

Buffer Zones to Reduce Land Use Conflict with Agriculture

An Interim Guideline

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Introduction

This Interim Guideline (the Guideline) provides buffer zone advice to agricultural industries, development proponents and consent authorities so as to reduce land use conflict between agriculture and other land uses. Such conflict is becoming increasingly common as residential development encroaches towards agriculture, much of which has been in operation for many decades.

The terms 'Buffer Zone' and 'Separation Distance', are often used interchangeably within the planning framework. They are defined by the Environment Protection Authority (EPA) as:

Buffer Zone : An area of land set aside to minimise the impacts of land uses on each other.

Separation Distance: The distance between the point of generation of an environmental impact and a receptor that is sensitive to that impact.

A separation distance may be used to specify the width of a buffer zone.

A buffer zone is also generally accepted as being an area where a landholder has legal control of the land needed to separate their development from adjoining land.



Cucumber poly-tunnels next to a residential area. Mid North Coast NSW. Photo Alexander Wells

The aim of this Guideline is not to replace a formal Statement of Environmental Effects or Environmental Impact Statement (EIS) as required under existing planning instruments.

Nor is it intended to address biosecurity and environmental management risks, as these often vary to those employed to minimise land use conflict. Rather, it is intended to assist development proponents and consent authorities to build appropriate buffer zones into developments by suggesting a distance, within which, a development should be further evaluated for possible impacts

Other objectives of this Guideline are to assist in providing:

- a common understanding of the purpose of buffers and separation distances, adopt a consistent approach and apply these distances for assessment purposes;
- access to information on Best Practice Management and methods for determining appropriate buffers/separation distances;
- the incorporation of buffers into developments and the planning and approvals process (such as consent conditions).

This will minimise the risk of future land use conflict and the need for further regulatory intervention.

In NSW, there are currently a number of different approaches to guide separation distance decisions within the planning framework.

In the case of most new intensive animal developments, a formal Statement of Environmental Effects (the minimum assessment Councils require before granting consent) or full EIS, will be required.

This assessment will calculate a range of separation distances for reasons such as biosecurity, environmental protection or maintaining amenity for adjacent landholders and the public.

Some other agricultural enterprises such as horticulture and stock grazing, may not require such an assessment.

Non-agricultural developments such as new residential areas that are adjacent to existing agricultural activities, may also not require a formal assessment to determine separation distances. In these situations, building in buffers as indicated in this Guideline, will help minimise land use conflict.



Rural land in western Sydney scheduled for re-zoning. Photo Nearmap image

Why are buffers necessary?

The separation of land uses incompatible with agriculture and between different types of agriculture, can be an effective way to minimise land use conflict and enable primary producers to better operate, with fewer constraints. It also plays a key role in farm biosecurity and in managing any impacts of agriculture on the environment.

It is essential that any proposed agricultural development undertake a full biosecurity risk assessment using the latest industry Best Practice Management through a Statement of Environmental Effects or EIS.

Proponents should also contact the Office of Environment and Heritage, the Environment Protection Authority and the Biosecurity and Food Safety Division of the Department of Primary Industries, for advice on biosecurity and environmental buffers.

It is important that buffer zones built into the design of developments do not rely on any adjacent rural landholding for their development's buffer zones. This is particularly relevant for non-agricultural developments such as new residential developments which have in the past, often relied on adjoining rural zoned land to form part of the development's buffer zone.

Incorporating appropriate buffer zones into the planning process, particularly at the early stages of a proposed development, will provide ongoing benefits for primary producers and the public.



Intensive poultry operation in the central west of NSW showing extensive use of buffers and vegetation screening. Photo DPI

Buffers & Land Use Conflict

There are a range of causes of land use conflict and it can threaten the ongoing viability of agricultural operations as well as the amenity enjoyed by adjacent land users.

Some of these causes include threats to biosecurity, odour, dust, noise, water use, visual amenity, smoke, effluent management, chemical use & spray drift, weed management, as well as other nuisance issues such as stray dogs and trespass.

The most offensive or difficult to control may also require the largest buffers from sensitive human receptors.

Sensitive human receptors include land uses such as private dwellings (not associated with the agricultural operation), schools, places of worship, public parks, workplaces etc.

