

The role of land-use change

Opportunities and barriers

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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 are alternatives?

1. Traditional land use change: forestry and natives
2. Transition to existing horticultural alternatives
3. New products – including high-value food

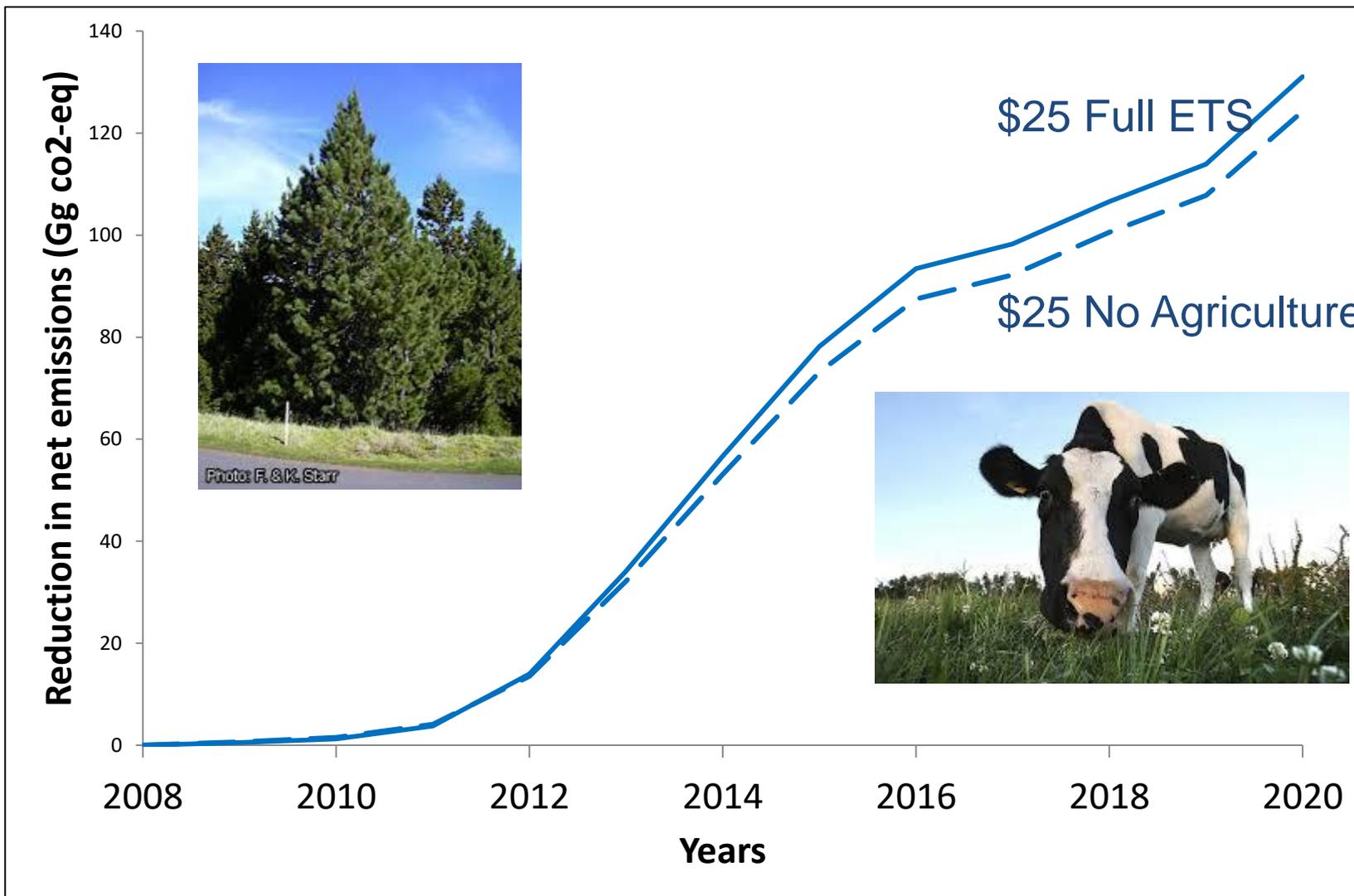
How much is possible and likely?

