APHLIS+

How to use the APHLIS calculator

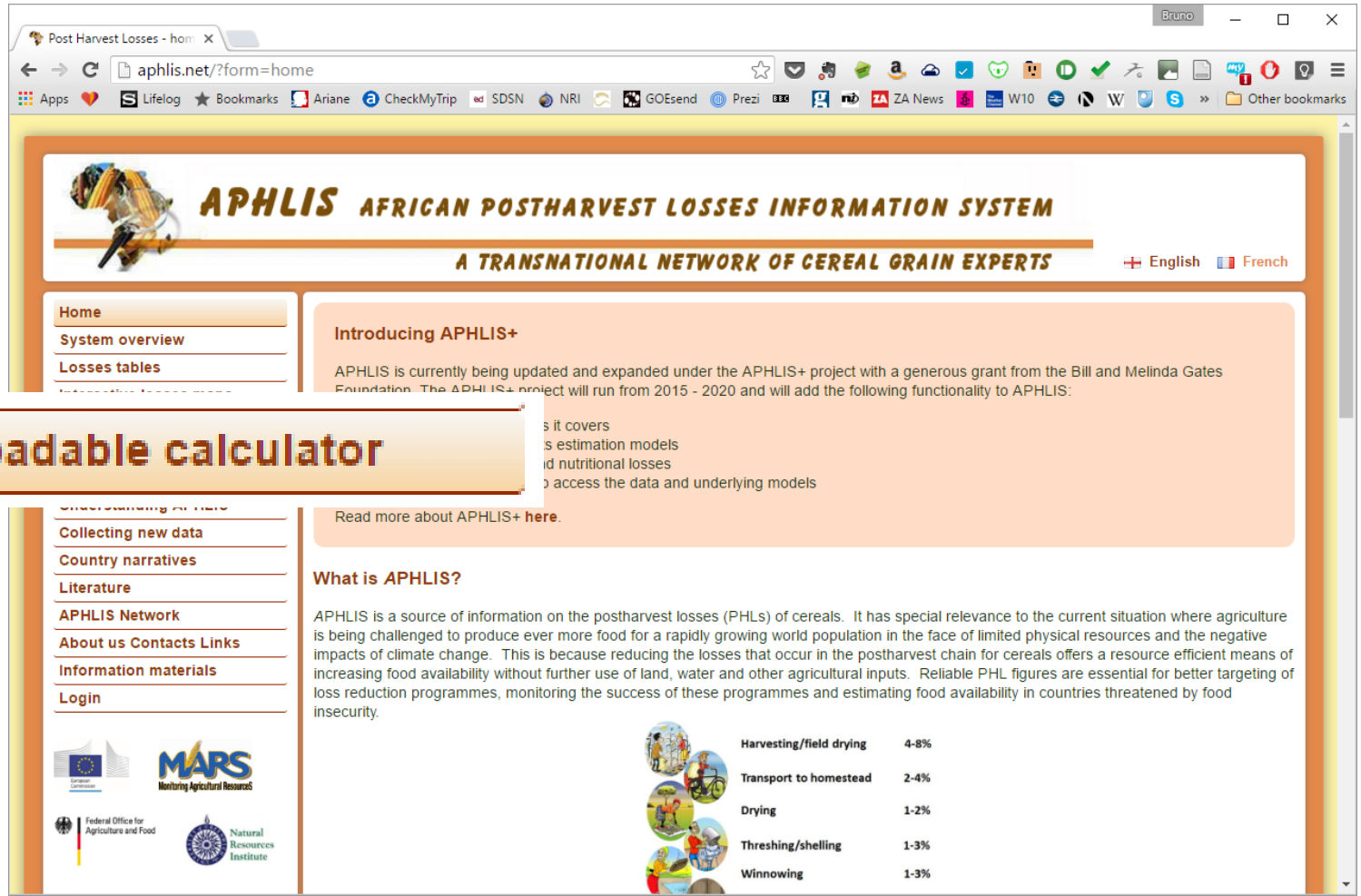
You want to know how much cereal grain is lost?

Science-based reasonable estimates are presented in interactive maps or in tables
on the APHLIS website: www.aphlis.net

This presentation is about the Downloadable Calculator that you can use to estimate the magnitude of losses at:

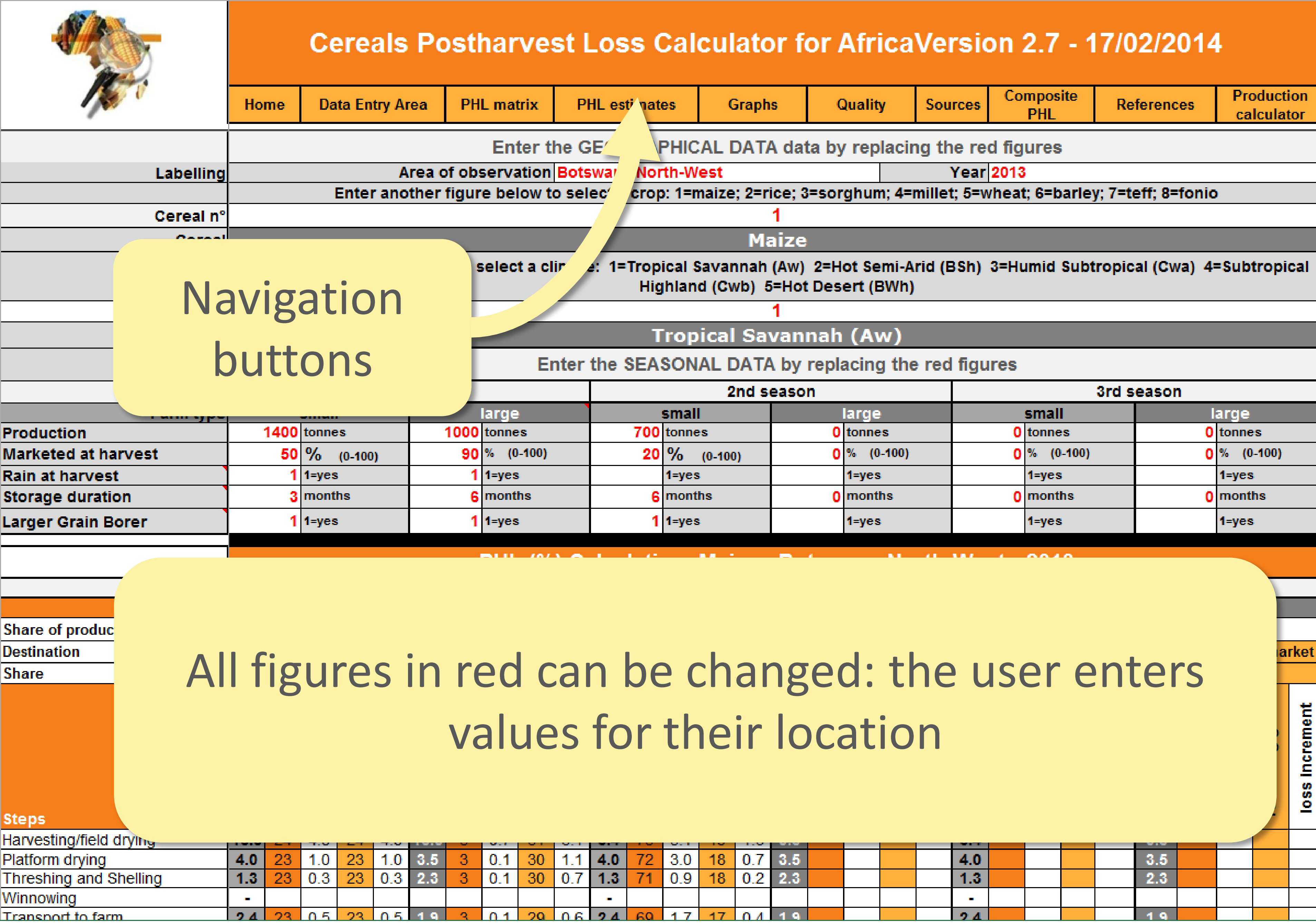
- different links in the postharvest chain
- different harvest seasons for your focal area and crop, and you can also
- obtain information on the quality of these estimates