Some intensive agriculture developments such as the poultry and pig production sectors have received significant community attention, often due to their proximity to non-agricultural land users. Increasingly, horticultural operations are also receiving this community scrutiny.

This is largely because residential development is expanding into areas that have long been used for primary production. Also, land that in the past was typically used for extensive agriculture such as cattle grazing, is now being used more intensively.

The NSW *Right to Farm Policy* was developed, partly in response to the increase in land use conflict that has now been documented through a number of surveys of local government.

'Right to Farm' is a broad concept centred on the idea that primary producers should be able to undertake their lawful activities in accordance with accepted industry standards, without undue interference. Since its inception in 2015, considerable progress has been made in its implementation. Consistent application of separation distances will also contribute to the implementation of the Policy.

Indicative buffers and separation distances

To date, the most comprehensive publication containing buffer/separation distance recommendations is the *Living and Working in Rural Areas Handbook* (The Handbook).

The authors of the Handbook reviewed an extensive national and international literature and some of the suggested distances have been maintained in this Guideline.

In conjunction with the Handbook, a Land Use Conflict Risk Assessment (LUCRA) Guideline is also available to assist in identifying whether a buffer zone is required. Consent authorities can require a LUCRA as a condition of consent for some forms of development.

Since the Handbook was first published in 2007, some agricultural sectors have made changes to industry Best Practice Management with respect to buffers.

There are also a range of separation distances prescribed by various policies, legislation/regulations & industry sector guidelines. Relevant changes have been incorporated into this Guideline.

However it should be noted that this area is subject to constant change. For example, at the time of writing, a revised State Environment Planning Policy (Exempt and Complying Development Codes) 2008 has been released while a new Primary Production and Rural Development SEPP is being prepared.

These documents may prescribe separation distances although in some cases, such as the Codes SEPP above, prescribed distances are not recommended separation distances. Instead, if a development falls within the distance prescribed in the Codes SEPP, a different planning pathway must be adopted.

Another example of a prescribed distance that initiates further evaluation is Clause 21(4) of Schedule 3 of the Environmental Planning and Assessment Regulation 2000 (EP&A) Regulation. This requires that any intensive poultry development within 500m of a residential zone must be treated as a 'Designated Development'. The same 500m distance is also referenced in the *Best Practice Management for Meat Chicken Production in NSW – NSW DPI* (2012). Again, it is not a recommended distance but one that initiates the need for an EIS and so it can be thought of as an 'evaluation' distance.

The issues surrounding land use conflict and the separation of incompatible land uses through the establishment of buffer zones, is not an exact science. As such, the distances suggested in **Table 1** are intended to be used as a guide and an initiator for further evaluation. The use of these 'evaluation' distances by proponents will help reduce land use conflict by initiating an assessment as to what constitutes a satisfactory buffer zone.

Site specific considerations such as topography, vegetation, the nature of the adjacent agricultural operation(s) as well as the type of proposed development, should all be considered when undertaking any assessment to determine separation distances and buffer zones.

If the development requires consent under Part 4 of the *Environmental Planning and Assessment Act* (1979), a formal Statement of Environmental Effects or full EIS, will need to be undertaken.

Such an assessment will include consideration of the issues cited above and should use the latest industry sector Best Practice Management.

Separation distances will be quantified through this assessment, which will then form the basis of any buffers for sensitive human receptors, biosecurity and environmental management requirements.

It is possible, indeed likely, that a formal evaluation will stipulate different distances than indicated in **Table 1**. Therefore, these are the distances that should be applied to the development.

Striking the balance of the right of primary producers to undertake their lawful activities and maintaining community amenity, is essential to facilitating ongoing primary production and the economic and social benefits that flow from this.



A dairy farm adjacent to a housing estate. Far North Coast. Photo Selina Stillman

Case Study 1: Broiler Farm Odour Modelling

An example of how separation distances can vary depending on site specific factors, is through a Broiler [chicken meat] Farm Odour Modelling (Level 1) exercise. Such an analysis would be required for any new broiler farm development.

One should also be completed when new residential developments are planned for locations near to existing broiler farms – an increasingly common occurrence in Western Sydney.

