



IPCC: From climate change adaptation assessment to action and back again ?

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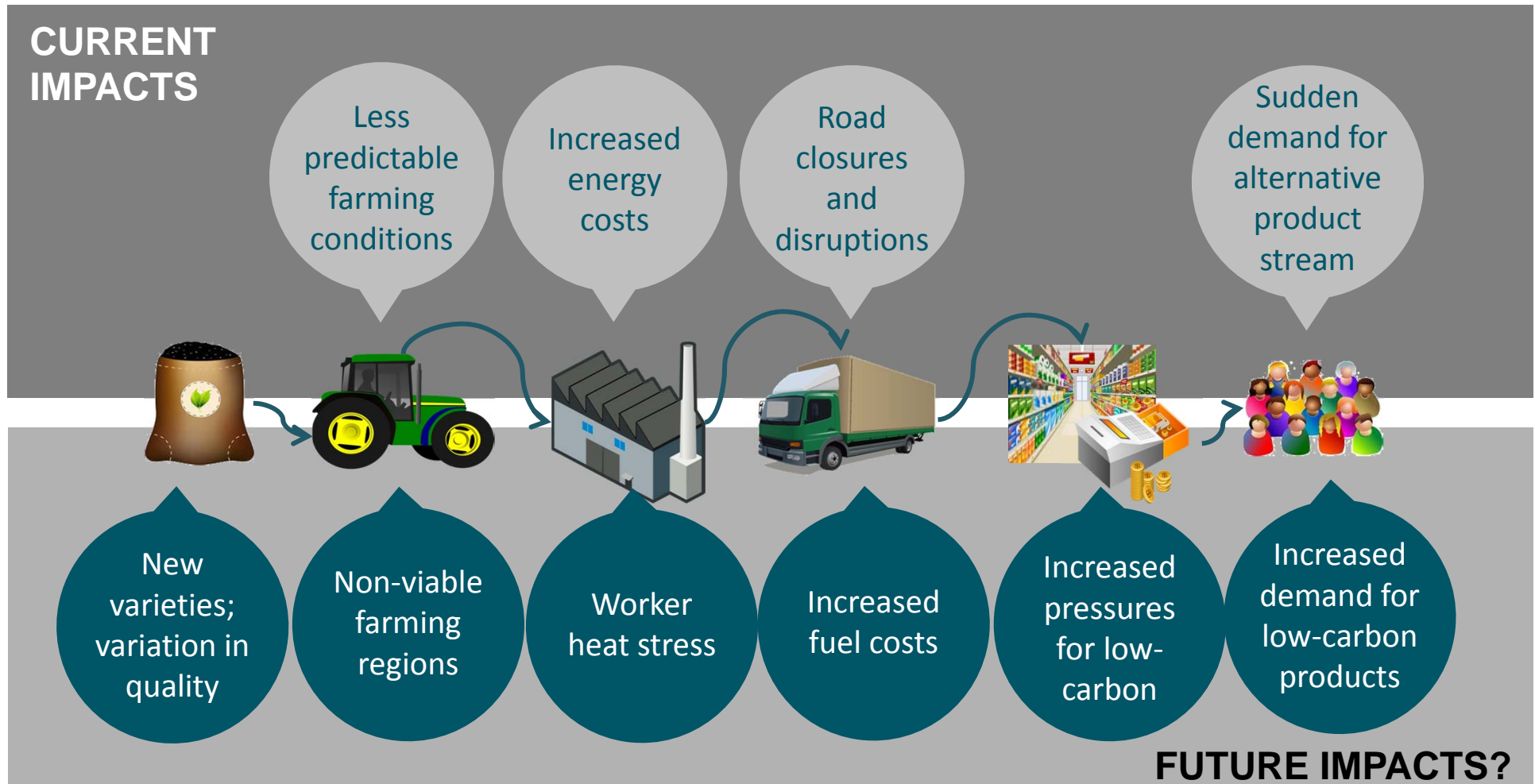
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Aspiration: Climate change impacts and adaptation on food systems and value chains



Impacts Cultural
Water resources acceptability Adoption
paths
Crop Stability Mitigation
Nutrition interactions
Institutional Policy Systemic adaptation
change Value chain Trade Traditional
Livestock Production knowledge
Agronomic Belief Vulnerability
adaptation systems Economics
Adaptive Transformation Social
capacity Communication networks

