

Cool food

Agricultural emissions reduction and tech opportunities

*GenZero - Disrupting Climate Change
TechWeek 2017*

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The challenge - opportunity

New Zealand needs to head toward net-zero emissions – and has made international commitments

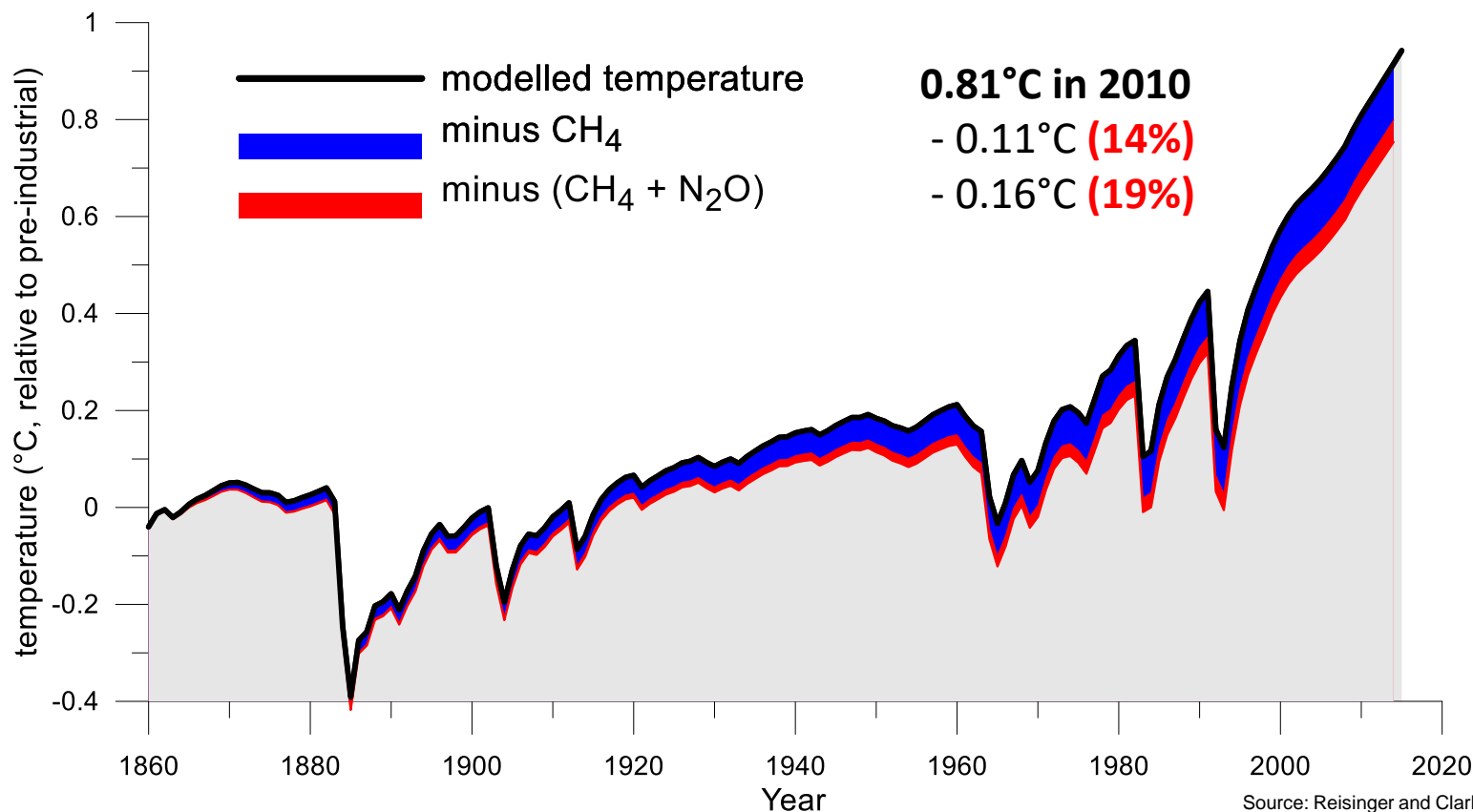
~ 50% of our emissions are biological emissions from agriculture

Considerable improvements in efficiency have been achieved – offset by growth in volume of production

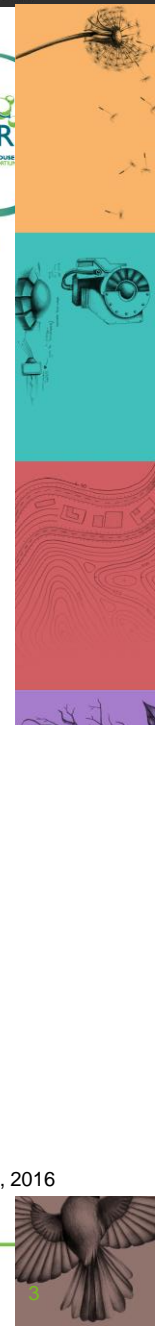
Continued efficiency and new technologies under development could reduce emissions by up to 40% - but not more



How much does livestock contribute to actual warming?



