

WORKING FOR WATER

POLICY ON THE USE OF
HERBICIDES FOR THE CONTROL OF ALIEN VEGETATION.

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GUIDE TO CONTROL METHODS AND
HERBICIDE SELECTION FOR SELECTED ALIEN
VEGETATION.

ANNEXURE A.

WORKING FOR WATER HERBICIDE POLICY

1. OBJECTIVE FOR THE USE OF HERBICIDES FOR ALIEN VEGETATION CONTROL

- 1.1 To implement a long-term strategy for the initial and long term eradication of alien vegetation.
- 1.2 To ensure the safety of operators involved in the control operations and public in the operational area.
- 1.3 To ensure that there is minimal environmental impact in the short-term and that there are no long-term adverse effects on the environment resulting from the application of herbicides.
- 1.4 To ensure that the application takes place in the most cost effective way within objectives 1.2 and 1.3.
- 1.5 To attain these objectives Working for Water management shall be responsible for:
 - 1.5.1 Determining areas and species to be controlled and setting priorities.
 - 1.5.2 Deciding upon appropriate methods of chemical control.
 - 1.5.3 Drawing up short and long-term control programmes.
 - 1.5.4 Selection of suitable herbicides.
 - 1.5.5 Establishing training requirements for Working for Water personnel and contractors and ensuring that the training takes place
 - 1.5.6 Costing control programmes.
 - 1.5.7 Sourcing suitable herbicide and equipment suppliers and obtaining product and equipment at the best prices.
 - 1.5.8 Ensuring that herbicide applications take place within all relevant legislation.

2. METHODS OF CONTROL

2.1 Selection of appropriate methods of control shall be based on the following criteria:

- Species to be controlled
- Size of target plants
- Density of stand
- Accessibility of terrain
- Environmental safety
- Disposal of dead vegetation
- Cost of application

2.1.1 Species to be controlled

2.1.1.1 Herbicides selected for control shall be registered for use on that species under the conditions specified.

2.1.1.2 Selection should be based on “A Guide to the Use of Herbicides” issued by the Directorate: Agricultural Production Inputs and labels and information brochures issued by suppliers.

2.1.2 Size of plants

The following methods of control are appropriate for age or size target plants:

2.1.2.1 Seedlings

2.1.2.1.1 Hand pulling or hoeing. Hand pulling should be carried out in sparse stands under conditions where seedlings are easily removed from the soil. Operators should be supplied with suitable gloves or other hand protection. Hoeing is also most suited to sparse stands. Seedlings should be severed below the soil surface or removed from the soil. Soil disturbance should be minimised to reduce re-germination.

2.1.2.1.2 Foliar applications of herbicides can be carried out in dense stands or open stands. For dense stands suitable fan nozzles for overall application should be fitted. Sprayers should be fitted with pressure or flow regulators. In stands where individual plants are

treated solid cone nozzles should be fitted.

2.1.2.2 Saplings

2.1.2.2.1 Hand pulling or hoeing. Where appropriate hand pulling or hoeing should be carried out as recommended for seedlings.

2.1.2.2.2 Foliar sprays. Overall application or individual plant spraying can be carried out, depending on the density of the stand. Fan nozzles should be fitted for overall spraying and solid cone nozzles for individual plant treatment. Pressure or flow regulators should be fitted to sprayers for overall application. Spraying should be restricted to plants waist height or lower, but ensure there is sufficient foliage to carry the applied herbicide to the root system.

2.1.2.2.3 Basal stem treatments. Application of suitable herbicides in diesel can be carried out to the bottom 250 mm of the stem. Applications should be by means of a low pressure, coarse droplet spray from a narrow angle solid cone nozzle.

2.1.2.2.4 Cut stump treatments. Stems should be cut as low as practical as stipulated on the label. Herbicides are applied in diesel or water as recommended for the herbicide. Applications in diesel should be to the whole stump and exposed roots and in water to the cut area as recommended on the label

2.1.2.3 Mature trees. These should be regarded as trees above shoulder height or robust bushes 12-18 months or older.

2.1.2.3.1 Ring barking. Bark must be removed from the bottom of the stem to a height of 0,75-1,0 m. All bark must be removed to below ground level for good results.

Where clean de-barking is not possible due to crevices in the stem or where exposed roots are present, a combination of bark removal and basal stem treatments should be carried out.

Bush knives (machettes) or hatchets should be used for de-barking.

2.1.2.3.2 Frilling or partial frilling. Cuts should be made through the bark into the sapwood by means of a bush knife or light axe and a suitable herbicide applied into the cuts.

2.1.2.3.3 Basal stem treatments. Suitable herbicides should be applied in diesel to the base of the stem and to any exposed roots. Stems with a diameter up to 50 mm should be treated to a height of 250 mm and stems above 50m diameter to a height of 500 mm. This method is only suitable for stems up to 100 mm in diameter. Application is by means of a low pressure coarse droplet spray from a narrow angle, solid cone nozzle.

2.1.2.3.4 Cut stump treatments. Stumps should be cut as low as practical as stipulated on the label. Herbicide is applied in diesel or water as recommended for the herbicide. Applications in diesel should be to the whole stump and exposed roots and in water to the cut area as recommended on the label.

2.1.2.3.5 Stem injection. Herbicide solutions are applied directly into pre-made holes in the stem and claydodes of certain cactus species.

2.1.2.3.6 Ecoplugs. These are placed directly in the stem of standing trees. They should be used in inaccessible mountainous areas where the use of implements such as chain saws is difficult or hazardous.

2.1.3 Density of stands.

2.1.3.1 Overall applications can be made to dense stands of seedlings or saplings. Where other desirable vegetation is present (e.g. grass cover), selective herbicides or mixes that will not damage the grass or other desirable vegetation cover should be applied. Fan nozzles and pressure regulators should be fitted to sprayers.

2.1.3.2 Where dense stands of big trees, resulting in a large bio-mass, treatment of standing trees may be appropriate to obviate the problem of disposing of felled trees. Where there is a danger of dead trees falling into water courses they should be cut down and removed and the stumps treated with a suitable herbicide.

2.1.4 Accessibility of terrain.

2.1.4.1 In inaccessible areas such as mountainous areas or where no access roads exist, methods of control where a minimum amount of transportation of equipment and chemical is involved should be given preference.

2.1.5 Environmental considerations.

2.1.5.1 Protection of the environment is of prime importance. Riparian areas, where most alien vegetation infestations occur, require a particularly careful approach. Only herbicides that are approved for use in riparian areas should be used. Washing of equipment or disposal of waste spray mixture or washings is prohibited in or near water courses where contamination of water can occur.

2.1.6 Desirable vegetation.

2.1.6.1 Where desirable vegetation is present, e.g. grass cover in pastures or the margins of forests, methods of control must be selected that will cause minimum damage to the desirable vegetation. Alternative methods to foliar spraying should be adopted where there is a danger of damage to adjacent desirable plants occurring.

