

## Queensland



### Regulatory Impact Statement for SL 2000 No. 283

#### *Agricultural Chemicals Distribution Control Act 1966*

# AGRICULTURAL CHEMICALS DISTRIBUTION CONTROL AMENDMENT REGULATION (No. 1) 2000

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## PART A—SUMMARY

### Objectives of the proposed legislation

1. A number of incidents of alleged 2,4-D herbicide damage to grapes, horticultural tree crops and cotton have occurred in the Emerald district over the past 2 years. A number of these incidents may have been caused by the volatility of the chemical formulations used.

In addition, there has been an expansion in the production of susceptible crops such as grapes, horticultural tree crops and cotton in recent years into the western areas of the Balonne and Warroo Shires as well as new plantings of these susceptible crops in Dalrymple and Richmond Shires. These areas are not presently covered under the *Agricultural Chemicals Distribution Control Act 1966* and, as a result, uncontrolled herbicide use in these areas is likely to continue to cause crop damage.

The objectives of the proposed amendment are to help prevent damage to susceptible crops caused by off-target drift of volatile ester formulations of 2,4-D near Emerald and in surrounding areas of the State where high risk crops such as grapes, horticultural tree crops and cotton are now cultivated.

This will be achieved by amending the *Agricultural Chemicals Distribution Control Regulation 1998* to—

- (a) declare a Hazardous Area No. 3 in the Emerald district, prohibiting the aerial and ground distribution of ester formulations of 2,4-D within Hazardous Area No. 3 except under the conditions of a distribution permit, or by authorised ground technique<sup>1</sup>; and
- (b) amending Schedule 1, Areas exempted from the Act, to extend the general operation of the *Agricultural Chemicals Distribution Control Act 1966* to the Balonne, Bauhinia, Belyando, Broadsound, Duaringa, Richmond and Warroo Shires, and to the southern part of the Dalrymple Shire, where susceptible crops are now grown.

### **Major alternatives to the proposed legislation**

2. The following alternatives were assessed—

- (a) Do nothing (status quo);
- (b) Increased enforcement;
- (c) Co-regulation; and
- (d) Proposed regulation amendment.

The preferred option, is a combination of **increased enforcement**, (option b) to declare a new Hazardous Area No. 3 in the Emerald district, and to restrict the aerial and ground distribution of 2,4-D ester formulations in the proposed hazardous area, and **co-regulation** (option c), where the legislation is developed, implemented and enforced in close consultation with stakeholders.

### **Assessment of the impact of the proposed legislation**

3. The proposed regulation prohibits the aerial and ground distribution of volatile ester formulations of 2,4-D except under strict conditions of a distribution permit or when applied by authorised ground technique.

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<sup>1</sup> Authorised ground technique means stem injection, cut stump, frill ringing or basal bark treatment, carried out more than 100 metres of a crop that is not on a property owned by the person for whom the treatment is carried out, and is susceptible to damage from the treatment.

Distribution permits will only be issued subject to posing no risk of damage to susceptible crops and authorised ground technique is unlikely to cause a risk of off-target drift of the herbicide likely to cause damage to susceptible crops such as horticultural crops, principally grapes and citrus, and cotton. The extension of the Act to areas of the State where these susceptible crops are now cultivated will further assist in the reduction of crop damage and will also provide a right of notification in instances where alleged damage or injury to crops or stock occurs.

The major beneficiaries will be the horticultural and cotton industries, although there will also be benefits to other stakeholders including cattle producers, grain growers and other broad acre producers and community members.

The benefits to horticultural producers are expected to be \$330,000 per year in maintaining productivity, \$149,000 in short-term profitability and \$664,000 in maintaining investment income. In addition, grape growers are likely to achieve an annual benefit in long-term profitability of \$75,000. The net benefit to horticultural producers is estimated at \$15.9M over 20 years, discounted at 6%. The benefits to cotton growers are expected to be \$160,000 in productivity and \$184,000 in short term profitability annually. There is no likely appreciable impact on long term profitability or on investment income for cotton growers. The net benefit to cotton growers is estimated at \$7.8M over 20 years, discounted at 6%.

There is likely to be very little impact on other stakeholders such as other government departments, agri-businesses and local government authorities. This is because most chemical contractors are currently licensed and the availability of distribution permits and authorised techniques within the proposed hazardous area will meet the need for limited use of 2,4-D ester formulations in the control of certain woody weeds. The only costs are to government in development and enactment. Compliance will be achieved at a net cost of \$58,000 to DPI, from the current budget through a re-allocation of staff resources.

## **4. ASSESSMENT OF THE ALTERNATIVES**

### **Do nothing (status quo) option**

**4.1** The Department of Primary Industries needs to meet its obligations and promote responsible chemical use, and can not ignore the incidence of recent crop damage that has occurred. Education and self-enforcement is not working as evidenced by the recent increase in the number of alleged cases of damage from 2,4-D. While an extension of the general provisions of the Act will be made into areas where susceptible crops are cultivated, this is unlikely to control damage to grapes, citrus and cotton in the Emerald district which results from the volatile nature of the 2,4-D ester formulation.

### **Increased enforcement option**

**4.2** There is a continuing need for government to regulate agricultural chemical use and anticipate or pre-empt potential problems in the Emerald District and in those areas where susceptible crops are now grown.

Extension of the general provisions of the Act will oblige persons carrying out distribution activities to be licensed, to maintain spray records, and to only use approved distribution equipment. It will also provide notification rights to persons who allege chemical damage or injury to crops or stock, which will facilitate investigation of such claims. This will be achieved by extending the general coverage of the Act to the western areas of Balonne and Warroo shires, and inclusion of the entire shire of Richmond and the southern part of Dalrymple Shire.

A consequential amendment to the declaration of Hazardous Area No. 3 at Emerald is to extend the general provisions of the Act to all of Bauhinia, Broadsound, Duinga, and Belyando shires. It will also provide notification rights to persons who allege chemical damage or injury to crops or stock, which will facilitate investigation of such claims.

This will remove current discrimination issues due to limited coverage of the Act in the area covered by Hazardous Area No. 3.

There is also a risk of continued damage from 2,4-D ester formulations due to the volatility of the formulation, even when these formulations are applied using best practice, in compliance with the regulations and without

negligence. As a consequence, it is proposed to declare a Hazardous Area No. 3 consisting of the local government areas of Emerald, Peak Downs, Bauhinia, Duaringa and Belyando and the Broadsound shire west of the tops of the Connors and Broadsound Ranges. The risk of off-target drift of volatile 2,4-D ester formulations in Hazardous Area No. 3 would then be minimised by prohibiting aerial and ground distribution of these formulations except under the conditions of a distribution permit or by authorised ground technique.

### **Co-regulation option**

**4.3** The proposed option is in fact founded on a co-regulatory approach. Stakeholders near Emerald have requested the regulatory action and are committed to enforcement by DPI as appropriate. The regulatory policy for this aspect of the proposal has been developed in conjunction with the stakeholders.

### **Proposed legislation option**

**4.4** The preferred option consists of a combined increased enforcement resulting from extension of the coverage of the Act and declaration of Hazardous Area No. 3 at Emerald and a co-regulatory approach involving stakeholders in the development of the regulation.

The proposed regulation will address the volatility problems in using 2,4-D ester formulations. The extension of the Act will also assist in reducing agricultural chemical misuse. The regulation will not totally prevent damage or irresponsible agricultural chemical use, but will strongly encourage compliance through penalty provisions. Enhanced compliance can be expected from the co-regulatory approach.

### **Justification for choice of proposed legislation**

**5.** The proposed amendment is the only alternative likely to achieve the objective of reducing damage to crops caused by off-target drift of volatile 2,4-D ester formulations. It is widely supported by the majority of stakeholders, and imposes a minimum cost on stakeholders while protecting (to the extent possible) the productivity and short and long term

profitability of horticultural growers and cotton producers.

