Range of ranges

Lake Rotorua Stakeholder Advisory Group

17 March 2015

ROTORUA TE ARAWA LAKES PROGRAMME

Proud Partners

DESTINATION ROTORUA

ROTORUA DISTRICT COUNCIL

TE ARAWA LAKES TRUST

Bay of Plenty REGIONAL COUNCIL

Purpose of this session

StAG recommendation is sought on a

- **Preferred range for NDAs**
  - Confirm or move away from incumbent range
  - Iterative discussion is OK
  - Want to define StAG preference as much as possible
  - Note: technical adjustments can be made based on discussion

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Outline

- Assumptions
- Series of range bar charts + Commentary
  - Comment relative to integrated framework and *"incumbent" N allocation*
- *Incumbent* ≈ Allo 0
  - *10-20 / 30-40 / 25% clawback / 140 tN total*
  - translated to Overseer v6
- Allo 1-3: alternate dual drystock/dry range
- Allo 4-6: single pastoral ranges
- Allo X: we can edit live

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Key assumptions

- Sum of pastoral NDAs = 580 tN at root zone
  - delivers 200 tN reduction = *140 tN Overseer 5*
- Lower drystock limit = permitted 15.5 kgN/ha/yr
- Non-benchmarked land given average NDA
  - 308 ha dairy; 4651 ha drystock
- Drystock parts of dairy farms are “separate” farms
- Windfalls allowed and shown
- House blocks excluded
- Forestry / bush blocks excluded
  - Locked in @ 2.5 / 2.8 / 3.0 kgN/ha/yr

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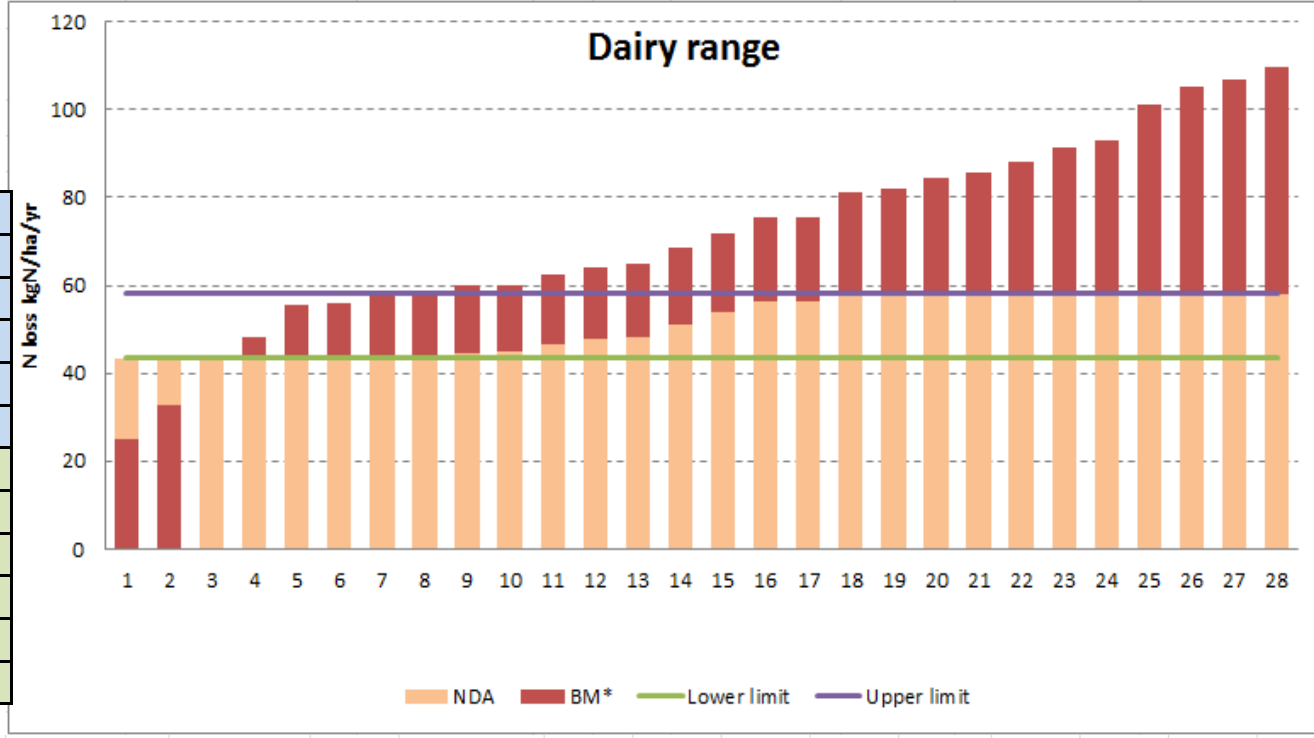
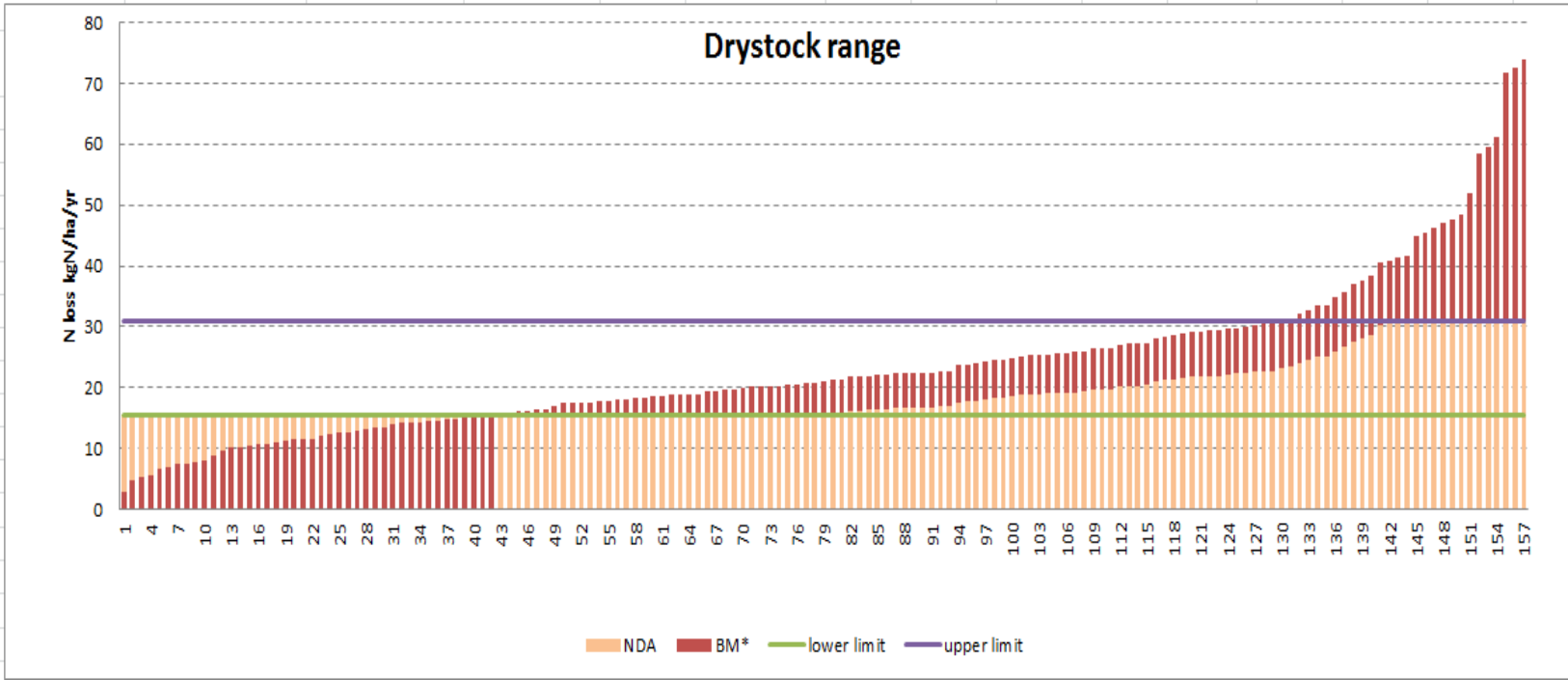
Allo 0: dual based on original ranges