2.1.7 Disposal of vegetation.

2.1.7.1 Where possible utilizable wood should be removed after felling.

2.1.7.2 Brushwood is often burned on purpose or accidentally. If burning is planned, brushwood should be spread rather than stacked to limit soil damage as intense fires result in stacked brushwood destroying soil structure and preventing grass establishment for many years.

2.1.7.3 If there is a danger of damaging fires, unusable trees should be left standing as this will result in a less intense fire.

2.1.7.4 Felled trees or trees in danger of falling in water courses should be removed so that they do not cause blockages with resulting problems of flooding and damage to infrastructure such as roads and fences.

3. LONG TERM CONTROL PROGRAMMES

3.1 In areas where after initial control of alien vegetation has taken place and regrowth of the species and/or other undesirable vegetation will occur, the programme should be so structured that a minimum of regrowth will occur and a follow-up programme will be actioned. The following must be taken into consideration:

3.1.1 Species coppicing. Many species coppice from cut stumps and/or roots. Cut stumps must be thoroughly treated within 15 minutes of cutting according to label recommendations to minimise regrowth. Root coppice from species such as grey poplar (*Populus canescens*) and silver wattle (*Acacia dealbata*) occurs rapidly and control measures must be undertaken before plants become too large to be controlled with foliar sprays. Coppicing stumps should be treated before coppice reaches head height.

3.1.2 Seedling control. Germination of acacia species takes place rapidly after a fire and control measures must be put in place as soon as possible to minimise the quantity of herbicide used and the cost of application. Selective herbicides should be used where there is a danger of damage to grass present.

3.1.3 Burning. Burning should be considered part of the control programme to get rid of unwanted brushwood or to stimulate even growth of seedlings so that follow-up control measures are easier.

3.1.4 Rehabilitation. Where the danger of erosion exists or where the re-establishment of pastures is desired after clearing, rehabilitation of the area with grasses or other suitable plants should be carried out. The advice of pasture experts should be sought in planning this operation. Other erosion control measures such as the building of weirs should be undertaken where necessary.

4. SELECTION OF HERBICIDES

4.1 The selection of herbicides should be based on the following criteria and any deviation from this point must be approved by the management committee. (MANCO). Consult the Working for Water Technical Advisor.

4.1.1 Overall policy. Only the following herbicides are approved for use:

- 4.1.1.2 Garlon 4 (triclopyr (butoxy ethyl ester) 480g/l)
- Viroaxe (triclopyr (butoxy ethyl ester) 480g/l)
- Timbrel 3A (triclopyr (amino salt) 360 g/l)
- Mamba 360 SL (glyphosate 360 g/l)
- Chopper (imazapyr 100 g/l)
- MSMA (MSMA 720 g/l)

Starane 200 (fluroxypyr 200 g/l) (blackwood control)
 Tumbleweed (glyphosate 240 g/l) (Tsitsikamma and Kouga only)
 Access (picloram (K-salt) 240 g/l) **(on approval of MANCO)**
 Ecoplug (glyphosate 0.49) (High altitude teams if registered on particular spp).
 Molopo SC (tebuthiuron 500g/ l) **(Prosopis control only on approval of MANCO).**

4.2 Efficacy. Where alternative products are available for the same purpose, advice should be sought on the efficacy of these products under the prevailing application conditions.

4.3 Cost. Where different methods of application exist the cost of application and retreatment, in addition to the cost of the product shall be taken into consideration in deciding on which herbicide to apply.

4.4 Operator safety.

4.4.1 All measures must be taken to ensure the safety of the operators and where choices exist preference should be given to the safest product. Check the label colour band.

4.4.2 The following table gives the toxicity rating according to the label colour band:

GREEN	ACUTE HAZARD UNLIKELY IN NORMAL USE
BLUE	SLIGHTLY HAZARDOUS - CAUTION
YELLOW	MODERATELY HAZARDOUS - HARMFULL
RED	TOXIC TO VERY TOXIC

4.4.3 Label recommendations regarding safety must be strictly observed.

4.5 Environmental safety.

4.5.1 Herbicides that have the least impact on the environment shall be used.

4.5.2 Every precaution shall be taken to ensure that these products are safely stored, handled and applied.

4.6 Availability. Products should be readily available from suppliers in the areas of use to limit quantities stored.

5. TRAINING

All contractors (or one of their employees) who apply herbicide for gain in the Working for Water Programme must attend and pass the approved WfW Limited Pest Control Certified Herbicide Course or it's equivalent.

All Project Managers, in order to effectively manage the herbicide operations in their projects, must attend and pass the approved WfW Limited Pest Control Certified Herbicide Course or it's equivalent.

Operating teams shall be trained in the following aspects of herbicide use. Teams must receive training before commencing operations. Training shall be appropriate for the situations where teams will operate and specialised training or teams operating under specialised conditions, e.g. indigenous forests or soil applied herbicides, may be necessary.

5.1 Supervisors. Team supervisors shall receive training in the following:

5.1.1 Herbicide awareness. Basic training on the mode of action of herbicides.

5.1.2 Operator safety. Handling of concentrates and spray mixtures, personal hygiene and protective clothing.

5.1.3 Safe storage of product at depots and operational sites and spray mixtures at operational sites.

5.1.4 Mixing. Handling of concentrates and mixing techniques.

5.1.5 Safety procedures to be observed during transportation of product, spray mixtures, equipment and personnel.

5.1.6 Care and maintenance of application equipment, saws etc.

5.1.7 Record keeping in respect of quantities of product/spray mixtures used, area treated, person hours per area/operation, stock control.

5.1.8 Planning. Advanced planning for follow-up operations, transportation, equipment and spares requirements, product procurement and availability. Team management.

5.1.9 First aid. Actions to be taken in case of accidental contamination, suspected and actual poisoning, chronic poisoning, eye contamination and other physical injuries.

5.1.10 Health of operators. Persons unsuitable for use as application operators, e.g. chronically ill, disabled, pregnant women. Allergic reactions. Wearing of protective apparel. Hygiene.

5.1.11 Disposal of waste and spillage.

5.1.12 Managing major and minor spills, accident sites.

5.1.13 Calibrating application equipment.

5.1.14 Environmental safety.

5.1.15 Application techniques. Correct application to obtain most cost effective results.

5.1.16 Suitable and unsuitable application conditions.

5.2 Operators. Operators should receive training in the following:

5.2.1 Basic herbicide awareness - the purpose and functioning of herbicides and the need for correct application.

5.2.2 Safe handling of concentrates and spray mixtures, toxicity of herbicides, protective clothing, safe application, personal hygiene and disposal of waste.

5.2.3 Application techniques. Correct, thorough application. Preventing waste.

5.2.4 Care of equipment. Cleaning and disposal of washings.

6. COSTING OPERATIONS OR PROGRAMMES

6.1 Prior to the commencement of any control operations or programmes an assessment shall be made on the cost, based on the following:

6.1.1 Cost of herbicides and adjuvants.

6.1.2 Quantity, to be based on:

6.1.2.1 Method of application

6.1.2.2 Size and density of target plants.

6.1.2.3 Dilution rates

6.1.3 Adjuvants required.

6.1.4 Personnel costs. Number of person hours per area/operation.

6.1.5 Cost of equipment, spares and maintenance.

6.1.6 Cost of transportation, storage and other incidental costs.

6.2 Follow-up treatments such as seedling and/or coppice control must be similarly costed and built into the total cost of the control operation.

