Holistic land valuation

Eike Luedeling, Keith Shepherd

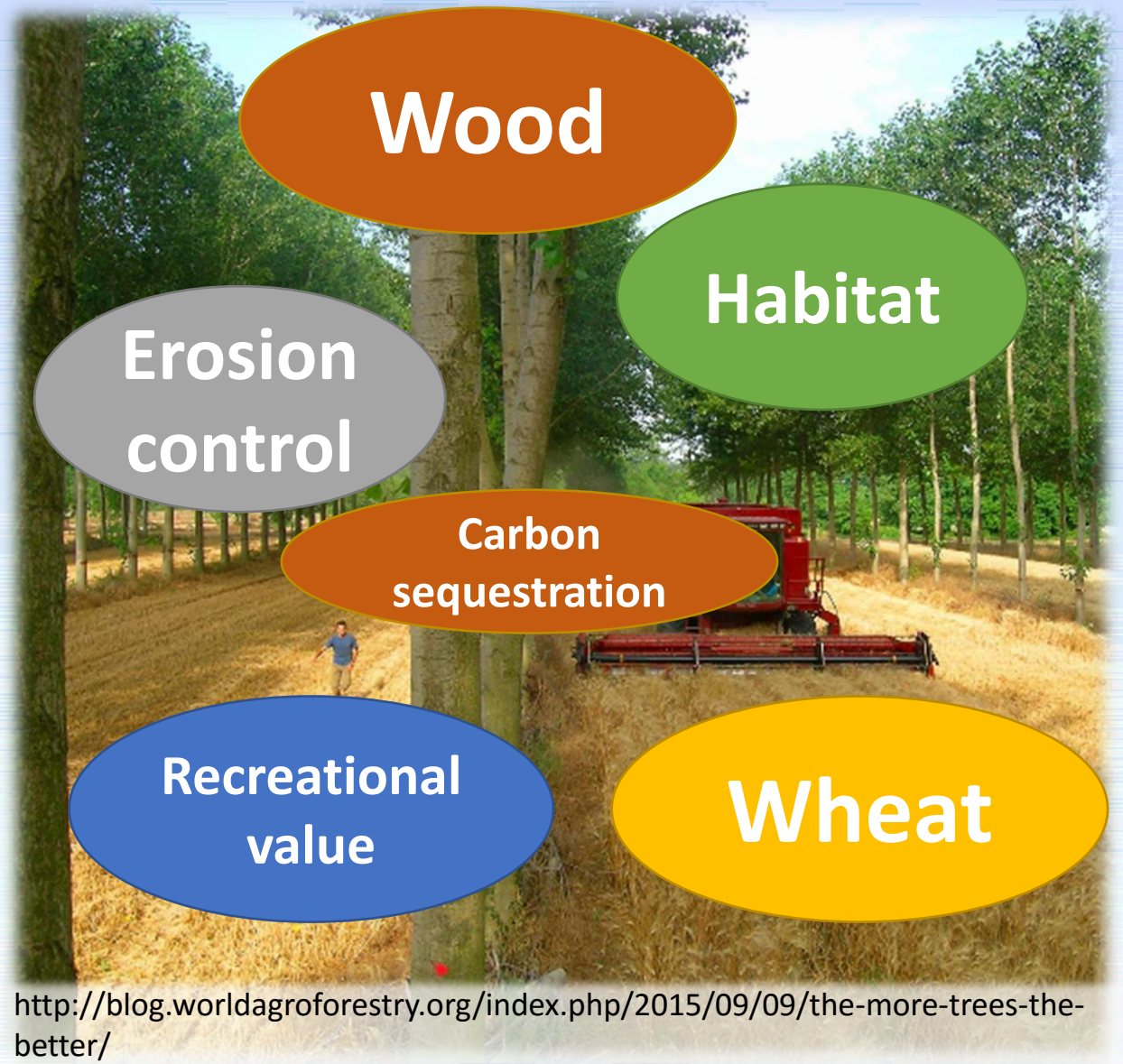
World Agroforestry Centre

Two landscapes

http://blog.worldagroforestry.org/index.php/2015/09/09/the-more-trees-the-better/

http://www.zeolitebodycleanse.com/zeo-health-blog/2014/1/17/destruction-of-the-environment-through-monocrop-practices-and-over-farming

