

Table 1. Rules implemented for calculating new values and convert zero as null.

Available variables:		Yield to be calculated:	
AREA	PRODUCTION	0	NA
0	0	0	0**
	NA	0	NA
	Value	NA*	NA
NA	0	0	NA
	NA	NA*	NA
	Value	NA*	NA
Value	0	NA	NA
	NA	NA	NA
	Value	P/A**	P/A**

Available variables:		Production to be calculated:	
AREA	YIELD	0	NA
0	0	0	0**
	NA	0	NA
	Value	NA*	NA
NA	0	0	NA
	NA	NA*	NA
	Value	NA*	NA
Value	0	NA	NA
	NA	NA	NA
	Value	AxY**	AxY**

Available variables:		Area to be calculated:	
YIELD	PRODUCTION	0	NA
0	0	0	0**
	NA	0	NA
	Value	NA*	NA
NA	0	0	NA
	NA	NA*	NA
	Value	NA*	NA
Value	0	NA	NA
	NA	NA	NA
	Value	P/Y**	P/Y**

* ZERO_AS_NULL = Yes; ** CALCULATED_V = Yes; NA = Not Available

Table 2. Rules implemented for calculating new values for total wheat or total barley.

AREA		
Crop1	Crop2	Total
<i>0</i>	<i>0</i>	<i>0*</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	$A_{crop1} + A_{crop2}^*$
<i>NA</i>	<i>0</i>	<i>NA</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	<i>NA</i>
<i>Value</i>	<i>0</i>	$A_{crop1} + A_{crop2}^*$
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	$A_{crop1} + A_{crop2}^*$

PRODUCTION		
Crop1	Crop2	Total
<i>0</i>	<i>0</i>	<i>0*</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	$P_{crop1} + P_{crop2}^*$
<i>NA</i>	<i>0</i>	<i>NA</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	<i>NA</i>
<i>Value</i>	<i>0</i>	$P_{crop1} + P_{crop2}^*$
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	$P_{crop1} + P_{crop2}^*$

YIELD		
Area_{total}	Production_{total}	Yield_{total}
<i>0</i>	<i>0</i>	<i>0*</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	<i>NA</i>
<i>NA</i>	<i>0</i>	<i>NA</i>
	<i>NA</i>	<i>NA</i>
	<i>Value</i>	<i>NA</i>
<i>Value</i>	<i>0</i>	P_{total}/A_{total}^*
	<i>NA</i>	$[(A_{crop1} \times Y_{crop1}) + (A_{crop2} \times Y_{crop2})]/A_{total}^*$
	<i>Value</i>	P_{total}/A_{total}^*

* CALCULATED_V = Yes; NA = Not Available

Table 3. Rules implemented for checking agreement among values of Area, Production and Yield.

COHERENCE_APY		
Yes	No	NA
$\text{abs}(P-(AxY)) \leq 0.01xP$	$\text{abs}(P-(AxY)) > 0.01xP$	Any variable is NA

Table 4. Rules implemented for checking agreement among values of Total wheat (Total barley), Soft wheat (Winter barley), and Durum wheat (Spring barley).

COHERENCE_CROP - Area		
Yes	No	NA
$\text{abs}(A_{\text{total}}-(A_{\text{crop1}} + A_{\text{crop2}})) \leq 0.01xA_{\text{total}}$	$\text{abs}(A_{\text{total}}-(A_{\text{crop1}} + A_{\text{crop2}})) > 0.01xA_{\text{total}}$	Any crop is NA

COHERENCE_CROP - Production		
Yes	No	NA
$\text{abs}(P_{\text{total}}-(P_{\text{crop1}} + P_{\text{crop2}})) \leq 0.01xP_{\text{total}}$	$\text{abs}(P_{\text{total}}-(P_{\text{crop1}} + P_{\text{crop2}})) > 0.01xP_{\text{total}}$	Any crop is NA

COHERENCE_CROP - Yield		
Yes	No	NA
$\text{abs}(Y_{\text{total}} - [(Y_{\text{crop1}}xA_{\text{crop1}} + Y_{\text{crop2}}xA_{\text{crop2}}) / A_{\text{total}}]) \leq 0.01xY_{\text{total}}$	$\text{abs}(Y_{\text{total}} - [(Y_{\text{crop1}}xA_{\text{crop1}} + Y_{\text{crop2}}xA_{\text{crop2}}) / A_{\text{total}}]) > 0.01xY_{\text{total}}$	Any crop is NA