



Australian Government

**Australian Pesticides and
Veterinary Medicines Authority**



Summary of public consultation on spray drift policy

Spray drift risk assessment manual—stage one

JULY 2019

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CONSULTATION OVERVIEW

Public consultation of the APVMA's proposed approach to spray drift management was open from 19 November 2018 to 8 March 2019.

A total of 11 responses were received and these are listed in section 1, table 1.

1 SUMMARY OF SUBMISSIONS AND RESPONSES

Overall there was support for the proposal, including the intent and purpose of the approach. A number of comments and proposals were raised which required further consideration. The consultation listed three specific topics which the submissions should address:

1. revised ground boom deposit curves
2. revised aircraft deposit curves, particularly in relation to release height
3. mandatory verses advisory buffer zones.

This summary is organised according to these topics. Key points for each of these topics are summarised below. The response to each submission is listed in the Appendix.

Table 1: List of submissions received

Submitting organisation	Submitting individual
NSW Farmers	David Mailler
CropLife Australia	Alastair James
Cotton Australia	Sally Ceeney
National Farmers Federation	Tony Maher
Forest Pest Management Research Consortium	Anne-Marie Smit
Grain Producers Australia	Andrew Weidemann
Aerial Application Association of Australia Ltd	Phil Hurst
Cotton Research and Development Corporation	Susan Maas
National Working Party on Pesticide Applications	Nicholas Woods
Grains Research and Development Corporation	Gordon Cumming
Grain Growers	David McKeon

1.1 Revised ground boom deposit curves

Eight submissions commented on this topic. A summary of three key points raised and APVMA responses are included in table 2.

Table 2: Summary of key points relating to revised ground boom deposit curves

Key points raised	APVMA response
The use of revised ground deposition curves as proposed by the NWPPA is supported due to their improved correlation with actual field trial data.	Deposition curves based on submission of the NWPPA to consultation ending March 2018 have been incorporated into the spray drift documentation and tools.
NWPPA have proposed that the canopy height in AGDISP for ground uses be modified so the canopy height is 0.4 times the release height as this better correlates with actual field trial data.	This is noted and APVMA awaits the publication of a detailed report on the NWPPA analysis of AGDIP ground uses and correlation with actual field trial data.
APVMA should closely consider the regulatory response to on- and off-label use of camera spot sprayers, which introduce a number of spray drift issues that are not addressed in conventional boom spray technology.	Consideration can be given to optical spot spraying systems as part of an application for registration.

1.2 Revised aircraft deposit curves, particularly in relation to release height

Four submissions commented on this topic. Key points raised and APVMA responses are included in table 3.

Table 3: Summary of key points relating to revised aircraft deposit curves

Key points raised	APVMA response
Optimum aircraft spray release height is variable and determined by, amongst other things, the wingspan of the aircraft and its operation in ground effect—normally at a height that is around 25 per cent of the wingspan of the aircraft.	The proposed policy is now based on a release height of 25 per cent of the wingspan (or rotor span) of the aircraft.
Labels and buffers should be based on realistic models of 'standard' use rather than the compounding effect of worse-case assumption (and safety buffer) on top of worse-case assumption.	This policy allows for 'standard' use as well as realistic worst-case uses to be part of labels and/or permits.
NWPPA proposed that a future body of work could be undertaken to review settings and the influence of the new standard for aerial application nozzle classification (ASABE S64)1.	This is outside the scope of this consultation but a review of the applicability of ASABE S641 for aerial spray drift modelling would be appropriate moving forward.

1.3 Mandatory verses advisory buffer zones

Seven submissions commented on this topic. Key points raised and APVMA responses are included in table 4.

Table 4: Summary of key points relating to mandatory versus advisory buffer zones

Key points raised	APVMA response
There is concern about the introduction of mandatory spray drift buffers without appropriate access to online spray drift management tools.	<p>Advisory buffer zones can be problematic for control of use. Consensus has been reached with the states that all buffers on the label need to be mandatory.</p> <p>The APVMA will continue to work with states and industry on stage two of this proposal when the legislative framework allows the use of online spray drift management tools.</p>
There is concern regarding the inclusion of native vegetation as mandatory buffers. Research and extension in the cotton industry has seen cotton growers encouraged to plan farm design to keep vegetation, or plant native trees and shrubs for the explicit purpose of drift buffers.	The definition of native vegetation is modified such that vegetation that has been planted explicitly for purpose of drift buffer is excluded.
The use of advisory statements on labels, far from simplifying compliance, actually increases compliance risk for applicators as courts (and some jurisdictions from experience) are likely to rely on the label as setting a standard of due diligence regardless of whether a statement is deemed advisory or mandatory by APVMA. Consequently, applicators are likely to be held to the commonly available standard on label—advisory or mandatory.	For control of use, all buffers are required to be mandatory to be enforceable.

1.4 Other comments

Other comments raised and APVMA responses are included in table 5.

Table 5: Summary of other comments

Key points raised	APVMA response
Stage two (eight submissions)	
The proposed SDMT promises improved flexibility and practical application of crop protection products by users. Industry would encourage the greater user flexibility this option provides and would encourage state jurisdictions to support its adoption.	Subject to the legal framework being in place the APVMA will work with states and industry to develop stage two.

