



Alternative Weed Control Products

Fiesta® & Finalsan®

Landscape Ontario-IPM Symposium

Cam Wilson, Neudorff North America-January 10, 2011



W. Neudorff GmbH KG



- Family owned
- Established in 1854
- Long history of developing effective pesticides.
- Headquarters in Germany
- 170+ employees
- R&D on Vancouver Island
- Focused on organic/natural pesticides



Leaders in developing low risk pesticides for Canada, US and European markets!



- \$1.5M investment in new research facility.
- dedicated team of scientists working on low-risk pesticide products (original R&D team from SAFER)



Fiesta® & Finalsan®

- Description
- How it works?
- Features & Benefits
- Recap of 2010
- 2010 Test results
- Activities in 2011



FLESTA®

Lawn Weed Herbicide



Before FLESTA



After FLESTA (2 apps, 41 days)



FIESTA-REG. NO. 29535 PCP ACT

Description: Fiesta is a selective herbicide for the control of broadleaf weeds in turf. **The active ingredient in**

Fiesta is iron (present as FeHEDTA) 4.43% .

Use rates: dilute 1 part Fiesta with 24 parts water. Spray 200-400 mls/m² of solution or 0.74L of Fiesta/1000 sq ft.(200 ml rate). Note: 1L of Fiesta will treat up to 1345 sq ft.

Use sites: lawn & turf, ornamental areas including parks, playgrounds, golf, schools and areas with pesticide bans/concerns.

Approvals: PMRA and Ontario and NS pending.

Available in 10L and 800L sizes.



FLESTA

WEEDS CONTROLLED or SUPPRESSED

- dandelion
- English daisy
- false dandelion
- white clover
- black medic
- bull thistle
- Canada thistle
- common chickweed
- creeping buttercup
- slender speedwell
- broad-leaved plantain
- narrow-leaved plantain
- dovefoot geranium
- Lawn burweed
- moss, liverworts, algae and lichens.

Not on label: suppression of young crab grass has been observed.

Check label for specifics



FIESTA™

How it works?

- Iron toxicity (oxidative damage) at the cellular level.
- Fiesta is quickly absorbed by the leaf tissue and transported down to the root. As well, toxicity of the contacted leaf tissue cells occurs turning the leaves black/brown.
- Broadleaf weeds (dicots) absorb more iron than grasses (monocots) which provides the mechanism of selectivity.
- Adequate coverage is important.



FLESTA

Toxicity Comparison

Substance	Oral LD ₅₀ (Rat) (mg/kg body weight)
FeHEDTA	>5000
Vinegar	3310
Table Salt	3000
Borax	2400
Lime sulphur	820
Caffeine	192



FIESTA

Features & Benefits

- ✓ Approved for use in Ontario.
- ✓ Kills a wide range of broadleaf weeds.
- ✓ works in wide temperature ranges (10C-25C/50F-85F).
- ✓ Works fast-See results in < 24 hours.
- ✓ Rain-fast in 3 hours
- ✓ Stable formula. Will not freeze. No special handling required.
- ✓ People and pets can re-enter area after spray dries.



FIESTA

Recap of 2010

- ✓ Received Ontario approval April 30, 2010.
- ✓ First FIESTA applied in Ontario 3rd week of May.
- ✓ Typical rate used was 200 mls of spray/m² or 18.5 L of spray/1000 sq ft (0.74 L of Fiesta/1000).
- ✓ For most large, well established weeds 2 applications 4 weeks apart was needed.
- ✓ Small amounts of illegal, non-registered (FIESTA knock-off) product entered market.
- ✓ Few cases on FIESTA staining wooden fencing and decks.



FIESTA

Knock-off Product

- According to the PMRA *“it is illegal to distribute, sell or use a product for pesticidal purposes unless it is specifically labeled for such use.”*
- Fiesta is the only iron based herbicide registered in Canada and approved in Ontario to control broadleaf weeds in turf.
- Use of illegal product could actually void a company’s liability insurance in case of accidental exposure to workers and/or customers.
- Neudorff and PMRA staff are tracking/reporting illegal uses.



FLESTA

2010 Trial Work

- ✓ Stain removal trials from overspray.
- ✓ Control of rust in turf with FLESTA.
- ✓ Turf safety trials.
- ✓ Rate reduction trials.
- ✓ Comparing high and low label rates.

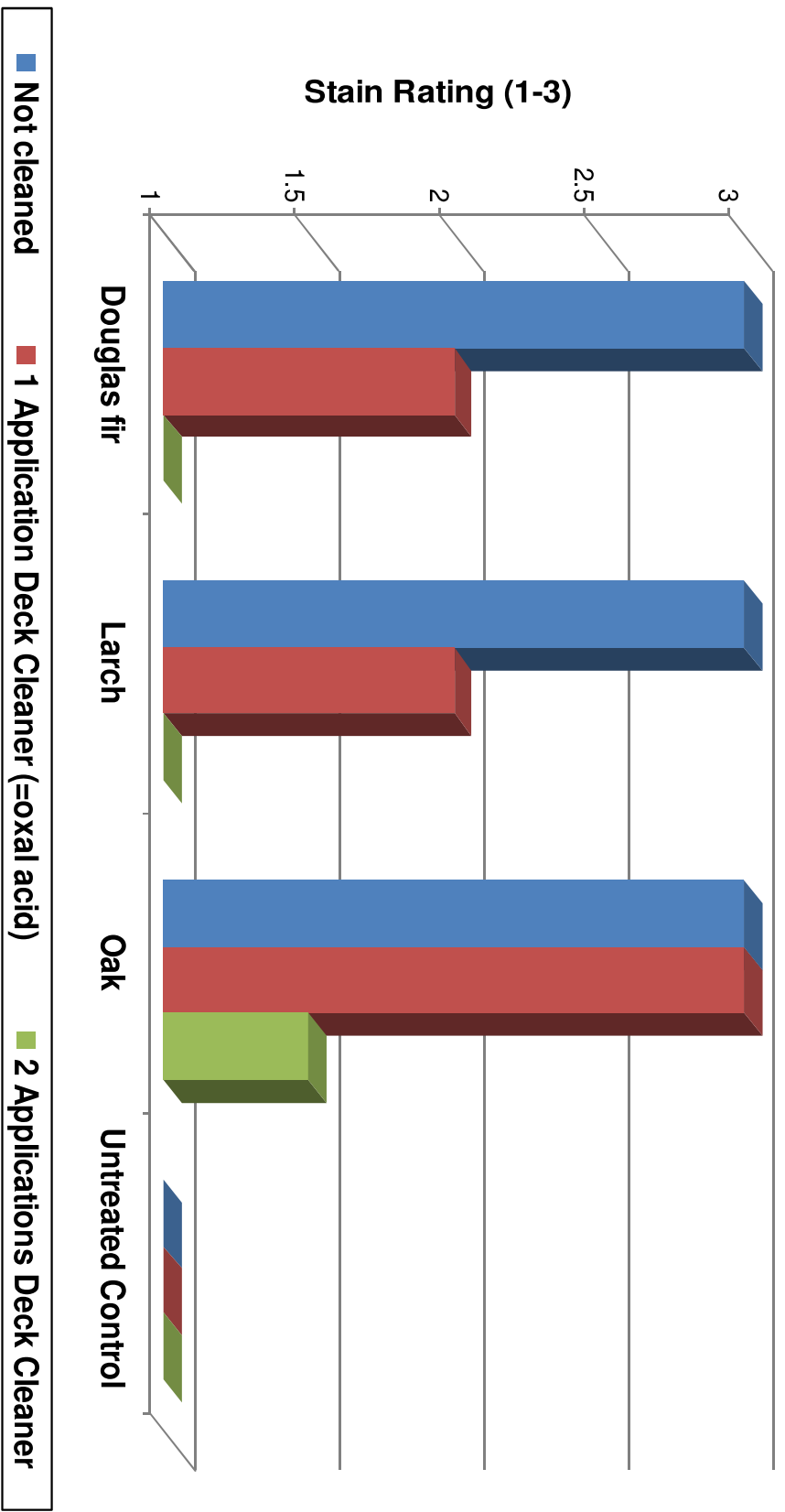


FIESTA

Wood Staining-Removed with Thompson's Deck Cleaner

Fiesta staining on different wood surfaces

(Stain Rating: 1=no visible stain, 2=noticeable stain, 3=severe stain residues)





FIESTA

Wood Staining-Removed with Thompson's Deck Cleaner

Before cleaning



Oak

Larch

Douglas Fir

After cleaning



Sprayed with
FIESTA 100 mls/m²

Cleaned with 2 tmts of
Thomson's Deck Cleaner

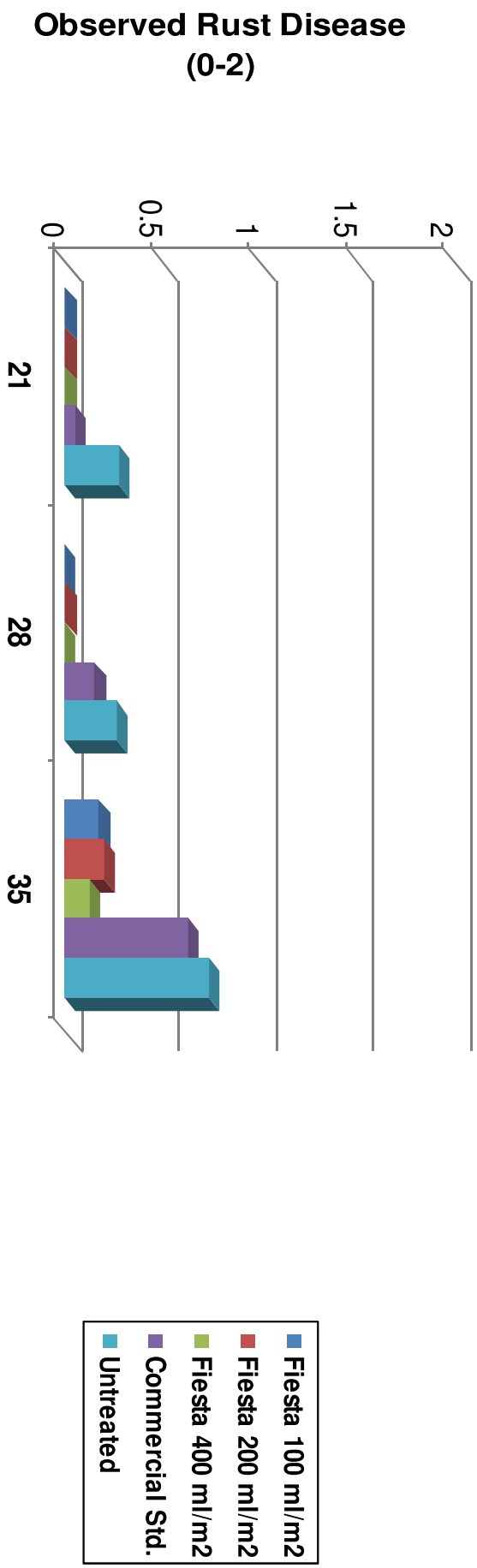


FIESTA

Rust Control

Control of rust on greenhouse Kentucky bluegrass with one application of **Fiesta**

