ADAPTIV

EQUIPING THE INDUSTRY OF THE FUTURE

Matt Strmiska

Almond Pest and Weed Management

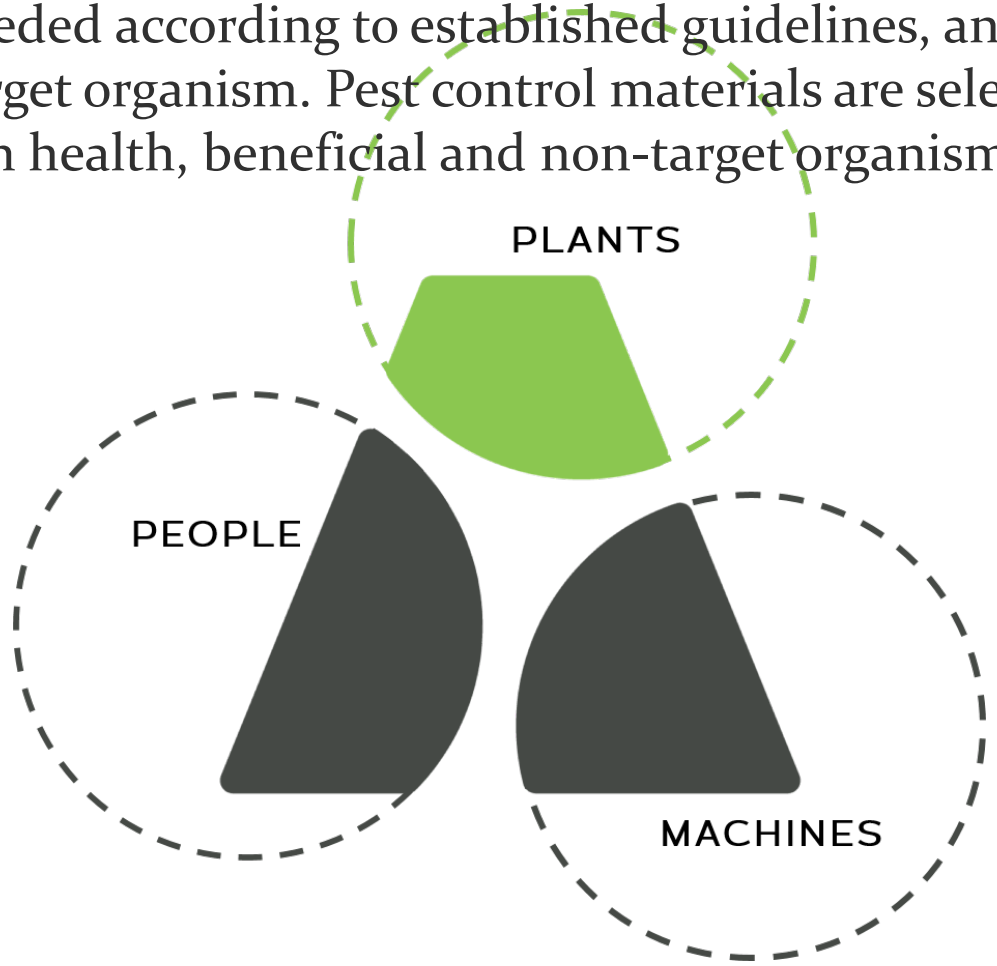
Practical Applications in Trees

australian almond
RESEARCH & DEVELOPMENT FORUM

ALMOND BOARD OF AUSTRALIA

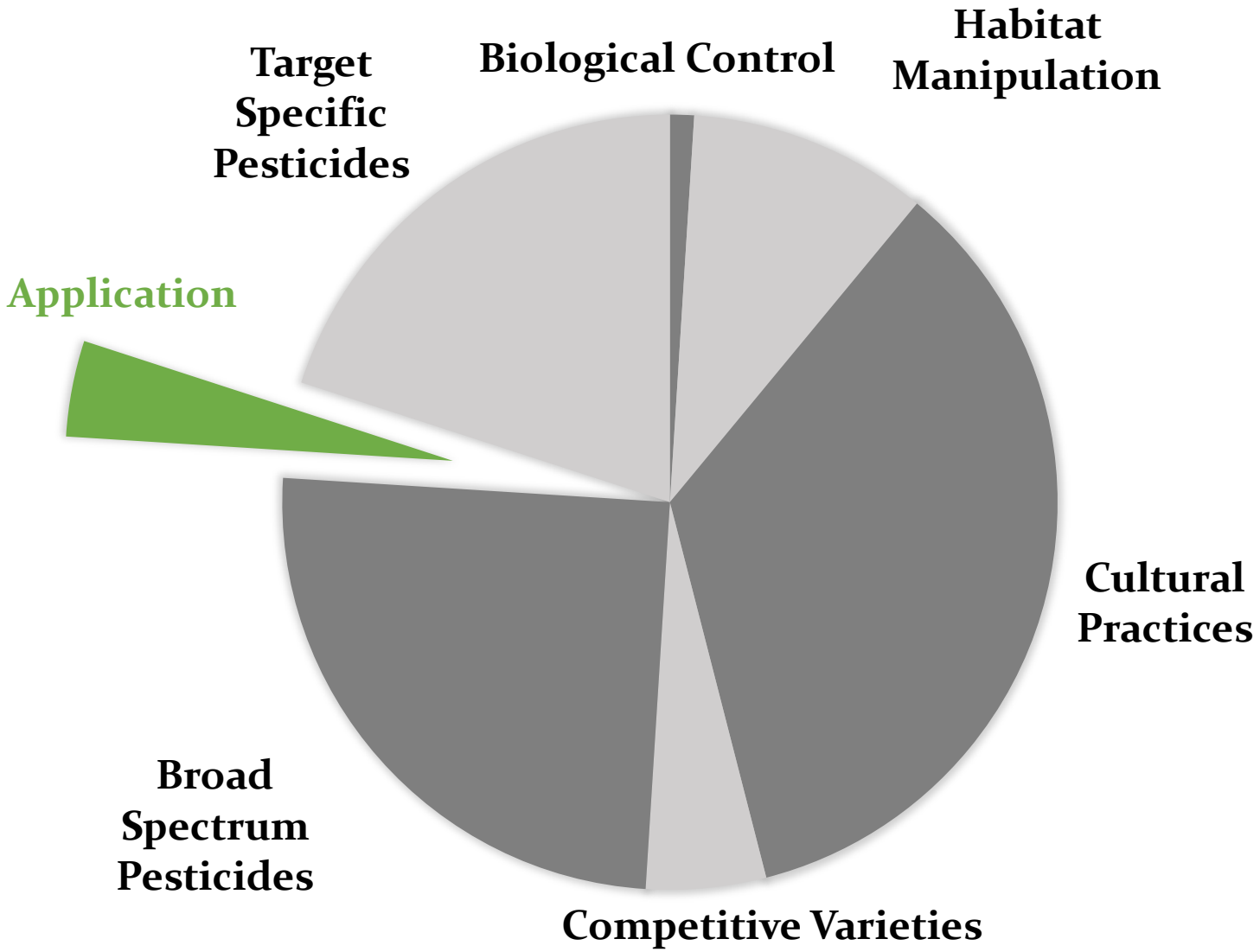
Integrated Pest Management

IPM is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and **applied in a manner** that minimizes risks to human health, beneficial and non-target organisms, and the environment.



Do our operations reflect this?

The Missing Link in IPM



Operational Decision Making

Our Mission – Operation Consultation

We exist to develop innovation, techniques, and processes for the agricultural industry for the achievement of true sustainable farming.

Less Pesticides

Shift of Operation Standards

Accountability For Investors

Increased IPM

Asset Protection