Key points raised	APVMA response
Surface temperature inversions (four submissions)	
<p>A project commissioned by GRDC with the support of the Cotton RDC and the NWPPA has been investigating the use of weather monitoring stations to measure the strength of surface temperature inversion conditions in real time. To not only determine the presence or absence of inversions but also to quantify the effects of differing inversion conditions (strengths) on the risk of spray drift at a localised geographical level.</p> <p>The initial outcomes of this work indicate that whilst there are clearly periods of 'Hazardous Inversion Conditions' there are equally conditions under a surface temperature inversion where spraying can be conducted, without any additional risk to the level of spray drift compared to conditions when a surface temperature inversion doesn't exist.</p>	<p>The on-label wording has been changed from:</p> <p>'DO NOT apply if there are surface temperature inversion conditions'.</p> <p>to:</p> <p>'DO NOT apply if there are hazardous surface temperature inversion conditions'.</p> <p>For now a hazardous surface temperature inversion will be defined as any time a surface temperature version exists.</p> <p>The definition of hazardous surface temperature inversions can be modified in the future if it is demonstrated and accepted that there is no greater spray drift risk under some defined surface temperature inversions conditions and there is a way for users to determine when the unsafe conditions occur.</p>
<p>Provisions should be considered to ensure that chemical users can identify whether surface temperature inversion conditions are present to comply where the label states DO NOT apply if there are surface temperature inversion conditions present at the application site during the time of application.</p>	<p>Information on surface temperature inversions has been added to the definitions.</p>
Permits (five submissions)	
<p>A possible option is that a standard 'drift management permit' could be issued for every product registration assessed prior to implementation of stage two of the approach, the permit would potentially include all variables relevant to the label such as different wind speeds, deeper water bodies, higher boom and/or aircraft heights, lower application rates where included on the approved label and more coarse nozzles.</p>	<p>CropLife to make a proposal to APVMA on a standard drift management permit.</p>
<p>Broad acre producers may need the flexibility of permits for different use combinations until access to the proposed label referenced SDMT becomes operational.</p>	<p>The option to apply for permits for different combinations is available.</p>
<p>Consider an amendment to the <i>Ag Vet Chemical Code Regulations 1995</i>, Part 6—Permits, Clause 57(2). This current list of three permit types could simply be extended by a new permit type called 'Better Practice Permit' or similar and potentially an additional permit category for aerial application as an interim measure.</p>	<p>The option to apply for permits for different combinations is available.</p>

Key points raised	APVMA response
Retrospective application of the approach (two submissions)	
Existing products registered using the current spray drift risk assessment approach could retain different buffer zones than a new product with the same active constituent. Similarly, products containing novel active constituents may have larger buffer zones applied than existing products registered for the same use patterns. This could stifle the introduction of new, innovative crop protection products into the Australian market, and lead to overuse of older products in certain scenarios.	While the approach will initially be applied to new chemistries and chemical reviews, it will also be used for all new applications where spray drift assessment will be required. The policy may be extended to legacy products on a priority and risk basis and registrants may proactively seek to standardise their portfolio of products as well.
Electronic labels (two submissions)	
When the technology is commonly available electronic labels and cloud based systems could support semiautonomous and autonomous spray control systems.	This is beyond the scope of the spray drift proposal.
Extension (two submissions)	
Introduction of the proposed approach (stages one and two) should be accompanied by a strong extension campaign to assist chemical applicators in understanding changed requirements in respect to label conditions and drift reduction technologies. Requirements associated with the proposed approach should also be considered for integration in nationally recognised training packages that deliver outcomes associated with responsible chemical use.	The APVMA will continue to work with industry and states and territories to ensure consistent messaging in extension campaigns related to spray drift management and understanding of label instructions, noting that extension and training in application technique is not a responsibility of the APVMA.
A user guide is needed and the NWPPA could facilitate this.	The APVMA would support the development of a user guide by the NWPPA.
Applications below the top of the canopy (one submission)	
That the APVMA update Section 2.2 of the SDRAM to: “application with specialised equipment in cropping situations where the nozzles are orientated below the horizontal of the top of the crop canopy and spray is released at a height below the top of the crop canopy (eg drop nozzles used to direct the spray to the furrows between emerged crops, or small booms used to spray inter-row areas in tree and vine crops), but excluding sprayers where air is used to aid in the spray penetrating the canopy as these are defined as ‘vertical sprayers’ (eg air blast sprayers in orchards)”.	Definition has been modified as recommended.
Spray drift data guidelines (one submission)	
Table 1 of the Spray Drift Data Guidelines be updated to the table proposed in Appendix 1 of the NWPPA submission.	Table 1 of the SDDG has been updated as per NWPPA submission.

Key points raised	APVMA response
DSD Converter (one submission)	
A potential issue relating to the DSD converter tool was identified where the cumulative fraction can at times be considerably larger than one.	A review of the DSD converter by APVMA identified that the curve fitting of droplet spectra can be highly influenced by very small changes to the small and large end of the measured droplet spectra. In measuring the droplet spectra it is easy for irregularities (eg unclean optics, vignetting, turbulence, and vibrations) to affect the small and large sizes being reported so the regression is now only applied to the middle 95 per cent of the spectra. This has largely resolved the issue.

