

**付属資料 B**

**パイロットプロジェクトの作成物**

Output of the 10 Pilot Projects

## 付属資料 B : パイロットプロジェクトの作成物

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B-1 "携帯電話SMSと価格掲示板による価格情報サービス"  
業務マニュアル  
Work Manual for "AMIS with SMS and bulletin boards"

2011

Ver. 0.1

BOMC & JICA

**AMIS Manual**  
**With**  
**SMS & Bulletin Board**  
**Ginger AMIS**

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## Work manual for AMIS with SMS and bulletin board

### 1. Introduction

Implementing AMIS study on ginger, before going to more infrastructure requiring systems BOMC regional and wereda experts and JICA study team have agreed to use simple mail service and bulletin board.

SMS is cheap and common service that is available with mobile phone services, on top of that SMS is simple to use. Combining SMS and bulletin board for transmission and dissemination is somewhat user friendly way of approach.

This work manual provides instruction about how to carry out AMIS work step by step. Data collecting experts have to work based on the manual.

### 2. Data collection

- Collect price of four forms of product 1.fresh, 2. Dried winnow, 3. Dried un winnow, 4.washed and dried.
- Collect price of large product buying price

Market places and market-day for data collection

wereda	Market place	Market day						
		Mon	Tue	Wed	Thu	Fri	Sat	Sun
Boloso Sore	Areka		✓		✓			
Boloso Bombe	Old				✓			
	new	✓						
Kindo Koisha	Belie				✓			
Hadero Tunto	Hadero			✓			✓	
Tembaro	Mudula	✓			✓			

1. Data collection should be made during market pick time.
2. Observe market transaction, if not possible interview can be used.
3. While attempting to collect price information, attention should be given to farmers with larger volume of ginger.
4. Price data should be collected from accomplished transaction.
5. For each product form of ginger three price data should be collected from three different transactions and you should calculate average of collected prices.
6. Data collection sheet to be used in market place annexed as data collection sheet.

N.B: The process of data collection should be made attractive in order to achieve the intended market price data.

### 3. Transmission

1. Transmission of calculated average price should be done using mobile text message (simple mail service (SMS))
2. Transmission should be made to other four project weredas and region expert phone number. Phone numbers are shown in annex 4.
3. Transmission should be made immediately after collection
4. Text message should contain market center, day, type and price. Text message is written as shown below.

### 4. How to make SMS

<u>Market center</u>		<u>Day</u>		<u>Type</u>	
<u>Name</u>	<u>Code</u>	<u>Name</u>	<u>Code</u>	<u>Name</u>	<u>Code</u>
Boloso bombe	Bb	Monday	Mo	Fresh	1
Boloso sore	Bs	Tuesday	Tu	Dried winnow	2
Kido koisha	Kk	Wednesday	We	Dried un winnow	3
Hadero tunto	Ht	Thursday	Th	Wash and dried	4
Timbaro	Te	Friday	Fr		
		Saturday	Sa		

For example market price from boloso bombe collected in Monday's market, containing price of all marketable form should be sent as follows

**Bb, m, 1 300, 2 340, 3 500, 4 550**

1. Final message should appear as follows Bb, m, 1 300, 2 340, 3 500, 4 550
2. Go to your phone and create new message
3. Type the message as it appears. different part of message should be separated by comma,
4. Send message for annexed phone numbers.
5. If price is not available for any product form, write np instead of price. For example if price is available only for dried un winnow Bb,m,1 np, 2 np, 3 450, 4 np

### 5.Receiving and posting

1. Post the received price information as soon as possible.
2. Letters and figures should be readable and visible.
3. Use a data posting format is annexed as information posting format.

### 6.Information storing and work record

1. All collected and received data should be recorded in information storing and work recording sheet shown in annex 3
2. problem faced should be recorded in the sheet.
3. Information filing and work recording format is annexed as information storing and work recording sheet.

### 7.Others

- ✓ For the propose of message transmission and communication wereda experts will have twenty five birr mobile card per month.
- ✓ Periodic summary and print out will be conducted at regional level and disseminated to weredas and other governmental structures.

### Contact address

- ❖ Do not send sms to this number

	Wereda	City	Expert		
			Name	position	Mob phone
1	Boloso sore	Areka	Abebe Abera	MIS expert	0916073736
2	Boloso bombe	Bombe	Yesuf Bayu	Market linkage	0913906165
3	Kindo koisha	Belie	Giday Berhe	P. Coordinator	0910126770
4	Hadero tunto	Hadero	Alamrew Habibo	Market linkage	0910981022
5	Timbaro	Mudula	Nega Matios	P. Coordinator	0916027951

## Annex 1

## Data collection sheet

Ginger market price collection sheet for AMIS pilot project					
Wereda/City _____		Market Day _____		Date _____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh				
2	Dried winnow				
3	Dried un winnow				
4	Wash & dried				



Annex2

Information posting format

Wereda name _____		Date from ____ to ____	
Day _____		Day _____	
Fresh-----		Fresh-----	
Dried winnow----		Dried winnow-----	
Dried un winnow-		Dried un winnow----	
Wash & dried-----		Wash & dried -----	

Annex 3

Information storing and work recording sheet

<u>Amis ginger price filing format</u> Date from _____ to _____								
Week	Market center	Market Day	Type				Receiving	
			Fresh	Dried winnow	Dried un winnow	Wash & dried	Time	Date
Date	Bolosobombe	Monday						
		Thursday						
	Bolososore	Thursday						
		Thursday						
	Kindokoisha	Thursday						
	Haderotunto	Wednesday						
		Saturday						
	Timbaro	Monday						
		Thursday						
Problem seen _____								
_____								
_____								
_____								

## Annex 4

## Phone number to send sms

	Wereda	City	Mob phone
1	Boloso sore	Areka	
2	Boloso bombe	Bombe	
3	Kindo koisha	Belie	
4	Hadero tunto	Hadero	
5	Timbaro	Mudula	
6	BoMC	Hawassa	

Form : Ginger market price collection sheet for AMIS pilot project

Week 1 Ginger market price collection sheet for AMIS pilot project					
Wereda/City _____		Market Day _____		Date _____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh				
2	Dried winnow				
3	Dried un winnow				
4	Wash & dried				

Week 2 Ginger market price collection sheet for AMIS pilot project					
Wereda/City _____		Market Day _____		Date _____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh				
2	Dried winnow				
3	Dried un winnow				
4	Wash & dried				

Week 3 Ginger market price collection sheet for AMIS pilot project					
Wereda/City _____		Market Day _____		Date _____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh				
2	Dried winnow				
3	Dried un winnow				
4	Wash & dried				

Week 4 Ginger market price collection sheet for AMIS pilot project					
Wereda/City _____		Market Day _____		Date _____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh				
2	Dried winnow				
3	Dried un winnow				
4	Wash & dried				

Form : Amis ginger price filing format

Amis ginger price filing format								
Date from _____ to _____								
Week	Market center	Market Day	Type				Receiving	
			Fresh	Dried winnow	Dried un winnow	Wash & dried	Time	Date
Date	Boloso bombe	Monday						
		Thursday						
	Boloso sore	Thursday						
		Thursday						
	Kindo koisha	Thursday						
	Hadero tunto	Wednesday						
		Saturday						
Timbaro	Monday							
	Thursday							
Problem seen _____								
_____								
_____								
_____								

Amis ginger price filing format								
Date from _____ to _____								
Week	Market center	Market Day	Type				Receiving	
			Fresh	Dried winnow	Dried un winnow	Wash & dried	Time	Date
Date	Boloso bombe	Monday						
		Thursday						
	Boloso sore	Thursday						
		Thursday						
	Kindo koisha	Thursday						
	Hadero tunto	Wednesday						
		Saturday						
Timbaro	Monday							
	Thursday							
Problem seen _____								
_____								
_____								
_____								

ቁጥር / ዕለት

ገጽ / ም

የጠረጴጫ

የገንዘብ ክፍያ ለማግኘት የሚያስፈልጉት

ተ/ቁ	የገንዘብ ክፍያ ስያሜ	ጠቅላይ	የገንዘብ ክፍያ	
			ብር	ሳንቲም
1	ገንዘብ ለማግኘት	ፊ.ፈ.ሳ. ( — ኪ.ግ)		
2	ደንበኞች ለማግኘት	ፊ.ፈ.ሳ. ( — ኪ.ግ)		
3	ደንበኞች ለማግኘት	ፊ.ፈ.ሳ. ( — ኪ.ግ)		
4	ገንዘብ ለማግኘት	ፊ.ፈ.ሳ. ( — ኪ.ግ)		

2011

Ver. 0.1

BOMC & JICA

**AMIS Manual**

**With**

**SMS & Bulletin Board**

**Haricot Bean AMIS**

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## Work manual for AMIS with SMS and bulletin board

### 1. Introduction

Implementing AMIS study on haricot bean, before going to more infrastructure requiring systems BOMC regional and wereda experts and JICA study team have agreed to use simple mail service and bulletin board.

SMS is cheap and common service that is available with mobile phone services, on top of that SMS is simple to use. Combining SMS and bulletin board for transmission and dissemination is somewhat user friendly way of approach.

This work manual provides instruction about how to carry out AMIS work step by step. Data collecting experts have to work based on the manual.