Employee Retention

Where Theoretical Intersects Practicality

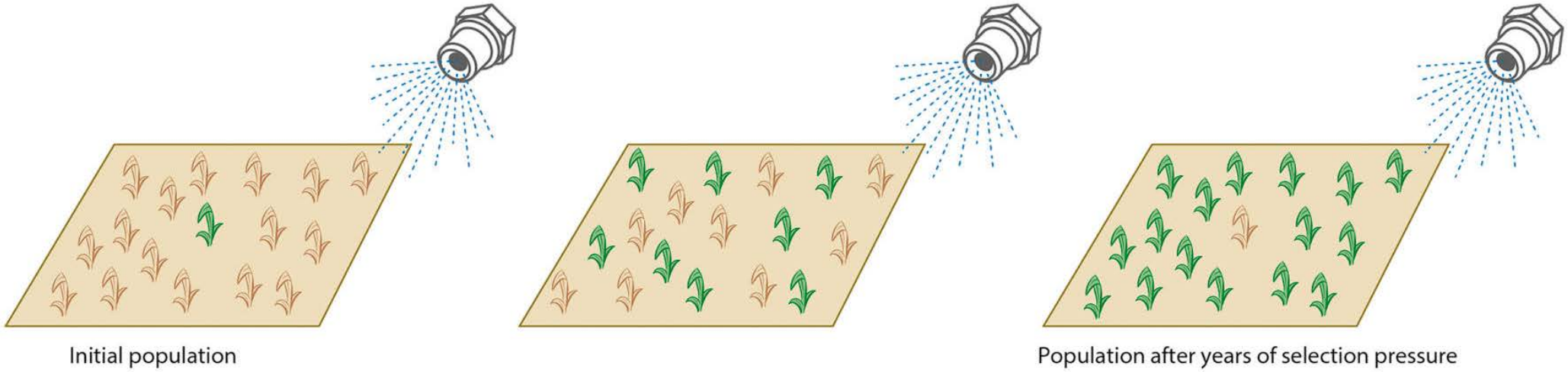
Tolerance or Resistance

Tolerance is the *natural* ability of a species to withstand the specific effects of a particular chemistry.

"It doesn't quite work like it used to."

Resistance is the *forced* change in the genetic makeup of a population in response to selection of a resistant gene pool by chemistry exposure.

"It isn't even phased by it anymore."



Factors at Play

Take control of the things you CAN

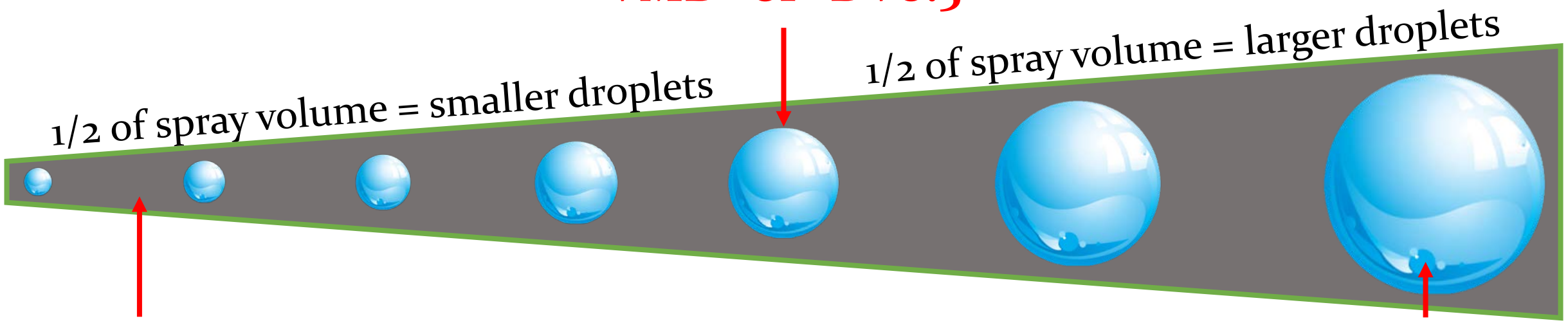
Spray…
- at right time
- in right environmental conditions
- with full rate of pesticides
- based on your canopy or target structure
- without trying to break laws of physics

Don't assume…
- your speedometer/computer is accurate
- your psi gauge is accurate
- your final nozzle output is accurate