2 SUMMARY OF CHANGES TO DOCUMENTATION CIRCULATED WITH CONSULTATION TWO

The following is a summary showing the main changes to the proposed APVMA spray drift approach since consultation from 19 November 2018 to 8 March 2019.

Table 6: Spray drift risk assessment manual (SDRAM)

Section	Change	Comment
Chapter 2	In section 2.2 the definition has been updated to capture situations where the risk is equivalent but technically the nozzles are not orientated directly downward.	Modified as per NWPPA submission.
Chapter 4	Added calculation for the proportion (weighting) between AI and FF AGDISP output for custom DSDs.	
Chapter 5	Change boom height from over 0.5 m to 1.0 m or lower.	A 1.0 m height is used to determine buffers for heights greater than 0.5 m.
	Deleted mention of SDMT where assessment required any buffer zone distance to be greater than the validated distance.	
	On-label wording from: 'DO NOT apply if there are surface temperature inversion conditions' to: 'DO NOT apply if there are hazardous surface temperature inversion conditions'.	
Appendix A	Added droplet size statistics.	Using modified spectra from NWPPA submission for consultation March 2018.
Glossary	Revised definition of hazardous surface temperature inversions.	
	Added definition for rotor diameter.	
	Added definition for sensitive area.	Copied from section 1.1.
	Added definition for spray drift.	
	Added definition for wing span.	
	Removed definition for target area.	This was a duplication of application site.

2.1 Spray drift data guidelines

Table 1 of the SDDG has been updated as per NWPPA submission.

2.2 Spray drift risk assessment tool (SDRAT)

Fixed bug where helicopter buffers do not appear when buffers for fixed wing are greater than 800 m but buffers acceptable for helicopters.

2.3 Spray drift management tool (SDMT)

No change.

2.4 Droplet size distribution (DSD) converter

Fixed issue identified by NWPPA where resulting spectra could be significantly greater than one.

3 RECOMMENDATIONS

1. the APVMA implement stage one of the spray drift policy as proposed in the consultation with the changes outlined above
2. the APVMA spray drift webpages be updated to reflect the changes to labelling guidelines and include the definitions of terms used on the label
3. the APVMA continues to work with states and industry on stage two of this proposal
4. the APVMA request the NWPPA to
 - a) produce a final report/publication on the analysis of the AGDISP ground and comparison to field data
 - b) undertake a review of the applicability of ASABE S641 for aerial spray drift modelling and ISO 25358 for ground
 - c) facilitate development of a spray drift user's guide.



Appendix

APPENDIX 1: NSW FARMERS FEDERATION

Table 7: Summary of key points raised in the submission by NSW Farmers Federation and APVMA comments

Topic	Submission	Comment
3	Concern about the introduction of mandatory spray drift buffers without appropriate access to online spray drift management tools.	The APVMA will continue to work with states and industry on stage two of this proposal once it is confirmed that the legislative framework allows its use.
1	APVMA should closely consider the regulatory response to on- and off-label use of camera spot sprayers, which introduce a number of spray drift issues that are not addressed in conventional boom spray technology. Additionally, through management tools, the APVMA can assist producers to understand the implications of changes to spray drift management that are specific to the use of spot-spraying technology.	Consideration will be given to optical spot spraying systems as part of applications for registration or permits regarding their use.

APPENDIX 2: CROPLIFE AUSTRALIA

Table 8: Summary of key points raised in the submission by Croplife Australia and APVMA comments

Topic	Submission	Comment
4	<p>Since the introduction of the existing approach in March 2010, CropLife has sought the introduction of buffer zones based on scientific data and evidence, clearer label instructions with increased flexibility and support for the use of drift reduction technologies (DRT). CropLife is therefore supportive of the APMVA's efforts to update and refine the approach to spray drift management.</p>	Thank you for your support.
4	<p>Retrospective application of the approach</p> <p>Failure to apply the approach retrospectively to existing products may perpetuate a substantial failing of the current spray drift risk assessment process. Existing products registered using the current, outdated spray drift risk assessment approach could retain different buffer zones than a new product with the same active constituent. Similarly, products containing novel active constituents may have larger buffer zones applied than existing products registered for the same use patterns. This could stifle the introduction of new, innovative crop protection products into the Australian market, and lead to overuse of older products in certain scenarios, thereby reducing the intended impact of the approach and contributing to agricultural chemical resistance.</p>	While the approach will initially be applied to new chemistries and chemical reviews, it will also be used for all new applications where spray drift assessment will be required. The policy will be extended to legacy products on a priority and risk basis. Registrants can apply for application of the policy to their products at any time.
4	<p>Further clarification regarding the proposed prioritisation process would be beneficial. In particular, whether existing products would be prioritised in a scenario where a new product containing the same active constituent was determined under the approach to require different conditions of use than existing products. Further clarification regarding assessment timeframes for prioritised products is also required to ensure that in the above scenario, existing products would be assessed using the approach in a timely manner, to avoid similar products having different directions for use regarding avoidance and management of spray drift.</p>	While the approach will initially be applied to new chemistries and chemical reviews, it will also be used for all new applications where spray drift assessment will be required. The policy will be extended to legacy products where time and resources permit on a priority and risk basis. Registrants can apply for application of the policy to their products at any time.