Two landscapes



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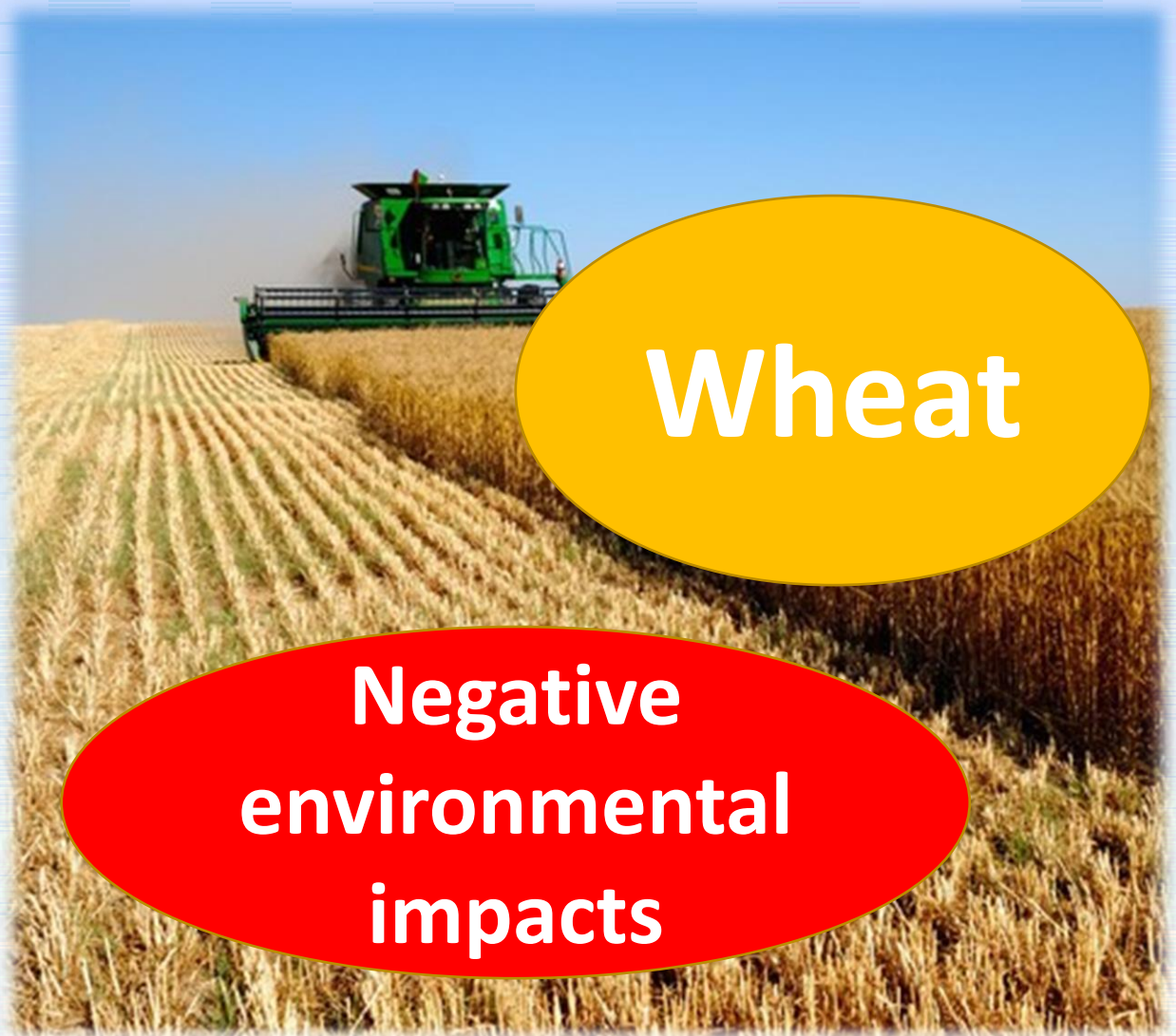