Credit – Dr. Jason Deveau, 2009

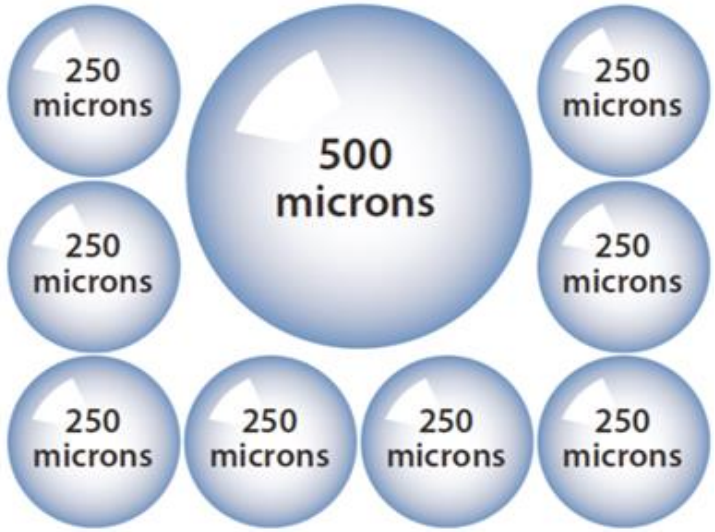
Significance of Droplet Design

Volume Mean Diameter
"VMD" or "DV0.5"



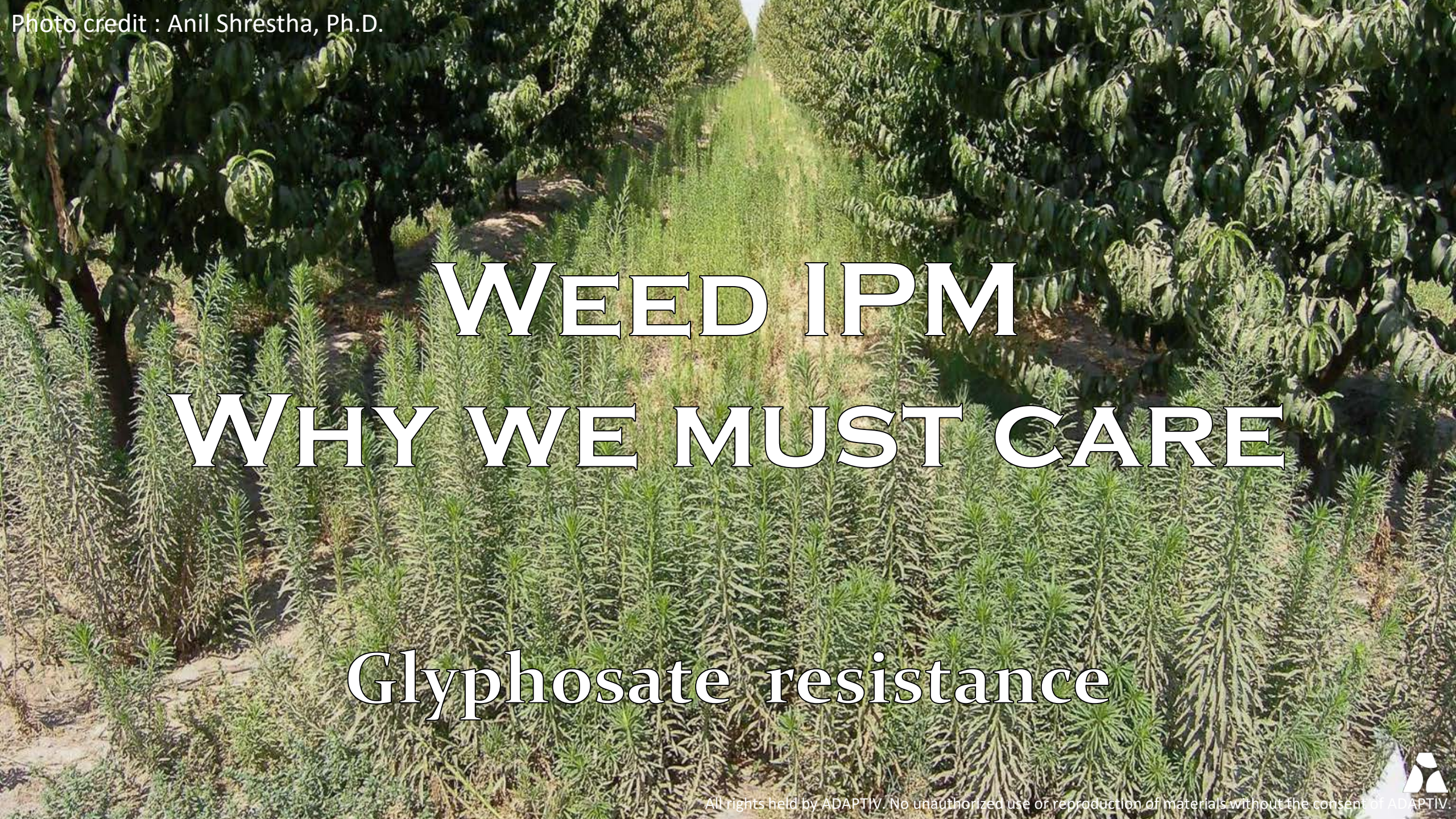
"DV0.1"

10% of volume contains droplets smaller than *this* micron size.



"DV0.9"

90% of volume contains droplets larger than *this* micron size.



Weed IPM
Why we must care

Glyphosate resistance

Weed Pest Organisms

They breed with only survival "in mind." Your crop is only another competitor and a weak one at that because your crop is not bred for survival.

