

## YIELD SURVEY – Protocols

### Capsule measurements

Select the nearest mature field from where you stood when you conducted the interview of the first respondent (but not a field from the farmer of the immature field). Choose a field where opium harvest is currently under way (i.e., some capsules should have been lanced already, and they should still be yielding gum);

Decide on boundaries of field and measure the size of the field (in metres);

Go to centre of field; spin stick to randomly select direction of transect; walk from the centre along transect in opposite directions towards the borders of the field (for terraced fields, lay transect along full length of the field);

Measure length of transect using measuring tape; use **TABLE A** to determine the location of plots along the transect (**see example at the end of this document!**);

Use **TABLE B** to identify the three plots to be sampled in each field, and mark them along the transect as indicated in **Figure 1**, below;

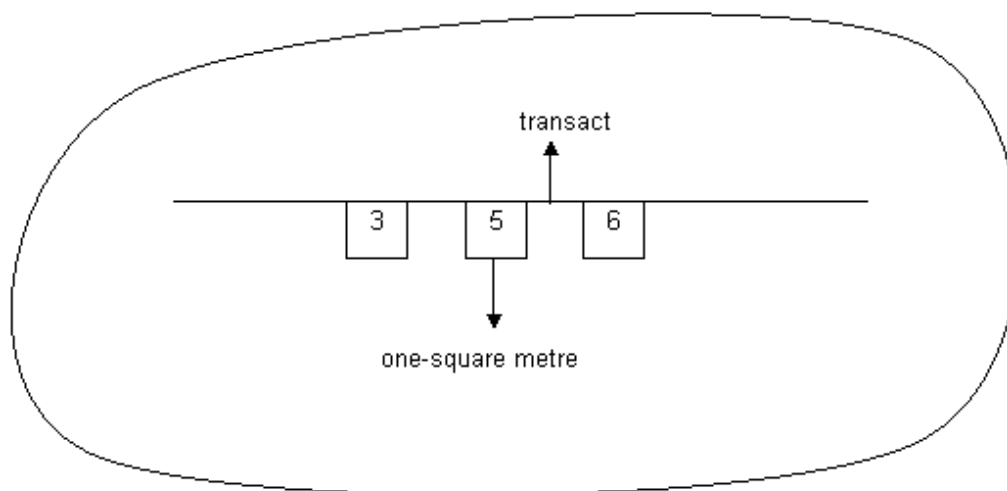


Figure 1: Location of three one-square (1 m<sup>2</sup>) metre plots along transect

In each of the three 1m<sup>2</sup> plots, count number of poppy plants (record in Question 22 “Mature capsule measurement”);

In each of the three 1m<sup>2</sup> plots, count, separately, all flower buds (FB), flowers (F), immature capsules (CI), lanced an yielding capsules (CM) and lanced and dried capsules (CD) (record in **Question 22 “Mature capsule measurement”**);

For each group (FB, F, CI, CM, and CD) in step 7, count the number of flower buds/flowers/capsules that you expect to mature during the course of the harvest and to contribute to yield (record in **Question 22 “Mature capsule measurement”**);

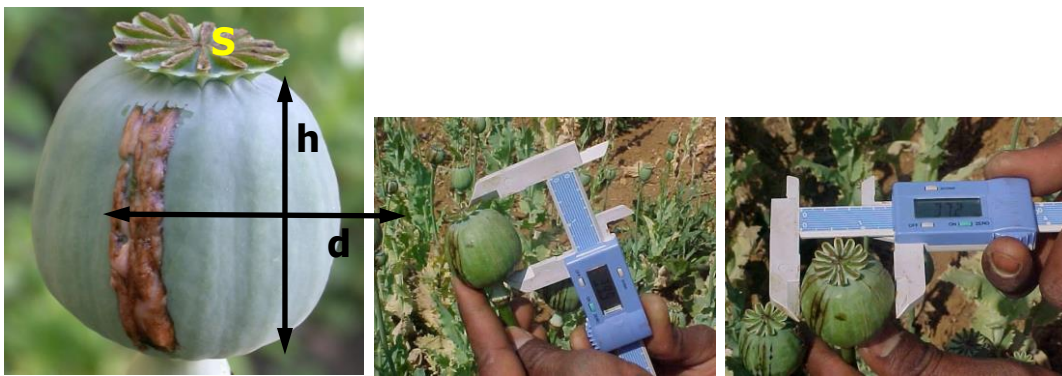
Select one plant in the bottom right corner of the plot and measure the height and diameter (see below for practice of measurement) of all mature capsules on that plant, i.e., capsules that have at