Impacts

Cultural acceptability

Adoption paths

Water resources

Stability

Crop production

Mitigation interactions

Nutrition

Uncertainty

Institutional change

Policy

Systemic adaptation

Value chain

Trade

Traditional knowledge

Livestock

Selection

Agronomic adaptation

Belief systems

Vulnerability

Economics

Social networks

Adaptive capacity

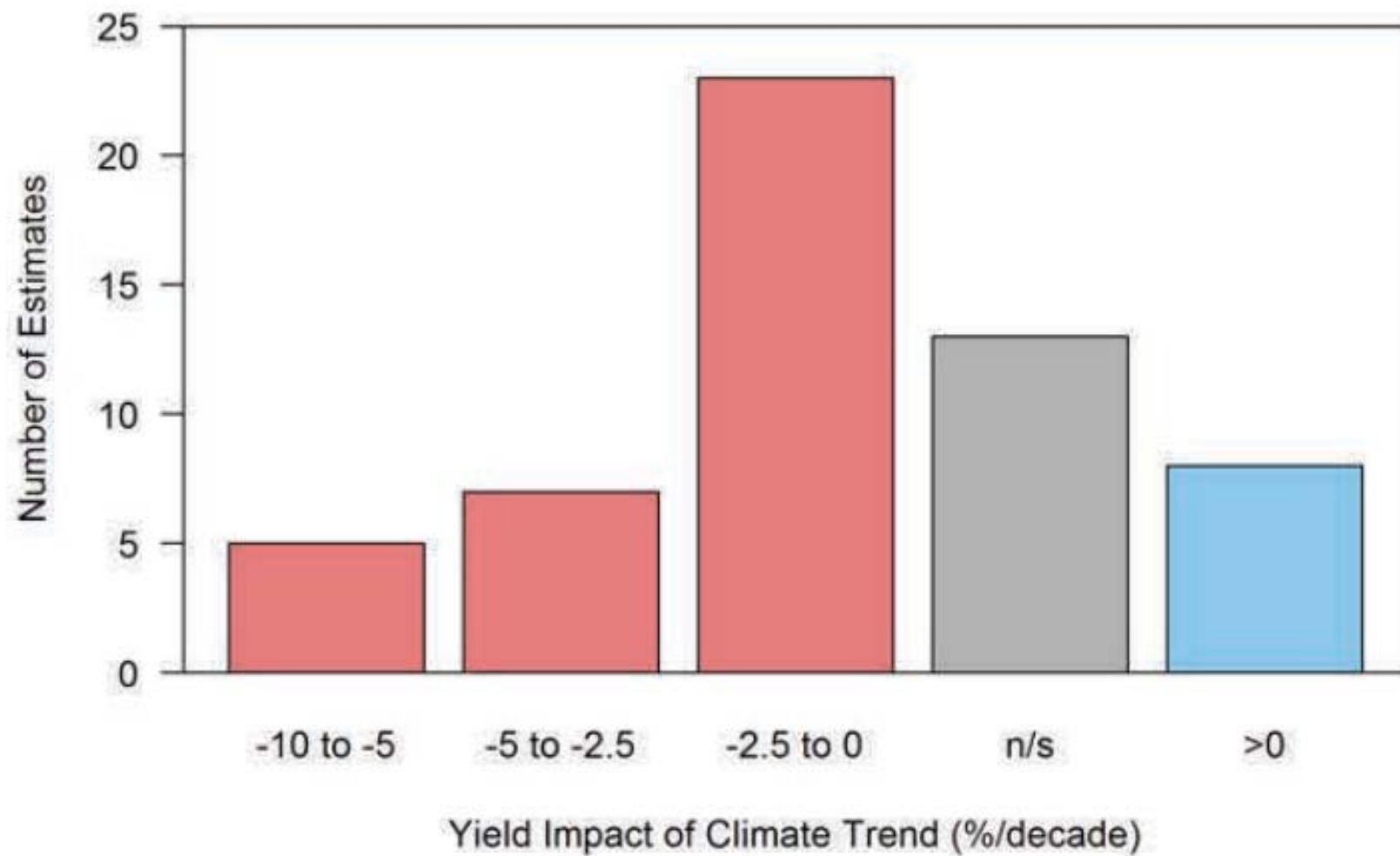
Transformation

Communication

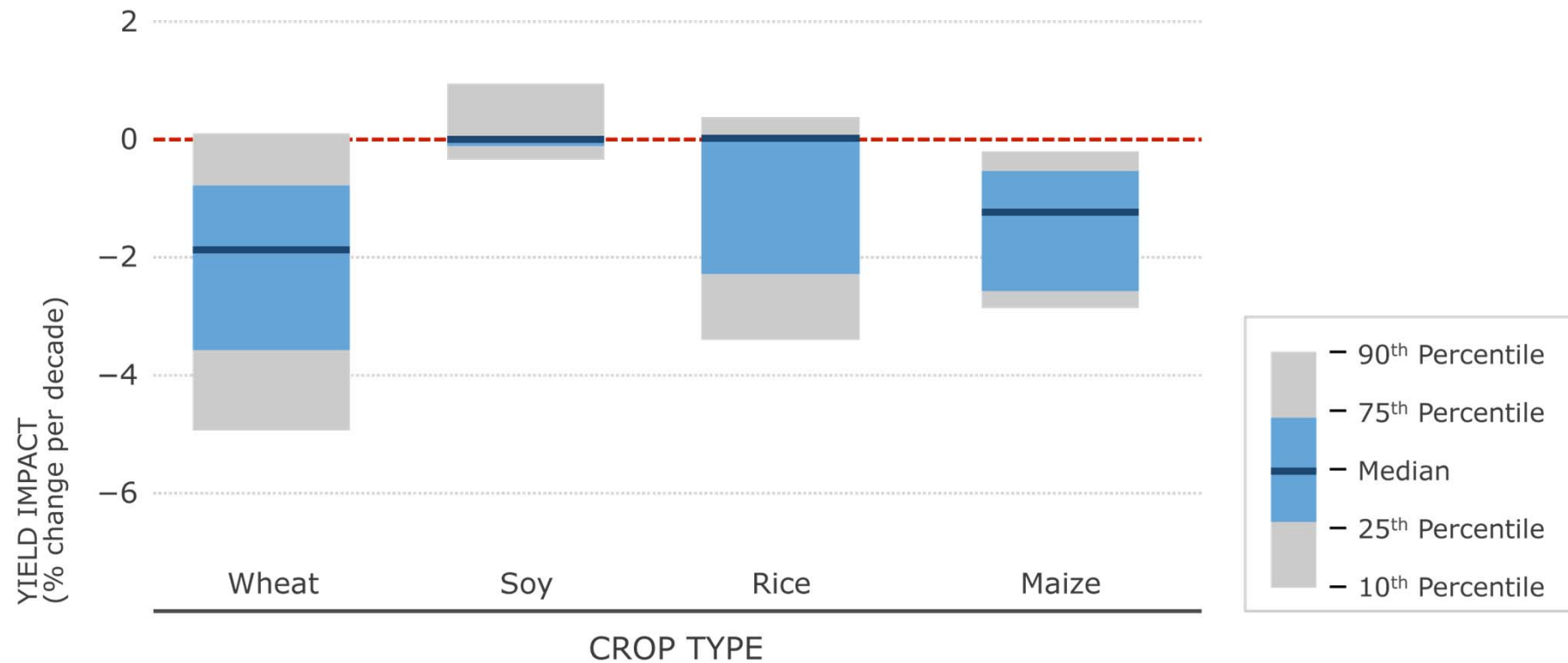
Pests, diseases, weeds



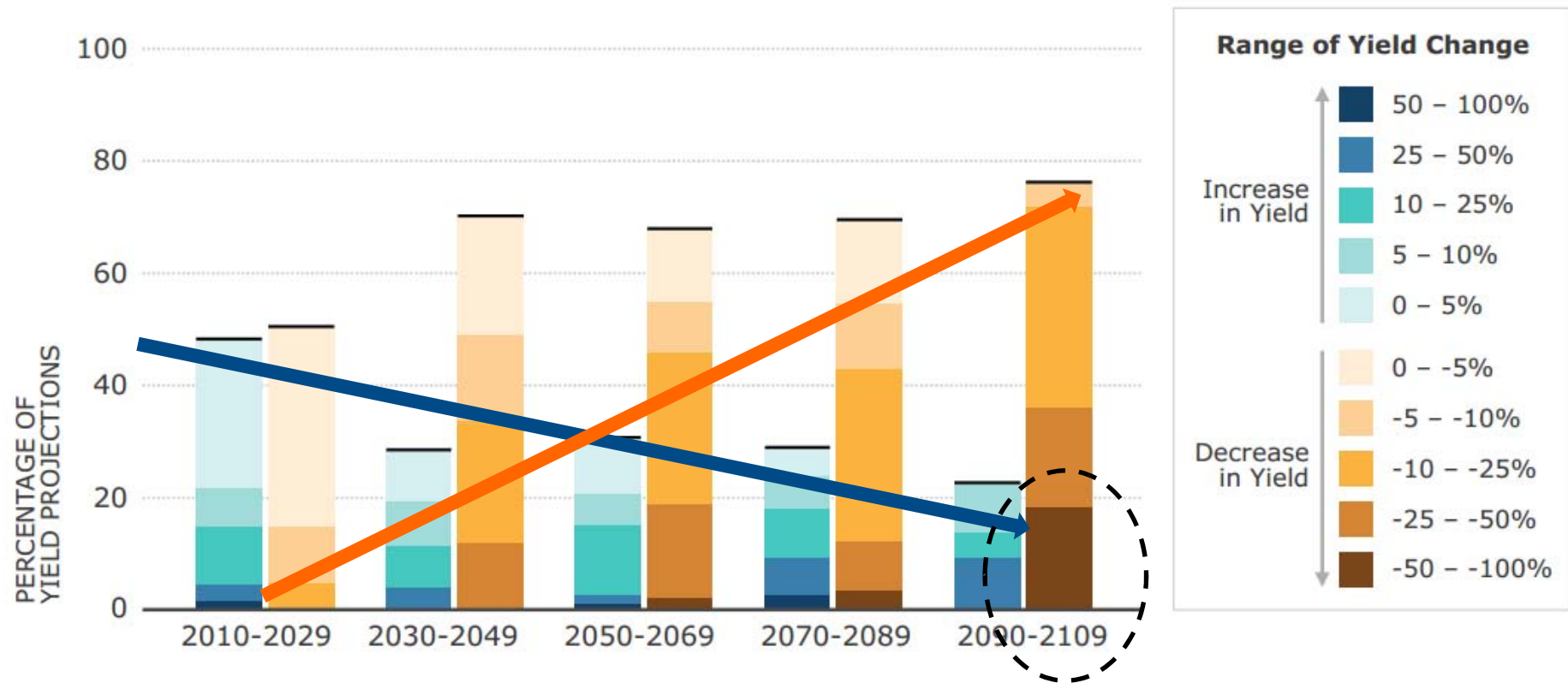
Climate change is already affecting yields



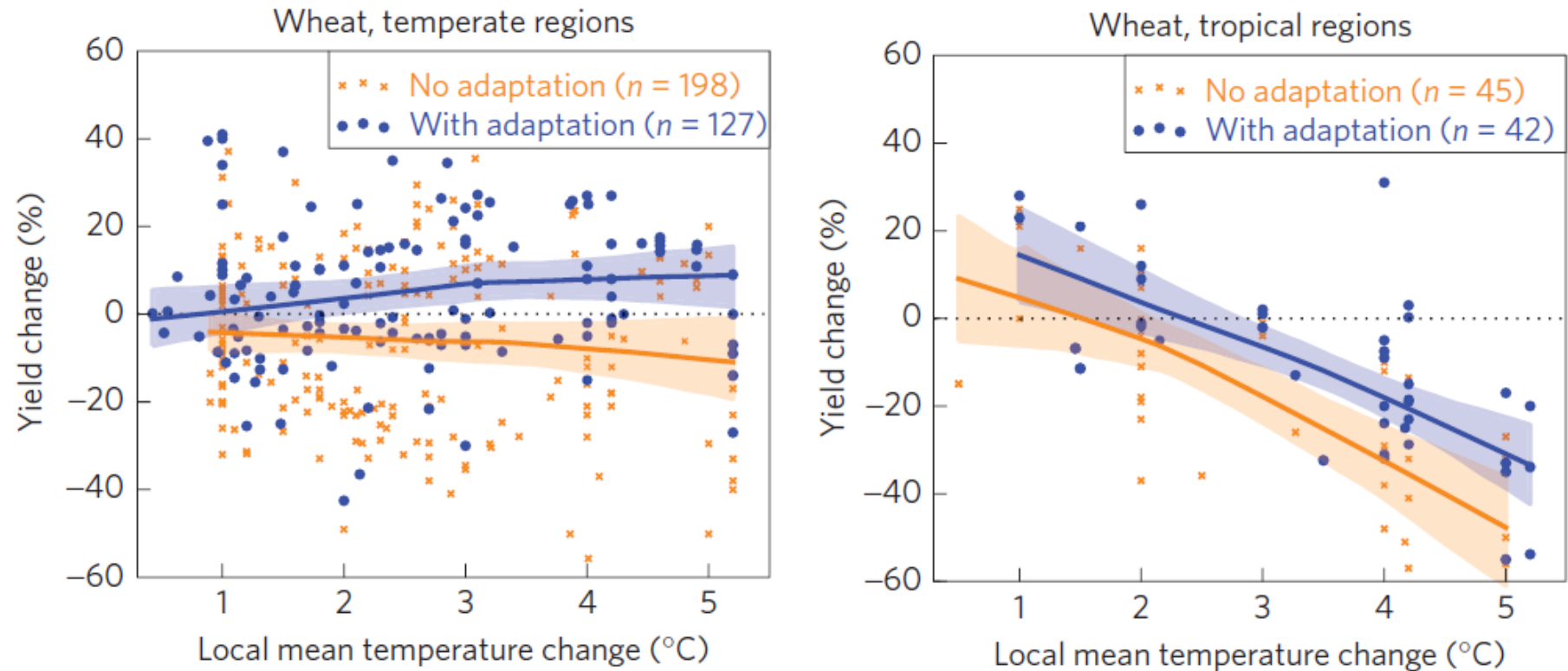
Climate changes affecting crops differently



