SEMI SELECTIVE HERBICIDE USE IN NURSERY WEED CONTROL

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PRECIS

- Herbicide definitions
- Background
- Products
- Preparation and application
- Trial outline and results
- Potential with caution
- Next phase of trials
- Samples & staying in touch

DEFINITIONS

Herbicides fall into 3 practical categories

1. Pre emergent
2. Non selective (knockdowns)
3. Selective

Selective relates to target species or types of weed control within cereal crops, grass selective etc

DEFINITION – Semi Selective

The use of non selective knockdowns at ultra low concentrations to control weeds and to avoid off target damage in bushland and nursery situations

Our introduction of this concept to nursery weed control.

BACKGROUND

- Considerable body of science developed
- Weed control without off target damage
- Solution extended to nursery ?

PRODUCTS

The following are some of the knockdown herbicides that are currently being used in semi selective mode with WA bushland; these are permitted for off label uses in WA:

- Metsulphuron (Brush Off)
- Triasulphuron (Logran)
- Clopyralid (Lontrel)
- Halosulphuron (Sempra)
- Haloxyfop (Verdict)

OBJECTIVE OF TRIALS

- Determine if control could be achieved without off target damage
- Which chemical would provide best overall results and which was best for particular weeds
- If mortality was not achieved, was it possible to prevent weed seed set

PREPARATION and APPLICATION

- Accurate measurements by weight critical
- Use clean filtered water
- Granular herbicides – use warm water to aid dissolution
- Waiting period for watering will apply
- Avoid spraying on warm / hot days
- Mix in 20 L volume and dispense to smaller units
- Apply to strong plants
- Apply once, avoid double spray
- Target weeds as best possible

TRIAL OUTLINE

- Various chemicals, application rates and mixtures were trialled on individual plants, including a combination of the 2 herbicides below, given their compatibility.
- 7 weed species were assessed within 9 species of Perth natives.
- We settled on the following:
  - Triasulphuron at rate 1.2 grams per 20 L
  - Metsulphuron at rate 0.6 gram per 20 L
  - 50/50 combo of above

WEEDS TARGETED

Scientific name	Common name
Cardamine hirsuta	Flick weed
Chamaesyce species	Asthma weed, Cats hair
Gnaphalium species	Cudweed
Oxalis species	Wood sorrels
Sagina procumbens	Pearlwort
Marchantia polymorpha	Liverwort
Bryophyta	Mosses

Liverwort

Oxalis species

Chamaesyce species

Cud Weed

Pearlwort

Moss

Flick weed

Liverwort

Oxarlis

Euphorbiaceae – Chamaesyce (Chain weed)

Asteraceae - Cud Weeds

Caryophyllaceae – Sagina Pearlwort

Moss

Brassicaceae – Cardamine “ Flick weed ”

RESULTS FOR LOGRAN

- Effects in place within 1 to 2 days for Cudweed and Flick Weed
- Cud Weed species were heavily affected; within a week most wilted off
- Stunted and discolouration of Oxalis species; weeds left in an inferior state, roots and stems still in place with leaves wilted off
- Liverworts and sponge-like moss displayed changes by the 2nd week and treatment appeared to be effective
- No abnormal changes in grass-like moss (Pearlwort)
- Successfully achieved aims; no off target impact

RESULTS FOR LOGRAN AFTER 1 MONTH

Weeds	Impact
Flick weed	Decayed/rotted off/Eradicated
Asthma weed	Stunted growth, yellowing of leaves
Cudweed	1 to 2 days; strong signs of wilt, decayed
Oxarlis	Stunted growth, yellowing of leaves
Pearlwort	No effect
Liverwort	Eradicated
Moss	Stunted growth
	Seed set of pearlwort not effected.

Eradicated Flick Weed in *Daviesia physodes* stock

Chamaesyce species in *Baumea juncea* cell trays

Cudweed in *Atriplex isatidea*

Oxalis species in *Xanthorrhoea preissii* tube stock

Sagina procumbens in *Lepidobolus preissianus*

Liverwort in *Acanthacarpus preissii*

Moss in *Patersonia occidentalis*

RESULTS FOR METSULFURON

- 2 to 3 weeks for changes to be observed
- Successful on Flick Weed and Cud Weed species; most wilted off completely by the end of the month
- Similar to the effects of Logran on Oxalis species; roots and stems still in place
- Successfully achieved aims

RESULTS FOR METSULFURON AFTER 1 MONTH

Weeds	Impact
Flick Weed	Stunted growth, strong signs of wilt
Asthma Weed	Stunted growth, signs of rot
Cud Weed	Eradicated
Wood sorrels	Stunted growth, yellowing of leaves