From the APHLIS website: www.aphlis.net



Downloadable calculator

Once downloaded,
the APHLIS Calculator opens in Excel


Cereals Postharvest Loss Calculator for AfricaVersion 2.7 - 17/02/2014
Home
Data Entry Area
PHL matrix
PHL estimates
Graphs
Quality
Sources
Composite PHL
References
Production calculator
Labelling
Area of observation
North-West
Year 2013
Enter another figure below to select crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio
Cereal n°
Maize
Highland (Cwb) 5=Hot Desert (BWh)
Tropical Savannah (Aw)
Enter the SEASONAL DATA by replacing the red figures
2nd season
3rd season
Production
Marketed at harvest
Rain at harvest
Storage duration
Larger Grain Borer
Destination
Share
Steps
Platform drying
Threshing and Shelling
Winnowing
Navigation buttons
All figures in red can be changed: the user enters values for their location

Cereals Postharvest Loss Calculator for AfricaVersion 2.7 - 17/02/2014

Enter the GEOGRAPHICAL DATA data by replacing the red figures

Labelling	Area of observation	Botswana North-West	Year	2013

Enter another figure below to select a crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio

Cereal n° 1

Cereal: **Maize**

Enter another figure below to select a climate: 1=Tropical Savannah (Aw) 2=Hot Semi-Arid (BSh) 3=Humid Subtropical (Cwa) 4=Subtropical Highland (Cwb) 5=Hot Desert (BWh)

Climate n° 1

Climate: **Tropical Savannah (Aw)**

Enter the SEASONAL DATA by replacing the red figures

	1st season				2nd season				3rd season			
Farm type	small		large		small		large		small		large	
Production	1400	tonnes	1000	tonnes	700	tonnes	0	tonnes	0	tonnes	0	tonnes
Marketed at harvest	50	% (0-100)	90	% (0-100)	20	% (0-100)	0	% (0-100)	0	% (0-100)	0	% (0-100)
Rain at harvest	1	1=yes	1	1=yes		1=yes		1=yes		1=yes		1=yes
Storage duration	3	months	6	months	6	months	0	months	0	months	0	months
Larger Grain Borer	1	1=yes	1	1=yes	1	1=yes		1=yes		1=yes		1=yes

PHL (%) Calculation: Maize - Botswana North-West - 2013

	1st season									2nd season									3rd season								
Farm type	small					large					small					large				small					large			
Share of production	58					42					100																	
Destination		store		market			store		market			store		market			store		market			store		market			store	
Share		29		29.2			4		37.5			80		20.0														
Steps	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment
Harvesting/field drying	16.3	24	4.8	24	4.8	16.3	3	0.7	31	6.1	6.4	75	5.1	19	1.3	3.8					6.4					3.8				
Platform drying	4.0	23	1.0	23	1.0	3.5	3	0.1	30	1.1	4.0	72	3.0	18	0.7	3.5					4.0					3.5				
Threshing and Shelling	1.3	23	0.3	23	0.3	2.3	3	0.1	30	0.7	1.3	71	0.9	18	0.2	2.3					1.3					2.3				
Winnowing	-										-										-								
Transport to farm	2.4	23	0.5	23	0.5	1.9	3	0.1	29	0.6	2.4	69	1.7	17	0.4	1.9					2.4					1.9				

Cereals Postharvest Loss Calculator for AfricaVersion 2.7 - 17/02/2014

Home	Data Entry Area	PHL matrix	PHL estimates	Graphs	Quality	Sources	Composite PHL	References	Production calculator

	Enter the GEOGRAPHICAL DATA data by replacing the red figures			
Labelling	Area of observation	Botswana North-West	Year	2013
	Enter another figure below to select a crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio			
Cereal n°	1			
Cereal	Maize			
	Enter another figure below to select a climate: 1=Tropical Savannah (Aw) 2=Hot Semi-Arid (BSh) 3=Humid Subtropical (Cwa) 4=Subtropical Highland (Cwb) 5=Hot Desert (BWh)			
Climate n°	1			
Climate	Tropical Savannah (Aw)			
	Enter the SEASONAL DATA by replacing the red figures			

Enter your data:

Select crop and climate zone

Cereals Postharvest Loss Calculator for AfricaVersion 2.7 - 17/02/2014

	Enter the GEOGRAPHICAL DATA data by replacing the red figures			
Labelling	Area of observation	Botswana North-West	Year	2013
	Enter another figure below to select a crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio			
Cereal n°	1			
Cereal	Maize			
	Enter another figure below to select a climate: 1=Tropical Savannah (Aw) 2=Hot Semi-Arid (BSh) 3=Humid Subtropical (Cwa) 4=Subtropical Highland (Cwb) 5=Hot Desert (BWh)			
Climate n°	1			
Climate	Tropical Savannah (Aw)			
	Enter the SEASONAL DATA by replacing the red figures			

Your location, and the year of interest

Cereals Postharvest Loss Calculato for AfricaVersion 2.7 - 17/02/2014

Home	Data Entry Area	PHL matrix	PHL estimates	Graphs	Quality	Sources	Composite PHL	References	Production calculator

	Enter the GEOGRAPHICAL DATA da by replacing the red figures			
Labelling	Area of observation	Botswana North-West	Year	2013
	Enter another figure below to select a crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio			
Cereal n°	1			
Cereal	Maize			
	Enter another figure belo lect a climate: 1=Tropical Savannah (Aw) 2=Hot Semi-Arid (BSh) 3=Humid Subtropical (Cwa) 4=Subtropical Highland (Cwb) 5=Hot Desert (BWh)			
Climate n°	1			
Climate	Tropical Savannah (Aw)			
	Ent ne SEASONAL			

Specify the crop and the climatic zone

Cereals Postharvest Loss Calculator for AfricaVersion 2.7 - 17/02/2014

Home	Data Entry Area	PHL matrix	PHL estimates	Graphs	Quality	Sources	Composite PHL	References	Production calculator

	Enter the GEOGRAPHICAL DATA data by replacing the red figures			
Labelling	Area of observation	Botswana North-West	Year	2013
	Enter another figure below to select a crop: 1=maize; 2=rice; 3=sorghum; 4=millet; 5=wheat; 6=barley; 7=teff; 8=fonio			
Cereal n°	1			
Cereal	Maize			
	Enter another figure below to select a climate: 1=Tropical Savannah (Aw) 2=Hot Semi-Arid (BSh) 3=Humid Subtropical (Cwa) 4=Subtropical Highland (Cwb) 5=Hot Desert (BWh)			
Climate n°	1			
Climate	Tropical Savannah (Aw)			
	Enter the SEASONAL DATA by replacing the red figures			

Enter your data:

Seasonal data for your location

- Size of the farms
- Up to 3 seasons

Up to 3 seasons
in the year

	Enter the SEASONAL DATA by replacing the red figures											
	1st season				2nd season				3rd season			
Farm type	small		large		small		large		small		large	
Production	1400	tonnes	1000	tonnes	700	tonnes	0	tonnes	0	tonnes	0	tonnes
Marketed at harvest	50	% (0-100)	90	% (0-100)	20	% (0-100)	0	% (0-100)	0	% (0-100)	0	% (0-100)
Rain at harvest	1	1=yes	1	1=yes		1=yes		1=yes		1=yes		1=yes
Storage duration	3	months	6	months	6	months	0	months	0	months	0	months
Larger Grain Borer	1	1=yes	1	1=yes	1	1=yes		1=yes		1=yes		1=yes

	Enter the SEASONAL DATA by replacing the red figures											
	1st season				2nd season				3rd season			
Farm type	small		large		small		large		small		large	
Production	1400	tonnes	1000	tonnes	700	tonnes	0	tonnes	0	tonnes	0	tonnes
Marketed at harvest	50	% (0-100)	90	% (0-100)	20	% (0-100)	0	% (0-100)	0	% (0-100)	0	% (0-100)
Rain at harvest	1	1=yes	1	1=yes		1=yes		1=yes		1=yes		1=yes
Storage duration	3	months	6	months	6	months	0	months	0	months	0	months
Larger Grain Borer	1	1=yes			1	1=yes		1=yes		1=yes		1=yes

Figures for small and large scale farms

Quantities harvested, % marketed without storage..