More negative and less positive over time

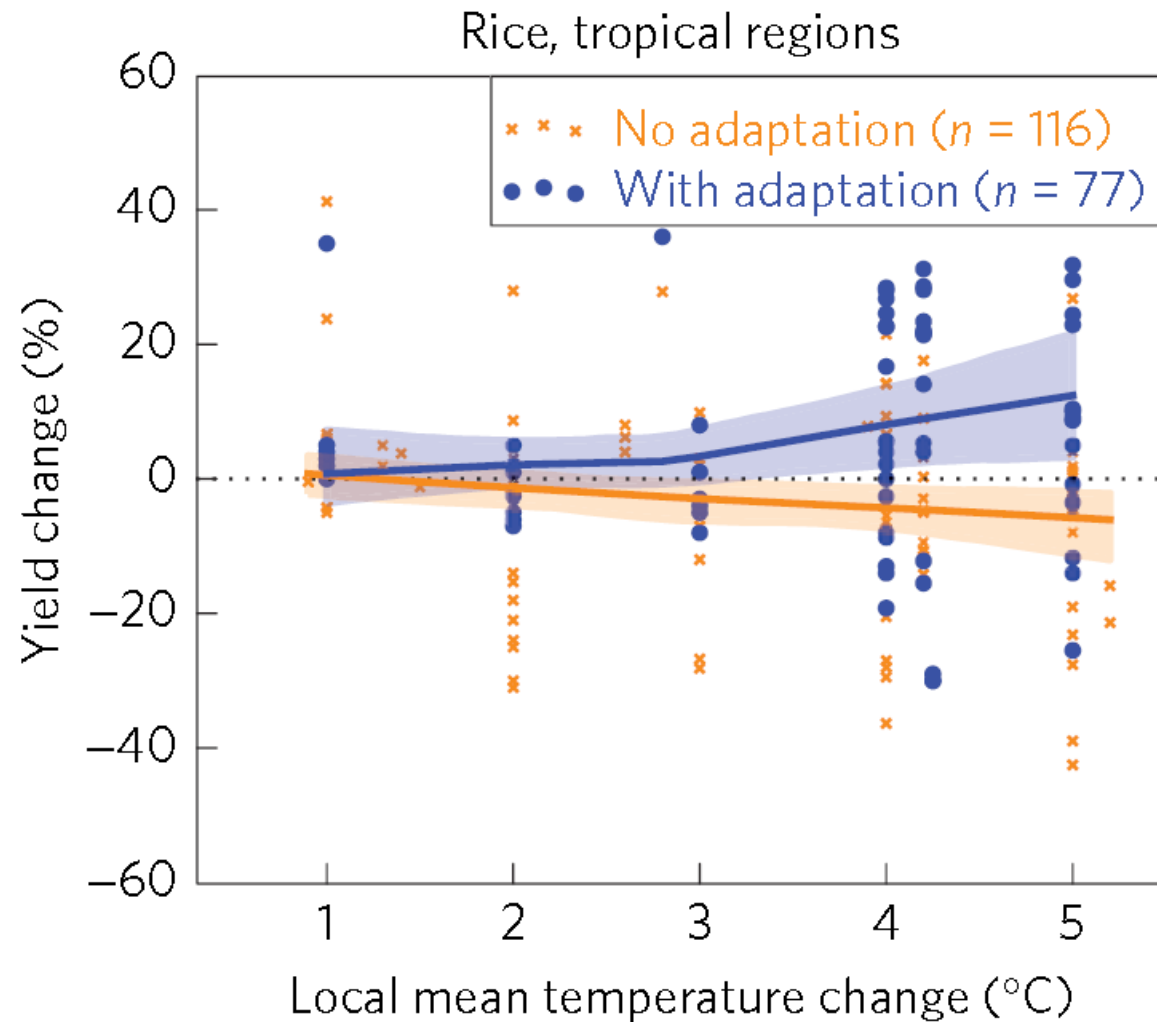


Future impacts vary by region, adaptation important



- Limited range of adaptations assessed
- Largely missing increased variability, pest/disease changes etc