(Rust Disease: 0=no apparent symptoms, 2=rust readily apparent)





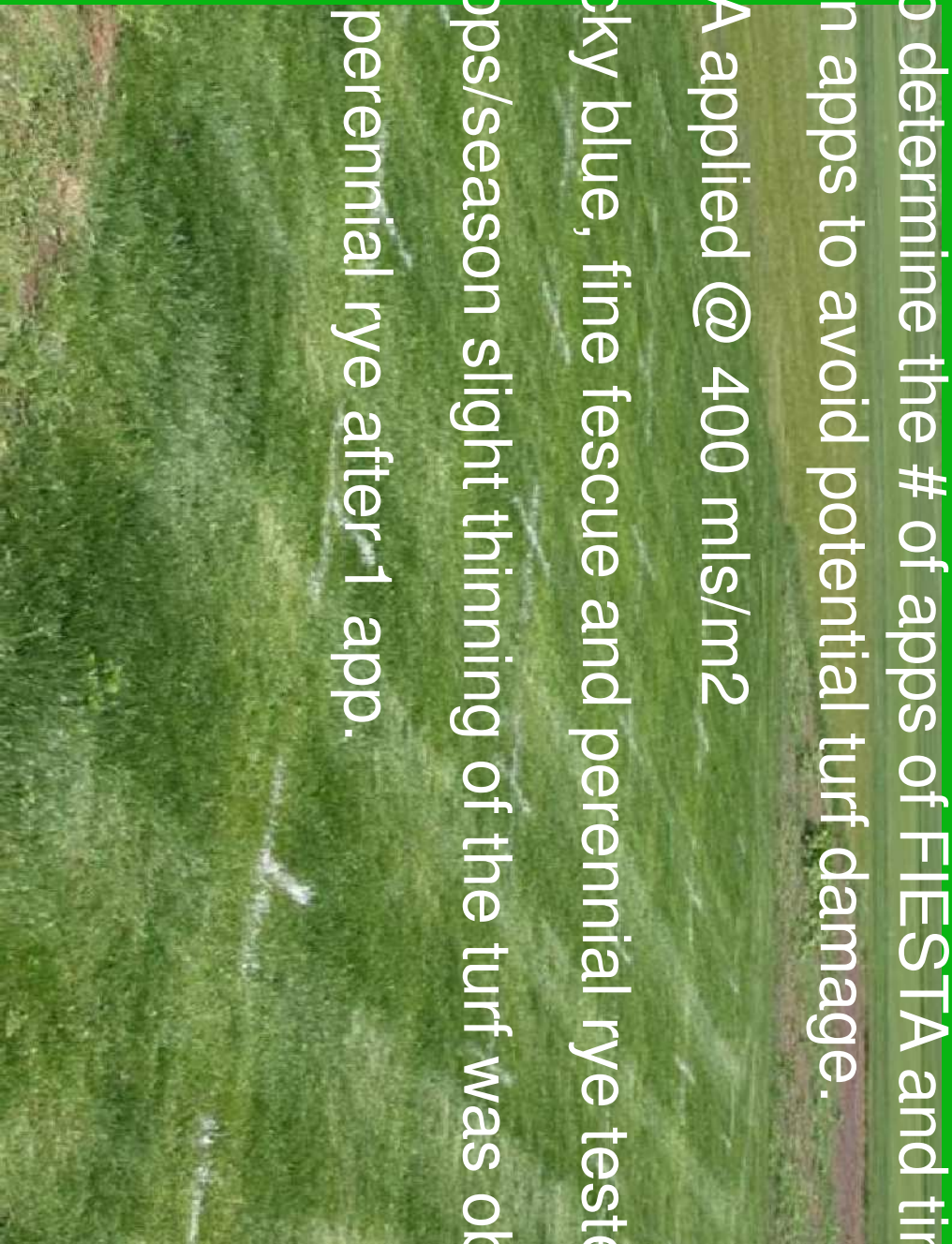
FIESTA

Turf Safety Trials

Goal: to determine the # of apps of FIESTA and timing between apps to avoid potential turf damage.

- FIESTA applied @ 400 mls/m²
- Kentucky blue, fine fescue and perennial rye tested.
- At 8 apps/season slight thinning of the turf was observed.

Photo: perennial rye after 1 app.

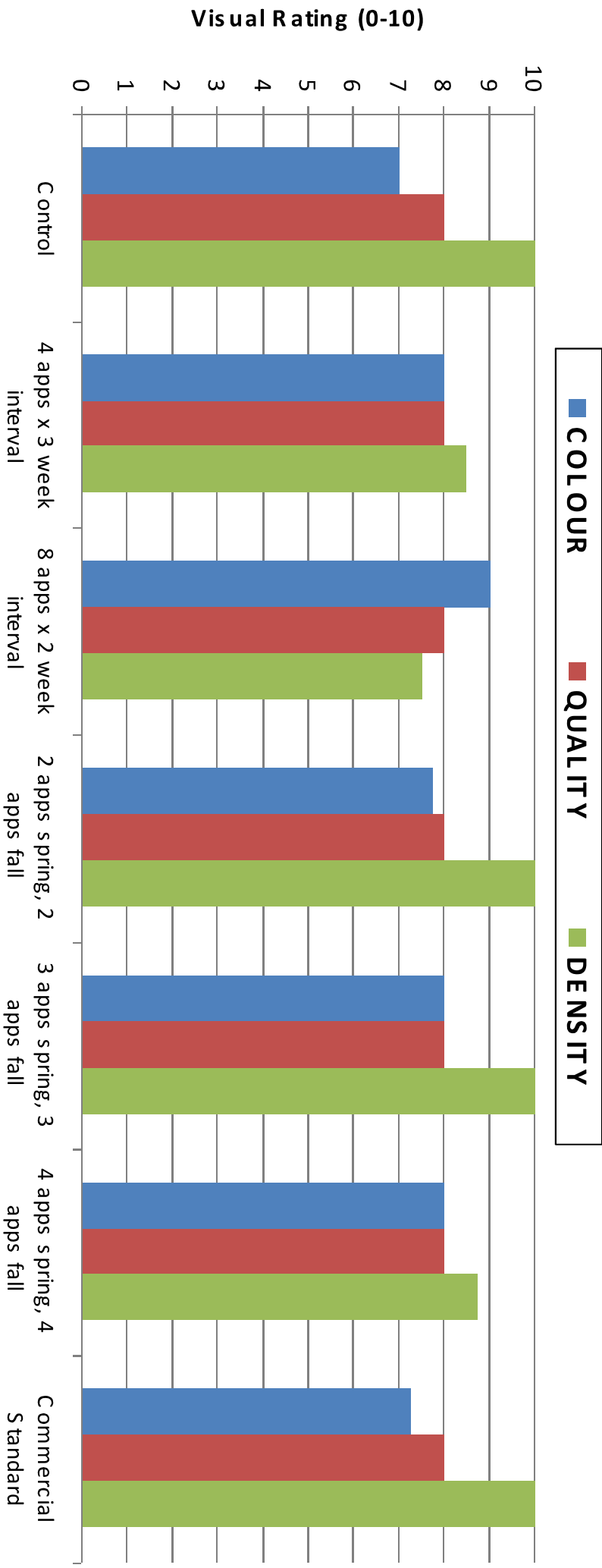




FIESTA

Turf Safety Trials

Turf Performance Characteristics for Kentucky bluegrass at GTI (Guelph, ON)
(Visual Rating 0-10: 10 = best colour, quality or density*)



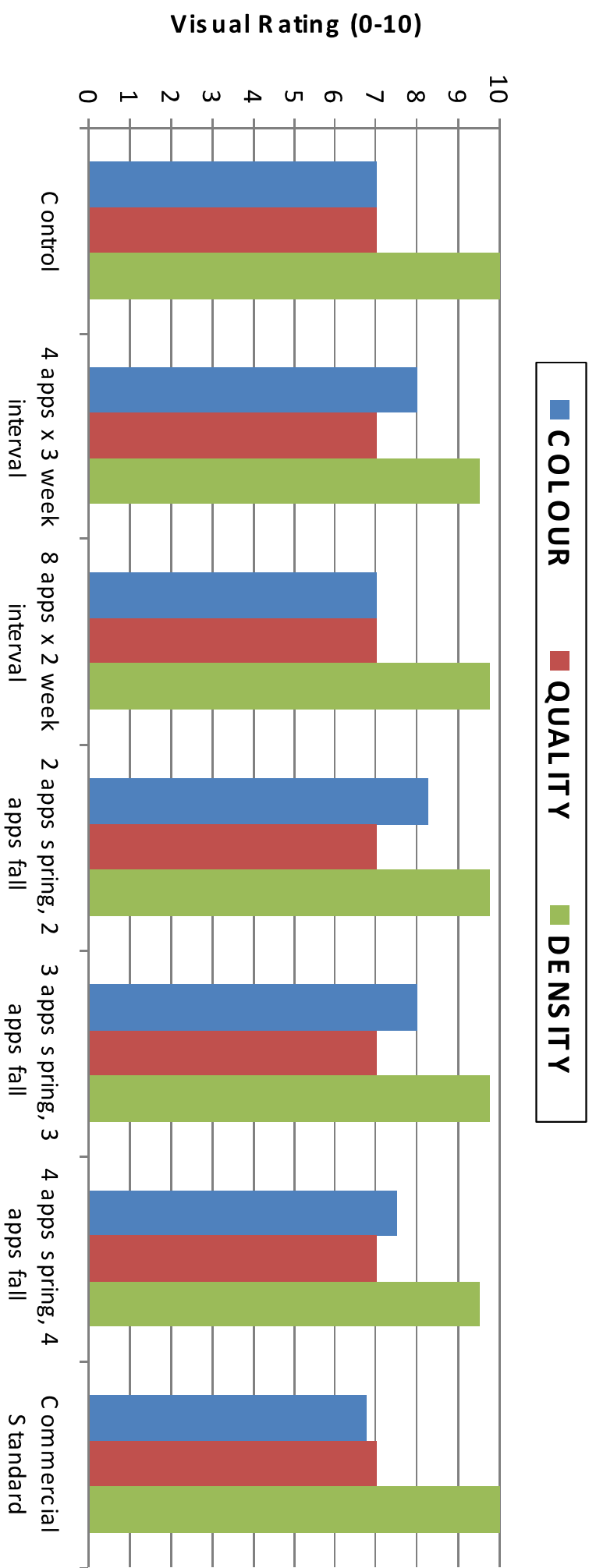
*Phytotoxicity measured zero for all treatments throughout the trial.



