

# Standardization & Balancing: Utilization Table data-table and Shiny App description

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## Abstract

This vignette provides a description of the **Utilization Table** data table: The data table is used in the Standardization and balancing Process and is built from Old Sua Data. Also a shiny App for exploring Old Sua, and see how the table has been built, is described

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*Download UtilizationTableApp from Share Point (select the zip file and download it)*

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## Disclaimer

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This paper is dynamically generated on June 21, 2018 and is subject to changes and updates.

# 1 Introduction

This document is part of a series of documents concerning Food Balance Sheets and their computation. Other documents describe the steps for the computation of Food Balance Sheets and, in particular, the Standardization and Balancing process. The Standardization is the conversion of the variables of any child commodity in the primary-equivalent commodity. One of the main steps of the standardization is the, so called, *Sua Filling*. In this step, an automatic check is performed on the Supply-utilization accounts, for the existence of figures for all the Variables that are required for the specific commodity. The algorithm that performs this check, make use of the history of that commodity. The history is given by time series of SUAs for each country-commodity combination. This information is stored in a table called *Utilization Table*.

## 2 The Utilization Table in The SWS

The Table is stored inside the Statistical Working System as a **Data table** in the SUA/FBS domain (figures 1 and 2).

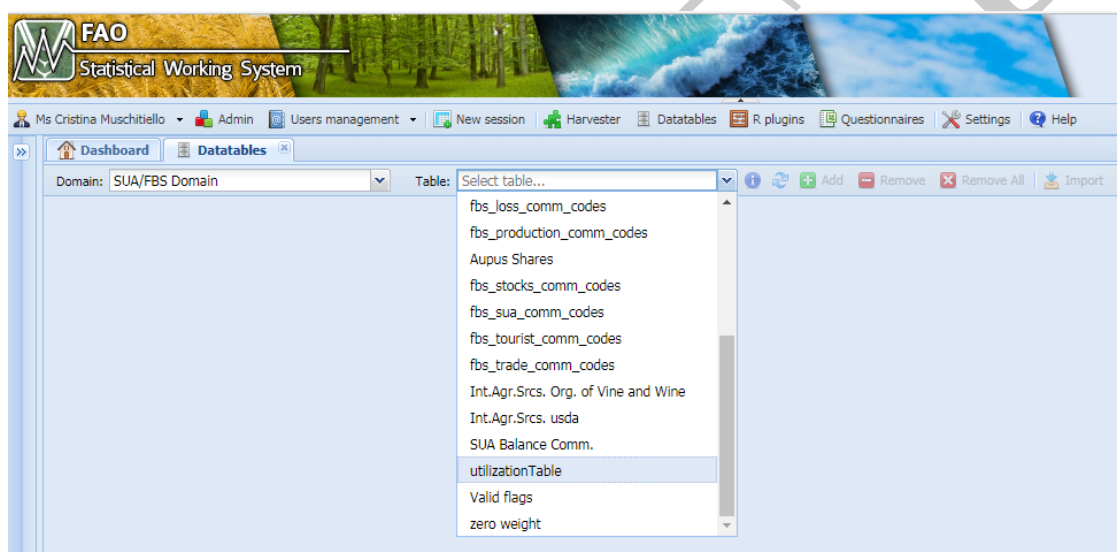


Figure 1: Selection of domain and Data - Table in the Statistical Working System

Information is given in codes:

- **geographicAreaM49** is the M49 country code
- **measuredElementSuaFbs** is the Element name
- **measuredItemSuaFbs** is the *CPC* item code
- **rank** is the rank
- **rankInv** is the Inverse Rank

The table is not very user friendly, but it can be filtered for a clearer use.

The screenshot shows the FAO Statistical Working System interface. At the top, there's a header with the FAO logo and the text 'Statistical Working System'. Below this is a navigation bar with options like 'Ms Cristina Muschitiello', 'Admin', 'Users management', 'New session', 'Harvester', 'Datatables', 'R plugins', 'Questionnaires', and 'Settings'. The main area is titled 'Datatables' and shows a table for 'utilizationTable' under the 'SUA/FBS Domain'. The table has five columns: 'geographicAreaM49', 'measuredElementSuaFbs', 'measuredItemSuaFbs', 'rank', and 'rankInv'. The data is organized into rows, with some rows having a '4' in the first column and others having an '8'. The table is filtered to show records for 'feed' elements. At the bottom, it states 'Approximate number of records: 152997'.