7. PROVISION OF EQUIPMENT

7.1 Application equipment shall be standardised and obtained from approved suppliers.

7.2 Use of the following brand of knapsacks has been approved. CP 3, CP 15, Matabi, Solo, Agrimex A18.

7.2.1 Where appropriate sprayers must be fitted with pressure regulators or flow regulators.

7.2.2 Spares must be readily available and spares such as nozzles, plumbers tape, nuts, screws, hose and washers must be carried with teams. Suppliers must be consulted on spares requirements.

7.2.3 The following nozzles or their equivalents shall be used as standard TG-1, FL-5VS and TF-VS2 or their equivalents.

7.3 The teams should have the necessary tools, e.g. spanners, screwdrivers, pliers, to carry out necessary maintenance and repairs in the field.

7.4 Malfunctioning nozzles should be replaced in the field and no attempt should be made to clean them. Cleaning should be done at the workshop/store using preferably compressed air and water.

7.5 Small hand held sprayers should be standardised on to Polyspray or

equivalent and Hack-pack applicators.

7.6 Suitable plastic measuring cylinders, beakers and mixing containers must be available and only used for herbicide mixing.

7.7 Containers must always be provided for clean water for personal use.

8. STORAGE, HANDLING AND TRANSPORTATION

8.1 Storage.

All storage facilities shall comply with the requirements of AVCASA. These can be summarised as follows:

8.1.1 Isolation.

Where possible, a store should preferably be a separate building and should not be sited near a dwelling house, livestock buildings or where fodder, fuel or other flammable materials are stored. A minimum of five meters between the store and the other buildings is recommended. If part of a complex, the store must be totally sealed off from the rest of the complex, i.e. no free movement of air between the storage area and the rest of the complex.

8.1.1.1 The location of the store must take into account the possible pollution risk from spilt chemicals. The store should be away from rivers, dams, boreholes and areas likely to be flooded.

8.1.1.2 The store should be situated where it can be supervised.

8.1.2 Accessibility.

When planning a store bear in mind the ease of access for delivery or despatch. Also consider the possibility of a fire and the need to be able to approach the building from all sides.

8.1.3 Construction.

8.1.3.1 Floor.

Earth, timber, bitumen, PVC or linoleum, coarse unscreened or disintegrating concrete is not acceptable. Smooth screeded concrete is ideal, however sealed, steel container floors are acceptable. The doorway should be bunded to a minimum height of 200 mm and this, as well as all wall to floor joints, should be made watertight. The purpose of the bund is to contain spills or fire water which could cause damage to the environment and prevent water (e.g. flood run-off) entering the store.

8.1.3.2 Walls.

Walls should preferably be brick or concrete block with airbricks or vents 200 mm from the floor and near or at roof level. Containers are acceptable if there is adequate ventilation 200 mm from floor level and near roof level. The container should where possible be placed in a shaded area. If this is not possible ensure good permanent ventilation.

8.1.3.3 Roof.

The roof should be leak-free and have some form of insulation to maintain temperatures at a reasonable level. Vent in the roof will allow for the escape of hot air during the summer months.

8.1.3.4 Doors.

Steel doors with an effective locking system are preferred. A wooden door should have a security gate to reduce the risk of forced entry. Containers with fitted security gates can be left open to cool the contents during the heat of the day. Only authorised personnel should have access to keys and be allowed in the store.

8.1.3.5 Windows.

Windows should be adequate to allow enough light into the store to be able to read product labels. All windows should be weather proof, burglar barred and preferably be at/or above head height (“out of sight out of mind”) for security reasons.

8.1.3.6 Lighting.

There should be sufficient lighting to allow for reading of product labels. If electric lighting is required it must be secure in order to reduce fire risk. The mains control should be outside the store itself.

8.1.3.7 Sanitation.

Staff should have immediate access to washing facilities with running water, soap and towels. They should be encouraged to use it frequently. An eye wash bottle or similar object must

be available at all times for the flushing of contamination from the eyes should it occur. A shower facility is recommended.

8.1.4 Equipment.

8.1.4.1 Equip the room with a table of suitable strength and height to facilitate reading of labels, decanting and measuring out of herbicides.

8.1.4.2 Measuring jugs, funnels, pumps and buckets must be kept on hand and kept specifically for the purpose of measuring out herbicides. Do not use household items for this purpose.

8.1.4.3 For the sake of good housekeeping, have on hand a broom, spade and a supply of dry fine soil as absorbent material to contain and absorb spills.

8.2 Handling.

The handling of herbicide concentrates requires strict precautions and personnel handling product concentrates must be fully aware of precautions to be observed.

8.2.1 Suitable protective clothing must be available and use thereof is compulsory.

8.2.1.1 Chemical resistant plastic aprons, gloves and eye protection must be worn when handling concentrates.

8.2.2 Adequate hygiene aids such as plentiful water, soap, towels and eye wash must be readily available.

8.2.3 Suitable absorbent material such as fine dry soil and cleaning equipment must be available to handle accidental spillage.

8.2.4 In the case of spillage, the spill must be contained immediately and cleaned up with absorbent material such as fine dry soil. The contaminated material should then be disposed of by burying in a safe place.

8.2.5 Concentrates should if possible be decanted in a safe, suitable place and not in the field. Such a handling and mixing area should have a hard impermeable floor, be bunded and have an adequate sump to accommodate run-off from washing, flooding or fire containment. A 1m³ sump /10m² floor space is recommended.

- 8.2.6 Concentrates and mixtures should never be decanted into or be mixed in drinking bottles or other food containers.
- 8.2.7 All containers into which herbicides or adjuvants are decanted must be clearly marked and a copy of the original label secured to the container.
- 8.2.8 Suitable equipment must be available to prepare spray mixtures. These include plastic measuring cylinders and beakers, mixing containers (buckets) and funnels.

8.3 In the field the following must be observed:

- 8.3.1 If concentrates must be handled in the field, observe the precautions listed under 8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.2.6, 8.2.7, and 8.2.8.
- 8.3.2. Spray mixtures must be kept in leak-proof, non-spill containers. The containers should be kept away from personal belongings, foodstuff, drinking water and eating and living areas.
- 8.3.3. Containers should stand on suitable absorbent material, EG a large piece of thick hessian sack, that will absorb minor drips, out of direct sunlight in a cool place.
- 8.3.4. Containers must be kept at least 20m away from water bodies.
- 8.3.5. Filling sites should be selected to prevent damage to desirable vegetation and to enable spillage to be cleaned up and disposed of.
- 8.3.6. Spray mixture containers must be clearly labelled and only reused for the specific herbicide.
- 8.3.7. Application equipment and containers should not be cleaned on site but at a suitable designated area at the store.
- 8.3.8. Suitable protective clothing, overalls, rubber boots, gloves and if necessary eye protection must be worn by operators when handling and applying herbicides.