Source: Reisinger and Clark, 2016



On-farm mitigation is not enough to meet climate targets cost-effectively

Diversifying land use is valuable anyway

- economic risks – e.g. synthetic meat and milk; consumer pressure
- climate change risks and opportunities



What else can we do with NZ pasture land?

Horticulture – there may be significant opportunities from existing products: kiwifruit, apples....

Why would these not be adopted already?

Less profit than modelled on 'new' land

Risk and uncertainty

Behavioural barriers

Capacity and capital

Biological GHGs not priced



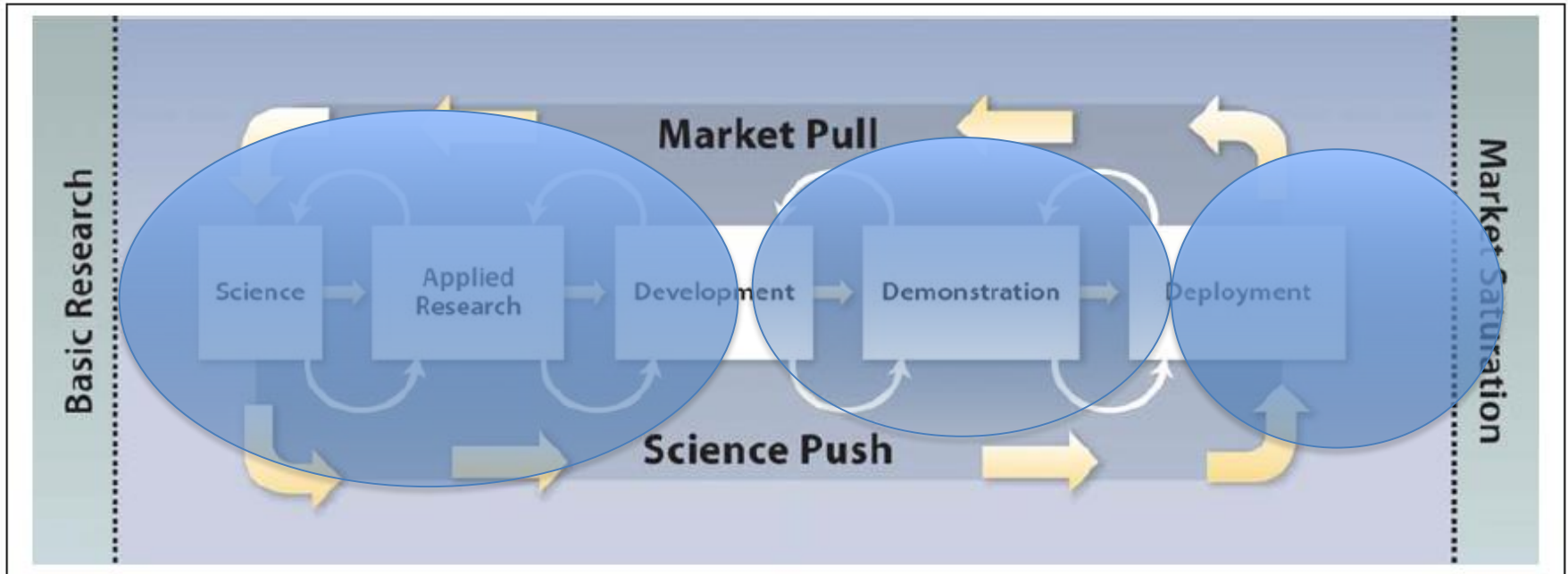
New options: industries not yet established

What other valuable products can we produce on New Zealand land?

Why don't we know, and what can we do about it?



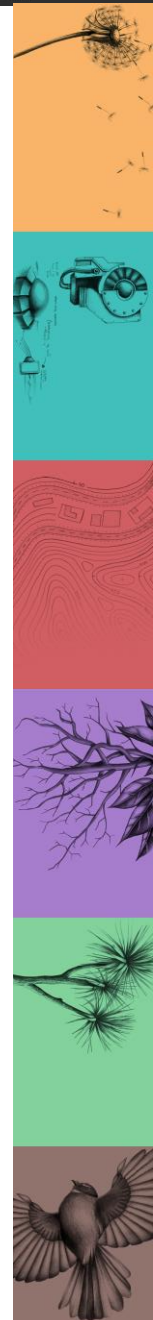
From idea to industry



Ideas → Experimentation and learning → Uptake: markets, prices and presentation



Enterprising individuals are trying new things in New Zealand: Saffron, hazelnuts, seeds, insects, tea, lavender,.....