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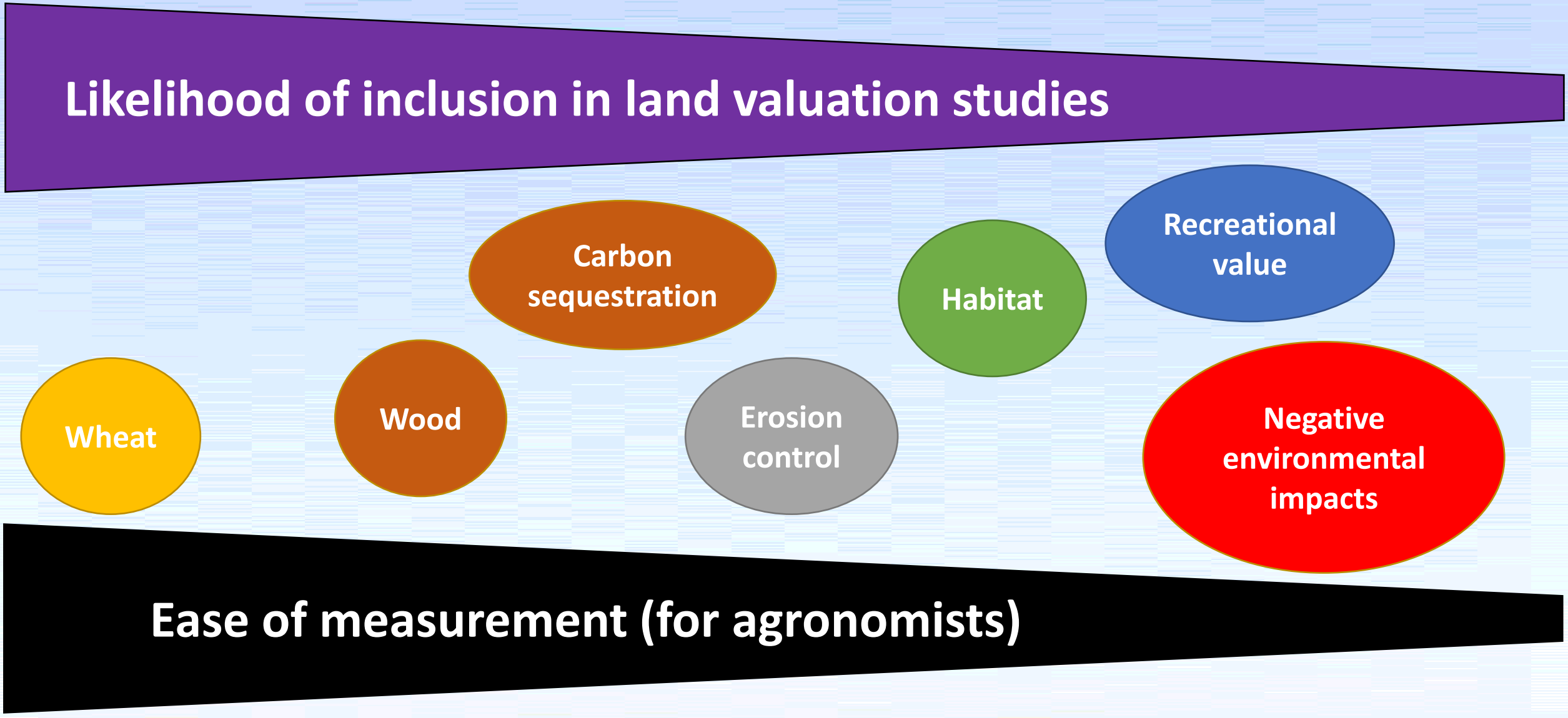