Standard EPA Level 1 odour modelling methodology was used as required by the *Best Practice Management for Meat Chicken Production in NSW – NSW DPI* (2012). A range of variables from a worst case to best case scenario were used, while assumptions included a 6 shed farm containing 35,000 birds per shed.

The results of this analysis show a range of recommended distances to sensitive receptors from 4333m for a worst case scenario, to 453m as a best case. However, using a typical range of variables, the recommended separation distance that resulted from this exercise, was 1079m. This correlates closely with the suggested evaluation distance in **Table 1**.

Another practical example of how this Guideline may be used, including the importance of formal assessments, is provided in the form of Case Study 2 (p8).

Table 1: Suggested evaluation distances between agriculture and sensitive receptors

Agricultural Land Use	Distance (meters)	Source
Pig Farms (indoor)	(1)1000 ^a (2) 500	Living and Working in Rural Areas Handbook (2007) For facilities holding less than 200 pigs - Draft Standard Instrument LEP (2017)*
Pig Farms (outdoor)	500	National Environmental Guidelines for Outdoor Rotational Piggeries - Revised: Australian Pork Limited (2013)
Poultry (broiler & eggs) indoor and outdoor	(1)1000 ^b (2) 500	Living and Working in Rural Areas Handbook (2007) and Level 1 Odour Modelling case study For facilities holding less than 1000 birds - Draft Standard Instrument LEP (2017)*
Dairies	500 ^c	Including for facilities holding less than 50 head - Draft Standard Instrument LEP (2017)*
Cattle Feedlots	1000 ^d 500	Living and Working in Rural Areas Handbook (2007) For facilities holding less than 50 head - Draft Standard Instrument LEP (2017)*
Sheep or goat Feedlots	500	Living and Working in Rural Areas Handbook (2007)
Rabbits	150 ^e	Rabbit Farming: Planning and Development Control Guideline: NSW DPI (2002)
Other intensive livestock	250	SEPP (Exempt and Complying Development Codes) 2008
Stock grazing	50	Living and Working in Rural Areas Handbook (2007)
Stock yards	200	SEPP (Exempt and Complying Development Codes) 2008 –Inland Code
Outdoor Cropping/sugar cane/turf farms	300	Living and Working in Rural Areas Handbook (2007)
Outdoor horticulture	250	SEPP (Exempt and Complying Development Codes) 2008
Protected cropping (greenhouses)	250	SEPP (Exempt and Complying Development Codes) 2008
Silos/grain storage bunkers	100	SEPP (Exempt and Complying Development Codes) 2008 –Inland Code
Fan assisted silos (Macadamia nuts)	300	Living and Working in Rural Areas Handbook (2007)

Notes:

- At the time of writing, definitions within the Draft Standard Instrument LEP (2017) were being revised in conjunction with the drafting of the new Primary Production and Rural Development SEPP ,so the distances provided may be subject to change when these are finalised.
- All intensive animal agriculture development applications that reach certain threshold levels as listed on Schedule 1 of the *Protection of the Environment Operations Act 1997* will require a licence from the EPA.

- All intensive animal agriculture development applications that reach certain threshold levels are deemed a Designated Development under Schedule 3 of the *Environmental Planning and Assessment Regulation 2000* and require a full Environmental Impact Statement.
- All intensive animal agriculture proposals that are subject to an environmental assessment or an Environmental Impact Statement will require assessment using the latest industry sector BMPs (listed below) as well as in accordance with the *Assessment and management of Odour from Stationary Sources in NSW* (2006) and the *Noise Policy* (2017).
 - a) Subject to environmental assessment in accordance with the Australian Pork Limited AUSTRALIAN PORK LIMITED National Environmental Guidelines for Indoor Piggeries (NEGIP) May 2018
 - b) Subject to environmental assessment in accordance with *Best Practice Management for Meat Chicken Production in NSW – NSW DPI* (2012).
 - c) Subject to environmental assessment in accordance with *Environmental Management Guidelines for the Dairy Industry*. NSW DPI (2008) if the dairy can accommodate 50 head or more.
 - d) Subject to environmental assessment in accordance with the *National Guidelines for Beef Cattle Feedlots in Australia, 3rd edition*. Meat and Livestock Australia (2012)
 - e) Subject to environmental assessment in accordance with *Rabbit Farming: Planning and Development Control Guideline*. NSW DPI (2002).

