

Zambia - 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 Zambia, with a focus on the future in the year 2050. These different possible futures are defined by the scenarios outlined in participatory scenario workshops¹, as well as expert input from project partners in Zambia, the Agricultural Consultative Forum (ACF).

This document describes the currently available iFEED results. The final results will be available and shared in late 2021 using an online user-interface tool, allowing the user to firstly explore country-level outcomes and secondly to explore in detail the implications of the various scenarios modelled

Key findings:



Without significant increases to food imports, sufficient calories are only realised in the high climate risk and high market connectivity scenario, with self-sufficiency for nutrition security hard to achieve.

Nutrient security remains a problem in all scenarios and will likely require large increases to imports to achieve nutrient requirements for the population, and/or targeted domestic crop production to achieve nutrition security. Future food production however does increase in the effective market future scenarios – crop production more than triples and livestock production more than doubles (see below for details of which crops increase).



Emissions intensities (emissions relative to the level of food production) and net GHG emissions decrease in the effective market futures and increase slightly in the ineffective market futures.



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, although show a slight tendency towards a shortening of the rainy season and more severe drought conditions.



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

¹iFEED results for food production, nutrition, emissions and soil are presented using four contrasting scenarios that explore a range of possible futures to Zambia agriculture. These scenarios are defined by low or high climate risk (RCP2.6 and 8.5 respectively), and effective or ineffective market connectivity and function. The effective market 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 market connectivity futures are more similar to the status quo in terms of crop management and varieties, however the high climate risk and low market effectiveness future features increases to irrigation and crop diversity.