

Climate Forecasting - Benefits



- u Extremes constrain land use
- u Information on “average” climate alone is inadequate



- u Extremes likely to change with Global Warming
- u Growth in climate forecasting to assist with seasonal extremes

Climate Forecasting - Applications



- u Farm level - when to plant sorghum when the SOI is 'consistently deeply negative'

- u Which variety of wheat to plant using climate forecasts of the risk of late frosts.



Climate Forecasting

- u Simulate management scenarios using analogue years
- u Evaluate outcomes/risks relevant to decisions

Agricultural Production Systems Simulator (APSIM) simulates

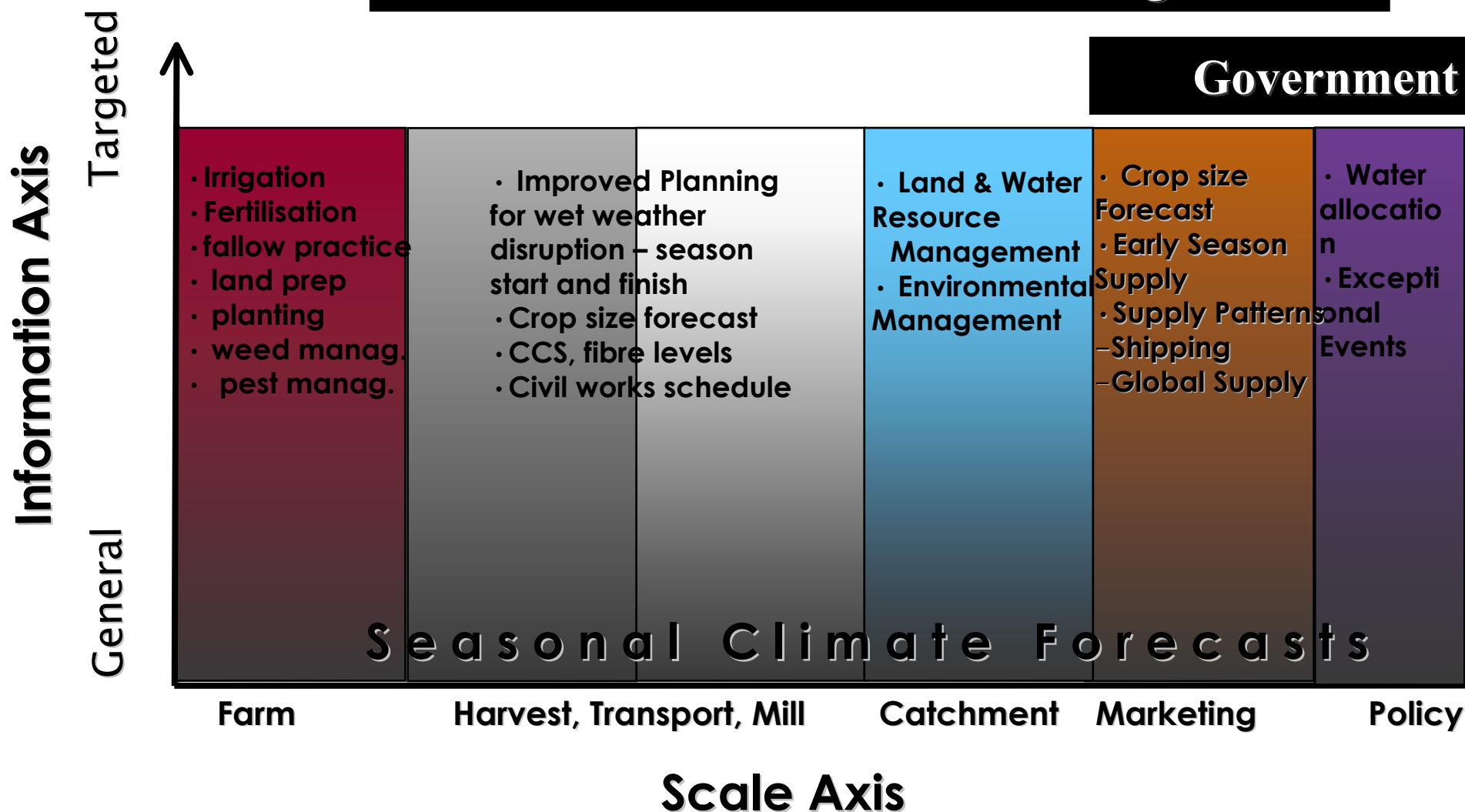


- u yield of crops and pastures
- u key soil processes (water, N, carbon)
- u surface residue dynamics & erosion
- u range of management options
- u crop rotations + fallowing
- u short or long term effects

Industry

Business and Resource Managers

Government



Traditional Management Practices



Natural Mulches

- u Moderates soil temperature and extremes
- u Less evaporations occurs conserving soil moisture
- u Less erosion
- u Supresses diseases and harmful pests

Traditional Management Practices



Intercropping

- u Provides some shading and better water utilization

Traditional Management Practices



Shade Cropping and Agroforestry

- u Modifies wind, water availability etc.