Topic	Submission	Comment
4	<p>Spray drift management permit</p> <p>CropLife notes that the APVMA are willing to consider issuing a standard 'drift management permit' for every product registration assessed under the approach prior to implementation of stage two of the approach, the spray drift management tool (SDMT). The permit would potentially include all variables relevant to the label such as different wind speeds, deeper water bodies, higher boom and/or aircraft heights, lower application rates where included on the approved label, more coarse nozzles. CropLife is keen to work constructively with the APVMA to develop a suitable permit.</p>	<p>Subject to the legal framework being in place the APVMA will work with states and industry to develop stage two.</p>
4	<p>Calculation of combined toxicity</p> <p>CropLife raised concerns that guidance on how the APVMA calculates combined toxicity using the concentration addition model incorrectly considers that one active is 'diluting' the other in the multicomponent formulation and provides an underestimate of combined toxicity. CropLife is pleased that the APVMA has indicated that this process will be reviewed on a broader level and is keen to work constructively with the APVMA to ensure that the APVMA's methodology for calculating combined toxicity is based on robust scientific principles.</p>	<p>Equation 10 and 11 in the SDRAM is correct. More comprehensive explanation behind the equation is presented in ecotoxicological combined effects from chemical mixtures: Part 1, Part 2.</p> <p>The model assumes a concentration-additive joint action of the active constituents. It does not assume dilution.</p>
4	<p>The proposed SDMT promises improved flexibility and practical application of crop protection products by users. CropLife remains concerned, however, that the reliance on state jurisdictions for its adoption may significantly delay the implementation this long-awaited measure.</p>	<p>The APVMA will continue to work with states and industry on stage two of this proposal when it is confirmed that the legislative framework can facilitate its use.</p>

APPENDIX 3: COTTON AUSTRALIA

Table 9: Summary of key points raised in the submission by Cotton Australia and APVMA comments

Topic	Submission	Comment
	Cotton Australia broadly supports the APVMA's science-based and risk-aligned approach for managing spray drift, recognizing that implementation of incentives and flexibility for utilisation of spray drift reduction technology is a positive step towards mitigating risk spray drift.	Thank you for your support.
4	Consistency of legislation Cotton Australia is very supportive of the flexible approach toward spray drift management that provides incentives for drift reduction technology. However, a framework needs to be developed to ensure that state and national legislation is consistent to allow operators to be compliant under the new proposed system.	Out of scope for this consultation.
3	Determination of sensitive areas Provisions should be considered to ensure users can reliably identify nearby sensitive crops to comply where the label states DO NOT apply in a manner that may cause unacceptable impact to native vegetation, agricultural crops, landscaped gardens and aquaculture production outside the application site from spray drift. It is noted that to determine pollinator areas the following advice is given: Whilst notification can be made directly (in writing or verbally), the use of the BeeConnected website or smartphone app is acceptable and recommended. Cotton Australia suggests that a similar guideline may be required for operators to reliably identify nearby sensitive crops.	The different types of sensitive areas are adequately defined.
4	Surface temperature inversion Provisions should be considered to ensure that chemical users can identify whether surface temperature inversion conditions are present to comply where the label states DO NOT apply if there are surface temperature inversion conditions present at the application site during the time of application.	Additional information on surface temperature inversions has been added.
3	Inclusion of native vegetation buffers Cotton Australia is concerned regarding the inclusion of native vegetation as mandatory buffers. Research and extension in the cotton industry has seen cotton growers encouraged to plan farm design to keep vegetation, or plant native trees and shrubs for the explicit purpose of drift buffers. Section 7.2.4 of the Spray Drift Risk Assessment Manual indicates that the NWPPA has conducted a project in relation to vegetative and artificial spray drift barriers and that further work is required in this area.	Modify definition of native vegetation such that vegetation that has been planted explicitly for purpose of drift buffer is excluded?

Topic	Submission	Comment
4	Communication Cotton Australia strongly recommends that introduction of the proposed approach (stages one and two) is accompanied by a strong extension campaign to assist chemical applicators in understanding changed requirements in respect to label conditions and drift reduction technologies. Requirements associated with the proposed approach should also be considered for integration in nationally recognised training packages that deliver outcomes associated with responsible chemical use.	The APVMA will continue to work with industry and states and territories to ensure consistent messaging in extension campaigns related to spray drift management and understanding of label instructions.
4	The proposed time delay between stages one and two of the proposed approach are of considerable concern in respect to creating uncertainty or inflexibility for chemical applicators. It is strongly recommended that robust interim measures are applied to ensure that chemical applicators can practically achieve the buffer zone requirements for in stage one. Certainty is also required where the proposed approach interacts with the permit system, or where existing chemistries are currently under review. Further clarification is needed as to how the spray drift management tool will be reliably accessible in regional, rural, or remote areas.	The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.
4	Further consultation with Cotton Australia is welcomed regarding the implementation of the proposed approach to ensuring that spray drift management tool is practical and robust to ensure on-target.	The APVMA will continue to consult with cotton Australia and other industry bodies to ensure any tools are practical and robust.