Dairy	low	43.5
	high	58.0
	clawback	25.4%
	Sector red'n V BM load	28.8%
	Average NDA, kgN/ha/yr	51.3
	Windfall if any, tN	1.9
Dry stock	low	15.5
	high	31.0
	clawback	25.4%
	Sector red'n V BM load	22.9%
	Average NDA, kgN/ha/yr	19.0
	Windfall if any, tN	9.7





Allo 0 commentary

- Original dairy and drystock range limits
  - Adjustments reflect Overseer transition to v6
- No NDA allocated between 31 & 43.5 kgN/ha/yr
- Shifts 23.6 tN from dairy to drystock, Vs I.F.
  - I.F. NDA reductions: 72 tN drystock, 128 tN dairy
  - Allo 0 is not an exact translation of original dual range
- Some dry stock must reduce more than dairy e.g:
  - Drystock & dairy farms, both with BM = 60 kgN/ha/yr
  - Drystock farm Allo 0 NDA = 31
  - Dairy farm Allo 0 NDA = 45

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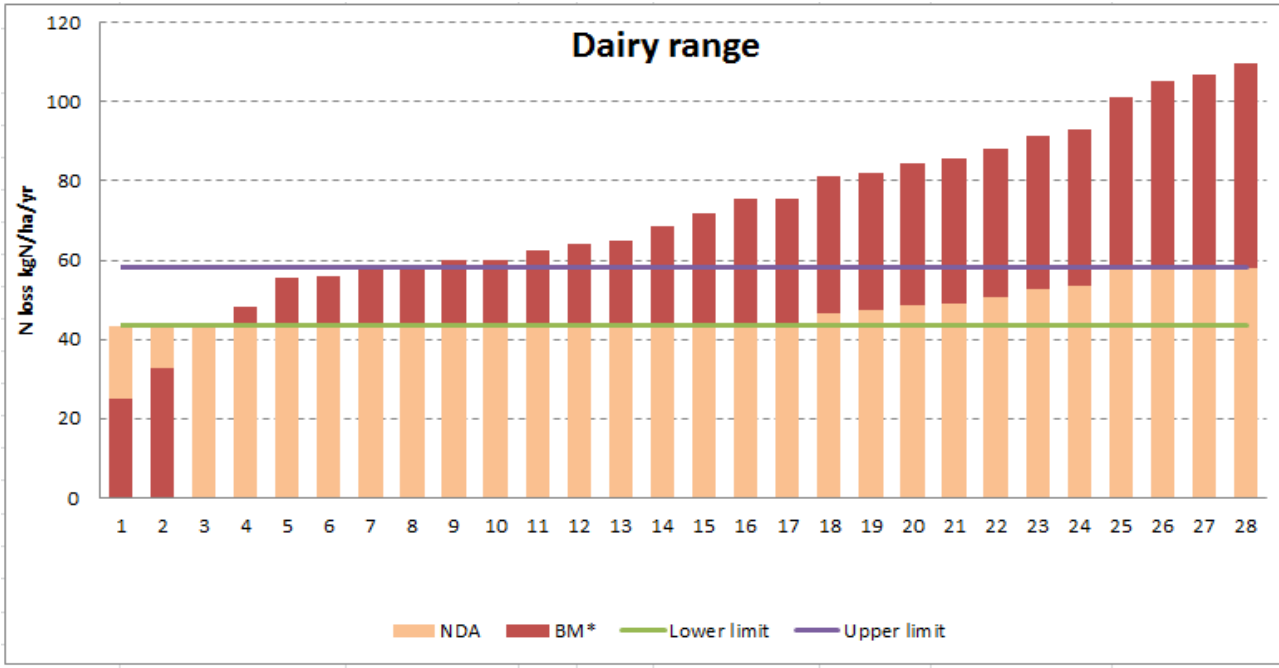
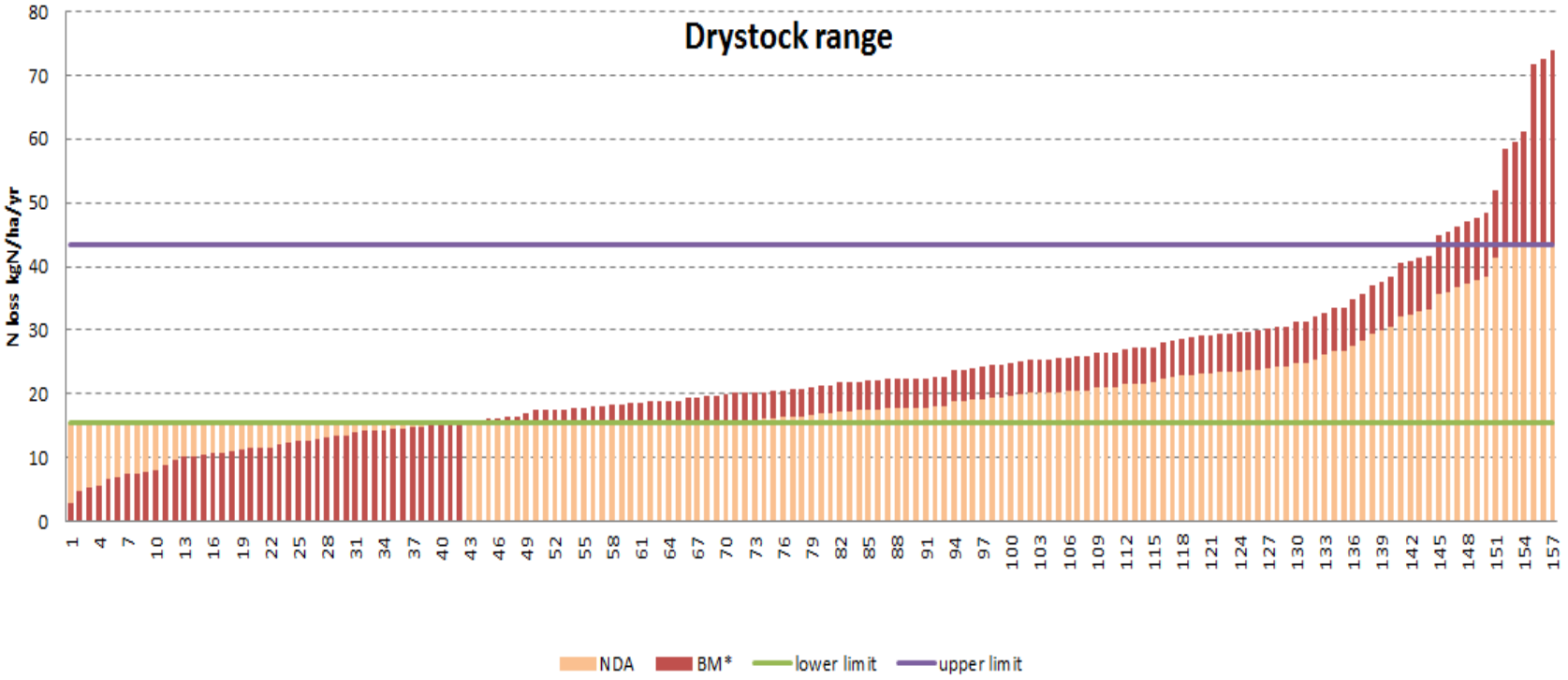
Allo 1: dual with adjoining ranges

Dairy	low	43.5
	high	58.0
	clawback	42.5%
	Sector red'n V BM load	35.3%
	Average NDA, kgN/ha/yr	46.6
	Windfall if any, tN	1.9
Dry stock	low	15.5
	high	43.5
	clawback	20.6%
	Sector red'n V BM load	17.2%
	Average NDA, kgN/ha/yr	20.3
	Windfall if any, tN	9.7





Allo 1 commentary

Dual pastoral sector with adjoining ranges

- Similar to Allo 0 but:
  - drystock range stretched up to the lower bound for dairy
  - Clawbacks adjusted to give same sector reductions as I.F.
- Some dry stock must reduce more than dairy e.g:
  - Drystock & dairy farms, both with BM = 44 kgN/ha/yr
  - Drystock farm NDA = 35
  - Dairy farm NDA = 43.5