FIESTA

Turf Safety Trials

Turf Performance Characteristics for fine fescue at GTI (Guelph)
(Visual Rating 0-10: 10 = best colour, quality or density*)



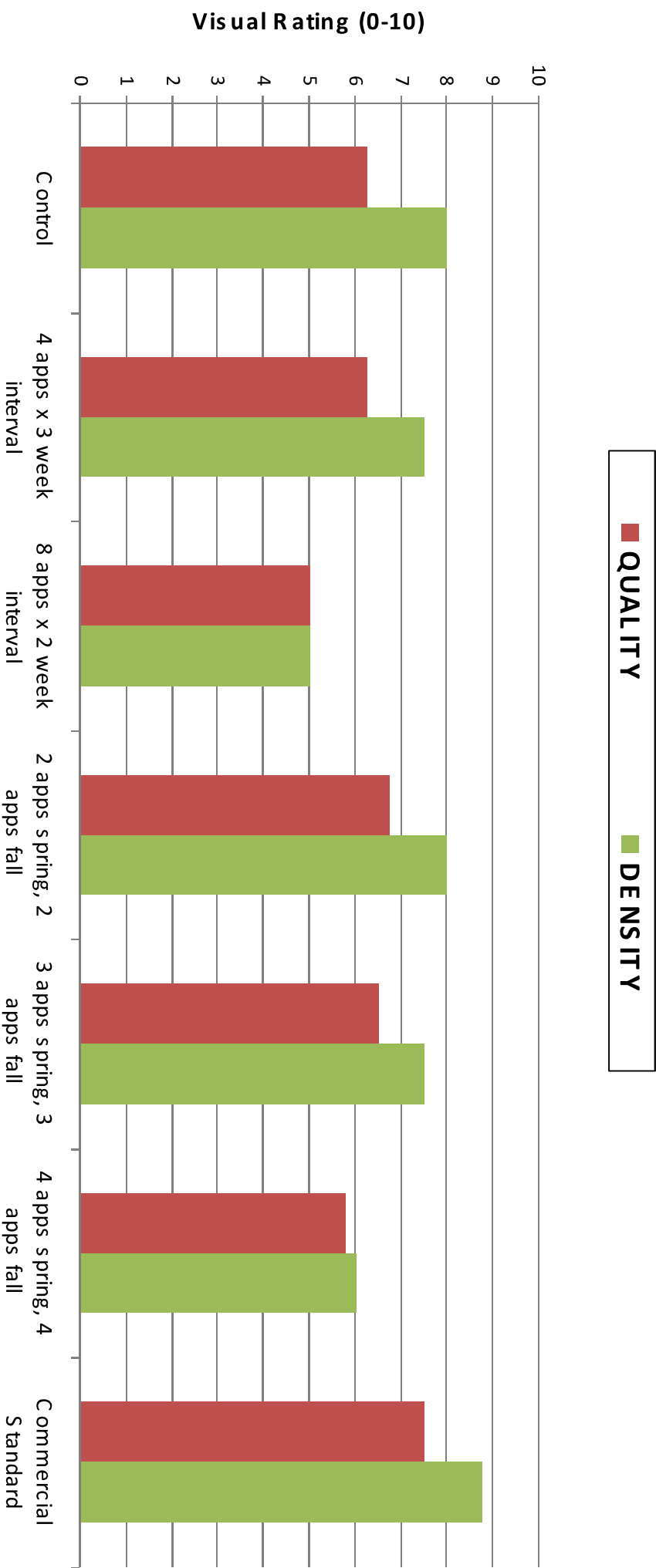
*Phytotoxicity measured zero for all treatments throughout the trial.



FIESTA

Turf Safety Trials

Turf Performance Characteristics for perennial ryegrass at GTI (Guelph)
(Visual Rating 0-10: 10 = best quality or density)





FLESTA

Rate Reduction Trials

Goal: to determine if FLESTA rates, less than label rates could control/suppress small broadleaf weeds (< 10 cm in diameter).

Note: These sub-label rates are not yet approved by the PMRA and further testing and approval is required.

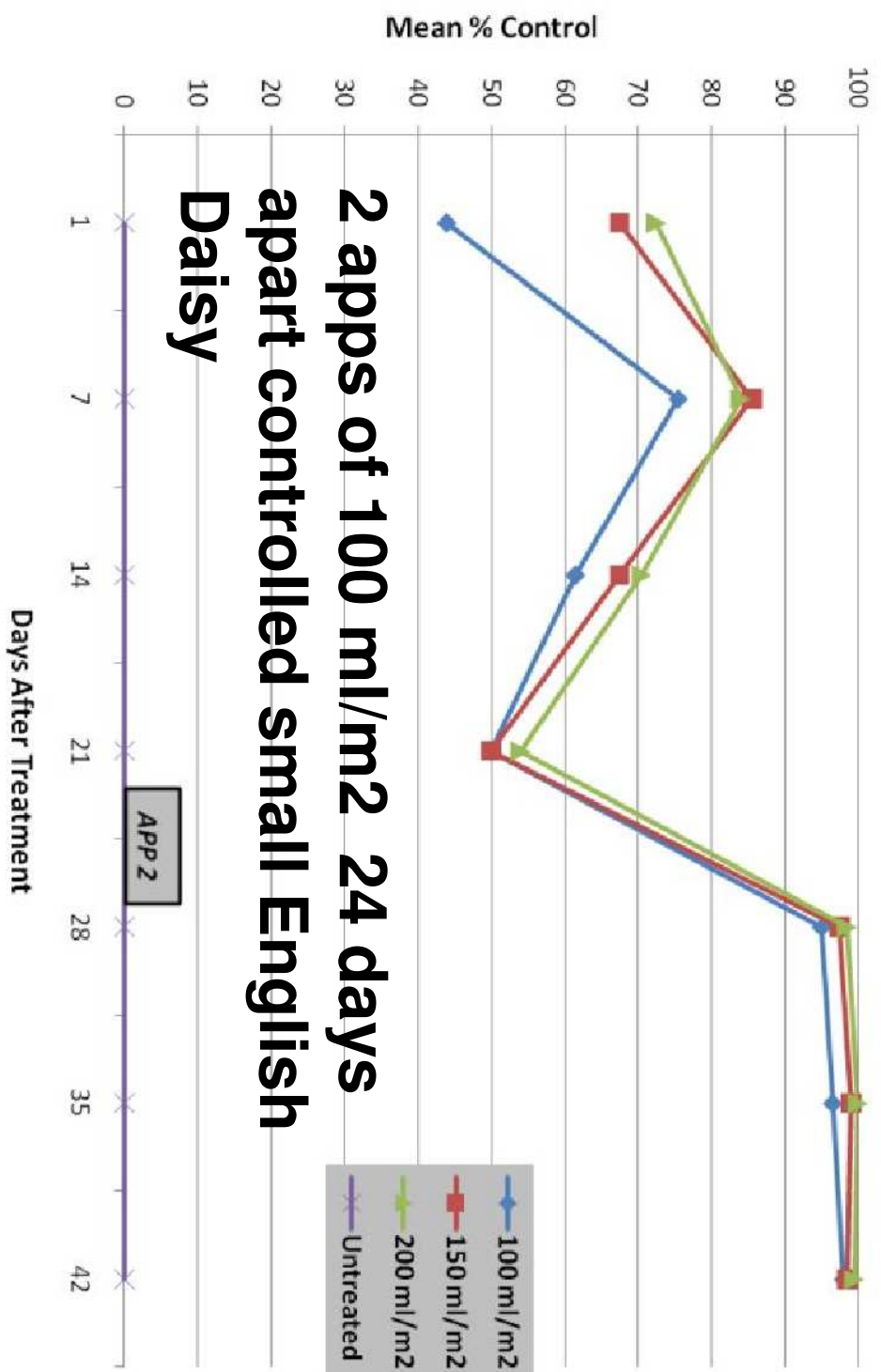
Conclusion: 2 apps @ 100 ml/m² hold promise for the control of small dandelion, false dandelion and English daisy.