Crops differ in response

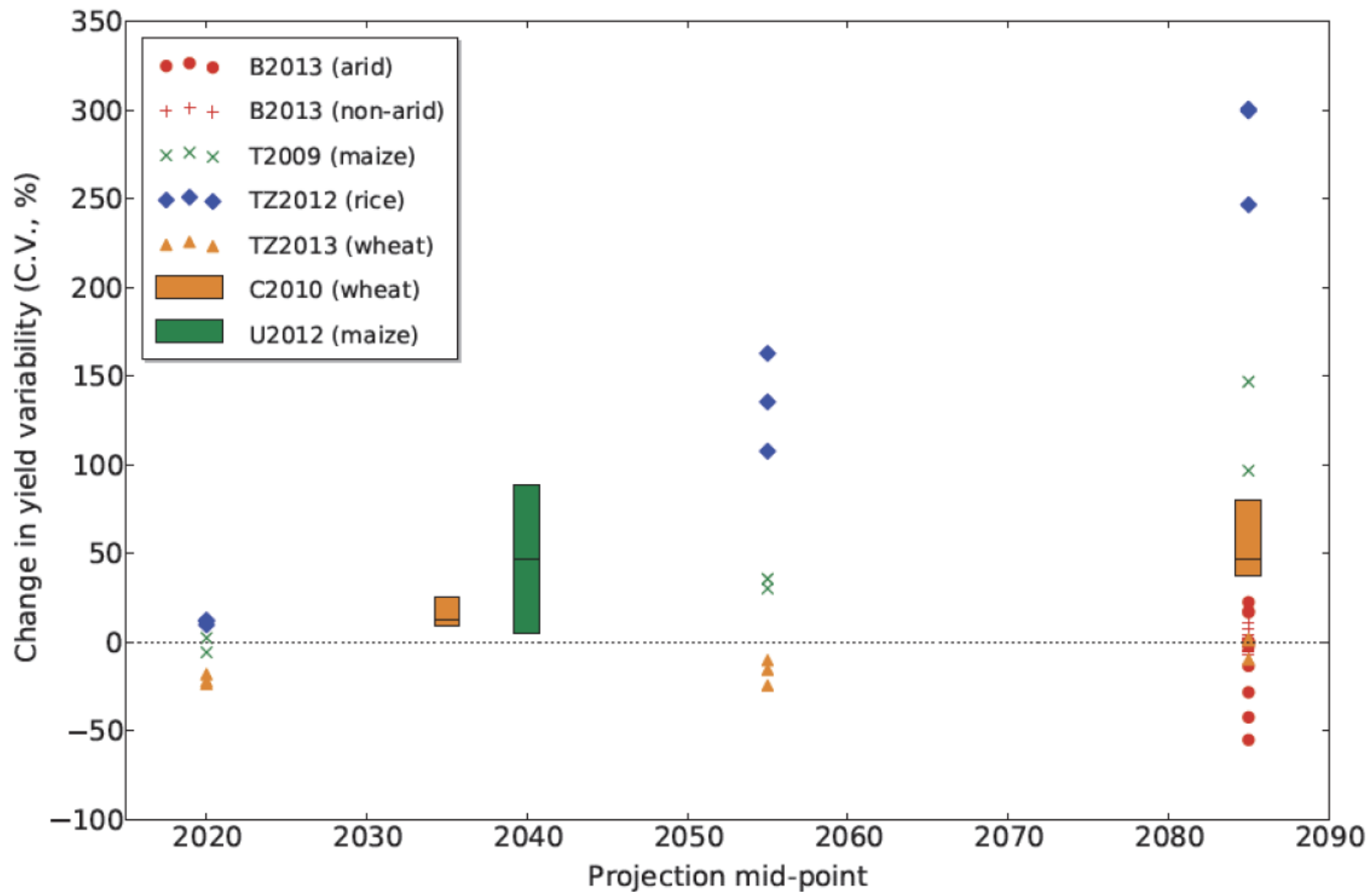


Different adaptations, different effectiveness

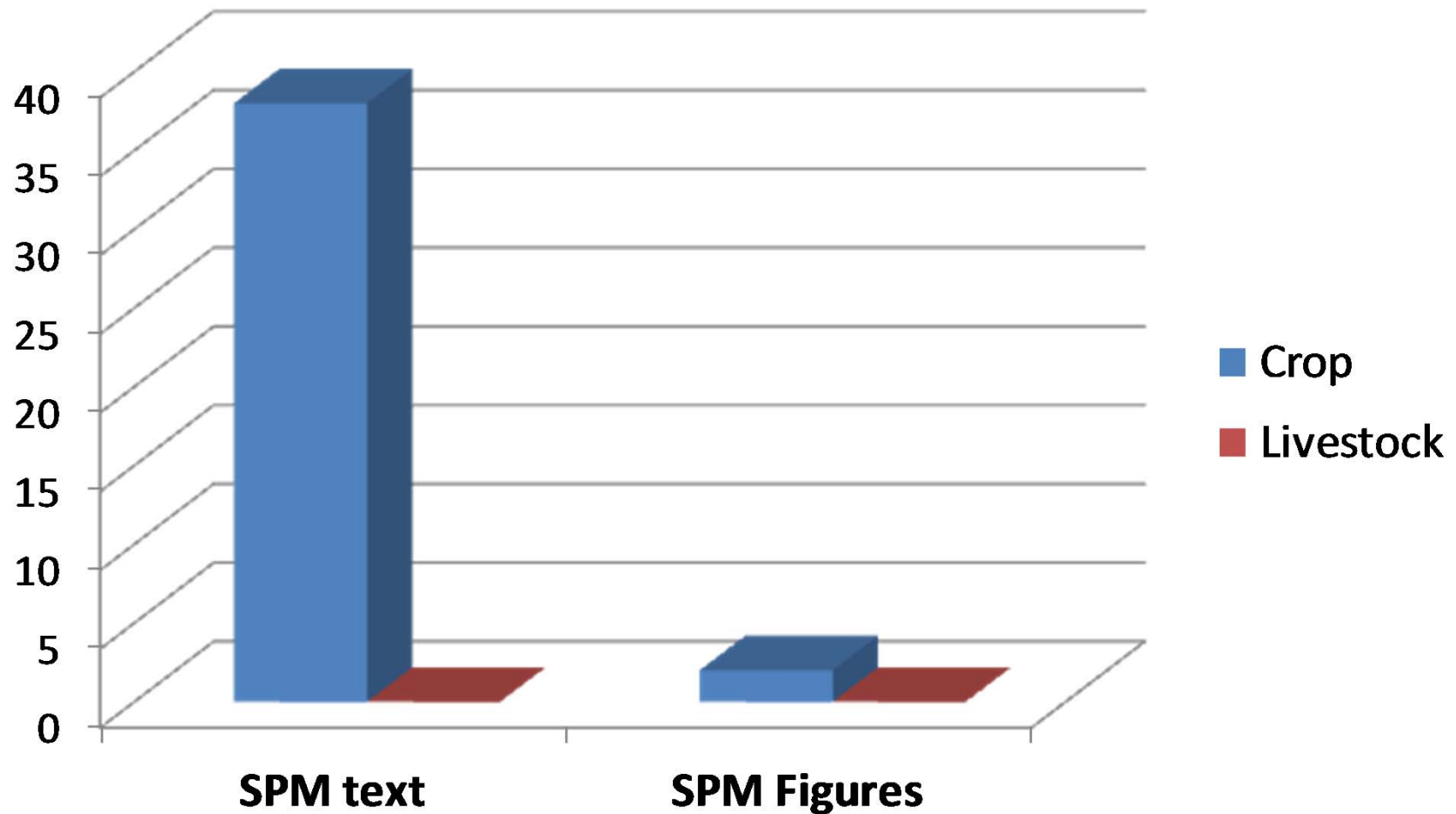
Management option	Benefit (%) from adapting
Cultivar adjustment (n=56)	23
Planting date adjustment (n=19)	3
Planting date and cultivar adjustment (n=152)	17
Irrigation optimisation (n=17)	3
Fertiliser optimisation (n=10)	1

- Limited more by the capacity of the models to represent system change than the capacity of the system to be changed