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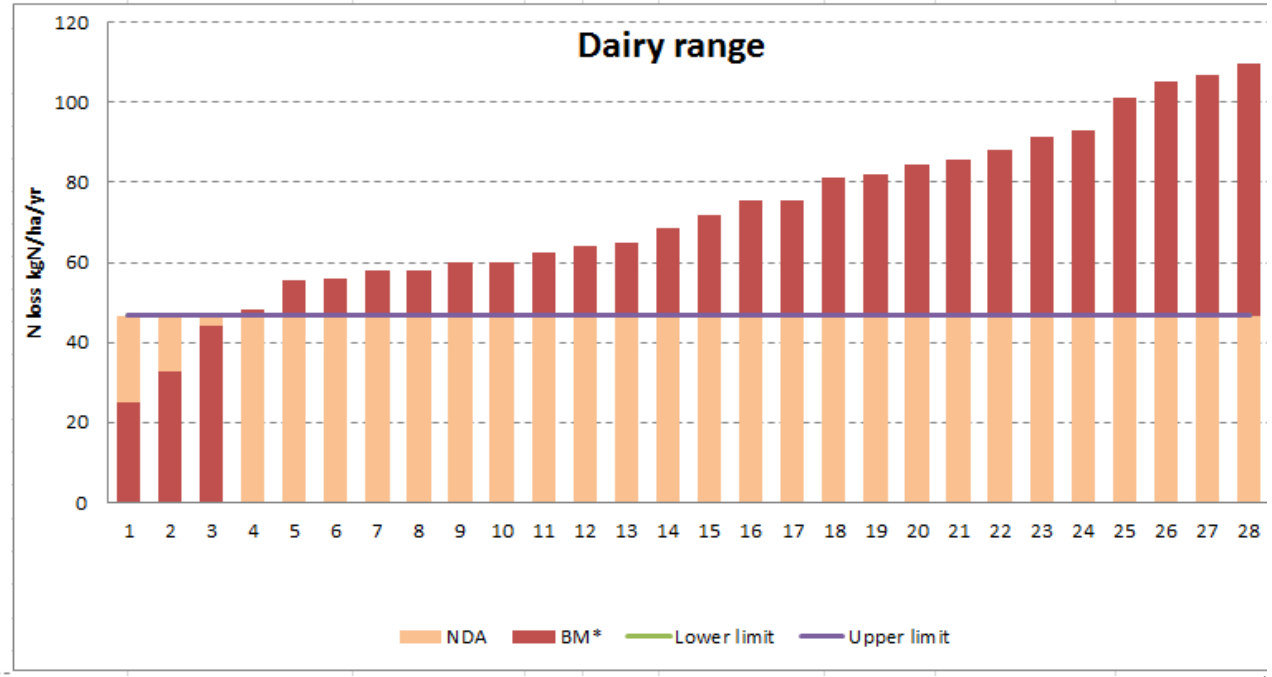
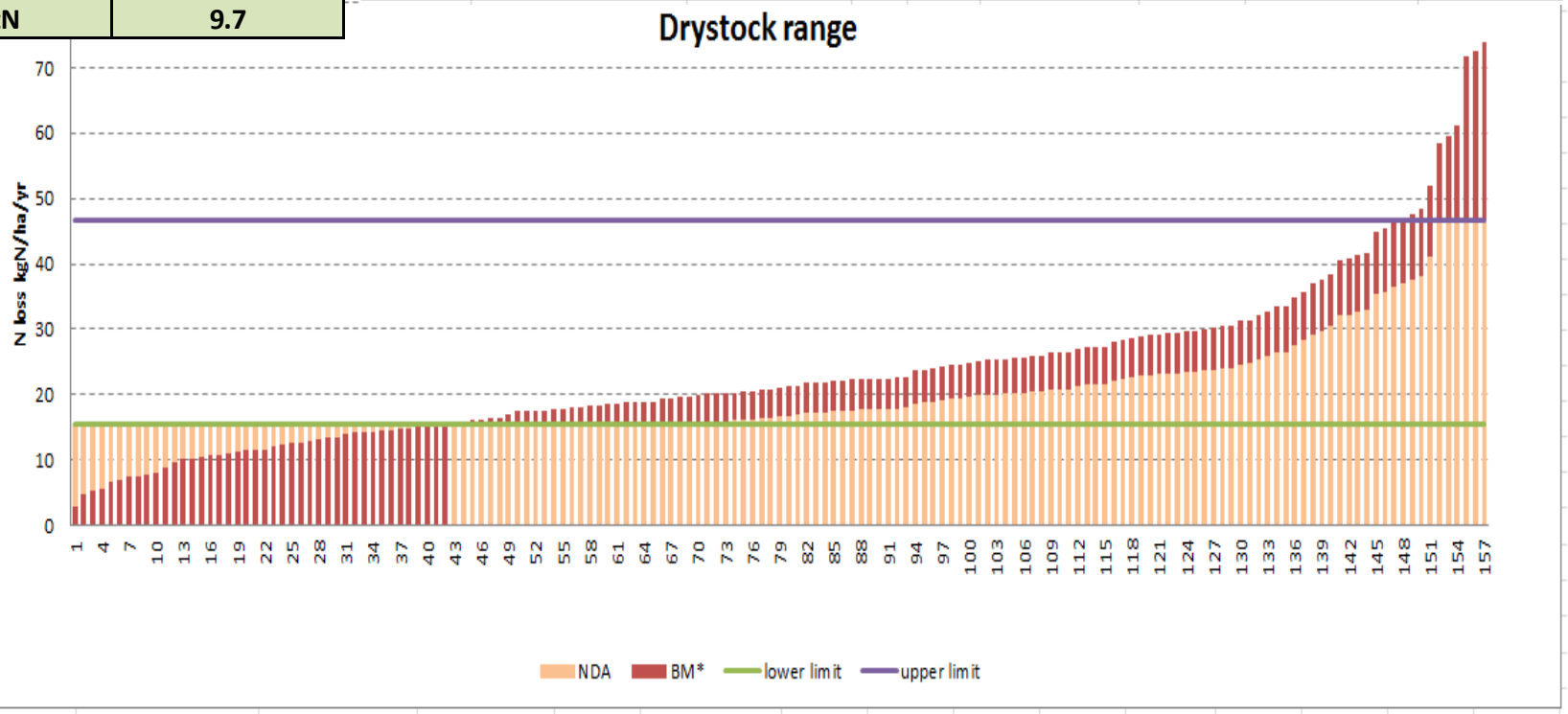
Allocation logic between Allo 0 and Allo 1

Allocation results summary				Allo 0		Allo 1	Allo 2	Allo 3
		~Original dual range, OV5		Dual based on original ranges		Dual with adjoining ranges	Dual: single dairy + adjoining dry	Dual: single low dairy + adjoin dr
Dairy	low	*30.0*	=	43.5	=	43.5	46.6	43.5
	high	*40.0*	=	58.0	=	58.0	46.6	43.5
	clawback	*25.0%*	≈	25.4%		42.5%	0.0%	0.0%
	Sector red'n V BM load	*35.3%*	≠	28.8%		35.3%	35.3%	39.6%
	Average NDA, kgN/ha/yr	*~35*		51.3		46.6	46.6	43.5
	Windfall if any, tN	*?*		1.9		1.9	3.1	1.9
Dry stock	low	*10*	=	15.5	=	15.5	15.5	15.5
	high	*20*	=	31.0	≠	43.5	46.6	43.5
	clawback	*25%*	≈	25.4%		20.6%	21.0%	15.7%
	Sector red'n V BM load	*17.2%*	≠	22.9%		17.2%	17.2%	13.5%
	Average NDA, kgN/ha/yr	*~13*		19.0		20.3	20.4	21.3
	Windfall if any, tN	*?*		9.7		9.7	9.7	9.7