APPENDIX 4: NATIONAL FARMERS FEDERATION

Table 10: Summary of key points raised in the submission by National Farmers Federation and APVMA comments

Topic	Submission	Comment
4	<p>We are broadly supportive of the changes as outlined in the summary document, including the revised model parameters (which are based on the advice of technical specialists through the National Working Party on Pesticide Applications) and clarification of label terminology (eg 'target canopy' rather than 'target'). The expansion of information provided in the label statement on surface temperature inversions is also a constructive change that will support chemical users to comply with label requirements.</p>	Thank you for your support.
3	<p>Under the revised approach, all buffer zones specified on a label are now mandatory—and references to 'advisory' buffer zones have been removed. The NFF understands that this change has been made to address ambiguity in the language, and because the enforceability of an 'advisory' zone is not defined. While the rationale for this change is clear, it is important that chemical users have the ability to access modified buffer zones, supported by the interactive spray drift management tool (SDMT) flagged for stage two.</p> <p>We are concerned by the delay in delivering stage two of the approach, which focuses on end user implementation. Importantly, stage two is intended to involve development of an interactive online SDMT, which would allow users to recalculate buffer zones based on their own circumstances, including the use of appropriate drift reducing technologies. Access to a practical, user-friendly and technically-robust SDMT is needed to support implementation of the spray drift approach and would allow science-based best practice to be adopted by producers in a flexible way. We would request that the APVMA commits to the delivery of the online SDMT, and provides advice on the process and timeframe for development. It is also critical that the APVMA works effectively with state and territory governments to progress this, given the state responsibility for control of use and the need for a coordinated approach to any regulatory change. The NFF would welcome the opportunity to work with the APVMA and other industry stakeholders on the development of the SDMT and on other practical measures to support implementation of the revised spray drift approach.</p>	The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.

Topic	Submission	Comment
4	The draft Spray Drift Risk Assessment Manual—stage one advises that the proposed framework will initially only apply to new chemistries and chemical reviews, and “may be extended to existing products on a priority basis”. We request that the APVMA actively engages industry well in advance of any label changes for existing products, not only so that chemical users have an opportunity to comment on changes, but also to allow time to understand any new requirements and be prepared to comply once they come into effect.	

APPENDIX 5: FOREST PEST MANAGEMENT RESEARCH CONSORTIUM

Table 11: Summary of key points raised in the submission by Forest Pest Management Research Consortium and APVMA comments

Topic	Submission	Comment
1	We support the use of revised ground deposition curves due to their improved correlation with actual field trial data.	Thank you for your support.
1	GPA supports the outcomes of the work by the NWPPA technical Working Group in reviewing the revised APVMA ground boom deposition curves. GPA pragmatically accepts the science and supports the approach that the APVMA has taken on spray deposition review.	Thank you for your support.
3	GPA does not support a mandatory approach to spray buffer zones without producer access to supporting label reference to spray drift management tools (SDMT). New buffer zones will be enforceable under state control of use legislation without any mechanism for drift reduction technologies to be legally recognised.	The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.
4	It is essential that chemical review regulatory decisions be deferred until full consideration for the use of the proposed stage two SDMT models for use by producers is available and referenced on label.	Noted, however reviews need to be progressed according to required timeframes.
4	There is a current need for electronic labels and cloud based systems to support semiautonomous and autonomous spray control systems supported by on-label spray drift buffer zone instructions.	This is beyond the scope of the spray drift proposal.
4	There is a need for interim permits for broad acre producers until access to the proposed label referenced SDMT becomes operational. GPA notes that the APVMA proposes to include the option to add more detail to labels/permits instead of referring to SDMT, eg additional droplet category and higher release heights. This is problematic for both producers and registrants, as a label would have to refer to a potentially infinite number of possible boom/nozzle setup options rather than being optimised for the particular situation. The infinite number of combinations are also unworkable on a paper based label as both the costs and length of labels would significantly increase costs to registrants and will be significantly more difficult for producers to read and use.	The option to apply for permits for different combinations is currently available.

Topic	Submission	Comment
3	<p>GPA would like to discuss the potential options with the APVMA before finalising its decision on removal of reference to advisory buffer zones on labels.</p> <p>There is potential to generate a set of custom spray deposition curves based on the use of industry best practice DRTs. GPA will work with the GRDC and the APVMA in developing a set of agreed recommended best practice DRT examples that can also be incorporated as case studies in training material and also potentially as reference use cases by registrants on label. These examples could potentially be developed into industry permits for broad acre producers held by GPA until access to the proposed label referenced SDMT becomes operational.</p>	<p>For state control of use, all buffers are required to be mandatory to be enforceable.</p>
4	<p>Formal discussion with state governments is required to detail the need for supporting legislative reforms to enable electronic chemical labels and references to web based tools.</p>	<p>Noted. This is out of scope for this consultation.</p>
4	<p>GPA would like to encourage the APVMA to hold a special meeting with industry and chemical stewardship investment stakeholders to initiate agreement to develop a joint investment project to deliver APVMA approved systems that integrate drift management and label options into improved digital business decision tools.</p>	<p>The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.</p>