	Enter the SEASONAL DATA by replacing the red figures											
	1st season				2nd season				3rd season			
Farm type	small		large		small		large		small		large	
Production	1400	tonnes	1000	tonnes	700	tonnes	0	tonnes	0	tonnes	0	tonnes
Marketed at harvest	50	% (0-100)	90	% (0-100)	20	% (0-100)	0	% (0-100)	0	% (0-100)	0	% (0-100)
Rain at harvest	1	1=yes	1	1=yes		1=yes		1=yes		1=yes		1=yes
Storage duration	3	months	6	months	6	months	0	months	0	months	0	months
Larger Grain Borer	1	1=yes	1	1=yes	1	1=yes		1=yes		1=yes		1=yes

… rain at harvest or during drying, duration of storage presence of the LGB pest

	Enter the SEASONAL DATA by replacing the red figures											
	1st season				2nd season				3rd season			
Farm type	small		large		small		large		small		large	
Production	1400	tonnes	1000	tonnes	700	tonnes	0	tonnes	0	tonnes	0	tonnes
Marketed at harvest	50	% (0-100)	90	% (0-100)	20	% (0-100)	0	% (0-100)	0	% (0-100)	0	% (0-100)
Rain at harvest	1	1=yes	1	1=yes		1=yes		1=yes		1=yes		1=yes
Storage duration	3	months	6	months	6	months	0	months	0	months	0	months
Larger Grain Borer	1	1=yes	1	1=yes	1	1=yes		1=yes		1=yes		1=yes

See the results:

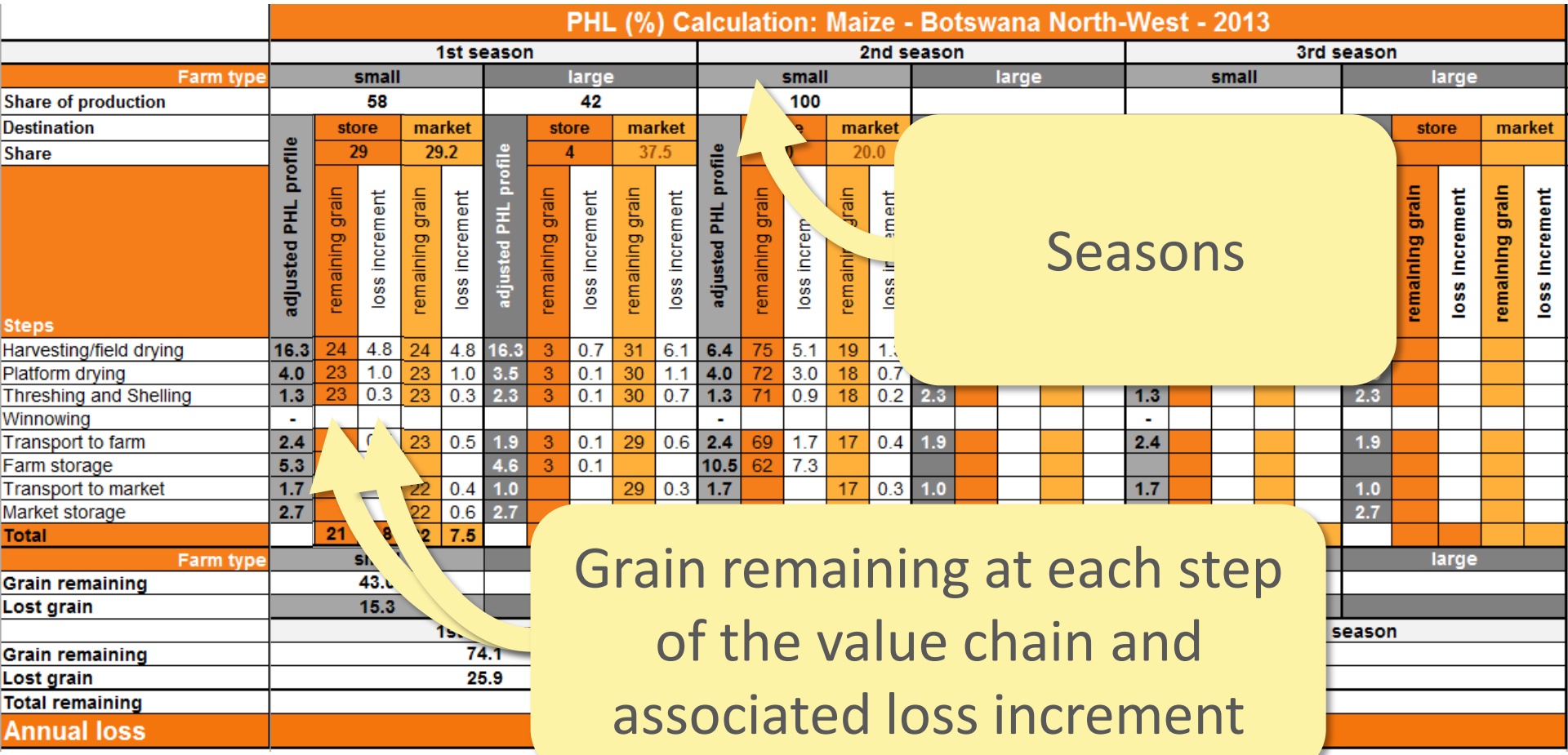
Estimated losses

- for the value chain,
- for each harvest and
- for type of farm;
- overall

PHL (%) Calculation: Maize - Botswana North-West - 2013																														
	1st season										2nd season										3rd season									
Farm type	small					large					small					large					small					large				
Share of production	58					42					100																			
Destination		store		market			store		market			store		market			store		market			store		market			store		market	
Share		29		29.2			4		37.5			80		20.0																
Steps	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment
Harvesting/field drying	16.3	24	4.8	24	4.8	16.3	3	0.7	31	6.1	6.4	75	5.1	19	1.3	3.8					6.4					3.8				
Platform drying	4.0	23	1.0	23	1.0	3.5	3	0.1	30	1.1	4.0	72	3.0	18	0.7	3.5					4.0					3.5				
Threshing and Shelling	1.3	23	0.3	23	0.3	2.3	3	0.1	30	0.7	1.3	71	0.9	18	0.2	2.3					1.3					2.3				
Winnowing	-																													
Transport to farm	2.4	23	0.																							1.9				
Farm storage	5.3	21	1																											
Transport to market	1.7																									1.0				
Market storage	2.7																									2.7				
Total		21	7																											

Farm type	sm				small	large
Grain remaining	43					
Lost grain						
					3rd season	
Grain remaining						
Lost grain						
Total remaining						
Annual loss						

Steps of the value chain with % loss at each step: "PHL Profile"


PHL (%) Calculation: Maize - Botswana North-West - 2013
1st season
2nd season
3rd season
Farm type
small
large
small
large
small
large
Share of production
58
42
100
Destination
store
market
store
market
market
store
market
Share
29
29.2
4
37.5
20.0
Steps
adjusted PHL profile
remaining grain
loss increment
Harvesting/field drying
16.3
24
4.8
24
4.8
16.3
3
0.7
31
6.1
6.4
75
5.1
19
Platform drying
4.0
23
1.0
23
1.0
3.5
3
0.1
30
1.1
4.0
72
3.0
18
0.7
Threshing and Shelling
1.3
23
0.3
23
0.3
2.3
3
0.1
30
0.7
1.3
71
0.9
18
0.2
2.3
1.3
2.3
Winnowing
-
-
-
Transport to farm
2.4
23
0.5
1.9
3
0.1
29
0.6
2.4
69
1.7
17
0.4
1.9
2.4
1.9
Farm storage
5.3
4.6
3
0.1
10.5
62
7.3
Transport to market
1.7
22
0.4
1.0
29
0.3
1.7
17
0.3
1.0
1.7
1.0
Market storage
2.7
22
0.6
2.7
2.7
Total
21
7.5
Farm type
large
Grain remaining
Lost grain
15.3
season
Grain remaining
74.1
Lost grain
25.9
Total remaining
Annual loss
Seasons
Grain remaining at each step of the value chain and associated loss increment

