

Can adaptations (changing management practices) help?

The figure below shows the type of adaptations modelled to see if they can help reduce the impact of climate change

Adaptation Options

- Feedbase modifications
 - Reduce periods of low ground cover
- Livestock genetic gains
 - achievable with current techniques
- Livestock management

Higher soil fertility

Summer-growing perennial

Remove annual legumes

Increased size of animals

Increased size of sires

More wool at same body size

Increased conception rate

Stocking rate

Feedlotting in poor summers

Single adaptations can, on average, help but not sufficiently to cover all reductions in pasture and livestock production, and profitability compared to the base period in 1970-1999.

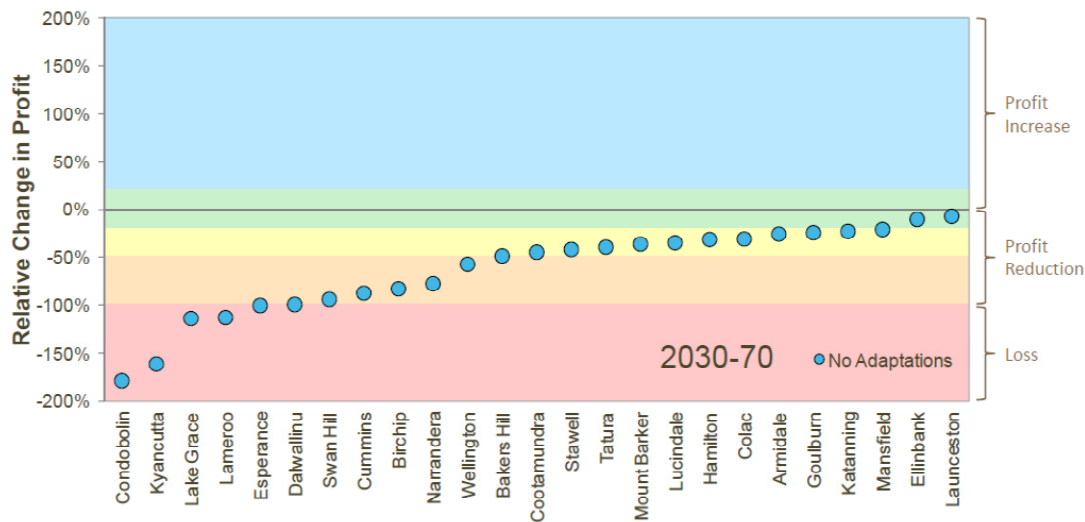


Effectiveness of Single Adaptations

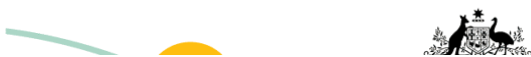
- 100% relative effectiveness = return to 1970-1999 profit

| Adaptation | 2030 | 2050 | 2070 |
|-----------------------------|------|------|------|
| Higher soil fertility | 62% | 67% | 44% |
| Summer-growing perennial | 45% | 50% | 41% |
| Increased conception rate | 15% | 32% | 31% |
| Increased size of animals | 11% | 27% | 28% |
| Feedlotting in poor summers | 15% | 21% | 24% |
| More wool at same body size | 7% | 16% | 16% |
| Increased size of sires | 3% | 6% | 5% |
| Remove annual legumes | 1% | 1% | 1% |

The following shows the modelled impact on profit at different locations, without adaptations, for Merino sheep enterprises.

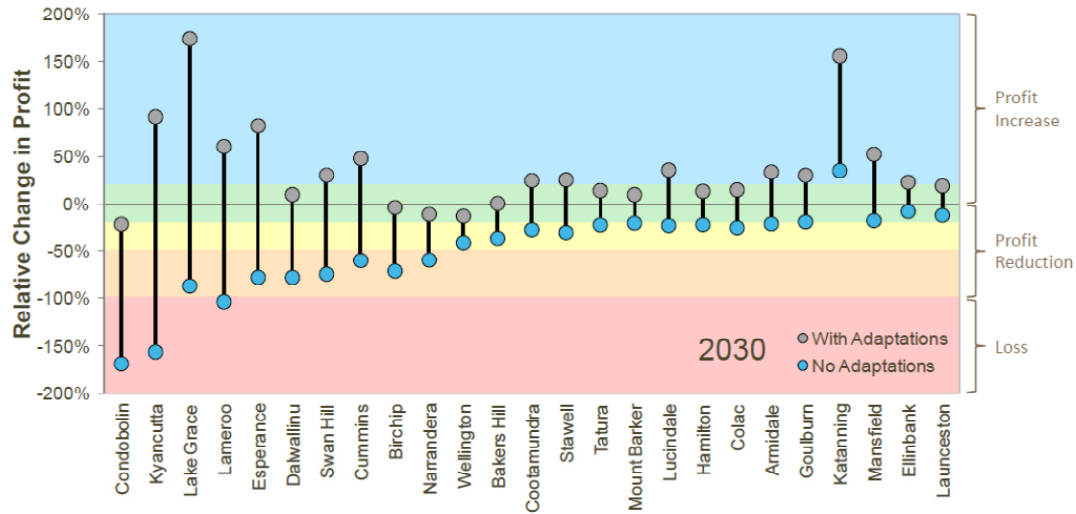


(Merino ewes, average over 4 GCMs)



Combinations of adaptations are most effective. The following shows the modelled impact on profit in 2030 at different locations, **with** a combination of adaptations, for Merino sheep enterprises.

