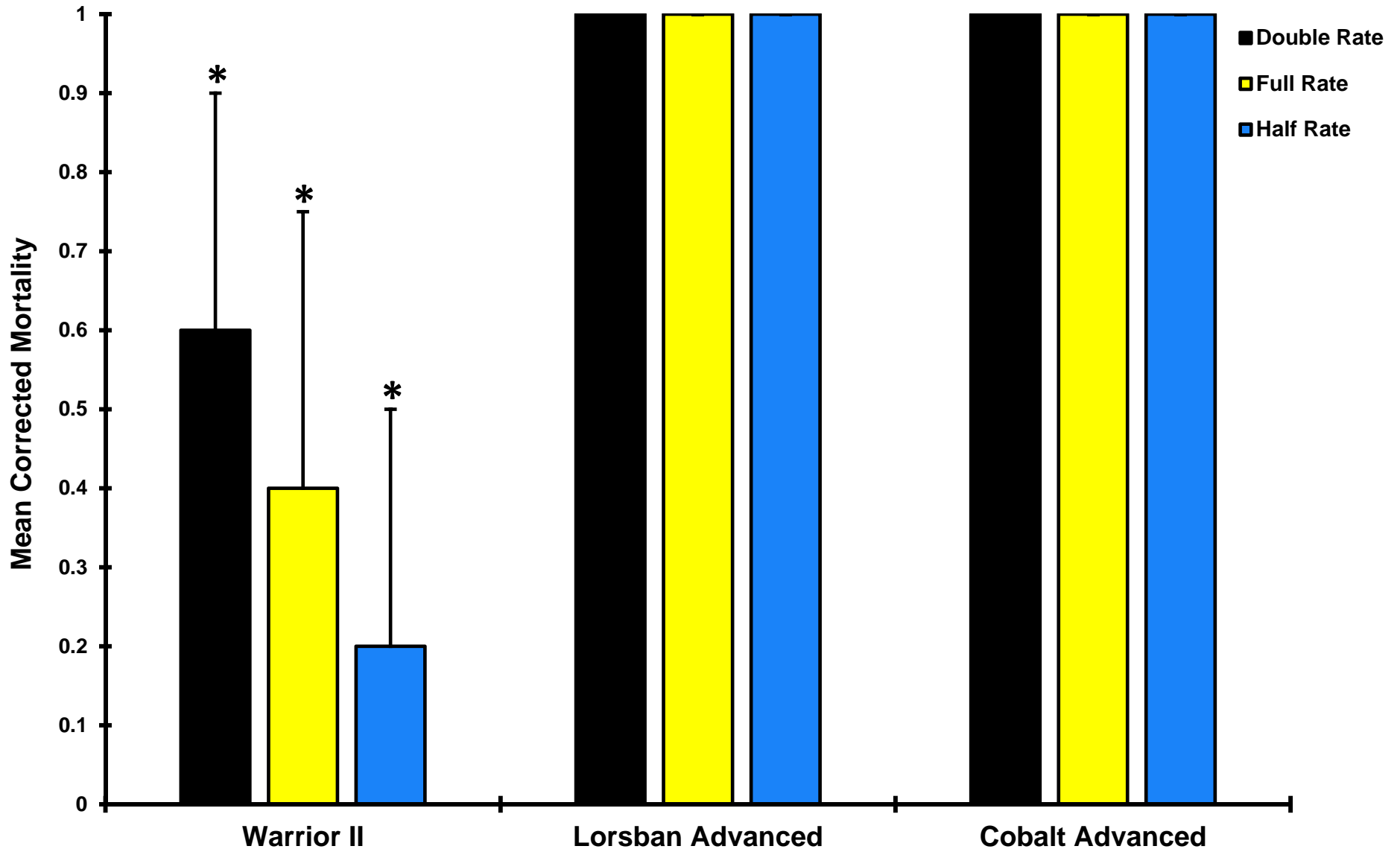
Glass Vial Test: Gettysburg



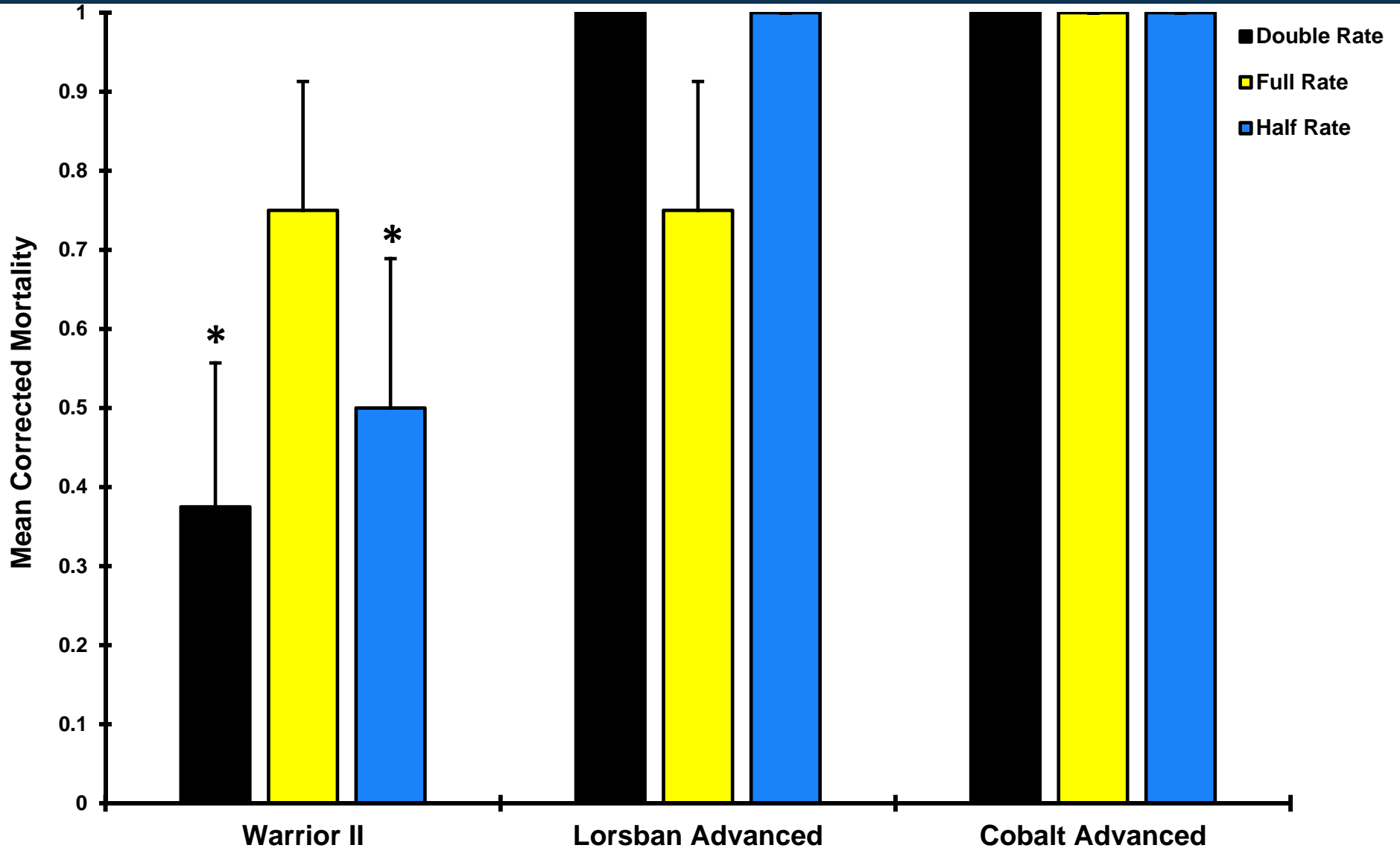
Glass Vial Test: Onida



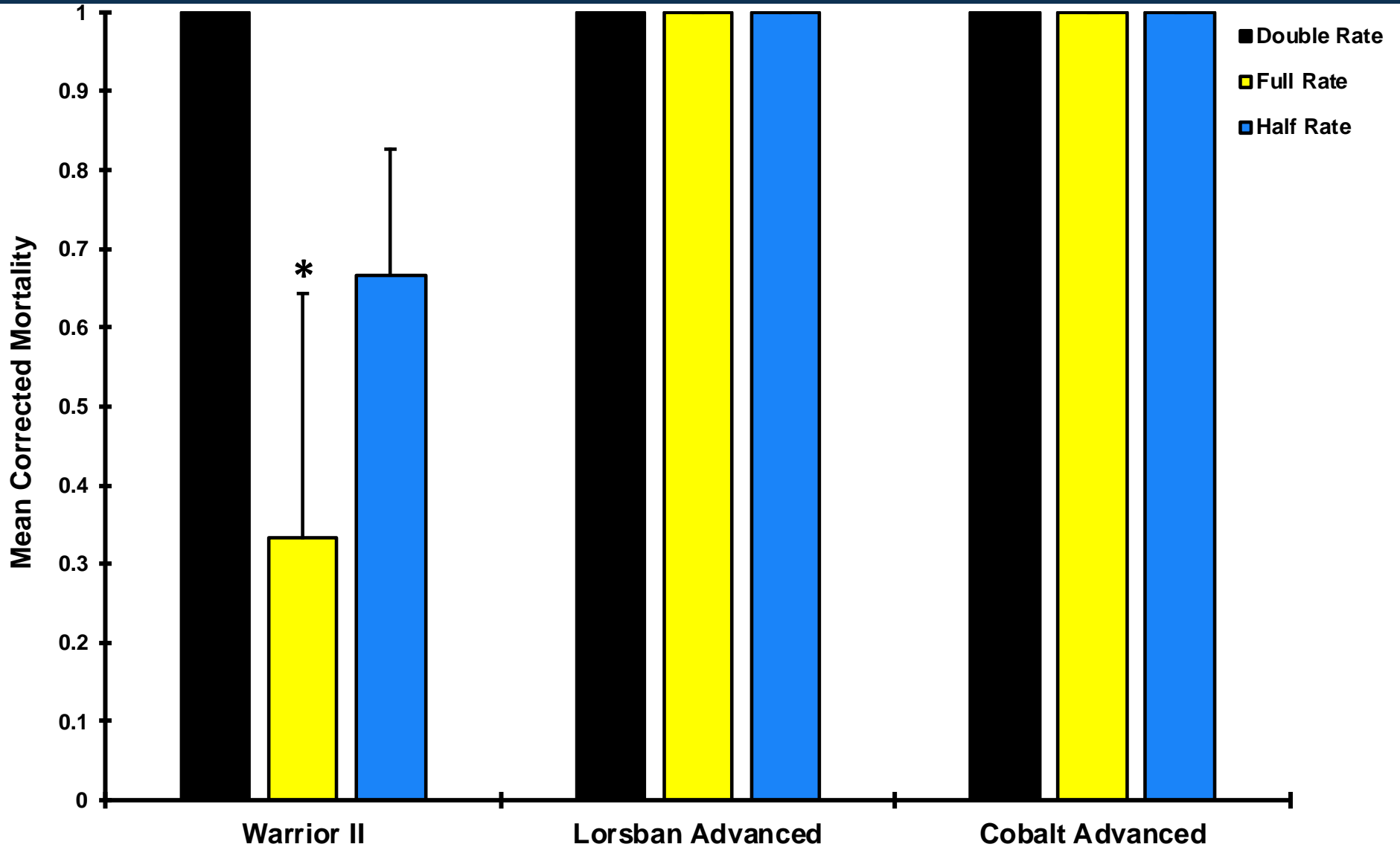