PHL (%) Calculation: Maize - Botswana North-West - 2013

	1st season										2nd season										3rd season									
Farm type	small					large					small					large					small					large				
Share of production	58					42					100																			
Destination		store		market			store		market			store		market			store		market			store		market			store		market	
Share		29		29.2			4		37.5			80		20.0																
Steps	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	profile					profile					profile					adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment
Harvesting/field drying	16.3	24	4.8	24	4.8	16.3	3																			3.8				
Platform drying	4.0	23	1.0	23	1.0	3.5	3		30																	3.5				
Threshing and Shelling	1.3	23	0.3	23	0.3	2.3		0.1	30																	2.3				
Winnowing	-																													
Transport to farm	2.4	23	0.5	23	0.5	1	3	0.1	29																	1.9				
Farm storage	5.3	21	1.2				3	0.1																						
Transport to market	1.7			22	0.4	0			29	0.3	1.7			17	0.3	1.0					1.7					1.0				
Market storage	2.7			22	0.				28	0.8	2.7			17	0.5	2.7					2.7					2.7				
Total		21	7.8	22	7.5		3	1.1	28	9.5		62	18.0	17	3.4															

Farm type	small	large	small	large	small	large
Grain remaining	43.0	31.1	78.5			
Lost grain	15.3	10.6	21.5			

	1st season	2nd season	3rd season
Grain remaining	74.1	78.5	
Lost grain	25.9	21.5	
Total remaining	75 %		
Annual loss	25 %		

% grain remaining and % loss

PHL (%) Calculation: Maize - Botswana North-West - 2013

	1st season										2nd season										3rd season									
Farm type	small					large					small					large					small					large				
Share of production	58					42					100																			
Destination		store		market			store		market			store		market			store		market			store		market			store		market	
Share		29		29.2			4		37.5			80		20.0																
Steps	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment
Harvesting/field drying	**16.3**	24	4.8	24	4.8	**16.3**	3	0.7	31	6.1	**6.4**	75	5.1	19	1.3	**3.8**					6.4					3.8				
Platform drying	**4.0**	23	1.0	23	1.0	**3.5**	3	0.1	30	1.1	**4.0**	72	3.0	18	0.7	**3.5**														
Threshing and Shelling	**1.3**	23	0.3	23	0.3	**2.3**	3	0.1	30	0.7	**1.3**	71	0.9	18	0.2	**2.3**														
Winnowing	-										-																			
Transport to farm	**2.4**	23	0.5	23	0.5	**1.9**	3	0.1	29	0.6	**2.4**	69	1.7	17	0.4	**1.9**														
Farm storage	**5.3**	21	1.2			**4.6**	3	0.1			**10.5**	62	7.3																	
Transport to market	**1.7**			22	0.4	**1.0**			29	0.3	**1.7**			17	0.3	**1.0**														
Market storage	**2.7**			22	0.6	**2.7**			28	0.8	**2.7**			17	0.5	**2.7**														
Total		**21**	**7.8**	**22**	**7.5**		**3**	**1.1**	**28**	**9.5**		**62**	**18.0**	**17**	**3.4**															

Farm type	small	large	small	large
Grain remaining	43.0	31.1	78.5	
Lost grain	15.3	10.6	21.5	

	1st season	2nd season	3rd season
Grain remaining	74.1		
Lost grain	25.9	.5	
Total remaining		5 %	
Annual loss		25 %	

Annual % loss

Play and learn:

Adjust the default figures to simulate different scenarios in order to get a better understanding of the different factors influencing losses

	1st season										2nd season										3rd season									
Farm type	small					large					small					large					small					large				
Share of production	58																													
Destination		store		market																										
Share		29		29.2																										
Steps	adjusted PHL profile	remaining grain	loss increment	remaining grain	loss increment	adjusted PHL profile				loss increment																				
Harvesting/field drying	16.3	24	4.8	24	4.8	16.3																								
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Threshing and Shelling	1.3	23	0.3	23	0.3	2.3	3																							
Winnowing	-										-										-									
Transport to farm	2.4	23	0.5	23	0.5	1.9	3	0.1	29	0.6	2.4	69	1.7	17	0.4	1.9					2.4					1.9				
Farm storage	5.3	21	1.2			4.6	3	0.1			10.5	62	7.3																	
Transport to market	1.7			22	0.4	1.0			29	0.3	1.7			17	0.3	1.0					1.7					1.0				
Market storage	2.7			22	0.6	2.7			28	0.8	2.7			17	0.5	2.7					2.7					2.7				
Total		21	7.8	22	7.5		3	1.1	28	9.5		62	18.0	17	3.4															

Farm type	small	large	small	large	small	large
Grain remaining	43.0	31.1	78.5			
Lost grain	15.3	10.6	21.5			

	1st season	2nd season	3rd season
Grain remaining	74.1	78.5	
Lost grain	25.9	21.5	
Total remaining	75 %		
Annual loss	25 %		

See the results:

Estimated losses are also expressed in weight

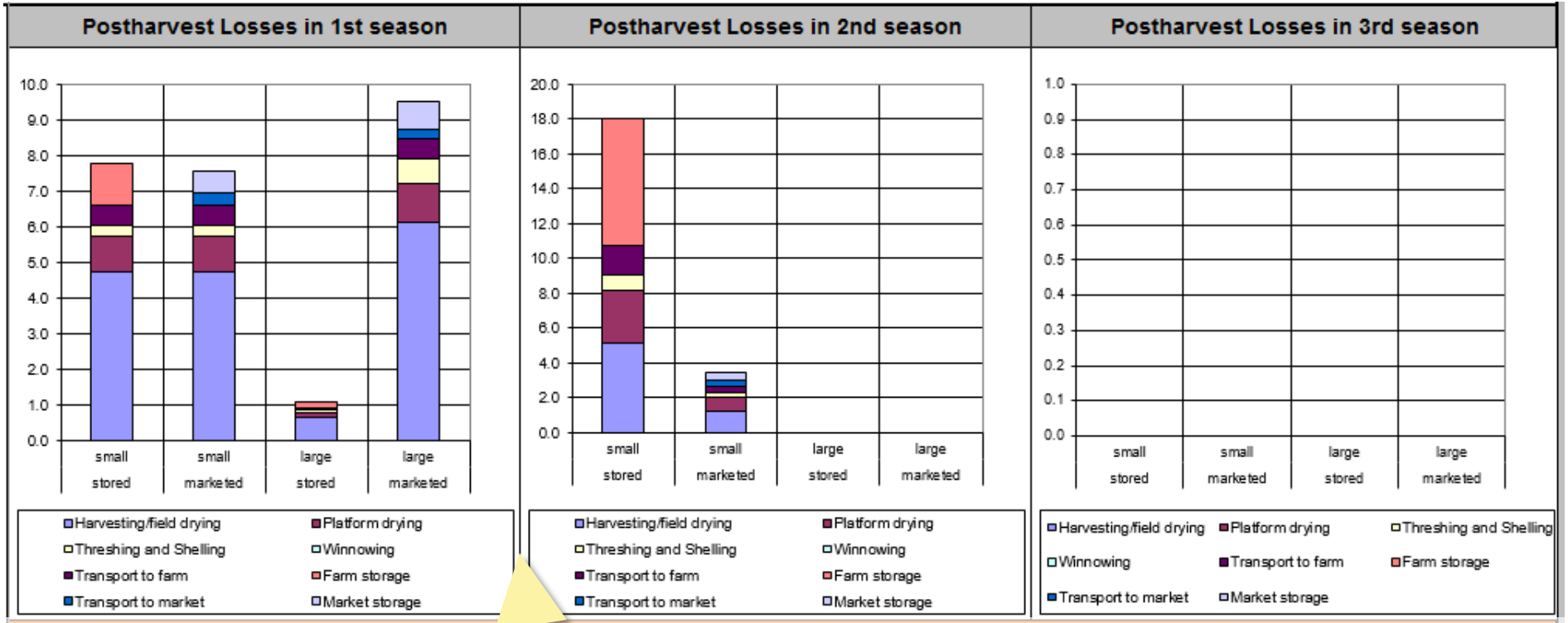
Grain remaining and losses expressed in weight

Farm type	small	large	small	
Grain remaining	43.0	31.1	78.5	
Lost grain	15.3	10.6	21.5	
	1st season		2nd season	
Grain remaining	74.1		78.5	
Lost grain	25.9		21.5	
Total remaining			75 %	
Annual loss			25 %	