FIESTA

Vancouver Island 2010

Control of English daisy in the field with
different rates of Fiesta

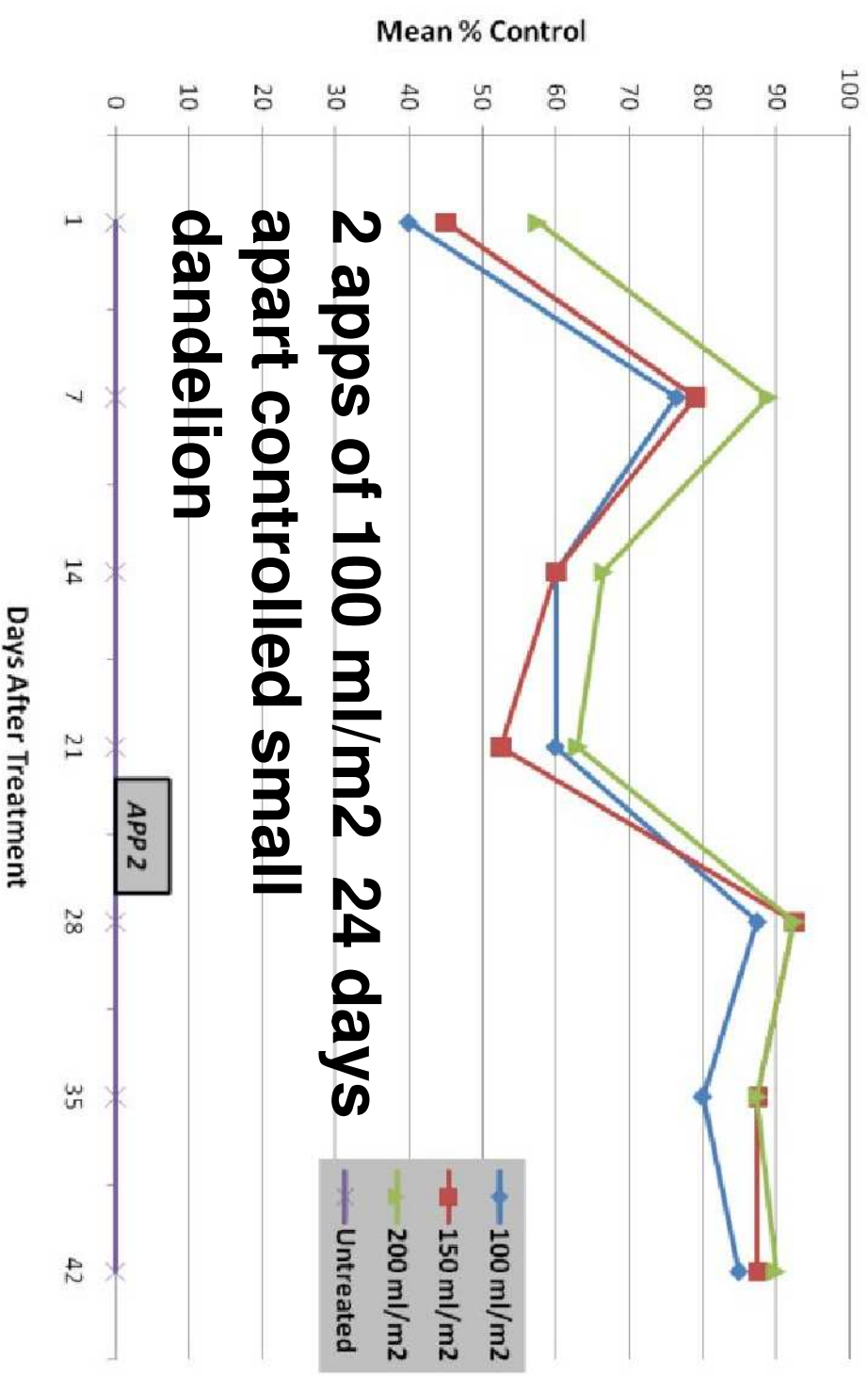




FIESTA

Vancouver Island 2010

Control of false dandelion in the field with
different rates of Fiesta



**2 apps of 100 ml/m2 24 days
apart controlled small
dandelion**

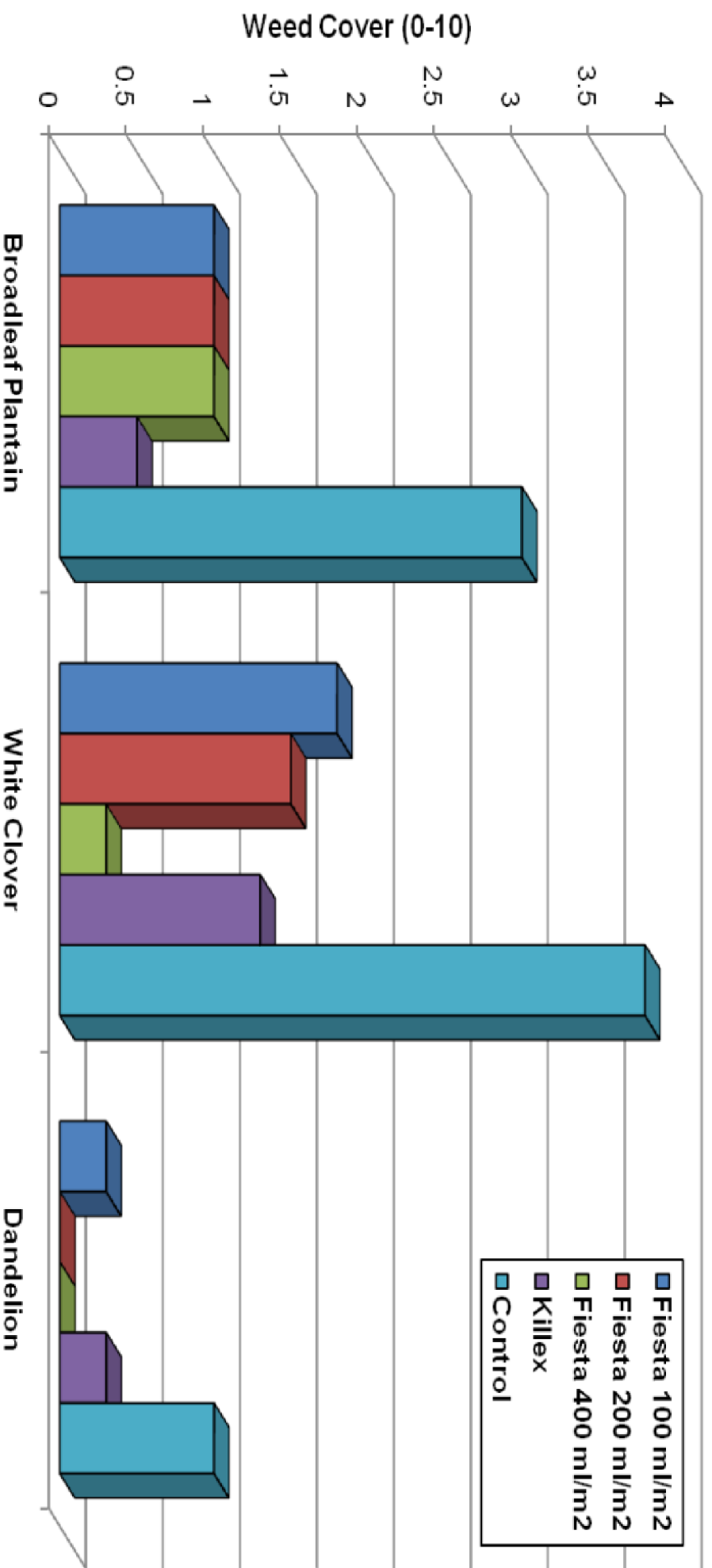


FIESTA

Guelpgh 2010

Weed cover with two applications of Fiesta at different rates

(Weed Cover Rating 0-10: 0=no weeds, 10=complete weed cover)



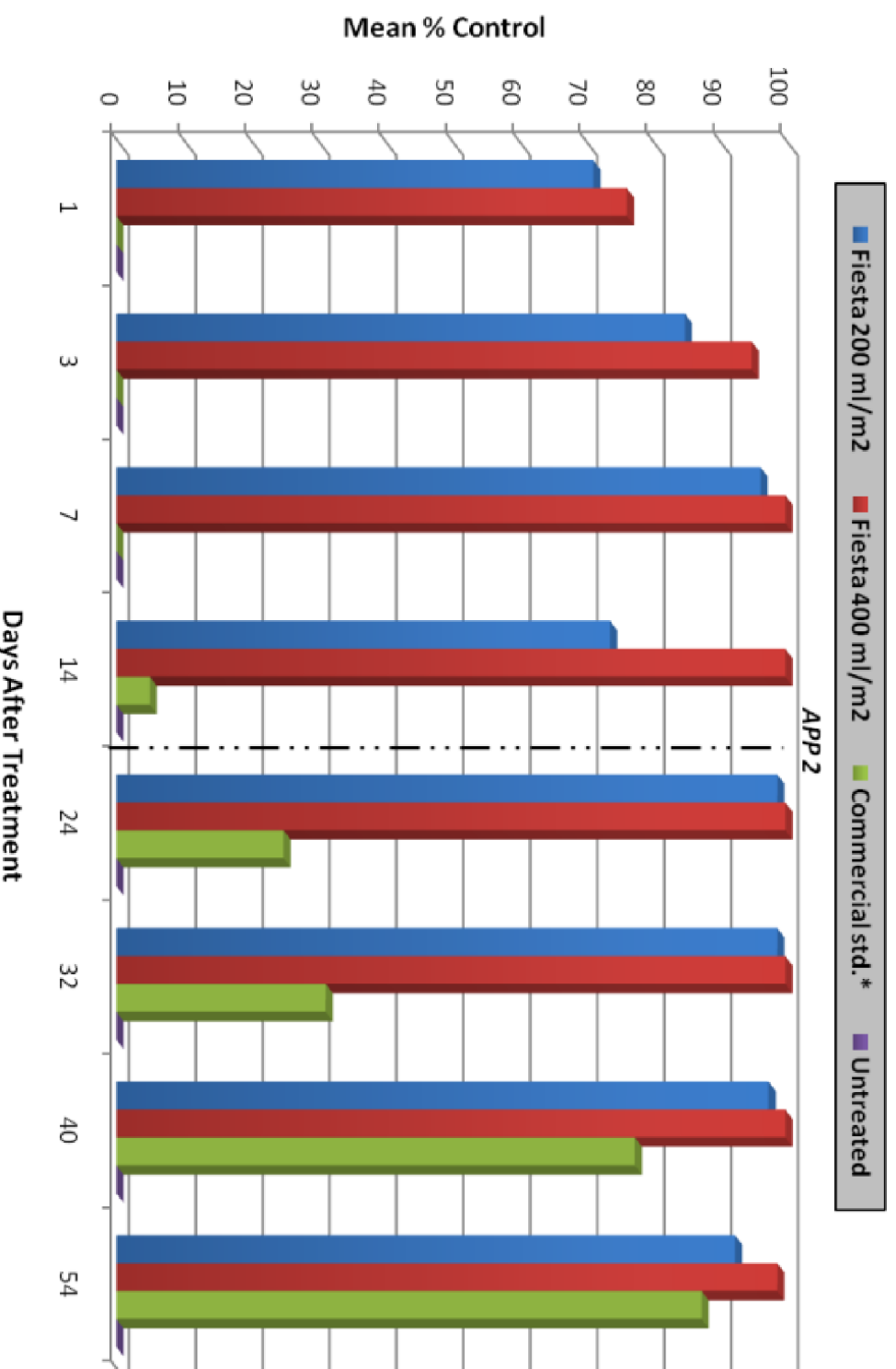
Treated June 15 & June 29, read 6 days after 2nd treatment



