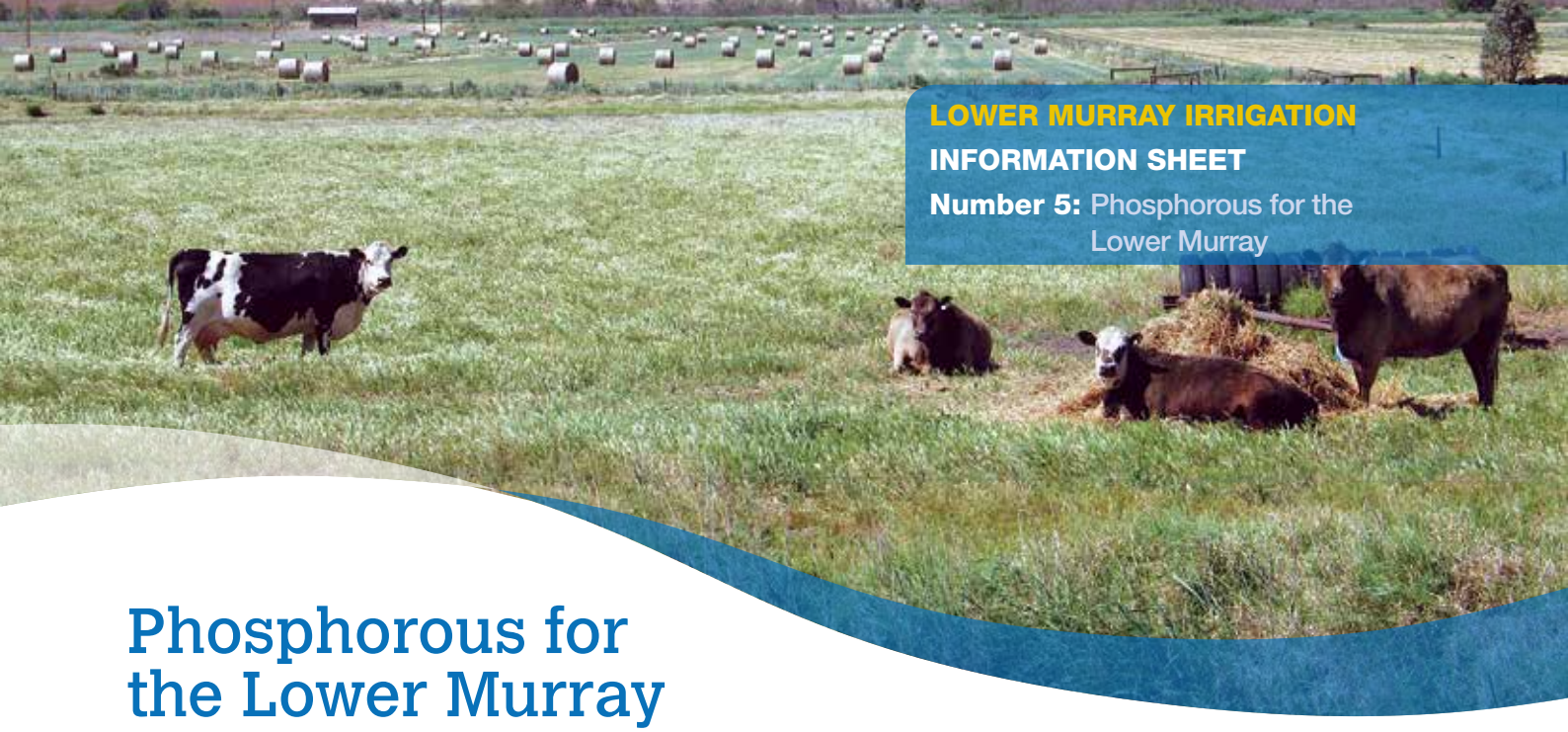

LOWER MURRAY IRRIGATION
INFORMATION SHEET
Number 5: Phosphorous for the Lower Murray

Phosphorous for the Lower Murray

Why use phosphorous fertiliser?