It's hard for them to scale up

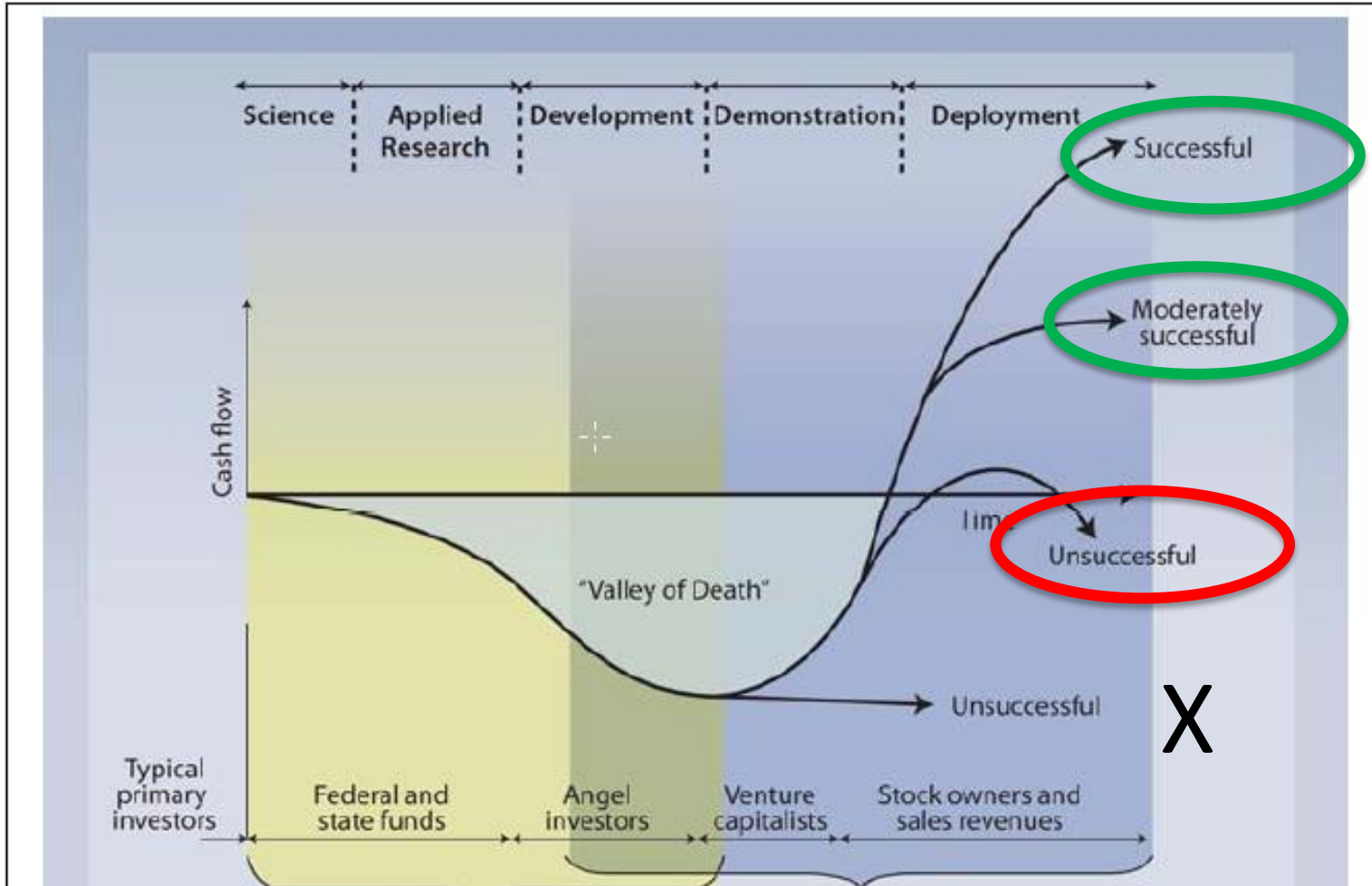
And sometimes we go too fast: New Zealanders tend to have fads and invest poorly

- Goats, ostriches, pinus radiata.... Manuka honey?

Can we have a smoother transition?



Identify unsuccessful fast Promote successful fast



For transformational change, successful deployment could involve public infrastructure or coordination



Policies and actions that can help

Basic research on new products

- identification and possible adaptation of new products

Early adoption – field trials and evaluation

- ‘learning externalities’

Support for emerging industries

- develop international markets

- coordinate creation of local infrastructure

- information and extension

- train future farmers

Pricing biological GHGs would help





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