FIESTA

California 2010

Control of dandelion in turf with two applications of Fiesta

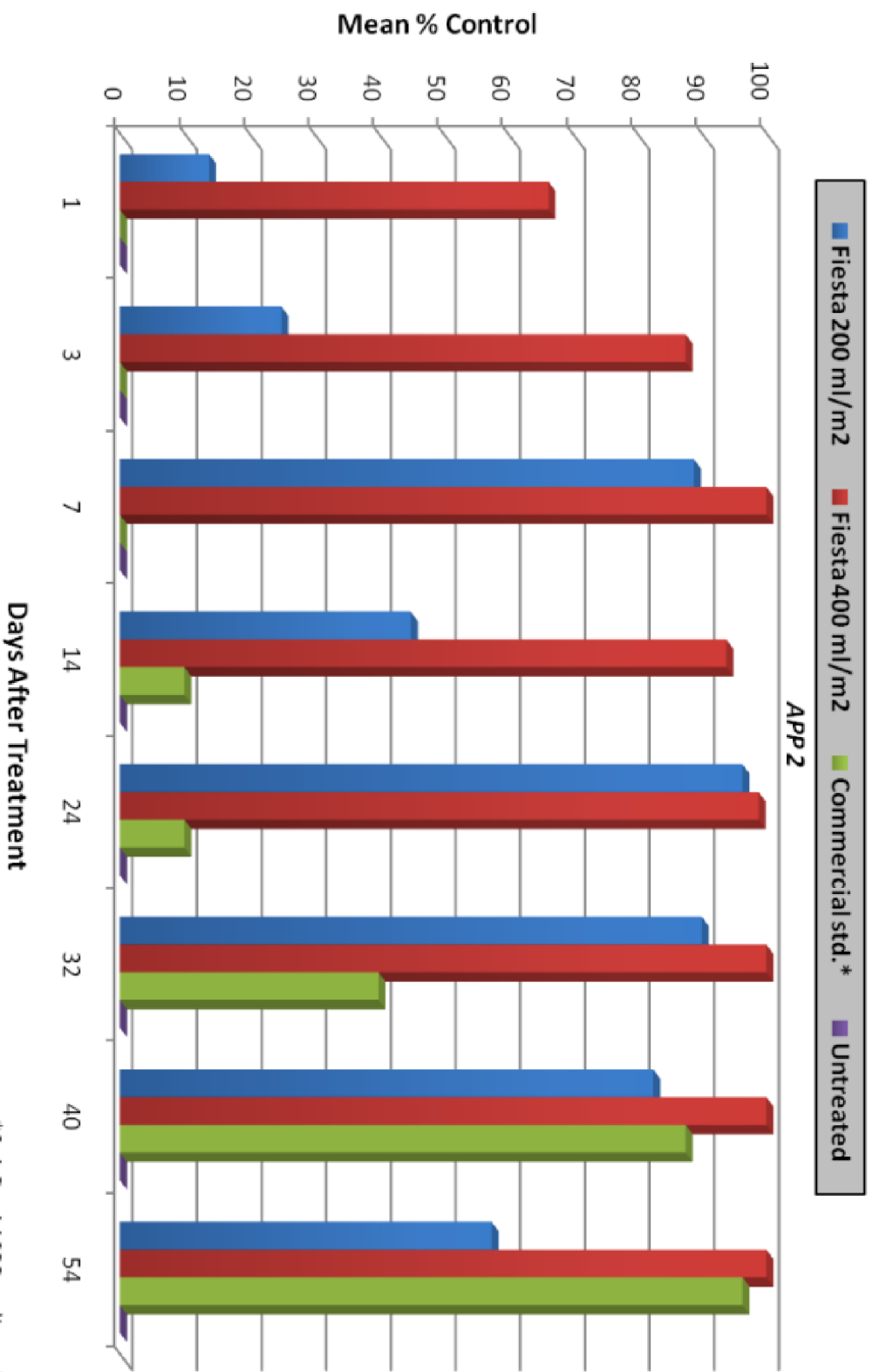




FIESTA

California 2010

Control of white clover in turf with two applications of Fiesta



*2,4-D + MCPP + dicamba

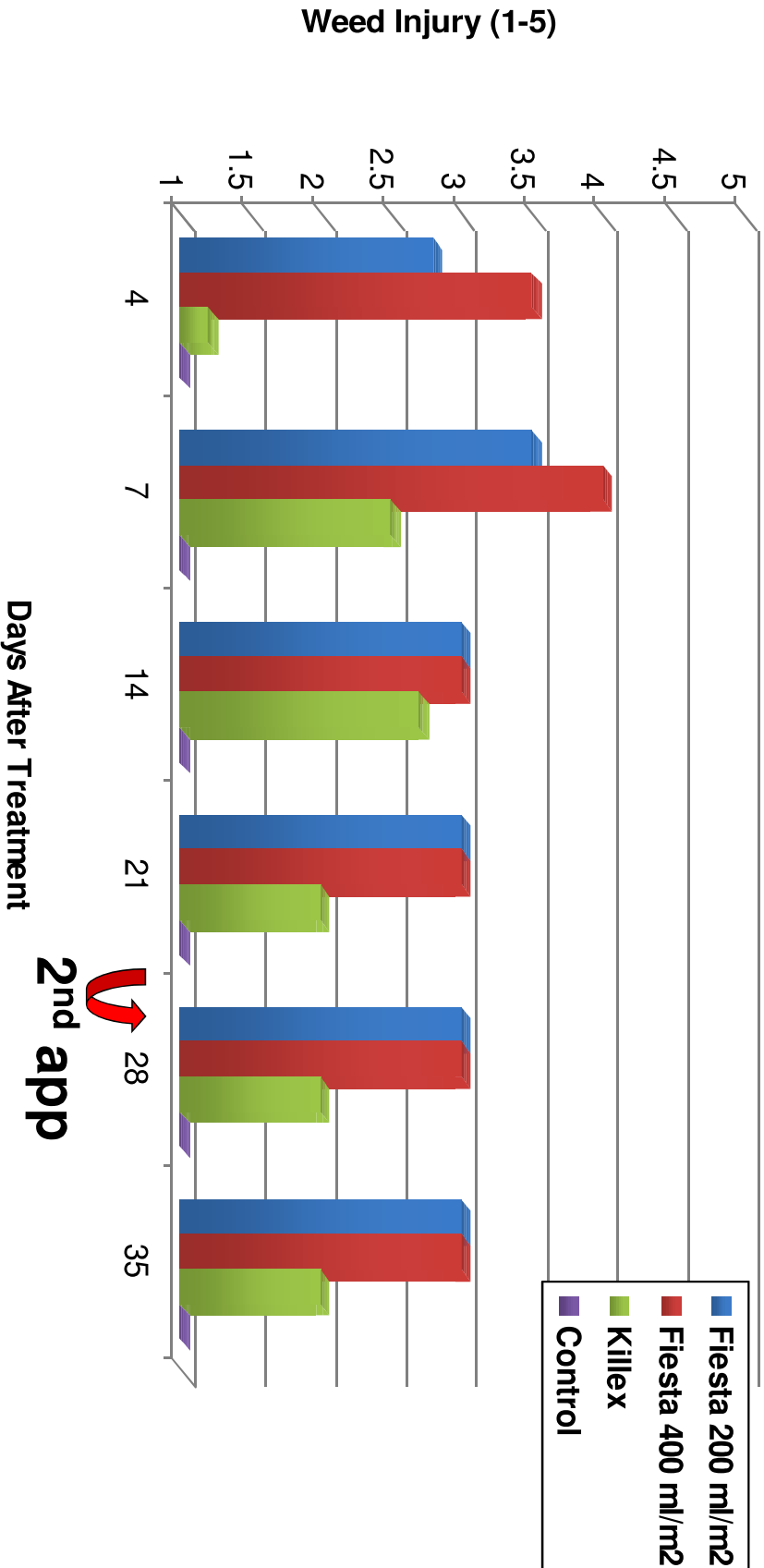


FIESTA

Olds, Alberta 2010

Control of Canada thistle in turf in Olds, Alberta (2010)