8.4 Transportation.

- 8.4.1 Herbicides and application equipment must be carried on a separate vehicle or in a part of the vehicle isolated from people, food and clothing.

8.4.2 Vehicles should carry absorbent material to absorb any spillage.

8.4.3 Herbicides and equipment must be secured to prevent spillage and damage.

8.4.4 Product, spray mixtures and equipment must not be left unattended where there is a danger of theft or abuse.

8.4.5 Product should not be left uncovered in the sun.

8.5 Disposal.

8.5.1 A designated officer should be responsible to ensure that herbicide containers are correctly and safely disposed of, according to AVCASA guidelines.

8.5.2 Empty containers must be destroyed after use and not be used for any other purpose. Under no circumstances may containers be taken home for personal use.

8.5.3 Empty containers should be returned to the store for safe keeping and disposal.

8.5.4 Where arrangements have been made containers should be returned to the supplier.

8.5.5 Containers that have to be destroyed should be triple rinsed, punctured, flattened and, if suitable, burned. See attached pamphlet for details of triple rinsing.

8.5.6 Only sufficient spray mixture that can be used in a day should be prepared. Left-over material should be returned to the depot for safe storage and re-use. Spray mixture should only be disposed of in a suitable site.

8.5.7 Certain spray mixtures should not be left standing overnight and should be safely disposed of. Consult the product label. If mixtures can be left overnight with no adverse effects, they should be kept to reduce costs and pollution from herbicide and wash water.

9. PUBLIC SAFETY

9.1 Due regard must be paid at all times to the health and safety of the public.

9.2 Public should be kept out of operational areas where any hazard's exist. Warning notices should be displayed to this effect where necessary.

- 9.3 Herbicides must only be applied strictly according to label recommendations.
- 9.4 Product and spray mixtures should be stored so that they are inaccessible to the public.
- 9.5 Treatment of areas within 50 m of habitations and public areas (e.g. parks) should be avoided or only carried out in consultation with the parties effected.
- 9.6 Public should be informed of control operations in their area by means of verbal communication, notices, pamphlets, the press etc.

10. ENVIRONMENTAL SAFETY.

Most alien vegetation control operations are carried out in riparian situations which are regarded as environmentally sensitive. In order to minimise the impact of the operation on the natural environment the following must be observed.

- 10.1 Area contamination must be minimised by careful accurate application with a minimum amount of herbicide to achieve good control.
- 10.2 All care must be taken to prevent contamination of any water bodies. This includes due care in storage, application, cleaning equipment and disposal of containers, product and spray mixtures.
- 10.3 Equipment should be washed where there is no danger of contaminating water sources and washings carefully disposed of in a suitable site.
- 10.4 To avoid damage to indigenous or other desirable vegetation product should be selected that will have the least effect on non-target vegetation.
 - 10.4.1 Coarse droplet nozzles should be fitted to avoid drift onto neighbouring vegetation, e.g. TG-1 or equivalent.

11. APPLICATION

- 11.1 Equipment.
 - Only application equipment and accessories specified (see 7. PROVISION OF EQUIPMENT). shall be used by operating teams.
 - 11.1.1 Equipment shall be inspected regularly between and during applications and necessary repairs carried out.

- 11.1.2 Leaking sprayers or sprayer not applying correctly should be withdrawn until repairs have been carried out. Spare applicators and parts should always be available so as not to impede operations.
- 11.1.3 Ensure that correct nozzles are fitted and pressure settings are checked regularly.
- 11.1.4 Where possible use low water volumes to keep turn around (refilling) time down to a minimum. Caution must be observed to limit drift when using minimum output nozzles.
- 11.1.5 Always ensure that knapsacks are filled to the maximum.
- 11.1.6 Equipment must be emptied and cleaned thoroughly after spraying ceases. Spray mixture must not be left in the apparatus overnight.
- 11.1.7 Apparatus should be stored under lock and key when not in use.

11.2 Rates of Application.

- 11.2.1 Products shall be mixed and applied at rates recommended on the label. This shall not be deviated from without consultation with Working for Water Technical Advisor and suppliers.
- 11.2.2 Applications should be checked regularly to ensure that they comply with recommendations.

11.3 Precautions.

- 11.3.1 Appropriate protective clothing must be changed and washed regularly and should be removed immediately if grossly contaminated.
- 11.3.2 Spillage must be attended to immediately and appropriately disposed of.
- 11.3.3 Application teams must be trained to avoid damage to non-target species.
- 11.3.4 Contamination of all water bodies must be strictly avoided.
- 11.3.5 Hygiene aids - clean water, soap, towels and eye wash must always be available to spray operators.

11.4 Adjuvants

- 11.4.1 Where recommended wetting and spreading agents should be added to spray mixtures. Wetters should always be mixed in accordance with label recommendations.
- 11.4.2 Dye must be added to all applications where the product has no built in dye to ensure that no target species are missed and plants are correctly treated.
- 11.4.3 In areas where alkaline water is used for spraying the use of a buffering agent may be necessary. Consult the product label. Buffers should always be added to the water before the herbicide.
- 11.4.5 In sensitive areas where drift must be controlled, the use of drift control agents may be necessary. Seek expert advice on the use of these agents.

11.5 Water Sources.

- 11.5.1 Only clean water may be used for spray mixtures.
- 11.5.2 Where particulate matter occurs in water, e.g. water drawn from rivers, the water must be filtered to avoid nozzle blockages.
 - 11.5.2.1 Funnels with filters should be used for filling or filters should be fitted in the application equipment.
- 11.5.3 Where large volumes of water are transported, tankers or tanks should be fitted with buffer plates particularly where operating in rough terrain.
- 11.5.4 The product label should be consulted regarding the quality of water suitable for the specific herbicide.

12. WEATHER CONDITIONS.

- 12.1 Applications should not be carried out under unfavourable weather conditions that could effect the control obtained or endanger nearby desirable vegetation, water bodies or personnel.
- 12.2 Label recommendations regarding suitable application conditions must be followed.
- 12.3 The following conditions must be taken into consideration, depending on the method of application.

- 12.3.1 Application to wet plants.
- 12.3.2 Threatening rain.
- 12.3.3 Wind conditions.
- 12.3.4 Hot, dry conditions
- 12.4 Conditions of target plants.
 - 12.4.1 Poor results may result if target plants are not in a suitable condition for treatment. The following conditions may result in poor control.
 - 12.4.1.1 Water stressed plants.
 - 12.4.1.2 Water logged plants.

