



ADOPT
PREDICT. INFORM. ENGAGE.

The adoption and diffusion outcome prediction tool

Adoption report for:
Portable NIRS

Report Authors:
Valeria Giovanetti

3/07/2024

For more information about ADOPT contact adopt@csiro.au



Project Details

MODEL

Standard agriculture

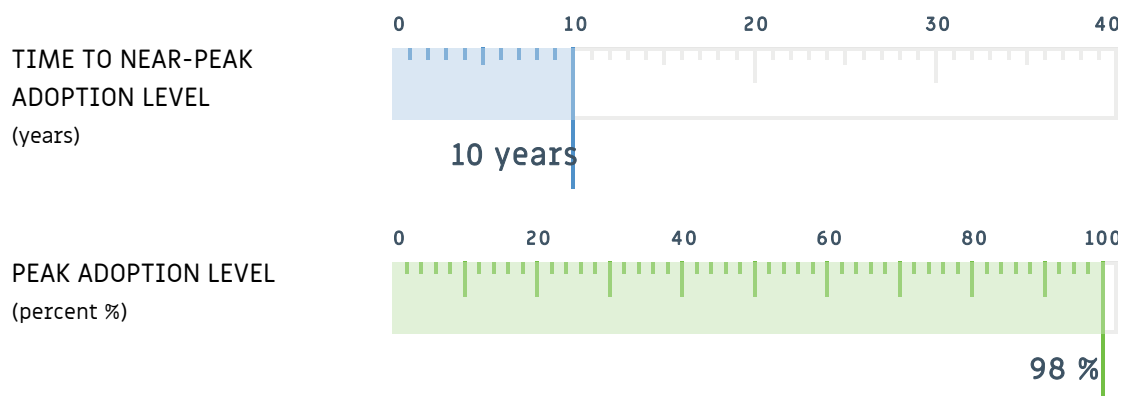
YOUR INNOVATION

Portable NIRS is an instrument to do feedstuff analyses. It allows to have accurate and fast chemical composition of forages, hay and concentrates.

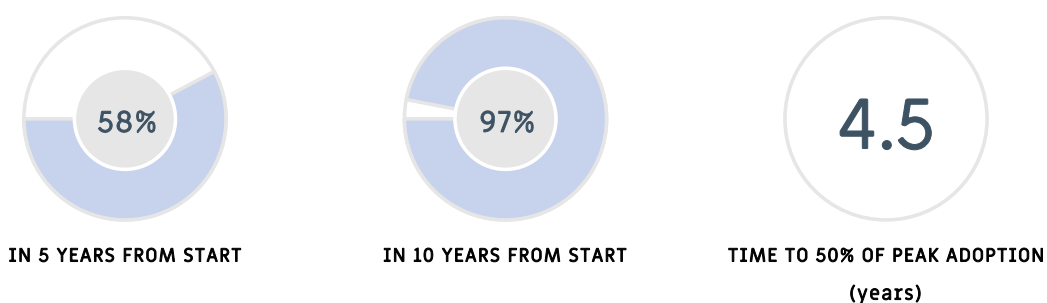
YOUR POPULATION

Farmers, researchers, advisors

Adoption Level



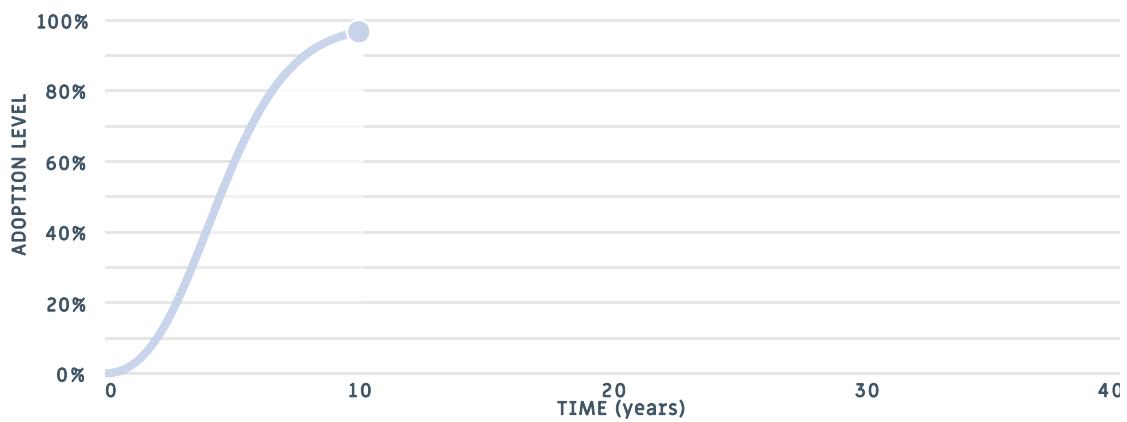
Predicted adoption levels



NOTES: The predictions of Peak Adoption Level and Time to Peak Adoption Level are numeric outputs that are provided to assist with insight and understanding and like any forecasts should be used with caution. Time to Near Peak Adoption represents the time to 99% of the maximum predicted adoption level.