Soils on Lower Murray reclaimed area farms are very fertile. In the past the use of superphosphate fertiliser was seldom recommended due to this naturally high fertility. However, over time stocking rates and milk production per cow have risen dramatically giving rise to the need to replace phosphorous that is removed from the soil in product.

Laser levelling of paddocks has also lead to the need to target fertiliser on some paddocks where topsoil has been disturbed and re-distributed.

What about other nutrients?

Trace elements are not limiting on Lower Murray dairy farms—the soils have very high organic matter levels and pasture residues add to this store. Tissue samples taken by PIRSA over the years from these pastures have never shown any deficiency in trace elements with the exception of where salinity levels are high, which does limit uptake by pasture of nutrients.

Potassium is also seldom found to be limiting on these soils due to the very high clay content. Trials by PIRSA have not shown any economic response to applied potassium. Only phosphorous and nitrogen have been found to sometimes limit production (nitrogen is dealt with in a separate information sheet).

How do I know if I need to apply phosphorous?

No one should be applying phosphorous (P) without having first had a soil test done. This will tell you exactly what your phosphorous levels are like and help to determine whether you need phosphorous fertiliser.

Most Lower Murray farms only need to apply phosphorus in sufficient quantities to replace what is being removed in product—the amount you need to apply will depend on your initial soil phosphorous levels and your stocking rate. Your fertiliser representative or adviser can help you to fine tune your fertiliser needs.

You should use phosphorous fertiliser if you have recently laser levelled a paddock—it will help the paddock to recover more quickly. Double application rates should be used on any cut areas which have not had topsoil stockpiled and re-spread.

When should I apply fertiliser?

Small amounts of fertiliser applied often is the best strategy but can be expensive due to extra spreading and carting costs. As a minimum, you should apply phosphorous fertilser in split applications—one in early spring and the other in early autumn.

Estimate of amount of single superphosphate you need to apply to replace P removed in product. Figures are in kgs/ha/yr

	Litres per cow per lactation			
Cows per ha	**5,000**	**6,000**	**7,000**	**8,000**
2	122	143	164	186
3	182	215	247	279
4	243	286	329	372
5	304	358	411	465
6	365	429	493	558

The rates in the table should be doubled on any areas of paddocks that have been cut during laser levelling without the topsoil having been stripped, stockpiled and re-spread.

What if I apply fertiliser and don't see a response?

You often will not see an immediate response to phosphorus fertiliser. If you have adequate soil levels of phosphorus—at least 45ppm—you will not necessarily see a pasture response. The aim is to ensure you are replacing what is removed to maintain these soil levels. Once you "mine" your soil phosphorous and start to lose grass growth, it takes a long time to re-build the lost P in the soil—these soils can be very unforgiving.

When in doubt, contact your local fertiliser representative.

Phosphorous fertilser should only be applied before irrigation if you can control surface runoff—otherwise only apply after irrigation to a damp soil. Excess drainage after spreading fertilser wastes money on lost fertiliser and contaminates the drainage system and potentially the river. Trials have shown that 17% or more fertiliser can be washed from the paddock in the irrigation following fertilser spreading—under-water the paddock if necessary.

Fodder conservation

Large quantities of nutrients are removed when hay or silage is made. The standard figure of nutrient removal is 3.5 kg P per tonne hay removed (unless actual hay analyses suggest otherwise).

If the fodder is not fed back onto the paddocks from which it was made, the nutrient status of the paddock will decline.

A fertiliser program on hay and silage paddocks should aim to replace the phosphorus and potassium in the hay or silage, in addition to phosphorus removed through livestock (kg P/ha) and in addition to any phosphorus required to bring the soil phosphorus up to maintenance levels.

Regular soil tests should be taken in summer to monitor fertility of hay and silage paddocks.

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