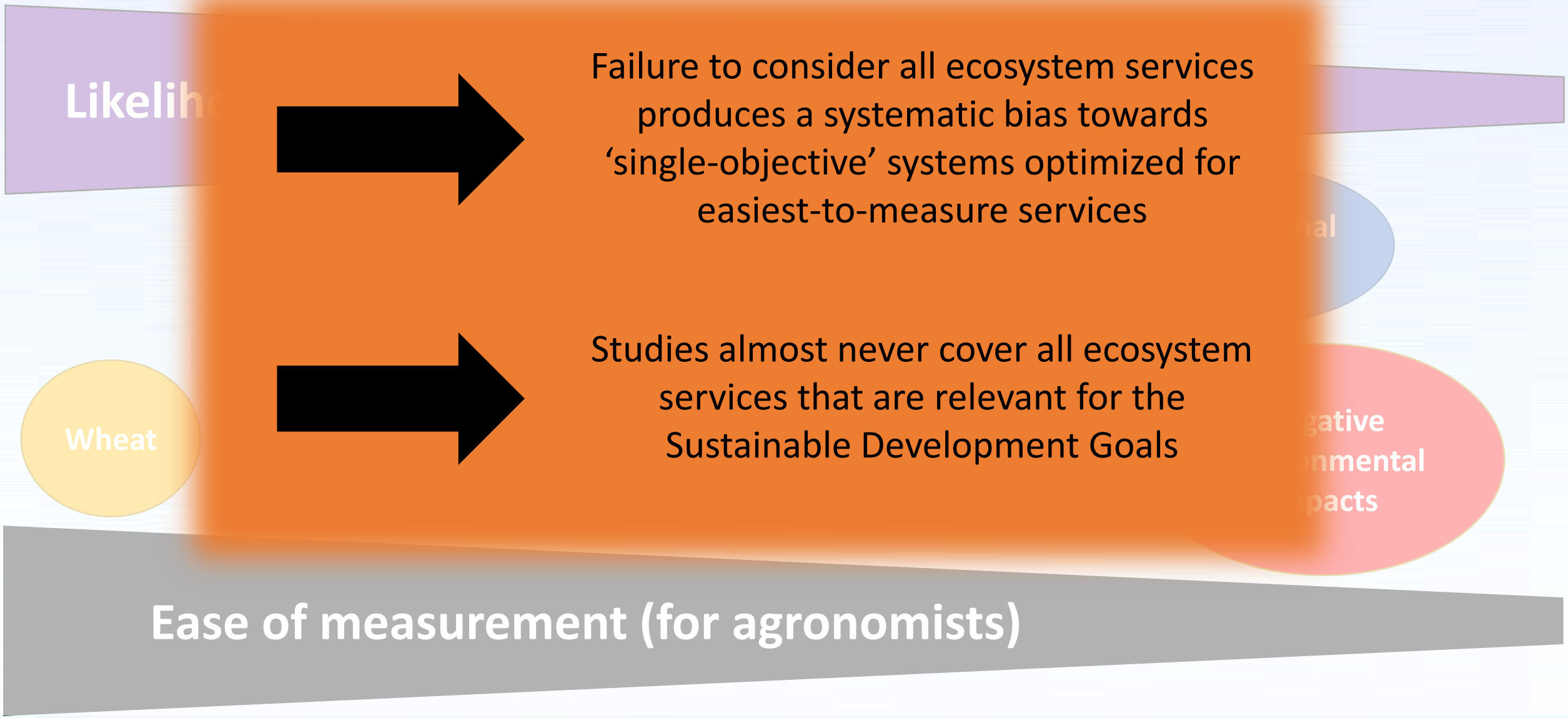
Measuring ecosystem services