Why isn't it happening?

Policies and actions that can help

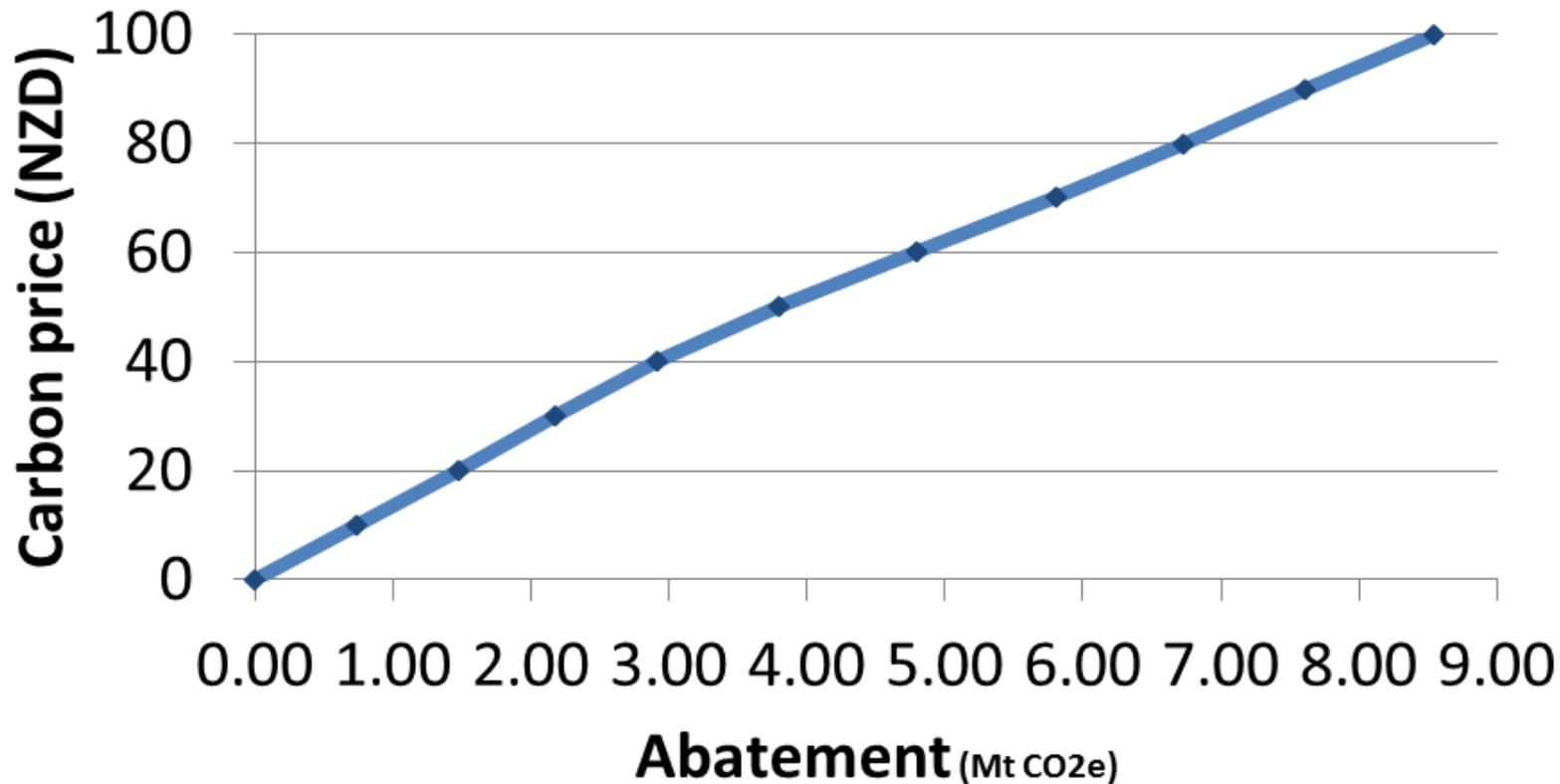


Most modelled emission reductions come from land-use change to forestry



Change to forest and natives could abate 5 – 10Mt per year – or more

Average annual abatement (2013-2045)



The bad news

Forestry is good, but not enough and doesn't keep abating forever - we don't want it everywhere

Natives: longer lasting, and on land that is not profitable for plantation forests, but slow; almost none planted in response to ETS so far.

