

Comments on N&P gains:

From Andy B:

Hi All,

At our last TAG meeting we discussed that we need some estimates of nutrient gains from the range of interventions we have implemented. This is required for a number of purposes including reporting to central government. Rather than sending you a list of nutrient gains numbers to consider, we agreed at the TAG that we should circulate a methodology for working out the nutrient gains from each type of intervention.

John has prepared the attached table with proposed methods. Can you please take a look at this and comment if you support the methods proposed. Also, if you think there are other references or information we should be using to provide different methods please include them in your comments. It would be good to complete this by the end of next week if possible so I would appreciate any comments back by Thursday week if possible.

Thank you for your help on this one,

Cheers,

**Andy Bruere** |

Responses:

Max Gibbs

Hi Andy

Interesting table. I have some queries about some of the methods.

Could I see the reference to R. McDowell for Alum (Table cell 2D)

I would like to know how John came to the figure of 2.3gP/kg for Aqual-P (Table cell 4C) when the original value was 23gP/kg as the maximum and another report has measured the practical uptake as ~12gP/kg

An important issue is the use of the name “Alum”, which is imprecise. It causes all sorts of problems because there are so many different formulations. The product from the supplier is “47% alum w/w” but is that anhydrous aluminium sulphate, aluminium sulphate 9 H<sub>2</sub>O, aluminium sulphate 16 H<sub>2</sub>O or aluminium sulphate 18 H<sub>2</sub>O. There needs to be a standardisation of how we refer to alum otherwise the difference in the estimates of Al:P may be a function of the formulation of the product used i.e., a miscalculation due to the degree of hydration in the molecule.

I note that the table does not include the use of Phoslock on Lake Okareka.?

Cheers

Max

John MacIntosh:

McDowell report with alum and other analyses.

<http://www.boprc.govt.nz/media/34458/TechReports-070601-AssessmentAlteredSteelmelterslag.pdf>

The estimate for Aqual p was based on the original specifications for the first batch that was made ie the 110 tonne of product used at Lake Okaro. What the formulation subsequently became I am relying on others to fill the gaps. From the original specification I used a Al:P ratio of 5:1. Lets add 12gP/kg to the table, then, for discussion at the meeting.

This table is for internal BOPRC use and staff refer to the product that is purchased from Orica as ‘alum’. As a footnote I suggest we refer to Orica’s product specification. The other product that may be used is kibbled alum but it has not been used yet. We could add a row for kibbled alum and similarly add a footnote describing the product.

It was an oversight omitting Phoslock. It is probably a less preferred product but if you can add a line for Phoslock that would be appreciated, Max.

Paul Scholes

HI

Would just add in Stuart (S. Warneke GNS )and Louie Schippers work on pine wood chips which found: 1.3g NOx/m<sup>3</sup>/d.

Add zeolite to the list? Max removal 5-15 g NH<sub>4</sub>-N/kg. NIWA Report 2g NH<sub>4</sub>-N/m<sup>3</sup>.

Cheers,

**Paul Scholes**