Allo 2: single dairy NDA + adjoining drystock range

Dairy	low	46.6
	high	46.6
	clawback	0.0%
	Sector red'n V BM load	35.3%
	Average NDA, kgN/ha/yr	46.6
	Windfall if any, tN	3.1
Dry stock	low	15.5
	high	46.6
	clawback	21.0%
	Sector red'n V BM load	17.2%
	Average NDA, kgN/ha/yr	20.4
	Windfall if any, tN	9.7





Allo 2 commentary

Dual: single dairy NDA + adjoining dry range

- Recognise relative similarity of dairy systems versus more diverse drystock
- Dairy NDA of 46.6 maintains I.F. sector relativity:
  - Dairy sector 35% reduction from BM
  - Drystock sector 17% from BM
- Relative to Allo 0:
  - Higher end of drystock get more NDA
  - Upper half of dairy get less NDA
  - Lowest dairy get small windfall i.e. NDA > BM

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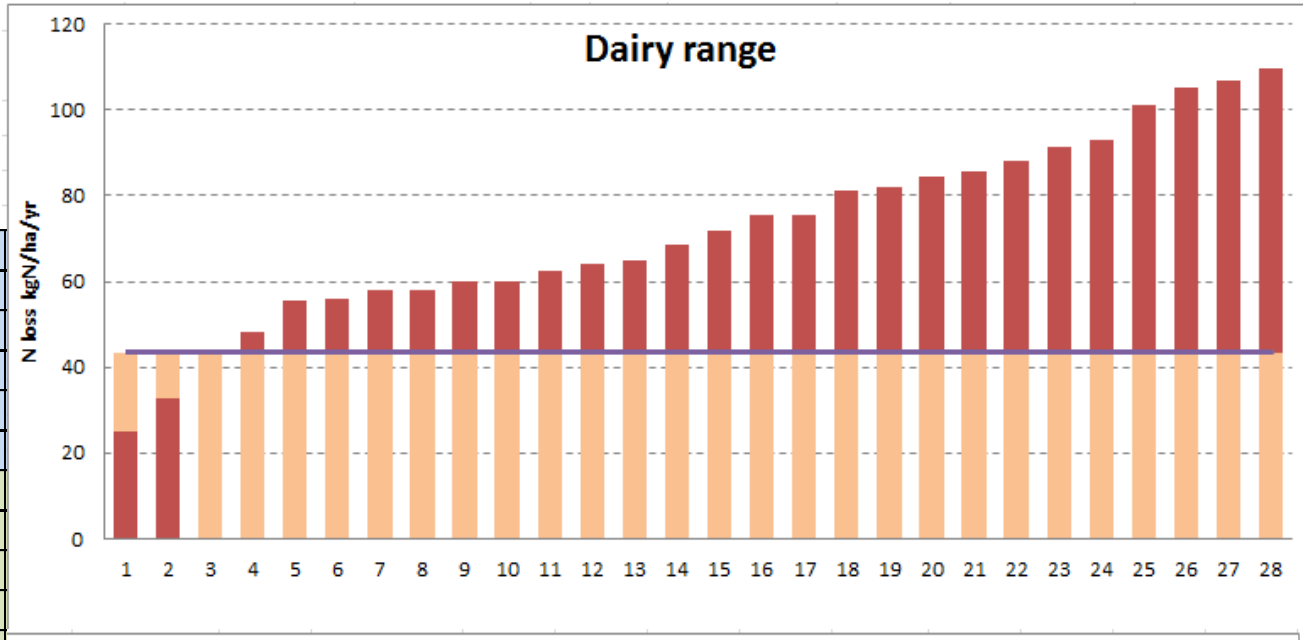
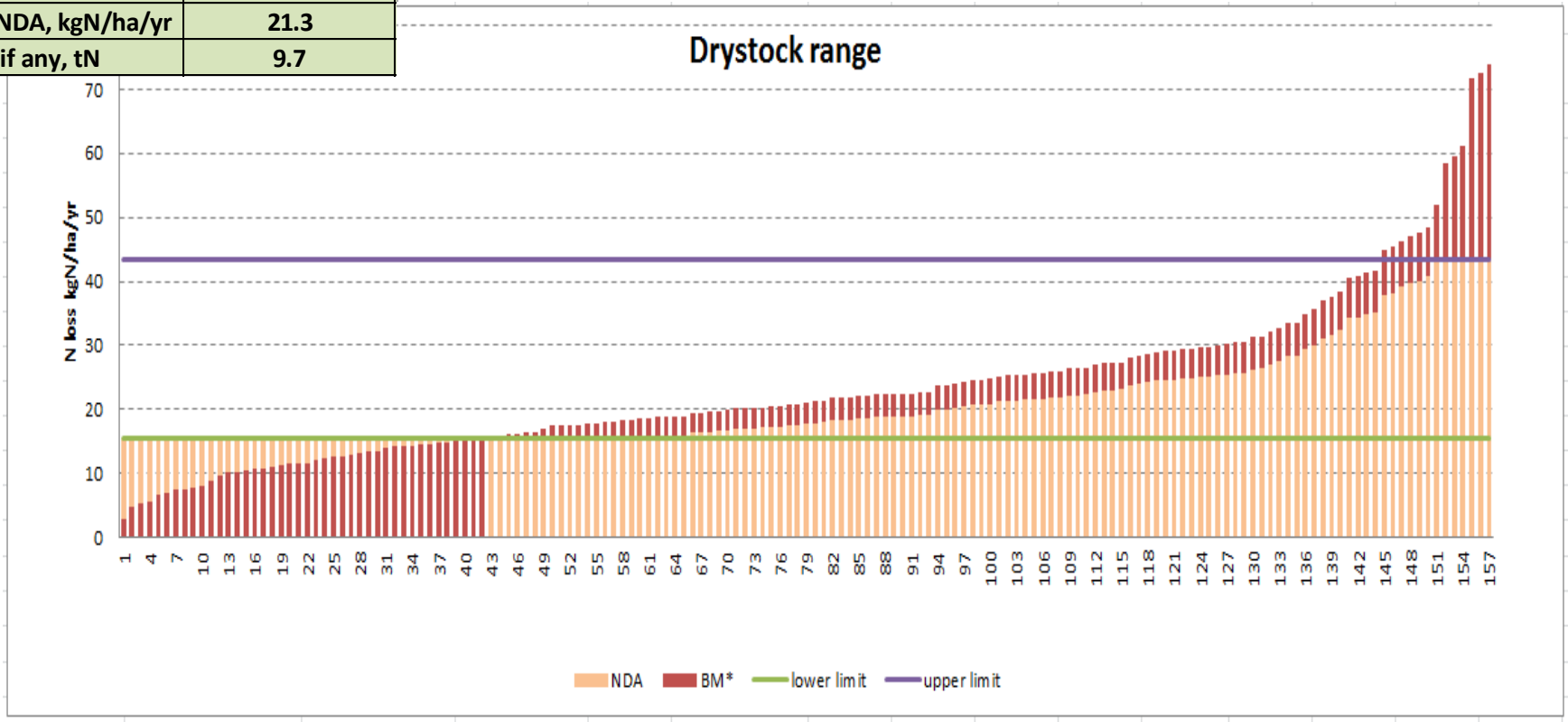
Allo 3: single low dairy NDA + adjoining drystock range