Characteristics

a) Abundant seed production

b) Rapid population establishment

c) Seed dormancy

d) Long-term survival of buried seed

e) Adaptation for spread

f) Presence of vegetative reproductive structures

g) Ability to occupy sites disturbed by human activities

Reasons to Care

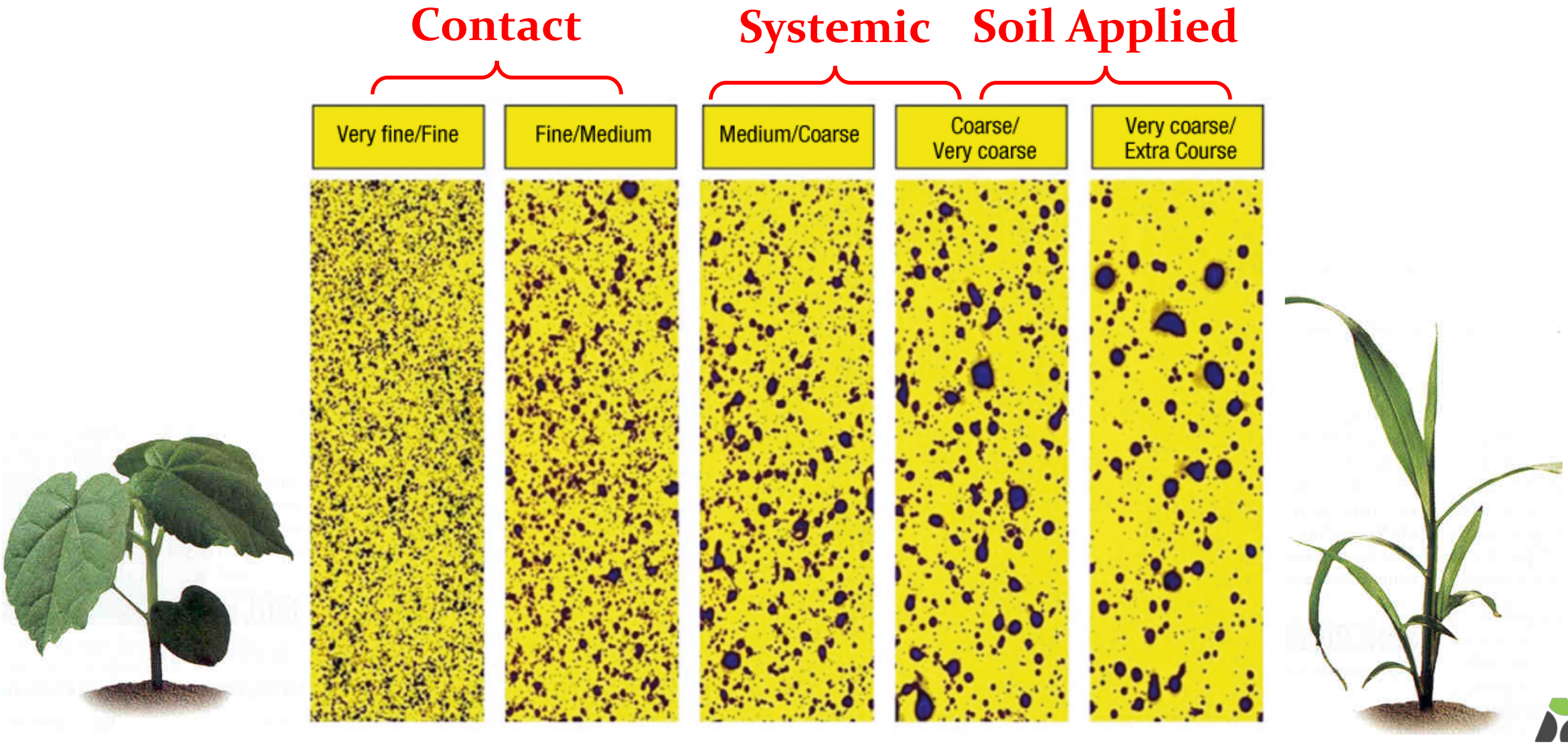
a) Competition: light, nutrients, water

b) Reduction in crop yield

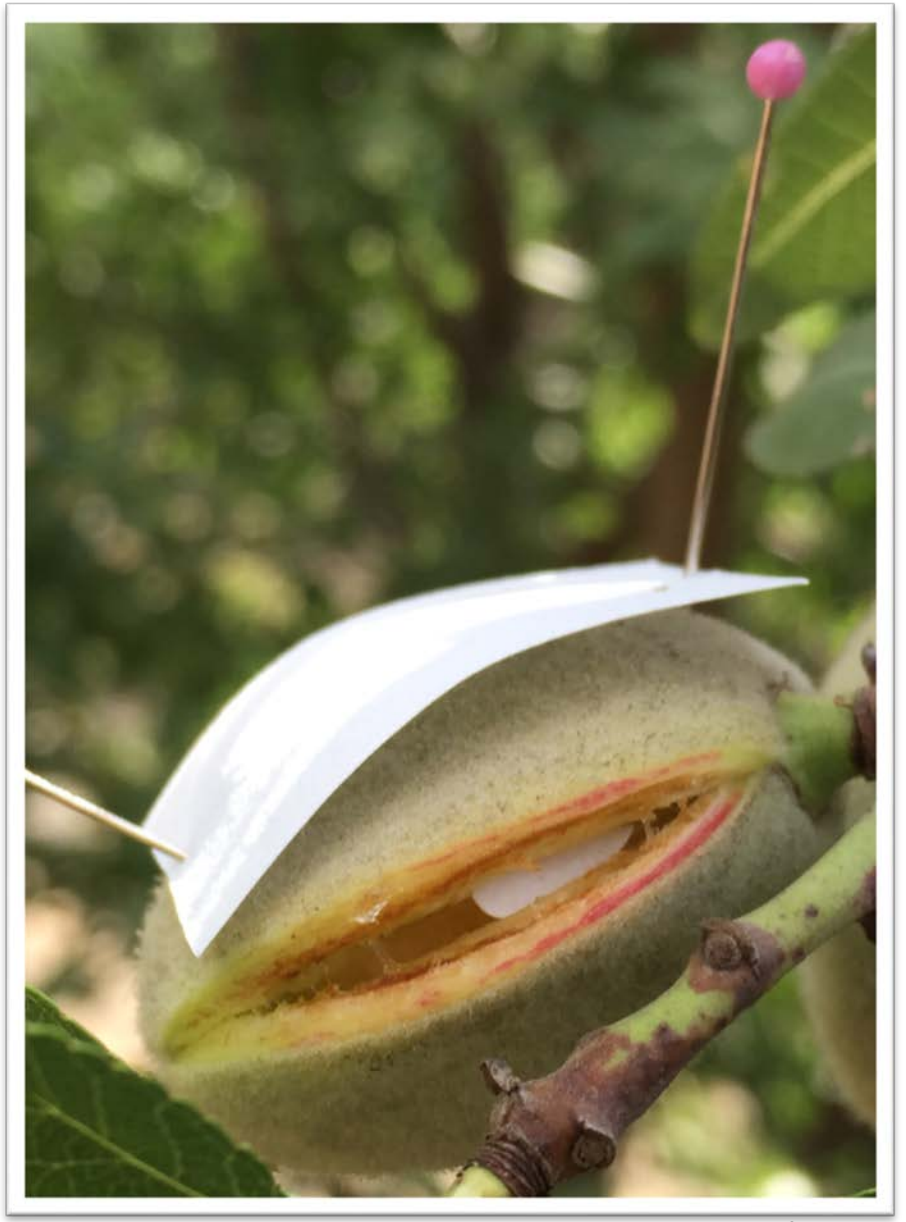
c) Host insects and diseases

d) Negative economic impact

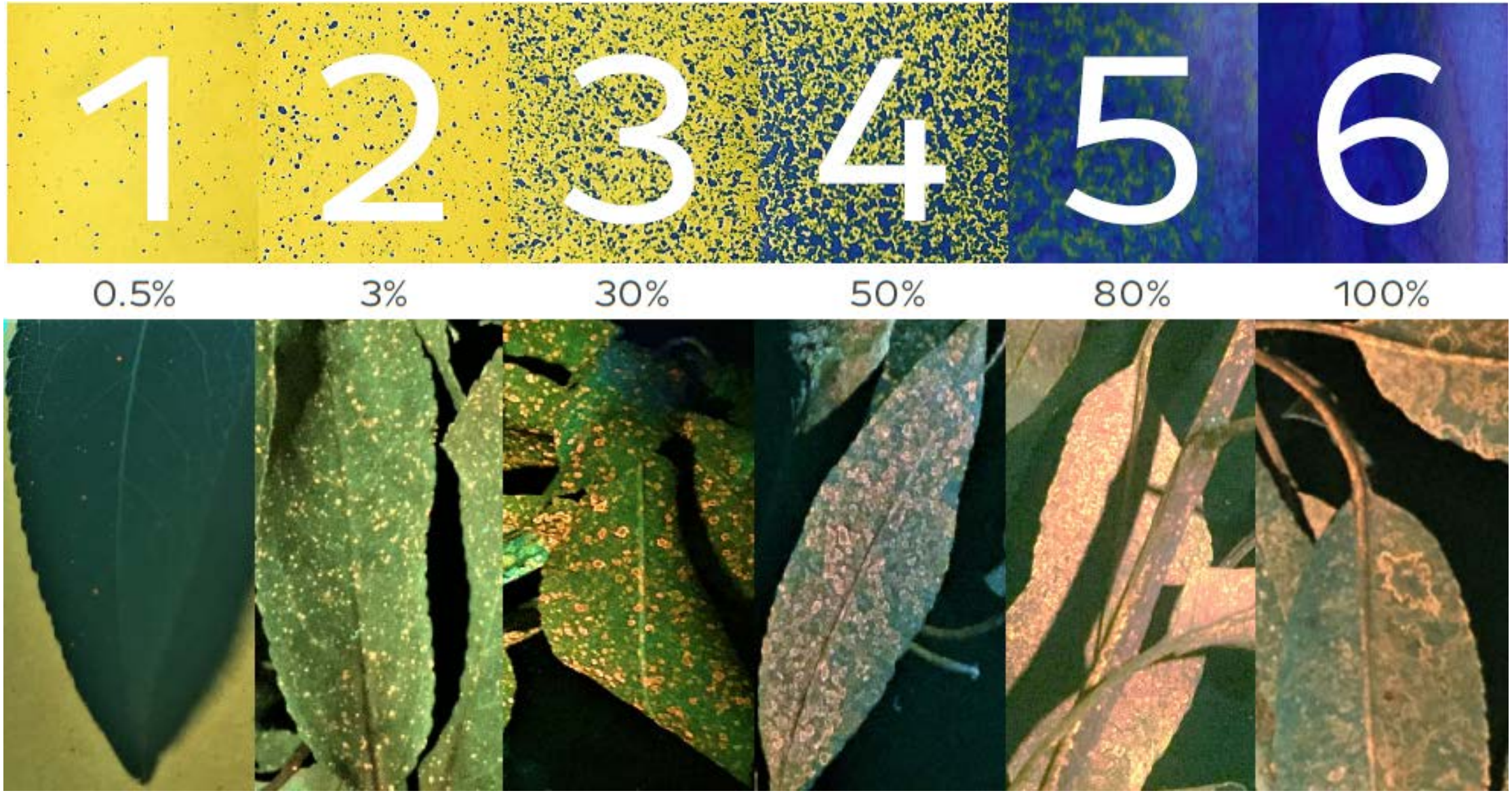
Coverage Requirements



Redefining Coverage for Foliar



