



Hybu Cig Cymru

Meat Promotion Wales

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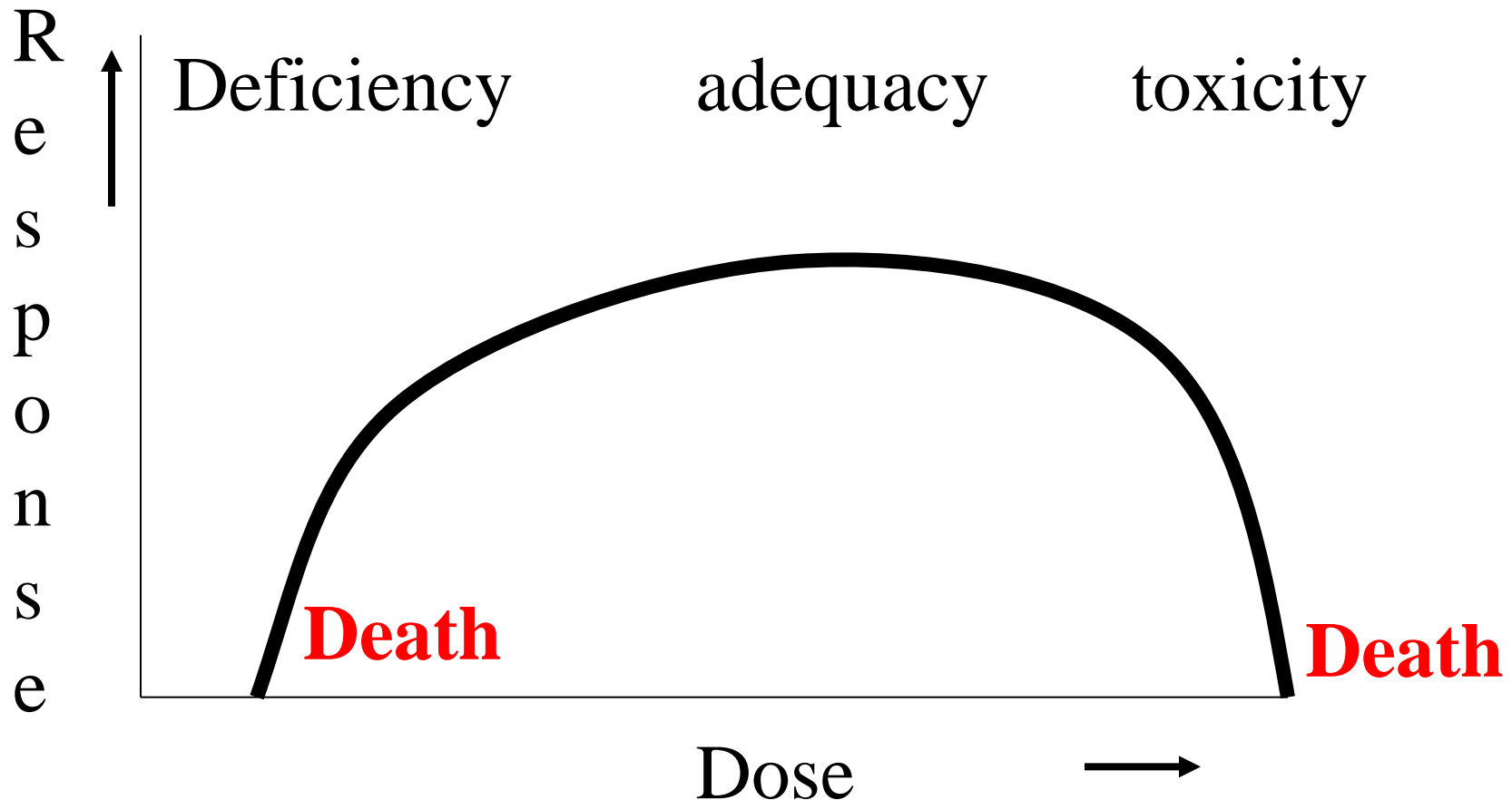