### 2. Data collection

- Collect price of six forms of product 1.fresh red, 2. Dried red, 3. Fresh white 4. Dried white, 5 fresh spotted, 6 dried spotted.
- Collect price of large product buying price

Market places and market-day for data collection

Woreda	Market Place	Market day						
		Mon	Tue	Wed	Thu	Fri	Sat	Sun
East Badawacho	Shone		X			x		
West Badawacho	Danema		X				x	
Damot Gale	Boditi		X				x	
Sodo Zuria	Gulgula			x			x	
Halaba	Kulito				x			
Boricha	Belila		X					
Loka Abaya	Hantate	Every 5 Days						
Amaro	djjjola						x	
Burji	Soyema		X				x	

1. Data collection should be made during market pick time.
2. Observe market transaction, if not possible interview can be used.

3. While attempting to collect price information, attention should be given to farmers with larger volume of haricot been.
4. Price data should be collected from accomplished transaction.
5. For each product form of haricot been three price data.
6. Should be collected from three different transactions and it should be calculate average of collected prices.
7. Data collection sheet to be used in market place annexed as data collection sheet.

N.B: The process of data collection should be made attractive in order to achieve the intended market price data.

### 3. Transmission

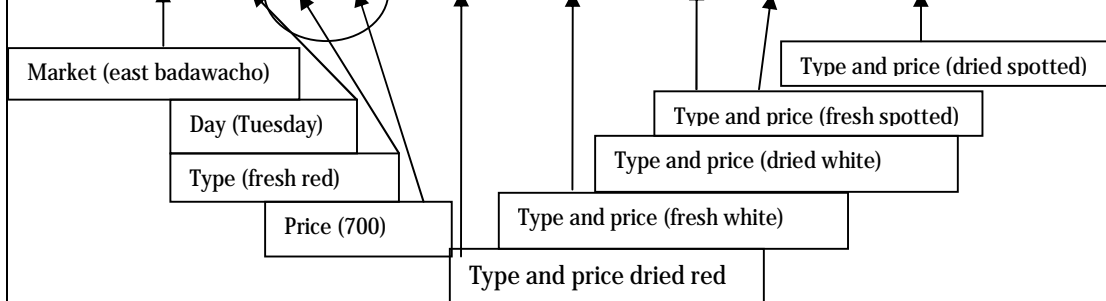
1. Transmission of calculated average price should be done using mobile text message (simple mail service (SMS))
2. Transmission should be made to other eight project weredas and region expert phone number. Phone numbers are shown in annex 4.
3. Transmission should be made immediately after collection
4. Text message should contain market center, day, type and price. Text message is written as shown below.

#### 4. How to make SMS

<u>Market center</u>		<u>Day</u>		<u>Type</u>	
<u>Name</u>	<u>Code</u>	<u>Name</u>	<u>Code</u>	<u>Name</u>	<u>Code</u>
East Badawacho	Eb	Monday	Mo	Fresh red	1
West Badawacho	Wb	Tuesday	Tu	Dried red	2
Damot Gale	Dg	Wednesday	We	Fresh white	3
Sodo Zuria	Sz	Thursday	Th	Dried white	4
Halaba	Ha	Friday	Fr	Fresh spotted	5
Boricha	Bo	Saturday	Sa	Dried spotted	6
Loka Abaya	La				
Amaro	Am				
Burji	Bu				

For example market price from east badawacho collected in Tuesday's market, containing price of all marketable form should be sent as follows

**Eb, tu, 1 700, 2 940, 3 850, 4 950, 5 600, 6 800**



1. Final message should appear as follows eb, tu, 1 700, 2 940, 3 850, 4 950, 5 600, 6 800
2. Go to your phone and create new message
3. Type the message as it appears. different part of message should be separated by comma,
4. Send message for annexed phone numbers.
5. If price is not available for any product form, write np instead of price. For example if price is available only for fresh white eb,tu,1 np, 2 np, 3 450, 4 np, 5 np, 6 np

### 5. Receiving and posting

1. Post the received price information as soon as possible.
2. Letters and figures should be readable and visible.
3. Use a data posting format is annexed as information posting format.

### 6. Information storing and work record

1. All collected and received data should be recorded in information storing and work recording sheet shown in annex 3
2. Problem faced task should be recorded in the sheet.
3. Information filing and work recording format is annexed as information storing and work recording sheet.

### 7. Others

- ✓ For propose of message transmission and communication wereda experts will have twenty five birr mobile card per month.
- ✓ Periodic summary and print out will be conducted at regional level and disseminated to weredas and other governmental structures.

Contact address

No	Contact Person	Woreda/ Organization	Position	Phone
1	Dagne Girma	Amaro	Expert-Linkage & C/P	0916636996/or 0911759990
2	Muluwork Asrat	Burji	Expert-Linkage & C/P	0916333844
3	Dagnachew Girma	Boricha	Marketing Coordinator & C/P	0916130925
4	Deneke Demise	Boricha	Belila Coop Organizer/ DA	0916033030
5	Yenenesh Mengistu	Loka Abaya	C/P	0916237790
6	Asrat Tantasa	Damot Gale	Expert- Market Information & C/P	0910288370
7	Tesfalidet W/Yohanes	Sodo Zuria	WoMC Head	0912050263
8	Usman Wako	Sodo Zuria	Expert-Market Information & C/P	0916853717
9	Samuel Thomas	East Badawacho	Expert -Market Linkage & C/P	0913996229
10	Tesema Erchafo	West Badawacho	Expert-Market C/P	0916105764
11	Netsanet Tumiso	Halaba	Marketing Coordinator & C/P	0912063740
12	Girma Tesfaye	Halaba	DA/Data Collection	0916716844
13	Mandela Girma	BoMC	PP01 Team Leader	0913206865
14	Hermela Admasu	BoMC	PP01 Sub Team Leader	0911392063
15	Yoshihiro Ban	JICA	Team Member	0920310105
16	Talemos Data	JICA	Assistant	0916825331

## Annex 1

## Data collection sheet

Haricot been market price collection sheet for AMIS pilot project					
Wereda/City_____		Market Day _____		Date _____	
No	market form	Price one	Price two	Price three	Average price
1	Fresh red				
2	Dried red				
3	Fresh white				
4	Dried white				
5	Fresh spotted				
6	Dried spotted				

Annex2

Information posting format

ቀን/ሰዓት \_\_\_\_\_ ሰዓት/ሰከንዳ \_\_\_\_\_

የጠረጴጫው \_\_\_\_\_

የአካባቢ አጠባበቅ የጠረጴጫ ሞዴል

ተ/ቁ	ጠረጴጫው አይነት	መዘኛው ስፊት	አጠባበቅ የሚያስፈልግ ሞዴል	
			ብድር	ሰዓት/ሰከንዳ
1	አጠባበቅ ቀይ	100 ኪ.ሜ		
2	ደረሰው ቀይ	100 ኪ.ሜ		
3	አጠባበቅ ነጭ	100 ኪ.ሜ		
4	ደረሰው ነጭ	100 ኪ.ሜ		
5	አጠባበቅ የሥነ-ምግባር	100 ኪ.ሜ		
6	ደረሰው የሥነ-ምግባር	100 ኪ.ሜ		

Annex 3

Information storing and work recording sheet

<u>Amis haricot been price filing format</u> Date from _____ to _____								
Market center	Market Day	Type						Receiving Date
		Fresh red	Dried red	Fresh white	Dried white	Fresh spotted	Dried spotted	
East Badawacho	Tuesday							
	Friday							
West Badawacho	Tuesday							
	Saturday							
Damot Gale	Tuesday							
	Saturday							
Sodo Zuria	Saturday							
Halaba	Tuesday							
Boricha	Tuesday							
Loka Abaya	Every five days							
Amaro	Saturday							
Burji	Tuesday							
	Saturday							
Problem seen <hr/> <hr/> <hr/> <hr/>								



## Annex 4

## Phone number to send sms

No	Woreda	Phone Number	Crop
1	West Badawacho	0959-206-723	Haricot Bean
2	Sodo Zuria	0959-206-724	
3	Amaro	0959-206-725	
4	Burji	0959-206-727	
5	East Badawacho	0926-329-881	
6	Damot Gale	0926-329-882	
7	Halaba	0926-329-883	
8	Boricha	0926-329-884	
9	Loka Abaya	0926-329-885	
10	Hadaro Tunto	0926-329-886	Ginger
11	Tembaro	0926-329-887	
12	Boloso Sore	0926-329-888	
13	Boloso Bombe	0926-329-889	
14	Kindo Koysha	0926-329-890	
15	Mandela girma	0959-206-728	bomc

Week 1 Haricot been market price collection sheet for AMIS pilot project					
Wereda/City_____		Market Day _____		Date_____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh red				
2	Dried red				
3	Fresh white				
4	Dried white				
5	Fresh spotted				
6	Dried spotted				

Week 2 Haricot been market price collection sheet for AMIS pilot project					
Wereda/City_____		Market Day _____		Date_____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh red				
2	Dried red				
3	Fresh white				
4	Dried white				
5	Fresh spotted				
6	Dried spotted				

Week 3 Haricot been market price collection sheet for AMIS pilot project					
Wereda/City_____		Market Day _____		Date_____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh red				
2	Dried red				
3	Fresh white				
4	Dried white				
5	Fresh spotted				
6	Dried spotted				

Week 4 Haricot been market price collection sheet for AMIS pilot project					
Wereda/City_____		Market Day _____		Date_____	
no	market form	Price one	Price two	Price three	Average price
1	Fresh red				
2	Dried red				
3	Fresh white				
4	Dried white				
5	Fresh spotted				
6	Dried spotted				