least one cut and are still yielding gum. If the number of mature capsules measured on that plant is less than ten, select another typical in the plot and continue measuring on that plant. Repeat until at least ten mature capsules have been measured. Do not just stop measuring after the tenth capsule but continue to complete the measurements for all mature capsules on the last plant as well. (Record in **Question 22 “Mature capsule measurement”**)

### Measuring capsule height and diameter

All measurements should be made in millimetres (mm) to one decimal (i.e. 00.0). Measurement of the capsule diameter (**d**) should be carried out at the largest circumference. Measurements of capsule height (**h**) should not include stigma surface (**S**). Ideally, the calliper should be placed between two stigmatic rays.

**Note:** Measure only mature capsules with at least one cut, **which are still yielding gum.**



<b>TABLE A: Location of plots along transects (in meters, from border of field)</b>											
Length of Transect	Plot Interval	Plot									
		1	2	3	4	5	6	7	8	9	10
10	0	0	1	2	3	4	5	6	7	8	9
20	1	1	3	5	7	9	11	13	15	17	19
30	2	2	5	8	11	14	17	20	23	26	29
40	3	2	6	10	14	18	22	26	30	34	38
50	4	3	8	13	18	23	26	33	38	43	48
60	5	3	9	15	21	27	33	39	45	51	57
70	6	4	11	18	25	32	39	46	53	60	67
80	7	4	12	20	28	36	44	52	60	68	76
90	8	5	14	23	32	41	50	59	68	77	86
100	9	5	15	25	35	45	55	65	75	85	95
110	10	6	17	28	39	50	61	72	83	94	105
120	11	6	18	30	42	54	66	78	90	102	114
130	12	7	20	33	46	59	72	85	98	111	124
140	13	7	21	35	49	63	77	91	105	119	133
150	14	8	23	38	53	68	83	98	113	128	143
160	15	8	24	40	56	72	88	104	120	136	152
170	16	9	26	43	60	77	94	111	128	145	162
180	17	9	27	45	63	81	99	117	135	153	171
190	18	10	29	48	67	86	105	124	143	162	181
200	19	10	30	50	70	90	110	130	150	170	190

## INFORMATION TO BE COLLECTED FROM FIELD- YIELD SURVEY

<b>FIELD NUMBER:</b>		<b>FIELD QUALITY: (Good, Normal, Poor):</b>	
<b>SURVEYOR:</b>		<b>PROVINCE:</b>	
<b>DATE (dd/mm/yy):</b>		<b>VILLAGE:</b>	
		<b>VILLAGE CODE:</b>	

**START HERE** (A **mature** opium poppy field will have capsules, some of **which have already been lanced**)

Select the nearest **3** poppy fields (one field with very **GOOD** yield, one with **NORMAL** and one with **POOR** yield) from where you stand when you conducted the interview of the first respondent. Fill the questionnaire for each field.