The proposed regulation also meets community demands for stronger controls in agricultural chemical use and meets government service obligations to control the use of chemicals in agriculture.

## **PART B—REGULATORY IMPACT STATEMENT**

### **Title**

**1.** *Agricultural Chemicals Distribution Control Amendment Regulation (No. 1) 2000.*

### **Background**

**2.** This legislation is an amendment of the *Agricultural Chemicals Distribution Control Regulation 1998* to declare Hazardous Area No. 3 near Emerald and extension of the general operation of the *Agricultural Chemicals Distribution Control Act 1966* into areas where susceptible high risk crops, principally cotton, grapes and horticultural tree crops, are now grown.

### **Declaration of Hazardous Area No. 3**

**2.1** There have been a number of recent incidents in the Emerald district where spray drift of herbicides has resulted in damage to neighbouring horticultural crops. To address this issue, the Emerald Shire Council requested the Department of Primary Industries (DPI) to consider proposals to regulate the use of 2,4-D and similar herbicides in the Emerald district.

Controls over the use of agricultural and veterinary chemicals have always been a State Government responsibility, harmonised wherever possible across State and Territory borders. In Queensland, the *Agricultural Chemicals Distribution Control Act 1966* and the *Agricultural Chemicals Distribution Control Regulation 1998* are the primary legislative instruments for this purpose.

The Emerald Chemical Liaison Group met in Emerald on 2 November 1998 to consider restrictions on the use of 2,4-D (amine and ester formulations). The meeting reached consensus that the declaration of Emerald Shire as a hazardous area<sup>2</sup> under the *Agricultural Chemicals Distribution Control Act 1966* was the preferred option.

Following this meeting, the Emerald Shire Council arranged a larger meeting in Emerald on 6 November 1998 of all interested parties, including local government authorities, industry groups and government departments to consider the level of restrictions which can and should be introduced. DPI officers also attended this meeting including officers of the Animal and Plant Health Service with expertise in the application and enforcement of the *Agricultural Chemicals Distribution Control Act and Regulation*.

The meeting resolved to request the DPI to consider declaration of a hazardous area in the Emerald district, broadly consisting of a 100 km radius from the centre of Emerald. A local committee was formed to develop a submission detailing the desired scope of the proposed regulation including geographic coverage, extent of chemical restrictions and any exemptions considered necessary. The development of the regulation amendment will be supported by a detailed regulatory impact statement (RIS) and extensive consultation with affected stakeholders.

## **Extension of general operation of the Act**

**2.2** The *Agricultural Chemicals Distribution Control Act 1966* provides legislative powers over the distribution of agricultural and veterinary chemicals in Queensland. In particular, the Act contains provisions to investigate off-target chemical drift resulting in alleged damage or injury to crops or stock. The coverage of the Act is limited to major cropping districts, while the remainder of the State, where traditionally there has been a very low incidence of chemical misuse, is exempted under the provisions

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<sup>2</sup> "Hazardous Area" means an area declared under the *Agricultural Chemicals Distribution Control Regulation 1998* to be a hazardous area. Currently two hazardous areas are declared. Hazardous Area No. 1 consists of the Cities of Caloundra and Redcliffe and the Shires of Caboolture, Maroochy, Noosa, and Pine Rivers. Hazardous Area No. 2 consists of the City of Toowoomba, and the town of Dalby, and the Shires of Cambooya, Clifton, Jondaryan, Millmerran, Pittsworth, Rosalie, Wambo and Warwick.

of the *Agricultural Chemicals Distribution Control Regulation 1998*.

In light of recent spray drift incidents involving 2,4-D and endosulfan, it is seen to be in the interests of all stakeholders and the community to extend the general operation of the Act, particularly in the Central Highlands district of Queensland, and to other shires such as Dalrymple, Richmond and Balonne shire west of the Narran, Balone Minor and Balonne Rivers and Warroo Shire west of the Maranoa River where substantial production of susceptible crops now occurs. When the Act was promulgated, these areas were not considered to be 'high risk'.

This proposed amendment regulation will address the concerns expressed by sectors of industry and the community for a more uniform coverage of the newer cropping districts and will remove anomalies in border zones where some properties are covered by the Act and others are not.

Consideration of further extension of the coverage of the Act to include all of Queensland will take place during the current review of the Act. The impact of such a change is significant and will require extensive consultation. The immediate impact of extending the coverage of the Act would be to oblige all persons who are aerial contractors, pilots in command of aircraft and commercial operators engaged in the distribution of agricultural chemicals in the areas of the State to which the Act applies, to comply with the provisions of the Act, particularly to be licensed, to use only approved distribution equipment and to maintain records of spraying activities.

This obligation will apply to any person contracted by a local government authority, government department, business or any other individual, other than a person distributing agricultural chemicals on their own property or when using non-powered ground distribution equipment.

The Agricultural Chemicals Distribution Control (ACDC) Board, at the board meeting on 22 March 1999, endorsed in principle the extension of the general operation of the Act to all of Queensland, with the proviso that the power to exempt any part of the State from all or part of the Act be retained.



### **Authorising Law**

3. The legislation is authorised under the *Agricultural Chemicals Distribution Control Act 1966*.

## **4. POLICY OBJECTIVES**

### **Overall policy objectives of the proposed legislation**

4.1 The primary aim of the proposed amendment is to prevent damage to crops and injury to stock resulting from off-target drift of aerially distributed agricultural chemicals and ground distributed herbicides, principally 2,4-D ester formulations in a declared hazardous area.

A secondary aim is to extend the general operation of the Act to a number of shires and parts of shires in which susceptible crops are grown and to which the coverage of the Act is currently exempted. This will oblige any person who applies agricultural and veterinary chemicals under commercial conditions to comply with the provisions of the Act, particularly the need to be licensed, to use only approved distribution equipment and to maintain records of spraying activities. In addition, extension of the general provisions of the Act will provide a means for notification and investigation of alleged damage due to off-target chemical drift.

The means of achieving the policy objectives are—

The declaration of a Hazardous Area in the Emerald district, consisting of all of the Bauhinia, Belyando, Duaringa, Emerald and Peak Downs Shires and Broudsound shire west of the tops of the Connors and Broudsound Ranges, a prohibition on the aerial and ground distribution of 2,4-D ester formulations within the Hazardous Area except under the conditions of a distribution permit or by authorised ground technique, and extending the general provisions of the Act to all of the Balonne, Bauhinia, Belyando, Broudsound, Duaringa, Richmond and Warroo Shires and to the southern part of Dalrymple Shire.

### **Specific policy objectives of the proposed declaration of Hazardous Area No. 3**

**4.2** The declaration of a hazardous area near Emerald will provide the legal basis for restrictions on the distribution of 2,4-D ester herbicides within the declared hazardous area.

The regulation will ensure that only qualified and licensed persons (either aerial contractors, pilots in command or commercial operators) are authorised to apply the herbicide subject to a distribution permit setting out the conditions for its distribution. Provision would be retained for authorised ground techniques that pose no risk of off-target drift. Private land holders wishing to apply ester formulations on their own land using powered distribution equipment would be required to engage the services of a licensed aerial contractor or commercial operator, or be licensed themselves, as a condition of the distribution permit.

Controlling the distribution of 2,4-D ester in this manner will satisfy the need for specific formulations required for rubber vine, parthenium weed and other difficult-to-control weeds. It will also protect other crops, notably horticultural crops and cotton, from damage resulting from off-target drift of volatile 2,4-D formulations in the declared Emerald hazardous area.

### **Specific policy objectives of the proposed extension of general operation of the Act**

**4.3.** A consequential amendment will also be necessary to amend schedule 1—Areas exempted from Act, to extend the general operation of the *Agricultural Chemicals Distribution Control Act 1966* to all of the Bauhinia, Belyando, Broadsound and Duaringa shires, which are not currently covered by the Act.

