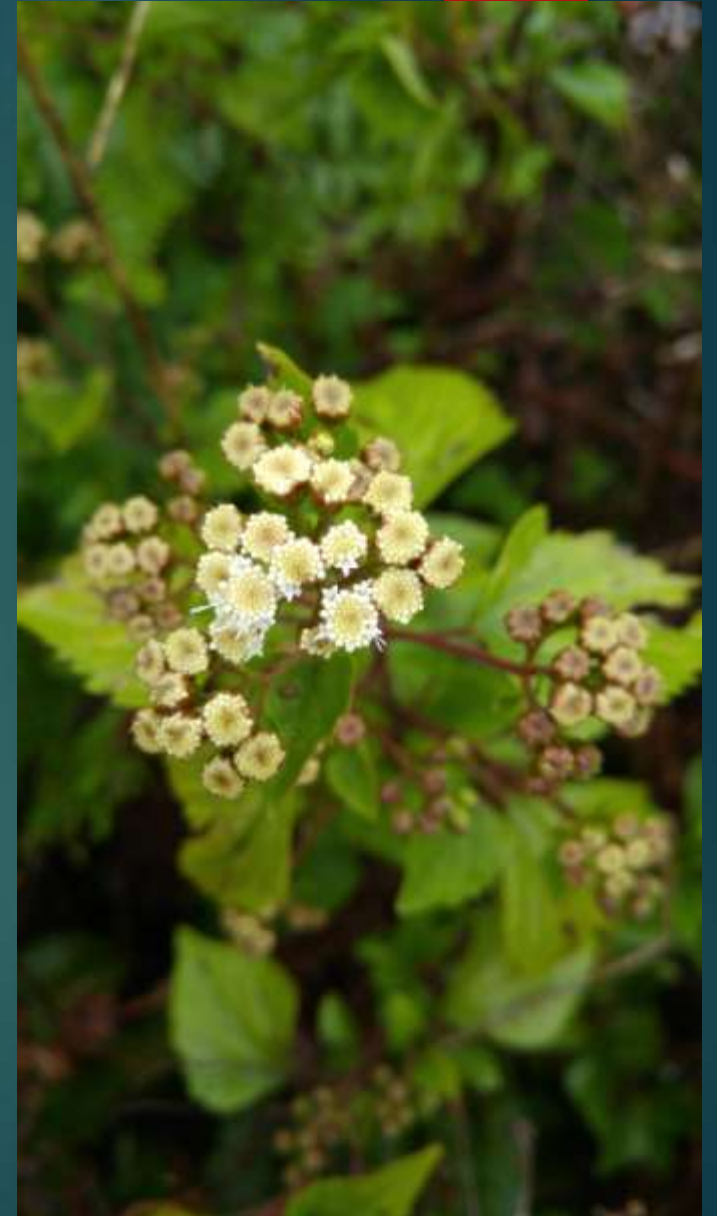


New Tools for Thoroughwort Management

ELLIOT GUNNISON

GOLDEN GATE NATIONAL PARKS CONSERVANCY



Thoroughwort (*Ageratina adenophora*)

Background

Asteraceae, native to Southern Mexico

Flowers April-August

- Seed viability period under study

Invades disturbed sites and intact habitat

Small and large populations scattered throughout Southern Marin County natural areas ~25 years of management

Manual and conventional herbicide treatments providing minimal success



Study Goals and Methods

Is there an *effective* and *economical* chemical method for control?



Two phases over two treatment seasons
2016, 2017

Phase 1: Demonstration study of six
formulations

Phase 2: Test the best contenders in real
world conditions

Evaluations based on % control, recovery
vigor, seedling suppression



Phase 1: Demonstration Plots

6 Herbicides at 2 different rates

- Conventional glyphosate (Roundup) used as benchmark

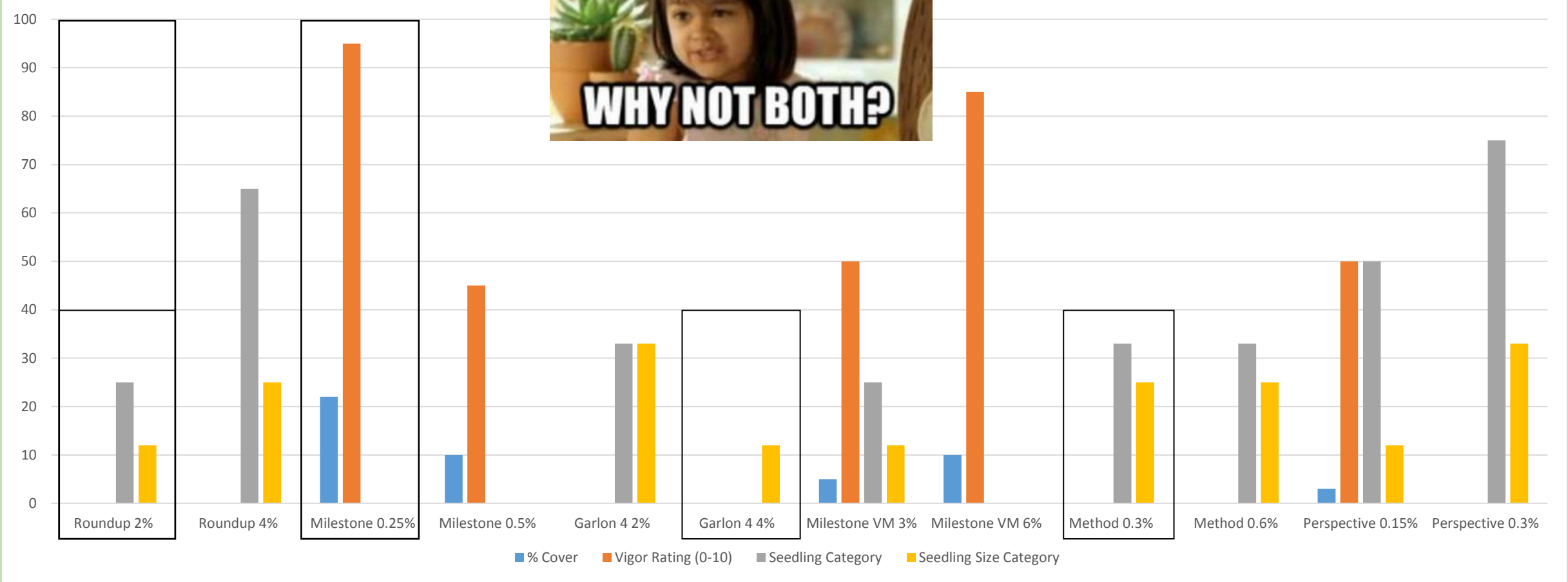
All backpacks calibrated the same, uniform volume applied

