



Coping better with current climate variability: A dress rehearsal for adapting to future climate change?

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ICRISAT, current rainfall variability and risk in rain-fed agriculture in the SAT.

- **ICRISAT** (sorghum, millet, groundnuts, chickpea, pigeon-pea and NRM in the SAT of Africa and Asia)
- **SAT – home to 600 million, mostly rain-fed farmers.**
- **Poorest and most vulnerable rural communities in the world**

Why?

- **Fundamentally low and variable rainfall → low and uncertain production.**
- **Impacts of rainfall variability poorly understood (farmers, policy, input supply, markets, extension): hence.....**
- **Rain-fed farming is seen as a “risky business.” *Investment has stagnated.***
- **Impacts of rainfall changes are still uncertain (lower amounts - greater rainfall variability?), but may well make matters worse.**

Farmers *cope* with rainfall variability, but can they *adapt* to change?

- Farmers have learned to ‘cope’ with current variability through a range of strategies (crop, pasture, soil, water and livestock management practices).
- But coping strategies are risk avoiding. (They mitigate against disaster in bad years but fail to exploit the better years → lost opportunities).
- Households survive but remain poor and vulnerable to climate variability and change (+ poor policies and infrastructure + natural resource degradation + population increases.)
- Just ‘Coping’ is not enough for Africa’s rural poor.
- Imperative - Build their livelihood resilience NOW if they are to have any hope of successful adaptation to future climate change.
- Imperative - promote investment through farming innovations that have a “*high probability of success*” in the context of current climate variability and future change.
- We must accelerate learning and investment.

Can we do this?

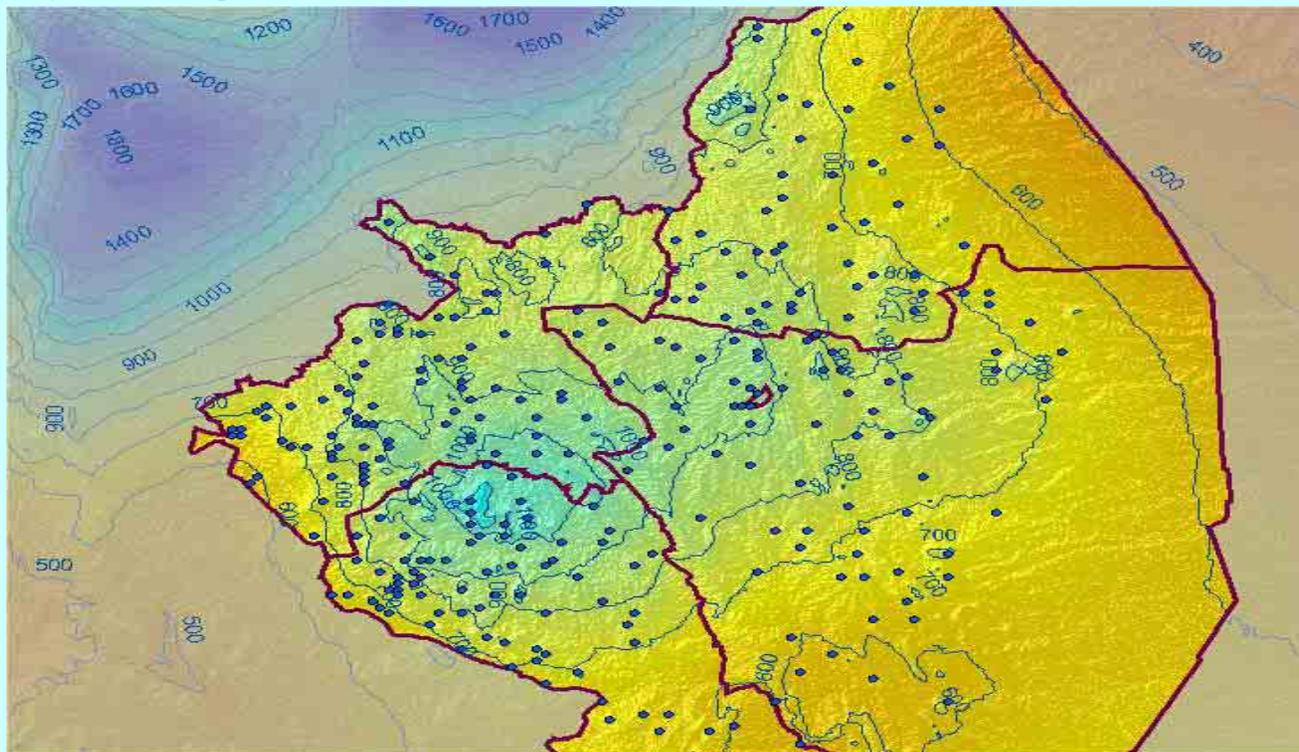
YES -by learning from historical climate data + tools for climate risk assessment and management.