It is further proposed to amend schedule 1—Areas exempted from Act, to include the western areas of the Balonne and Warroo shires which are currently exempted from the operation of the Act and to add the shire of Richmond, and the southern area of Dalrymple, south of the Scartwater and Jumba-Yarrowmere Roads, because of recent expansion in the cultivation of susceptible crops, principally grapes, citrus, other horticultural crops, and cotton, in these areas.

## **5. LEGISLATIVE INTENT**

### **Intended effect of the proposed legislation—**

**5.1** What rights, liabilities or obligations will it change or establish?

### **Declaration of Hazardous Area No. 3**

**5.1.1** The proposed amendment protects the rights of individuals by reducing the risk of damage to crops or injury to stock resulting from chemical spray drift. This will be achieved by placing obligations on persons wishing to apply volatile 2,4-D ester formulations to be licensed and to do so under the conditions of a distribution permit or using an authorised ground technique. It will also be prohibited to open containers of volatile 2,4-D ester herbicide in proximity to susceptible crops. This approach is likely to minimise the risks of damage while at the same time recognising the need to use these formulations under strict distribution permit conditions in the control of difficult-to-control weeds.

### **Extension of general operation of the Act to specified exempted areas**

**5.1.2** The extension of the general operation of the Act to additional parts of the Balonne and Warroo shires and the addition of Richmond shire, and the southern part of Dalrymple Shire will give susceptible crop and stock owners in these areas the right to have instances of alleged damage by agricultural chemicals investigated by DPI.

The impact of the extension of the operation of the Act will be to oblige aerial contractors, pilots in command and commercial operators to be qualified and licensed, to only use approved distribution equipment, and to refrain from distribution under conditions that might reasonably be expected to cause off-target drift.

Leak cut-off equipment will also be required to be fitted to aerial distribution equipment and smoke generators (in hazardous areas) will be required to be fitted and used before and during aerial distribution to reduce the risk of off-target drift caused by wind. Adequate security by way of insurance coverage for liability against damage to crops or injury to stock will also be required. In addition, owners of ground equipment and licensed

aerial distribution contractors will be required to maintain records of all of their spray operations.

Extension of the Act will allow persons who allege damage to crops or injury to stock as a consequence of the distribution of agricultural chemicals to apply to the Standards Officer seeking to have the loss or damage investigated by DPI inspectors. The report of such an investigation may assist the complainant claiming compensation through legal process.

### **Who is likely to be affected?**

**5.2** The following stakeholders will be affected by the proposed regulation—

#### **Emerald Chemical Liaison Group**

**5.2.1** The Emerald Chemical Liaison Group has been concerned with alleged damage from volatile 2,4-D over the 1997/98 and 1998/99 seasons. There have been a total of 21 incidents of alleged 2,4-D damage to cotton, table grapes, chick peas, mangoes and tomatoes over the 1997-99 period. As a consequence, the Emerald Chemical Liaison Group met at Emerald on 2 November 1998 to consider restrictions on the distribution of 2,4-D (ester and amine) formulations. This meeting was attended by DPI Animal and Plant Health Service staff. The meeting resolved to request the declaration of a hazardous area near Emerald with restrictions on the aerial and ground distribution of volatile 2,4-D ester formulations.

A larger meeting of stakeholders organised by the Emerald Chemical Liaison Group was held at Emerald on 6 November 1998. This meeting was also attended by DPI staff with expertise in the application and enforcement of the *Agricultural Chemicals Distribution Control Act 1966*. The meeting reached consensus that DPI would be formally requested to declare a hazardous area at Emerald and impose restrictions on the use of aerial and ground distribution of volatile 2,4-D ester formulations. A formal request was received by DPI for the declaration of an area consisting of 100 km radius of the centre of Emerald as a hazardous area with respect to volatile 2,4-D ester formulations.

A meeting of the Emerald Chemical Liaison Group and DPI officers was held in Emerald on 1 June 1999. The objectives of the hazardous area

declaration were clarified and the group was briefed on the proposal. The Emerald Chemical Liaison Group supports the proposal to declare a hazardous area at Emerald based on all of Emerald, Peak Downs, Bauhinia, Belyando and Duaringa Shires and Broadsound Shire west of the Broadsound and Connors Range.

### **Emerald Shire Council**

**5.2.2** The Emerald Shire Council is the local government authority with responsibility for the Emerald irrigation area in which susceptible crops such as horticultural crops (grapes and citrus) and cotton are grown. They have been active in facilitating consultation with stakeholders and in promoting the development of the hazardous area. Consultation has been undertaken with the Emerald Shire through the Mayor and through representatives of the Emerald Chemical Liaison Group. The Emerald Shire Council strongly supports the declaration of a hazardous area and restricted distribution of volatile 2,4-D ester formulations. The Emerald Shire Council was briefed on the proposal at Duaringa on 1 June 1999.

### **Peak Downs Shire Council**

**5.2.3** Peak Downs Shire has been actively involved in the consultation process. The mayor of Peak Downs Shire chairs the Central Highlands Pest Management Committee, which represents the interests of local government authorities in the control of weeds in the Emerald District. The committee favours a restriction on 2,4-D ester use rather than a total ban because of the need to control weeds such as parthenium and rubber vine. The representative at the meeting of 6 November 1998 supported the use of a permit system, education and the adoption of best practice, but would not support a total ban on ester formulations. A meeting at Duaringa on 1 June 1999 between the Mayor and Chief Executive Officer of Peak Downs Shire Council and DPI staff identified that the Peak Downs Shire Council supports the proposal to declare a hazardous area broadly based on 100 km radius of Emerald, in which it would be prohibited to carry out aerial or ground distribution of ester formulations of 2,4-D unless under the conditions of a distribution permit, or by authorised ground technique.

### **Belyando Shire Council**

**5.2.4** Belyando Shire was contacted by DPI staff on 1 June 1999, as well as by mail to identify support for the proposal and issues of concern. The Council has sought clarification on the area of Belyando shire proposed for inclusion in the hazardous area and have referred the letter to their industry representatives for comment.

### **Duaringa Shire Council**

**5.2.5** Duaringa Shire was contacted by telephone and at a separate meeting on 1 June 1999 at Duaringa. The representatives, consisting of the CEO Duaringa Shire and a councillor who is also a cattle/grain producer, strongly opposed the inclusion of any part of Duaringa Shire in a hazardous area. The major objection centred on concerns over being associated with a “**hazardous area**”. The representatives also expressed the view that other chemical formulations are also volatile. This view is not shared by Departmental weed agronomists.

Both representatives supported extension of the general operation of the Act to the area of the Shire north of the Capricorn Highway. The preferred DPI option is to include all of the Duaringa Shire in the hazardous area. An alternative consisting of the area west of the Broadsound Range and North of the Capricorn Highway and the area west of the Expedition Range as the hazardous area was considered. While this alternative meets the needs of producers at Comet and on the McKenzie River, it would not help producers in the Dawson River catchment.

### **Broadsound Shire Council**

**5.2.6** The Broadsound Shire Council was contacted by telephone through the CEO. A meeting between the CEO and DPI staff occurred on 31 May 1999 at Emerald. Broadsound Shire supports the proposal in principle, and sees no problem in extending the general operation of the Act to the whole of Broadsound Shire, subject to there being no adverse consequences for industry.

They agreed to the proposal to declare an area consisting of the area of Broadsound Shire geographically west of the tops of the Connors and Broadsound Ranges in the Emerald Hazardous Area and to extend the

general operation of the Act to the entire Broadsound Shire. Written confirmation to this effect was received by DPI on 24 June 1999.