13. MIXING HERBICIDES

- 13.1 Mixing must take place according to label instructions.
- 13.2 Suitable protective clothing must be worn when handling concentrates.
- 13.3 Liquid concentrates should be added to the half full tank which is then topped up.
- 13.4 Adjuvants should be added to the tank as per the label instruction prior to the addition of the herbicide when buffering and afterwards for wetters and dyes.
- 13.5 Do not mix concentrates together before adding them to the tank.. Consult product labels.
- 13.6 Proper mixing in knapsacks and hand held applicators is difficult and spray mixtures should be mixed in bulk containers or if necessary (e.g. wettable powders) buckets before pouring into the knapsacks or hand held applicators.
- 13.7 Spray mixtures should be agitated continuously if recommended. This is essential after they have been standing for a while.

14. CALIBRATION

14.1 Application equipment must be correctly calibrated to obtain optimum results and prevent wastage through over-application.

14.2 Calibration should be carried out in the area to be treated.

14.3 Calibration should be checked frequently during application. The following should be checked:

14.3.1 Correct spray pressure.

14.3.2 Correct nozzle size and spray pattern.

14.3.3 Correct nozzle output.

14.3.4 Volume of application over a specific area.

ESTIMATED VOLUMES OF PRODUCT PER HECTARE ARE FOR A

DENSE / CLOSED STAND OF THE SPECIFIC SPECIES. FOR LOWER INFESTATIONS VOLUMES SHOULD BE REDUCED ACCORDINGLY.

MEDIUM	=	75% OF DENSE/ CLOSED
SPARSE	=	50% OF DENSE / CLOSED
SCATTERED	=	25% OF DENSE / CLOSED
VERY SCATTERED	=	10 % OF DENSE / CLOSED
OCCASIONAL	=	1 % OF DENSE / CLOSED

- **FOR WATER BASED APPLICATIONS, ACTIPRON SUPER WETTER SHOULD BE ADDED WHERE RECOMMENDED ON THE LABEL. RATE PER HECTARE FOR DENSE / CLOSED STAND – 1.75 l / ha**
- FOR ALL WATER BASED TREATMENTS A SUITABLE DYE SHOULD BE ADDED WHEN NECESSARY TO ENSURE THAT ALL TARGET PLANTS ARE TREATED.
RATE PER HECTARE FOR DENSE / CLOSED STAND - 350ml / ha
- **FOR DIESEL BASED APPLICATIONS, SUDAN RED DYE SHOULD BE ADDED.**
RATE PER HECTARE FOR DENSE / CLOSED STAND 300 ml / ha.

ANNEXURE A.

GUIDE TO CONTROL METHOD AND HERBICIDE SELECTION FOR ALIEN VEGETATION.

AMERICAN BRAMBLE (*RUBUS CUNEIFOLUS.*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ALL PLANTS	FOLIAR SPRAYS	MAMBA (GLYPHOSATE 360g/l)	300ml / 10l WATER (6l / Ha)	SEE NOTE	6l / ha
MATURE PLANTS	SLASH AND SPRAY REGROWTH	TOUCH DOWN GLYPHOSATE TRIMESIUM 480g/l)	6l / ha	SEE NOTE	6l / ha
		GARLON 4/VIROAXE (TRICLOPYR ESTER 480gm / l)	50ml / 10l WATER	SEE NOTE	1.5 l / ha

NOTE:
 SPRAY ON ACTIVELY GROWING PLANTS.
 SLASH OLD GROWTH IN WINTER, AND SPRAY
 SPRING GROWTH WHEN ABOVE 0.5 m TALL.

INKBERRY (*CESTRUM LAEVIGATUM*.)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
SEEDLINGS	HAND PULL				
LARGE TREES	SINGLE STEMMED	BASAL STEM	GARLON 4 VIROAXE (TRICLOPYR 480g/l)	100ml / 10 l DIESEL	2 l / ha
	ALL	CUT STUMP	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360 g /l)	300ml / 10 l WATER	2 l / ha
			CHOPPER (IMAZAPYR 100g / l)	200ml / 10 l WATER	1.5 l / ha

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AUSTRALIAN MYRTLE (*LEPTOSPERMUM LAEVIGATUM.*)

TARGET PLANTS

METHOD

PRODUCT

RATE

COMMENTS

BIG TREES

CUT DOWN

CUT DOWN AT
GROUND LEVEL
DO NOT APPLY
HERBICIDE

BARBADOS GOOSEBERRY (*PERESKIA ACULEATA*.)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE.
VINES	CUT DOWN TO 2m AND SPRAY	GARLON 4 VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10 l WATER	BURN REMAINING PLANT MATERIAL. FOLLOW UP SPRAYS MAY BE NECESSARY.	1.5 l

BEEFWOOD (*CASUARINA EQUISETIFOLIA*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENT	ESTIMATED PRODUCT / HECTARE
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ALL TREES

FRILL

CHOPPER
IMAZAPYR
100g / l)

1000ml / 10 l
WATER

5L/Ha

BLACK WATTLE (*ACACIA MEARNsii*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTMATED PRODUCT/ HECTARE
	HAND PULL OR HOE			OPEN STANDS	
SEEDLINGS AND SAPLINGS	FOLIAR SPRAY UP TO 1 m TALL	MAMBA (GLYPHOSATE 360g/l)	150ml/ 10L WATER	AVOID WATER COURSE CONTAMINATION	3 l
	FOLIAR SPRAY UP TO 2m TALL	TOUCHDOWN (GLYPHOSATE TRIMESIUM 480g/l)	3l/ ha		3 l
	FOLIAR SPRAY UP TO 1.5m TALL	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	25 – 75ml/ 10L WATER	LOW RATE ON SEEDLINGS SEE NOTE BELOW	0.5 – 1.5 l
YOUNG TREES	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	75ml/ 10L WATER		3 l
BIG TREES	CUT STUMP	TIMBREL 3 A * (TRICLOPHYR AMINE SALT 360g / l)	3l / 100l WATER		1.5 l / ha
	FRILL	TIMBREL 3 A * (TRICLOPHYR AMINE SALT 360g / l)	300ml / 10l WATER		1.5 l / ha
INACCESSABLE TREES	STEM TREATMENT	ECO – PLUG *		INACCESSABLE OR DANGEROUS AREAS	

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NOTE: USE GARLON 4 / VIROAXE IF GRASS SPECIES ARE PRESENT.

BLUEGUMS (*EUCALYPTUS SPP.*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS	HAND PULL				
COPPICE	FOLIAR SPRAY	BRUSH OFF * (METSULPHFURON METHYL 500g / kg) PLUS MAMBA * (GLYPHOSATE 360 g /l)	200g / ha + 3 l / ha	APPLY TO COPPICE 1.5 – 1.8 m TALL	200 g / ha 3 l / ha
FELLED TREES	CUT STUMP	CHOPPER (IMAZAPYR 100 g/l)	1250 ml / 10 l WATER	IF SPECIES KNOWN CHECK RATE ON LABEL	6 l / ha
	FRILL	CHOPPER (IMAZAPYR 100g/l)	1250ml / 10 l WATER	IF SPECIES KNOWN CHECK RATE ON LABAEL	6 l / ha

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ADVISOR.**

**SPOT SPRAY COPPICE:
16 LITRES WATER
16 GMS BRUSH OFF
1% MAMBA
0.5% ACTIPRON**

BRAZILIAN PEPPER TREE (*SCHINUS TEREBRINTHIFOLIUS*.)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ALL TREES	— BASAL STEM	- GARLON 4 /VIROAXE (TRICLOPYR ESTER 480g/l)	— 200ml / 10L DIESEL	- WET UP TO 0.5m STEM AND ROOTS	— 1.5 l / ha

BUGWEED (*SOLANUM MAURITIANUM.*)

1.