Amis haricot been price filing format									
Date from _____ to _____									
Market center	Market Day	Type						Receiving Date	
		Fresh red	Dried red	Fresh white	Dried white	Fresh	Dried		
East Badawacho	Tuesday								
	Friday								
West Badawacho	Tuesday								
	Saturday								
Damot Gale	Tuesday								
	Saturday								
Sodo Zuria	Saturday								
Halaba	Tuesday								
Boricha	Tuesday								
Loka Abaya	Every five days								
Amaro	Saturday								
Burji	Tuesday								
	Saturday								
Problem seen									

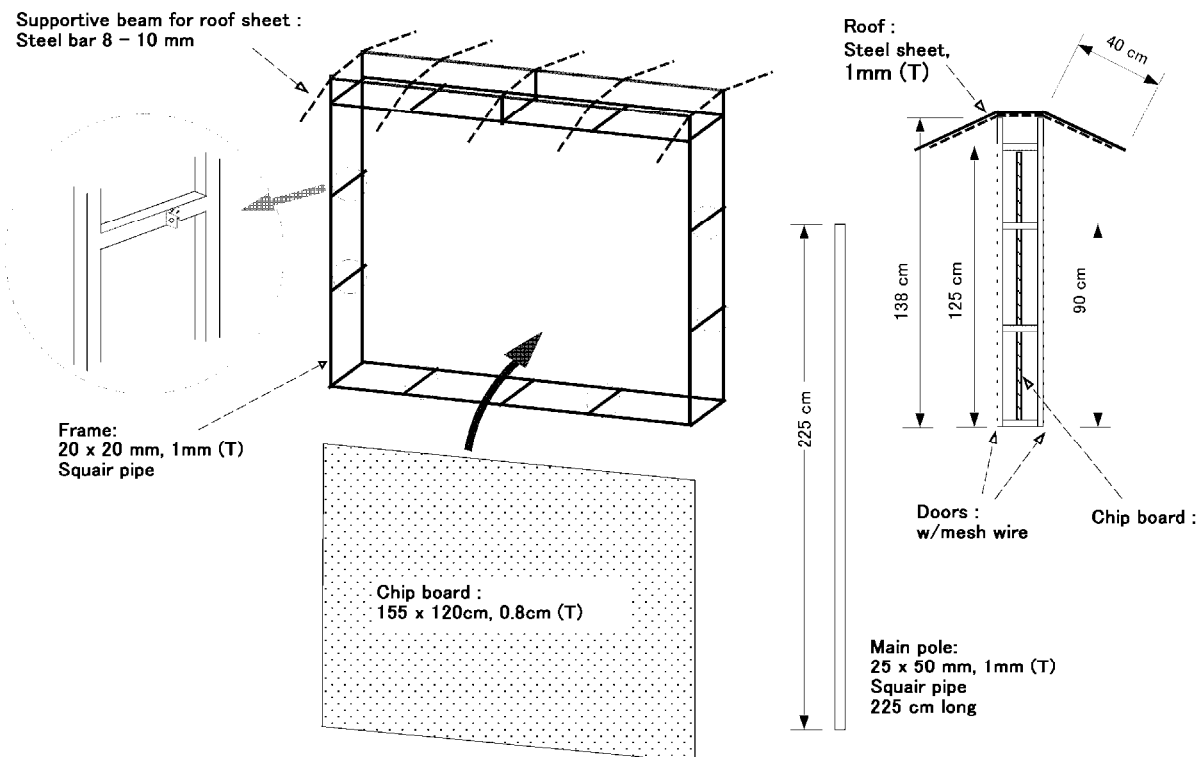
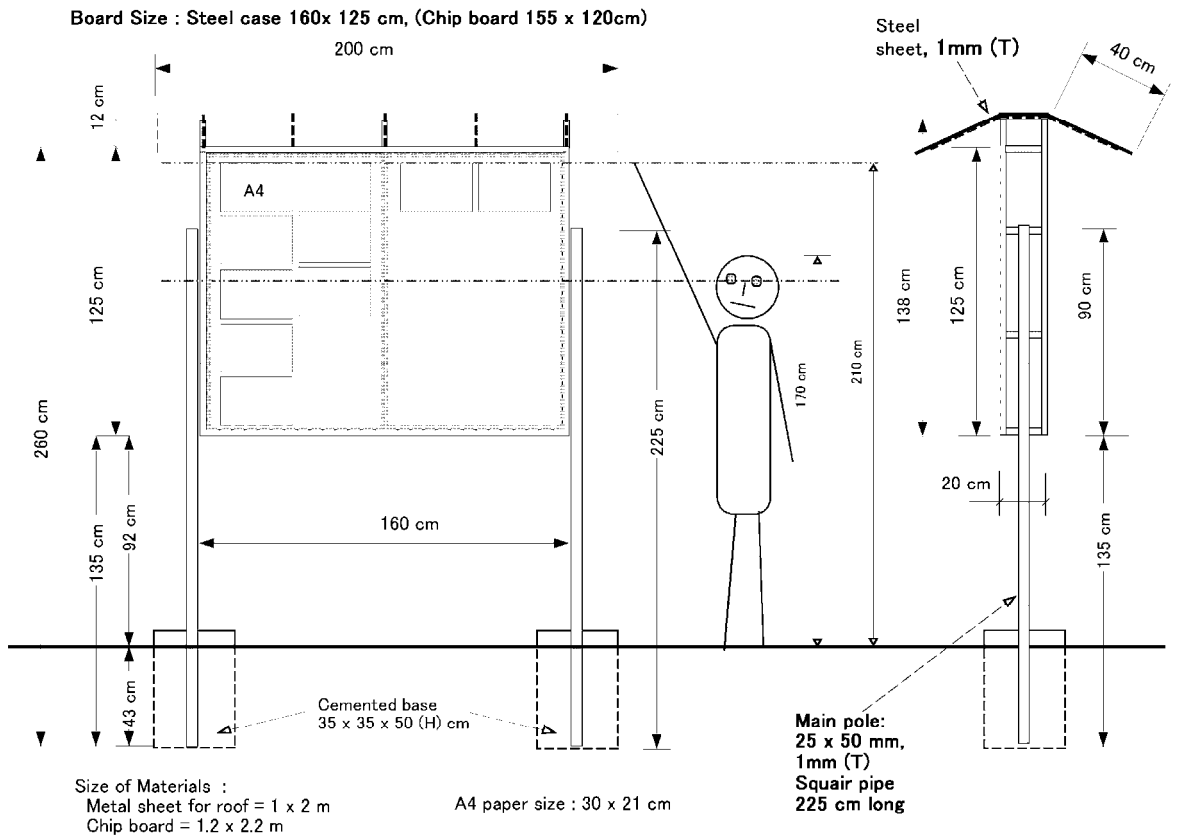
ቀን/ሰዓት \_\_\_\_\_ ሰዓት/ሰዓት \_\_\_\_\_

የጠረጴዛው \_\_\_\_\_

የጎረቤቶች ክፍያዎች የሚከተሉት ናቸው

ተ/ቁ	ጠቅላይ ገቢዎች	ጠቅላይ ገቢዎች	የጠቅላይ ገቢዎች ጠቅላይ	
			ጠቅላይ ገቢዎች	ጠቅላይ ገቢዎች
1	ጠቅላይ ገቢ	100 ኪ.ግ		
2	ጠቅላይ ገቢ	100 ኪ.ግ		
3	ጠቅላይ ገቢ	100 ኪ.ግ		
4	ጠቅላይ ገቢ	100 ኪ.ግ		
5	ጠቅላይ ገቢ	100 ኪ.ግ		
6	ጠቅላይ ገቢ	100 ኪ.ግ		


## B-2 価格揭示板図面




(Manuscript)

## QUALITY CONTROL

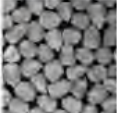
### 1. Keep "better & higher" quality




Wheat



Red Haricot Bean




Maize




Proper Warehouse

### 2. Secure the "Quality Standard"


Quality and Standards		WFP	PHD	WFP	WFP
Grading Parameter		Wt	Wt	Wt	Wt
Moisture content		13.5	14.0	13.0	14.0
Total Impurity		8	8	8	8
Total Impurity					
- Foreign Matter		5	5	5	5
- Foreign Matter		2	2	2	2
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1
- Foreign Matter		1	1	1	1



WFP Standard  
Wheat  
MC 13.5%, Impurity: 8.0%




WFP Standard  
Haricot Bean  
MC 14.0%, Impurity: 6.4%




WFP Standard  
Maize  
MC 14.0%, Impurity: 5.0%

### 3. Efficient Quality Improvement



Grain Cleaner & Maize Sheller




Portable Bag Stitching Machine


To comply with WFP Standard:

- \* Mechanical machine use
- \* Uniform & bigger batch processing
- \* Reduce post-harvest loss


### 4. Inspection




Moisture Meter



Sample Divider



Triple Beam Balance




Sieve Set


- \* Inspect at purchasing.
- \* Reject bad quality.
- \* Hygiene in warehouse
- \* Proper sampling

## የሰባል ጥራት ቁጥጥር


### 1. "ጥሩና ከጥሩ" ጥራት ያለው ዕቃ ርክር?




ጥሩ ጥራት



ጥሩ ጥራት



ጥሩ ጥራት




ጥሩ ጥራት


### 2. የጥራት ደረጃን መጠየቅ አለን?

የጥራት ደረጃ	የጥራት መጠየቂያ	የጥራት መጠየቂያ	የጥራት መጠየቂያ
ጥሩ ጥራት	13.5	14.0	14.0
ጥሩ ጥራት	8	8	8
ጥሩ ጥራት	5	5	5
ጥሩ ጥራት	2	2	2
ጥሩ ጥራት	1	1	1
ጥሩ ጥራት	1	1	1
ጥሩ ጥራት	1	1	1
ጥሩ ጥራት	1	1	1
ጥሩ ጥራት	1	1	1
ጥሩ ጥራት	1	1	1