Measuring ecosystem services



The single-arrow paradigm

Researchers aim to produce (and decision-makers want) one precise, objectively true number

In a complex world, this can only be achieved by ignoring most of the complexity

But this isn't sufficient for people making real-world decisions

http://www.zevendesign.com/arrow-and-target/

Decision analysis

Deals with the real-life question of which path to choose

Widely used to support many types of decisions

Decision analysis principles

Include everything that matters

Consider all information you can get

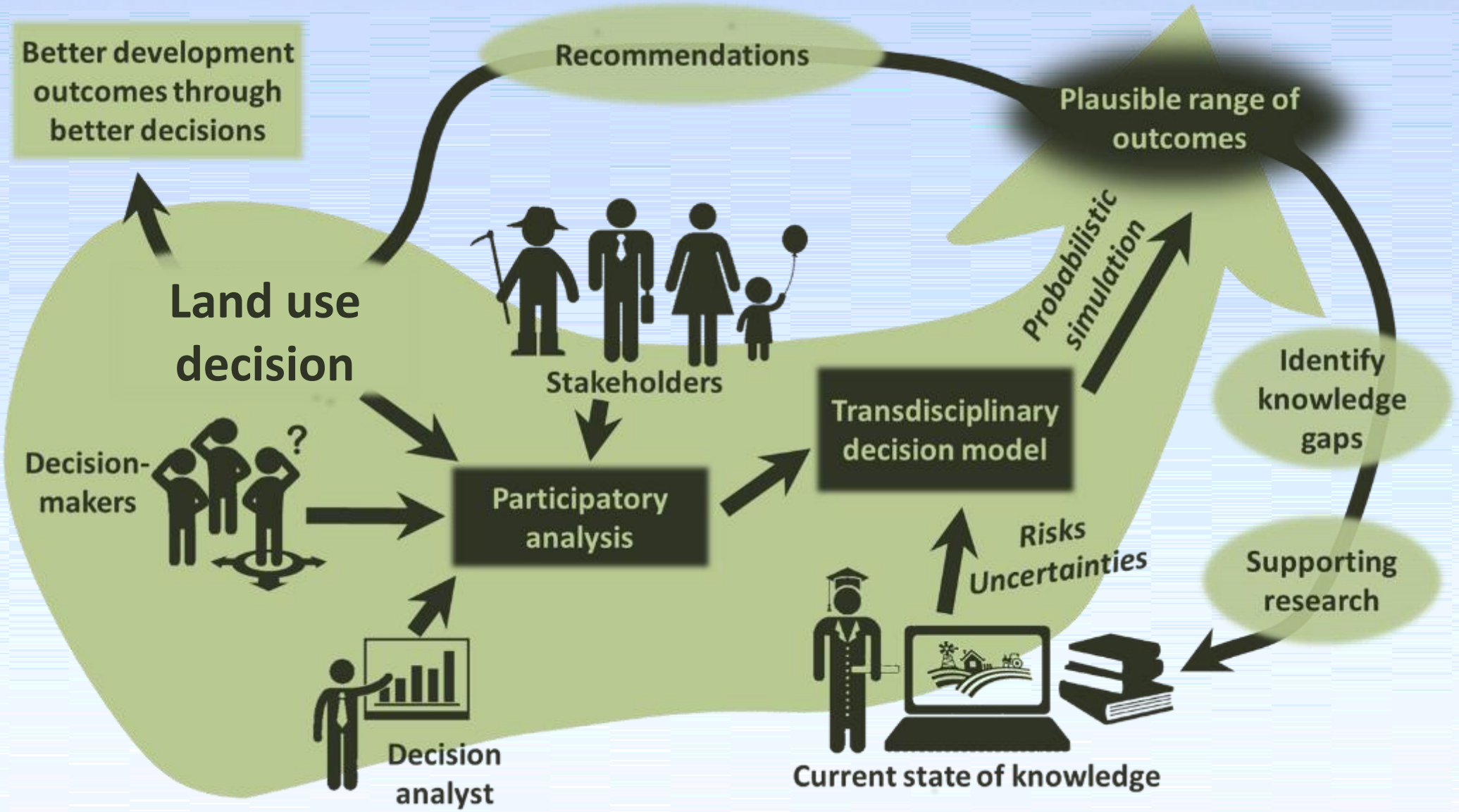
Quantify the state of knowledge

Provide range of plausible land values

Identify priority knowledge gaps

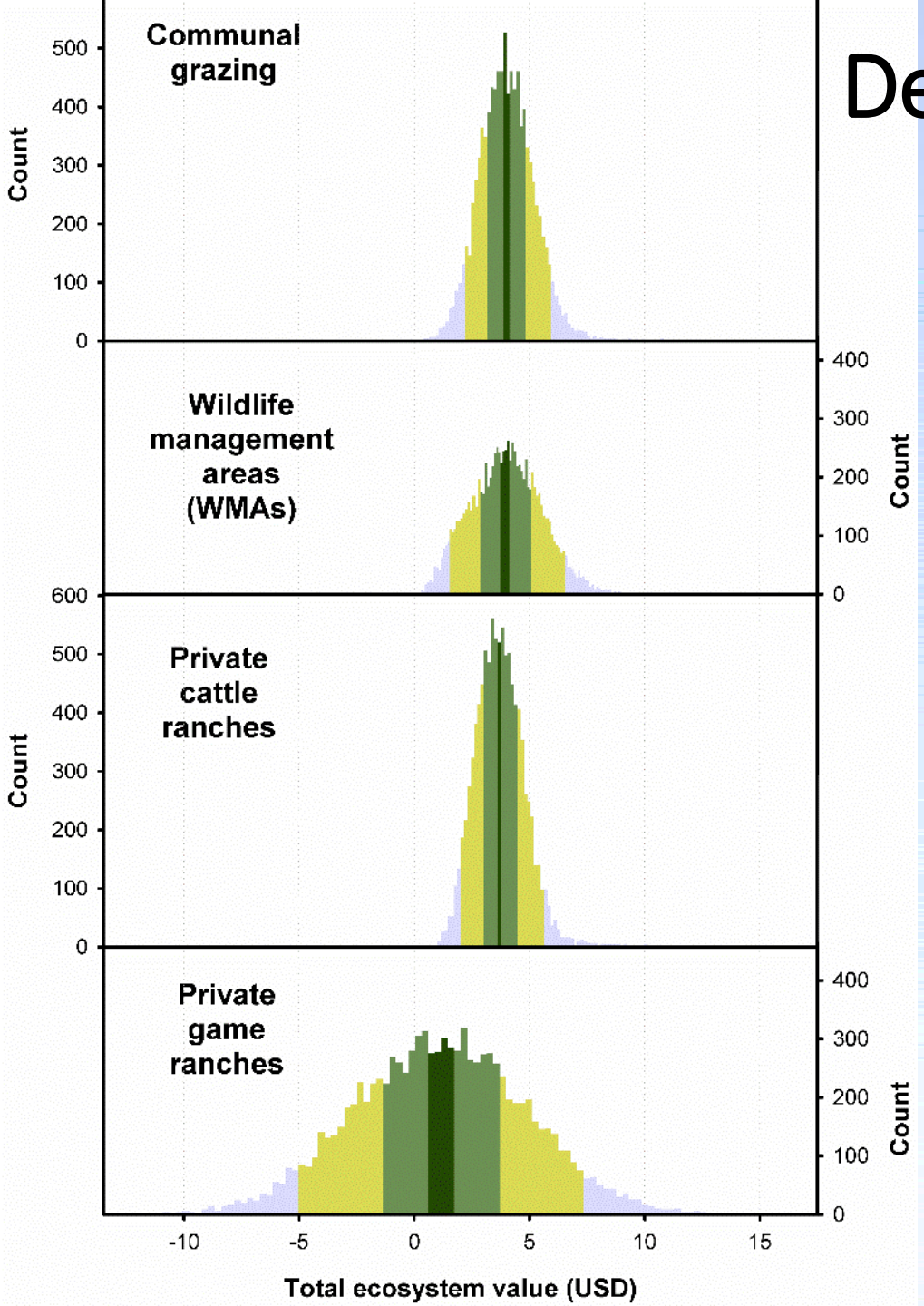
http://awesomeaj.com/wp-content/uploads/2013/06/crossroad-path-in-lavender-meadow1.jpg

Decision analysis



Luedeling and Shepherd, 2016. Solutions 7(5), 46-54.

Decision analysis



Holistic valuation of rangelands under different management regimes in Botswana

Considers livestock, fuelwood, recreation, cultural and spiritual value, etc.

In contrast to assessment based on variables with hard data, communal land use systems appear preferable

Favretto N, Luedeling E, Stringer L, Dougill A, 2017. Valuing ecosystem services in semi-arid rangelands through stochastic simulation. Land Degradation & Development 28, 66-73

A paradigm shift in land valuation

Complex system

Multiple outcomes

Many SDGs and other goals to consider

Many dimensions that are hard to quantify

Struggle for precision
Selective analysis of isolated aspects

Incomplete valuations
Intolerable errors of omission

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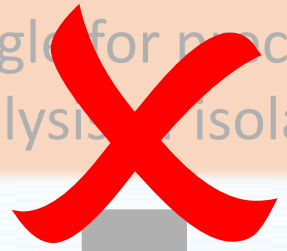

Incomplete valuations

Intolerable errors of omission

Holistic analysis of all important aspects

'Bayesian' approximation (ranges)

Complete assessments

Imprecise but plausible valuations

World Agroforestry Centre

zef
Center for Development Research
University of Bonn

Thank you for your attention!

