COMMON BEAN (*PHASEOLUS VULGARIS* L.) COOKING TIME ANALYSIS PLATFORM

PURPOSE

To evaluate the time taken to cook dry common beans and select fast cooking beans

TECHNOLOGY

Automated Mattson cookers fitted with temperature gauge

METHODOLOGY

- Freshly harvested beans are oven dried at 40°C for 24 hours, actellic dust is added to prevent bean weevils, & the seed packets are placed in a drum containing well dried silica gel to maintain moisture content at 10-13%.

- Within six months from harvest, 25 seeds/ plot that are without damage (mechanical, physical, insect), & with intact seed coat are randomly sampled & weighed (dry weight)
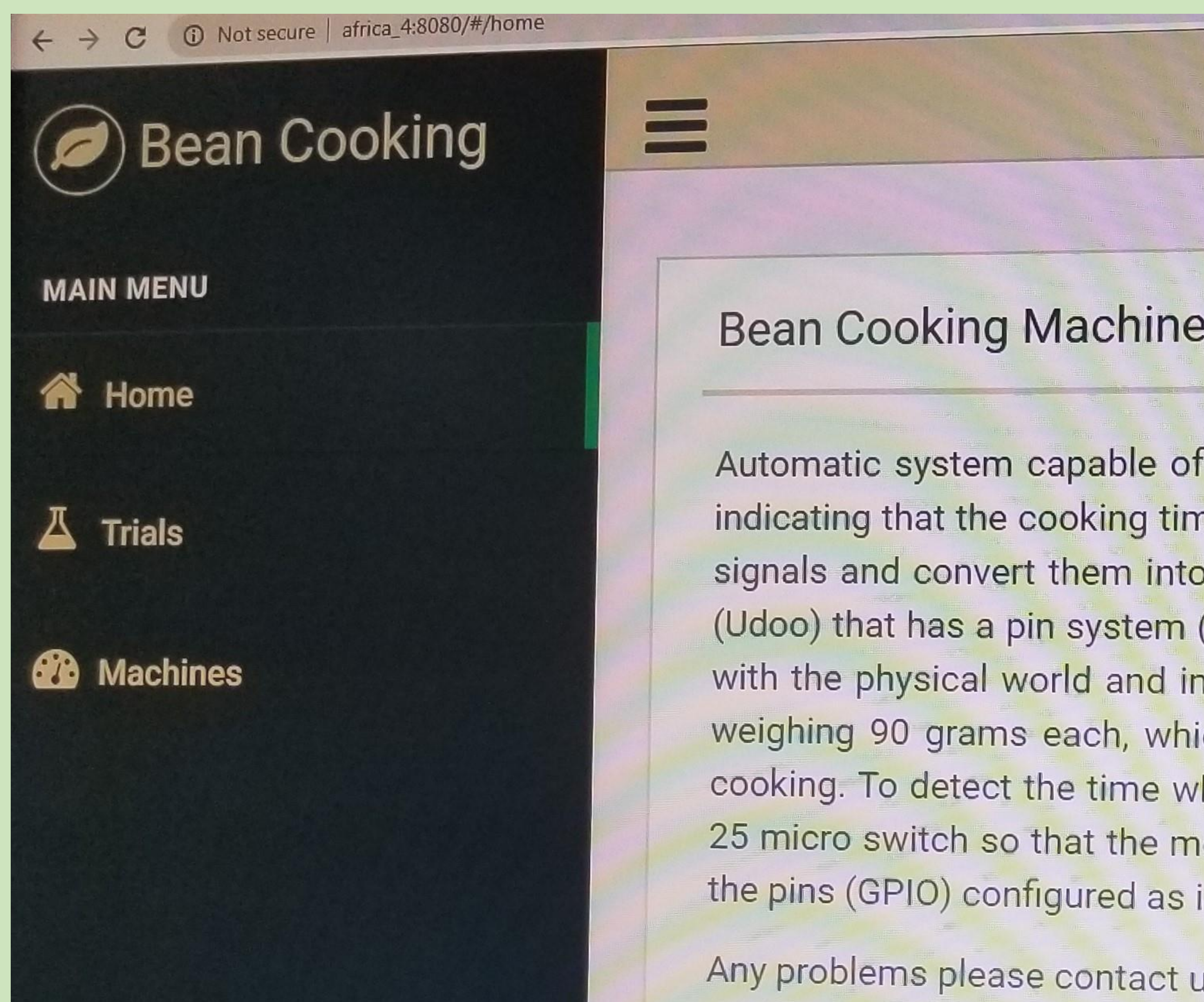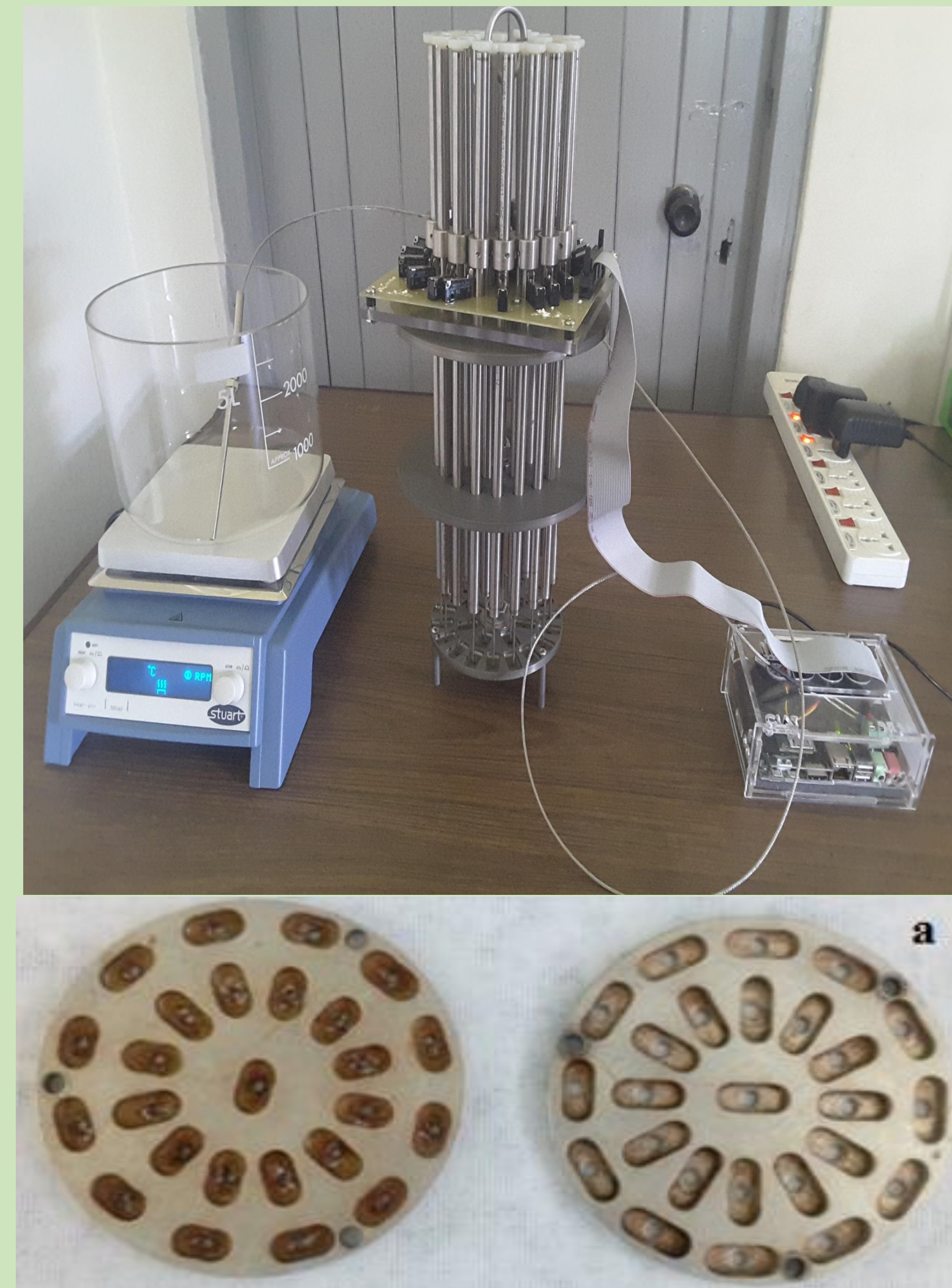
- Beans are pre-soaked at 5°C for 18 hours using distilled water, drained , weighed (soaked weight) & kept in sealed bottles until the time to cook

- Seeds are mounted in the Mattson cookers, & the component is immersed boiling water of 98-100°C.

- Upon softening, the pin drops and a bean is pierced. The pin drop sends electromagnetic waves that are converted to cooking time.
- The broth is drained, beans weighed (cooked weight) & either discarded or dried for iron/ zinc analysis.

- Each machine cooks a minimum of three(3) samples per day

DATA GENERATION PROCESS

- Data for each machine is stored in SD card connected to computer based software

- To access data, any web browser is opened & the machine initials entered to display the page for temperature readings & menu for the experiment set or data download

- The Zipped files contain excel sheets for each sample which are extracted & moved to OneDrive

DATA PREPARTION FOR ANALYSIS

- Open ACIAR-RCBP shinyApp (RAPID COOK)
- Load individual data files
- Load pre-cook data
- Generate raw & summary data + cookT plots

https://aciar-rcbp.shinyapps.io/rapidcook/

RapidCook

Select the pin number to get the cooking time

20

Select the Mattson Cooker output files

Browse... | Please select files

⬇ Download template for pre-cook data
Upload pre-cook data file

Browse... | Please select excel file

Select the sheet number to get the pre-cook data

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Submit

Contacts:
Mukankusi Clare Mugisha
c.mukankusi@cgiar.org