*.Note: It can be a poor, good or normal opium poppy field. What is important is that it is the nearest mature opium poppy field from where you interviewed the first respondent.*

For each of the three (3) mature poppy fields chosen, answer the following questions about each field:

<div style="background-color: #cccccc; padding: 5px; margin-bottom: 5px;"><b>1 Topography of poppy field</b></div> <div style="margin-bottom: 5px;"> <p><b>1</b></p> <p><input type="checkbox"/> Flat      <input type="checkbox"/> Terraced      <input type="checkbox"/> Hill</p> </div> <div style="background-color: #cccccc; padding: 5px; margin-bottom: 5px;"> <p>If <u>Terraced</u> or <u>Hill</u>, please indicate <b>aspect</b></p> <p>(N, NE, E, SE, etc)</p> <div style="border: 1px solid black; width: 150px; height: 40px; margin-left: 100px;"></div> </div> <div style="background-color: #cccccc; padding: 5px;"> <p><b>2</b> Surveyor's estimate of size of poppy field</p> <div style="display: flex; align-items: center; margin-left: 100px;"> <div style="border: 1px solid black; width: 60px; height: 40px; margin-right: 10px;"></div> <span>Jerib</span> </div> </div>	<div style="background-color: #cccccc; padding: 5px; margin-bottom: 5px;"><b>3 Fresh opium yield on that field:</b></div> <div style="margin-bottom: 5px;"> <p><b>3</b> Farmer's Estimate</p> <div style="display: flex; align-items: center; margin-left: 100px;"> <div style="border: 1px solid black; width: 80px; height: 40px; margin-right: 10px;"></div> <span>kg/field</span> </div> </div> <div style="background-color: #cccccc; padding: 5px; margin-bottom: 5px;"><b>4 Local name of poppy variety</b></div> <div style="margin-bottom: 5px;"> <p><b>4</b></p> <p><input type="checkbox"/> Watani Soorgulai</p> <p><input type="checkbox"/> Watani Spingulai</p> <p><input type="checkbox"/> Bahrami Baragai</p> <p><input type="checkbox"/> Bahrami Soorgulai</p> <p><input type="checkbox"/> Unknown</p> </div>
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Other (specify)

**5 Flower petal colour**

White    Red    Pink    Purple

*Bi-coloured. If bi-coloured:*

*Colour on top of petal*

*Colour on bottom of petal*

**6 Flower petal margin**



Entire



Fringed

Other (draw)

**7 Source of irrigation**

None (i.e. rain-fed)

Natural springs / karez

Streams / canal

Other (specify)

Were **herbicides** used on field?

**8**

No    Go To Question **9**

Yes    Specify type (if known)

Were **fungicides** used on field?

**9**

No    Go To Question

Yes    Specify type (if known)

Were **insecticides** used on field?

**10**

No    Go To Question **11**

Yes    Specify type (if known)

Was **fertilizer** used on field?

**11**

No    Go To Question **15**

Yes    Go To Question **12**

Was **animal manure** used on field?

**12**

No    Go To Question **13**

Yes

**18 Damage to poppy field**

None /		Flood /	
Drought / <input type="checkbox"/> 3		Salinity / <input type="checkbox"/> 5	
Frost /		Fungal disease /	
Pest /		Root worms /	
Other (specify):			
How much of the field was damaged (%)?			

Was **UREA** used on field?

**13**

- No    Go To Question 14
- Yes

Was **DAP** used on field?

**14**

- No    Go To Question 15
- Yes

**15 Previous crop** on field (before poppy)

**15**

- None/Fallow
- Popp                       Wheat
- Maize                       Rice
- Other (specify)

Typical number of **lancing** per capsule

**17**

Number of lancing

Number of **visits** for lancing to the field

**19**

Number of visits

**20 Harvest conditions**

- No problems
- Labour shortage
- Harvest rushed (e.g., fear of eradication)
- Heat wave / high temperatures
- Rain during harvest
- Other (specify)