geographicAreaM49	measuredElementSuaFbs	measuredItemSuaFbs	rank	rankInv
4	feed	39120.01	1	1
4	feed	39120.02	1	1
4	feed	0115	1	4
4	feed	0112	1	5
4	feed	39120.04	1	1
4	feed	39120.07	1	1
4	feed	01802	1	2
4	feed	01801	2	1
4	feed	23540	1	1
4	feed	39140.01	1	1
4	feed	39140.02	1	1
4	feed	01709.90	3	3
4	feed	21910.07	1	1
4	feed	21910.09	1	1
4	feed	21910.10	1	1
4	feed	21910.11	1	1
4	feed	21910.15	1	2
4	feed	21910.16	1	1
4	feed	01919.96	1	2
4	feed	22110.02	2	1
4	feed	22130.01	1	1
8	feed	0111	4	4
8	feed	39120.01	1	2
8	feed	23220.02	1	1
8	feed	39120.02	1	1
8	feed	23120.01	1	1
8	feed	0115	1	5
8	feed	39120.03	1	1
8	feed	23120.02	1	1
8	feed	0112	1	6
8	feed	23140.06	1	1
8	feed	39120.04	1	2

Figure 2: Utilization Table in the FAO Statistical Working System

For example, figures 3 and 4 represent the Utilization Table filtered for Flour of wheat in China, Main.

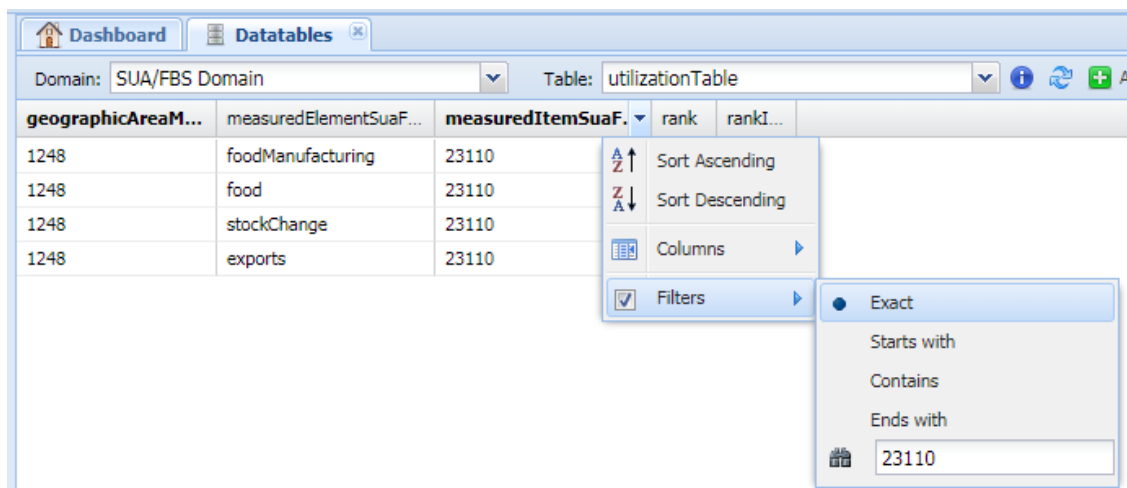


Figure 3: filtering Utilization Table

The screenshot shows the same web application, but the table is now filtered. The 'rank' and 'rankI...' columns are visible. The table data is as follows:

geographicAreaM...	measuredElementSuaF...	measuredItemSuaF...	rank	rankI...
1248	foodManufacturing	23110	2	3
1248	food	23110	1	4
1248	stockChange	23110	4	1
1248	exports	23110	3	2

Figure 4: Utilization Table filtered for China, Main - Flour of Wheat

### 3 Content

The *Utilization* table is a country-commodity specified table containing, for each country-commodity combination:

1. The list of the Variables
2. A rank for each variable, identifying the *rank of the mean value over the period 2000-2013*
3. The rank Inverse

#### 3.1 The list of variables

The Variables listed are all the variables that have been historically active for that Country-commodity combination. In other words, if the commodity has never been traded, no Import or Export will appear, if it has never been used for feed, no feed will appear and so on.

This is the first information included in the table. Indeed, the Standardization and Balancing would not have any source telling which variables are expected to be active for a specific country-commodity combination, if this table didn't exist.

## 3.2 The Rank

The Rank appearing in the table is built using the mean value of that variable in the time range 2000-2013. This time range has been used for the majority of validation procedure used for the new methodology. 2013 is the last year in which FBSs were produced using the old methodology, therefore it is used as last year.

