How do riparian margins provide multiple ecosystem services in farming landscapes?

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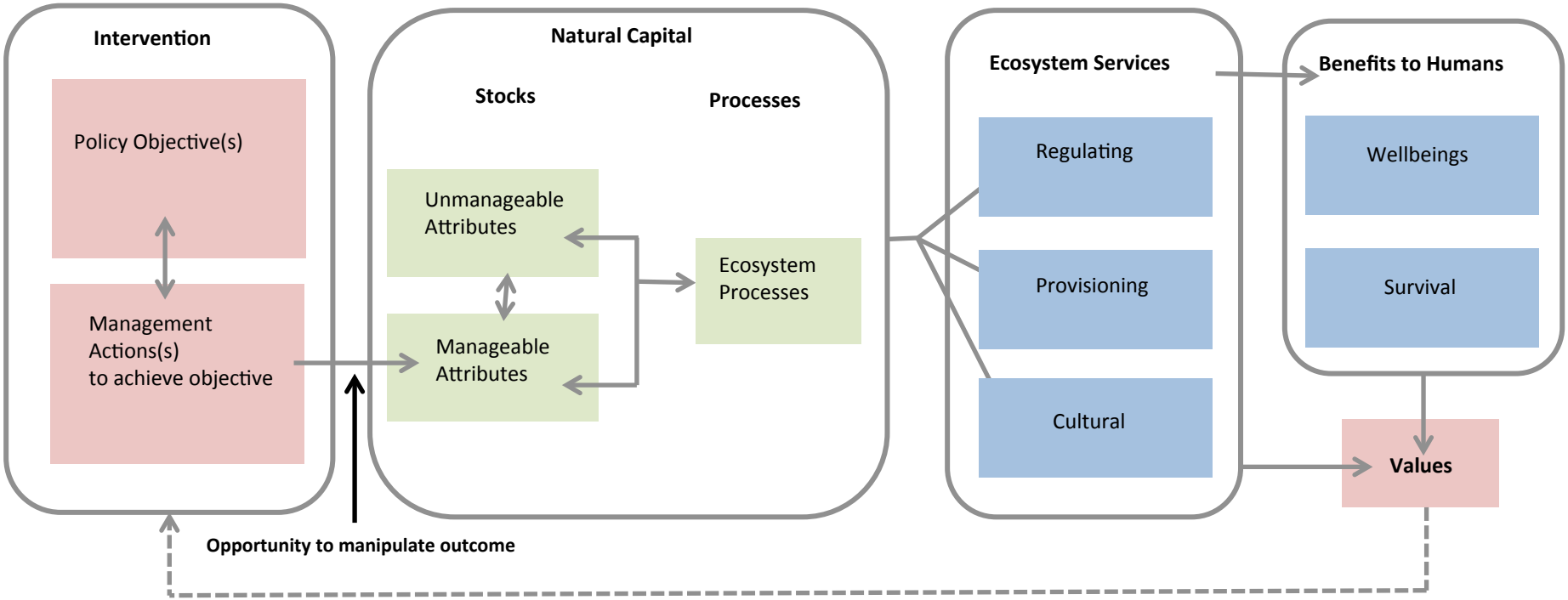
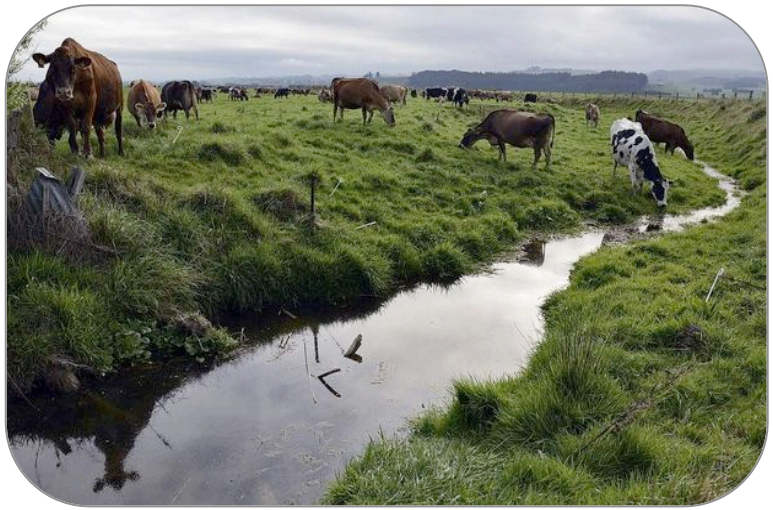
Alec Mackay, Estelle Dominati, Toni White, Don Shearman

