



# Volumetric Conversion - the next stage

A booklet for landholders  
with licences on unregulated  
rivers in NSW

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# Sharing our Water Resources

Water has played a vital role in supporting communities and developing our economy. The building of the major rural dams across New South Wales and the productive use of our available water resources promoted economic growth. An assured supply of water fostered regional development. Landholders, industries, transport, towns and cities have benefited from the development of our water resources, and water use has continued to expand to the present time.

In New South Wales we are reaching the limits of our available water resources. The continued growth in use of water cannot be sustained. Already, the environmental impacts of development are felt across the state: soil and water salinity; declining water quality, restrictions on water use; the decline of native plants, fish and birds that depend on healthy waterways. Existing investment in rural production and other industries is also threatened by further growth in water use.

**To better manage our use of water, the Department of Land and Water Conservation is developing partnerships between landholders, the community and the NSW Government so that we can work together to secure fair shares for all - the environment, farms, households and industries.**

This booklet is addressed to those landholders who hold the over 11,000 water licences on unregulated rivers in NSW (excluding the Barwon-Darling system).

Apart from some basic rights available to you, a water licence is needed to take water from rivers or lakes to irrigate commercial crops or for industrial purposes.

Licences to take water from rivers are different for regulated and unregulated rivers.

**Regulated rivers** have major government rural dams, and are declared under the Water Act as being under regulated supply. **All** other rivers in NSW are known as **unregulated rivers**, even though there may be dams or weirs built on them by urban water suppliers or private users.

Water licences for unregulated rivers are based on irrigating a set area, with a limit to

the size of pump that can be used and times to pump. In the past, this method was a simple way to manage water use. But it is no longer successful in meeting the current and future needs of water users and the environment, as the area is not related to volumes of water extracted from rivers.

For almost 20 years, landholders taking water from regulated rivers have had licences that allowed them to take up to a set maximum volume of water each year. They generally have no limit to the area they can irrigate.

## What is volumetric conversion?

All landholders' licences for unregulated rivers are changing from being based on a limit to the area that can be irrigated, to a limit on the volume of water that can be extracted.

As a licence holder this **volumetric conversion** process will give you a volume of water that may be used each year. This is called an *annual volumetric entitlement*.

Because flows in unregulated rivers vary from year to year with rainfall, there can be no guarantee that you will be able to access this volume every year. To allow for this you will be able to average your annual entitlement over a three-year period. This allows for variations in usage from year to year. For example, you will be able to use up to twice your annual entitlement in a single year so long as, over three years, your total water usage comes to no more than three times your annual entitlement. This provision recognises the variability of the climate, where we experience wet years and dry years, and allows water to be stored on-farm when it is available, for use in dry periods.

Your annual volumetric entitlement is calculated by taking the licensed area and multiplying that by the relevant 'crop conversion rate(s)'. The crop conversion

rates are based on levels of average water use for particular regions and take account of climatic conditions, irrigation practice and crop types. Rates have been jointly developed by the Department of Land and Water Conservation (DLWC) and NSW Agriculture, with input from rural industry associations and regional communities.

For non-irrigation licences (for example, aquaculture or mining) the rate is based on the current water needs for the enterprise.

Irrigation licences that are not being used at present will be converted to give enough water to grow a crop, based on the lowest 'irrigated crop water requirement' for your local climate.

In addition to these annual volumes there will be rules for sharing the available flows in unregulated rivers. These will define how much water can be taken from different flow events on a daily basis, and will be developed by DLWC and local Water Management Committees.

## What has been done so far?

In October 1999, the department released "Sharing the Water Resources on Unregulated Rivers" as part of the *Rural Production and Water Sharing* package. This publication explained the volumetric conversion process and included draft conversion rates for comment.

The package was posted to more than 11,000 water licence holders on unregulated rivers in NSW. Included was a survey to be completed by licence holders. This asked for details on how the licence was used. For rural producers, it asked for facts on irrigated areas, crops planted and methods of water extraction.

The survey also asked about water use by various industrial and commercial operations, and general water uses such as stock, domestic, recreation and other activities.

Nearly 9,000 licence holders (about 80%) returned completed surveys.

## Consultation on the draft conversion rates

After releasing the draft conversion rates in October 1999, the department held a series of consultations over three months, meeting water users and other interested community groups. A total of 81 submissions were received. These are listed in Appendix 3.