Redefining Expectations



Science of Spraying

Physics/Engineering

↓

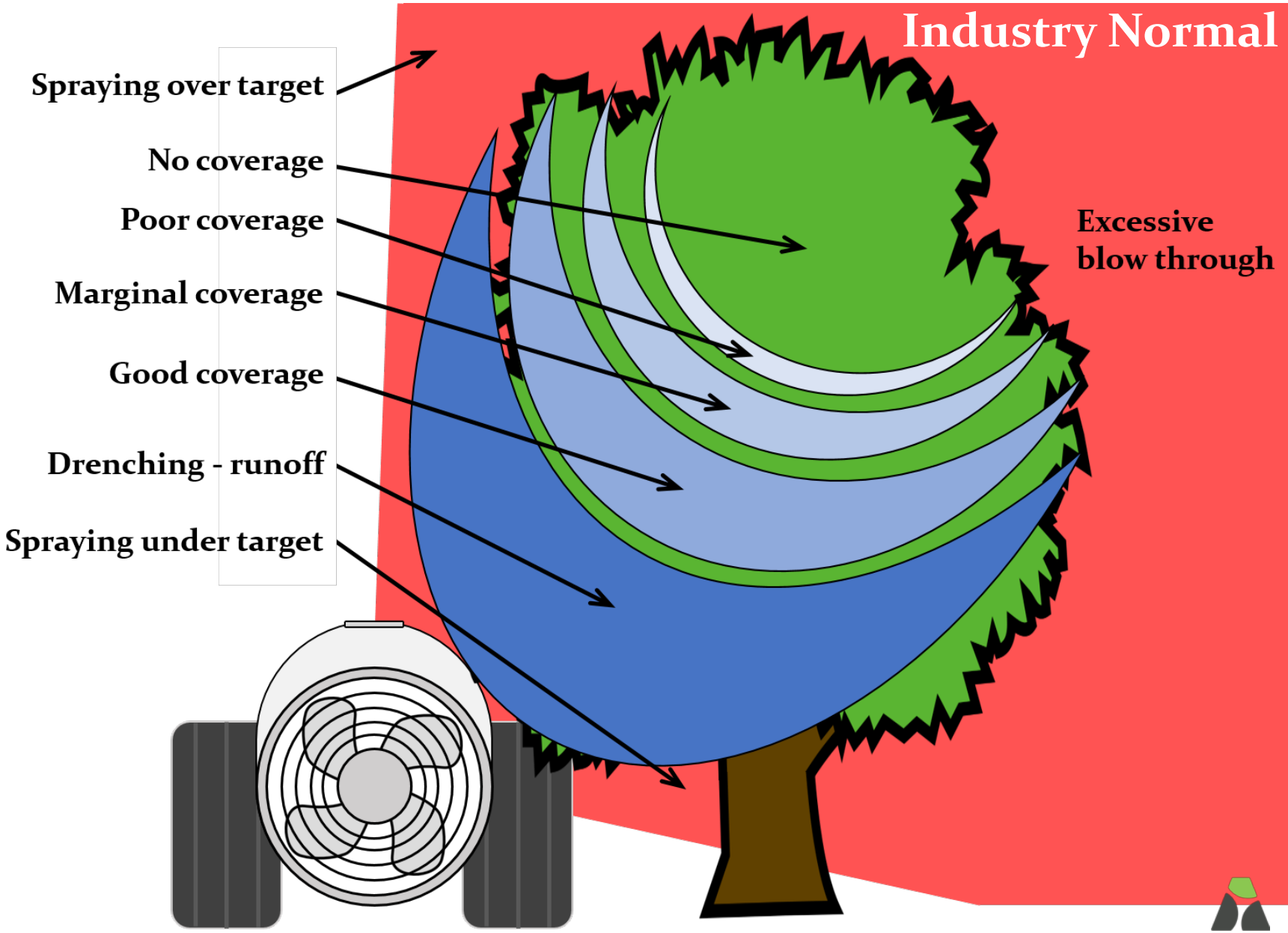
Fluid Mechanics

↓

Fluid Dynamics

↓

Aerodynamics

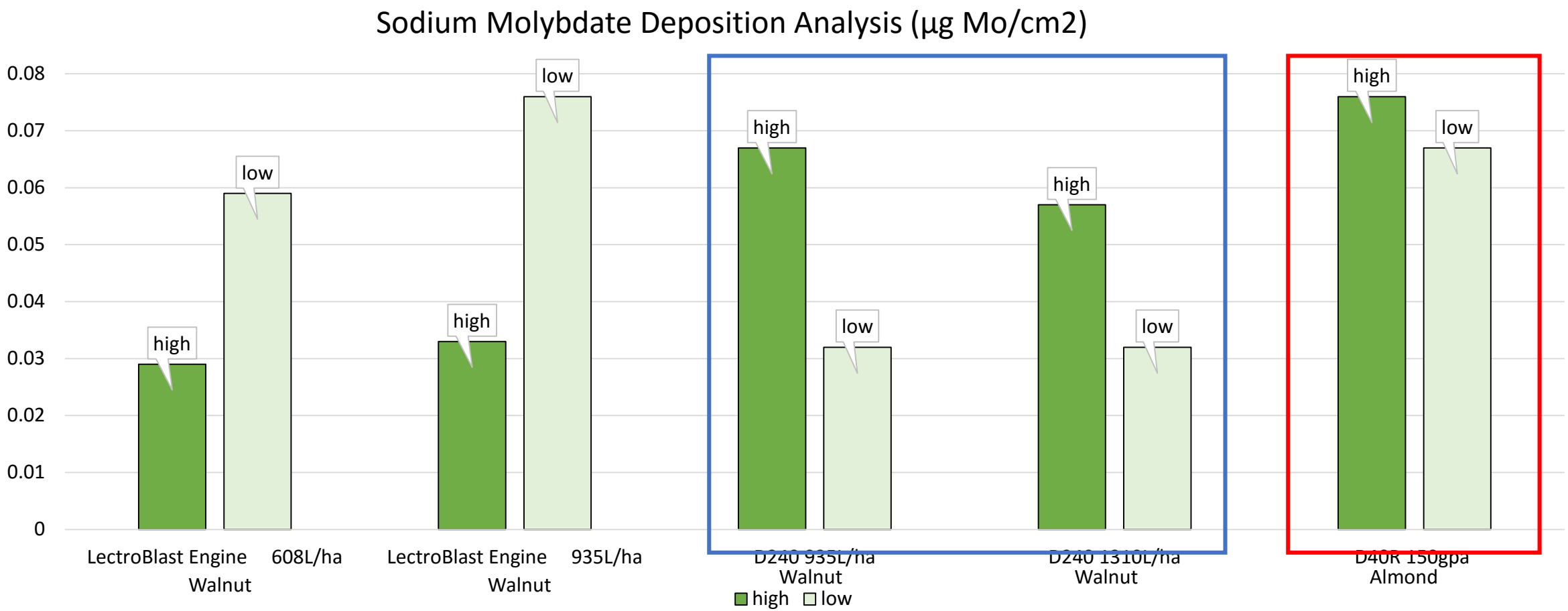


Standard Loss at Suture

97-99%

ADAPTIV has learned how to double and even triple the quantity delivered.