APPENDIX 6: AERIAL APPLICATION ASSOCIATION OF AUSTRALIA LTD

Table 12: Summary of key points raised in the submission by the Aerial Application association of Australia and APVMA comments

Topic	Submission	Comment
4	<p>Staged approach</p> <p>AAAA remains frustrated that APVMA is committed to a staged approach which will see little to no benefits accrue from the adoption of better practices such as modelling of buffers based on lower rates, better spray quality or other assessments related to on-site assessments that are more accurate than the worse-case scenario modelling used on labels.</p> <p>This is a major flaw in the APVMA strategy and one that is made even less sustainable by the recent experience of developing a response (including additional amending permits) to APVMA's unconsulted suspension notice of all 2,4-D products.</p>	<p>To introduce the benefits of refined spray drift buffer modelling and simpler, consistent labelling in a timely manner, a staged approach is necessary. The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.</p>
4	<p>Better consultation systems and formal structures</p> <p>The 2,4-D suspension experience clearly demonstrated the value to both APVMA and industry of better consultation through improved systemic consultation processes that are still not in place between APVMA and industry.</p> <p>APVMA should immediately establish a chemical user's consultative group to improve the current lack of formal consultative mechanisms, with the NWPPA continuing to provide a facilitative mechanism for annual, science-based discussions.</p>	<p>Noted. This is out of scope for this consultation.</p>
2	<p>Access to proven practice</p> <p>The 2,4-D suspension experience demonstrated the need for APVMA to be able to deliver labels and buffers that are based on realistic models of 'standard' use rather than the compounding effect of worse-case assumption (and safety buffer) on top of worse-case assumption.</p>	<p>Noted. This is an intent with the proposed policy.</p>

Topic	Submission	Comment
4	<p>APVMA should give immediate consideration to how to bring forward the adoption of stage two concurrent with stage one so that benefits can be realised—especially through the use of lower than maximum label rates and consequently shorter buffers.</p> <p>AAAA is especially concerned with likely delays that may arise to any adoption of stage two and subsequent initiatives as APVMA does not appear to have closely engaged with the states and territories who may struggle, according to them, to recognise any references to materials that are not directly on the physical label.</p> <p>In the medium to longer term, AAAA sees this as a fundamental problem for the states and territories to solve. The states/territories must upgrade their approach to the recognition of technology, information storage and retrieval and the way chemical users now rely on a wide range of electronic data to support their compliance and decision making.</p> <p>However, APVMA does have a methodology available to it to bring forward stage two and at the same time facilitate the state/territory recognition of better practices through a reformed permit system as an interim measure.</p>	<p>The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows its use.</p>
4	<p>Consider an amendment to the <i>Ag Vet Chemical Code Regulations 1995</i>, Part 6—Permits, Clause 57(2). This current list of three permit types could simply be extended by a new permit type called ‘Better Practice Permit’ or similar and potentially an additional permit category for aerial application as an interim measure.</p>	<p>Noted. This is out of scope for this consultation.</p>

Topic	Submission	Comment
2	<p>Optimum aircraft spray release height is variable and determined by, amongst other things, the wingspan of the aircraft and its operation in ground effect, normally at a height that is around 25 per cent of the wingspan of the aircraft.</p> <p>The size of the aircraft will have an impact on the optimum spray release height, with increased downwash from larger aircraft offsetting the higher release height.</p> <p>Given the training on this issue through the AAAA's Spraysafe accreditation and the accountability of all aerial applicators through mandatory licencing by states/territories, the removal of height requirements on label would not be an unmitigated risk, especially when combined with the modelling already done for approvals that includes a representative spray height that is already close to the 25 per cent of wingspan figure. Consequently, APVMA should consider removing the current height restrictions on label (generally set at three metres) and replacing them with a recommendation to operate the aircraft at a spray height that represents approximately 25 per cent of the wingspan (or rotor span) of the aircraft—or simply leave this issue to the training and competence underpinned by Spraysafe and licencing.</p> <p>An alternative approach, adopted for the 2,4-D Permit, is to provide varying spray heights (for example three and five metres), however, this creates an even more complex, duplicative label/permit and is not AAAA's preferred model.</p>	<p>The proposed policy is now based on a release height of 25 per cent of the wingspan (or rotor span) of the aircraft.</p>
3	<p>The use of advisory statements on labels, far from simplifying compliance, actually increases compliance risk for applicators as courts (and some jurisdictions from experience) are likely to rely on the label as setting a standard of due diligence regardless of whether a statement is deemed advisory or mandatory by APVMA.</p> <p>Consequently, applicators are likely be held to the commonly available standard on label—advisory or mandatory.</p> <p>A superior solution is for the APVMA to move as quickly as possible to stage two of the proposed reforms to enable applicators to have a clear head of power and a scientifically rigorous method for reducing mandatory maximum buffers that relate to use of the maximum label rate and other maximum parameters.</p>	<p>Buffers will now all be mandatory.</p>

APPENDIX 7: COTTON RESEARCH AND DEVELOPMENT CORPORATION

Table 13: Summary of key points raised in the submission by Cotton Research and Development Corporation and APVMA comments