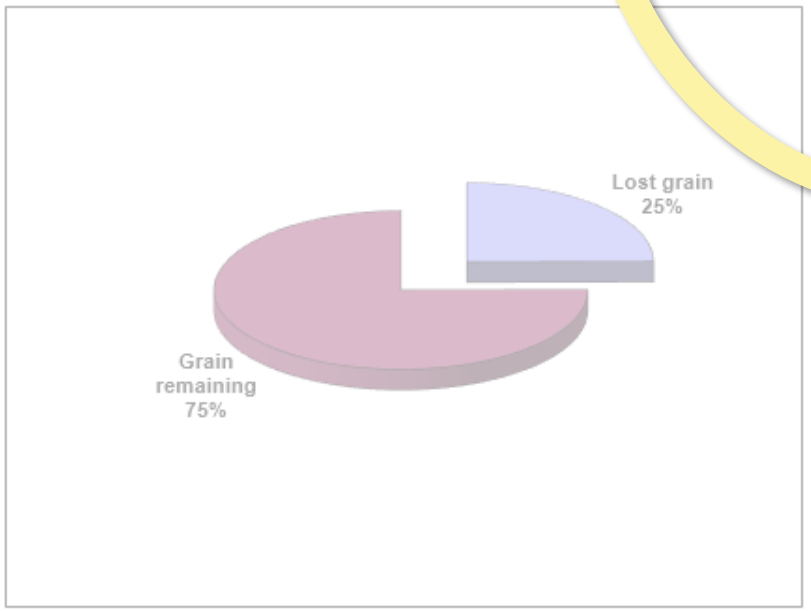
	PHL (tonnes) Calculation: Maize - Botswana North-West - 2013					
	1st season		2nd season		3rd season	
Farm type	**small**	**large**	**small**	**large**	**small**	**large**
Production	1,400	1,000	700			
Grain remaining	1,032	746	550			
Lost grain	368	254	150			
Production	2,400		700			
Grain remaining	1,778		550			
Lost grain	622		150			
Annual production			3,100	tonnes		
Total remaining			2,328	tonnes		
Annual loss			772	tonnes		

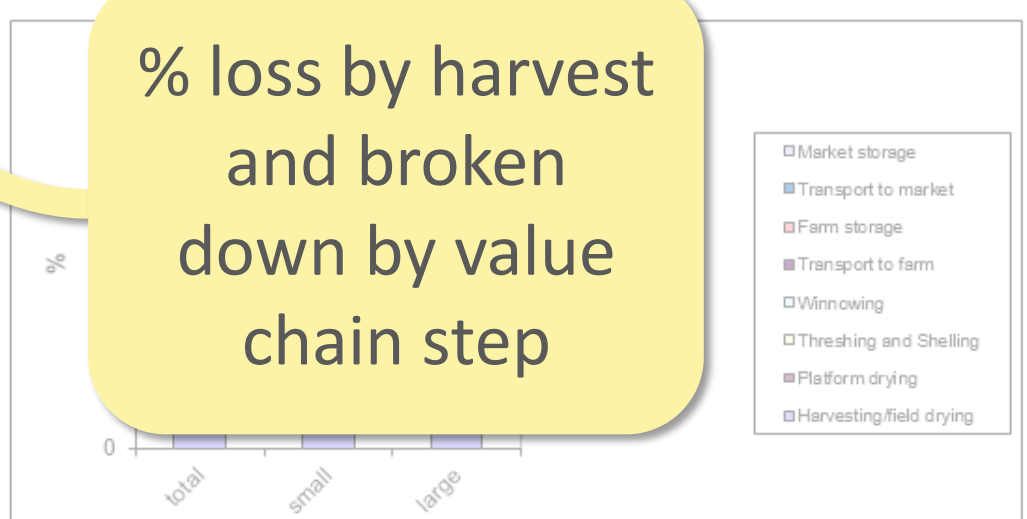
Visualise the results:

Estimated losses shown in graphs

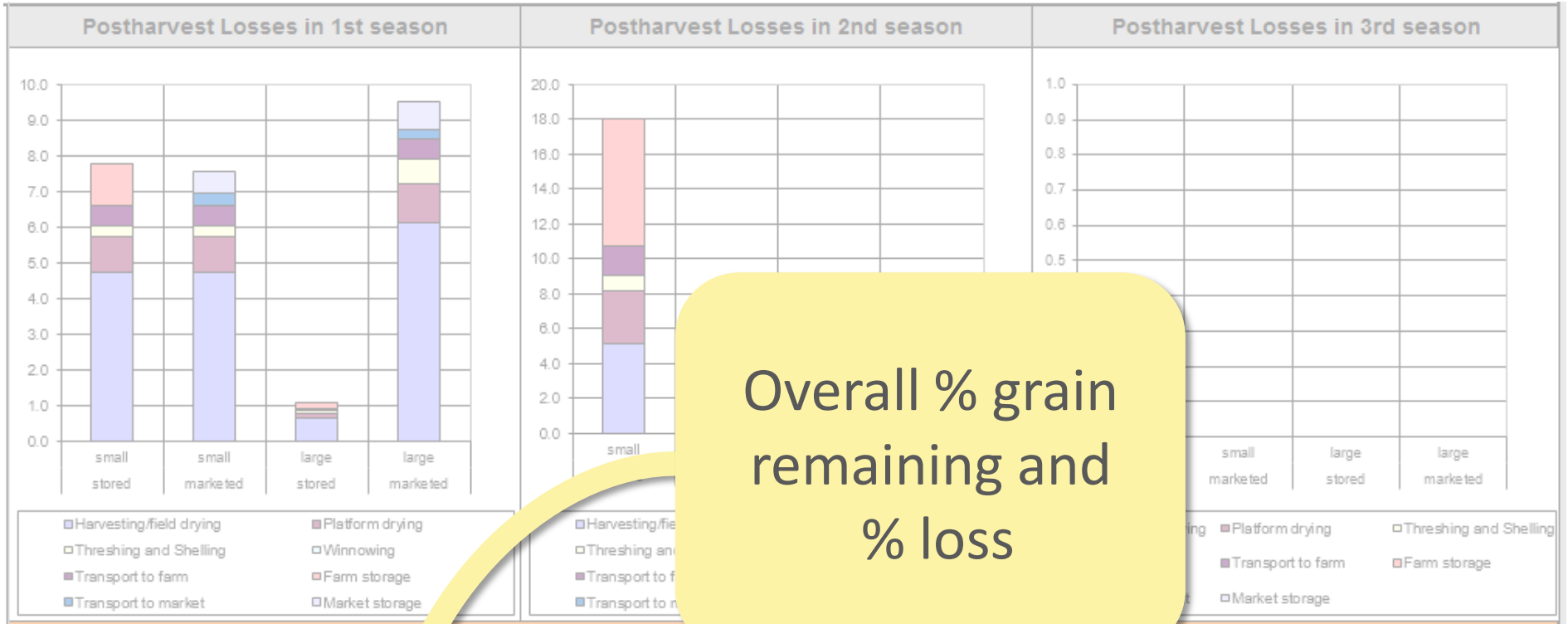


Breakdown of model statistics

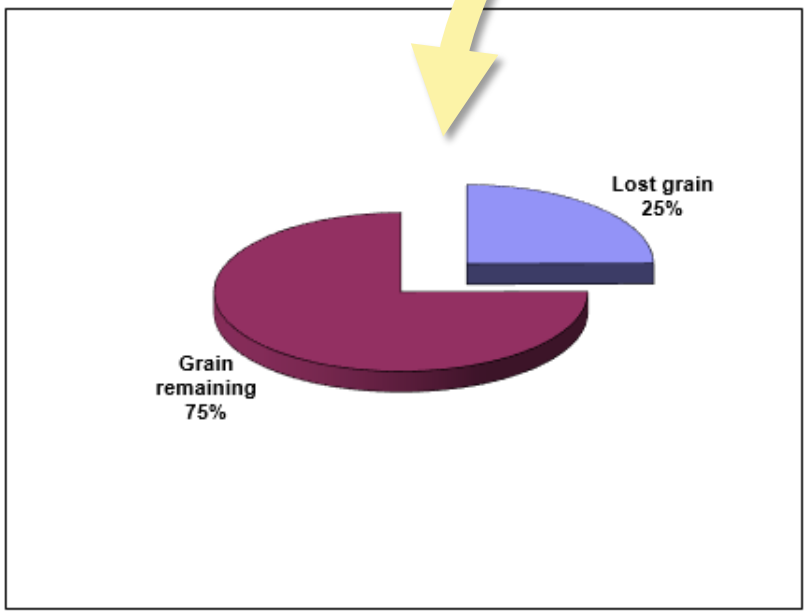


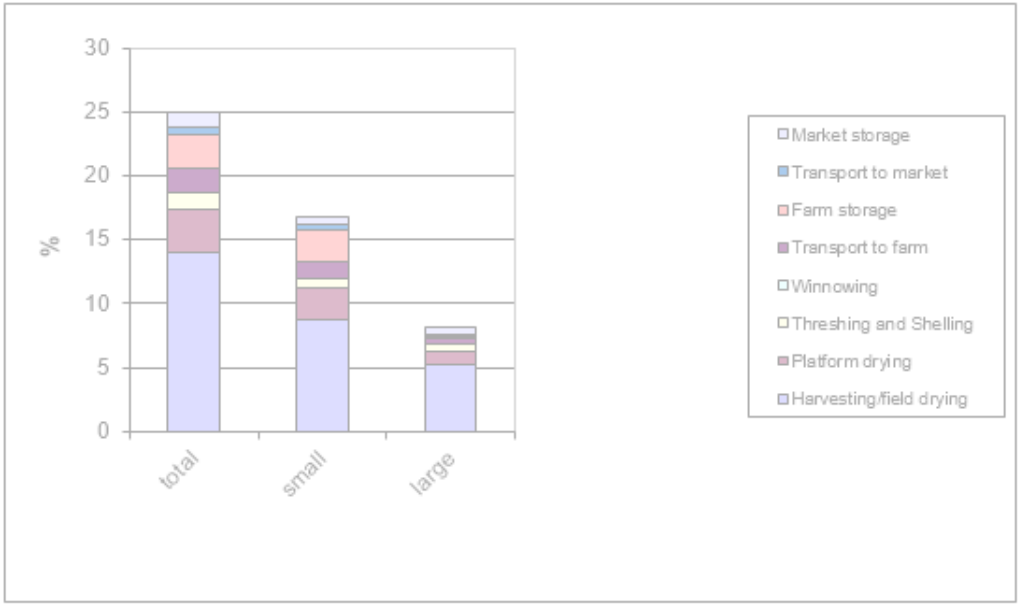


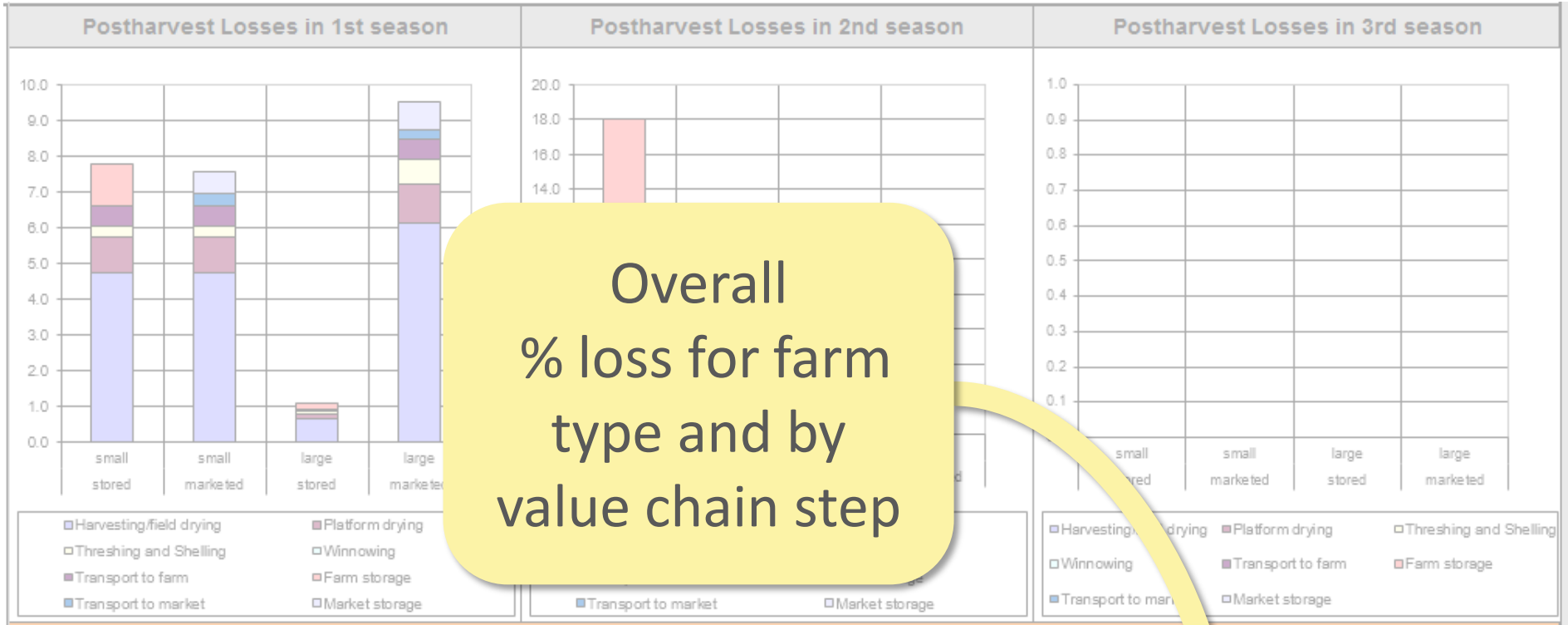
% loss by harvest and broken down by value chain step