Dairy	low	43.5
	high	43.5
	clawback	0.0%
	Sector red'n V BM load	39.6%
	Average NDA, kgN/ha/yr	43.5
	Windfall if any, tN	1.9
Dry stock	low	15.5
	high	43.5
	clawback	15.7%
	Sector red'n V BM load	13.5%
	Average NDA, kgN/ha/yr	21.3
	Windfall if any, tN	9.7





Allo 3 commentary

Dual: single lower dairy NDA + adjoining dry range

- Dairy NDA of 43.5 *= 30 kgN/ha/yr O5*
- Relative to Allo 0:
  - Shifts more reduction to dairy
  - Allows a lower clawback % for drystock
  - Benefits all drystock, especially higher end

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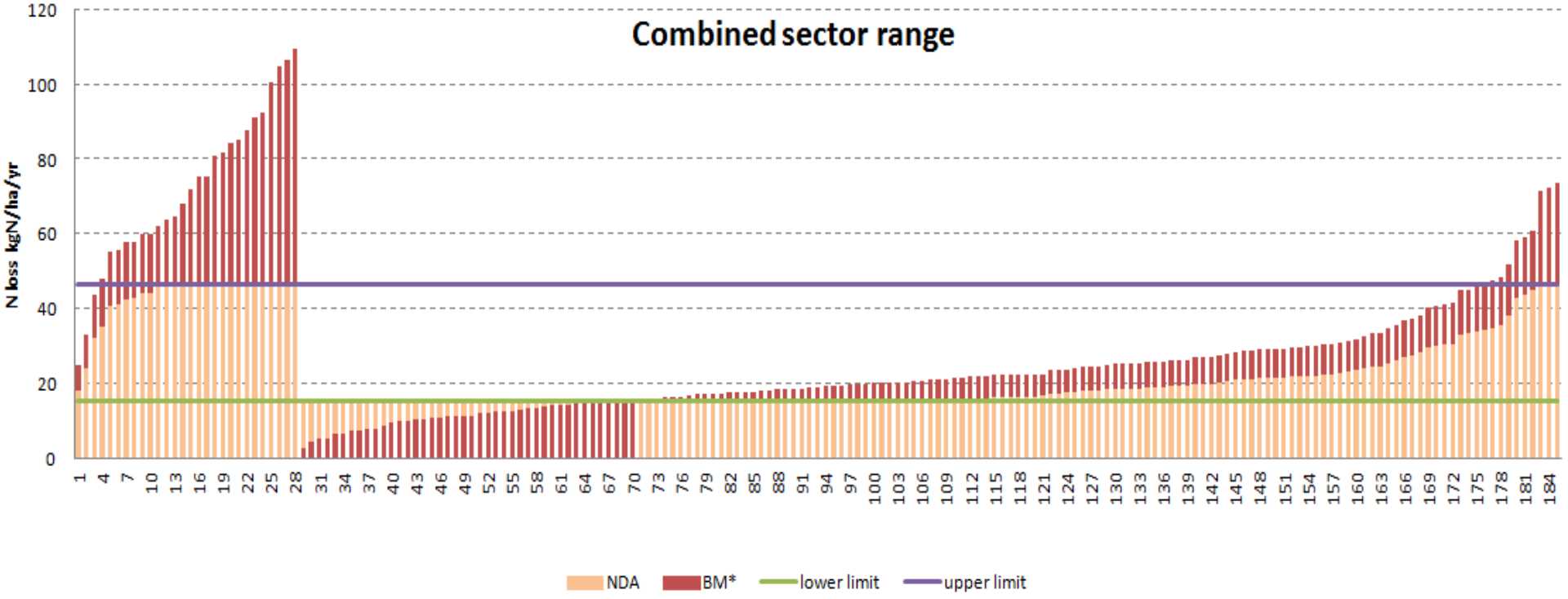
Allo 4: combined: wide range

Dairy	low	15.5
	high	58.0
	clawback	26.3%
	Sector red'n V BM load	31.2%
	Average NDA, kgN/ha/yr	49.6
	Windfall if any, tN	0.0
Dry stock	low	15.5
	high	58.0
	clawback	26.3%
	Sector red'n V BM load	20.7%
	Average NDA, kgN/ha/yr	19.5
	Windfall if any, tN	9.7

Commentary

- Doesn't require land use determinations
- Properties with same BM treated equal
- Relatively wide range
- Shifts reduction burden towards drystock relative to integrated framework
- Lower dairy worse off