The underpinning concept



Maseyk FJF, Mackay AD, Possingham HP, Dominati EJ, Buckley YM 2015 **Managing natural capital stocks for the provision of ecosystem services** Conservation Letters *In revision*

Riparian margin management in dairy landscapes



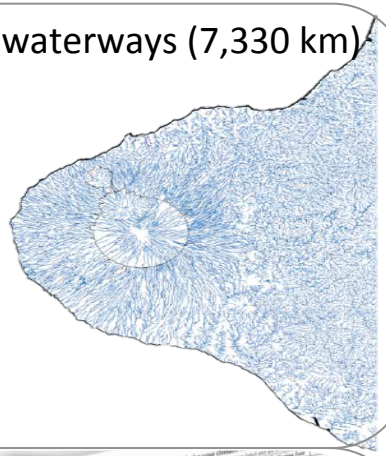
Case study area:
Taranaki ring plain

- 723,610 ha
- ~ 12% of New Zealand's total milk solids
- Indigenous vegetation cover <10%

Case study intervention:
Taranaki Riparian Management Programme

TRANSFORMING TARANAKI

Over 300 waterways (7,330 km)



Workshops with farmers

A
n = 18

B
n = 5

Personal characteristics (percentage):

	A	B
≥ 46 yr	83%	80%
♀♂	78% ♂ 22% ♀	100% ♂
owner	89%	80%

Workshops with farmers

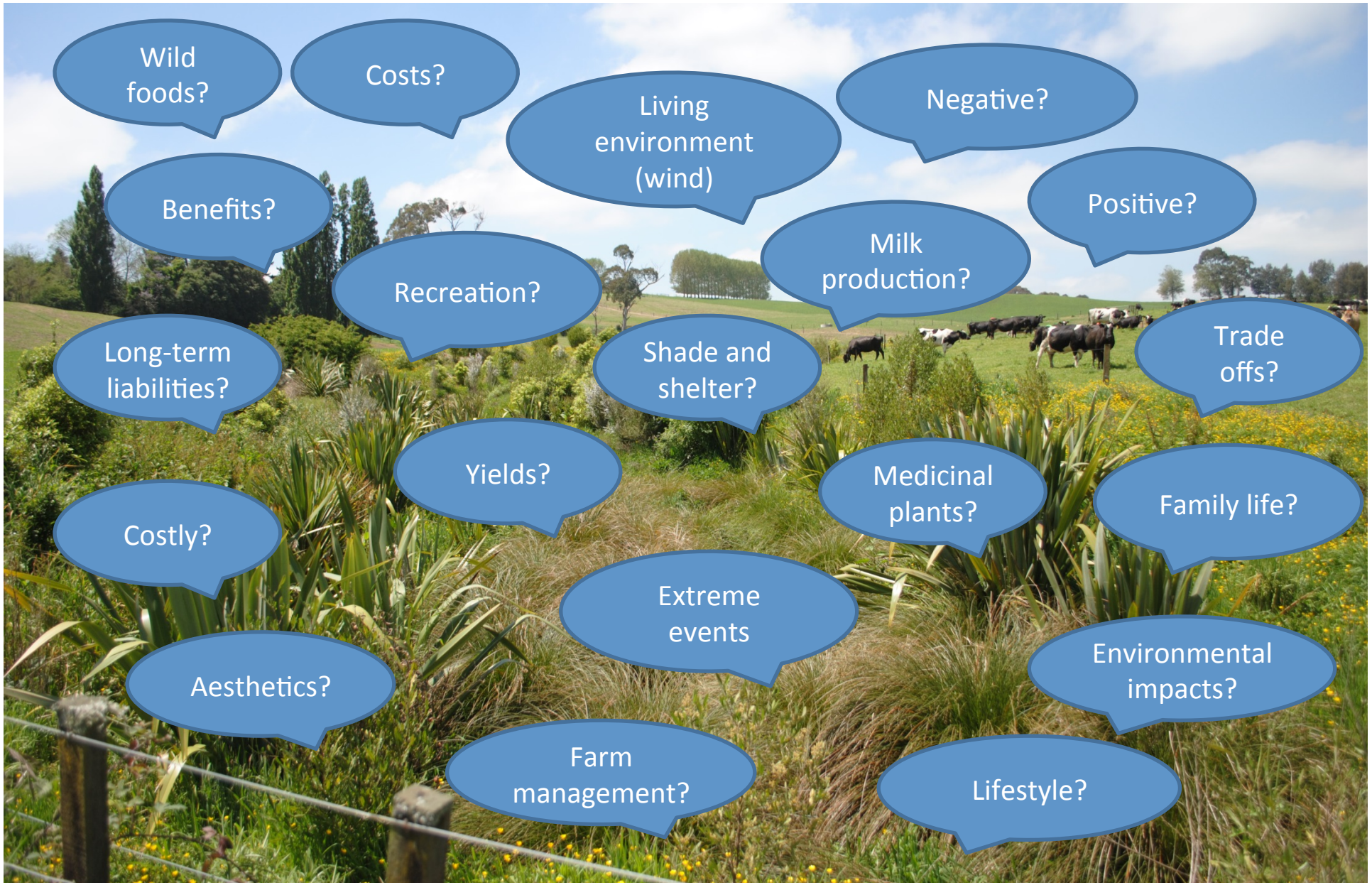
A
n = 18

B
n = 5

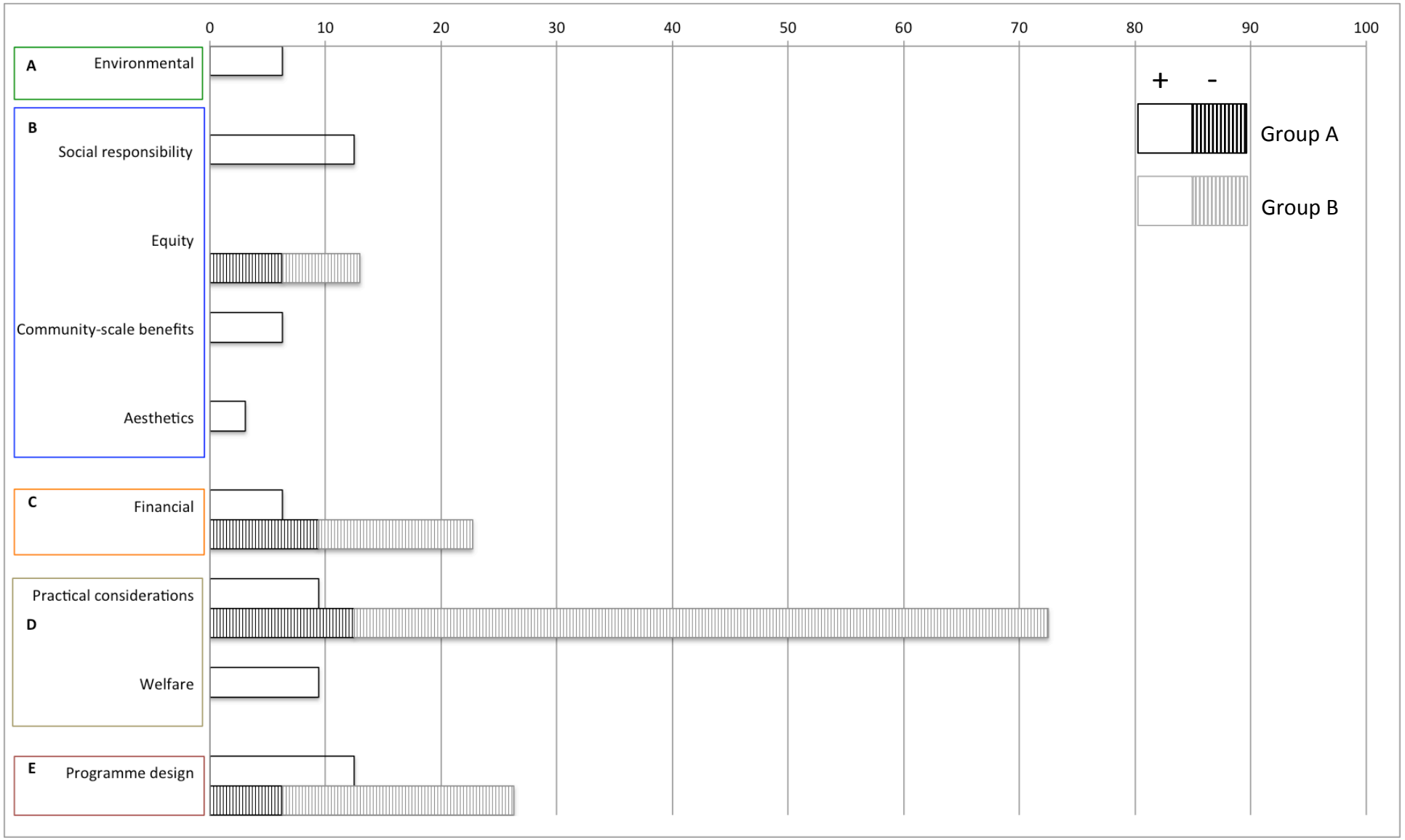
Farm characteristics (mean values):