Overall % grain remaining and % loss

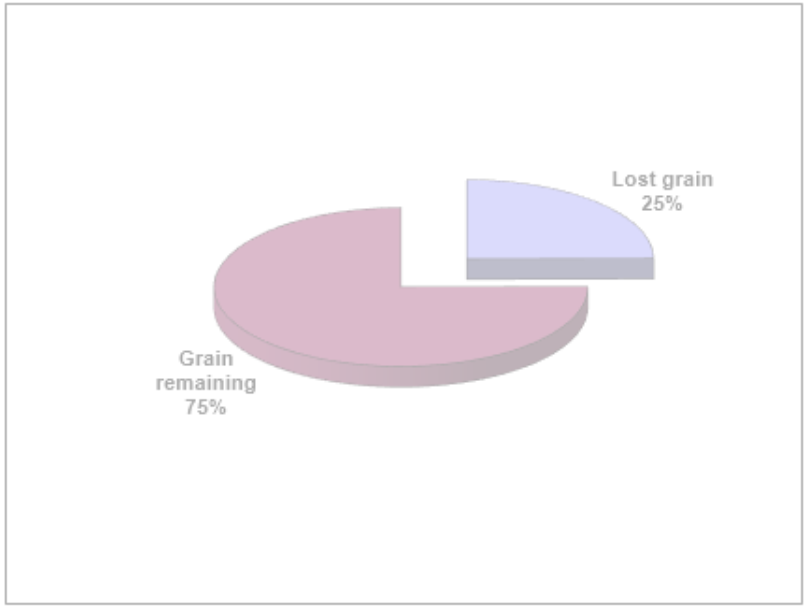


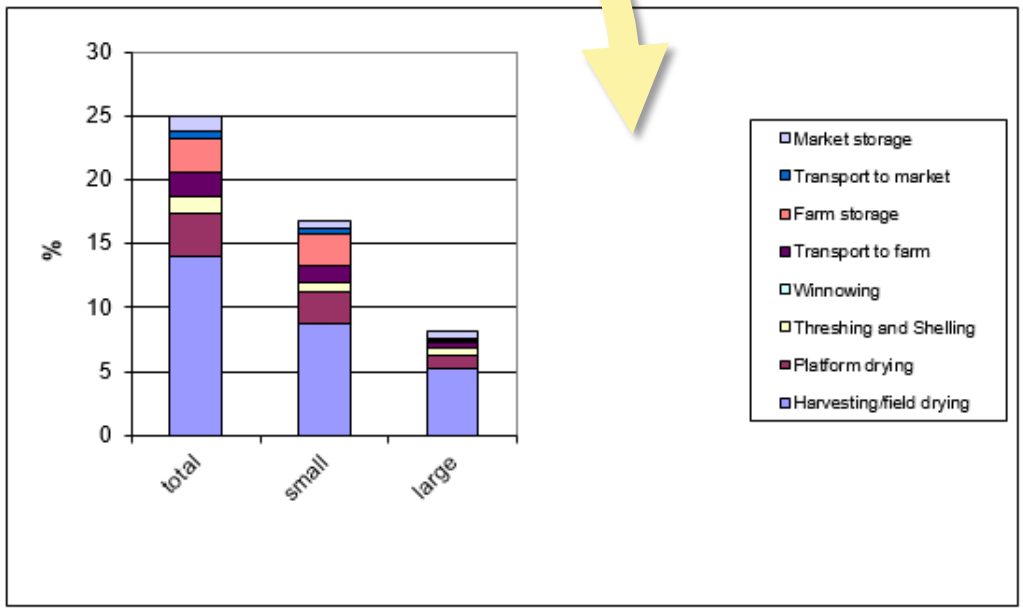




Overall % loss for farm type and by value chain step

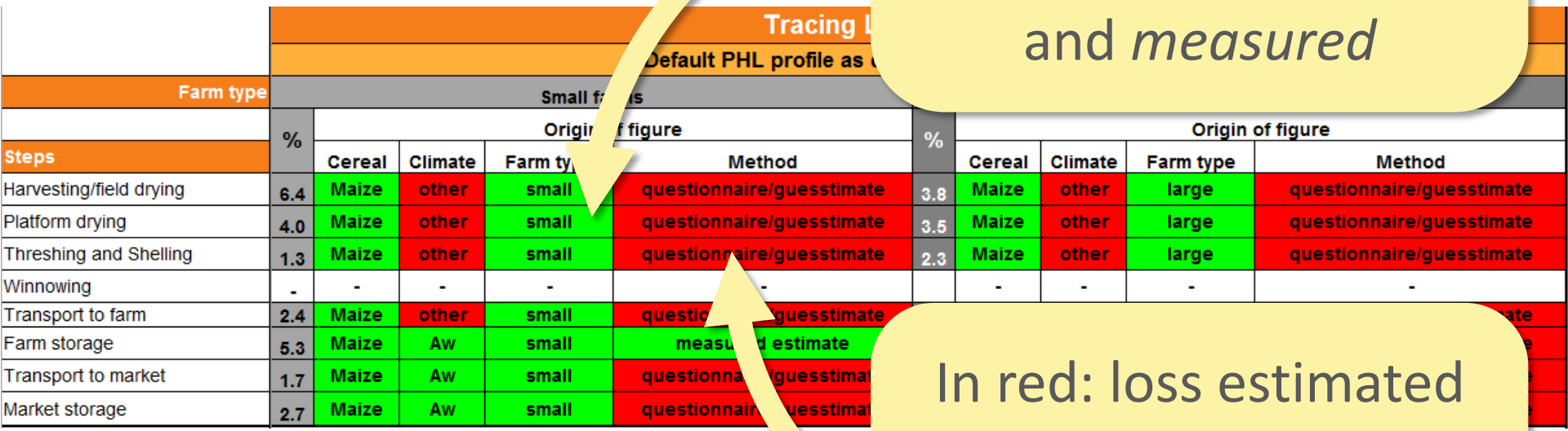
Breakdown of model statistics





Assess the quality of estimates:

Reliability of the data used in calculations of loss estimates



Farm type	Small f…s								
	%	Origi… f figure				%	Origin of figure			
Steps		Cereal	Climate	Farm ty…	Method		Cereal	Climate	Farm type	Method
Harvesting/field drying	6.4	Maize	other	small	questionnaire/guesstimate	3.8	Maize	other	large	questionnaire/guesstimate
Platform drying	4.0	Maize	other	small	questionnaire/guesstimate	3.5	Maize	other	large	questionnaire/guesstimate
Threshing and Shelling	1.3	Maize	other	small	questionnaire/guesstimate	2.3	Maize	other	large	questionnaire/guesstimate
Winnowing	-	-	-	-	-		-	-	-	-
Transport to farm	2.4	Maize	other	small	questio…guesstimate					…ate
Farm storage	5.3	Maize	Aw	small	measu…d estimate					…e
Transport to market	1.7	Maize	Aw	small	questionna…/guesstimat					
Market storage	2.7	Maize	Aw	small	questionnair…uesstimat					

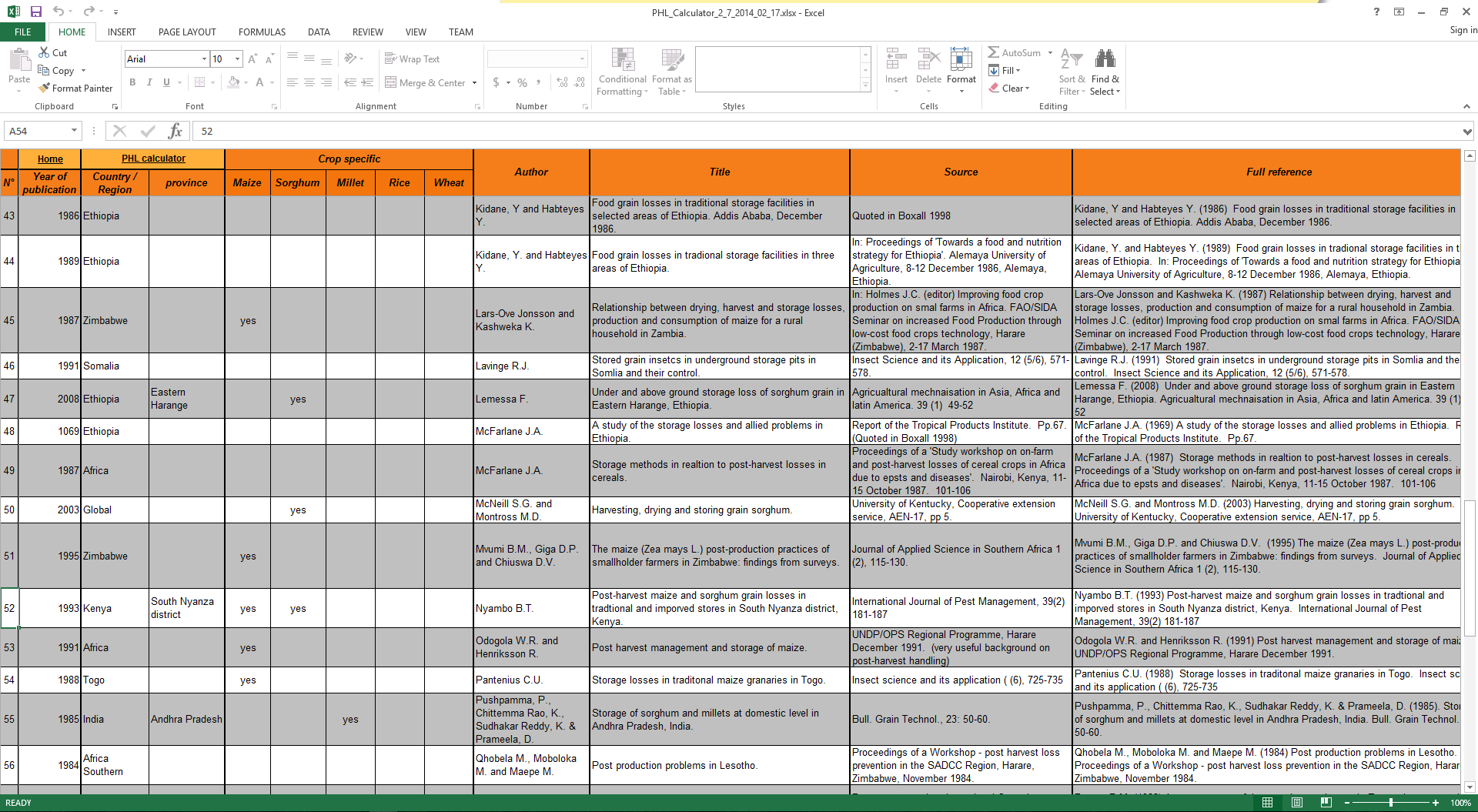
In green: loss estimated from published data specific to these circumstances and *measured*