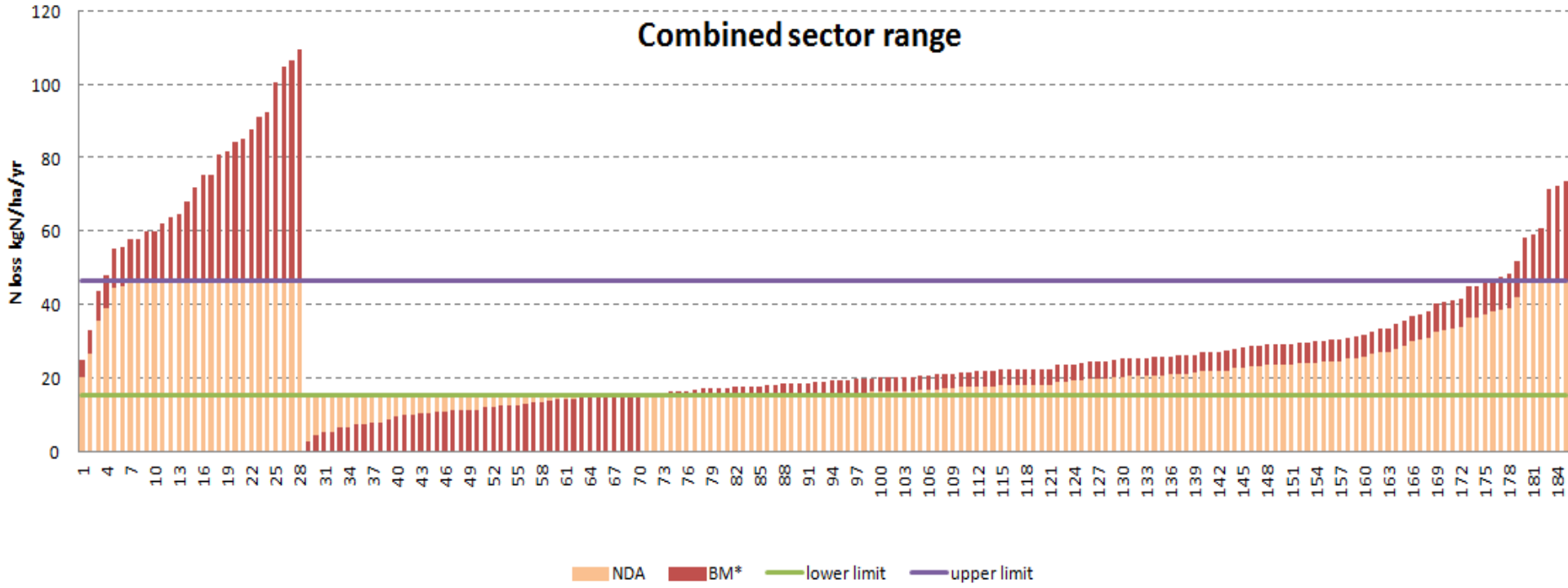


Allo 5: combined: medium range

Dairy	low	15.5
	high	46.6
	clawback	18.9%
	Sector red'n V BM load	37.2%
	Average NDA, kgN/ha/yr	45.2
	Windfall if any, tN	0.0
Dry stock	low	15.5
	high	46.6
	clawback	18.9%
	Sector red'n V BM load	15.6%
	Average NDA, kgN/ha/yr	20.7
	Windfall if any, tN	9.7

Commentary

- "Average" dairy NDA 46.6 as upper limit
- Shifts reduction burden towards dairy relative to integrated framework
- Similar to Allo 2 (single dairy NDA = 46.6)

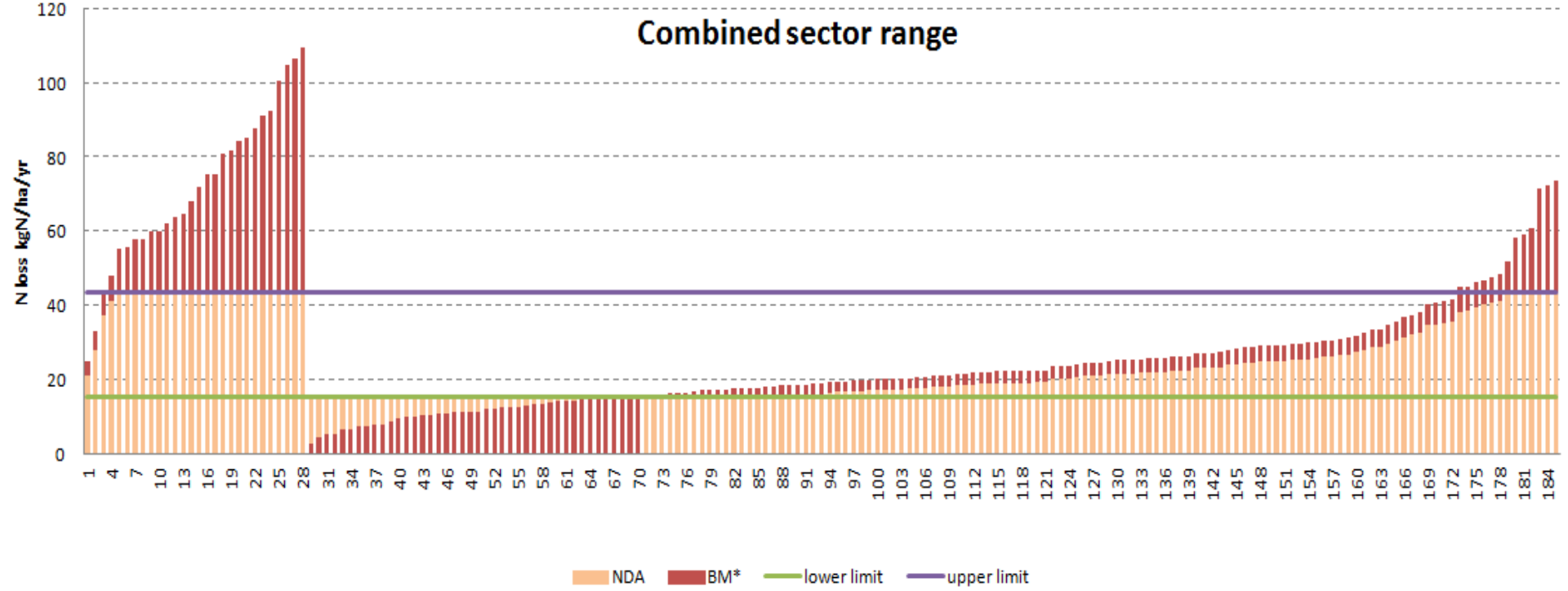


Allo 6: combined: tight range

Dairy	low	15.5
	high	43.5
	clawback	14.4%
	Sector red'n V BM load	40.8%
	Average NDA, kgN/ha/yr	42.7
	Windfall if any, tN	0.0
Dry stock	low	15.5
	high	43.5
	clawback	14.4%
	Sector red'n V BM load	12.5%
	Average NDA, kgN/ha/yr	21.5
	Windfall if any, tN	9.7