Topic	Submission	Comment
4	<p>CRDC remains supportive of the APVMA's efforts to set reasonable buffer zones and encourage the use of drift reducing practices. The CRDC recognises that spray drift is a whole of agriculture issue and invests in and supports initiatives to reduce drift.</p> <p>The CRDC is a member of the National Working Party on Pesticide Applications (NWPPA), and acknowledges and is supportive of the APVMA's efforts to incorporate advice from the Technical Working Group, ensuring spray management has strong science. The CRDC encourages ongoing opportunities for consultation so that feedback on implementation of phase one can be considered during development of the spray drift management tool (SDMT) and phase two.</p>	Thank you for your support.
3	<p>The CRDC would like to raise concern over changing vegetation areas from advisory buffer zones to mandatory. Research and extension on spray drift through the 90's saw cotton growers encouraged to design farms to keep vegetation, or planted native trees and shrubs for the explicit purpose of drift buffers (Spillman & Woods, 1989). Under the proposed vegetation definition, 'native vegetation' would now be considered a mandatory sensitive area, whereas CRDC recommends that native vegetation remain advisory.</p>	Modify definition of native vegetation such that vegetation that has been planted explicitly for purpose of drift buffer is excluded?

APPENDIX 8: NATIONAL WORKING PARTY ON PESTICIDE APPLICATIONS

Table 14: Summary of key points raised in the submission by National Working Party on Pesticide Application and APVMA comments

Topic	Submission	Comment
4	Table 1 of the Spray Drift Data Guidelines be updated to the table proposed in Appendix 1 of this submission.	Table 1 of the SDDG has been updated as per NWPPA submission.
1	That the APVMA adopt a standard approach of setting the canopy height to 40 per cent of the boom height for AGDISP Ground modelling.	This is noted and will be further considered following publication of a detail report on the NWPPA analysis of AGDIP ground and correlation with actual field trial data.
2	AGDISP aerial modelling was not reviewed as part of this submission. It is suggested that the status quo be maintained for aerial spray drift modelling, however it is proposed that a future body of work could be undertaken to review settings and the influence of the new standard for aerial application nozzle classification (ASABE S641). It is requested that the APVMA advise the NWPPA if this is required so that a resourcing plan can be considered.	The NWPPA should undertake a review the applicability of ASABE S641 for aerial spray drift modelling.
4	A potential issue relating to the DSD converter tool was identified, The TWG will provide further information to the APVMA once their analysis of the issue is completed.	A review of the DSD converter by APVMA identified that the curve fitting of droplet spectra can be highly influenced by small changes to the small and large end of the droplet spectra. In measuring the droplet spectra it is easy for irregularities (eg unclean optics, vignetting, turbulence, and vibrations) to affect the small and large sizes being reported so the regression is now only applied to the middle 95 per cent of the spectra. This has largely resolved the issue identified by the TWG.
4	That the APVMA consider amending the definition of 'surface temperature inversion' on their website to allow for possible future weather monitoring stations for surface temperature inversion conditions. The initial outcomes of this work indicate that there may be conditions where spraying can safely be conducted even though technically surface temperature inversions are present.	

Topic	Submission	Comment
4	<p>That the APVMA update Section 2.2 of the SDRAM to:</p> <p>“application with specialised equipment in cropping situations where the nozzles are orientated below the horizontal of the top of the crop canopy and spray is released at a height below the top of the crop canopy (eg drop nozzles used to direct the spray to the furrows between emerged crops, or small booms used to spray inter-row areas in tree and vine crops), but excluding sprayers where air is used to aid in the spray penetrating the canopy as these are defined as ‘vertical sprayers’ (eg air blast sprayers in orchards)”.</p>	<p>Section 2.2 has been modified as recommended.</p>
4	<p>That the APVMA consider how the development of a user guide would be resourced, and if appropriate engage the NWPPA to facilitate this.</p>	<p>The APVMA request the NWPPA to facilitate a user’s guide.</p>

APPENDIX 9: GRAINS RESEARCH AND DEVELOPMENT CORPORATION

Table 15: Summary of key points raised in the submission by Grains Research and Development Corporation and APVMA comments