### 3. የጥራት ደረጃን መጠየቅ ለማድረግ ለማድረግ ዕቃዎች



WFP Standard  
Wheat  
MC 13.5%, Impurity: 8.0%




WFP Standard  
Haricot Bean  
MC 14.0%, Impurity: 6.4%




WFP Standard  
Maize  
MC 14.0%, Impurity: 5.0%

### 4. ጥራት ደረጃን ለማሻሻል ለማድረግ ዕቃዎች



Grain Cleaner & Maize Sheller




Portable Bag Stitching Machine


To comply with WFP Standard:

- \* Mechanical machine use
- \* Uniform & bigger batch processing
- \* Reduce post-harvest loss


### 5. ማጠቃለያ ቁጥጥር




Moisture Meter



Sample Divider






Triple Beam Balance




Sieve Set

- \* Inspect at purchasing.
- \* Reject bad quality.
- \* Hygiene in warehouse
- \* Proper sampling






(Manuscript)


## QUALITY STANDARD White Maize




✓



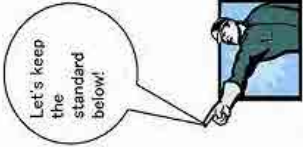
✗




Broken kernel




Contrasting color



Let's keep the standard below!



Other grains & foreign matter



Foreign matter

Grades and Standards	WFP		ECX	
	WM1	WM2	WM2	WM3
Grading Parameter of White Maize				
Moisture content %wb	13.0	13.0	13.0	13.0
Test Mass kg/hl	71.0	66.0	66.0	65.0
Total Impurities	8.0	12.0	12.0	16.0
– Broken kernel %	2.0	3.0	3.0	5.0
– Foreign matter %	0.5	1.0	1.0	1.5
– Damage %	incl.	5.0	7.0	8.0
– Other grains %	incl.	0.5	1.0	1.5
– Contrasting Color %	—	3.0	5.0	7.0

Note: WM1, WM2 and WM3 of ECX is abbreviated "White Maize Grade 1, 2 and 3."

## የጥራት ደረጃ

ገምገሞታ



✓



✗



የተሰበሩና የተጎዱ



የተለየ ቀለም



የገምገሞታ የጥራት ደረጃ አንጻራት



ባልፎ አካላትና ሌላ የዕልል ዘር



ባተባይ የተጠቃ



BOMC-SNNPR




SAMS-SNNPR


(Manuscript)

## QUALITY STANDARD


### Red Haricot (Kidney) Beans




✓



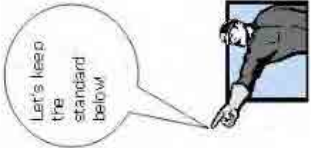
✗




Damaged kernel




Defective kernel



Let's keep the standard below!



Foreign matter




Contrasting Class

Grades and Standards		WFP	ECX
Grading Parameter of Red Kidney Bean		PRKBT	PRKBT
Moisture content	%wb	14.0	14.0
Total Impurities	%	6.4	4.0
- Defective kernel	%	3.0	3.5
- Foreign matter	%	1.4	0.5
- Damage	%	1.0	-
- Contrasting class	%	1.0	1.0


Note: PRKBT of ECX is abbreviated "Processed Red Kidney Beans Grade 1."

## የጥሬት ደረጃ


### ቀይ ባሎቅ




✓



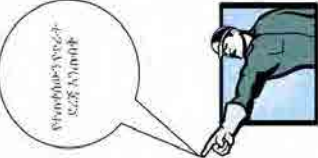
✗




የተጨማሪ ጥሬት ደረጃ አሳሳቂ




የተሰበሩና የተጎዱ



የተሰበሩና የተጎዱ ደረጃ አሳሳቂ





ባለድ አካላት



የተለየ ቀለም

የጥሬት ደረጃ		WFP	ECX
የቀይ ባሎቅ የጥሬት መስፈርቶች			የተሰበሩና የተጎዱ ደረጃ 1
የጥሬት መጠን?	% Com	14.0	14.0
አጠቃላይ ቆይታ	%	6.4	4.0
- የተሰበሩ ፍሬዎች	%	3.0	3.5
- ባለድ አካላት	%	1.4	0.5
- ጎዳት	%	1.0	-
- ሌላ የሌላ ዘር	%	1.0	1.0

BOMC-SNNPR      SAMS-SNNPR



(Manuscript)

# WAREHOUSE MANAGEMENT

 <p><b>Model Warehouse</b></p>	
 <p><b>First-in First-out</b></p>	
 <p><b>Keep access line</b></p>	 <p><b>Ventilation</b></p>
 <p><b>Keep a Record</b></p>	 <p><b>Inspection &amp; Pest Control</b></p>
 <p><b>Proper Stacking Method</b></p>	 <p><b>Sanitation</b></p>

# የመጋዘን አስተዳደር

 <p><b>ባዴል መጋዘን</b></p>	
 <p><b>የመጋዘን ስርዓት</b></p>	
 <p><b>መተላለፊያ መተው</b></p>	 <p><b>ማኑክራሽን</b></p>
 <p><b>መረጃ መያዝ</b></p>	 <p><b>ምልክትና ፀረ-ሰብል ነፍሳት ቆይታ</b></p>
 <p><b>ተገቢ የድርጅት ዘዴ መጠቀም</b></p>	 <p><b>ንጹህናት መጠበቅ</b></p>

የጥራት ቁጥጥር 3

የዕህል ጥራት ምንድነው?

- ☞ የዕህል ጥራት መስፈርት
- ☞ ገጽታ/መልክ
- ☞ የመጠንና ቀለም ወጥነት
- ☞ የአባራ መጠን

ጥራት

የጥራት ቁጥጥር 4


- \* የጥራት ምንድነው?
- \* ጥራት ማሻሻል ምንድነው? : የክብደት መቀነስ?
- \* የጥራት ሥራ: "ከፍተኛ ጥራት = ከፍተኛ ዋጋ"
- \* የተሻለ ጥራት እንዴት ይታወቃል?

ጥራት


የጥራት ቁጥጥር 1

**የጥራት ቁጥጥር**  
**Quality Control**

ጃይካ ጥናት ቡድን  
**SAMS-SNNPR**  
ህዳር 2004  
**December, 2011**



BoMC - SNNPR



SAMS - SNNPR

የጥራት ቁጥጥር 2

የጥራት ቁጥጥር ምንድነው?

1. ወጥ የሆነ ጥራት
2. የጥራት ጉዳላት መከላከል
3. ደረጃ ማሻሻልና ጥራት መጨመር
4. ባዕድ አካላትን በማስወገድ ለገበያ ማቅረብ
5. በተገቢው ደረጃ በፀሃይ ማድረቅ (13.5-14% C.መ.)
6. የተባይ ቁጥጥር ማካሄድ
7. ተገቢውን የመጋዘን አስተዳደር ስርዓት መከተል

- የጥራት ደረጃ
- የጥራት መጻደል
- ጥራት ማጣት
- የጥራት ፍላጎት
- ጥራት ማሻሻል
- የጥራት ግምገማ

**የጥራት ቃላት**

- የዕህል አይነት
  - የምርት አዲስነት/የምርት ዘመን
  - የርጥበት መጠን
  - የተጎዳ፣ የነቀዘና የተሰበረ ፍሬ
  - ጉድለት ያለበት ፍሬ
  - ባዕድ አካላት (የአረም ዘርን ጨምሮ)
  - ሕይወት ያለው ተባይ
- የጥራት መስፈርት**

**የጥራት ደረጃ (የዓለም ምግብ ፕሮግራም መስፈርት)**

የዕህል ዓይነት	ስንዴ		ቦቆሎ		ባሎቆ		ማሽለ	
	ደረጃ 1	የዘመት	ደረጃ 1	የዘመት	ደረጃ 1	የዘመት	ደረጃ 1	የዘመት
ደረጃ								
የምርት ዘመን								
የርጥበት መጠን	13.5 % ከፍተኛ		13.5 % ከፍተኛ		14.0 % ከፍተኛ		13.5 % ከፍተኛ	
ጎዳና ያለበት ፍሬ	2.8 % ከፍተኛ		5.5 % ከፍተኛ		4.0 % ከፍተኛ		5.5 % ከፍተኛ	
የተሰበሰበ, የተጨማሪ፣ በነቀዘ የተጠቃና የተሰበሰበ	3.2 % ከፍተኛ		2.5 % ከፍተኛ		1.0 % ከፍተኛ		2.5 % ከፍተኛ	
ባዕድ አካላት (የአረም ዘርን ጨምሮ)	1.0 % ከፍተኛ		—		1.4 % ከፍተኛ		—	
የተለየ መልክ ያለው								
ሕይወት ያለው ተባይ (ነቀዘ)	ምንም		ምንም		ምንም		ምንም	
አጠቃላይ ባዕድ አካላት	6.0 % ከፍተኛ		8.0 % ከፍተኛ		6.4 % ከፍተኛ		8.0 % ከፍተኛ	
ጎዳና ያለበት ፍሬ	94.0 % ከፍተኛ		92.0 % ከፍተኛ		93.6 % ከፍተኛ		92.0 % ከፍተኛ	