### **Bauhinia Shire Council**

**5.2.7** Bauhinia Shire Council was contacted by telephone through the Environmental Health Officer and the CEO. A letter outlining the proposal was also sent to the CEO. A meeting on 1 June 1999 at Duaringa identified support for inclusion of the whole of Bauhinia shire in the Hazardous Area.

### **Balonne Shire Council**

**5.2.8** The Balonne Shire Council was contacted by telephone and letter concerning the proposal to extend the coverage of the Act to the western area of the Shire. A meeting was also held between the CEO and an officer of DPI, on 23 June 1999. The Balonne Shire supports the extension of the general operation of the Act to include all of the Balonne Shire.

### **Richmond Shire Council**

**5.2.9** Richmond Shire supports the extension of the Act to the entire Shire. They recognise the need to protect experimental cotton production from chemical damage, and believe that extending the general operation of the Act will accomplish this objective.

### **Dalrymple Shire Council**

**5.2.10** Dalrymple Shire is strongly opposed to extension of the general provisions of the Act to the entire Shire. This is because there is only a small area of susceptible cotton production in the southern area of the Shire, and extension across the entire Shire would severely impact on a large number of Land Care projects and would unnecessarily impose additional licensing costs. They have suggested extension of the provisions of the Act to the area of Dalrymple Shire bounded on the east by the Bowen Shire, on the north by the Scartwater and Jumba–Yarrowmere Roads, on the west by the Great Dividing Range and on the south by the Belyando Shire.

## **Warroo Shire Council**

**5.2.11** Warroo Shire was contacted by telephone and letter. A meeting was also held between the CEO and other stakeholders including DPI, DNR, Main Roads, Gasline, Energex, Telstra, Bowls Club, Golf Club, producer representatives and an officer of the DPI, on 22 June 1999. The meeting indicated broad support for the proposed extension of the operation of the Act to include all of Warroo Shire.

## **Fruit & Vegetable Growers**

**5.2.12** The Emerald Fruit and Vegetable Growers group represent the stakeholders most affected by off-target drift of herbicides. They are concerned with the potential for damage to susceptible crops by continued unrestricted use of volatile 2,4-D herbicides, particularly ester formulations. They support a permit system or regulation of chemical use and greater accountability by persons distributing agricultural chemicals. Chemical damage to grapes has the potential to affect yield and quality for a number of seasons, and grapes emerging from dormancy are particularly sensitive to damage.

The Emerald horticultural industry consists principally of 360 ha of grapes valued at \$10.8M gross and \$6.7M gross margin, and 450 ha of citrus valued at \$22.5M gross and \$8.2M gross margin. A further 690 ha of other fruit and vegetable crops are also grown in the district. The industry cultivates approximately 1,500 ha employing 100 permanent and 500 casuals and the industry estimates expansion to 3,000 ha and about \$100M annual value within 5 years.

## **Cotton Growers**

**5.2.13** The Emerald Cotton Growers and Irrigators' Association would prefer a total ban on the use of ester formulations of 2,4-D, and are particularly concerned about the drift of volatile ester formulations.

The Emerald cotton industry consists of approximately 2,000 ha of irrigated crop valued at \$67.5M gross and \$36.5M gross margin. Irrigated cotton is grown at Clermont, Rolleston and Moura as well as along the Comet and McKenzie Rivers. Cotton cultivation is also occurring along the Dawson River and considerable dryland cotton is also being cultivated in the



Arcadia valley of Bauhinia Shire and in Belyando Shire. In excess of 2,700 ha of dryland cotton was in production in 1997.

### **Cattle Producers**

**5.2.14** At the Emerald meeting of 6 November 1998, representatives of the Cattlemens' Union agreed that there is a need to assess the continued use of ester formulations of 2,4-D. They were also consulted in a meeting of Agforce delegates at Emerald on 31 May 1999. They generally support control over ester formulations provided amine formulations are available, particularly for parthenium weed and rubber vine control. The value of cattle sales (1997) in the Emerald District was \$152M. A further \$64M in cattle sales was made in 1997 from Dalrymple, Richmond, Balonne and Warroo Shire. (Source DPI Library search data 1997).

### **Grain Growers**

**5.2.15** Representatives of the Gindie/Fernless Branch of Queensland Grain Growers were involved in the consultations of 6 November 1999 at Emerald. Grain growers were also consulted in a meeting convened at Emerald on 31 May 1999.

They are concerned that the controls over 2,4-D ester formulations may lead to further restrictions on other formulations. Agforce grain growers consulted on 31 May 1999 have concerns about being associated with a hazardous area. They are committed to using 2,4-D for weed control, and a number of delegates thought that the ester formulation was more effective for woody weed control. They suggested deregistration of ester formulations for aerial application, however this course of action was not supported because there are a number of legitimate uses for ester formulations of 2,4-D, particularly for hard to control weeds such as rubber vine. They acknowledged that there is considerable mixed cropping and widespread use of 2,4-D ester formulations in the Belyando Shire.

**Other Government Agencies (Department of Natural Resources, Environmental Protection Agency, Queensland Parks and Wildlife Service, Main Roads etc)**

**5.2.16** At a meeting at Emerald on 3 June 1999, both DNR and Queensland Parks & Wildlife Service were consulted on the impact of restricting the distribution of 2,4-D ester formulations in the hazardous area to authorised ground technique or under the provisions of a distribution permit. They support the declaration of the hazardous area and the proposed restrictions. They currently employ licensed contractors. They have a need to control rubber vine, and accept that authorised ground techniques will meet this need.

Similarly a representative of Main Roads was consulted, and has advised that the proposal will not have any adverse impacts on the activities of this Department.

**DPI**

**5.2.17** DPI is the agency responsible for policing the proposed regulation. It is likely that there will not be a dramatic increase in the demand for licensing, because the majority of aerial and ground operators are currently licensed. A number of individuals who currently undertake spraying operations for their neighbours will, however, need to be licensed. The major impact on DPI will be in the provision of distribution permits and in the investigation of alleged chemical spray drift damage. It is anticipated that the restrictions applied to the use of volatile ester formulations of 2,4-D should reduce this demand, as this has been the experience within hazardous areas No's 1 and 2.

It is proposed that the compliance activities will be serviced from within current APHS staffing levels using existing staff at Biloela and Rockhampton.

This amendment will also address community demands for tighter controls over agricultural chemical usage by government agencies.

**Businesses necessarily engaged in weed control (Telephone, Electricity & Gas)**

**5.2.18** The majority of businesses such as Telephone, Electricity and Gas utilities currently employ licensed operators to undertake weed control activities around their facilities.

The availability of authorised ground techniques will meet their needs for ester use in difficult to control weeds such as parthenium weed and rubber vine. It is anticipated that there will be little impact on these businesses as a consequence of the proposed amendment. While they have not been consulted they were invited to attend meetings at Emerald and St George, but did not send any representatives. Consultation will be facilitated through the regulatory impact statement notification process.

**Chemical resellers**

**5.2.19** A number of chemical resellers were contacted in the Emerald district during the visit in late May 1999. They advised that they have voluntarily withdrawn the availability of 2,4-D ester formulations within the Emerald Irrigation Area because of perceived risk of crop damage. Other resellers contacted advised that they do have a market for ester formulations of 2,4-D in areas outside the Emerald Irrigation Area. The reality, however, is that the price advantage which previously applied to ester formulations over amine formulations no longer exists.

The fact that ester formulations may be applied by authorised ground techniques means that such formulations can still be used. Advice from DPI weed specialists at Emerald indicates that the amine formulation may be equally effective despite a slower, less obvious, response. It is concluded that there will be little impact on chemical resellers as a consequence of the proposed amendment.