In red: loss estimated from published non-specific data or from questionnaires

Access the references:

Details of the published scientific literature used are also provided

ID number of publications – Full details available in the calculator from the **References** button



PHL_Calculator_2_7_2014_02_17.xlsx - Excel

	Home	PHL calculator		Crop specific					Author	Title	Source	Full reference
N°	Year of publication	Country / Region	province	Maize	Sorghum	Millet	Rice	Wheat				
43	1986	Ethiopia							Kidane, Y and Habteyes Y.	Food grain losses in traditional storage facilities in selected areas of Ethiopia. Addis Ababa, December 1986.	Quoted in Boxall 1998	Kidane, Y and Habteyes Y. (1986) Food grain losses in traditional storage facilities in selected areas of Ethiopia. Addis Ababa, December 1986.
44	1989	Ethiopia							Kidane, Y. and Habteyes Y.	Food grain losses in tradional storage facilities in three areas of Ethiopia.	In: Proceedings of 'Towards a food and nutrition strategy for Ethiopia'. Alemaya University of Agriculture, 8-12 December 1986, Alemaya, Ethiopia.	Kidane, Y. and Habteyes Y. (1989) Food grain losses in tradional storage facilities in t areas of Ethiopia. In: Proceedings of 'Towards a food and nutrition strategy for Ethiopia Alemaya University of Agriculture, 8-12 December 1986, Alemaya, Ethiopia.
45	1987	Zimbabwe		yes					Lars-Ove Jonsson and Kashweka K.	Relationship between drying, harvest and storage losses, production and consumption of maize for a rural household in Zambia.	In: Holmes J.C. (editor) Improving food crop production on smal farms in Africa. FAO/SIDA Seminar on increased Food Production through low-cost food crops technology, Harare (Zimbabwe), 2-17 March 1987.	Lars-Ove Jonsson and Kashweka K. (1987) Relationship between drying, harvest and storage losses, production and consumption of maize for a rural household in Zambia. Holmes J.C. (editor) Improving food crop production on smal farms in Africa. FAO/SIDA Seminar on increased Food Production through low-cost food crops technology, Harare (Zimbabwe), 2-17 March 1987.
46	1991	Somalia							Lavinge R.J.	Stored grain insetcs in underground storage pits in Somlia and their control.	Insect Science and its Application, 12 (5/6), 571-578.	Lavinge R.J. (1991) Stored grain insetcs in underground storage pits in Somlia and the control. Insect Science and its Application, 12 (5/6), 571-578.
47	2008	Ethiopia	Eastern Harange		yes				Lemessa F.	Under and above ground storage loss of sorghum grain in Eastern Harange, Ethiopia.	Agricualtural mechnaisation in Asia, Africa and latin America. 39 (1) 49-52	Lemessa F. (2008) Under and above ground storage loss of sorghum grain in Eastern Harange, Ethiopia. Agricualtural mechnaisation in Asia, Africa and latin America. 39 (1) 52
48	1069	Ethiopia							McFarlane J.A.	A study of the storage losses and allied problems in Ethiopia.	Report of the Tropical Products Institute. Pp.67. (Quoted in Boxall 1998)	McFarlane J.A. (1969) A study of the storage losses and allied problems in Ethiopia. R of the Tropical Products Institute. Pp.67.
49	1987	Africa							McFarlane J.A.	Storage methods in realtion to post-harvest losses in cereals.	Proceedings of a 'Study workshop on on-farm and post-harvest losses of cereal crops in Africa due to epsts and diseases'. Nairobi, Kenya, 11-15 October 1987. 101-106	McFarlane J.A. (1987) Storage methods in realtion to post-harvest losses in cereals. Proceedings of a 'Study workshop on on-farm and post-harvest losses of cereal crops i Africa due to epsts and diseases'. Nairobi, Kenya, 11-15 October 1987. 101-106
50	2003	Global			yes				McNeill S.G. and Montross M.D.	Harvesting, drying and storing grain sorghum.	University of Kentucky, Cooperative extension service, AEN-17, pp 5.	McNeill S.G. and Montross M.D. (2003) Harvesting, drying and storing grain sorghum. University of Kentucky, Cooperative extension service, AEN-17, pp 5.
51	1995	Zimbabwe		yes					Mvumi B.M., Giga D.P. and Chiuswa D.V.	The maize (Zea mays L.) post-production practices of smallholder farmers in Zimbabwe: findings from surveys.	Journal of Applied Science in Southern Africa 1 (2), 115-130.	Mvumi B.M., Giga D.P. and Chiuswa D.V. (1995) The maize (Zea mays L.) post-produc practices of smallholder farmers in Zimbabwe: findings from surveys. Journal of Applied Science in Southern Africa 1 (2), 115-130.
52	1993	Kenya	South Nyanza district	yes	yes				Nyambo B.T.	Post-harvest maize and sorghum grain losses in tradtional and imporved stores in South Nyanza district, Kenya.	International Journal of Pest Management, 39(2) 181-187	Nyambo B.T. (1993) Post-harvest maize and sorghum grain losses in tradtional and imporved stores in South Nyanza district, Kenya. International Journal of Pest Management, 39(2) 181-187
53	1991	Africa		yes					Odogola W.R. and Henriksson R.	Post harvest management and storage of maize.	UNDP/OPS Regional Programme, Harare December 1991. (very useful background on post-harvest handling)	Odogola W.R. and Henriksson R. (1991) Post harvest management and storage of mai UNDP/OPS Regional Programme, Harare December 1991.
54	1988	Togo		yes					Pantenius C.U.	Storage losses in traditonal maize granaries in Togo.	Insect science and its application ((6), 725-735	Pantenius C.U. (1988) Storage losses in traditonal maize granaries in Togo. Insect sc and its application ((6), 725-735
55	1985	India	Andhra Pradesh			yes			Pushpamma, P., Chittemma Rao, K., Sudhakar Reddy, K. & Prameela, D.	Storage of sorghum and millets at domestic level in Andhra Pradesh, India.	Bull. Grain Technol., 23: 50-60.	Pushpamma, P., Chittemma Rao, K., Sudhakar Reddy, K. & Prameela, D. (1985). Sto of sorghum and millets at domestic level in Andhra Pradesh, India. Bull. Grain Technol. 50-60.
56	1984	Africa Southern							Qhobela M., Moboloka M. and Maepe M.	Post production problems in Lesotho.	Proceedings of a Workshop - post harvest loss prevention in the SADCC Region, Harare, Zimbabwe, November 1984.	Qhobela M., Moboloka M. and Maepe M. (1984) Post production problems in Lesotho. Proceedings of a Workshop - post harvest loss prevention in the SADCC Region, Harar Zimbabwe, November 1984.

Lastly, the APHLIS calculator provides a table to add up postharvest losses for several commodities in the location

Write the PHL estimate for each cereal into this table. The table helps you to compute the combined PHL estimate for all cereals in the area of observation

Calculation of the PHL for several cereals in the area of observation					
Area of observation	Tanzania		Year	2007	
Cereal	Annual production	Annual loss	Total remaining	Share of total production	Share of total losses
	tonnes	tonnes	tonnes	%	%
Maize	125,378	26,233	99,145	84.2	88.4
Sorghum	23,456	3,456	20,000	15.8	11.6
Total	148,834	29,689	119,145	100	100
Total remaining %	80%				
Annual loss %	20%				

Add the loss figures provided by the calculator for each of the crops of interest

The future of APHLIS

To improve APHLIS, the Bill & Melinda Gates Foundation has funded the new "APHLIS+" project

BILL & MELINDA GATES foundation

APHLIS+ will:

- Increase the type of crops covered
- Improve the accuracy of the estimation model
- Add estimates of value and nutritional losses
- Update the user interface
- Add warning systems on risks of LGB or aflatoxin
- Further develop the network of experts

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