Weed Injury Rating 1-5: 1=no visible injury, 5=weed appears dead

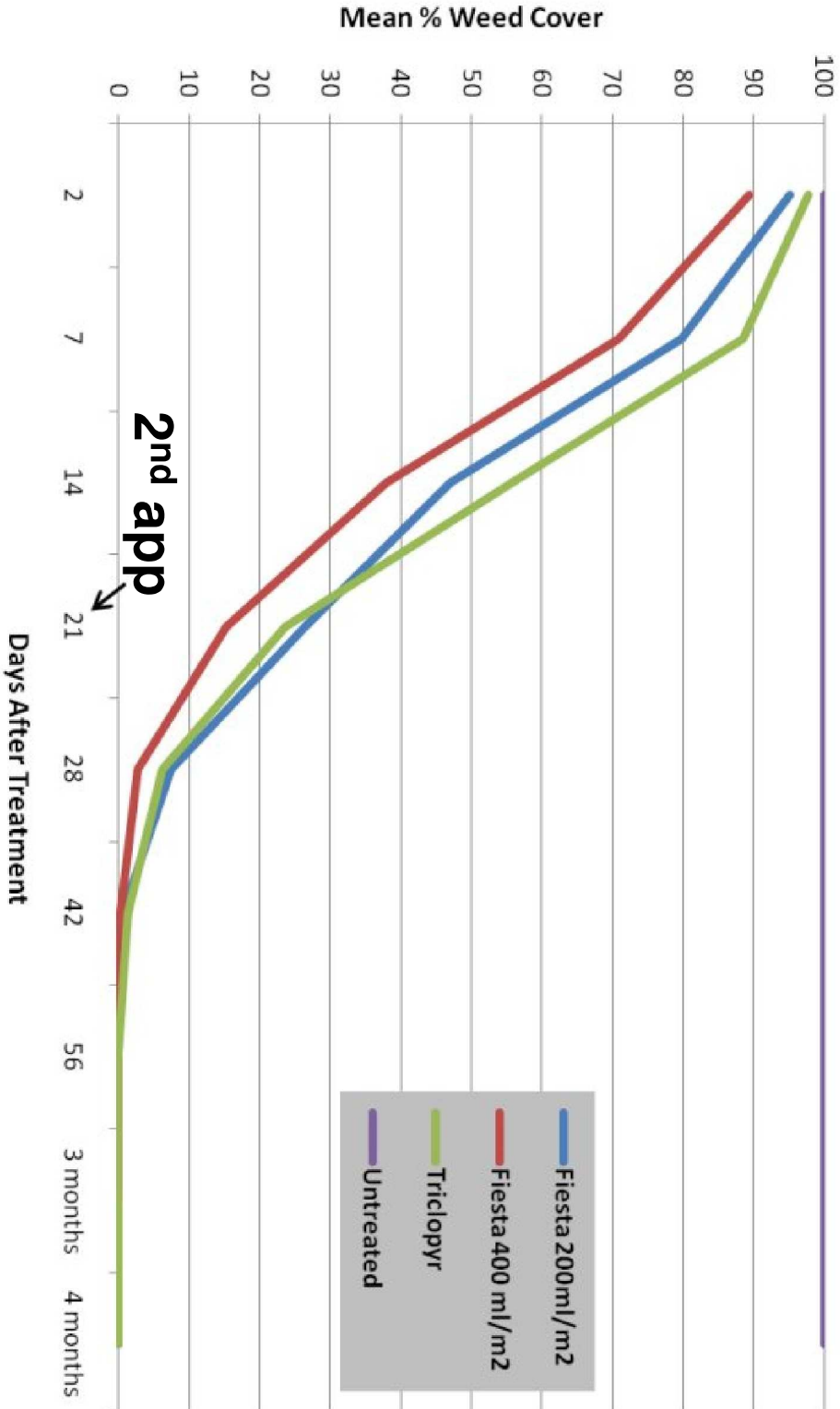




FIESTA

California 2010

Control of established bull thistle on rangeland
with two applications of Fiesta





FIESTA

Activities in 2011

- ✓ Building FIESTA inventory for early order program.
- ✓ Will attempt to revise label to include lower rates.
- ✓ Stop the illegal knock-off products that compete with Fiesta.
- ✓ Further staining studies on common fencing/deck materials.
- ✓ Review supply chain to reduce Fiesta costs.
- ✓ Further trial work to expand weeds on label.



FINALSAN®

Grass & Weed Killer



untreated



24 hours after Finalsan



FINALSAN -REG. NO. 29017 PCP ACT

Description: FINALSAN is a non-selective/burn-down herbicide for the control of grass, weeds, moss & algae . The active ingredient is ammonium soaps of fatty acids 22.10%

Use rates:

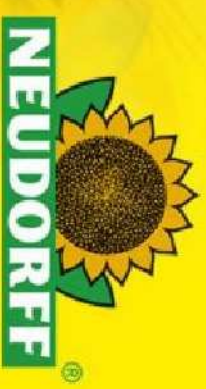
Grass/weeds: dilute 1 part Finalsan with 5 parts water and spray 100-200 mls/m² (1L of Finalsan will treat ~650 sq. ft.).

Moss/algae: dilute 1 part Finalsan with 19 parts water and spray 100-500 mls/m² (1L of Finalsan will treat ~2,150 sq. ft.).

Use sites: around and within gardens, landscaped, around buildings and areas with pesticide bans/concerns. Also controls moss & algae on roofs, decks, fences, walks, driveways and sidings.

Approvals: PMRA and Ontario. Most provinces/municipalities.

Available in 5L & 10L sizes.



FINAL SAN

Features & Benefits

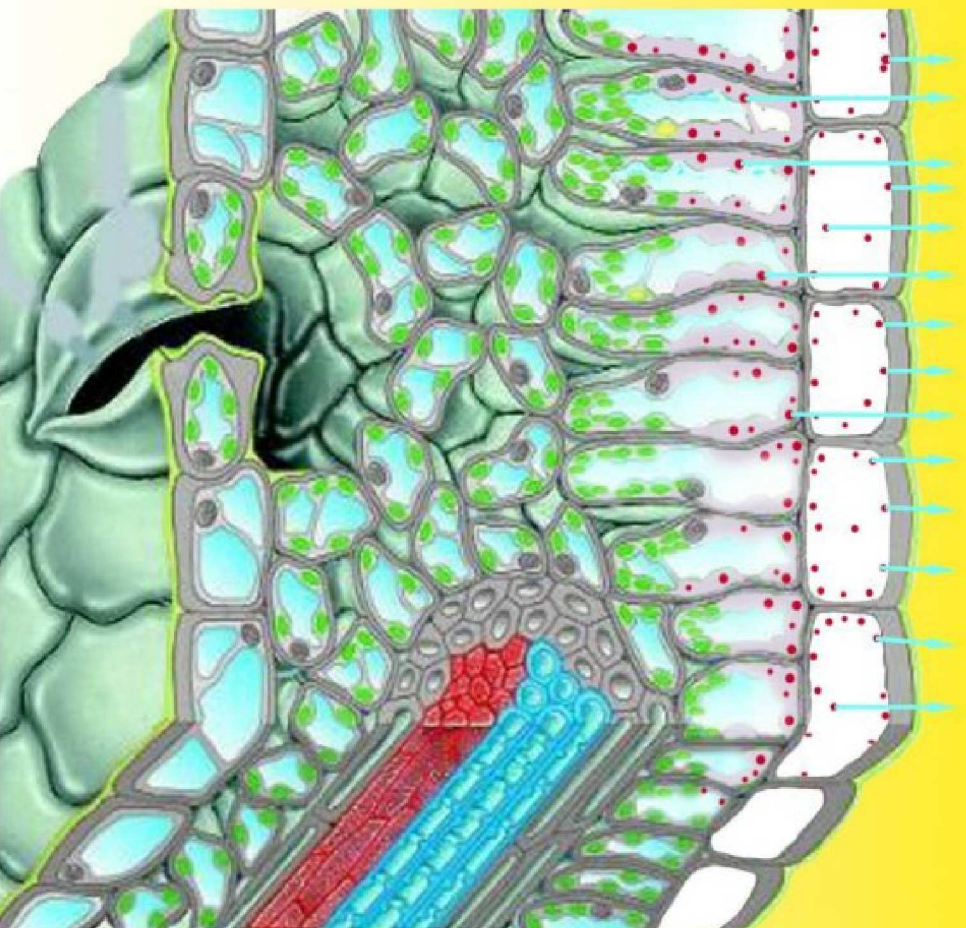
- ✓ Approved for use in Ontario.
- ✓ biodegradable
- ✓ Kills/suppresses most vegetation.
- ✓ Works fast-kills within hours.
- ✓ Areas can be re-sown 5 days after treatment.
- ✓ works in wide temperature ranges (10C or higher).
- ✓ Rain-fast in 3 hours
- ✓ Non-staining
- ✓ Non-corrosive



FINALSAN

Mode of Action

Cross section of leaf surface



“Within minutes
Finalsan breaks
down the waxy
surfaces of leaf
cells causing wilt
and eventually cell
death.”



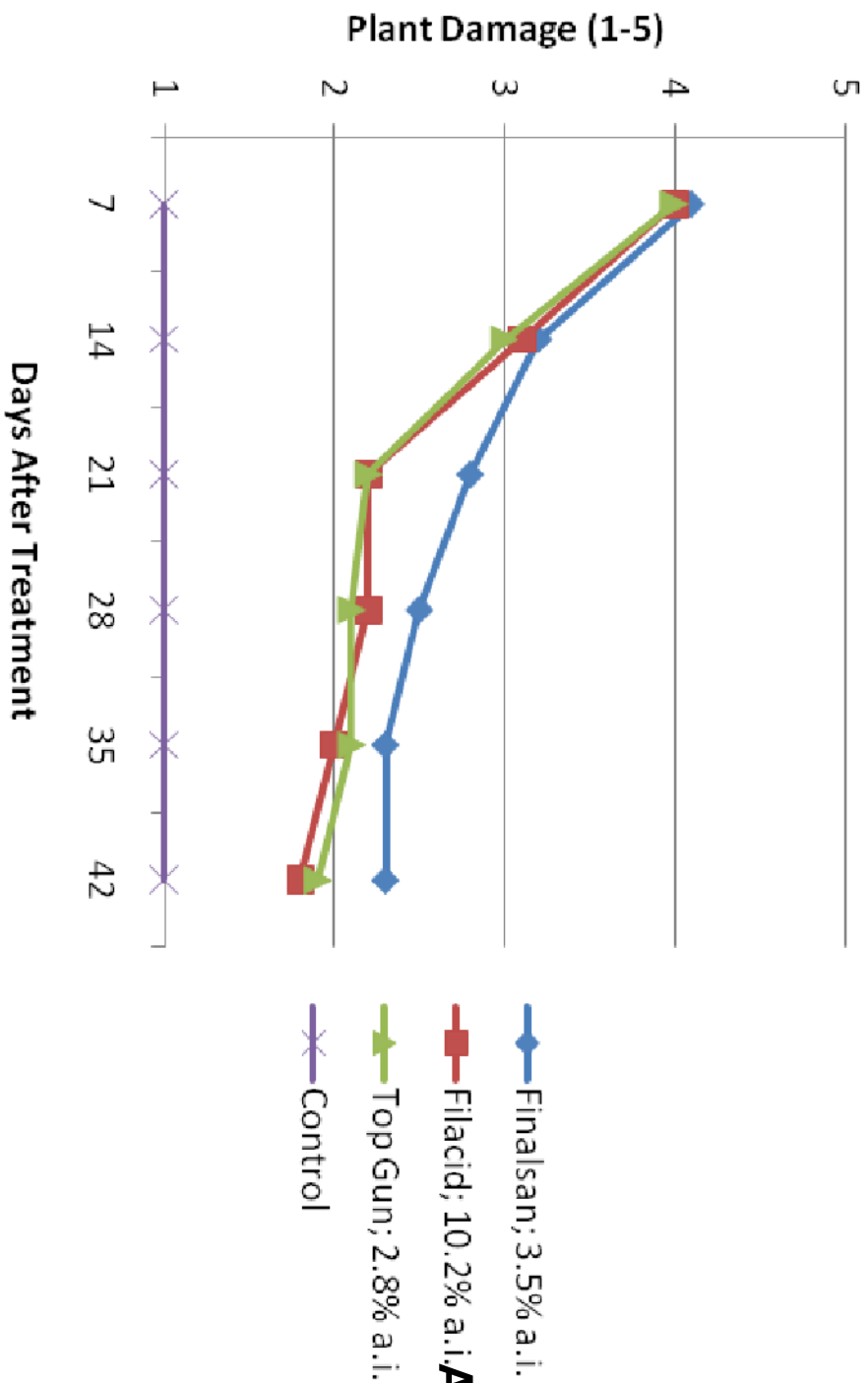
After 24 hours



FINAL SAN

Germany 2008

Control of common dandelion
(Plant Damage: 1=no damage, 5=complete kill)



