UMSAEP Project Report

## Developing DataDriven Optimization Capabilities for Agribusiness Supply Chains in South Africa

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Submitted by Dr. Haitao Li Professor and Chair Supply Chain & Analytics Department University of Missouri –St. Louis Research Activities Prior to the UWC Visit

Prior to my visit to UWOn Summer 2023, I have been working on a farming planning

Table 2. The produce data varying with time.

The additional operational data include inventory holding cost, maximum water capacity, maximum labor capacity, and fertilizer consumption and cost

The base scenario was solved with a maximum of R995,717.25. An example of optimal planning solution for Pumpkin is provided in Figure The optimal solution prescribes a combination of planting and purchasing of produce to meet demand during the planning horizon. It also shows the land use and inventory to be carried over time periods. Note that t

purchasing will not be intuitive without the decisi**sm**port provided by the optimization model.

The optimization model enables dataiven decision-support for farming planning through the sensitivity analysis (also known as what-if analysis). For instance, one may ask the question what if