Glass Vial Test: Dakota Lakes North



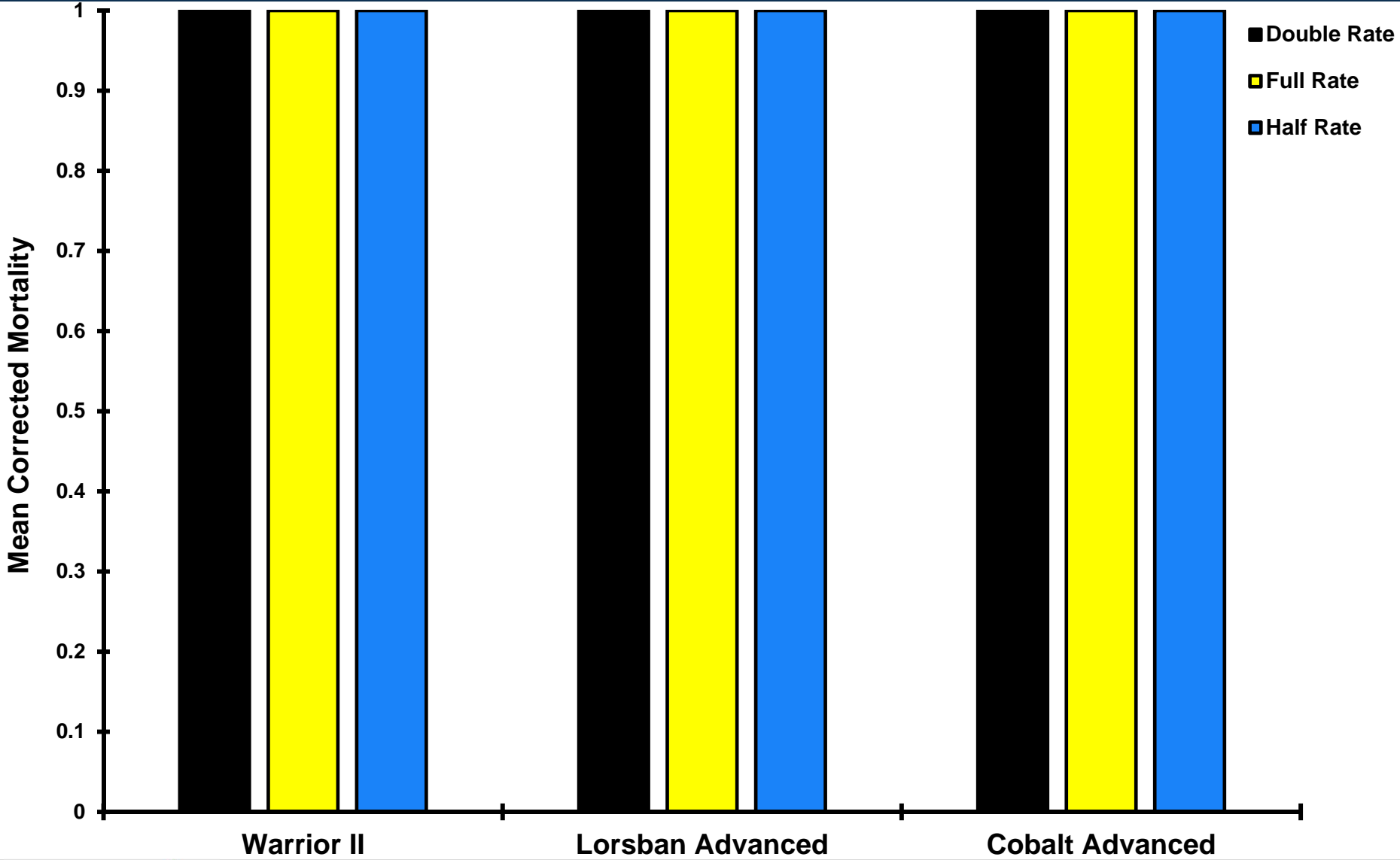
Glass Vial Test: Dakota Lakes South



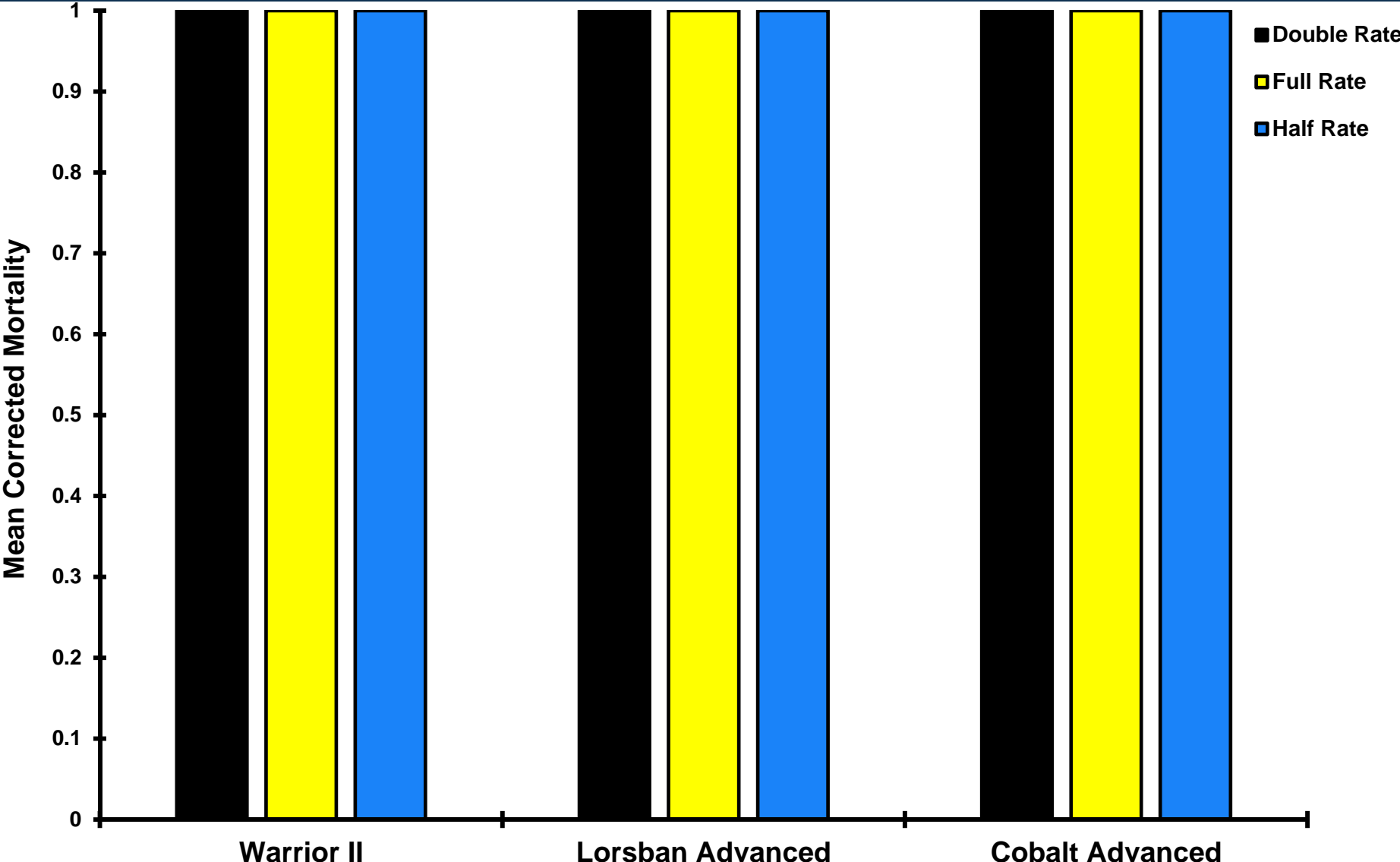
Glass Vial Test: Dakota Lakes East



Glass Vial Test: Sturgis 1



Glass Vial Test: Sturgis 2



2019 Conclusions

- Reduced susceptibility:
 - Warrior II: everywhere but Sturgis
 - Lorsban Advanced: Onida and Gettysburg
- Need to test additional individuals per location
 - Improve statistical power
- Evaluate additional insecticide classes

Why might susceptibility be reduced?

- Coverage difficulties
- Very large RSSW populations
- Routine treatment of RSSW
- Timing of glass vial assay

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