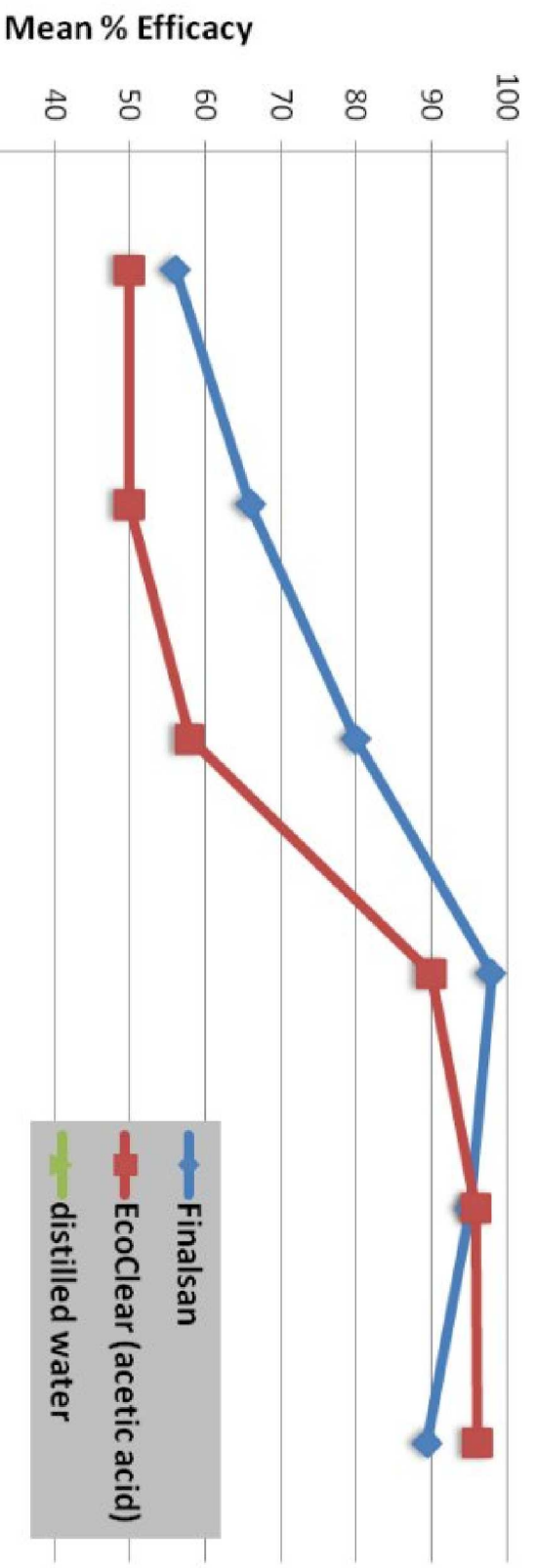
Acetic acid std.



FINALSAN

Vancouver Island 2008

Control of white clover with organic herbicides



EcoClear is CAUTION/DANGER signal words
FINALSAN is Warning only.