	122 ha	133 ha
	3.1/ha	3/ha
	6 km	8.1 km

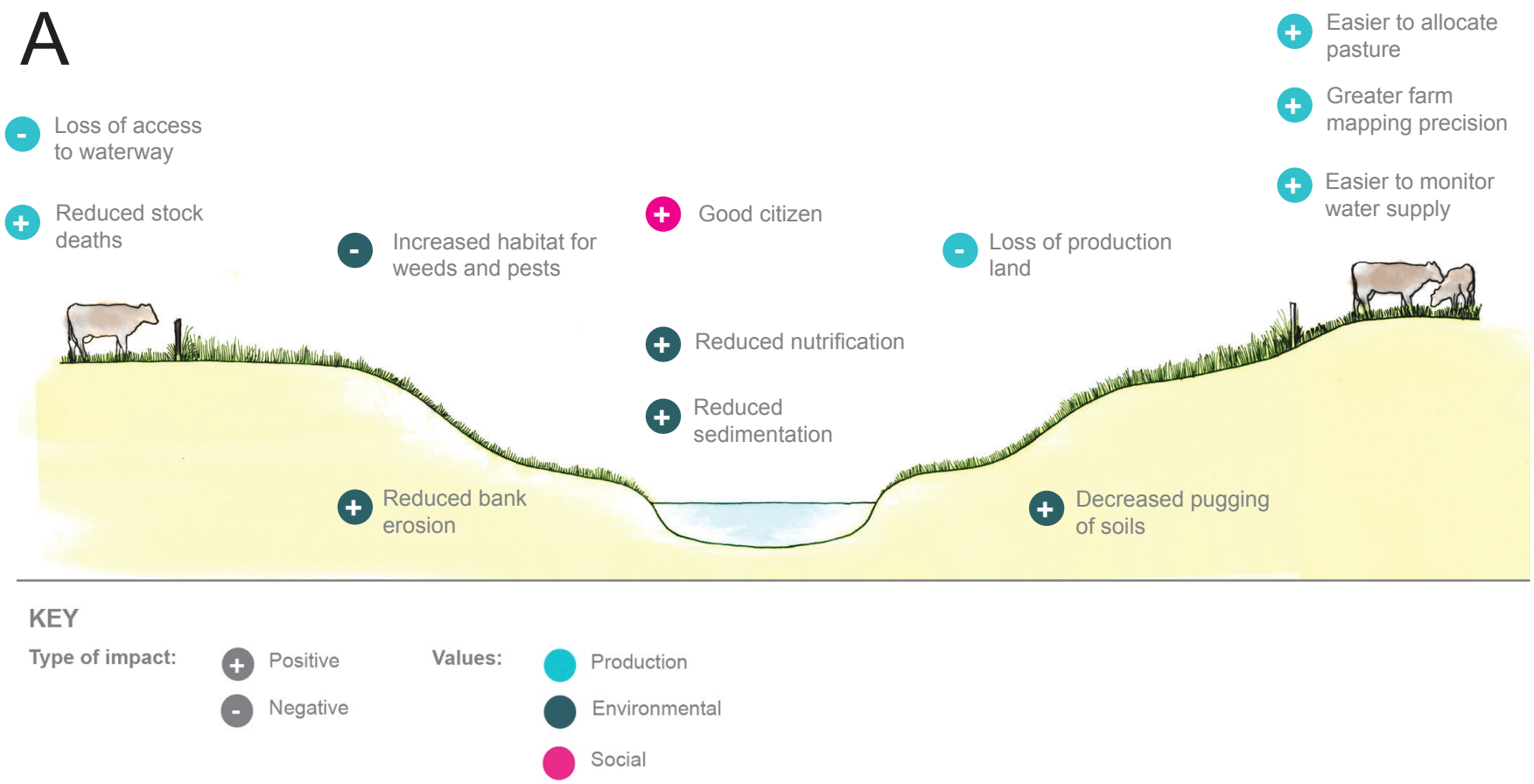
What are your experiences and perceptions of riparian margins?



