Mid-monsoon as you drive into Anjanagiri village, everything looks green, thanks to a rainy spell. Talk to the farmers and a different story of water scarcity and poor quality seed unfolds.

- Unpredictable rainfall
- Water scarcity
- Poor quality seed
- Insufficient fodder
- Gender issues

This Indian village in Telangana State with 150 families was selected for pretesting a questionnaire developed by ICRISAT to gather data to run a whole farm simulation model. The Indian Council of Agricultural Research (ICAR) is playing a key role in this project to help farmers take informed decisions.

Further Reading:

For more information
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Photos and story: Jemima M  
Design: Meeravali SK and inputs from Sravya M
How systems modelling can help farmers take informed decisions

It's all gone… all that I have sown is gone!

Water scarcity is the biggest problem

Unpredictable rainfall, spells crop loss
In 2018, the monsoon arrived on time and this woman farmer sowed rice, castor and sorghum. A dry spell thereafter wiped out everything except the sorghum.

The groundnut I am growing is yielding less
Crops fail due to poor quality seed and knowhow
Farmers say that in a bad season, rice is not profitable, castor brings in some income, while sorghum provides food. However, groundnut growers say that even with good rain the yield is bad.

In summers we have to buy fodder
Insufficient fodder for livestock
Livestock farming, especially rearing cows and water buffaloes is on the decline, while small ruminants like sheep and goats are favored.

Weeding is always a woman's job
Gender issues
While women say they are consulted on farm decisions, they never get to handle any money. In addition to child rearing and household work, women often taking up back-breaking farm jobs like weeding.

Unpredictable rainfall, spells crop loss
In 2018, the monsoon arrived on time and this woman farmer sowed rice, castor and sorghum. A dry spell thereafter wiped out everything except the sorghum.

Minimizing shocks
Scenario analyses using models and historical weather information and practices can inform farmers’ decisions to better manage risk. A whole farm analysis using historical data can suggest which combination of enterprises (crops and livestock) can result in stable returns and minimize shocks in bad seasons.

Investment analysis
For digging a farm pond, the optimal size, appropriate location and lining of the farm pond needs to be decided depending on farm size, rainfall, slope, soil type, etc. The model provides scenarios as to what combination of crops will make the investment on digging a farm pond profitable.

Customized options
When a new variety or crop is available, the model can reveal the potential returns from it when compared to the old one. Various scenarios with varying parameters such as different time spans, with or without livestock, climate variability, market price fluctuations and labor availability can be created.

Livestock integration
Livestock play a critical role in dryland farming, especially small ruminants. Modelling the various options can assist in deciding which breeds of animal and how many of them (i.e. the size of the herd) might be profitable to a particular farmer.

Reducing drudgery
The model can run scenarios on the cost economics of mechanized weeding with the adoption of row planting. In cases where women take up labor jobs in the off-season, the model can show scenarios if substituting labor jobs with livestock rearing can bring in better returns to the farm as a whole.

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