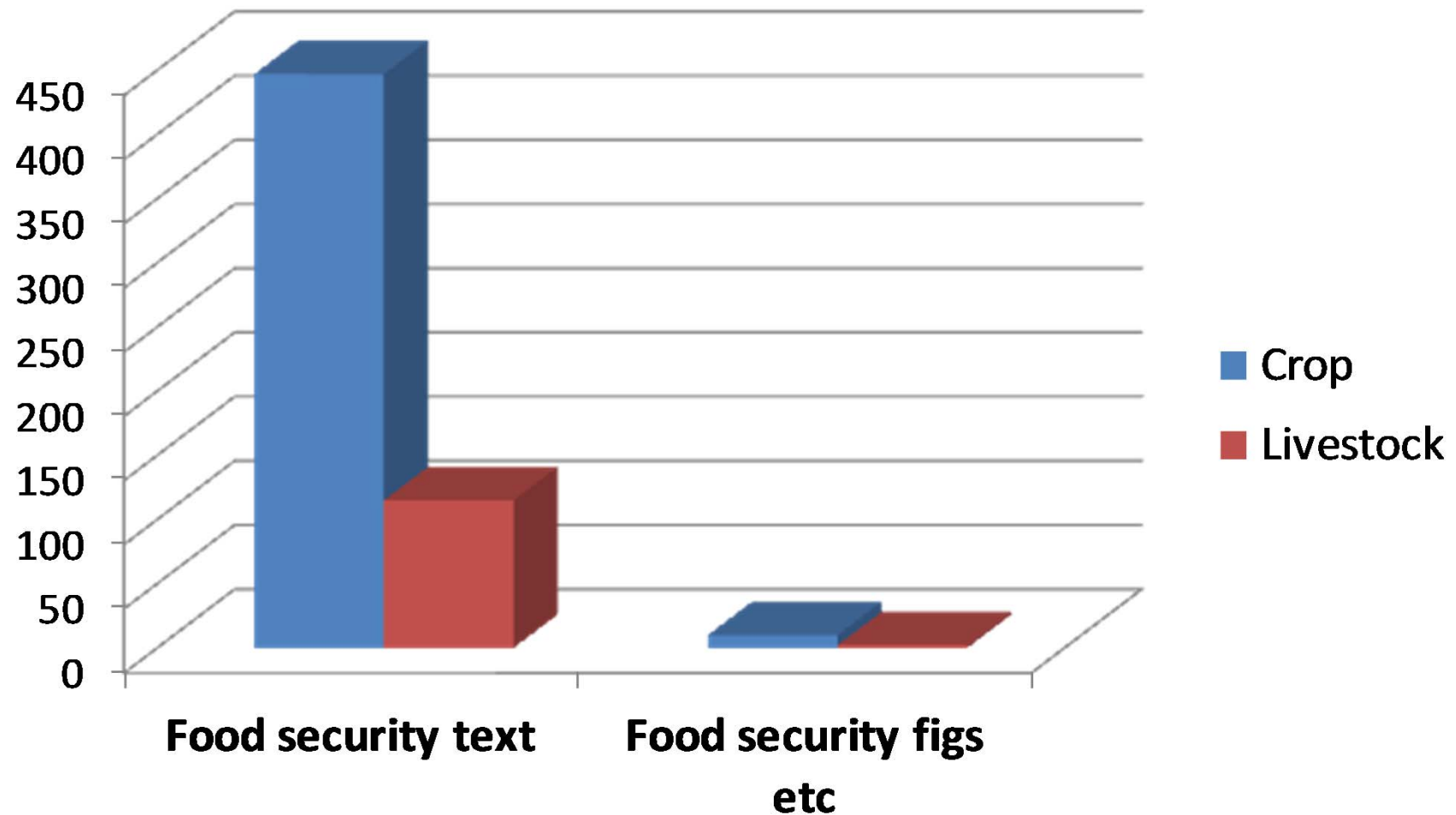
Yield variability likely to increase



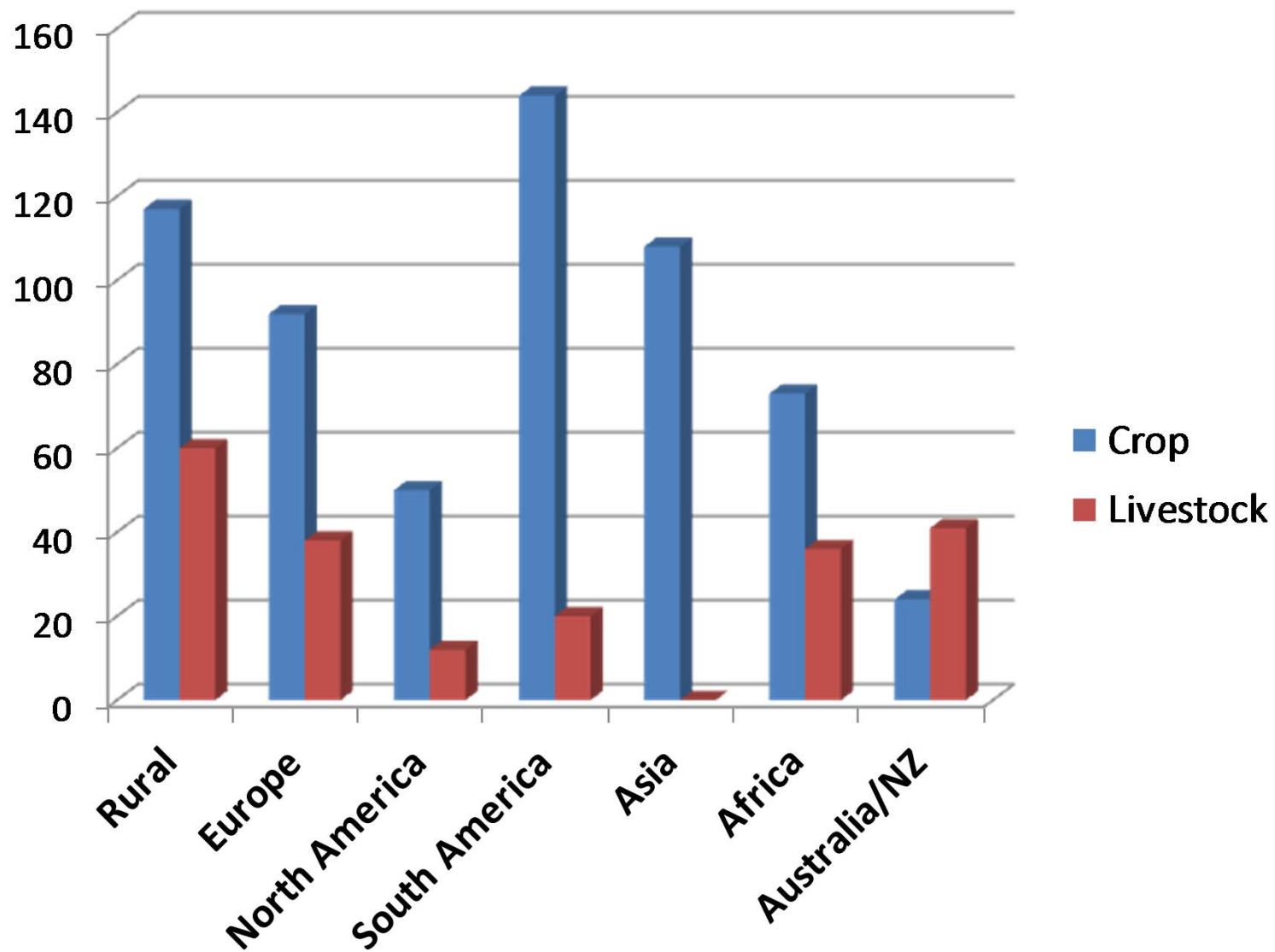
IPCC WG2 SPM coverage of crop vs livestock