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
SEEDLINGS & SAPLINGS	HAND PULL	STARANE 200 (FLUROXYPYR 200g/l)	12.5ml / 10L WATER	UP TO 1m TALL	0.5l / ha
		MAMBA (GLYPHOSATE 360g/l)	50ml / 10L WATER		2l / ha
	FOLIAR SPRAY	TOUCH DOWN (GLYPHOSATE TRIMESIUM 480g/l)	2l / ha	SPRAY WHEN 500mm TALL	2l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER		1.5 / ha

BUGWEED

2.

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
BIG TREES	CUT DOWN & SPRAY COPPICE	STARANE 200 (FLUROXYPYR 200g/l)	12.5ml / 10L WATER	SPRAY WHEN 500mm TALL	0.51 / ha
		MAMBA (GLYPHOSATE 360g/l)	150ml / 10L WATER		31 / ha
		TOUCH DOWN (GLYPHOSATE TRIMESIUM 480g/l)	2l /ha	SPRAY WHEN 500mm TALL	21 / ha
	CUT STUMP	CHOPPER (IMAZAPYR 100g/l)	200ml/10l WATER	CUT SURFACE ONLY	1 l / ha
		TIMBREL 3 A (TRICLOPYR AMINE SALT 360g/l)	300ml / 10L WATER	CUT SURFACE ONLY	2.25l / ha
	FRILL	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha
		CHOPPER (IMAZAPYR 100g/l)	200ml / 10 l WATER		1 l / ha
* CONSULT THE WFW TECHNICAL ADVISOR.					

C A C T I

SPECIES	TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATE PRODUCT/ HECTARE
HARRISIA CACTUS <i>(HARRISIA MARTINI.)</i>	STANDING PLANTS	SPRAY APPLICATION	MSMA (MSMA 720g/l)	1 l / 20 l WATER		10 l / ha
			GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	100ml / 10L WATER	TREES UP TO 1.5 m TALL	2 l / ha
		STEM INJECTION	MSMA (MSMA 720g/l)	1 l / 2 l WATER		2 l / ha
JOINTED CACTUS <i>(OPUNTIA AURANTIACA.)</i>	PLANTS AND LOOSE CLADODES	SPRAY APPLICATION	MSMA (MSMA 720g/l)	1 l / 2 l WATER		5 l / ha

C A C T I

SPECIES	TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
IMBRICATE CACTUS (<i>OPUNTIA IMBRICATA.</i>)	STANDING PLANTS	SPRAY APPLICATION	WHOLE PLANT	MSMA (MSMA 720g/l)	1 l / 22 l WATER	10 l / ha
			CUT STUMP	MSMA (MSMA 720g/l)	1 l / 22 l WATER	CUT PLANTS DOWN TO 100 – 150 mm. AND SPRAY CUT STUMP
ROSEA CACTUS (<i>OPUNTIA ROSEA.</i>)						

C A C T I

SPECIES	TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE.
PRICKLY PEAR (<i>OPUNTIA FICUS-INDICA</i>)	STANDING PLANTS	STEM INJECTION	MSMA (MSMA 720g/l)	1l / 1l WATER	2 ml DOSES	12 l / ha
			MAMBA (GLYPHOSATE 360g/l)	1l/2l WATER	2 ml DOSES	16 l / ha
			TOUCHDOWN (GLYPHOSATE TRIMESIUM 480g/l)	330ml / 10L WATER	2 ml DOSES	8 l / ha

NOTE: INJECT INTO 4
- 12 PREMADE HOLES
PER PLANT

C A C T I.

SPECIES	TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
SOUR PRICKLEY PEAR (<i>OPUNTIA STRICTA</i>)	LARGE PLANTS	STEM INJECTION	MSMA (MSMA 720g/l)	1l/1l WATER	2 ml DOSES SEE NOTE BELOW	8 l / ha
	SMALL PLANTS	SPRAY APPLICATION	MSMA (MSMA 720g/l)	1l / 30l WATER		10 l / ha

NOTE: APPLY DOSES INTO 1 – 8 PRE-MADE HOLES IN PLANTS.

CAMEL THORN BUSH (*ALHAGI CAMELORUM*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENT	ESTIMATED PRODUCT/ HECTARE
STANDS OF PLANTS	GRANULAR APPLICATION	MOLOPO GG (TEBUTHIURON 200 g / kg)	2 – 4 g / m²	RATE DEPENDS ON CLAY CONTENT	20 – 40 Kg / ha

NOTE: OBTAIN ASSISTANCE FROM SUPPLIER ON APPLICATION TECHNIQUES BEFORE APPLYING.

CLUSTER PINES (*PINUS PINASTER.*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS
ALL TREES	CUT DOWN CLOSE TO GROUND			DO NOT APPLY HERBICIDE TO STUMPS
IN DIFFICULT TERRAIN	STEM	ECOPLUG *		ONLY ON SMALL TREES 10CM OR LESS. NOT EFFECTIVE ON LARGER TREES

* CONSULT THE WFW TECHNICAL ADVISOR.

GOLDEN WATTLE (*ACACIA PYCNANTHA*.)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS
SEEDLINGS AND SAPLINGS	HAND PULL OR HOE			
BIG TREES	CUT STUMP	STUMP OUT (<i>CYLINDROBASIDIUM LAEVE</i>) 2X10 SPORES PER SACHET	1 SACHET/ 400ml SUNFLOWER OIL	APPLY 1 – 2 DROPS PER STUMP

GREEN WATTLE (*ACACIA DECURRENS*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
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SEEDLING AND — HAND PULL
SAPLINGS OR HOE

TREES — CUT STUMP — TIMBREL*
(TRICLOPYR AMINE SALT — 300ml / 10L WATER — 1.5l / ha
360g / l)

* CONSULT THE WFW TECHNICAL ADVISOR

GUAVA (*PSIDIUM GUAJAVA.*)

TARGET TREE	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ALL TREES	CUT STUMP	CHOPPER (IMAZAPYR 100g/l)	1250ml / 10l WATER	TREAT CUT SURFACE	6l / ha