As a result of these consultations, the submissions received and data from an extra 200 climatic stations, a number of changes have been made to the draft rates published last October:

- The number of climate zones across NSW has been increased from 15 to 20
- Additional crop classes have been added in many zones
- Some crop conversion rates have been altered as a result of new data being supplied and climate zones being split.

## Conversion rates for irrigation

For your licenced areas being irrigated ('active' areas), the conversion process is designed to work out a total annual volumetric entitlement which will provide the water needed to keep growing your current crops. The process also includes an allowance for licenced areas that have not been irrigated ('inactive' areas).

Different conversion rates apply in different parts of the state. This is because crop irrigation water requirements, and the crop types that can be grown, vary considerably with rainfall, temperature and evaporation rates.

As a result of the consultation process, the State has now been divided up into 20 climate zones and conversion rates have been worked out for the crops grown in each zone. Rates for different crop classes have undergone a thorough review since the draft rates were prepared. This was done by a joint task group of Department of Agriculture and DLWC staff. It took into account all the additional information

gathered during the consultation period and from submissions and additional climatic information. As a result, a number of rates have been modified.

The final rates for each climate zone are presented at the end of this report in Appendix 2. *If your crop is missing from the table for your climatic zone, it is probably because it is unusual in your area. You can contact the Department for further information.*

As proposed in the October 1999 booklet on volumetric conversion, the conversion rate for inactive areas has been set at the lowest crop rate for the related climate zone. This decision has been made because:

- any higher rates would create a real risk of overallocation and increase the need for future downward adjustments in water entitlements;
- in order to maintain equity between active and inactive licence-holders, inactives could not be given conversion rates higher than any active user;
- there was no consistent view in the submissions received, many favouring the lower rates and others preferring equivalence with the higher active rates.

Setting rates for different crop classes in different climate zones ensures that the conversion process will result in licencees being able to maintain current production levels. It also ensures that inactive areas can be developed, while at the same time minimising the impact of that development on other licenced water users.

The final conversion rates reward licencees who have invested in efficient irrigation technology and practices. The rates assume an average water use efficiency. This means that those who have invested in works and equipment to improve their efficiency in delivery (eg. using drip irrigation) will benefit by being able to use the water thus saved.

## Conversion rates for other uses

In addition to irrigation, water licences are used for a variety of other purposes. For example, stock watering, mining and other industries, recreation, and aquaculture. For most of these, standard rates are not suitable. Water volumes used vary from enterprise to enterprise, so volumetric entitlements will be worked out case by case.

For common farm water needs such as:

- stock watering
- general farming activities such as dairy and piggery washdown, and
- domestic supply,

standard rates have been worked out.

With very few exceptions, surveys reporting water usage for these purposes were unable to give estimates of water volumes used that could be confirmed. It is, however, possible to work out suitable volumes for these purposes which satisfy most of these estimates, and standard volumes have been set down for each climate zone in the Appendix 2 tables.

For stock water, the conversion volumes were worked out using information from the Australian Bureau of Statistics on typical property areas and stocking rates in each climate zone, and known stock drinking water requirements.

The domestic use volume in Appendix 2 should comfortably meet the requirements of the average rural household and garden. The volumes are 2 megalitres per year for the western slopes and plains and 1 megalitre per year elsewhere. The higher volume for the western slopes and plains takes into account the higher evaporative demands of gardens and water coolers and the likelihood of multiple households. These volumes are generous when compared with domestic use figures in towns.

The volumes in the table for general farming purposes were worked out from information provided by the Department of Agriculture in consultation with user groups.

## What will my conversion be and how is it worked out?

Your volumetric entitlement will be based on the information you provided in the survey you returned and the conversion rates provided in Appendix 2.

Licences can have more than one authorised purpose. For example, while many licences are for irrigation only, or stock drinking water only, many others are for irrigation and stock watering. Licences with multiple authorised purposes will get a volumetric entitlement for each purpose.