**የጥራት ደረጃ**

**\* የብርዕና የአገዳ ሰብሎች የጥራት ደረጃ ምንድነው?**

የአለም ምግብ ፕሮግራም የጥራት መስፈርት

- የሰብል አይነት: ስንዴ፣ ቦቆሎ፣ ባሎቆና ማሽለ
- በሰብል አይነት ይለያያል
- ምንም በህይወት ያለ ተባይ ተቀባይነት የለውም

### የጥራት ደረጃ ማለት ምንድነው?

### የዕህል ጥራት ደረጃዎች (በኢትዮጵያ)

### ደረጃ ማለት ምንድነው?

#### ደረጃ ስንገልጽ

በጋራ መስማማት የተወሰነና ሕጋዊ እውቅና ባለው አካል የፀደቀ መረጃ ነው።

#### ፍላጎት ስንገልጽ

በመረጃ ውስጥ የተገለጸ መሟላት ያለበት የጥራት መስፈርት ነው።

### የዕህል ጥራት ደረጃዎች (በኢትዮጵያ)

- የአለም ምግብ ፕሮግራም ደረጃ (WFP Standard )
- የኢትዮጵያ ምርት ገበያ ደረጃ (ECX Standard )
- የኢትዮጵያ ደረጃ (Ethiopian Standard (ES)
- የኢትዮጵያ ዕህል ግብዓት ኢንተርፕራይዝ ደረጃ (EGTE Standard)
- ዓለም ዓቀፍ ደረጃ (International Standard)
- የውጭ ግብዓት ደረጃ (Export Standard (?))

የእርጥበት መጠን

የርጥበት መጠን በርጥብ ክብደት መስፈርት (on a wet weight basis) አግባብ ባለው የርጥበት መጠን መሰረድ መሳሪያ የኢትዮጵያ የጥራትና ደረጃ ባለስልጣንን በሚያዘው ዘዴ መለካት አለበት።



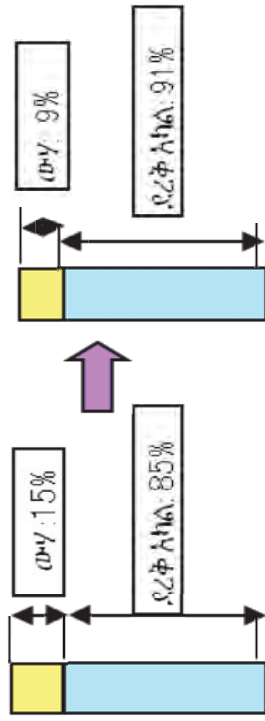
$$C_{\text{መ}} (\text{በርጥብ ዘዴ}) = \frac{C_{\text{ከ-ደ.ከ}}}{C_{\text{ከ}}} \times 100$$

C.ከ ስንል ርጥብ ክብደት  
 ደ.ከ ስንል ደረቅ ክብደት  
 C.መ ስንል የርጥበት መጠን በመቶኛ

የእርጥበት መጠን ምንድነው?

\* የእርጥበት መጠን መሰረድ እንዴት እንጠቀማለን ?

\* የርጥበት መጠን በመቶኛ



$$1,000\text{ኩላ} \times (100-15) / 100 = X \times (100-9) / 100$$

$$\therefore X = 1000 \times 85 / 91 = 934\text{ኩላ} \text{ (-66ኩላ)}$$

**የጥራት ደረጃ**

የጥራት ደረጃ ✓

የጥራት ደረጃ ✗

የጥራት ደረጃ

የጥራት ደረጃ ✗

የጥራት ደረጃ	የጥራት ደረጃ	WFP	ECX
የጥራት ደረጃ	የጥራት ደረጃ	14.0	14.0
የጥራት ደረጃ	የጥራት ደረጃ	8.4	4.0
የጥራት ደረጃ	የጥራት ደረጃ	2.0	3.5
የጥራት ደረጃ	የጥራት ደረጃ	1.4	0.5
የጥራት ደረጃ	የጥራት ደረጃ	1.0	—
የጥራት ደረጃ	የጥራት ደረጃ	1.0	1.2

የጥራት ደረጃ ለምን ያስፈልጋል?

የጥራት ደረጃ ለምን ያስፈልጋል?

- ጥራት ተኮር ግብይት ለምሳሌ ECX, WFP, አለም አቀፍ ጨረታ የመሳሰሉት
- የጎዥዎች የጥራት ፍላጎት የተለያየ ነው
- የጨረታ ግምገማ የሚካሄደው በሰለጠኑ ባለሙያዎች ነው
- የሰብል ጥራት ደረጃ የሚመዘኑ በተቀመጠው መስፈርት ነው
- በጨረታ ለመሳተፍ የጥራት ደረጃውን መማላት ግዴታ ነው

X (የወደቀ)



✓ (ያለፈ)



ጥራትን እንዴት እናሟላለን?



የዕህል ጥራትና የተባይ ጥቃት ግምገማ እንዴት እናደርጋለን?

ጥራትን እንዴት እናሟላለን?

1. የአህሉን ናሙና መውሰድ
2. በተቀመጠው መስፈርት መሰረት የጥራት ግምገማ መካሄድ
3. የናሙናውን የጥራት ደረጃ ማወቅ
4. በድርድሩ ላይ አሁን ያለውን ደረጃ የሚገልጽ ካርድ ማያያዝ
5. የጥራቱን መስፈርት ከላሟላ የማጣራትና ማበጠር ስራ ማካሄድ
6. የተበጠረውን እንደገና መገምገም
7. የጥራት ደረጃውን ሲያሟላ ለብቻ መደርደር

የዕህል ጥራትና የተባይ ጥቃት ግምገማ እንዴት እናደርጋለን?

- የዕህል ጥራት ግምገማ ማድረግ
- የተባይ ጥቃት ግምገማ ማድረግ
- ሁልጊዜ የተባይ ጥቃት ጉዳት መኖሩን ማየት
- ተገቢ የተባይ መከላከል ስራ መቼ እንደሚደረግ ማወቅ
- በባትሪ በመጠቀም ጨለማ ጥገትን በደንብ መከታተል
- በቀረጢት መሃል ባለ ክፍተት ተባይ፣ቡናኝ መኖሩን መከታተል



የጥራት ግምገማ ማካሄጃ መሳሪያዎች

- ርጥብት መለኪያ
- ናሙና ማካፊያ
- ባለ ሰስት ዘንግ ሚዛን
- ወንጌት
- ናሙና መውሰጃ ጦር

የጥራት ግምገማ ማካሄጃ መሳሪያዎች

- ርጥብት መለኪያ
- ናሙና ማካፊያ
- ባለ ሰስት ዘንግ ሚዛን
- ወንጌት
- ናሙና መውሰጃ ጦር



የድህረ-ምርት መሳሪያዎች

የድህረ-ምርት መሳሪያዎች

- ሁለገብ መውቂያ
  - ዕህል ማበጠሪያ
  - ዕህል ማናፈሻ
  - ተናቀሳቃሽ ቀረጢት መስፊያ
- \* የድህረ-ምርት መሳሪያዎች ጠቀሜታ
- ውጤታማና ወጥ የሆነ የጥራት ደረጃ እንዲኖረን ያስችላሉ

		
የርጥበት መጠን (13.5%)	የተጎዳና የተሰበረ (5.5%)	ባሕድ አካላት (2.5%)
		
ንግር ያለበት ፍሬ (4.0%)	የተለየ መልክ(1.0%)	በህይወት ያለ ተባይ (ምንም)
		
አጠቃላይ ቆሻሻ (8.0%)	ንጹህ ፍሬ(92.0% ለበቆሎ)	ንጹህ ፍሬ(93.6% ለበሎቆ)

"ከፍተኛ ባዕድ አካላት 8%" ስንል ምን ማለት ነው?

\* "ከፍተኛ ባዕድ አካላት 8%" ስንል ምን ማለት ነው?

- የበቆሎ ወይም በሎቆን ጥራት እንመልከት

\* የተሻለ የገበያ ዋጋ ለማግኘት

\* የሽማቹን ፍላጎት ለማሟላት



የጥራት ደረጃን መጠበቅ ለምን ይጠቅማል?

\* "ከፍተኛ ባዕድ አካላት 8%" ስንል ምን ማለት ነው?

- የበቆሎ ወይም በሎቆን ጥራት እንመልከት

የጥራት ደረጃ አጠባበቅን እንዴት ማሻሻል እንችላለን?

- ባዕድ አካላትን መስፈርቱ በሚጠይቀው መስረት በማጣራት
- እስከሚፈለገው ደረጃ በማድረቅ (ከሚፈለገው በላይ ማድረቅ ከሲራ ያስከትላል)
- የተባይ ቁጥጥር እንደአስፈላጊነቱ በማድረግ
- በሚቻለው መንገድ ሁሉ የተባይ ቁጥጥር በማድረግ
- ከጎጂ የባዕድ አካላት ብክለት በመከላከል
- ከግብርና ኬሚካል ቅሪት ጎክኪ በመጠበቅ
- ለምግብ ዕህሎች አስፈላጊውን የደህንነት ጥበቃ በማድረግ



ድህረ-ምርት ብክነትን እንዴት መቀነስ ይቻላል?

ድህረ-ምርት ብክነትን እንዴት መቀነስ ይቻላል?