Combining Adaptations

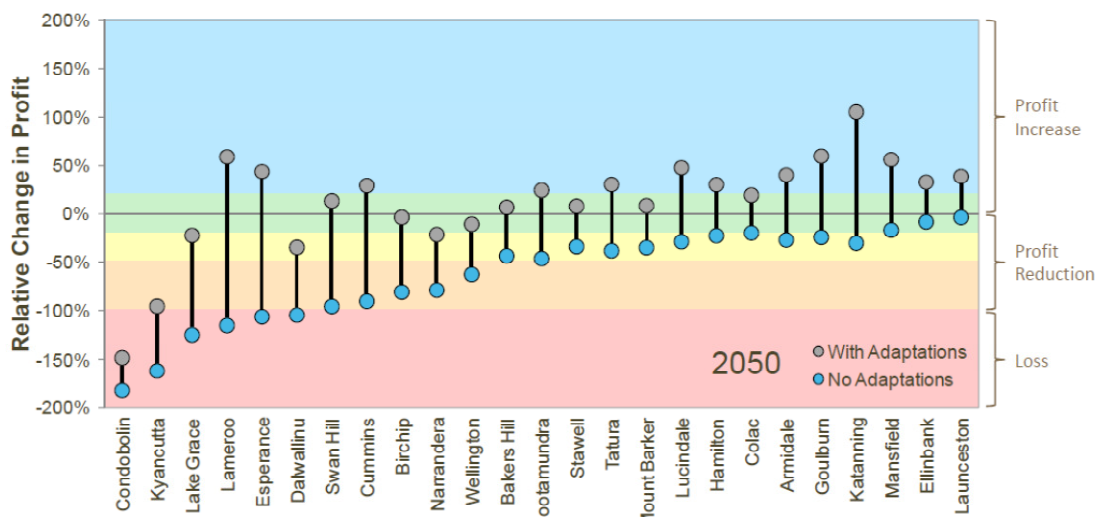


(Merino ewes, average over 4 GCMs)

But, the benefit of adaptations reduces over time. New approaches / technologies will be needed in the longer term

In 2050, below

Combining Adaptations

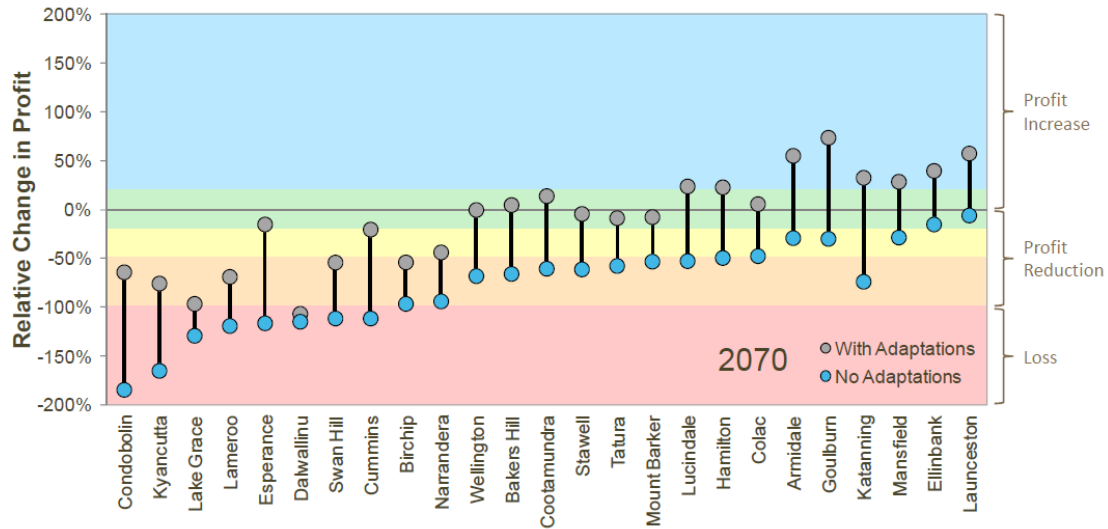


(Merino ewes, average over 4 GCMs)



In 2070 below

Combining Adaptations



(Merino ewes, average over 4 GCMs)