Adoption level S-Curve

The following chart shows how the level of adoption in the relevant population of farmers changes over time.



Yearly Adoption Levels

Year	Adoption %
1	2
2	10
3	23
4	40
5	58
6	73
7	84
8	91
9	95
10	97

(Peak Adoption)

Changing the adoption levels

Many of the factors can be changed by activities such as extension. Based on the data entered, the ADOPT model suggests that changing the following factors would have the biggest effect on adoption.

Changing the peak adoption level

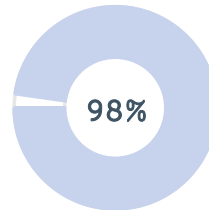
MOST SENSITIVE QUESTION

4 Enterprise scale

On what proportion of the target farms is there a major enterprise that could benefit from the innovation?

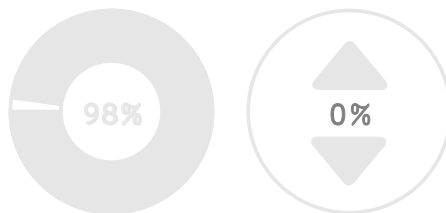
YOUR RESPONSE

Almost all of the target farms have a major enterprise that could benefit



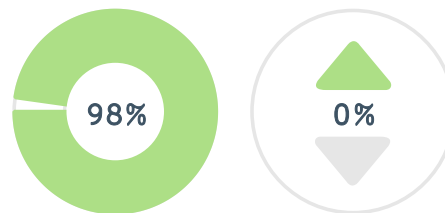
STEP UP RESPONSE

Almost all of the target farms have a major enterprise that could benefit



STEP DOWN RESPONSE

A majority of the target farms have a major enterprise that could benefit



Changing the time to peak adoption level

MOST SENSITIVE QUESTION

12 Relevant existing skills & knowledge

What proportion of the target population will need to develop substantial new skills and knowledge to use the innovation?

YOUR RESPONSE

A majority will need new skills and knowledge



STEP UP RESPONSE

About half will need new skills and knowledge



STEP DOWN RESPONSE

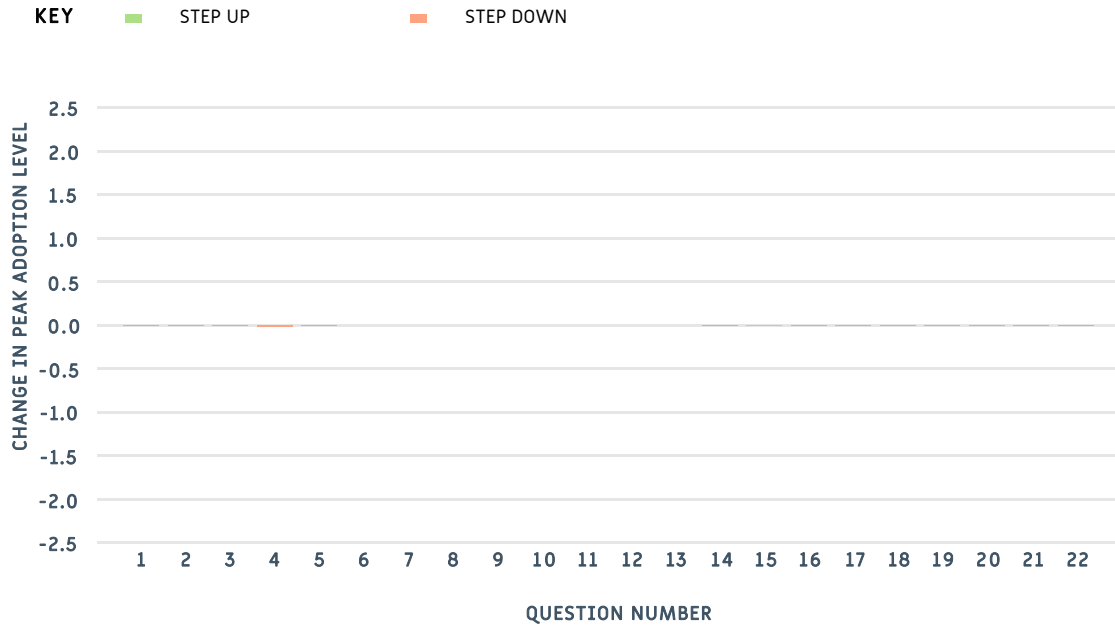
Almost all need new skills and knowledge