The entitlements will be worked out as follows:

### 1 Licences with an area authorised for irrigation

In the survey, landholders were asked to supply up to six years of information on areas of crops grown. This data has been processed on a year by year basis. For each year:

- a) If the reported total area irrigated exceeds the area authorised by the licence, the crop areas reported for that year are adjusted back to the authorised area. Volumetric conversion can only apply to the authorised area.
- b) The areas for each crop type reported in the survey are multiplied by the appropriate crop conversion rate for the climate zone (see Appendix 1 & 2) to give volumes in megalitres. The perennial rate will be applied where crops are over-sown on the same area.
- c) If the total reported area in a year is less than the authorised area, the remaining area is multiplied by the inactive rate for the climate zone to give a volume in megalitres.
- d) The total of the volumes for each crop and area, plus the volume for the inactive area (if any) are added to give the volume for the year.
- e) Where a licence has an authorised irrigation area but no usage is reported in any year, the entire authorised area is multiplied by the inactive rate for the climate zone to give the entitlement volume in megalitres per year.
- f) Finally, the volumes from each of the years with reported irrigation are compared. The highest of these volumes is selected as the irrigation entitlement, in megalitres per year.

### 2 Licences authorised to provide water for stock, private domestic use or for general farming activities (washdown of dairies, piggeries etc)

Standard entitlement volumes per licence for each of these purposes are tabulated for each climate zone.

### 3 Licences authorised to provide water for other purposes

Other purposes, such as industries (eg. abattoirs) are being treated case by case. The Department will be contacting these license-holders further to finalise their volumetric entitlement

Once the entitlement for each of these purposes that relate to your licence is determined, they are added to give the total entitlement for your licence.

### Example

*A farmer in Zone 1 with a licenced authorised area of 36 Ha, growing lucerne and vegetables. Survey details are provided for the six years.*

*In one year the farmer reported an irrigation area of 45 Ha in the survey, yet the licenced area is only 36 Ha. The conversion is done at 36 Ha.*

*The farmer's survey reported growing 20 Ha of lucerne and 2 Ha of vegetables in one year. The annual volume for irrigation for that year is: 102 ML (20Ha x 4.5 plus 2Ha x 6).*

*The farmer irrigated 22Ha in one year, but is licenced to irrigate 36Ha. The inactive component is therefore: 21 ML (14 Ha x 1.5 ML/Ha).*

*The volume for the year for this farmer is 123 ML.*

*The survey showed that the farmer had not irrigated any area in one of the survey years. The volume would then be: 52.5 ML (35Ha x 1.5 ML/Ha).*

*The survey response for the six years are: 72 ML, 52.5 ML, 87 ML, 123 ML, 119 ML, and 102 ML. The irrigation entitlement is therefore 123 ML.*

*The licence also provides for water supply for domestic and stock purposes. Therefore an additional 4 ML applies.*

*The total volumetric entitlement for this licence is 127 ML.*

## What if I think there were special factors about my licence that weren't considered?

Given such a wide range of irrigation and water use practices, it is inevitable that some licence holders will consider that the volume is not appropriate to their specific situation. That is, they believe there is an anomaly – something different or special about their circumstances. For this reason the government will be establishing an *independent anomalies review panel* to deal with special cases. In the letter notifying your volumetric entitlement, you will also be advised on how you can seek a review through the anomalies process.

Anomalies must be based on verifiable differences in your water usage compared with the typical requirements. A disagreement with the general crop conversion rates for your specific climatic zone, or with the process as a whole, is not enough to form the basis of an anomaly.

Examples of issues that could justify a review of your entitlement include:

### 1. Records of higher water usage and/or crop production.

Some irrigators may be able to substantiate water usage that is higher than the relevant conversion rate. Others may be able to demonstrate production levels that are significantly above the average eg in tons per hectare, number of cuts of lucerne or vegetable rotations.

### 2. Areas in process of being activated

Some landholders have recently made substantial investment in infrastructure to allow irrigation of a crop, but did not have it in place for the years covered by the survey. In this situation, conversion at rates other than the inactive rate may be considered.

### 3. Specific crop rate issues

These could only be considered if the crop is being grown in ways or for purposes not anticipated when the rates were developed.

If you feel that you have been converted according to the wrong crop class or that there has been an error in the calculations you should write to the Department providing the correct information. Your information will be checked and corrections made as necessary without waiting for the matter to go through the anomalies process.

## What will happen from here?

### Notification of volumetric licence conditions

From August each licence holder will receive a letter from DLWC indicating their new volumetric entitlement by way of a change to the conditions of the license.

These annual volumetric entitlements will provide greater clarity and flexibility in business decisions. However, it must also be emphasised that the conversions do not guarantee diversion volumes as this is dependent on climate and on access arrangements at any time. The resulting entitlements are likely to be subject to adjustment in the future in response to Murray-Darling Basin cap exceedence or other resource management requirements determined through the water planning process.