## 3.3 The Inverse Rank

The Inverse Rank is added in the table for computation reasons. An algorithm has been developed indeed, which uses Ranks and inverse Ranks for distributing The Imbalance in the Supply-Utilization accounts during the Standardization procedure.

# 4 A Shiny App to explore How the Utilization Table is built

The Utilization table is given as a Data Table. There is NOT a module or plug-in for changing it, therefore a tool is needed for at least explore the data it is built on. A shiny tool has been developed for this purpose. The main aim of the App is that of knowing where the table is from. Possible actions are:

- change directly the values in the Data-Table inside the SWS
- Develop a new ad-hoc approach.

## 4.1 Download the App

The App can be downloaded from FAO SharePoint:

*Download UtilizationTableApp from Share Point (select the zip file and download it)*

Or it can be found in the ESS T-DRIVE at the following address:

T:\Team\_working\_folder\A\FBS-Modules\Balancing-standardization

## 4.2 Open and run the App

- unzip the folder
- run the .vbs file included (figure 5)
- wait for the Browser to open the page (figure 6)

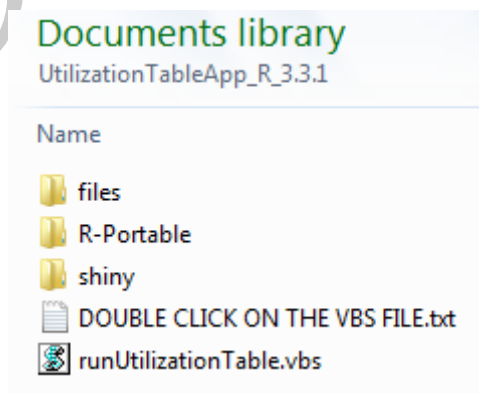


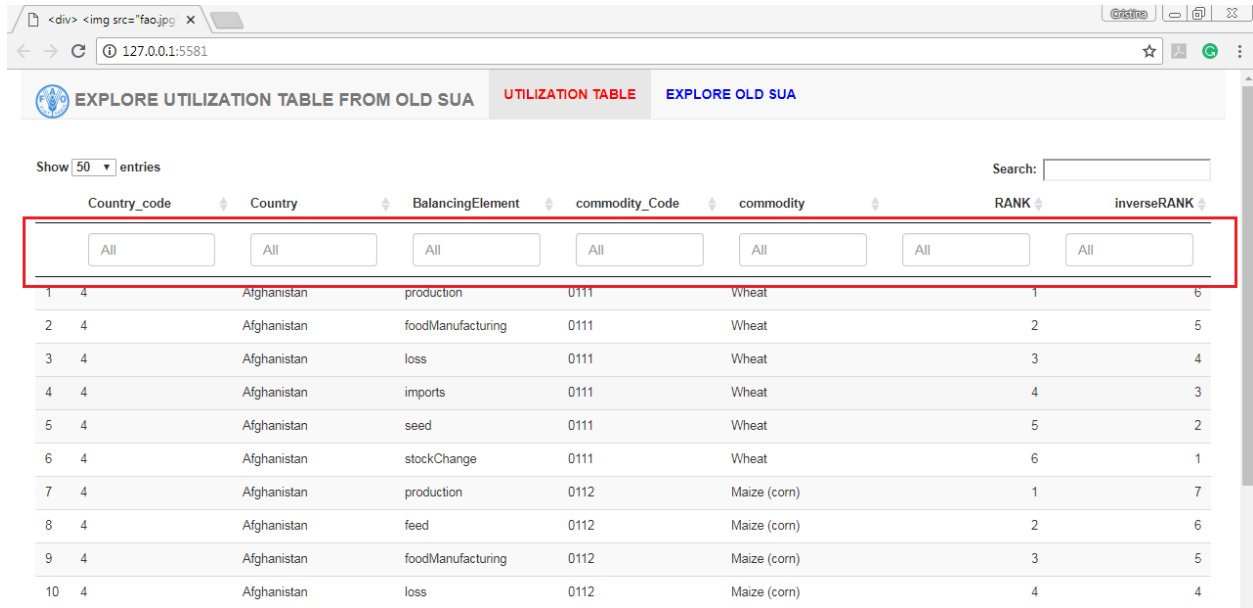
Figure 5: Run Shiny App

## 4.3 Content

The App has two main pages:

1. UTILIZATION TABLE
2. Exploring Old Sua

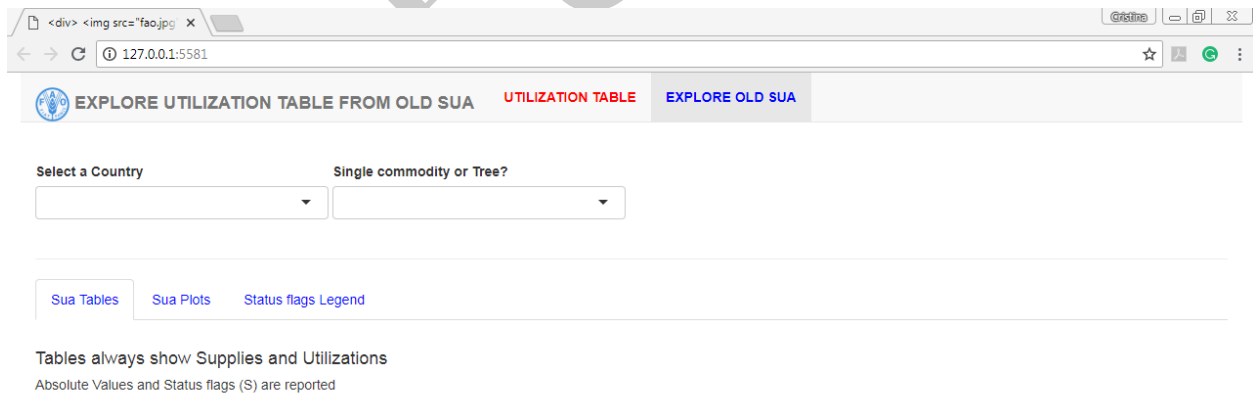
In the first page the Utilization table can be explored (figure 6). Is possible to scroll down the page or filter by one or all the Variables.



	Country_code	Country	BalancingElement	commodity_Code	commodity	RANK	inverseRANK
1	4	Afghanistan	production	0111	Wheat	1	6
2	4	Afghanistan	foodManufacturing	0111	Wheat	2	5
3	4	Afghanistan	loss	0111	Wheat	3	4
4	4	Afghanistan	imports	0111	Wheat	4	3
5	4	Afghanistan	seed	0111	Wheat	5	2
6	4	Afghanistan	stockChange	0111	Wheat	6	1
7	4	Afghanistan	production	0112	Maize (corn)	1	7
8	4	Afghanistan	feed	0112	Maize (corn)	2	6
9	4	Afghanistan	foodManufacturing	0112	Maize (corn)	3	5
10	4	Afghanistan	loss	0112	Maize (corn)	4	4

Figure 6: Shiny App Main Page - Utilization Table Page

The second page is for exploring the Data from which the table has been built (figure 7).



Select a Country:

Single commodity or Tree?:


[Sua Tables](#) [Sua Plots](#) [Status flags Legend](#)

Tables always show Supplies and Utilizations  
Absolute Values and Status flags (S) are reported

Figure 7: Shiny App 'Ranking old Sua' Page

After having selected the country (figure 8) is possible to visualize table and Plot of a single commodity or a commodity tree (figures 9 to 11). If the “tree” option is selected, a new field appears for selecting the Primary (or proxy primary) <sup>1</sup>.

<sup>1</sup>notice that the Commodity Tree might be a bit changed since this App was created, therefore some difference might exist

EXPLORE UTILIZATION TABLE FROM OLD SUA

UTILIZATION TABLE

EXPLORE OLD SUA

Select a Country

Afghanistan

Albania

Algeria

Angola

Antigua and Barbuda

Argentina

Armenia

Australia


Single commodity or Tree?

Legend

Utilizations

d

Figure 8: Shiny App - Select Country

EXPLORE UTILIZATION TABLE FROM OLD SUA

UTILIZATION TABLE

EXPLORE OLD SUA

Select a Country

Afghanistan

Albania

Algeria

Angola

Antigua and Barbuda

Argentina

Armenia

Australia

Single commodity or Tree?

Single commodity

tree


Legend

Utilizations

d

Figure 9: Shiny App - Select Commodity or Tree




EXPLORE UTILIZATION TABLE FROM OLD SUA
UTILIZATION TABLE
EXPLORE OLD SUA

Select a Country

China, Main

Single commodity or Tree?