These land-use changes do not significantly lower agricultural emissions



More pressure from water quality

In many catchments, increased forestry or natives can also play a key role in meeting water quality targets.

This makes moving out of ruminant agriculture more attractive – or staying in it less so.....



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?

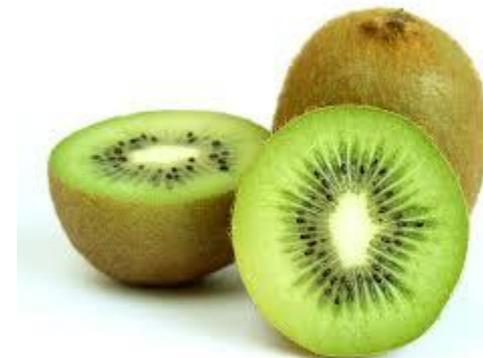
Less profit than modelled on 'new' land

Risk and uncertainty

Behavioural barriers

Capacity and capital

Biological GHGs not priced



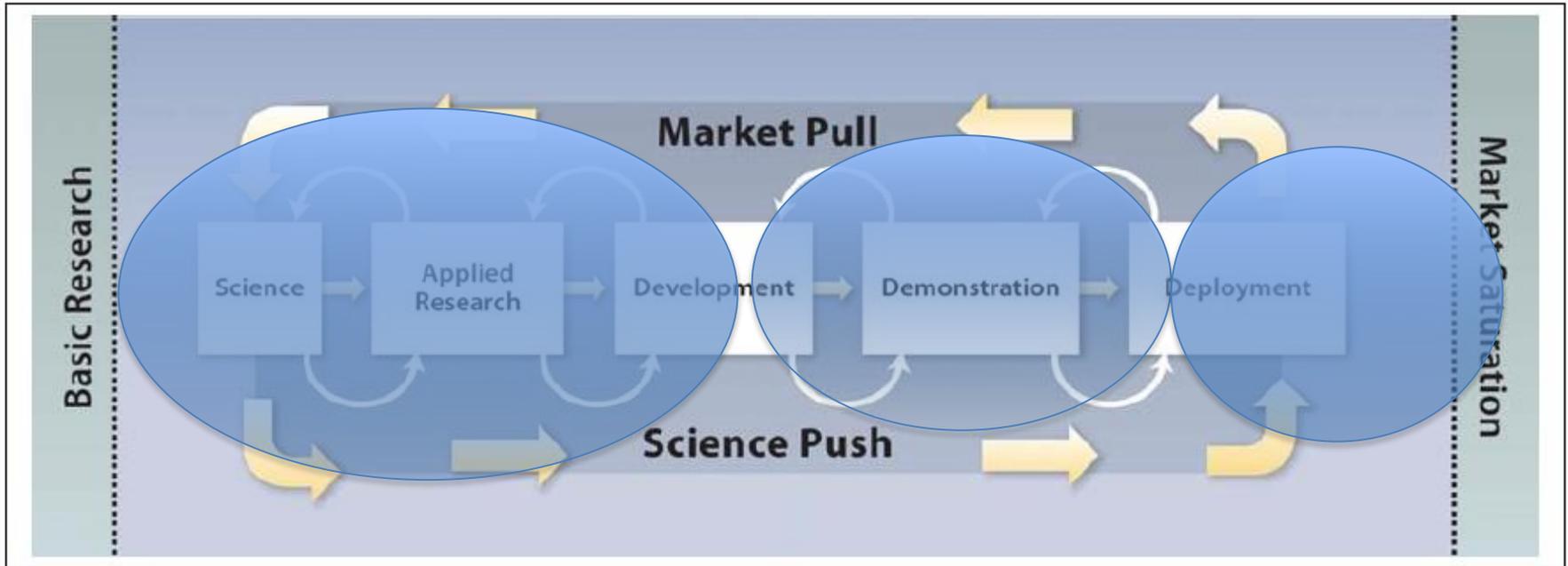
New options: industries not yet established