### Measuring water usage

Meters will be required on all licenced river pumps to measure the water diverted through the pump, and water users will be asked to maintain a pumping diary. The type of meter will vary with the size and type of pump. Many pumps will need flow meters, an hour run meter may be adequate for others or an electricity meter may suffice. The DLWC is already working with licence holders on some rivers to introduce metering. This will continue valley by valley across the whole state over the next three years.

Working with water licence holders, the DLWC has conducted a number of trials over the past three years to find out the most cost effective technology for monitoring extraction of water from rivers and aquifers. These trials have covered everything from

very low cost pump hour meters, pump electricity consumption meters and mechanical in-line flow meters, through to advanced ultrasonic and magnetic flow meters. The trials have shown that a range of solutions is possible, and that the technology used can be tailored to the particular licence.

More information on metering will be provided to you over the next few months.

### Daily Flow Extraction Limits

The amount of water that you will be able to divert in any year will depend not only on your annual volume entitlement but also on the amount of streamflow which is available for extraction on a day to day basis, and on how it is shared amongst licence holders.

It is important to maintain a part of the natural flows in rivers to protect river health. Healthy rivers are essential for high biological diversity, good native fish populations, good quality water for town and private water supplies, irrigation and industries, and stock and recreational uses such as fishing or swimming. So part of the day to day flow in our rivers will be set aside to remain in the river.

The part that is then available for extraction will be shared between all licence holders.

These shares will be specified on each licence and will be protected from the impact of new development and water transfers.

Three flow classes will be established in each subcatchment as follows:

**A class** - would be the very low flows typically occurring on about 10 to 20% of days. (This class will only exist in the more permanently flowing rivers).

**B class** - would be the low to medium flows. (This class may not exist in the more ephemeral rivers – those that cease to flow some of the time).

**C class** - would be the medium to high flows and may be further subdivided in highly ephemeral rivers if necessary.

The total volume of water occurring on a daily basis in each of these flow classes can be calculated and the proportion of this that may be extracted can be determined. This assessment will be undertaken by the DLWC with the Water Management Committees.

The extractable volumes within each flow class will then be shared amongst licence holders according to their annual volume entitlement. Consider the following example:

- In a particular river there are 20 licences with a total licenced annual volumetric entitlement of 1600 megalitres.
- It is assessed that for the low flows (A Class) for that river, there is a total volume of 10 megalitres per day that should be available for extraction without compromising the health of the river.
- If one of the landholders has a licenced annual entitlement of 80 megalitres, then that landholder would be able to extract 0.5 megalitre per day when the flow in the river is in the A Class range.

$\frac{\text{licence entitlement}}{\text{Total licenced entitlements}}$	x	Bulk Extraction Limit (A Class)	=	Daily extraction limit for licence
$\frac{80 \text{ ML}}{1600 \text{ ML}}$	x	10 ML/day	=	0.5 ML/day (500,000 litres/day)

A similar calculation would also be completed for the other flow classes pertinent to that river. Thus, a licence will not only specify the annual water entitlement, but also the volume that the licence holder can extract on a daily basis. The DLWC will establish systems to ensure licence holders are aware of the flow class that applies at any time.

This system of flow sharing is designed to sustain our rivers' health at the same time as providing a means for better defining and protecting the investments of existing licensees. As more licence holders activate and new entrants establish, the competition for the available flow, particularly for the lower flows, will increase and the reliability

of supply for existing irrigators will drop. Many existing irrigators expect to maintain the same levels of access as they have historically enjoyed and do not realise the potential impact that the inactive licences and/or water transfers could have on their supply reliability. Under the daily flow sharing arrangement new entrants will only be able to establish in a river if there are daily extraction volumes available or if they purchase daily extraction rights from existing licencees.