- ተገቢውን የመጋዘን አስተዳደር ስርአት በመጠቀም
- ወቅታዊ የተባይ ክትትል በማድረግ
- ተገቢ የተባይ ቁጥጥር  
(ኑሴት-ቆርጣሚዎች፣ ወጪች፣ ፈንገስና ባይን የማይታዩ ተዋሽያኝ)
- ሰነድን መፈክሮች አገርሳ፤  
☞ ማናፈስ፣ መከታተል እና ንጽህና
- በከምችት ወቅት የሚደርስ የጥራት መጓደልን እናስወግድ
- ከድህረ-ምርት ብክነት እንከላከል

መጋዘን አስተዳደር-3

# ማናፈሰ

## መከታተልና መቆጣጠር

### ንፅሕና

መጋዘን አስተዳደር-4

## የመጋዘን አስተዳደር ዋና መፈክር

- \* በመጋዘን አስተዳደር እጅግ ጠቃሚ የሆኑ ጉዳዮችን መዘንጋት የለብንም።
- \* ሰዓት መፈክሮች: 1. ማናፈሰ 2. መከታተል 3. ንፅሕና
- \* የድህረ-ምርት ብክነትን በተገቢ የመጋዘን ስራ አመራር መቀነስ ይቻላል።
- \* እንደ FAO መረጃ የድህረ-ምርት ብክነት በኢትዮጵያ ወደ 30% ይደርሳል።
- \* ያለ አግባብ በማከማቸት የሚደርስ የምርት ጥራት ጉዳዮችን እንከላከል።
- \* የምግብ መመረዝን እንከላከል።

መጋዘን አስተዳደር-1

## የመጋዘን አስተዳደር

# Warehouse Management

ጃፓን ጥናት ቡድን

SAMS-SNNPR

ህዳር 2004

December, 2011



BoMC - SNNPR



SAMS - SNNPR

መጋዘን አስተዳደር-2

## ተገቢ የመጋዘን ሥራ አመራር

- \* የመጋዘን ሥራ አመራር ምንድነው?
- \* ለተገቢ የመጋዘን ሥራ አመራር ቁልፍ ተግባራት ምን ምን ናቸው?
- \* በJICA የጥናት ቡድንና WFP/P4P ትብብር የተዘጋጁ ፖስተሮች
- \* የአንጋጫ ገበሬዎች ህብረት ስራ ዩኒቶን ሞዴል መጋዘን



### 1. ማናፈሰ ጠቃሚ ነው። ለምን?

- \* ደረቅና መጥፎ ሽታ የሌለው አየር እንዲኖር ማድረግ
- \* ቀዝቃዛና ጎጶሕ ሁኔታ እንዲኖር ማመቻቸት
- \* በከፍተኛ ወቅት ከፈንገስና ሌሎች ባይን ማይታዩ ተሃዋሲያን መጠበቅ
- \* በመጋዘን ተባይ እንዳይጠቃ መከላከል
- \* ከከፍተኛ ሙቀት መጠበቅ:
  - ከፍተኛ ሙቀት ለነፍሳት መራባት ምቹ ሁኔታን የፈጥራል
  - 15°C በታች የሙቀት መጠን ለነፍሳት መራባት ምቹ አይደለም
- \* ከከፍተኛ የርጥበት መጠን መጠን መጠበቅ፤
  - ከፍተኛ የርጥበት መጠን ለፈንገስ ምቹ ነው
- \* ከመጠፎ ሽታ መጠበቅ፤
  - መጥፎ ሽታ በመጋዘንና በከፈጢት ውስጥ በፍጥነት ይሰራጫል
- \* ከፀረ-ተባይ ኬሚካሎችና ማዳቦሪያ ብክለት መጠበቅ

### ክትትል፤

- \* የጥራት ክትትል
- \* የመጋዘን ተባይ ክትትል
- \* የመጋዘን ተባይ ጉዳት ክትትል
- \* የመጋዘን ተባይ ቁጥጥር ጊዜ ሰሌዳ ምዘና
- \* በቂ ብርሃን (የእጅ ባትሪ) በመጠቀም የድርድር ምልክታ ማካሄድ
- \* በቀረጢት መሃል ያለ ክፍተት፣ ተባይ፣ ብናኝ፣ ፍሳሽ ክትትል



### 2. የጥራት እና ተባይ ክትትል



3. ንጽሕና ለመጋዘን ተባይ ቁጥጥር

**ንጽሕና፤**

- \* ሁልጊዜ የድርድር ዙሪያና አካባቢን በንጽሕና መጠበቅ
- \* ንጽሕናን በመጠበቅ ውጤታማ የተባይ ቁጥጥር ማካሄድ ይቻላል
- \* የንጽሕና መጠበቂያዎች ፡ ብሩሽ፣ መወልወያ፣ ባለ ረጅም እጅ አባራ ማራገፊያ
- \* የንጽሕና መጠበቂያ እቅድ መውጣት አለበት



4. ከወለል ርጥበት መከላከያ ርብራብ

**መደርደሪያ ርብራብ፣ የላሰቲክ ንጣፍ፣ የግንድ ድርድር**

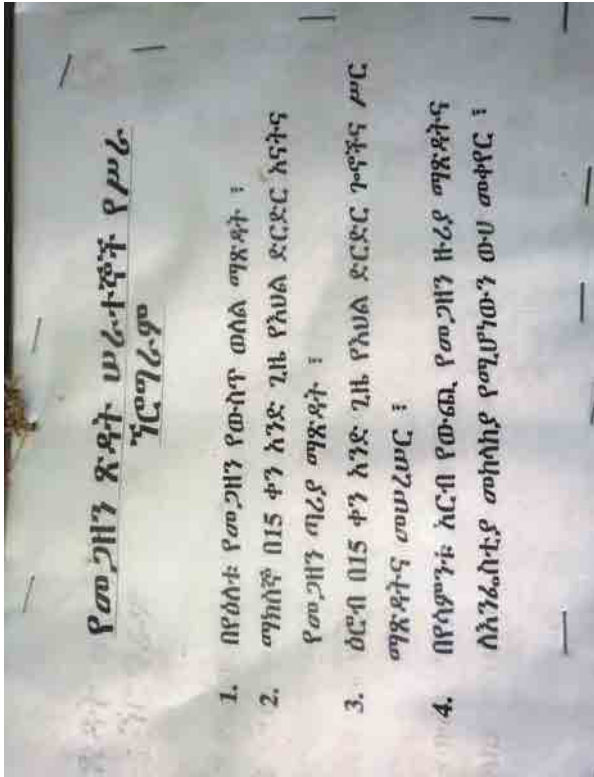
- \* የርጥበት መከላከያ ርብራብ በወለሉ ላይ ማዘጋጀት
- \* ከወለል የሚመጣ ርጥበትን መከላከል
- \* በእንጨት ርብራብ ምትክ የላሰቲክ ንጣፍ መጠቀም ይቻላል
- \* የግንድ ድርድር አማራጭ የወለል ርጥበት መከላከያ ዘዴ ነው
- \* በብክለት የሚከሰት የምርት ብልሽትን መከላከል አለበት
- \* በፍጹም የድርድር ከረጢቶች በወለል ላይ መቀመጥ የለባቸውም



5. መረጃ መያዝ

መረጃ መያዝ

- \* ለማንኛውም በመጋዘን ለሚቀመጥ ክምችት የመቆጣጠሪያ ቅጽ ማዘጋጀት
- \* የተባይ ቁጥጥርና አጥነት መረጃ በትክክል መመዝገብ
- \* የሰያሜ ካርድ በያንዳንዱ ድርድር ላይ ማያያዝ
- \* ማንኛውም መረጃ ለመጋዘን አስተዳደር ስራተኞች ተደራሽ መሆን
- \* ሁልጊዜ የተሟላ የገቢና ወጪ መረጃ መያዝ



6. ወቅታዊ የጽዳት እቅድ

ወቅታዊ የጽዳት እቅድ

- \* የጽዳት (ንጽሕና) እቅድ ማውጣት
- \* በድርድር ላይ ለውጥ ከታየ አፋጣኝ የመፍትሄ እርምጃ መውሰድ
- \* የንጽሕና ሥራ መስተጓጎል የለበትም
- \* በተለየ አጋጣሚ የተዘለለ የንጽሕና ሥራ በቀጣዩ ቀን መካሄድ አለበት



7. ቀድሞ የገባ ቀድሞ ይወጣል

ቀድሞ የገባ ቀድሞ ይወጣል

- \* "ቀድሞ የገባ ቀድሞ ይወጣል" በጣም ጠቃሚ የመጋዘን አስተዳደር ስርዓት ነው
- \* ምክንያት፡ ሁልጊዜም በአገባብ ምዝገባ ቅደም-ተከተል ወጪ ሲደረግ በክምችት ጊዜ ቆይታ የምርት ብክነትን መከላከል ያስችላል



8. የመተላለፊያ መንገድ መተው፡

የመተላለፊያ መንገድ መተው፡

- \* ያለ ችግር በድርድር መሃል መተላለፍ ያስችላል
- \* በሁሉም አቅጣጫ ድርድር ለመጨመር ወይም ለመቀነስ ያስችላል
- \* ለእጥነት ሕክምና ስራ አመቺ ይሆናል
- \* በሁሉም አቅጣጫና በቀላሉ የድርድር ክትትልና ፍተሻ ማድረግ ያስችላል
- \* የተሻለ የአየር ዝውውር ይኖራል