Topic	Submission	Comment
4	<p>A project commissioned by GRDC with the support of the Cotton RDC and the NWPPA has been investigating the use of weather monitoring stations to measure the strength of surface temperature inversion conditions in real time. To not only determine the presence or absence of inversions but also to quantify the effects of differing inversion conditions (strengths) on the risk of spray drift at a localised geographical level.</p> <p>The initial outcomes of this work indicate that whilst there are clearly periods of 'Hazardous Inversion Conditions' there are equally conditions under a surface temperature inversion where spraying can be conducted, without any additional risk to the level of spray drift compared to conditions when a surface temperature inversion doesn't exist.</p> <p>Currently under the spray drift guidelines, there are no mitigating avenues to allow for spraying under surface temperature inversions. As this research is still being conducted, the GRDC recognised that the potential outcomes may not be adequately addressed by the current SDRAM (including product labelling) at this time.</p> <p>Once such a technology has been evaluated and accepted by the APVMA as a suitable tool to ensure that the risk of spray drift is not increased under a defined and measurable set of meteorological conditions, the challenge is how such a technology can be implemented without the requirement for product labels to be amended.</p> <p>It is important to ensure this concept is captured now to future proof the system to avoid all labels requiring updating if the APVMA supports these technologies in the future.</p> <p>GRDC considers there be two potential avenues requiring further consideration.</p> <p>Changes to the definition of a surface temperature inversion within the SDRAM definitions.</p> <p>Drift reducing technology (DRT) incentives program.</p>	<p>The APVMA does not consider that this would fit within the DRT incentives program as it does not provide a way for users to have access to smaller no-spray zones as a result of taking up validated DRT options. Such a scheme would be regarded as a decision making tool to enable users to know when to spray or not.</p> <p>The on-label wording has been changed from: 'DO NOT apply if there are surface temperature inversion conditions' to: 'DO NOT apply if there are hazardous surface temperature inversion conditions'.</p> <p>For now a hazardous surface temperature inversion would be defined as any time a surface temperature version exists.</p> <p>If in the future, if it can be demonstrated that there is no greater spray drift risk under some defined surface temperature inversions conditions and there is a way for users to determine when the unsafe conditions occur, it would be possible to change the definition of hazardous surface temperature inversion on the APVMA website and guidelines (to something similar to that proposed by GRDC below) but would not require registrants to come back for label changes.</p>

APPENDIX 10: GRAINS GROWERS

Table 16: Summary of key points raised in the submission by Grain Growers and APVMA comments

Topic	Submission	Comment
1	GrainGrowers supports the outcomes of the work by the NWPPA technical Working Group in reviewing the revised APVMA ground boom deposition curves.	Ground boom deposition curves are based on NWPPA submission to December 2017 consultation.
1	GrainGrowers supports the approach that the APVMA has taken on spray deposition review, and further, recommends the utilisation of international research, such as that of the University of Nebraska-Lincoln and the Pesticide Application Technology Lab, within its model to ensure appropriate recommendations are made.	APVMA will continue to utilise international research to ensure appropriate recommendations are made.
1	GrainGrowers supports that wind speeds of five to 25km/h are more appropriate than three to 15km/h. This would allow for a greater window of opportunity during daylight hours for spraying, thus reducing pressure for night spraying.	In stage one wind speeds of five to 20 km/hr are used. Consideration will be given to extending wind speed to 25 km/hr in stage two.
2	GrainGrowers supports the outcomes of the work by the NWPPA technical Working Group (TWG) in reviewing the revised APVMA aircraft deposition curves. GrainGrowers also encourages the APVMA to consider the feedback and advice from the AAAAs in the implementation of these revised curves on implications for operational safety and effective delivery.	APVMA has considered the feedback and advice from the AAAAs in the implementation of these revised curves on implications for operational safety and effective delivery.
3	GrainGrowers does not support a mandatory approach to spray buffer zones without producer access to supporting label reference to spray drift management tools (SDMT). The proposed mandatory label reference is problematic for producers without the spray drift management tool (SDMT) originally proposed by the APVMA for the phase two program. The consequence is that new buffer zones would be enforceable under state control of use legislation without any mechanism for drift reduction technologies (DRTs) to be legally recognised to reduce proposed buffer zones as detailed on revised chemical labels.	Advisory buffer zones can be problematic for control of use. Consensus has been reached with the states that all buffers on the label need to be mandatory. The APVMA will continue to work with states and industry on stage two of this proposal once the legislative framework allows the use of online spray drift management tools.

Topic	Submission	Comment
3	GrainGrowers notes that the APVMA proposes to include the option to add more detail to labels/permits instead of referring to the SDMT, eg additional droplet category and higher release heights. This is of potential concern given the subsequent implications for label restrictions and exhaustive reference materials that would be required, which diminish the business case for new registrations and complicate use by producers to the extent that it will become an even greater deterrent for the commercialisation of new products and chemistry in Australia. The resulting infinite number of potential combinations are impractical for the current paper-based labelling system as both the costs and length of labels would significantly increase costs to registrants and will be significantly more difficult for producers to read and use.	Noted. The APVMA will work with registrants as part of applications for registration and/or permits to ensure readability of the label and ensure practical DRT uses are included.
4	It is essential that chemical review regulatory decisions be deferred until full consideration for the use of the proposed stage two SDMT models for use by producers is available and referenced on label.	Noted, however reviews need to be progressed according to required timeframes.
4	There is a current need for electronic labels and cloud-based systems to support semiautonomous and autonomous spray control systems supported by on-label spray drift buffer zone instructions.	This is beyond the scope of the spray drift proposal.
4	There is a need for interim permits for broad acre producers until access to the proposed label referenced SDMT becomes operational.	The option to apply for permits for different combinations is currently available.
4	GrainGrowers would like the opportunity to be involved in further discussion regarding potential options with the APVMA before finalising a decision on removal of reference to advisory buffer zones on label.	Advisory buffer zones can be problematic for control of use. Consensus has been reached with the states that all buffers on the label need to be mandatory.
4	Formal discussion with state governments is required to detail the need for supporting legislative reforms to enable electronic chemical labels and references to web based tools.	This is beyond the scope of the spray drift proposal.