A risk management approach to trace element supplementation

Dr Nigel Kendall



Responses to trace elements



Trace element problems

- Not necessarily a deficiency
- Often complex interactions
- Can be a toxicity
- Within UK can classify into 3 categories:

Deficiency elements	Toxic elements	Excessive elements
Se, I, Mn, Co, Zn (Cu?)	Cu, Se, I, Co	Fe, S, Mo, Al, Se



Defining risk



First things first

- Dry Matter Intake
- Energy/Protein
- Water

- Parasites

- Then.....

What information on farm?

- Production/Performance
 - Growth rates
 - Scan %
 - Barren %
- Health Issues / Status
- Diet Formulated, offered and fed
 - Predominantly grazing for sheep
- Water Source / Access
- History of Supplementation / Treatments

Details to assemble

- Forage(s)
 - Grazing analysis
- Other feedstuffs?
- Water
 - Especially non mains supplies
- Animal
 - Blood
 - Liver
 - Urine (hard in sheep)



Management groups and Sample Numbers



Variation in grass by field

	Se	Co	Cu	Mo	Fe
	mg/kgDM	mg/kgDM	mg/kgDM	mg/kgDM	mg/kgDM
grass park	0.036	0.158	7.8	1.09	286
<i>cv</i>	35.2	16.8	5.6	9.3	21
grass backpark	0.052	0.221	8.8	1.82	477
<i>cv</i>	50.6	4.2	1.4	5.7	3.5
Field by Barn	0.07	0.174	7.9	1.02	313
<i>cv</i>	14.2	6.3	2.2	10.2	7.9
grass steep windy	0.12	0.402	10	1.23	1117
<i>cv</i>	13.6	27.1	12	5.1	11.7
grass HSG	0.126	0.482	11	3.43	1142
<i>cv</i>	11.6	0.9	20.1	10.8	10.1
Normal range	0.2-0.3	0.3-0.5	15-25	max 1	100-300

Real Life

- Found on farm that each management group was different, fields had different status
- Important Message
 - One group can not represent a farm,
 - We need to sample multiple management groups to gain a whole farm picture!
 - 4 animals per group
 - ewes and lambs are different groups



The supplementation toolbox



Supplementation strategy

- Need to determine what risk is being covered
 - Need to know elements at risk and timescales
 - Need to know in which sheep
 - Need to know likely future management changes
 - eg Housing (copper toxicity)

Treatment/correction

- There are lots of supplementation options, eg
 - Direct to animal
 - Drench
 - Bolus
 - Injection
 - Free access minerals/ mineral licks
 - In feed
 - Pasture dressing
 - Changing management
 - Nothing?

Treatment/correction

- Need to know the expected duration of efficacy of any supplements
- Not all supplements do what they claim!
 - Duration of efficacy
 - Suitable release site
- The mineral world is often full of sales people
 - Unregulated often accused of myth and magic

Farm management example

- KPI project farm on South Downs
 - Uses data on field levels to define animal risk
 - Low Cobalt status lowland fields conserved to feed out as part of mineralised TMR
 - Higher lowland cobalt status fields grazed
 - Low cobalt Down land – direct animal treatments
 - or short time-period and take status decrease hit

confirmation

- Continued monitoring of inputs
 - Forage, grass, bloods, performance
- Consider
 - ‘on farm’ trials (must be fair!)
 - Use of sentinel groups of animals
 - Even though get an enhanced ‘blood’ performance it is the animal performance that pays

Summary

- Inputs to define risk
 - Forage analysis
 - Blood analysis
 - Flock performance
 - Previous years experience and analysis
 - Changes in management
- Supplement or not dependant on determined risk
 - Different groups – different risks
 - eg Post weaning growing lambs have higher cobalt risk than ewes.



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