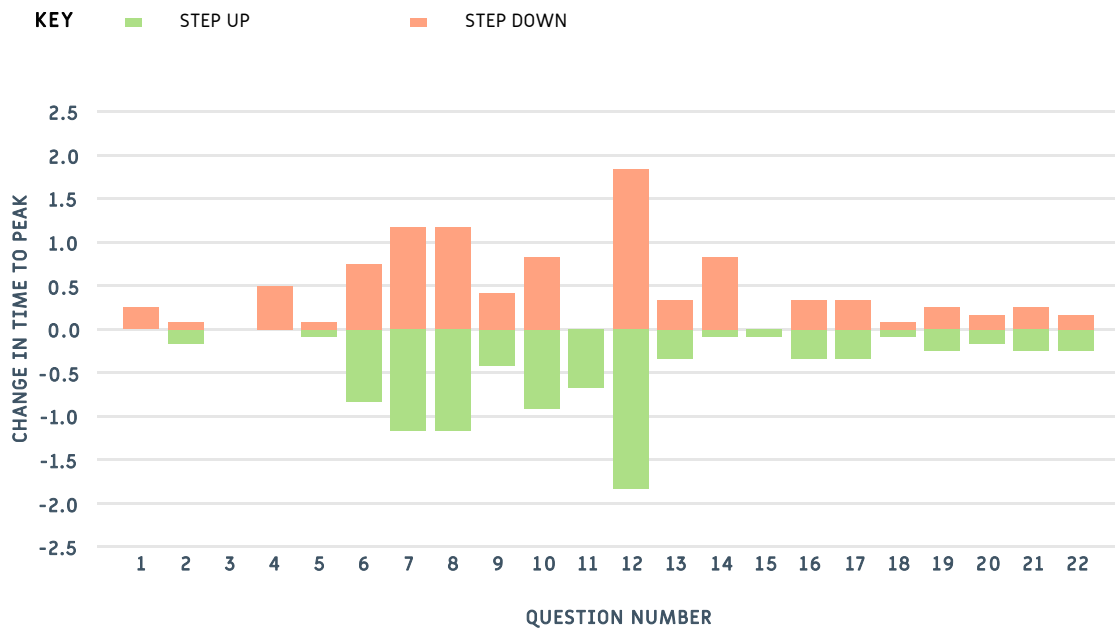
Sensitivity Analysis

The following charts show the effects on Peak Adoption Level and Time to Peak Adoption of single step changes up and down for all questions.