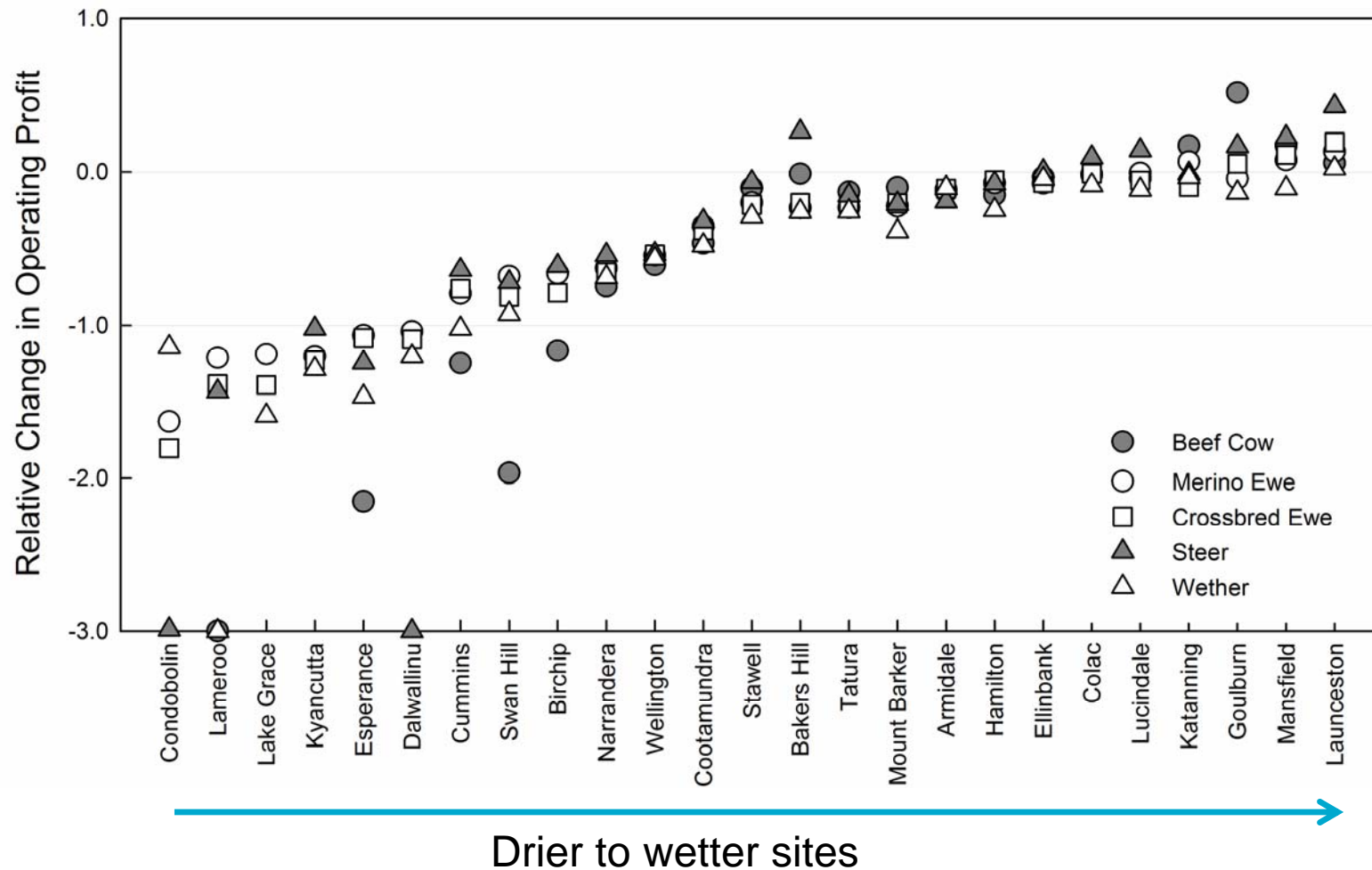
IPCC WG2 'Food Security' chapter coverage