Oxalis species in *Xanthorrhoea preissi* tube stock

Flick weed in *Daviesia physodes*

Flick weed, *Oxalis sp* and eradicated cudweed in *Bossiaea eriocarpa*

Chamaesyce species in *Spinifex longifolius*

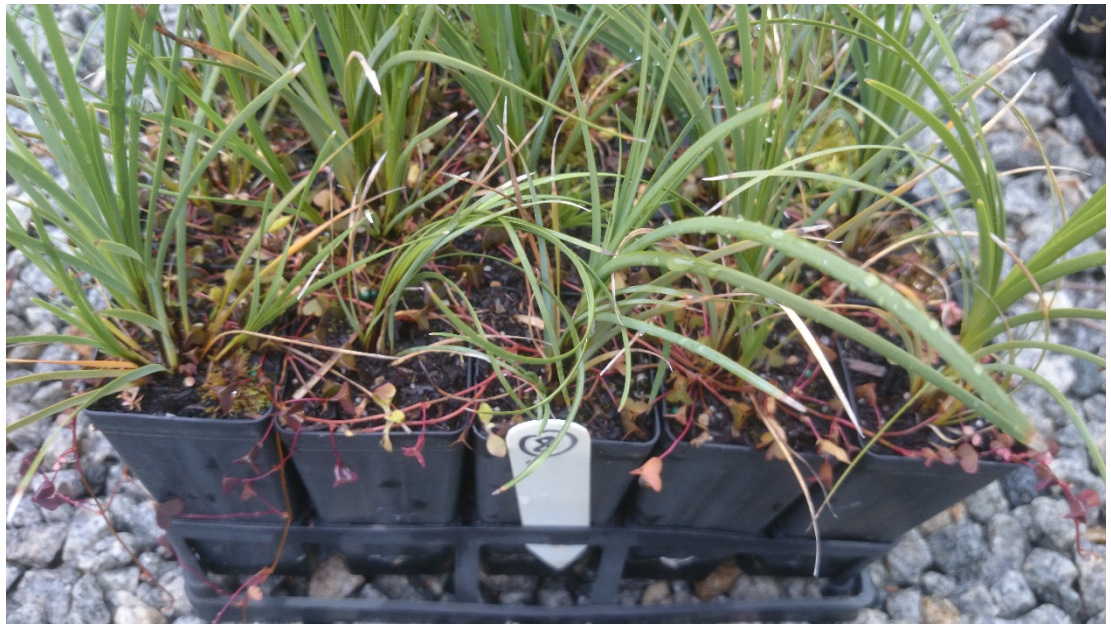
RESULTS (LOGRAN AND METSULFURON MIX)

- Effects take up to 3 to 4 weeks; slow to act compared to other trials
- Cud Weed did not wilt off completely within a month compared to other trials
- Good against Flick Weed species; by the end of the month most had wilted off completely
- Effective against Oxalis species; able to produce adverse effects on infestations
- Possibility that Logran and Metsulfuron are working against each other
- Aims achieved but not best option

Flick weed in *Melaleuca cardiophylla*

Pearlwort, moss and flick weed in *Alyxia buxifolia*

Cudweed, *Oxalis* sp and flickweed in *Hovea pungens*



Oxalis sp in *Lomandra maritama*

SUMMARY OF RESULTS

- Earlier stages of trials are positive
- Trials show that Logran and Metsulfuron act better on certain weeds
- The 2 herbicides have same mode of action, different active constituents; affect different weed species at different rates
- Trials repeated and proven sound in nursery practice
- No off target damage has occured.
- More trials to be done with different Group B Herbicide products

Costs & Options.

- LOGRAN & METSULPHURON COST APPROX 5 CENTS PER GRAM.
- SOME NURSERIES HAVE BEEN USING BAKING SODA TO CONTROL LIVERWORTS
- HERBICIDE OPTION CONSIDERED SUPERIOR ON COST, EFFICIENCY IN CONTROL OF DELIVERY AND Ph CONTROL.
- BAKING SODA HAS A Ph of 9 in water.

POTENTIAL WITH CAUTION

- Encouraging results
- Impacts on succulents/herbs may be adverse
- May be more relevant to natives and strong ornamentals
- Suggest small scale trials with very low concentrations, then upscale to achieve weed morbidity and assess off-target impact
- I have bought along some samples if some of you wish to trial. The only thing I ask for is some feedback.

LETS STAY IN TOUCH

- We will proceed with more trials and report via IPPS and Hort Journal
- Its an interesting exercise/variety for staff
- Let us know of any results your end

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THANK YOU

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