**Aerial & ground distributors**

**5.2.20** Aerial and ground operators were consulted at Emerald on 3 June 1999. Those present, representing approximately 80% of the licensed contractors, supported the proposal and advised that the majority of operators engaged in aerial and ground distribution of agricultural chemicals in the Emerald and surrounding district are currently qualified and licensed

under the Act. None of those present use 2,4-D ester formulations.

It is concluded that the proposed amendment will have little impact on aerial and ground contractors or pilots engaged in agricultural chemical distribution. It was conceded that a number of farmers who currently carry out spraying operations for neighbours may need to be licensed as a consequence of the proposed regulation amendment. The regulatory impact statement notification process will be used to facilitate consultation with these other spraying operators.

### **The community**

**5.2.21** The concerns of the community have been addressed through consultation with the Emerald Chemical Liaison Group and the various local government authorities.

Golf clubs and bowls clubs who are likely to be affected by licensing requirements were included in the consultation at St George on 22 June 1999 concerning extension of the general provisions of the Act.

The proposed amendment will make contractors responsible through licensing and will reduce conflict in the community.

It will also meet the perceived responsibilities for tighter government controls on chemical use. The community will also be encouraged to contribute through the regulatory impact statement notification process.

### **Reasons for a regulatory approach**

**5.3** The proposed regulatory approach is fully supported by the majority of stakeholders. There is no alternative approach likely to achieve the objective of reducing crop damage caused by off-target drift of volatile 2,4-D ester formulations.

### **Consistency with the Authorising Law**

**6.** The *Agricultural Chemicals Distribution Control Act 1966* is an Act to control the distribution of agricultural chemicals from aircraft and from ground equipment, and for other purposes. The objectives of the Act are achieved by licensing pilots for pilot chemical rating licenses and aerial

contractors to carry out aerial distribution of agricultural chemicals and commercial operators to carry out ground distribution of herbicides.

The Act also provides a regulation over distribution of agricultural chemicals and restrictions applicable to declared hazardous areas.

The *Agricultural Chemicals Distribution Control Regulation 1998* declares Hazardous Areas No. 1 and No. 2 as well as scheduling areas of the State exempted from the general operation of the Act. It also provides details of licensing qualifications, examination provisions as well as conditions for refusal, suspension and cancellation of licenses. The regulation also details obligations and responsibilities relating to aerial and ground distribution of agricultural chemicals, including restrictions relating to declared hazardous areas and provides the authority to issue distribution permits. Authorised techniques for ground distribution are also defined.

The proposed legislation is totally consistent with the authorising law.

### **Consistency with other Legislation**

7. The proposed amendment is not inconsistent with any other legislation.

## **8. OPTIONS AND ALTERNATIVES**

### **Do nothing—no intervention option**

**8.1** The “do nothing” approach is the current situation, which consists of continued reliance on education and self regulation to encourage responsible agricultural chemical use.

The Department of Primary Industries needs to meet its obligations and promote responsible chemical use, and can not ignore the incidence of recent crop damage that has occurred. Education and self-enforcement is not working as evidenced by the recent increase in the number of alleged cases of damage from 2,4-D.

It is also necessary to adopt a consistent approach to agricultural chemical distribution within the Balonne and Warroo shires to remove anomalies between the eastern and western parts of these shires. The fact that

horticultural and cotton production has expanded into these areas and also into the Dalrymple and Richmond shires necessitates action to eliminate discrimination by extending the rights to crop and stock owners in these Shires to have alleged damage from off-target drift of agricultural chemicals investigated by the DPI.

### **Increased enforcement option**

**8.2** The increased enforcement option consists of extending the general operation of the Act to parts of a number of Shires where susceptible crops are grown. This will oblige distribution contractors to be licensed, to maintain spray records and to comply with the legislation. In addition the right to notify the DPI where alleged damage occurs will be extended into these areas.

### **Co-regulation option**

**8.3** The majority of stakeholders favour a co-regulatory approach, where industry, government and the community work together to develop and enforce the legislation.

### **Proposed legislation option**

**8.4** The proposal is a combination of the increased enforcement and co-regulatory options, and is the only means of achieving the objectives to the satisfaction of most of the stakeholders.

It consists of the declaration of a Hazardous Area No. 3 near Emerald, a prohibition on the aerial and ground distribution of 2,4-D ester formulations in the hazardous area unless under the conditions of a distribution permit or by authorised ground technique, and extension of the general provisions of the Act to all of Balonne, Bauhinia, Belyando, Broadsound, Duaringa and Richmond Shire, and the southern part of Dalrymple Shire (south of the Scartwater and Jumba-Yarrowmere Roads).

## **9. COST-BENEFIT ASSESSMENT**

### **General impacts on government, business and community**

**9.1** The proposed regulation will contribute to a cost on government in establishment and enforcement. **These costs will be met from the existing DPI budget.** It is likely that there will be a net benefit to industry, in being given the right to have alleged damage from off-target drift of agricultural chemicals investigated by the DPI. The major benefits will be to horticultural and cotton growers in reducing losses in short term productivity. There will also be benefits to growers of horticultural crops such as grapes and citrus in reducing losses in long term profitability. The proposed regulation will also meet community concerns for stricter controls over agricultural chemical use and will also reduce conflict between different farming communities.

### **Impacts on government**

**9.2** The proposed legislation is expected to improve industry/government relations while meeting the community service obligations of government in promoting the responsible use of agricultural chemicals. The costs of establishment and compliance will be met from within current DPI budgets. It is estimated that approximately one full time employee equivalent will be necessary to service the additional investigative requirements for distribution permits and investigations on notification of crop damage, and will be achieved from within current DPI resources by re-allocation of staff resources. Local government authorities not currently covered by the Act, particularly Richmond and Dalrymple will be obliged to employ licensed operators. This will impose a minor additional cost on these Shires, however it will result in protection of the Shire against litigation by ensuring that only suitably qualified and licensed contractors are employed and that distribution of agricultural chemicals is carried out in accordance with the legislation.

### **Impacts on business**

**9.3** The major benefit will be to businesses engaged in the cultivation of susceptible crops such as horticultural crops and cotton. It is expected that

the amendment will benefit productivity, and both short and long term profitability of investment in the rural sector. There will also be non-financial benefits in reducing chemical damage to crops and the encouragement of responsible agricultural chemical usage. The image of farming in the general community will also be improved by demonstrated competency and licensing, and the acceptance of controls.

The regulation is also expected to help maintain employment levels in the rural sector and maintain competitive position by reducing losses resulting from agricultural chemical damage.

There is unlikely to be any significant impact on other businesses.

The amendment will impose a requirement on some businesses to ensure that staff who apply chemicals commercially are licensed under the *Agricultural Chemicals Distribution Control Act 1966*. However this brings them into line with the standard that the community expects of users of agricultural and veterinary chemicals. This is probably a minor impact anyway, because the majority of operators are already licensed.

### **Impacts on the community**

**9.4** The proposed amendment meets community concerns for higher standards of responsible chemical use, made possible by increased controls over agricultural chemical usage.

### **Cost benefit**

**9.5** The benefits to horticultural producers consist of maintaining the estimated annual benefits of \$330,000 in productivity, \$149,000 per annum in short-term profitability and \$75,000 per annum in long term profitability. In addition, an annual benefit of \$664,000 in 5 years in maintaining investment income in horticultural production, is also likely. The additional costs to horticulture in compliance are likely to be insignificant.

The net benefit to horticultural growers is therefore approximately \$15.9 M over 20 years, discounted at 6%.

The benefits to cotton growers are estimated at an annual \$160,000 in productivity and \$184,000 per annum in short term profitability. It is unlikely that there will be any significant impact on long term profitability or



investment, because of the broad acre non-perennial nature of cotton production. There are no appreciable costs to cotton growers.

The net benefit to cotton growers is \$7.8M over 20 years discounted at 6%.