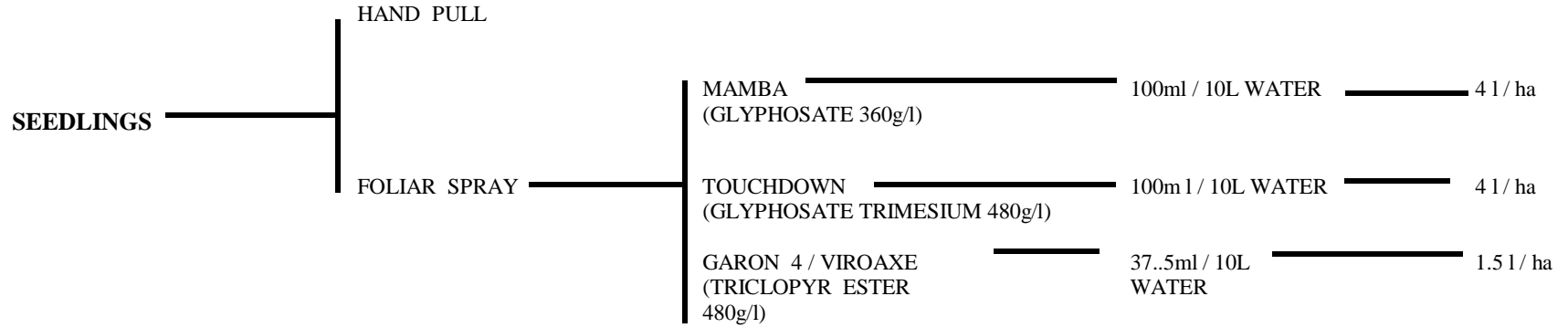
HONEY MESQUITE (*PROSOPIS SPP.*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ALL TREES	CUT STUMP	GARLON 4 VIROAXE (TRICLOPYR ESTER 480g/l)	400ml / 10L DIESEL		31/ha
	SOIL APPLICATION	MOLOPO S.C. * (TEBUTHIURON 500 g / l)	1.5L / 8.5 L WATER	LIGHT SOILS ONLY IN RESTRICTED AREAS	21/ha

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TRIFFID WEED (CROMOLAENIA ODORATA.)

TARGET PLANTS	METHOD	PRODUCT	RATE	ESTIMATED PRODUCT / HECTARE
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TRIFFID WEED (*CROMOLAENIA ODORATA.*)

TARGET PLANTS	METHOD	PRODUCT	RATE	ESTIMATED PRODUCT/ HECTARE.
ESTABLISHED PLALNTS	SLASH AND SPRAY REGROWTH WHEN 500 mm TALL	MAMBA (GLYPHOSATE 360g/l)	100ml / 10L WATER	4 l / ha
		TOUCHDOWN (GLYPHOSATE TRIMESIUM 480g/l)	100ml / 10L WATER	4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480 g/l)	37.5ml / 10L WATER	1.5 l / ha
	CUT STUMP	CHOPPER (IMAZAPYR 100 g/l)	200 ml / 10 l WATER	1.5 l / ha

KUDZU (*PUERARIA LOBATA.*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ACTIVELY GROWING PLANTS	SPRAY	GARLON 4 VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	WET THOROUGHLY	3 l / ha

LONG - LEAVED WATTLE (ACACIA LONGIFOLIA)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS AND SAPLINGS UP TO 2m TALL	HAND PULL OR HOE			OPEN STANDS	
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	60ml/10L WATER		2 l / ha
TREES	CUT DOWN AND TREAT COPPICE	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	60ml/10L WATER	CUT LOW DOWN TO REDUCE COPPICE	2 l / ha
	CUT STUMP	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml / 10L WATER	SEE NOTE BELOW	1.5 l / ha
	FRILL	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml / 10L WATER		1.5 l / ha

NOTE: TREES CUT CLEANLY LOW DOWN, DO NOT NORMALLY COPICE

* CONSULT THE WFW TECHNICAL ADVISOR.

PORT JACKSON WILLOW (*ACACIA SALIGNA.*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
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SEEDLINGS	HAND PULL OR HOE			OPEN STANDS	
	FOLIAR SPRAY	MAMBA (GLYPHOSATE 360g/l)	2 – 4l / ha	SPOT SPRAY 1.5% SOLUTION	2-4 l / ha
		TOUCHDOWN (GLYPHOSATE TRI- MESIUM 480g/l)	2 – 4 l / ha		2-4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	SEE NOTE BELOW	1.5 l / ha

NOTE: USE GARLON 4 or VIROAXE,
IF OTHER PIONEER GRASS
SEEDLINGS PRESENT.

PORT JACKSON WILLOW (*ACACIA SALIGNA*).

TARGET TREES	METHOD	PRODUCT	RATE	COMMENT	ESTIMATED PRODUCT/ HECTARE
SAPLINGS AND YOUNG TREES	HAND PULL OR HOE				
		TOUCH DOWN (GLYPHOSATE)	4 l/ha	PLANTS UP TO 600mm HIGH	4 l/ ha
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	PLANTS UP TO 2m HIGH	3 l/ ha
BIG TREES	CUT STUMP	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha
	FRILL	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l/ ha

MAURITIOUS THORN (CAESALPINIA DECAPETALIA.)

TARGET PLANTS	METHOD	PRODUCT	RATE	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS	FOLIAR SPRAY	TOUCH DOWN (GLYPHOSATE TRI- MESIUM 480g/l)	3 l / ha	3 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g / l)	50ml / 10l WATER	1.5 l / ha
		MAMBA (GLYPHOSATE 360g/l)	150ml/10L WATER	3 l / ha
PLANTS UP TO 1m TALL	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	1.5 l / ha
		MAMBA (GLYPHOSATE 360g/l)	3l / Ha	3 l / ha
YOUNG PLANTS AND REGROWTH UP TO 500mm AFTER SLASHING	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	2 l / ha
TREES	CUT STUMP	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml / 10L WATER	1.5 l / ha

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QUEEN OF THE NIGHT (*CEREUS JAMACARU.*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
LARGE PLANTS	STEM INJECTION	MSMA (MSMA 720g/l)	1l / 2l WATER 2ml / INJECTION	OCTOBER TREATMENT. 1 INJECTION PER 2.5m STEM LENGTH	
SMALL PLANTS	SPRAY APPLICATION	MSMA (MSMA 720g /l)	1l / 20l WATER	OCTOBER TREATMENT	10 l / ha

RED EYE (*ACACIA CYCLOPS*)

TARGET TREE	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS & SAPLINGS	HAND PULL OR HOE			OPEN STAND	
	SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	DENSE STAND	2l / ha
TREES UP TO 2m TALL	CUT LOW DOWN				
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER		4l / ha
LARGE TREES	CUT LOW DOWN			DO NOT APPLY HERBICIDE	
	FRILL	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml /10L WATER		1.5 l / ha

NOTE: CUT DOWN LOW, TO PREVENT COPPICING.