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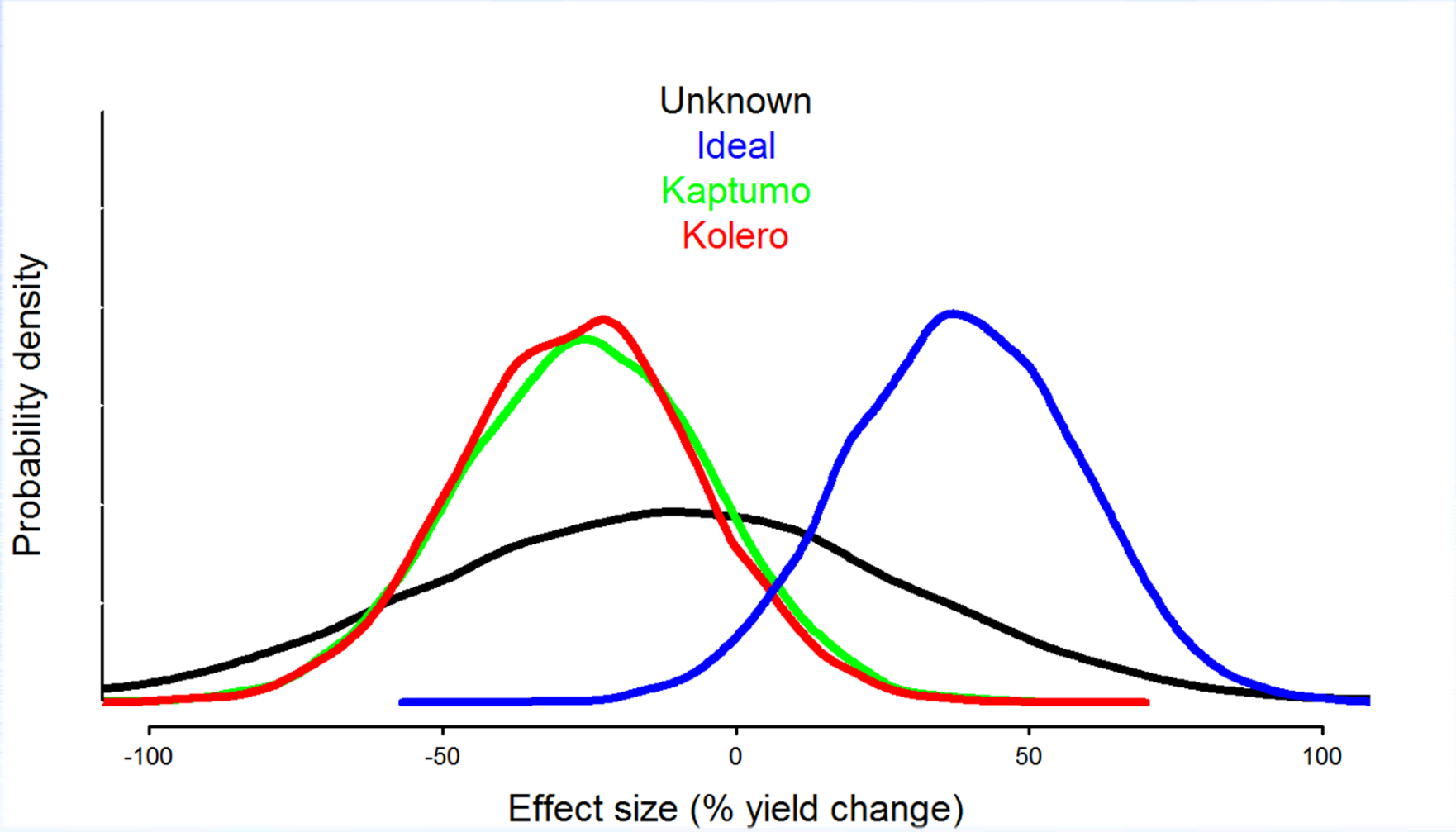
Decision analysis

Yield impacts of adopting Conservation Agriculture in East Africa

Considers a wide range of biophysical and socioeconomic factors



Rosenstock et al., 2014. Targeting conservation agriculture in the context of livelihoods and landscapes. Agriculture, Ecosystems and Environment 187, 47-51.