There are no significant financial costs or benefits to other stakeholders, although there will be minor additional licensing costs to individuals and compliance costs imposed on individuals and government authorities. Compliance costs in licensing and record keeping are minimal. Insurance for the minimum \$30,000 prescribed for aerial distribution is estimated at \$3,500–\$4,500 per aircraft. Although these insurance premium costs are significant, the majority of aerial distribution contractors and pilots are already licensed and insured.

The only significant costs are to government and consist of establishment costs of \$120,000 incurred by DPI, the Office of the Parliamentary Counsel and Parliament. (\$100,000 in development costs and a further \$20,000 in printing and distributing the legislation and awareness advertising costs).

DPI will incur recurring expenditure estimated at \$42,000 annually for salary, \$10,000 for travel, and \$10,000 for operating costs, based on a total of one full time employee equivalent, servicing the Central Highlands from Biloela and Rockhampton, Balonne and Warroo being serviced by DPI staff from Toowoomba and Richmond and Dalrymple being serviced by DPI staff from Townsville. **These costs will be met from the current DPI budget, through re-allocation of staff resources.** The recurring costs of enforcement will be offset by revenue derived from an estimated \$4,000 per annum increase in licensing fees. The net recurring costs to DPI are estimated at \$58,000 per annum.

### **Sources of and reliability of data used**

**9.6** The data used in this RIS were derived from a number of sources including Australian Bureau of Statics (ABS) figures, a DPI library search and industry consultation. The reliability of the data is difficult to assess. There are considerable gaps in the availability of ABS production figures, which necessitated DPI Library and industry data being used.

In addition there is no validated source of data on the actual levels of damage as a result of 2,4-D ester formulations. Many cases of 2,4-D

damage may not be caused by ester formulations, and many other cases are never identified or reported. The incidence of damage ranges from insignificant to extreme. In addition the cumulative effects of damage to grapes and tree crops is impossible to precisely quantify, because of the number of other factors such as time of year, weather, condition of plants etc prevailing at the time of the damage occurring.

The majority of impacts are also non-financial and many financial factors can not readily be quantified in dollar terms.

The financial impacts have been restricted to productivity and performance impacts on productivity, short and long term profitability and investment. These figures were estimated using assumptions of damage and resultant benefits in prevention of that damage.

The productivity benefits are based on an assumption of preventing a 1% loss in productivity and a 1% loss in short term profitability and a 0.05% loss in long term profitability in horticultural production. The benefit to investment is estimated at 1% of turnover in both horticulture and cotton crops.

The productivity benefits to cotton are based on an assumption of preventing a 1% loss in productivity and a 1% loss in short term profitability. There is no likely impact on long term profitability or investment income in cotton growing because of the non-perennial, broad acre nature of the crop.

### **Argument for proceeding with the proposed regulation**

**9.7** It is clear that the proposed amendment will deliver a total net benefit to the horticultural and cotton industries of \$23.7 M over 20 years at 6% discount. The only costs are likely to be to government and consist of a total of \$120,000 in establishment costs and a net recurring cost of \$58,000 to DPI to enforce the proposed regulation.

The regulation amendment will also result in considerable financial benefits in maintaining competitive position and economic growth particularly in regional Queensland, maintaining employment in the agricultural sector, however these benefits are difficult to quantify.

It will also encourage responsible behaviour in requiring licensing,

maintenance of spray records and compliance with the regulation. It will also avoid community conflict and maintain good industry/government relations while meeting community service obligations of government.

### **Fundamental Legislative Principles**

**10.** The proposed amendment imposes a minor infringement on rights and liberties of individuals because it restricts the distribution of agricultural chemicals in areas of the State to which the Act applies to those who are qualified and licensed. In addition distribution of 2,4-D ester formulations within the hazardous area would be restricted to licensed persons under the conditions of a distribution permit or ground distribution by authorised technique. It also obliges licensed persons to only use approved distribution equipment, to maintain that equipment and to maintain spray records. It further obliges persons to act responsibly in using agricultural chemicals.

These minor infringements are heavily outweighed by a demonstrated benefit to cotton and horticultural industries. In addition the proposed amendment protects the rights of individuals by reducing agricultural chemical misuse, while maintaining productivity, profitability and competitive position.

The proposed amendment is clearly in the public interest, and is likely to have the greatest impact on persons who fail to comply and who, as a consequence, cause damage to crops or injury to stock on neighbouring properties.

### **National Competition Policy considerations**

**11.** A National Competition Policy (NCP) review of Australian agricultural and veterinary chemical legislation has recently been completed and endorsed by the Standing Committee on Agriculture and Resource Management (SCARM). The only major recommendation relevant to the *Agricultural Chemicals Distribution Control Act 1966* was a recommendation for consideration of a revised business and occupational licensing system, and that States and Territories examine the scope for coordinating their business and occupational licensing systems. It is proposed to incorporate consideration of this factor into a review of this Act currently being coordinated by this Department.

The regulation will apply equally and without discrimination to any person engaged in aerial or ground distribution in the declared hazardous area and in those areas of the State to which the Act applies.

**What is the impact of the proposed regulation on competition—ie to what extent does it impose or encourage any restrictions?**

**11.1** The proposed amendment is likely to encourage competition within the declared hazardous area and within those areas to which the Act applies by reducing chemical damage to susceptible crops, thereby encouraging the continued cultivation of these crops.

While there are likely to be increased restrictions through minor additional costs associated with herbicide distribution within Hazardous Area No. 3 near Emerald compared to other non-declared areas, the benefit to industry and the community at large more than offsets this minor cost. There will also be a minor additional cost in licensing and meeting other obligations for distribution of agricultural chemicals as a consequence of the extension of the general operation of the Act, however the majority of aerial and ground distributors operating in the area of the proposed amendments are already currently licensed and meet these obligations.

The proposed amendment will provide a consistent approach across areas of the State to which the Act applies, where susceptible crops are grown.

**Do associated benefits outweigh the costs from an economy-wide perspective?**

**11.2** The horticultural industry, principally grapes and citrus, and the cotton industry, are significant employers in the Emerald District as well as in the Balonne, Warroo, Dalrymple and Richmond Shires. These industries contribute significantly to the economy of rural Queensland as well as to the State economy.

The extent of susceptible horticultural crops grown in the Emerald district alone accounts for 360 ha of grapes valued at \$10.7M gross with a gross margin of \$6.7M per annum, 450 ha of citrus valued at \$22.5M gross with a gross margin of \$8.2M. (source—industry figures 1999). Total horticultural production in Emerald approximates 1,500ha valued at approximately \$32M annually with a likely expansion to 3,000 ha valued at

about \$100M within 5 years. The industry currently employs approximately 100 permanent and 500 casual staff, with likely expansion in the next 5 years.(source: Emerald Fruit & Vegetable growers, 2 June 1999). Small areas of grapes are also being grown around Clermont and Charters Towers.

The Emerald District accounts for 2,000 ha of irrigated cotton valued at \$67.5M gross and \$36.8M gross margin annually. Expansion of dryland cotton is also occurring in Belyando, Bauhinia and Broadsound shires. (source—Industry figures 1999).

In addition a further 22,605 ha of cotton valued at \$93M are currently produced in Balonne and 210 ha valued at \$470,000 are grown in Waroo Shire (source DPI Library search 1997 data). Recent experimental cotton plantings have also been made in the Richmond Shire.

Sunflowers grown in the Emerald district consist of 77,574 ha valued at \$23.1M annually, while a further 478 ha valued at \$107,000 are grown in the Dalrymple and Balonne Shires.

The Emerald District produces a total of 1986 ha of soybeans valued at \$1.7M annually while a further 70 ha valued at \$74,000 annually are produced in the Balonne and Warroo Shires. (Source DPI Library search 1997 data)

5,720 ha of chick peas valued at \$1.1M per annum are produced in the Emerald district with a further 400Ha valued at \$132,000 per annum are produced in Ballonne and Warroo Shires.