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RED SESBANIA (SESBANIA PUNICEA.)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE.
SEEDLINGS	FOLIAR SPRAY	MAMBA (GLYPHOSATE 360g/l)	150ml / 10L WATER		4 l / ha
		TOUCH DOWN (GLYPHOSATE TRIMESIUM 480g/l)	4 l / ha		4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER		2 l / ha
TREES	SLASH AND SPRAY COPPICE	MAMBA (GLYPHOSATE 360g/l)	150ml / 10L WATER	SPRAY WHEN 1m TALL	4 l / ha
		TOUCH DOWN (GLYPHOSATE TRIMESIUM 480g/l)	4 l / ha		4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	SPRAY UP TO 2m TALL	2 l / ha

NOTE: DO NOT SPRAY TREES UNDER BIO – CONTROL.

RED SESBANIA

TARGET	METHOD	PRODUCT	RATE	COMMENT	ESTIMATED	PRODUCT/ HECTARE
		CHOPPER (IMAZAPYR 100g/l)	200ml / 10 l WATER	<i>DO NOT APPLY IN RIPERIAN SITUATIONS WHERE WATER CONTAMINATION CAN TAKE PLACE.</i>		1.5 l / ha
TREES	CUT STUMP	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	WHOLE STUMP		1.5 l / ha
			100ml / 10L WATER	CUT SURFACE ONLY <i>DO NOT APPLY IN RIPERIAN SITUATIONS WHERE WATER CONTAMINATION CAN TAKE PLACE.</i>		1.5 l / ha
		TIMBREL 3A * (TRICLOPYR AMINE SALT 360g/l)	300ml / 10L WATER	CUT SURFACE ONLY <i>DO NOT APPLY IN RIPERIAN SITUATIONS WHERE WATER CONTAMINATION CAN TAKE PLACE.</i>		2 l / ha

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ROCK HACKEA (*HACKEA GIBBOSA.*) & SILKY HACKEA (*HACKEA SERICIA.*)

TARGET TREES

METHOD

ALL PLANTS ————— SLASH AND BURN, THEN
HAND PULL SEEDLINGS.

SILVER WATTLE (*ACACIA DEALBATA*)

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE.
SEEDLINGS AND YOUNG SAPLINGS	HAND PULL OR HOE			OPEN STANDS	
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	25 – 50 ml/ 10L WATER	LOW RATE ON SEEDLINGS	0.5 – 2l / ha
TREES UP TO 1.5M TALL AND COPPICE	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480c/l)	75ml/10L WATER		3l / ha
LARGE TREES	CUT STUMP	MAMBA (GLYPHOSATE 360g/l)	200ml/10L WATER	TREAT CUT SURFACE	6l / ha
		TIMBREL 3 A (TRICLOPYR AMINE SALT 360g/l)	300ml/10L WATER	TREAT CUT SURFACE	1.5l / ha
	FRILL	MAMBA (GLYPHOSATE 360g/l)	2L/10L WATER	APPLY WITHIN 30 MINUTES	6l / ha

SISAL (*AGAVE SISALANA*)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENT	ESTIMATED PRODUCT/ REQUIRED
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ALL SISAL	INJECTION	MSMA (MSMA 720 g/l)	2ml PER PLANT	INTO BOLE	2 l / 1000 PLANTS
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SYRINGA (MELIA AZEDRACH.)

TARGET PLANTS	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
ALL TREES	CUT STUMP FRILL	CHOPPER (IMAZAPYR 100g/l)	300ml/10l WATER	TREAT CUT SURFACE	2 l / ha
		TIMBREL 3A * (TRICLOPYR AMINE SALT 360 g / l)	300ml / 10L WATER		2 l / ha
SEEDLINGS	REMOVE BY HAND				

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LANTANA (*LANTANA CAMARA*)

TARGET PLANTS	METHOD	PRODUCT	RATE	ESTIMATED PRODUCT / HECTARE.
SEEDLINGS	HAND PULL OR HOE			
	FOLIAR SPRAY	MAMBA (GLYPHOSATE 360g/l)	300ml / 10L WATER	6 l / ha
		TOUCH DOWN (GLYPHOSATE TRIMESIUM 480g/l)	6l / ha	6 l / ha
		ACCESS * (PICLORAM K - SALT 240g / l)	100ml / 10L WATER	2l / ha

SELECTED AREAS ONLY

LANTANA (*LANTANA CAMARA*)
Cont.

LARGE PLANTS	FOLIAR SPRAY	TOUCHDOWN (GLYPHOSATE TRIMESIUM 480g/l)	6l / ha	6 l / ha
		ACCESS * (PICLORAM K – SALT 240g / l)	100ml / 10L WATER	2 l / ha
	CUT STUMP	CHOPPER (IMAZAPYR 100g/l)	200 ml / 10 l WATER	1.5 l / ha
		ACCESS * (PICLORAM K – SALT 240g / l)	100ml / 10L WATER	2 l / ha

SELECTED AREAS ONLY

SELECTED AREAS ONLY

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GREY POPLAR (*POPULUS SPP.*)

<i>TARGET TREES PRODUCT /</i>	<i>METHOD</i>	<i>PRODUCT</i>	<i>RATE</i>	<i>COMMENTS</i>	ESTIMATED HECTARE
<u>SEEDLINGS</u>	FOLIAR SPRAY	GARLON* VIROAXE (TRICLOPYR ESTER 480g/l)	150ml/10L WATER		2l / ha
	CUT STUMP	CHOPPER (IMAZAPYR 100g / l)	500ml / 10L WATER		1.5 l / ha
LARGE TREES — ALL	CUT STUMP FRILL	CHOPPER (IMAZAPYR 100g / l)	500ml / 10 L WATER		1.5 l / ha

* CONSULT THE WFW TECHNICAL ADVISOR.

BLACKWOOD (*ACACIA MELANOXYLON.*)

<i>TARGET TREES PRODUCT /</i>	<i>METHOD</i>	<i>PRODUCT</i>	<i>RATE</i>	<i>COMMENTS</i>	ESTIMATED HECTARE
SEEDLINGS	FOLIAR SPRAY	STARANE*	12.5ml/10L WATER		0.5L/Ha
	FRILL/STEM APPLICATION	GARLON VIROAXE (TRICLOPYR ESTER 480g/l)	200ml / 10 L DIESEL		1.5 l / ha
LARGE TREES — ALL	FRILL/STEM APPLICATION	GARLON VIROAXE (TRICLOPYR ESTER 480g/l)	200ml / 10 L DIESEL		1.5 l / ha

* CONSULT THE WFW TECHNICAL ADVISOR.

JACARANDA (JACARANDA MIMOSIFOLIA.)

<i>TARGET TREES PRODUCT /</i>	<i>METHOD</i>	<i>PRODUCT</i>	<i>RATE</i>	<i>COMMENTS</i>	ESTIMATED HECTARE
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ALL TREES AND SEEDLINGS	FRILL/CUT STUMP	CHOPPER (IMAZAPYR 100g / l)	1000ml / 10 L WATER		5L/Ha
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PEANUT BUTTER TREE (*SENNA SPP.*)

TARGET TREES PRODUCT /	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED HECTARE
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ALL TREES AND SEEDLINGS	CUT STUMP	CHOPPER (IMAZAPYR 100g / l)	500ml / 10 L WATER		3L/Ha
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