- **Climate risk management tools are now readily available** (climate analyses software: crop, soil and water management and pest simulation models: spatial weather generators: satellite imagery, seasonal climate forecasting: GIS systems etc).
- **Many rely on the use of long-term historical daily climate data**
- **They identify innovations that have a *high probability success* in the context of long-term climate variability (and change).**
- **They can directly addresses climate risk management concerns of farmers, their support agents and investors.**
- **They answer the question “*how many years out of ten will.....?*”**
- **Does such historical climate data exist? Is it available in SSA?**

Much more than one might imagine!

The data is there and National Meteorological Services (NMS) are willing.

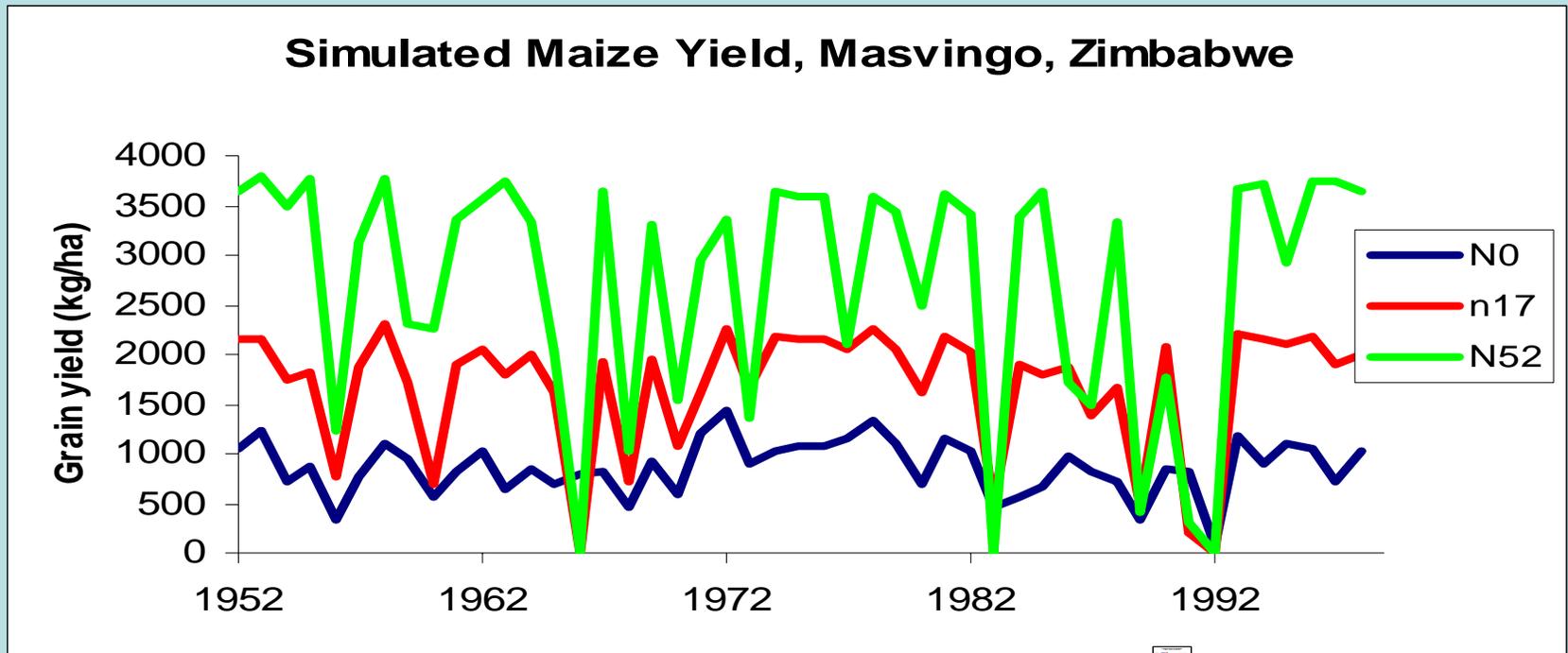
- More rainfall data has been collected over the decades than is commonly thought (e.g. Machakos, Kitui, Mwingi and Makueni districts, Kenya below).



- ‘Data rescue’ is on-going and remains a high priority.
- NMS are increasingly willing to become development partners.
- and where no climate data exists, we have good spatial weather generators and historical satellite imagery.