The ongoing timetable for the conversion process is shown below:

Time	Action
Aug-Sept 2000	<ul style="list-style-type: none"> <li>• Licencees notified of the annual volumetric entitlements</li> </ul>
Aug-Nov 2000	<ul style="list-style-type: none"> <li>• Anomalies process for annual conversions</li> <li>• Water Management Committees review/recommend the daily flow extraction limits</li> </ul>
Feb-Mar 2001	<ul style="list-style-type: none"> <li>• Licensees notified of daily flow extraction limits in priority rivers</li> </ul>
Mar 2000-Dec 2002	<ul style="list-style-type: none"> <li>• Water Management Committees progressively recommend the daily flow extraction limits for other rivers</li> <li>• Licencees progressively notified of daily flow extraction limits in other rivers</li> </ul>
Jul 2000-Jun 2003	<ul style="list-style-type: none"> <li>• Progressive implementation of water usage metering beginning with priority rivers</li> </ul>

### How will things be different after volumetric conversion?

Once you have your volumetric entitlements, a number of previous restrictions are removed. For example, you are no longer restricted to any particular area for irrigation. So long as you do not use more than your volumetric entitlement or contravene any other licence conditions, you can plant larger areas by adopting

efficient water use technologies and practices.

If you wish to sell your entitlement on the water trading market, it will be much easier to do so. You will now have an entitlement volume, with no distinction between active and inactive entitlements in terms of trade. However, note that stock and domestic entitlements are not tradeable.

Overall water charges will also be calculated on a much fairer system. Once water usage metering is in place, your bill will be based on your actual usage of water, rather than a fixed fee related to your authorised area.

### Benefits of Volumetric Conversion

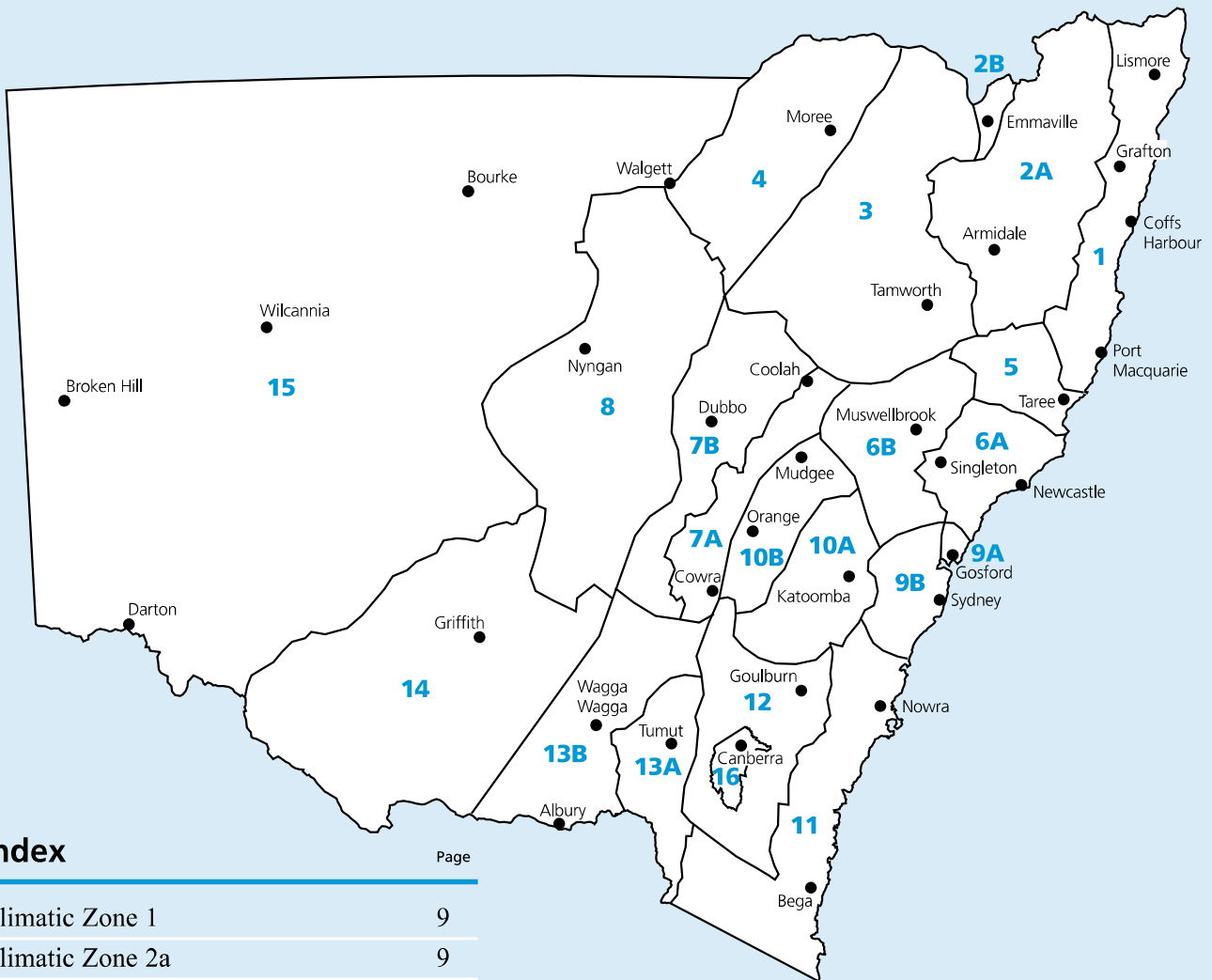
Volumetric conversion will provide a range of benefits:

- creates fairness for all water users by having most NSW water licences based on an annual volumes
- provides more investment security to existing water users by having a clearer definition of water rights and access
- allows a system of explicit rules that are easy to monitor and enable flexible on-farm management of water use
- promotes efficient water use by removing area limits, enabling water users on unregulated rivers to get improved production with better economy
- protects the health of our river systems by providing better information for managing water flows.

The system will result in better management of the state's water resources, providing water for the environment and fair shares for farms, households, industries and communities.



# Appendix 1: Map of climate zones



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# Appendix 2: Tables of final conversion rates

## Final Conversion Rates–Climatic Zone 1

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rate
Winter Cereal	2.5
Summer Cereal	2
Citrus	3.5
Vines	1.5
Winter Oilseeds	3.5
Summer Oilseeds	2
Perennial Pasture	4.5 non dairy, 6.5 dairy
Annual Pasture	3
Lucerne	4.5
Vegies	6
Orchards	5.5
Nuts	5.5
Pulses	4
Olives	4
Sugar Cane	8
Coffee	6.5
Tea Tree	7
Bananas	6.5
Cut Flowers	4.5
Turf	10
Inactive Areas	1.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	3
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 2a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rate
Winter Cereal	2.5
Summer Cereal	3
Citrus	4.5
Vines	1.5
Winter Oilseeds	3.5
Summer Oilseeds	3
Perennial Pasture	5.5 non dairy, 7 dairy
Annual Pasture	3
Lucerne	5
Vegies	3.5
Orchards	5
Nuts	5
Pulses	3.5
Olives	4
Turf	11
Inactive Areas	1.5

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 2b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	2.5
Summer Cereal	3.5
Citrus	5.5
Vines	2
Perennial Pasture	6 non dairy, 7.5 dairy
Annual Pasture	3.5
Lucerne	6
Vegies	6.5
Orchards	5.5
Inactive Area	2

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 3

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rate
Winter Cereal	3
Summer Cereal	6
Citrus	8.5
Cotton	7.5
Vines	4.5
Winter Oilseeds	4
Summer Oilseeds	6
Perennial Pasture	6 non dairy, 7.5 dairy
Annual Pasture	4.5
Lucerne	6.5
Vegies	8
Orchards	9
Nuts	9
Pulses	5.5
Turf	11.5
Inactive Areas	3

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 4

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rate
Winter Cereal	4
Summer Cereal	8.5
Cotton	9
Summer Oilseeds	8
Lucerne	7
Pulses	8
Inactive Area	4

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 5

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	2.5
Summer Cereal	3
Citrus	5
Summer Oilseeds	3
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	3
Lucerne	5
Vegies	6.5
Orchards	6.5
Nuts	6.5
Pulses	4
Cut Flowers	5
Turf	11
Inactive Area	2.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	3.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 6a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	3
Summer Cereal	4
Citrus	6
Vines	3
Summer Oilseeds	4
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	3.5
Lucerne	6
Vegies	8
Orchards	8
Nuts	8
Pulses	5
Olives	5
Turf	11
Inactive Area	3

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	3.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 6b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	3
Summer Cereal	5
Citrus	8
Vines	4.5
Winter Oilseeds	4
Perennial Pasture	5.5 non dairy, 7.5 dairy
Annual Pasture	4
Lucerne	6.5
Vegies	9.5
Orchards	9.5
Nuts	9.5
Pulses	5.5
Olives	6.5
Turf	11.5
Inactive Area	3

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	3.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 7a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	3
Summer Cereal	6
Vines	4.5
Summer Oilseeds	6
Perennial Pasture	5.5 non dairy, 7 dairy
Annual Pasture	3
Lucerne	6
Vegies	6.5
Orchards	8.5
Turf	11
Inactive Area	3