Single commodity

Select a Commodity

Abaca, manila hemp, raw  
Agave fibres, raw, n.e.c.  
Alfalfa for forage  
Almonds, in shell  
Almonds, shelled  
Animal Oils and Fats nes  
Animal or vegetable fats and oils and their fractions, chemically modified,

Sua Tables

Sua Plots


Status flags Legend

Tables always show Supplies and Utilizations

Absolute Values and Status flags (S) are reported

China, Main (M49=1248) - (CPC=, Single Balancer = )

Figure 10: Shiny App - Select Commodity


EXPLORE UTILIZATION TABLE FROM OLD SUA
UTILIZATION TABLE
EXPLORE OLD SUA

Select a Country

China, Main

Single commodity or Tree?

tree

Single commodity  
tree

Select a (PROXY) PRIMARY commodity

Almonds, in shell  
Apples  
Apricots  
Artichokes  
Asparagus  
Avocados  
Bambara beans, dry  
Bananas

Sua Tables

Sua Plots

Status flags Legend

Tables always show Supplies and Utilizations

Absolute Values and Status flags (S) are reported

China, Main (M49=1248) - Tables of commodities in the tree of (CPC=)

Figure 11: Shiny App - Select (PROXY) PRIMARY commodity

For each commodity or Commodity Tree selected there is a tab containing tables (figure 12) and a second tab containing plots (figure 13). In the table there are separate columns for Flags. The legend of flags is reported in the *Status flag legend* tab (figure 15).

EXPLORE UTILIZATION TABLE FROM OLD SUA

UTILIZATION TABLE

EXPLORE OLD SUA

Select a Country

China, Main

Single commodity or Tree?

tree

Select a (PROXY) PRIMARY commodity

Wheat

Sua Tables

Sua Plots

Status flags Legend

Tables always show Supplies and Utilizations

Absolute Values and Status flags (S) are reported

China, Main (M49=1248) - Tables of commodities in the tree of Wheat (CPC=0111)

Wheat (CPC=0111, Single Balancer = stockChange)

	years	exports	exports_S	feed	feed_S	foodManufacturing	foodManufacturing_S	imports	imports_S	industrial	industrial_S	loss	loss_S	production	production_S
1	2000	2521.455		4000000	*	95810000	F	875976.4		2200000	*	4800000	*	99636000	
2	2001	454794		5500000	*	94682000	F	690057		2500000	*	3500000	*	93873000	
3	2002	687618		6000000	*	92783000	F	604572		2500000	*	3200000	*	90290000	
4	2003	2237481		5500000	*	91620000	F	424177		2500000	*	3000000	*	86488000	
5	2004	783934		2500000	*	91502000	F	7232883		2800000	*	3000000	*	91952000	
6	2005	260265		3800000	*	91000000	F	3510133		1800000	*	3100000	*	97445000	
7	2006	1114082		5600000	*	90500000	F	584095		2250000	*	2400000	*	108466000	
8	2007	2336620		6850000	*	90200000	F	83425		2515000	*	2215000	*	109298000	
9	2008	125949		7200000	F	87890000	F	31873		2650000	*	2495000	*	112464000	
10	2009	8400		10500000	*	85700000	F	893710		2726000	*	2575000	*	115115000	
11	2010	12	*	13500000	*	86800000	F	1218722		2735000	*	2585000	*	115181000	
12	2011	39794		26000000	*	88500000	F	1248822		2785000	*	2635000	*	117410000	
13	2012	39794	T	24500000	F	89500000	F	3688617		2850000	*	2663000	*	120580000	
14	2013	2520		25500000	F	90000000	F	5506712		2870000	*	2678000	*	121926400	

Showing 1 to 14 of 14 entries

Bran of Wheat (CPC=39120.01, Single Balancer = feed)

	years	exports	exports_S	feed	feed_S	food	food_S	imports	imports_S				production	production_S
1	2000	18737.45		580150.53	B	20500000	F	20687.98	*				21078200	C
2	2001	14339		1135919	B	19700000	F	18018					20832240	C
3	2002	18228		410702	B	20000000	F	16670					20412260	C

Figure 12: Shiny App - 'Sua Table' window

Plots are interactive, i.e. the Value is shown when the mouse pass on a point. Also the Single Balancer reported<sup>2</sup>. Plots report both supply and utilization. Is possible to show only supply or utilization (figure 14).