Peak level, sensitivity analysis

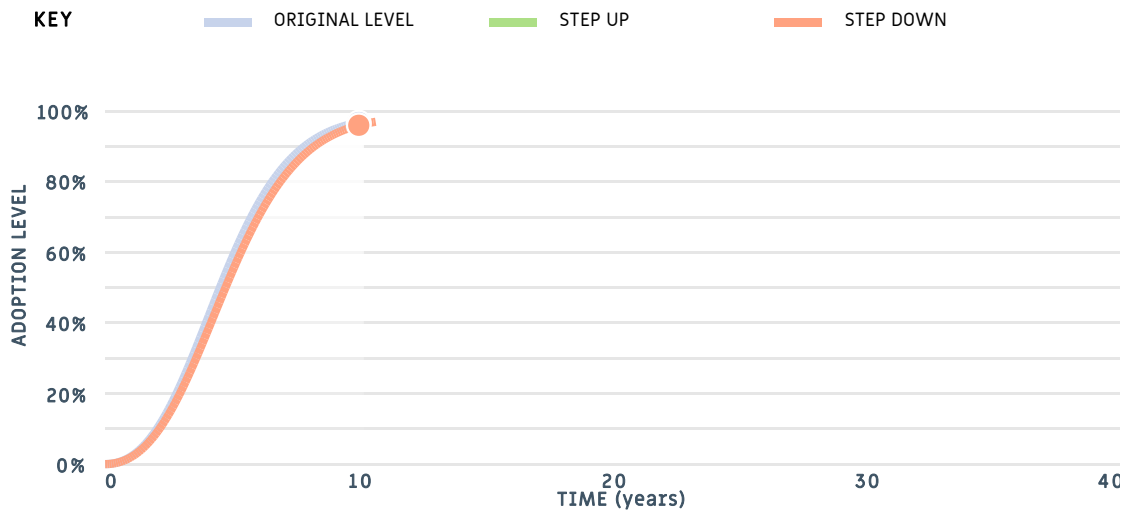


Time to peak, sensitivity analysis

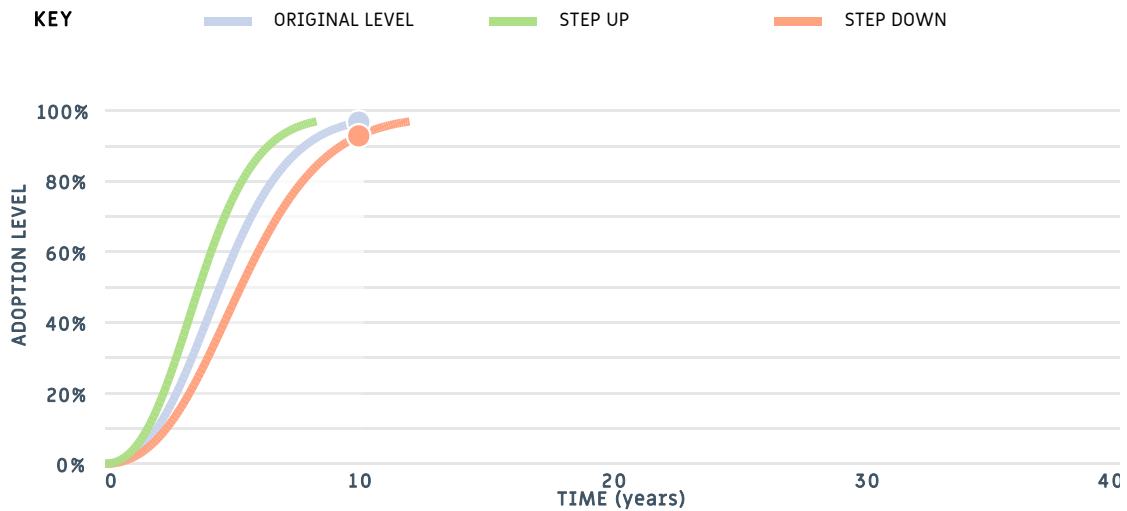


S-Curve Sensitivity

The following chart shows how the S-Curve is predicted to change when a single step change is made to the most sensitive question(s) with respect to Peak Adoption Level



The following chart shows how the S-Curve is predicted to change when a single step change is made to the most sensitive question(s) with respect to Time to Near Peak Adoption.



Responses

Question	Response	Reasoning
Relative Advantage for the Population		
1. Profit orientation	Almost all have maximising profit as a strong motivation	
2. Environmental orientation	A majority have protection of the environment as a strong motivation	
3. Risk orientation	Almost all have risk minimisation as a strong motivation (risk averse)	
4. Enterprise scale	Almost all of the target farms have a major enterprise that could benefit	
5. Management horizon	A minority have a long-term management horizon	
6. Short term constraints	About half currently have a severe short-term financial constraint	
Learnability Characteristics of the Innovation		
7. Trialable	Easily trialable	
8. Innovation complexity	Slightly difficult to evaluate effects of use due to complexity	
9. Observability	Easily observable	
Learnability of Population		
10. Advisory support	A minority use a relevant advisor	
11. Group involvement	Almost none are involved with a group that discusses farming	
12. Relevant existing skills & knowledge	A majority will need new skills and knowledge	
13. Innovation awareness	About half are aware that it has been used or trialed in their district	

Relative Advantage of the Innovation

14. Relative upfront cost of the project	Moderate initial investment
15. Reversibility of the innovation	Not reversible at all
16. Profit benefit in years that it is used	Large profit advantage in years that it is used
17. Future profit benefit	Large profit advantage in the future
18. Time until any future profit benefits are likely to be realised	Immediately
19. Environmental costs & benefits	Large environmental advantage
20. Time to environmental benefit	3 - 5 years
21. Risk exposure	Moderate reduction in risk
22. Ease and convenience	Moderate increase in ease and convenience

ADOPT can be cited as: Kuehne G, Llewellyn R, Pannell D, Wilkinson R, Dolling P, Ouzman J, Ewing M (2017) Predicting farmer uptake of new agricultural practices: A tool for research, extension and policy, *Agricultural Systems* 156:115-125
<https://doi.org/10.1016/j.agsy.2017.06.007>

While CSIRO makes every effort to ensure that the information on this site (including the ADOPT tool and associated materials) is accurate, current and complete, CSIRO makes no representations, conditions or warranties of any kind, express or implied, as to the operation or results of this site, or accuracy, correctness or reliability of the information available on this site. The information provided is subject to the usual uncertainties of research and does not constitute expert advice. Users should not rely solely on any of the information provided. To the maximum extent permitted by law, CSIRO does not guarantee the completeness or accuracy of any of the information contained on or accessed through this site and excludes all liability to any person arising directly or indirectly from using this site and any information or material available on it.

ADOPT: Adoption and Diffusion Outcome Prediction Tool.