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 7b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rate
Winter Cereal	3.5
Summer Cereal	6.5
Cotton	9
Vines	5
Winter Oilseeds	3.5
Perennial Pasture	6 non dairy, 7.5 dairy
Annual Pasture	3.5
Lucerne	6.5
Vegies	7.5
Orchards	9.5
Pulses	5
Turf	11.5
Inactive Areas	3.5

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 8

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	4.5
Summer Cereal	8.5
Cotton	10
Vines	7.5
Winter Oilseeds	4.5
Summer Oilseeds	9
Perennial Pasture	6 non dairy, 8 dairy
Annual Pasture	4.5
Lucerne	7
Vegies	10
Orchards	12.5
Pulses	7
Turf	12.5
Inactive Areas	4.5

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 9a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Summer Cereal	3
Citrus	3.5
Vines	1.5
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	2
Lucerne	4.5
Vegies	5.5
Orchards	6
Nuts	6
Pulses	3
Olives	3.5
Turf	10
Cut Flowers	5
Inactive Area	1.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	5.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 9b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	2.5
Summer Cereal	3
Citrus	6
Vines	3
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	3
Lucerne	6
Vegies	7.5
Orchards	6
Nuts	6
Olives	5
Turf	11
Cut Flowers	5
Inactive Area	2.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	5.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 10a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	1.5
Summer Cereal	3.5
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	1.5
Lucerne	5
Vegies	3.5
Orchards	5
Turf	8.5
Inactive Area	1.5

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 10b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	2
Summer Cereal	4
Vines	3
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	2
Lucerne	6
Vegies	4.5
Orchards	6
Nuts	6
Pulses	3
Turf	11
Inactive Area	2

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 11

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	1
Summer Cereal	2.5
Citrus	3.5
Vines	1.5
Summer Oilseeds	3
Perennial Pasture	4.5 non dairy, 6.5 dairy
Annual Pasture	1.5
Lucerne	5
Vegies	4.5
Orchards	5.5
Nuts	5.5
Pulses	2.5
Olives	3
Turf	8.5
Cut Flowers	4.5
Inactive Area	1.0

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 12

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	2
Summer Cereal	5.5
Vines	3
Perennial Pasture	5 non dairy, 7 dairy
Annual Pasture	1.5
Lucerne	6
Vegies	5.5
Orchards	6.5
Nuts	6.5
Turf	10.5
Inactive Area	1.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	4.5
Farming	5
Domestic	1

## Final Conversion Rates–Climatic Zone 13a

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	1.5
Summer Cereal	5
Citrus	4.5
Vines	3
Summer Oilseeds	5
Perennial Pasture	5.5 non dairy, 7.5 dairy
Annual Pasture	1.5
Lucerne	6.0
Vegies	3.5
Orchards	7.5
Olives	4.5
Nuts	7.5
Pulses	2
Turf	9.5
Inactive Area	1.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	5
Farming	5
Domestic	2



## Final Conversion Rates–Climatic Zone 13b

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	1.5
Summer Cereal	7
Vines	5
Summer Oilseeds	6.5
Perennial Pasture	5.5 non dairy, 7.5 dairy
Annual Pasture	1.5
Lucerne	6.5
Vegies	5.5
Orchards	9
Olives	6.5
Pulses	3.5
Turf	11.5
Inactive Area	1.5

### Intensive Industry Rate (ML/Ha)

Crop Class	Final Conversion Rate
Nurseries	20

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	5
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 14

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	3
Summer Cereal	9.5
Citrus	10
Vines	7.5
Winter Oilseeds	2.5
Summer Oilseeds	8
Perennial Pasture	6 non dairy, 8 dairy
Annual Pasture	3
Lucerne	7
Vegies	8
Orchards	12
Olives	9
Pulses	5.5
Rice	13
Inactive Area	2.5

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	5
Farming	5
Domestic	2

## Final Conversion Rates–Climatic Zone 15

### Broad Acre Cropping Rates (ML/Ha)

Crop Class	Final Conversion Rates
Winter Cereal	6
Summer Cereal	12
Cotton	13.5
Perennial Pasture	7 non dairy, 9 dairy
Annual Pasture	6
Lucerne	8
Pulses	9.5
Inactive Area	6