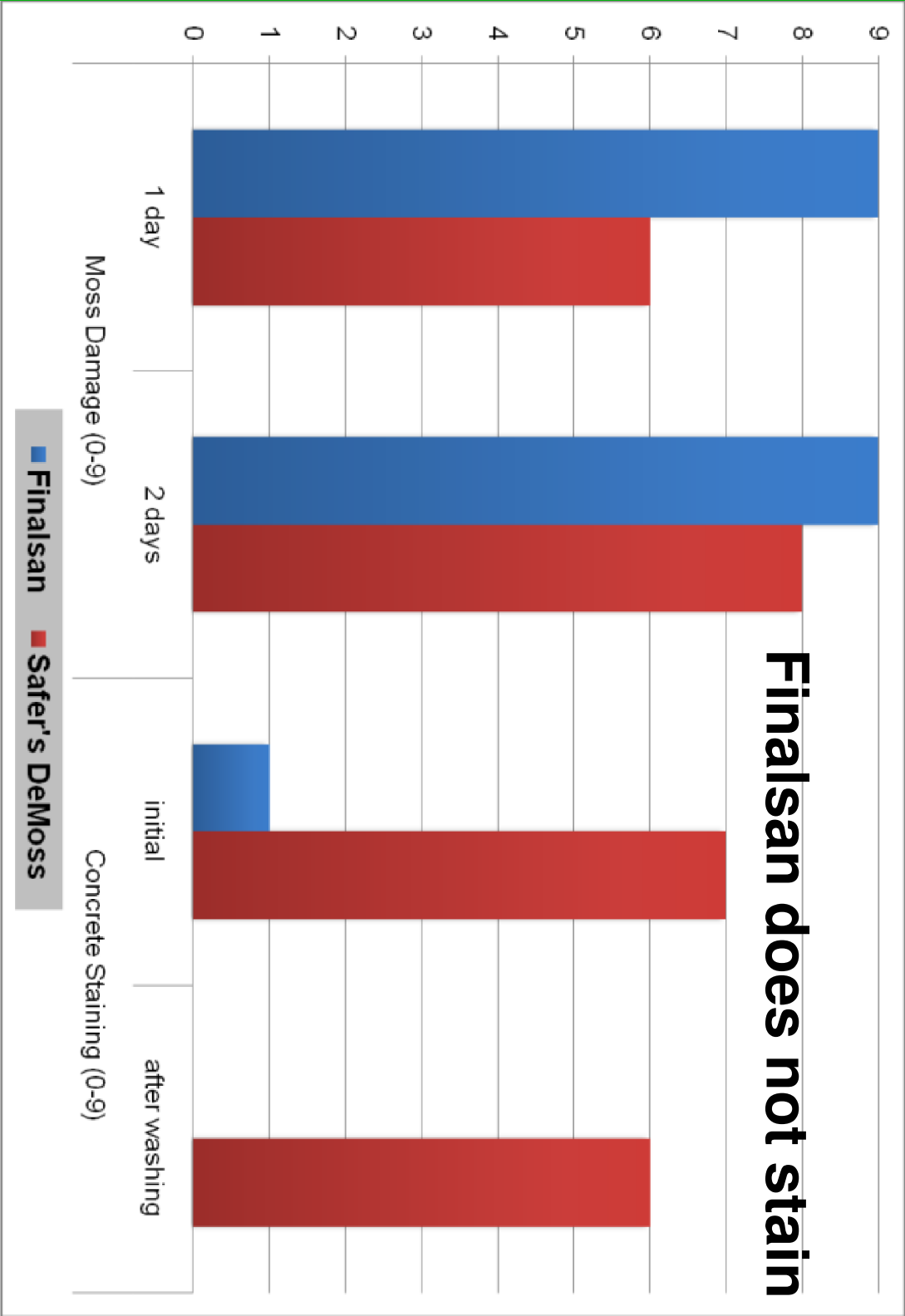
Time After Treatment



FINALSAN

Vancouver Island 2000

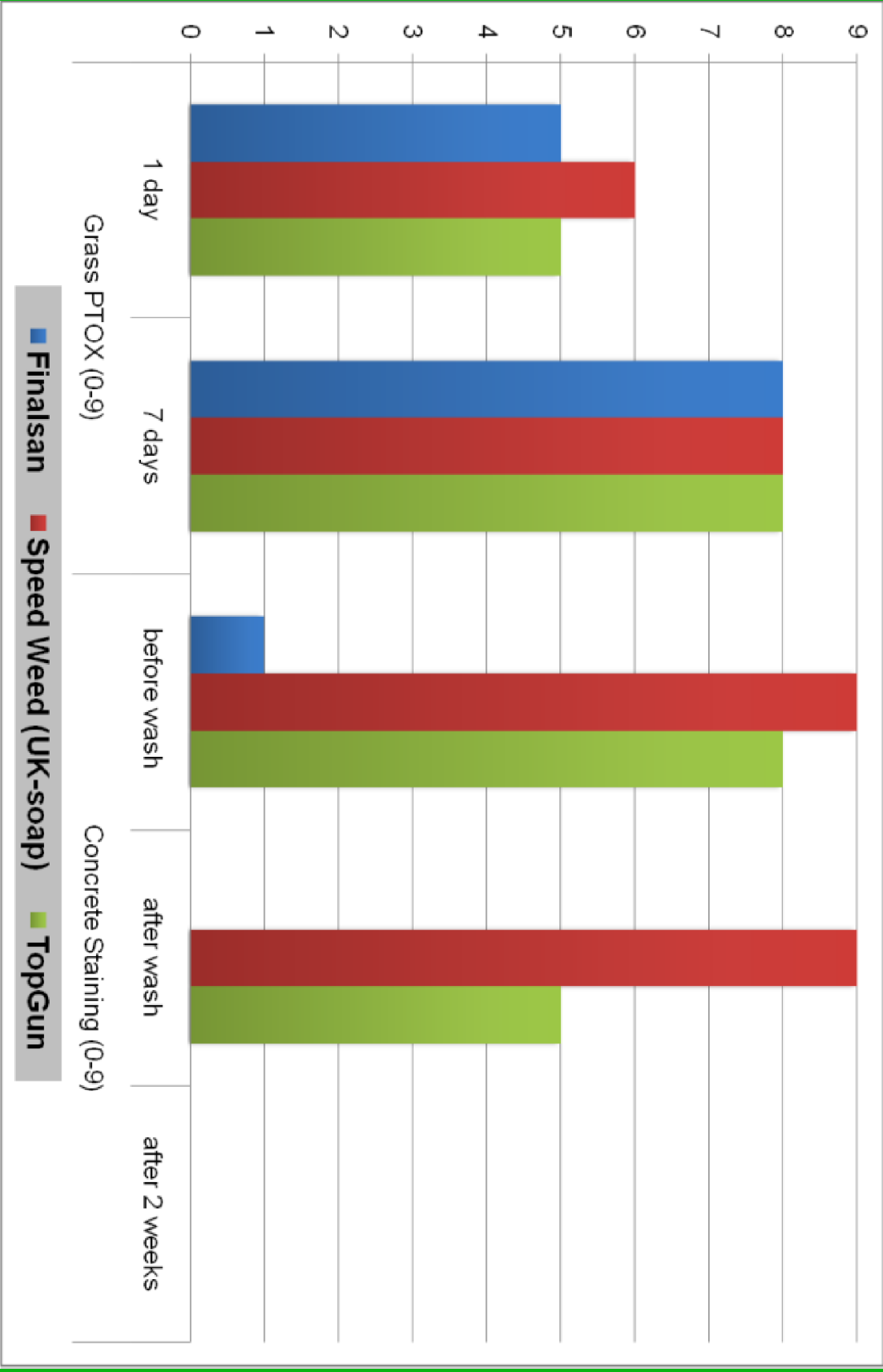
Finalsan does not stain





FINALSAN

Vancouver Island 2000

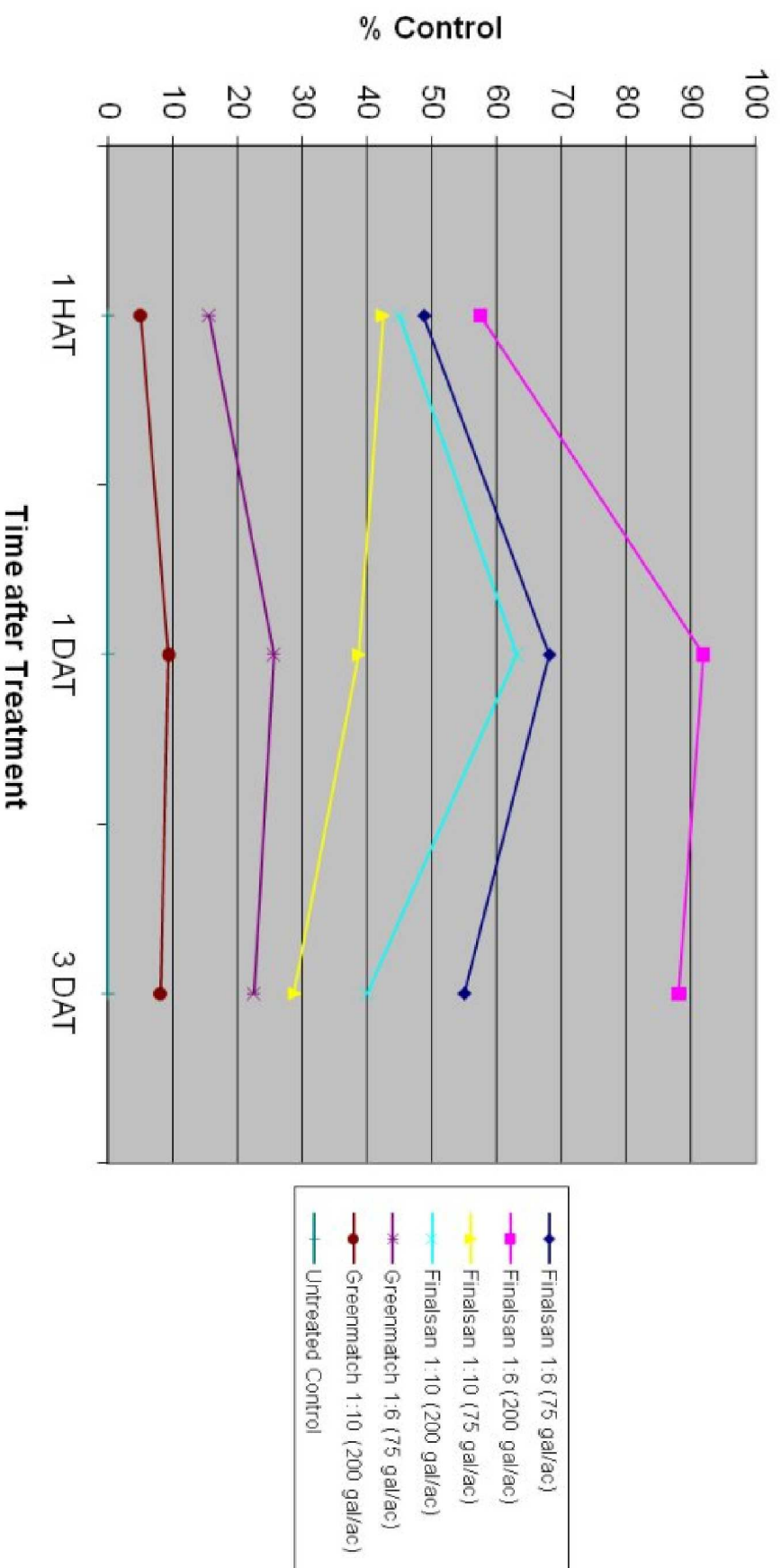




FINALSAN

California 2010

Control of common mallow, *Malva* sp., with one application of herbicide

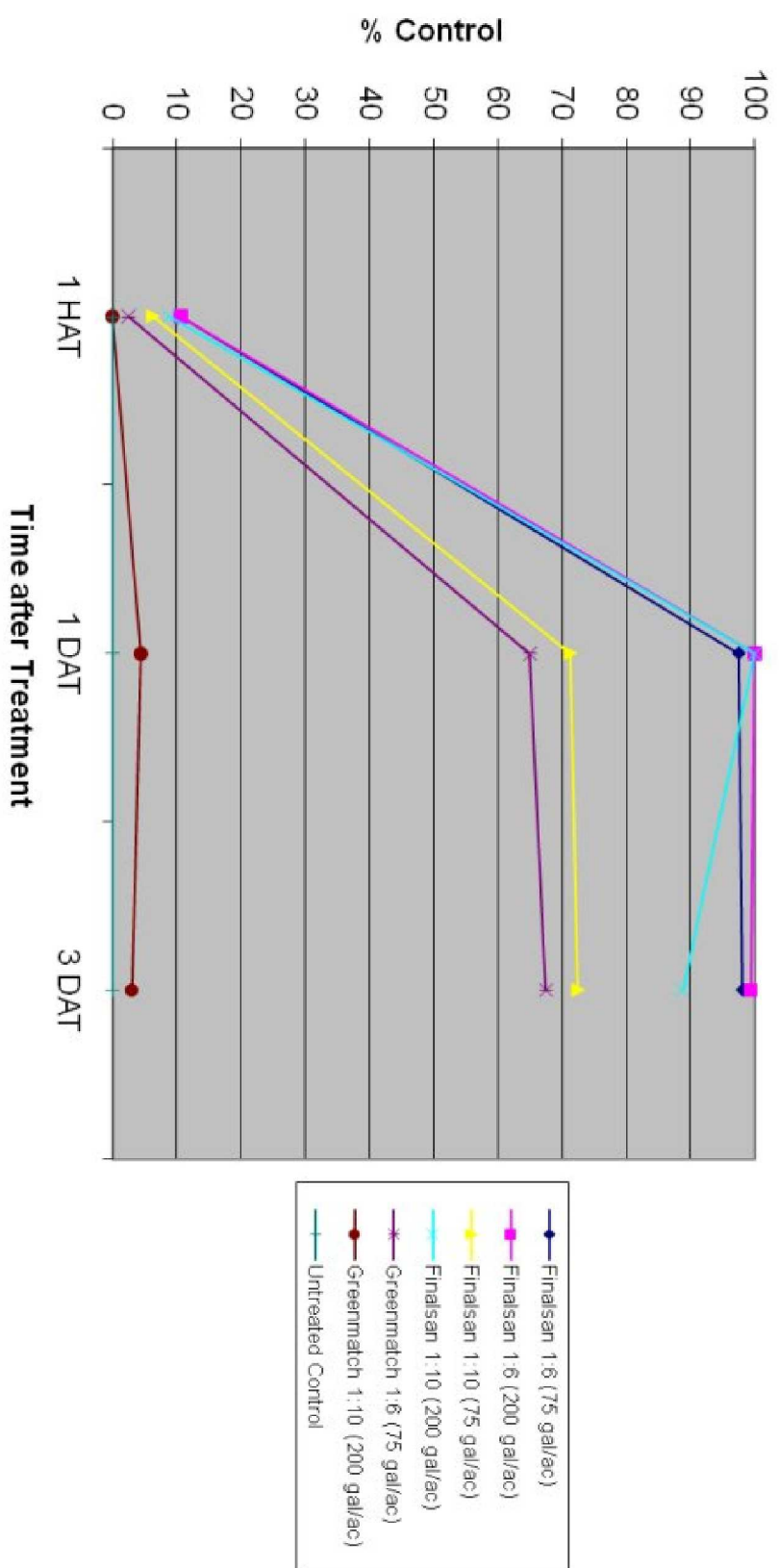




FINALSAN

California 2010

Control of annual bluegrass, *P. annua*, with one application of herbicide





Fiesta® & Finals®

- Approved for use within Ontario ban.
- Proven effective.
- Fast acting-see results in hours.
- Rain-fast in 3 hours.
- Work in cool and warm weather.



Thanks!

Landscape Ontario

Guelpn Turfgrass Institute

Our distributors

Most importantly the end-users!