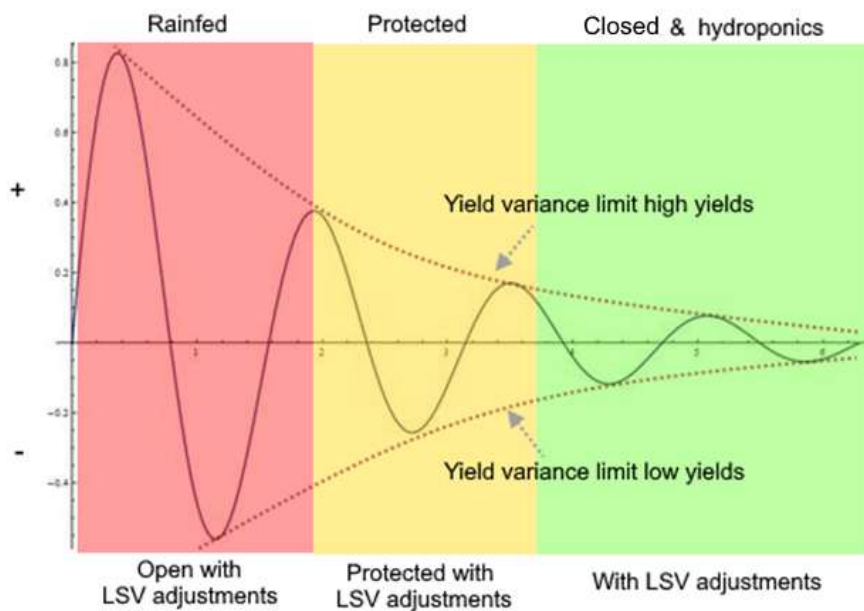# Crop production plans, data collection, & performance evaluation

The potential roles of SDGToolkit and mutec.cloud

The impact of external environmental factor variance on production

Rainfed   Protected   Closed & hydroponics

Yield variance limit high yields

Yield variance limit low yields

Open with LSV adjustments   Protected with LSV adjustments   With LSV adjustments

Hector McNeill
SEEL

Crop production plans, data collection, & performance evaluation

One of the challenges in introducing new techniques is to gain transparency and credibility through the collection of precise data which can be used to assess performance in physical and economic terms.

In the case of crop production systems, the relevant measures are biomass or yield in physical terms and costs, income and margins in economic and financial terms.

There is therefore a need to make use of efficient data collection and analysis techniques as well as support in the form of documentation or reporting systems that contain relevant information of initial plans, the degree to which plans were achieved both in terms of desired output and efficiency and real time evaluations of results at key stages in the crop production cycle.

With the challenge of climate change the demand for good documentation will increase as an essential contribution to timely and well-informed decision making.

Such decision making refers to the identification of performance gaps, how to close the gaps and a re-evaluation at the next relevant stage in the cycle to monitor progress in performance improvements.

SDGToolkit

SDGToolkit is a project design and portfolio management systems which combined a set of analytical tools linked to a database where all project design data is recorded in what is referred to as a Project Memory or Accumulog as a cumulative collection of all relevant information of a project.

It follows a due diligence project design procedure (3DP designed to ensure that relevant factors to technical, economic, financial, social, environmental and ecosystem sustainability are fully reviewed in the crop production system or farm production plan.

The due diligence procedure extends in to project setups and operations associated with a real time monitoring and evaluation system with interfaces for the completion of performance reviews and evaluations covering timing, inputs, outputs and human resources performance. As these evaluations are collected, usually when predefined tasks are completed, the results are recorded.

As a result, the system builds up a fully transparent and comprehensive documentation on a project and its performance. The real time nature signified that this system can be used as a work horse to implement project changed and innovations over time. Any decisions changing inputs are recorded as well as the outcome of the decisions.

Project designs or plans can have any number of inputs and outputs so the system is adaptable to any type of production system. Real time or on-demand analysis and reporting of any task in a project can be in the form of graphics, tables and narrative formats in text. Where performance indices are required these can be coded into the system.

The Real Time Monitoring and Evaluation systems (RTME) can produce read-only output for non-project personnel and interest groups as a basis for sharing data. This aspect would be useful for the Greenbeds initiative.

Data that is not generated from within a project, such as the case of Barngreens can use this system whereas Greenbeds wishes to use other data sources which in this case will require simple data upload protocols to handle such external data (types, dimensions, units etc) and store this in the database.

mutec.cloud

A target market for SDDGToolkit is farm advisors and agricultural practitioners in low income countries facing particularly severe challenges from climate change. In mid-2021 the SDGTookit developments identified ways to radically lower the internal costs of operation of the system linked to a different database configuration. Rather than alter SDGToolkit it was decided to produce a prototype of the new configuration and this was named mutec.cloud. This prototype has confirmed the feasibility of the different database configuration and mutec will be completed in Q4 2021.

As a result of SDGToolkit experience several changes have been introduced to mutec.cloud to improve the user interfaces.

Otherwise the review of what is in SDGToolkit in terms of functionality it identical. However, this system will permit The George Boole Foundation to release this service under a radically lower cost regime so as to support the objective of supporting practitioners in low income countries. This system will be launched by the Sustainable Development Facility