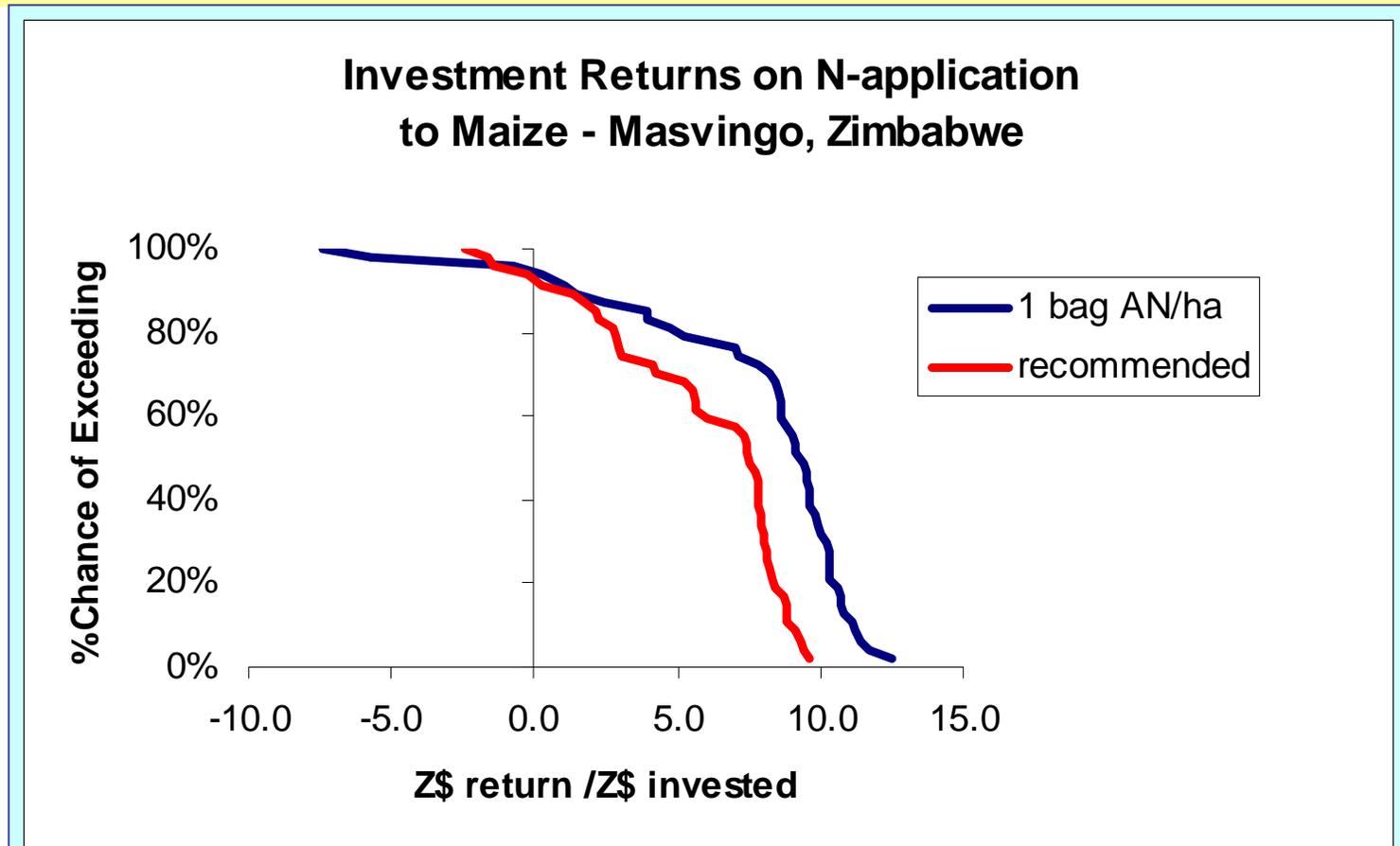
A simple example of 'accelerated learning' using historical daily climate data. (Masvingo, Zimbabwe.)

- Nitrogen recommended on Maize (50kg/ha) but not adopted.
- Why? Too expensive & thought too risky. How much could they afford? 17kg/ha.
- 'Risk and returns' analyses by APSIM using 47 years of daily historical climate data.



...and in terms of *“probability of success”*?

Probability of 'Rates of Return' on micro-dosing-N (how many years out of ten?)



- **IMPACT.** Extension Services, Fertilizer Traders and ICRISAT, successfully evaluated Nitrogen micro-dosing with 200,000 farmers in Zimbabwe – still ongoing.
- Others- Crop diversification, markets, micro-credit, crop insurance ++

A NEPAD-endorsed consortium for SSA to promote such climate-induced risk analyses

- 2004 ICRISAT and ASARECA facilitated the development of a consortium of 16 National, Regional and International meteorological and agricultural institutions*.
- 2005, ASARECA and COMESA presented the consortium to NEPAD for official endorsement for their CAADP.

Consortium Purpose.

“To enable all investors in rain-fed farming to better manage both risks and opportunities associated with climate variability and change”

* Regional Institutions.....ASARECA, SADC-RRSU, AGRHYMET,
CGIAR-Centres.....ICRISAT, ICRAF, CIAT, IITA, IWMI, ILRI
International Institutions.....WMO, IRI (Columbia Univ), Reading Univ.
National Institutions.....IMTR, ZMD, Univs. of Witwatersrand and Gezira

..... and finally

The rural poor of the semi-arid Tropics face many current challenges:-

- Continuing natural resource degradation.
- Health risks – malaria and HIV/AIDS
- Poor policies that do not encourage & support investment.
- Lack of infrastructure (roads, water supply).
- Poor access to markets. (inputs and trade)
- Increasing populations (people and livestock).
- Low and erratic rainfall.
- These are the current and urgent development priorities that must be addressed NOW.
- The uncertain impacts of future climate change must be seen in the context of, and integrated into these current development priorities.

We must 'Climate-Proof' Development

Thank you.