A total of 5,818 ha of mung beans valued at 1.9M per annum are grown in Emerald District with a further 2,420 ha valued at \$569,000 per annum are produced in Balonne and Warroo Shires. (Source DPI library search 1997 data)

Seven complaints associated with 2,4-D were made in the Emerald District in 1997, a further twelve during 1998 and two up to 30 June 1999. These complaints result from damage to cotton in 1997, 1998 and 1999, table grape, chickpea, mango and tomato during 1998, and pumpkins during 1999. (Source—APHS, 1999)

It is clear that the associated benefits of the amendment outweigh the costs from an economy based perspective, considering the value of

production of susceptible crops and the likely benefits in avoiding or reducing the incidence of damage to these crops.

**If there are restrictions, how and why are they in the public interest?**

**11.3** There is a clear benefit in the public interest in proceeding with the regulation in reducing the incidence of damage to susceptible crops.

The restrictions applicable to Hazardous Area No. 3 are not prohibitive, because ester formulations may be applied under the conditions of a distribution permit or by authorised ground technique.<sup>3</sup>

**How do competitive impacts of the proposed amendment regulation compare with any reasonable alternative?**

**11.4** There is no viable alternative that is likely to achieve the policy objectives.

## **12. RISK ASSESSMENT**

**Have the risk levels inherent in the situation being regulated been formally assessed?**

**12.1** A risk assessment using Australian/NZ Standard for Risk Management AS/NZS 4360:1995 was conducted to identify and assess the risks inherent in distribution of agricultural and veterinary chemicals.

**Is the regulation responsive to risks or does it respond to the perceived risk?**

**12.2** Assessed risks have been addressed during the consultation process. This has resulted in the identification of real risks consisting of a loss in

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<sup>3</sup> Authorised ground technique means stem injection, cut stump, frill ringing or basal bark treatment, carried out more than 100 metres of a crop that is not on a property owned by the person for whom the treatment is carried out, and is susceptible to damage from the treatment.

productivity and loss of short term and long term profitability and investment in horticulture, while losses in productivity and short term profitability are likely in cotton growing.

**Does the regulation allow for compliance options which are reflective of the assessed level of risk?**

**12.3** Yes—the compliance options are less in the area of greatest assessed risk (proposed Emerald Hazardous Area) and more in the area of lesser assessed risk.

**Does the enforcement effort target the areas of greatest risk as a priority?**

**12.4** The most susceptible crops are horticultural crops such as grapes and tree crops, where symptoms of chemical damage may persist for a number of seasons. Grapes and citrus are also particularly susceptible to 2,4-D chemical damage. Cotton and other broad acre crops such as sunflowers and pulse crops are also susceptible to damage, however losses are more likely to occur over a single season. The proposed regulation will address the problem of volatile 2,4-D ester formulations likely to cause damage to susceptible crops.

**Risk Assessment**

**12.5** Risk was assessed according to the Australian/NZ Standard for Risk Management AS/NZS 4360:1995. The risk assessment process consisted of identifying the hazards and undertaking a risk assessment of the consequences, frequency of exposure and probability of occurrence to derive a risk score from the consequences score x frequency of exposure score x probability score, as shown in Table 1. Table 2 shows the risk assessment of the major identified hazards. The resultant risk score was then assessed against table 3, to determine the appropriate action.

**Table 1—Criteria for Risk Assessment (AS/NZ Standard 4360:1995)**

Consequences		Frequency		Probability	
Description	Rating	Description	Rating	Description	Rating
Catastrophic > \$1M loss/damage	100	Continuous	10	Almost certain	10
Disaster \$500,000-\$1M loss/damage	50	Frequent	6	Quite possible	6
Very serious \$100,000– \$500,000 loss/damage	25	Occasion- al	3	Unusual	3
Serious \$1,000-\$100,0 00 loss/damage	15	Infrequent	2	Remotely possible	1
Important \$25-\$1,000 loss/damage	5	Rare	1	Conceiv- ably possible	0.5
Noticeable <\$25 loss/damage	1	Very rare	0.5	Practical- ly impossible (never happened)	0.1

**Table 2—Risk Assessment of identified hazards**

Hazard	Conse- quences	Frequency	Probability	Risk Score
1% loss in productivity to horticultural production and cotton	100	3	6	1800



1% loss in short-term profitability in horticultural crops and cotton	100	3	6	1800
0.5 % loss in long term profitability in horticultural production	100	1	3	300

**Table 3—Risk Score Action Levels (AS/NZ Standard 4360:1995)**

Risk Score	Recommended Action
< 15	Acceptable risk, no action required.
15-90	Reduce risk without delay.
91-250	Take urgent action to reduce risk.
> 250	Discontinue activity. Take immediate remedial action.

It is clear that each of the hazards identified in Table 2 require immediate remedial action to prevent recurrence. The proposed amendment will address the real risks identified as 1% reduction in productivity (reduced quality and yield), 1% loss in short term profitability in susceptible crops and 0.5% reduction in long term profitability for crops such as grapes and citrus where damage may be cumulative over a number of seasons.

Enforcement is based on the licensing of persons engaged in aerial distribution of agricultural chemicals and ground distribution of herbicides in areas of the State to which the Act applies and compliance with restrictions on the use of volatile ester formulations of 2,4-D within the declared hazardous area. The proposed legislation also provides the legal framework for the investigation of alleged incidents with a view to

prosecuting offenders and facilitates damages action through legal process on lodgement of a notification of alleged damage.

## **PART C—COST BENEFIT METHODOLOGY**

A cost benefit analysis has been conducted using the BRRU Model (RISASSIST).

### **13. PRELIMINARY IMPACT ASSESSMENT**

#### **Do nothing—no intervention alternative**

**13.1** The option of "do nothing" is the current situation. This option relies on education and self-regulation. Clearly, this option is not working as evidenced by the number of alleged spray drift incidents. There is broad stakeholder support for the declaration of a Hazardous Area and associated controls over 2,4-D ester use at Emerald. Similar potential for chemical damage also exists in those areas of Balonne, Dalrymple, Richmond and Warroo Shires not currently covered by the Act.

This approach is unrealistic because it fails to prevent off-target drift of herbicides likely to damage susceptible crops. There is a general consensus by the major stakeholders who are affected that a regulatory approach to declare a hazardous area near Emerald and restrict the distribution of volatile ester formulations of 2,4-D is necessary. Failure to extend the general operation of the Act to areas where susceptible crops are now cultivated will not protect these areas from damage, and will reduce land holders opportunities to claim compensation for damage.

#### **Proposed legislation alternative**

**13.2** The adoption of the proposed amendment will reduce the incidence and severity of damage caused by off-target drift of volatile ester formulations of 2,4-D to cotton and horticulture growers in the Emerald district. Similar benefits to cotton growers are likely as a consequence of

extending the general operation of the Act to the entire shires of Balonne, Richmond and Warroo and to the southern part of Dalrymple Shire.

Other stakeholders would be largely unaffected. Aerial and ground distributors are generally currently licensed, and support the proposal. Local government authorities and other government departments including DNR, Queensland Parks & Wildlife Service, Q Rail and Main Roads and other utilities such as Telephone, Electricity and Gas will also be largely unaffected providing authorised ground technique and distribution permits may be issued.

This regulatory approach has been requested by stakeholders who have identified the problem and are committed to the solution.

The proposed amendment to the *Agricultural Chemicals Distribution Control Regulation 1998* to declare a hazardous area near Emerald, restrict the distribution of volatile ester formulations of 2,4-D and to extend the general operation of the Act into areas where high risk crops are cultivated is likely to achieve the objective of reducing the incidence and severity of herbicide damage caused by off-target drift. There is a history of similar restrictions operating effectively in Hazardous Area Nos 1 and 2 on the Sunshine Coast and Darling Downs respectively.

