



Implications and where to from here?

Michael Warne on behalf of the NBRP team

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Example implications of the recommended BA-SQGs

Risk	Site	Biosolids mass that can be applied per ha (T) based on ACLs	Biosolids mass that can be applied per ha (T) based on BA-SQGs
L	CP	230 – 790 (Zn)	280 – 970 (Zn)
M	Sp	570 – 620 (Cu)	675 – 727 (Cu)
H	W	52 – 65 (Cu)	55 – 69 (Cu)
	FP	26 – 55 (Cu)	42 – 88 (Cu)



Conclusions

- Soils that are low in pH, have low OC or clay content are more sensitive to the effects of metals in biosolids compared to those with high pH, OC or clay content. The latter can receive more biosolids before negative effects will occur.
- In the long-term there may be a change in the types of soils that are targeted for land application of biosolids.
- We believe that land application of biosolids, if conducted in accordance with guidelines, is a viable and sustainable industry.



What now??

1. We will address the referees comments.
2. We will then post the modified Position Paper on the Centre for Environmental Contaminants Research web-site

<http://www.clw.csiro.au/cecr/index.html>

in mid-December 2007.

- Submissions on the Position Paper are open until 15 February 2008.
- All responses will be collated and considered, the Position Paper modified.
- Final Position Paper released and sent to industry and regulators.



Ongoing research in the NBRP

1. The NSW component of the NBRP has been funded for an additional three years.
2. A new project to examine pathogens and organic chemicals in biosolids has been funded.



Extension of the NSW component

Commenced in July 2005 and finishes June 2008.

It is examining the effects of:

- metal salts and metals in biosolids on rhizobia;
- metal salts and metals in biosolids on pasture yield and species composition; and
- medium term impacts (6 years after spiking) of metal salts and metals in biosolids on crops (wheat) and micro-organisms (SINR and SIR).

Only at two sites (Flat and Night Paddocks)



Pathogens and Organic Chemicals in Biosolids

The project has two main components:

Organic Chemicals

Kate Langdon –
Pharmaceuticals, Personal Care
Products

Brad Clarke – Persistent organic
pollutants e.g. dioxins, PCPs,
PBDEs

Pathogens

Karen Schwarz –
Bacteria - *E. coli*, *Salmonella* spp. &
Campylobacter spp;
Viruses – Adenovirus and
bacteriophage (surrogate virus);
Protozoa – *Cryptosporidium parvum*
Helminths – *Ancylostoma duodenale*
(hookworm).



Field sites – pathogen/organics project

Establish two field sites - in SA (Mt Compass) and WA (Moora)

Pathogens assessed at both sites

Organic chemicals assessed only at Mt Compass





Have we finished with metals???

Possibly.

Potential issues are:

effects of metals on rhizobia (depends on outcomes from extension of NSW component and overseas results);

molybdenum – this could be a potential problem particularly if there is cattle or sheep grazing on biosolids-amended paddocks and biosolids are high in Mo



Other potential issues

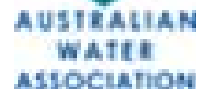
Nutrient potential of biosolids (particularly N, P and S)

- rate of mineralisation of N
- rate of P mineralisation
- rate of S mineralisation

Carbon credits - through use of less fertiliser
- organic carbon sequestration



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Thank You