Commentary

- Shifts reduction burden further towards dairy
- Lowest clawback @ 14.4%
- Clawback of little relevance to dairy
- Similar to Allo 3

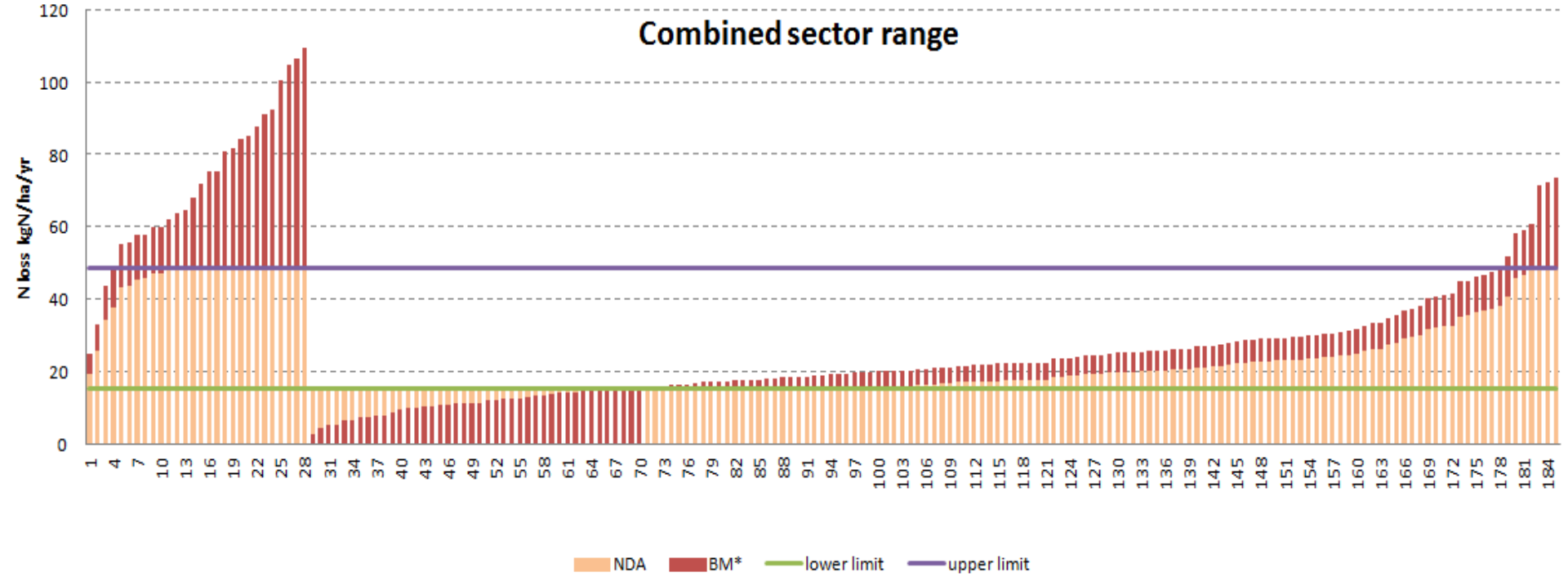


Allo 4.5: combined, IF sector reductions

Dairy	low	15.5
	high	48.8
	clawback	21.2%
	Sector red'n V BM load	35.3%
	Average NDA, kgN/ha/yr	46.6
	Windfall if any, tN	0.0
Dry stock	low	15.5
	high	48.8
	clawback	21.2%
	Sector red'n V BM load	17.2%
	Average NDA, kgN/ha/yr	20.4
	Windfall if any, tN	9.7

Commentary

- Sector reductions same as I.F.
- Lowest clawback @ 14.4%
- Clawback of little relevance to dairy



Allocation results summary

Allocation results summary			Allo 0	Allo 1	Allo 2	Allo 3
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Dairy	low	*30.0*	43.5	43.5	46.6	43.5
	high	*40.0*	58.0	58.0	46.6	43.5
	clawback	*25.0%*	25.4%	42.5%	0.0%	0.0%
	Sector red'n V BM load	*35.3%*	28.8%	35.3%	35.3%	39.6%
	Average NDA, kgN/ha/yr	*~35*	51.3	46.6	46.6	43.5
	Windfall if any, tN	*?*	1.9	1.9	3.1	1.9
Dry stock	low	*10*	15.5	15.5	15.5	15.5
	high	*20*	31.0	43.5	46.6	43.5
	clawback	*25%*	25.4%	20.6%	21.0%	15.7%
	Sector red'n V BM load	*17.2%*	22.9%	17.2%	17.2%	13.5%
	Average NDA, kgN/ha/yr	*~13*	19.0	20.3	20.4	21.3
	Windfall if any, tN	*?*	9.7	9.7	9.7	9.7

Allocation results summary		Allo 4	Allo 5	Allo 6	Allo 4.5
		Combined: wide range	Combined: medium range	Combined: tight range	Combined: IF sector reductions
Dairy	low	15.5	15.5	15.5	15.5
	high	58.0	46.6	43.5	48.8
	clawback	26.3%	18.9%	14.4%	21.2%
	Sector red'n V BM load	31.2%	37.2%	40.8%	35.3%
	Average NDA, kgN/ha/yr	49.6	45.2	42.7	46.6
	Windfall if any, tN	0.0	0.0	0.0	0.0
Dry stock	low	15.5	15.5	15.5	15.5
	high	58.0	46.6	43.5	48.8
	clawback	26.3%	18.9%	14.4%	21.2%
	Sector red'n V BM load	20.7%	15.6%	12.5%	17.2%
	Average NDA, kgN/ha/yr	19.5	20.7	21.5	20.4
	Windfall if any, tN	9.7	9.7	9.7	9.7

Edit your own allocation

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