**Weather** conditions during poppy harvest

21

Good

Typical

Poor

**MATURE CAPSULE MEASUREMENT**

PLOT POSITION				PLOT POSITION 2				PLOT POSITION 3			
Total number of:				Total number of:				Total number of:			
Poppy Plants				Poppy Plants				Poppy Plants			
Flowers (F)		Number of F expected to contribute to yield		Flowers (F)		Number of F expected to contribute to yield		Flowers (F)		Number of F expected to contribute to yield	
Flower Buds (FB)		Number of FB expected to contribute to yield		Flower Buds (FB)		Number of FB expected to contribute to yield		Flower Buds (FB)		Number of FB expected to contribute to yield	
Immature Capsules (CI)		Number of CI expected to contribute to		Immature Capsules (CI)		Number of CI expected to contribute to		Immature Capsules (CI)		Number of CI expected to contribute to	
Lanced & Yielding Capsules (CM)				Lanced & Yielding Capsules (CM)				Lanced & Yielding Capsules (CM)			
Lanced & Dried Capsules				Lanced & Dried Capsules				Lanced & Dried Capsules			

Mature Capsules measured	Capsule height (mm)	Capsule diameter (mm)	Mature Capsules measured	Capsule height (mm)	Capsule diameter (mm)	Mature Capsules measured	Capsule height (mm)	Capsule diameter (mm)
Capsule 1			Capsule 1			Capsule 1		
Capsule 2			Capsule 2			Capsule 2		
Capsule 3			Capsule 3			Capsule 3		
Capsule 4			Capsule 4			Capsule 4		
Capsule 5			Capsule 5			Capsule 5		
Capsule 6			Capsule 6			Capsule 6		
Capsule 7			Capsule 7			Capsule 7		
Capsule 8			Capsule 8			Capsule 8		
Capsule 9			Capsule 9			Capsule 9		
Capsule 10			Capsule 10			Capsule 10		
Capsule 11			Capsule 11			Capsule 11		
Capsule 12			Capsule 12			Capsule 12		
Capsule 13			Capsule 13			Capsule 13		



**INFORMATION TO BE COLLECTED FROM FIELD- YIELD EXPERIMENT**

Method Development				
Surveyor		Province		District
Village				
Harvest Start (MM/DD/YY)		Harvest End (MM/DD/YY)		

<b>TABLE 1: RECORDING OF WEIGHT of opium gum in 50-100m<sup>2</sup> plot</b>				
<i>Note: Follow weighing procedure outlined in chapter "Procedure for weighing opium gum".</i>				
<i>(Procedure A)</i>				
Field ID:		<i>Record weight to the second decimal, i.e.: 0.00g</i>		
Weight of Empty Pot				
Field Visit	Date (MM/DD/YY)	Time of Gum Collection	Weather condition	Total Weight of Opium Gum and Pot
Visit 1	/ /			
Visit 2	/ /			
Visit 3	/ /			
Visit 4	/ /			
Visit 5	/ /			
Visit 6	/ /			
Visit 7	/ /			
Visit 8	/ /			
Visit 9	/ /			
	/ /			

	/ /			
	/ /			
	/ /			
	/ /			

SIZE OF PLOT : LENGTH ( M ) WIDTH ( M )

<b>TABLE 2: RECORDING OF <u>EXACT FRESH</u> and <u>AIR-DRIED WEIGHT</u> of TWO samples of opium gum from each field (approximately 3 grams)</b>				
<i>Note: Follow weighing procedure outlined in chapter "Procedure for weighing opium gum" (Procedure B)</i>				
Field ID:		<b>Record weight to the third decimal, i.e.: 0.000g</b>		
Date (MM/DD/YY)	ID of Plastic Bottle	Weight of Empty Plastic Bottle	Gross Weight of FRESH Opium Gum + Plastic Bottle	Gross Weight of AIR-DRIED Opium Gum + Plastic Bottle
/ /				
/ /				
<b>Description of BALANCE</b>				
Brand:				

Capacity of Balance:		grams (g)	Precision of Balance:		grams (g)
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Please take a photo of every step of weighing as shown in the example of the photos below



**Weight of Empty Plastic Bottle**



**Gross Weight of FRESH Opium Gum + Plastic Bottle**



**Gross Weight of AIR-DRIED Opium Gum + Plastic Bottle**