Plots at 2 separate locations

- Dry inland scrub site
- Wetter scrub site(seep) w/ coastal influence



Phase 1: Results



0=0
1-5=25
6-20=50
>20=100

0=0
<1in=25
1-5in=50
5-10in=75
>10in=100

Phase 2: “Real World”

Contender treatments for further evaluation

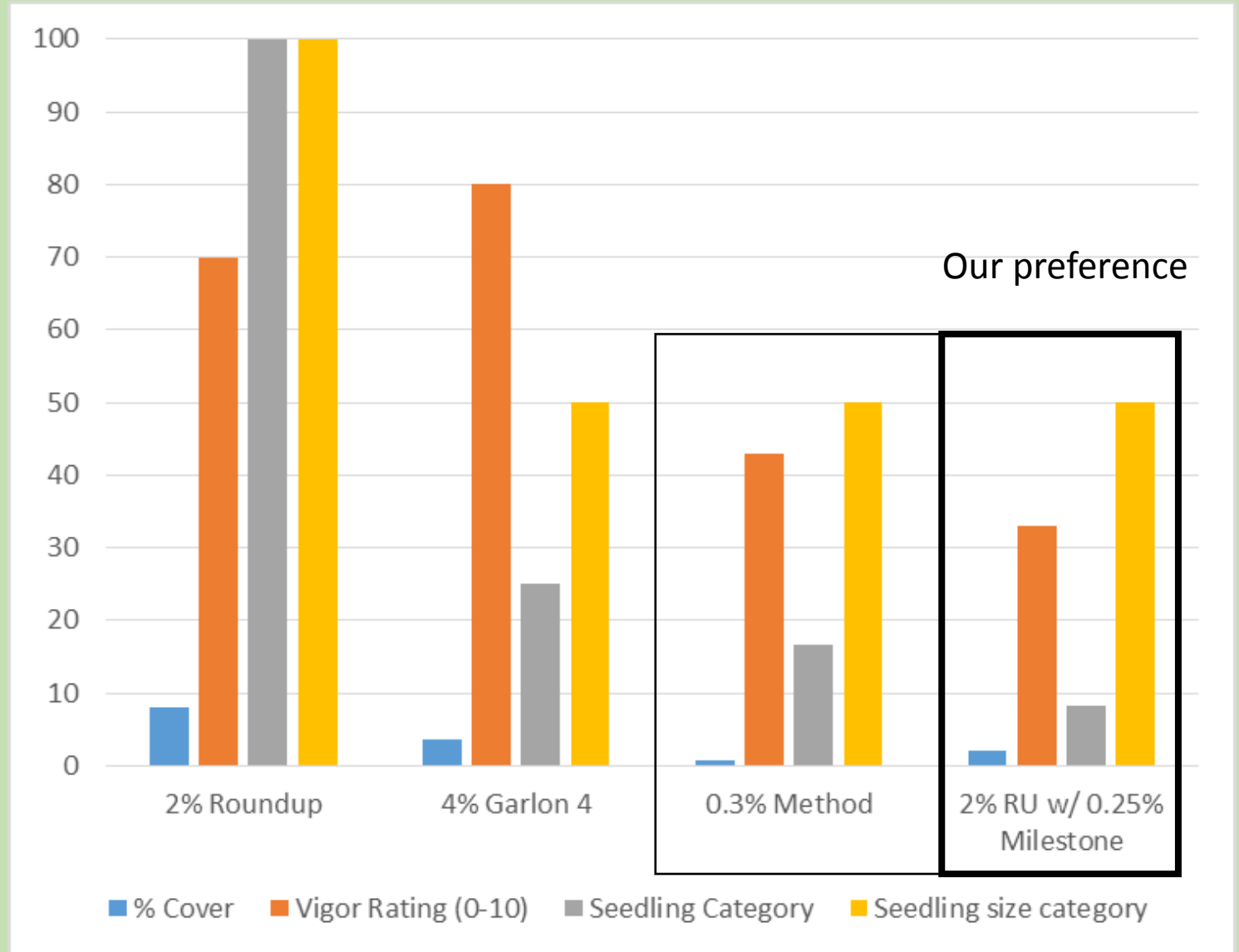
- 4% Garlon 4 Ultra
- 0.3% Method
- 2% Roundup Custom w/ 0.25% Milestone
- 2% Roundup Custom

Conditions w/ different applicator, calibration, plot size, % cover

3 separate sites, 1 plot per formulation



Phase 2: Results



Applying what we've learned



- 2018 Field Season
 - Quick turn around getting recommendations
 - Treatments started in May, racing seed
 - 5/13 Gross infested acres Treated
 - Easy access populations
- 2019 Field Season
 - Follow-up on previous year treatments as necessary
 - Expand initial treatments to remote populations

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Thank you!

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