### 9. ጥሩ ድርድር

- \* በቀላሉ የድርድር ቆጠራ ማድረግ ያስችላል
- \* ለማንኛውም ስራ አመቺ ነው
- \* ከፍተኛ የድርድር መጠን እንዲኖር ይረዳል
- \* ለያንዳንዱ ክምችት የመለየት ስራ በቀላሉ ለመስራት ያስችላል
- \* ክምችት በግልጽና በጥሩ ሁኔታ ይታያል
- \* የመረጃ ቅጽ በያንዳንዱ ድርድር ላይ በቀላሉ ማስቀመጥ ያስችላል

### ጥሩ ድርድር



### 10. እጥነት ሕክምና

#### እጥነት ሕክምና

- \* በተናኝ ጸረ-ነፍሳት ኪሚካል(ብዙ ጊዜ ፎስፎክሲን) የሚደረግ ሕክምና ነው
- \* የሚፈለገውን ውጤት ለማግኘት ክምችቱ ለ 7 ቀናት በማከሚያ ሽራው እንደተሸፈነ ማቆየት
- \* በሰለጠነ ባለሙያ በአግባቡ ከተካሄደ 100% ተባይና እንቁላሉን የመግደል አቅም አለው
- \* በጣም ውጤታማና በጣም አደገኛ መሆኑን መዘንጋት የለብንም
- \* አብዛኛዎቹ የመጋዘን ተባዮች በዚህ ሕክምና ይጠፋሉ
- \* የማዳን/ተባይ የማስወገድ ሕክምና ነው፤ እንደ ክትባት ለመከላከል አይደለም
- \* የመጋዘን ውስጥና አካባቢ ርጭት በተጓዳኝ ማካሄድ የበለጠ ውጤት ያመጣል

መጋዘን ማሻሻል-3



የአንጋጫ ዩኒየን ሞዴል መጋዘን (1/2)

መጋዘን ማሻሻል-4

የአንጋጫ ዩኒየን ሞዴል መጋዘን (1/2)

(የውጭ ገጽታ)

- \* የመያዝ አቅሙ፣ 500 ሜ.ቶን
- \* 2 ተንሸራታች በሮችና ከጣራ በታች ክፍተት አለው
- \* "ቀድሞ የገባ-ቀድሞ ይውጣ"ን ተግባራዊ ለማድረግ አመቺ
- \* ለንብረት ቁጥጥርና ተባይ መከላከል አመቺ

መጋዘን ማሻሻል-1

የመሰረታዊ ማህበራትን መጋዘን የማሻሻል ስራ

**Renovation of existing Warehouses**

ጃፓን ጥናት ቡድን  
SAMS-SNNPR

ህዳር 2004  
December, 2011



BoMC - SNNPR



SAMS - SNNPR

መጋዘን ማሻሻል-2

ተገቢ የመጋዘን ሥራ አመራር

- \* በመሰረታዊ ማህበራት ያሉ መጋዘኖችን እንዴት ማሻሻል ይቻላል?
- \* የማሻሻል ስራ መሰረታዊ ነጥቦች
- \* የማሻሻል ስራ ጠቀሜታ፣ የድህረ-ምርት ብክነትን መቀነስ
- \* የማሻሻል ስራ ቅደም ተከተል
- ☞ መጀመሪያ በመጋዘኑ ያሉትን ችግሮች መለየት
- ☞ ቀጥሎ የማሻሻያ መንገዶችን ማጥናት





የአንጋጫ ዩኒቨርሲቲ ምዕራፍ መጋዘን (2/2)

**የአለም ምግብ ፕሮግራም ደረጃውን የጠበቀ መጋዘን መስፈርት**

**የአንጋጫ ዩኒቨርሲቲ ምዕራፍ መጋዘን (2/2)**

(የውስጥ ገጽታ)

\* በማይጠፋ ቀለም የድርጅት መስመር ተሰምሯል

\* ርጥብ ለመከላከልና ለአጥነት ህክምና የሚረዳ የጣውላ ርብራብ አለው

**የአለም ምግብ ፕሮግራም ደረጃውን የጠበቀ መጋዘን መስፈርት**

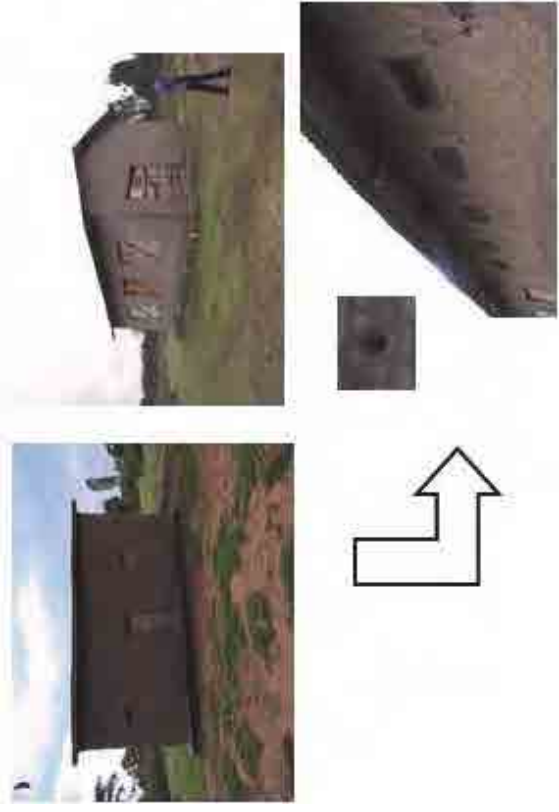
1. ተገቢ መጠን 500ሜ.ቶን (ርዝመት 25ሜ x ስፋት 10ሜ x ቁመት 5ሜ)
2. ከርጥብ፣ ተባይና ሌባ መከላከል የሚያስችል
3. ተገቢ የመጋዘን አስተዳደር ስርአት ለመተግበር አመቺ
4. ዝቅተኛ የግንባታ ወጪ
5. ወደፊት ማሻሻያ ለማድረግ የሚያመች
6. የቦታ ምርጫ: የከተማውን ፕላንና የግንባታ አቀማመጥ ያገናኘበ
7. በተፈጥሮ የአየር ዝውውር፣ ፍሳሽ ማስወገጃ፣ አቀማመጥና ጥሩ ግንባታ



የአብዛኛዎቹ መሰረታዊ ማህበራት መጋዘን ገጽታ

**የአብዛኛዎቹ መሰረታዊ ማህበራት መጋዘን ገጽታ**

- \* በአብዛኛው በእንጨትና ጭቃ የተሰሩ ናቸው
- \* ወለላቸው አፈር ነው
- \* ባብዛኛው አንድ በርና አልፎ አልፎ ብቻ የማናፈሻ ክፍተት አላቸው



ነጥብ-1: ጥቂት መስኮቶችና ክፍተቶች

**ነጥብ-1: ጥቂት መስኮቶችና ክፍተቶች**

- (አሁን ያለው)      ዝቅተኛ መናፈስ ባሉት ጥቂት መስኮቶችና ክፍተቶች  
 (ከማሻያ ስራ በኋላ)    ተጨማሪ መስኮቶች መክፈት/የጣራ ስር ክፍተቶች  
 መጨመር (አራት ማእዘን/ከብ ሆነው በወንጌት ሽቦ  
 የተሸፈኑ)  
 (ጠቀሜታ)
1. በተሻለ የአየር ዝውውር የርጥበትና ሙቀት መጠን መቀነስ
  2. የሻጋታና ባይን የማይታዩ ነፍሳት እድገት መጥፋት



ነጥብ-2: ከወለል የሚመጣ ርጥበት ችግር

**ነጥብ-2: ከወለል የሚመጣ ርጥበት ችግር**

(አሁን ያለው) የጣውላ ርብራብ፣ የእንጨት ርብራብ ወይም የላስቲክ ንጣፍ ሳይደረግ መሬት ላይ በቀጥታ ይደረደራል

(ከማሻሻያ ስራ በኋላ) የጣውላ ርብራብ፣ የእንጨት ርብራብ ወይም የላስቲክ ንጣፍ በማድረግ ይደረደራል

(ጠቀሜታ)

1. በፈንገስ የሚከሰት የጥራት ጉድለት ይቀንሳል
2. በወለል ላይ ከሚገኝ የእርሻ ኬሚካል ቅሪት ብክለት ይደናል
3. በወለል ላይ ከሚገኝ የሌላ ሰብል ፍሳሽ ብክለት ይደናል
4. በወለል ላይ በሚገኝ ርጥበት የሚፈጠሩ ተባዮች ይቀንሳሉ/ይጠፋሉ



ነጥብ-3: ተገቢ ያልሆነ ድርድር

**ነጥብ-3: ተገቢ ያልሆነ ድርድር**

(አሁን ያለው) ከምችት በአግባቡ/በግልጽ አይታይም

(ከማሻሻያ ስራ በኋላ) ከፍተኛ የድርድር መጠን

(ጠቀሜታ)

1. ከምችት በአግባቡ/በግልጽ ይታያል
2. በቀላሉ የነፍሳት/ተባይ ቁጥጥር ማድረግ ያስችላል
3. በቀላሉ መረጃ ለመያዝ ያስችላል
4. የተሻለ የአየር ዝውውር በድርድር መካከል ይኖራል



