iFEED

Malawi – Future Food Scenarios

The integrated Future Estimator for Emissions and Diets (iFEED) framework is being used to assess how food secure and climate smart different possible future agricultural scenarios will be in Malawi. These different possible futures are defined by the scenarios outlined in the participatory scenario workshops, as well as expert input from project partners in Malawi[1].

Key findings:

Sufficient calories and nutrition security are achieved for most nutrient (zinc is marginal) and improve from baseline levels in the effective policy future scenarios. Future food production increases in the effective policy scenarios – with increases of up to 700% in crop production and a doubling of livestock production possible.

In the ineffective policy scenarios, food production remains near baseline levels, and insufficient calories and nutrition security are not achieved for most nutrients (vitamin C is marginal). Nutrients adequate at baseline also fall below requirements.

Emissions intensities (emissions relative to the level of food production) and net GHG emissions decrease substantially in the effective policy futures.

In the ineffective policy futures, net GHG emissions and emissions intensities increase, with these increases being more significant with high climate risk.

Climate change and extremes results show that warming is projected to be higher and extreme conditions more frequent under both high and low climate risk, although worsen with high climate risk. Precipitation trends are less robust, however climate models show a tendency toward higher rainfall totals during the wettest months (December-February) accompanied by more rainfall on very wet days. There are also slight trends towards longer extreme dry spells and shorter extreme wet spells during October and November. This is consistent with a general shortening of the rainy season across Malawi. The number of months experiencing drought conditions is also projected to increase. However, there is significant disagreement between climate models for projections of rainfall and related quantities.

The rate of yield shocks (i.e. low yielding years) is likely to increase in the low policy efficacy scenarios, but could decrease with large gains in mean yields projected in the effective policy scenarios.

Irrigation and investment in new crop varieties to boost yields (drought-resistant varieties and varieties that keep pace with warming-induced growing season losses) are key to maintaining and increasing crop yields.

[1] iFEED results for food production, nutrition, climate extremes and emissions are based on four contrasting scenarios that explore a range of possible futures to Malawi agriculture. These scenarios are defined by low or high climate risk (RCP2.6 and 8.5 respectively), and effective or ineffective agricultural policy efficacy. The effective policy future scenarios are optimistic scenarios, with increases to irrigation, large management and technology improvements to crop yields and optimisation of crop growing areas to maximise crop production. Low policy efficacy futures are more similar to the status quo in terms of crop management and varieties.

GCRF AFRICAP
CLIMATE SMART AGRICULTURE FOR DEVELOPMENT
GCRF

http://ifeed.leeds.ac.uk