Results-Driven Data



High = 7.6m in walnuts and 6.7m in almonds

Low = 3m in both walnuts and almonds

ADAPTIV
Performance Setup
Stage 1

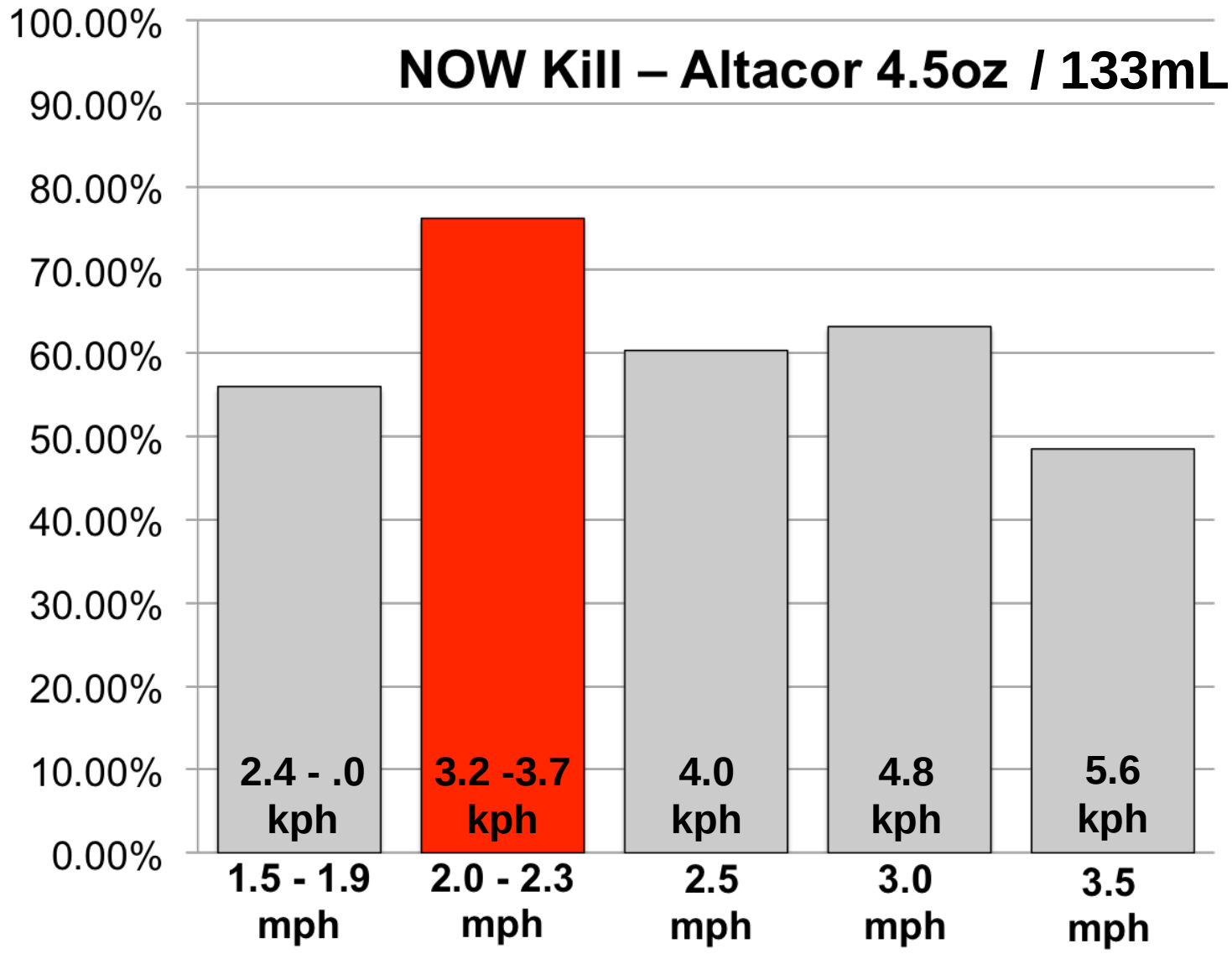
ADAPTIV
Performance Setup
Stage 2

All SoMo analysis done by UC Davis – Franz Niederholzer
Trial Data from 2017 ADAPTIV Miticide – Matt Strmiska
Trial Data from 2016 CCFS Nealta – Jim Cook

Results-Driven Data

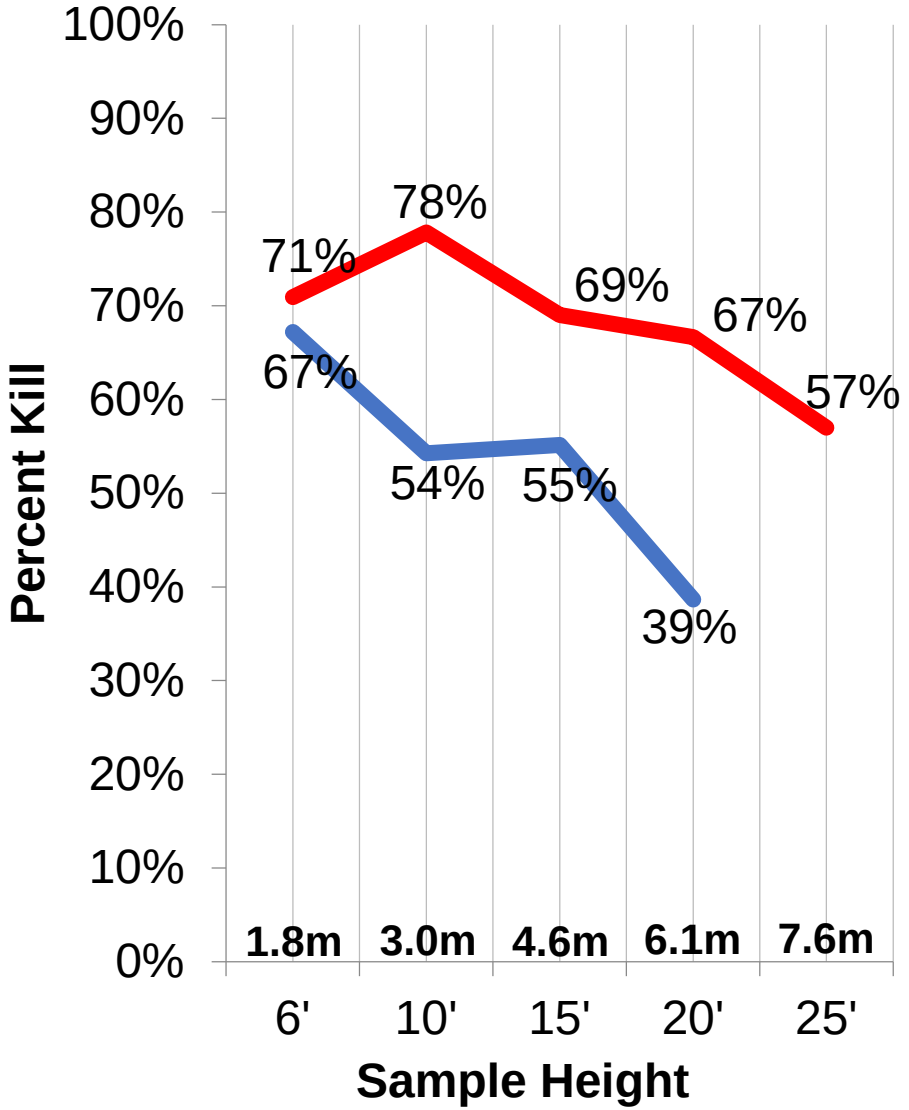
Life Stage	Sides Sprayed	Kill % (sample size)
Adult	Both/Wrap	68.98% (232)
	One/Every Other	33.33% (24)
Egg	Both/Wrap	95.37% (2,050)
	One/Every Other	70.00% (200)