The proposed regulatory approach is the only alternative likely to achieve the objectives.

While there will be a small increase in compliance costs caused by licensing and record keeping, the majority of stakeholders will not be affected. It is likely that a public education program would be used to support the regulation, and the major costs will be levied through prosecution of offences against offenders.

## **14. QUALITATIVE IMPACT ASSESSMENT**

### **14.1 Impacts of proposed legislation on stakeholders**

#### **Emerald Chemical Liaison Group**

**14.1.1** The effect of this alternative on this stakeholder is rated as (M+)

Medium Positive Impact. Potential to reduce crop damage caused by off-target drift of volatile 2,4-D formulations.

### **Emerald Shire Council**

**14.1.2** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. The regulation will restrict use of volatile ester formulations of 2,4-D and will reduce crop damage resulting from off-target drift.

### **Peak Downs Shire Council**

**14.1.3** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Addresses the Shire and Central Highlands needs for ester formulations in the control of woody weeds by distribution permit or authorised ground techniques for ester formulations of 2,4-D. The Shire currently employs licensed contractors.

### **Belyando Shire Council**

**14.1.4** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Meets needs for ester use.

### **Duaringa Shire Council**

**14.1.5** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Meets the need for use of ester formulations of 2,4-D under distribution permit or under authorised ground techniques and extends notification rights across the Shire.

### **Broadsound Shire Council**

**14.1.6** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Meets needs of the shire for use of 2,4-D ester formulations under distribution permit or by authorised technique and extends notification rights across the shire.

### **Bauhinia Shire Council**

**14.1.7** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Addresses the need for 2,4-D ester formulation use under distribution permit or by authorised ground technique while extending notification rights across the shire.

### **Balonne Shire Council**

**14.1.8** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact.

Potential to reduce damage to susceptible crops in the western area of the shire not currently covered by the Act.

### **Dalrymple Shire Council**

**14.1.9** The effect of this alternative on this stakeholder is rated as (H+) High Positive Impact. Potential to reduce damage to susceptible crops from off-target agricultural chemicals. Extending the operation of the Act to the southern area of Dalrymple Shire will impose a minimal cost to contractors and Land Care projects in licensing and chemical spray insurance premiums.

### **Richmond Shire Council**

**14.1.10** The effect of this alternative on this stakeholder is rated as (H+) High Positive Impact. Potential to reduce damage to susceptible crops from off-target agricultural chemicals. There will be an additional cost to contractors in the Richmond Shire in licensing and chemical spray insurance premiums.

### **Warroo Shire Council**

**14.1.11** The effect of this alternative on this stakeholder is rated as (H+) High Positive Impact. Potential to reduce damage to susceptible crops from off-target agricultural chemicals.

### **Fruit & vegetable growers**

**14.1.12** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. The net impact is likely to be a moderate benefit to fruit & vegetable growers in maintaining productivity, market dynamics, revenue, economic growth, and security while improving industry/government relations and avoiding conflict.

### **Cotton growers**

**14.1.13** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Maintains productivity, short-term profitability, competitive position, economic growth and reduces crop damage.

### **Cattle producers**

**14.1.14** The effect of this alternative on this stakeholder is rated as (L-) Low Negative Impact. Minor cost in licensing and compliance.

### **Other government departments (DNR, Queensland Parks and Wildlife Service, Q Rail etc)**

**14.1.15** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact. Meets need for 2,4-D ester use under distribution permit or by authorised ground techniques within the hazardous area.

### **DPI**

**14.1.16** The effect of this alternative on this stakeholder is rated as (L-) Low Negative Impact. It is likely that there will be a minor cost in operating and travel to service the amendment to the regulation, which will not be fully offset by licensing fee revenue.

### **Chemical resellers**

**14.1.17** The effect of this alternative on this stakeholder is rated as nil because there is no likely impact of the proposal on this stakeholder.

## **Aerial & ground distributors**

**14.1.18** The effect of this alternative on this stakeholder is rated as (L-) Low Negative Impact. While the regulation obliges compliance and restricted use of 2,4-D ester formulations in the hazardous area, the majority of operators are already licensed and maintain spray records. The availability of distribution permits and authorised ground technique for 2,4-D ester distribution in the proposed hazardous area provides for use of the volatile ester formulations where necessary under safe distribution conditions.

## **The community**

**14.1.19** The effect of this alternative on this stakeholder is rated as (M+) Medium Positive Impact, because it meets community concerns for tighter controls over agricultural chemical distribution and is likely to reduce crop damage resulting from off-target drift of agricultural chemicals.

## **Grain Growers**

**14.1.20** The effect of this alternative on this stakeholder is rated as (L-) Low Negative Impact. While the regulation restricts the use of 2,4-D ester formulations in the hazardous area, alternative effective herbicide formulations are available. Grain growers may choose to employ licensed contractors or be licensed themselves. The regulation will reduce damage to susceptible crops such as sunflowers and pulse crops.

## **Summary of proposed legislation**

**14.2** The proposed amendment will help reduce damage to susceptible crops from off-target drift of agricultural chemicals. The only chemical formulation which will be restricted in the hazardous area is 2,4-D ester, that may be used under a distribution permit or by authorised ground technique in the hazardous area to accommodate the need for this formulation in control of certain weed species such as rubber vine.

The extension of the Act will provide a consistent approach across shires and will extend notification rights to all persons alleging chemical damage or injury to crops or stock. Contractors will also be required to be qualified

and licensed and obligated to comply with the Act, which will encourage responsible chemical use while reducing damage and conflict.

While the Duaringa Shire is strongly opposed to inclusion within the Hazardous Area, the existence of susceptible crops at Comet and along the Mackenzie and Dawson River catchments necessitates the entire Shire being included.

### **Qualitative impact assessment conclusion**

**14.3** The only alternative that provides a likelihood of achieving the objective of reducing crop damage caused by off-target drift of volatile ester formulations of 2,4-D is the proposed regulation amendment to extend the general provisions of the Act and declare a Hazardous Area No. 3 near Emerald. An assessment of the quantitative impact of the proposed regulation can be conducted on the major susceptible crops such as horticulture and cotton, using assumptions of damage from 2,4-D ester formulations, however it is difficult to isolate ester formulation damage and to quantify the damage. As a consequence a scenario of 1% loss in productivity and 1% short-term loss in profitability and 0.5% long-term loss in profitability have been used as the basis for damage. These figures are based on a realistic estimate of the incidence of crop loss or damage in the Emerald District, extrapolated to other Shires. Assumptions of higher losses in productivity, short term profitability and long term profitability provide greater benefits, however the Risk Scores are generated even at 10% losses.

Similarly, costs to service the additional demand for distribution permits, licensing and investigation of alleged damage is difficult to quantify, and an assumption of one full time employee equivalent has been used as the basis for such calculation.

## **15. QUANTITATIVE IMPACT ASSESSMENT**

### **Summary of impacts of proposed legislation**

**15.1** The proposed amendment will maintain productivity and short-term profitability in cotton and horticultural production, and will maintain long



term profitability in grapes and tree crops. Investment in these industries will also be maintained.

### **Quantitative impact assessment conclusion**

**15.2** An estimated net benefit of \$15.9 M to horticultural growers and \$7.8M to cotton growers is likely over a 20 year period discounted at 6%.

The only appreciable costs are to Government in development and enactment of the legislation estimated to cost \$120,000 with a net annual enforcement cost of \$58,000. Enforcement activities estimated at \$62,000 annually, will be met from within the current DPI budget through a re-allocation of staff resources, and will be offset by licence fees estimated at \$4,000 per annum.

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#### ENDNOTES

1. Laid before the Legislative Assembly on . . .
2. The administering agency is the Department of Primary Industries.