Farmer perceptions of pros and cons by category



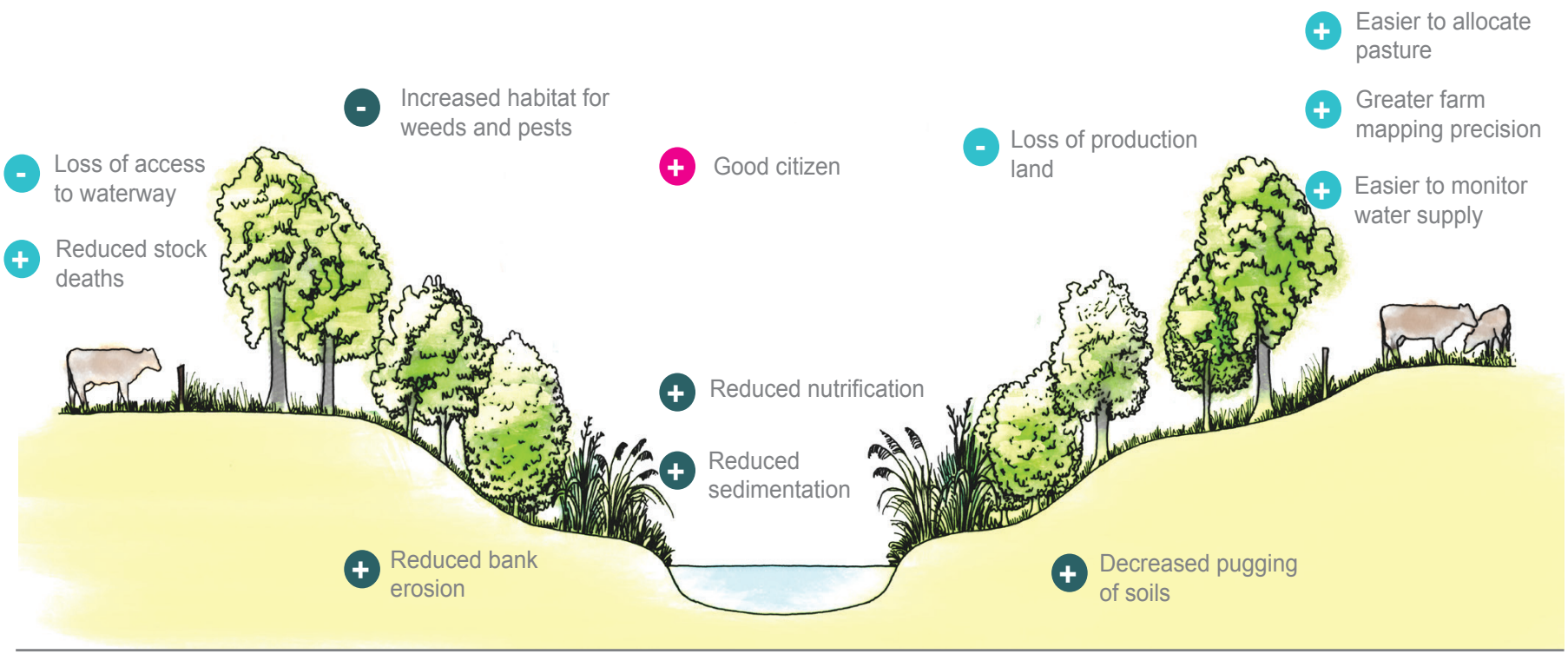
Farmer perceived pros and cons from riparian margins



Graphic production: Michelle Baker. Adapted from TRC support material

Farmer perceived pros and cons from riparian margins

B



KEY

Type of impact:

- Positive
- Negative

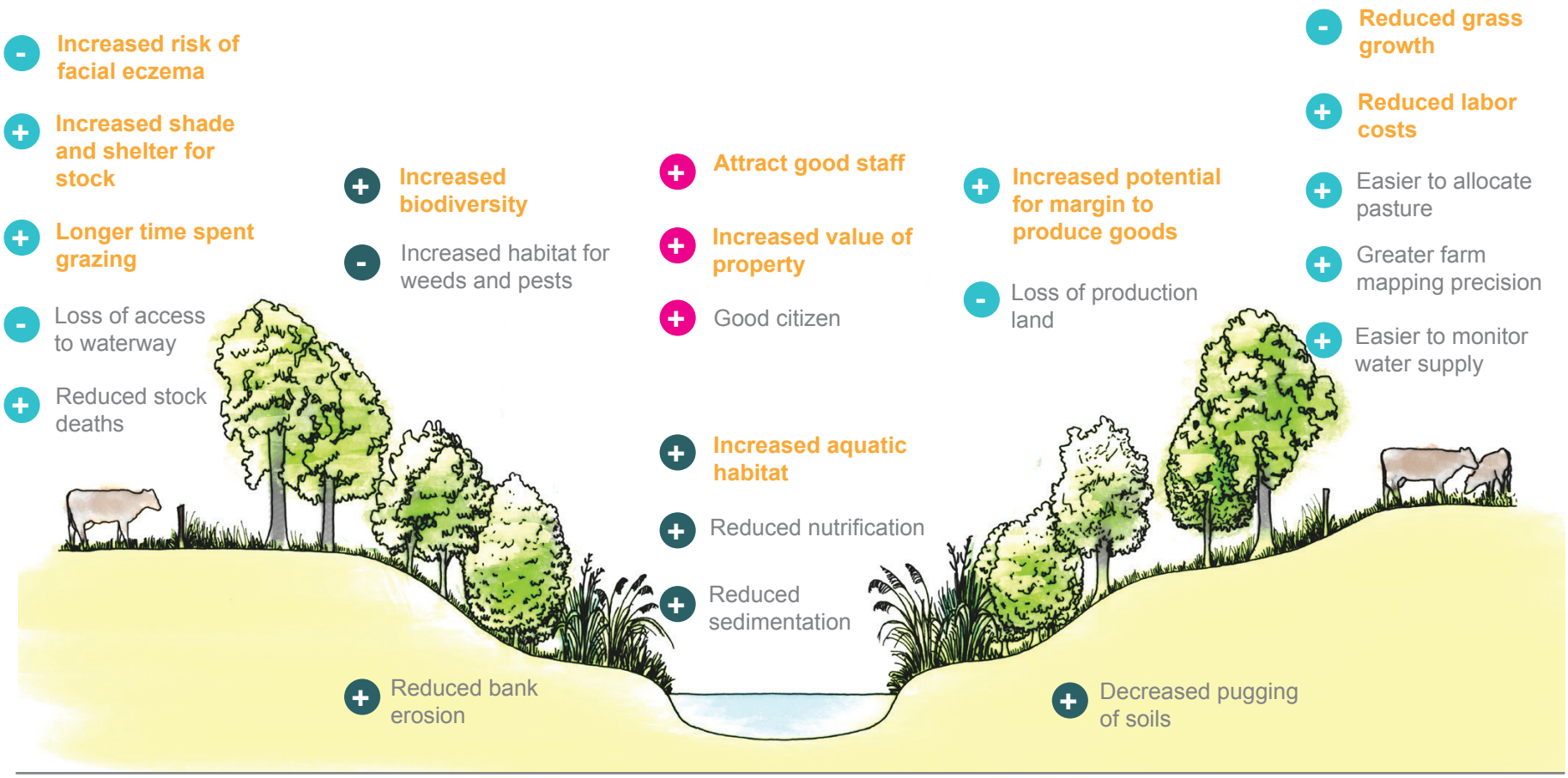
Values:

- Production
- Environmental
- Social

Graphic production: Michelle Baker. Adapted from TRC support material

Farmer perceived pros and cons from riparian margins

B



KEY

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Graphic production: Michelle Baker. Adapted from TRC support material

Do planted riparian margins generate ecosystem services?

A

1. Believed in objectives and outcomes
2. Pros and cons (trade-offs and synergies)
3. Benefits beyond water quality
4. Links to ecosystem services and future values

B

1. Did not believe in objectives and outcomes
2. Saw only cons
3. Did not link to ecosystem services

Do planted riparian margins generate ecosystem services?

1. Environmental, production, and social values
2. Wider range of ecosystem services when integrated into farm systems
3. Not a panacea for all environmental issues
4. Need for comprehensive policy frameworks