<sup>2</sup>This is the variable used as Balancer in the Previous Approach



Figure 13: Shiny App - 'Sua Plots' window

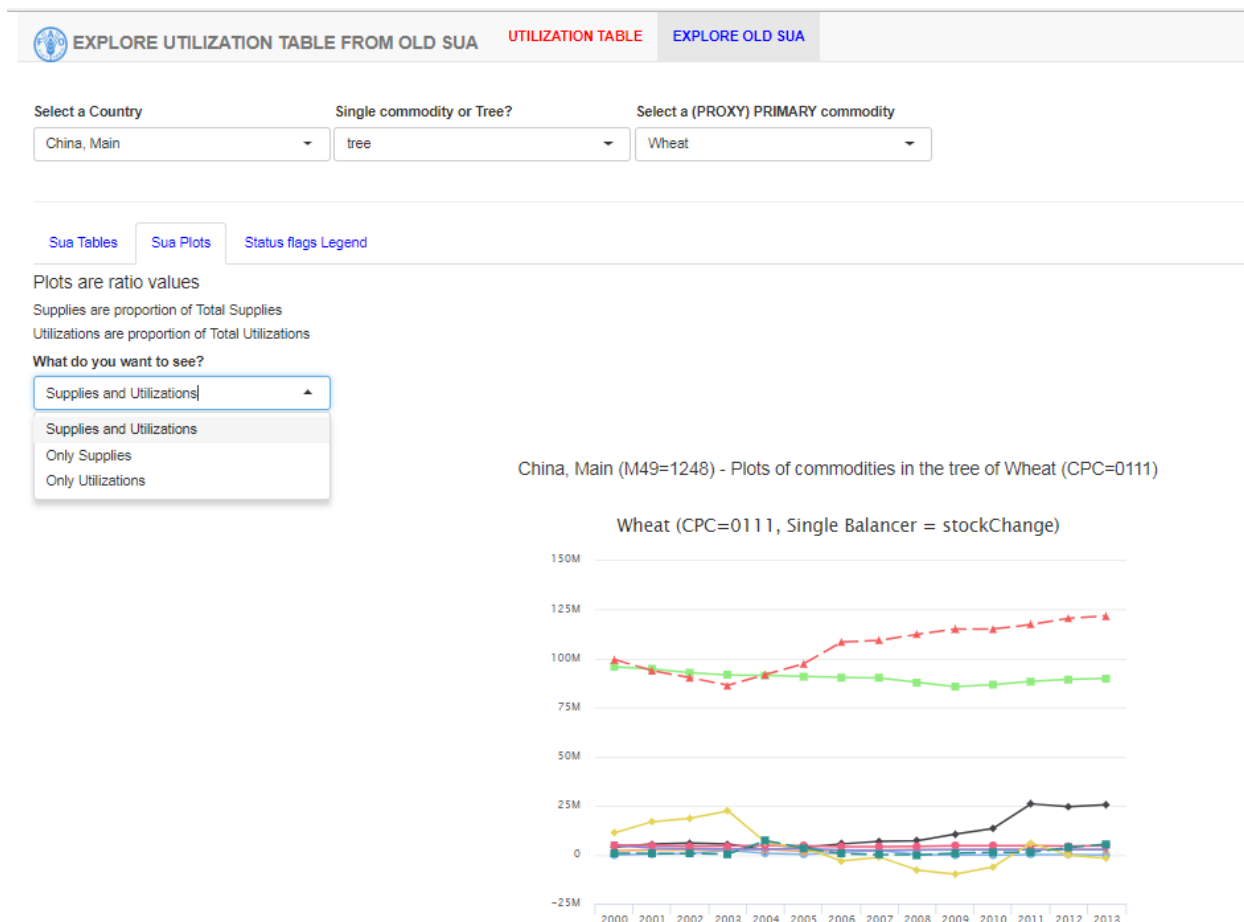



Figure 14: Shiny App - select visualization: Supply and/or utilization


EXPLORE UTILIZATION TABLE FROM OLD SUA
UTILIZATION TABLE
EXPLORE OLD SUA

Select a Country
Single commodity or Tree?
Select a (PROXY) PRIMARY commodity

China, Main
tree
Wheat

Sua Tables
Sua Plots
Status flags Legend

Show 50 entries
Search:

	StatusFlag	description
	All	All
1	B	Single balancer
2		Official
3	C	Calculated
4	T	Trend (carry forward)
5	F	Fao Estimation
6	*	Semi Official
7	M	Missing
8	P	Trading Partner
9	E	Imputed

Showing 1 to 9 of 9 entries
Previous
1
Next

Figure 15: Shiny App - Flags