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

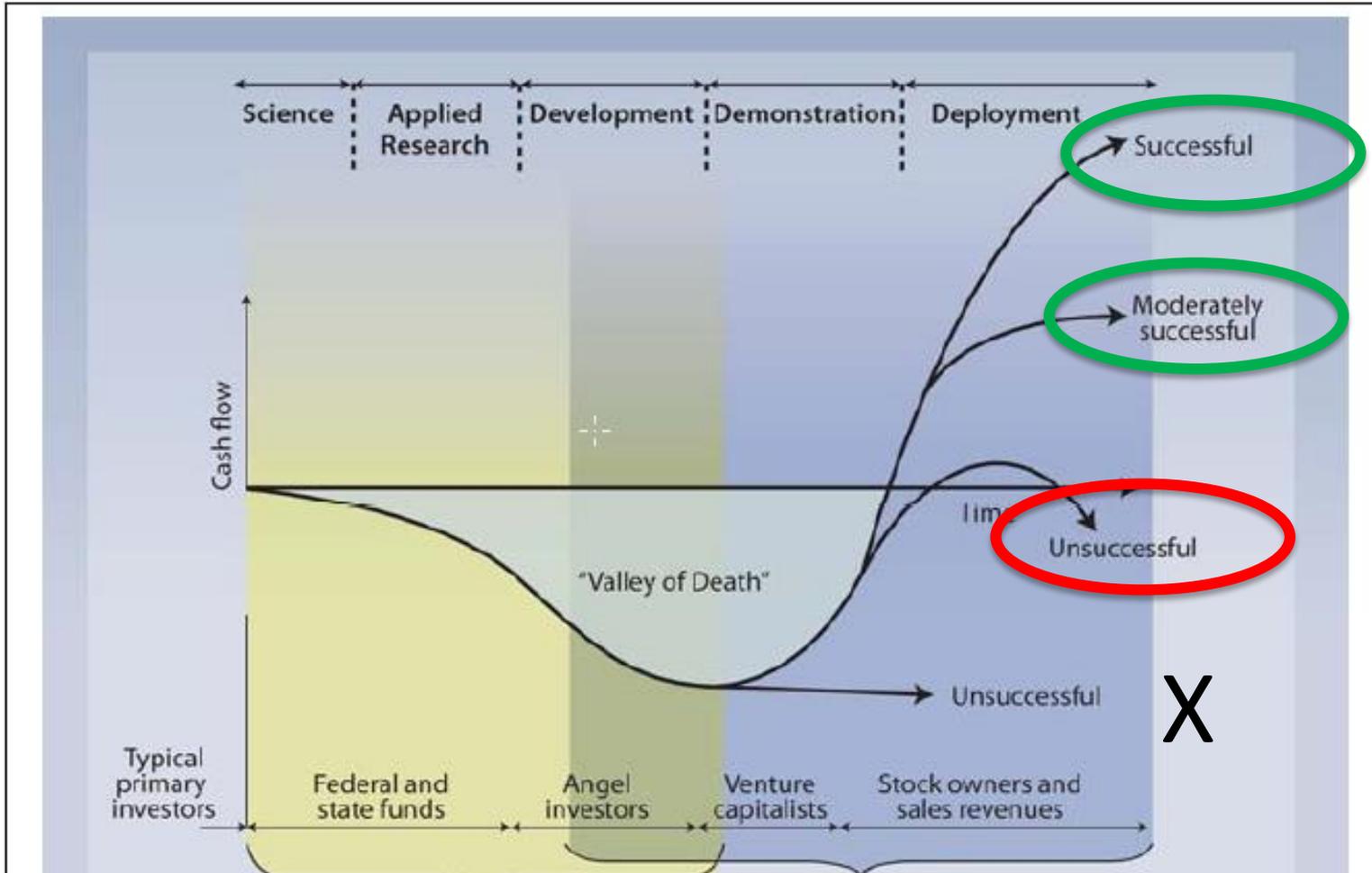
And sometimes we go too fast: New Zealanders tend to have fads

– Goats, ostriches, 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