Case Study 2

A company owns two Lots of land zoned RU1 (Primary Production) comprising a total of 20 Hectares. They are planning to submit a Development Application to re-zone the land for a new, 280 dwelling, over 55s lifestyle community. The area has a long history of horticulture, stock grazing and dairy production and these activities continue to take place on adjacent, or nearby properties.

The property with one adjacent boundary has been used for low intensity cattle grazing for many years. Another adjacent property is being used for commercial horticulture including the use of greenhouses. The one remaining dairy in the area is located approximately 420 meters away.

The consultants working on the project considered nearby land uses and with reference to this Interim Guideline, made the following recommendations to their client:

1. Any of the proposed new dwellings adjacent to the property running cattle, should be set back at least 50 meters from the boundary of the property, with an access road and screening vegetation also forming part of the buffer.
2. Given that the proximity of the dairy fell within the minimum separation distance suggested in this Guideline, the consultants undertook an assessment of the possible impact of the dairy in terms of noise, dust and odour in accordance with industry Best Management Practice. The modelling showed that due to the topography, vegetation and siting of the proposed development, that the 420 meter separation distance was adequate in this instance.
3. The adjoining horticulture operation on approx. 50 Hectares, was using 20 greenhouses and outdoor cultivation to within approximately 10 meters of the boundary. This Guideline indicates a buffer of 250 meters between a new development and the boundary of adjoining land where horticulture is undertaken. This reduced the number of dwellings that the proponent was intending to construct by 10%. It also required a re-design of the facility so that the off leash dog exercise area, pool and tennis courts were located alongside that boundary with screening vegetation also used. This buffer enabled a final separation distance of 180 meters between the nearest dwelling and the boundary of the adjacent property undertaking horticulture.

Note that the assessment and modelling of the impact of the dairy did not consider biosecurity as the proposed development will not involve any form of agriculture.

More Information

Right To Farm Policy and Land Use Survey

www.dpi.nsw.gov.au/agriculture/lup/legislation-and-policy/right-to-farm-policy

Living and Working in Rural Areas: A handbook for managing land use conflict issues on the NSW North Coast (NSW DPI, Dec. 2007).

www.dpi.nsw.gov.au/research/alliances/centre-for-coastal-agricultural-landscapes/living-and-working-in-rural-areas

Revised National Environmental Guidelines for Piggeries - Second Edition (2010)

www.environment.gov.au/system/files/pages/c7dc0bcb-56b7-41c0-9c66-69618c7dcad7/files/cfi-national-environmental-guidelines-piggeries.pdf

National Environmental Guidelines for Outdoor Rotational Piggeries Revised: Australian Pork Limited (2013)

australianpork.com.au/wp-content/uploads/2016/07/NGforOP_2013_22_lowres.pdf

Best Practice Management for Meat Chicken Production in NSW – NSW DPI (2012).

www.dpi.nsw.gov.au/animals-and-livestock/poultry-and-birds/poultry-planning-and-keeping/planning-for-poultry-development/bpm

Environmental Management Guidelines for the Dairy Industry. NSW DPI (2008)

www.dairyingfortomorrow.com.au/wp-content/uploads/Environmental-management-guidelines-for-the-dairy-industryNSW.pdf

National Guidelines for Beef Cattle Feedlots in Australia, 3rd edition. Meat and Livestock Australia (2012)

www.mla.com.au/CustomControls/PaymentGateway/ViewFile.aspx?QcyEIgTQngTm70

Ea6OZR/MDZg3dm+mO3vWCcz9tYt1wX46/4IEqi/3wVtYwQ+L1k3EYMKKAfsht7d1Tnt3BqiA==

Rabbit Farming: Planning and Development Control Guideline. NSW DPI (2002)

www.dpi.nsw.gov.au/animals-and-livestock/other-animals/rabbit-farming-planning

For updates go to

www.dpi.nsw.gov.au/factsheets

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