### Stock, Farming and Domestic Rates (ML)

Category	Final Conversion Volume
Stock	6.5
Farming	5
Domestic	2

## Appendix 3: List of submissions received on the draft conversion rates

Climatic Zone	Region	User or User Group
All Zones	All Regions	NSW Farmers
All Zones	All Regions	NSW Dairy Farmers
2	Barwon	Mole and Sovereign Water Users Association
2	Barwon	Border Rivers Unreg RMC
2	Barwon	Mole & Sovereign Water Users Association
2	Barwon	Richfield Vineyard Pty Ltd
2	Barwon	Tableland Turf
3,4	Barwon	Lower Namoi Water Users Association
3	Barwon	Mr. C McNamara
3	Barwon	Mr. B. Clift
3	Barwon	Harpsum Investments Pty Ltd
3	Barwon	Upper Namoi Water Users Association
3	Barwon	Mr Peter Bagshaw
3	Barwon	Carol J Olde
3	Barwon	Namoi River Unregulated River Management Committee
7	Central West	Mr. J. See
7	Central West	Gossamer Down Cashmere Pty Ltd.
7	Central West	DE & HM Zinga
7	Central West	Mr G. Mitchell
8	Central West	Mr. P. and Mrs R. McLellan
8	Central West	Mr B. and Mrs J. McLellan
8	Central West	Mrs M. & Mr. B. Jackson
8	Central West	“longstowe” Warren
10	Central West	Cudgegong Valley Water Users Association
5	Hunter	Mr N. Patmore
5	Hunter	Mr J. Higgins
6	Hunter	Mr. P & Mrs. R McIntyre
6	Hunter	Hunter RMC
6	Hunter	Hunter Catchment Management Trust
6	Hunter	Mr M. J. Smith
6	Hunter	Hunter RMC
6	Hunter	Karuah River Water Users Association
13	Murray	Indi River Water User Association
13	Murray	Mr B.H. Findlay
13	Murray	Tooma Station
13	Murrumbidgee	Batlow Unregulated Rivers Water Users Committee
13	Murrumbidgee	Tarcutta Water Users Association
1	North Coast	Australian Pecan Growers Association

<b>Climatic Zone</b>	<b>Region</b>	<b>User or User Group</b>
1	North Coast	Macleay River Water Users Association
1	North Coast	Ms Susan Conway-James
1	North Coast	Clarence Catchment Management Committee
1	North Coast	AN & BA Yarnold
1	North Coast	Main CampTeatree Oil Group
1	North Coast	Coffs Harbour City Council
1	North Coast	Bannana Growers Association of Coffs Harbour
1	North Coast	Far North Coast Water Management Committee
9	Sydney South Coast	NSW Turf Growers
9	Sydney South Coast	University of Sydney “Camden Farms”
9	Sydney South Coast	Upper Nepean Water Users Association
9	Sydney South Coast	Mr. L Rousek
9	Sydney South Coast	Mr. F. Galea
9	Sydney South Coast	Windsor Golf Club
9	Sydney South Coast	Lower Nepean/Hawkesbury Water Users Association
9	Sydney South Coast	Mr F & E Galea
9	Sydney-South Coast	Hawkesbury-Nepean Turf Growers
9	Sydney-South Coast	Hawkesbury-Nepean Vegetable Growers
9	Sydney South Coast	SE NSW Horticultural Producers Association
9	Sydney-South Coast	Paradise Plains Wholesale Nurseries
11	South Coast	Bega Valley Water Users Association
11	Sydney South Coast	Warawitcha
11	Sydney South Coast	Mr K. Harrison
11	Sydney South Coast	Mr N. Wisby
11	Sydney South Coast	P.J & P.R Hemler Araluen
11	Sydney South Coast	Mr S. Targett
11	Sydney South Coast	Araluen Community Water Users Association
11	Sydney South Coast	Bega Valley Water Management Committee
11	Sydney South Coast	Bourkes Hill Station
11	Sydney South Coast	“Wahgunyah”
11	Sydney South Coast	Mr J. L Hill
11	Sydney-South Coast	Mr B. Donovan
11	Sydney-South Coast	Mr V. Donovan
11	Sydney-South Coast	J.L & B.N. Hill
11	Sydney South Coast	Mr R Finch
11	Sydney South Coast	Mr R Barker
11	Sydney South Coast	Mr P’O Fady

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