IPCC WG2 'Regional' chapter coverage

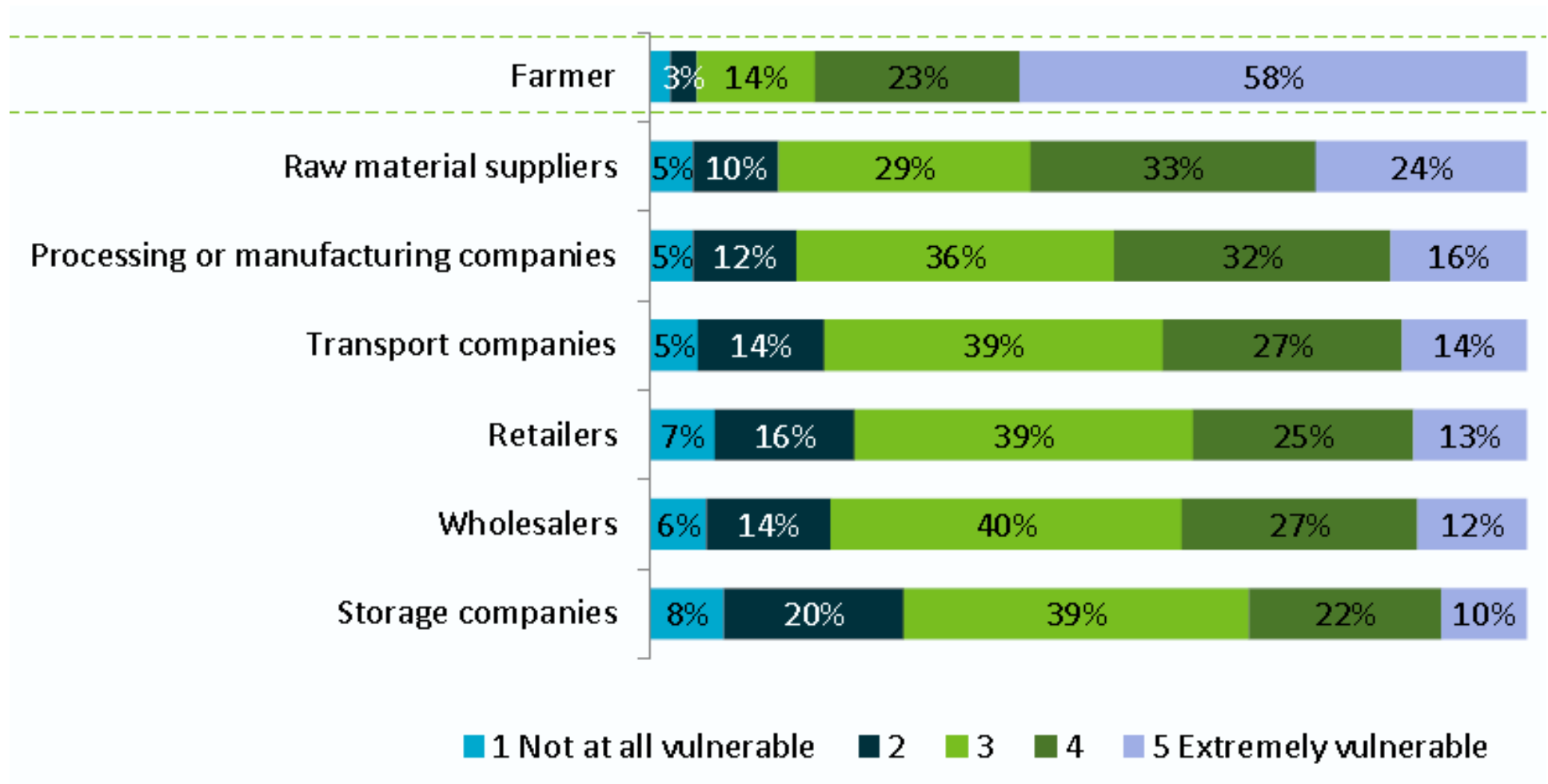


Impact on operating profit: grazing

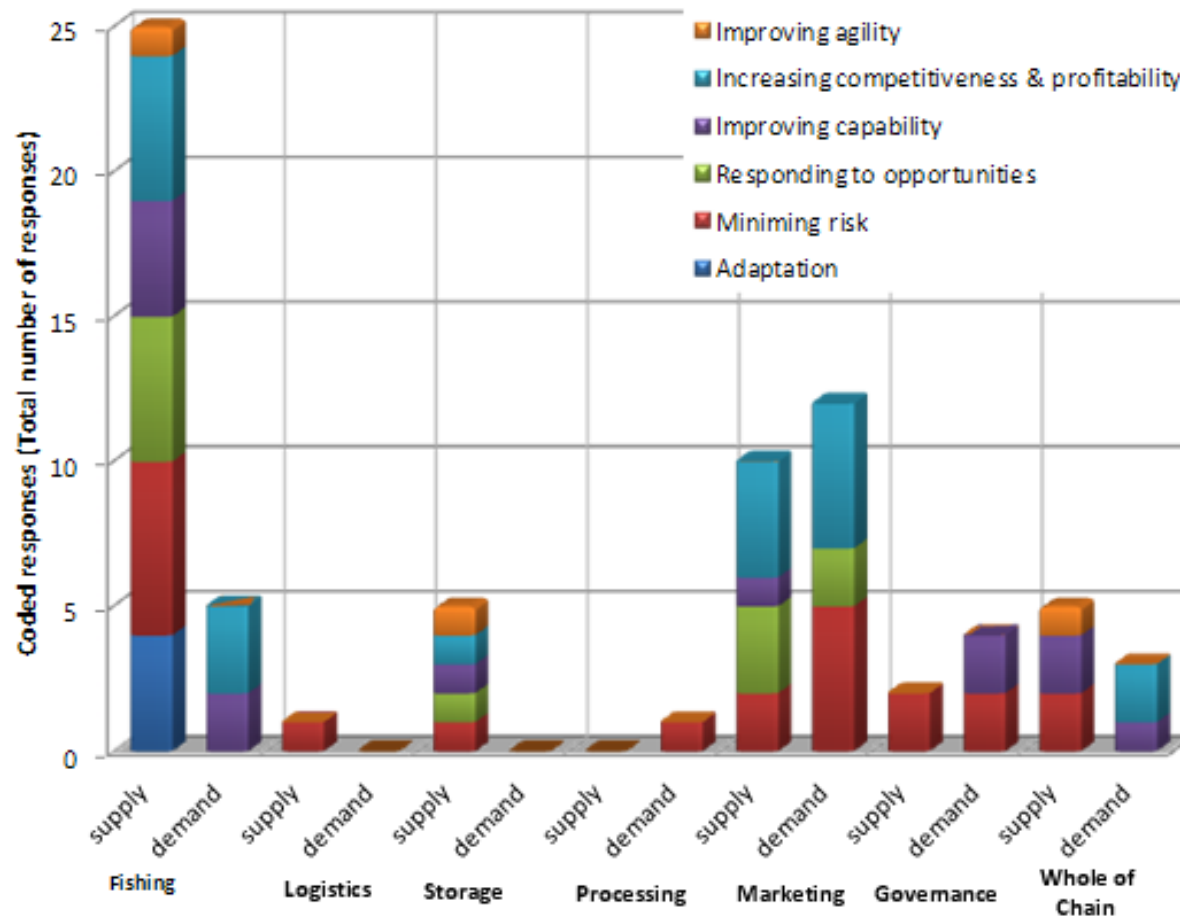


- Included 'stacked' adaptations

Perceived vulnerability of value chain components



Identifying adaptation options across value chains and upstream and downstream effects



Moving from assessment to action

- Lots written about potential impacts, a smaller but growing literature about adaptation
- Very little on actual implementation and almost nothing on evaluation of adaptation actions
- Makes it difficult to complete the learning loop
- Similarly, lots written about barriers to adaptation but little about practically overcoming these
- Few studies that integrate adaptation, mitigation and food security

Summary

- Impacts and adaptation highly contextual
- Adaptation important, likely to be increasingly so
- Address more than incremental changes, using stakeholder-relevant metrics
- Look at value chains and other food system dimensions
- Focus more on implementation and evaluation using action research to close the learning loop (include social science and institutional analysis)
- Integrate better with mitigation and other key decision-drivers