Results-Driven Data



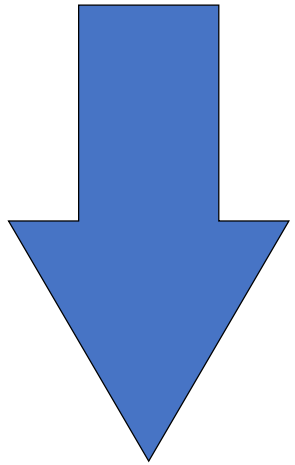
Results-Driven Data

100 Hull Split Trials - 2014



Results-Driven Data

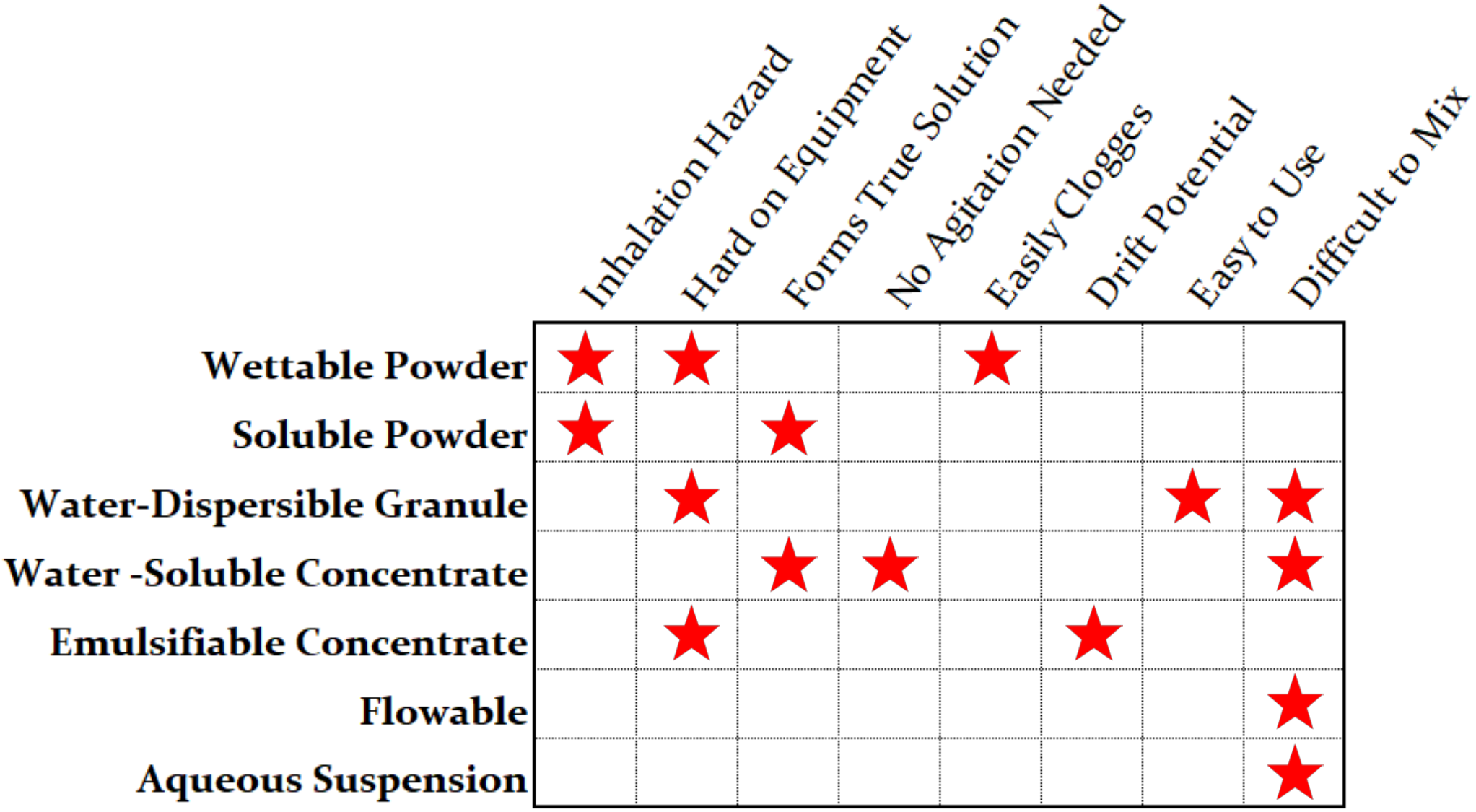
Half Dose



Full Dose

Intrepid mL/ac	Speed KPH	Kill (%)
355	3.0	**32**
355	3.2	**34**
355	3.2	**41.3**
355	3.5	**38.5**
355	3.5	**44.3**
414	3.2	**67.3**
414	3.4	**67.3**
414	4.3	**46.7**
710	3.2	**72**
710	3.2	**78**
710	3.4	**83.3**

Formulations



Simple Steps in Any Operation

Allow enough time for:

- Scheduling and planning the application
- Obtaining the products
- Setting up the application date
- Weather delays or maintenance problems, if necessary
- Calibrating equipment
- Planning spray route from beginning to end with IPM in mind

When the decision is made to spray "RIGHT NOW," high chance of failure.

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Growers. Post-Harvest. Grower Support.

RETHINK THE MEANING OF “GOOD ENOUGH!”