Education

Computer Aided
Learning

Crop-Climate
Matching

Crop growth/development
models and indices

Internet
Technologies

Risk assessment
climate forecasting

Research

Commence climate
adaptation research

Understand climate
impacts on
agriculture

Model climate
change impacts on
agriculture

Improve spatial
measurement of crops

International Workshop

- u Knowledge on climate variability and change
- u Impacts of present and future variability on agriculture and forestry
- u Impacts of global warming on agriculture and forestry
- u Adaptation strategies used in the 20th century
- u Seasonal to interannual climate forecasting
- u Use of traditional methods for reducing vulnerability
- u Use of new technologies for reducing vulnerability
- u Research, training and education

Implications - Hazards

Natural Hazards - Heavy Rain and Drought

- u Changes in rainfall intensity and extremes need to consider flood protection, sewerage and storm water systems**
- u Sea level rise impacts on lower flood plains**
- u For drought need to manage stocking and rural fire protection**



Implications - Agriculture

Agriculture

- u **Climate proofing of activities, especially pastoral farming to account for extremes from seasonal predictions**
- u **Planning new activities as the climate shifts and warms**



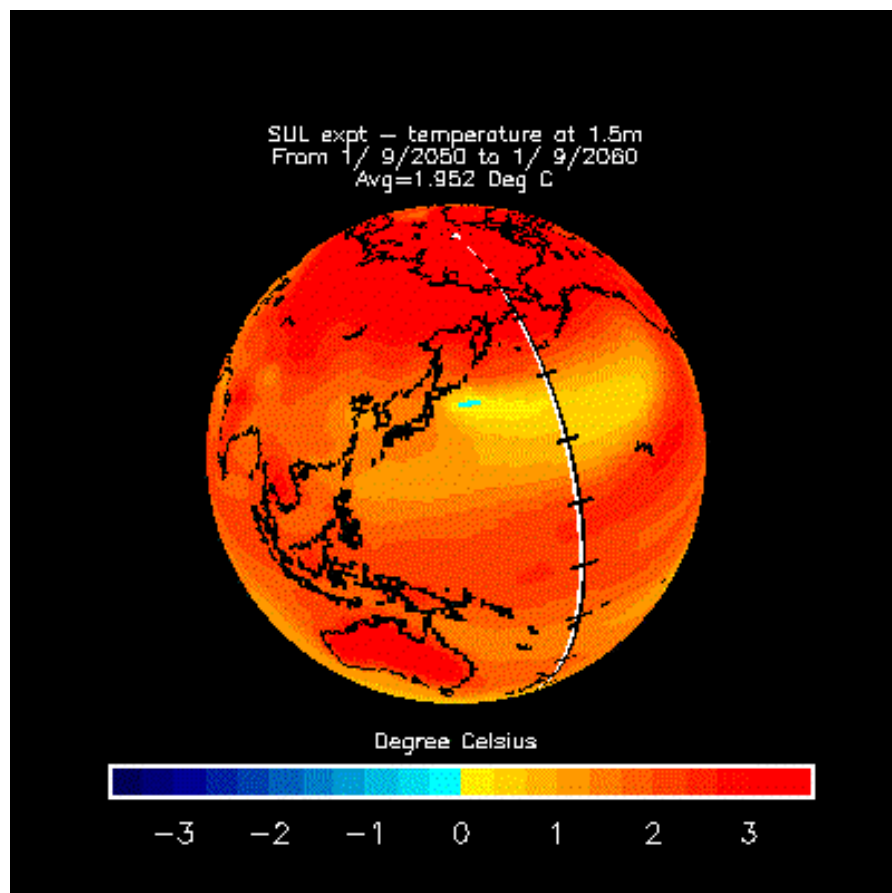
Implications - Crops

Crops

- u **Extremely sensitive to variability and change**
- u **Shifts in crops ranges**
- u **Manage between good and adverse seasons**
- u **Plan new activities as climate shifts and changes**



Conclusions



UK Met Office Climate Model

2050 - 2060

Reducing Vulnerability:

Whatever we do, climate change is inevitable during the 21st century
The rate of climate change will be rapid

Integrating preparedness for increasing climate variability and change