ነጥብ-4: የድርድር መስመር የለም

ነጥብ-4: የድርድር መስመር የለም

- (አሁን ያለው) በመጋዘን ውስጥ የመተላለፊያ ቦታ የለም
- (ከማሻሻያ ስራ በኋላ) ድርድሮች በድርድር መስመር ውስጥ ብቻ ይሆናሉ
- (ጠቀሜታ)
1. ቀድሞ የገባ ቀድሞ ይወጣል የሚለውን ጽንሰ ሐሳብ በቀላሉ መተግበር ያስችላል
  2. ወጥ፣ጥፍና የማያጋድል ድርድር ይኖራል
  3. የተሻለ የአየር ዝውውር ይኖራል
  4. ለክትትል ያመቻል
  5. በቀላሉ የነፍሳት/ተባይ ቁጥጥር ማድረግ ያስችላል



ነጥብ-5: የክምችት መረጃ በአግባቡ አይያዝም

ነጥብ-5: የክምችት መረጃ በአግባቡ አይያዝም

- (አሁን ያለው) የክምችት መረጃ በአግባቡ አይያዝም
- (ከማሻሻያ ስራ በኋላ) የክምችት መመዝገቢያ ቅጾችና መዝገቦች ይኖራሉ
- (ጠቀሜታ)
1. በአግባቡ የተያዘ የምዝገባ ቅጽ ይኖራል
  2. የክትትልና ሕክምና መረጃ ይኖራል



ነጥብ-6: የንጹህና ጉድለት

**ነጥብ-6: የንጹህና ጉድለት**

(አሁን ያለው) አባራ፣ ብናኝና ተባዮች በብዛት ይገኛሉ

(ከማሻሻያ ስራ በኋላ) ንጹህና ለተባይ ቁጥጥር አመቺ ይሆናል

(ጠቀሜታ)

1. በቀላሉ የነፍሳት/ተባይ ቁጥጥር ማድረግ ያስችላል
2. ወቅታዊ የጽዳት እቅድ ይኖራል
3. አስፈላጊ የጽዳት ቁሳቁስ ይሟላል



ነጥብ-7: ዝቅተኛ የቁጥጥርና ክትትል ስራ

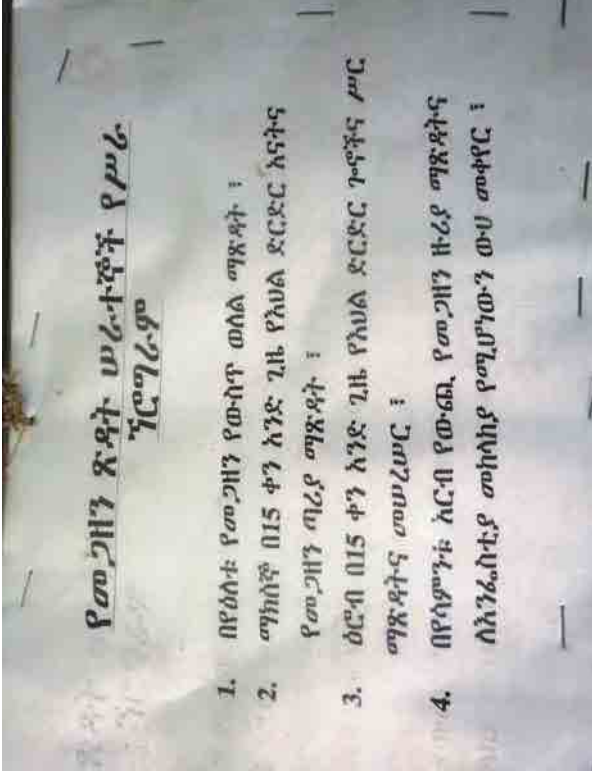
**ነጥብ-7: ዝቅተኛ የቁጥጥርና ክትትል ስራ**

(አሁን ያለው) የቁጥጥርና ክትትል ስራ አላማ በአግባቡ አይታወቅም

(ከማሻሻያ ስራ በኋላ) ወቅታዊ የቁጥጥርና ክትትል ስራ ይተገበራል

(ጠቀሜታ)

1. ተባዮች ሳይባዙ መቆጣጠር ይቻላል
2. የጥራት ቁጥጥር በአግባቡ ይፈጸማል
3. የድህረ-ምርት ብክነት በከፍተኛ ደረጃ ይቀንሳል
4. ተባይ መከላከያ የውሃ ወጥመድ ይኖራል



ነጥብ-8: የጽዳት እቅድ የለም

ነጥብ-8: የጽዳት እቅድ የለም

(አሁን ያለው) የጽዳት እቅድ የለም

(ከማሻሻያ ስራ በኋላ) ወቅታዊ የጽዳት እቅድ ይኖራል (ጠቀሜታ)

1. በድርድር ላይ ለውጥ ከታየ አፋጣኝ የመፍትሄ እርምጃ መውሰድ ያስችላል
2. የጽዳት ስራ አይሰተጓጎልም
3. የተዘለለ የጽዳት ስራ በቀጣዩ ቀን ይካሄዳል

የህሉ አይነት \_\_\_\_\_ የሕብረት ስራ ማህበር  
 የህሉ ድረጃ \_\_\_\_\_ የመጋዘን መረጃ መመዘኒያ ክርድ  
 የመዘገብ ቁጥር \_\_\_\_\_ የመጋዘኑ ስም \_\_\_\_\_

ገቢ		ወጪ		ቀኔ	
ቀን	የተመረቀበት ስራ	ቀን	የተመረቀበት ስራ	ቀን	የተመረቀበት ስራ

ነጥብ-9: የመጋዘን መረጃ የለም

ነጥብ-9: የመጋዘን መረጃ የለም

(አሁን ያለው) የመቆጣጠሪያ ቅጾች የሉም

(ከማሻሻያ ስራ በኋላ) በቀላሉ የክምችት መረጃ ይገኛል (ጠቀሜታ)

1. ውጤታማ የመጋዘን አስተዳደር ስርአት ይኖራል
2. የድህረ-ምርት ብክነት በከፍተኛ ደረጃ ይቀንሳል
3. በቀላሉ የነፍሳት/ተባይ ቁጥጥር ማድረግ ያስችላል

Card 1

P-1

<p><b><u>Quality Control</u></b></p> <p>SAMS-SNNPR December, 2011</p>
---

P-2

What is Quality Control?

1. To keep uniform quality.
2. To protect quality deterioration.
3. To upgrade and improve quality.
4. To refine impurities to make marketable commodity.
5. To dry agri-product by sun drying till safety moisture. 13.5-14% wb.
6. To implement pest control.
7. To scheme/improve proper warehouse management.

Card 2

P-3

<p><u>What is Quality of Grain?</u></p> <ul style="list-style-type: none"><li>- Appearance</li><li>- Uniformity of size and color</li><li>- Texture</li><li>- Dirt content</li></ul>
<p>Quality</p>

P-4

- \* What is "Quality"?
- \* What is the quality improvement? : Less weight?
- \* Quality business: "High quality = High price"
- \* How to distinguish the better quality?

**Card 3****P-5**

- Quality standard
- Quality deterioration
- Quality loss
- Quality requirement
- Quality improvement
- Quality inspection

Terminology of Quality

**Card 4****P-6**

- Commodity type
- Freshness: crop year
- Moisture content
- Damaged, Weevil kernels & Broken
- Defective kernels
- Foreign matter (incl. weed seed)
- Live insects

Criteria of Quality Standard

**Card 5****P-7**

Commodity	Wheat	Maize	Beans	Sorghum
Standard	Grade 1	Grade 1	Grade 1	Grade 1
Crop Year	Latest	Latest	Latest	Latest
Moisture content	13.5 % Max	13.5 % Max	14 % Max	13.5 %
Defective Pulse			4.0 % Max	
Damage, Shrunken, Weevil Kernels & Broken	2.8 % Max	5.5 % Max	1 % Max	5.5 % Max
Foreign Matter (incl. weed seeds)	3.2 % max	2.5 % Max	1.4 % Max	2.5 % Max
Contrasting Class	1.0 % Max	—	1 % Max	—
Live Insect	Nil	Nil	Nil	Nil
Total Impurity	6 % Max	8 % Max	6.4 % Max	8 % Max
Sound Grain	94 % Max	92 % Max		92 % Max
Sound Beans			93.6 % Max	

**P-8****\* What is "Quality Standard" for cereals and pulses?**

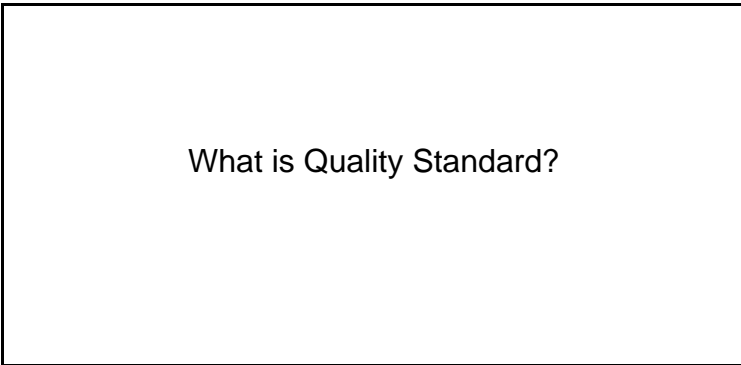
This table shows the WFP quality standard.

- Commodity: Wheat, Maize, Beans, Sorghum
- Figures of each criteria are different from.
- No live insect contains.



**Card 6**

**P-9**



**P-10**

What is standard?

**A Standard is:**

"a document established by consensus  
and approved by a recognized body."

**Requirement is:**

"expression in the content of a document  
conveying criteria to be fulfilled."

**Card 7**

**P-11**



**P-12**

Quality Standard of commodity in Ethiopia

- WFP Standard
- ECX Standard
- Ethiopian Standard (ES)
- EGTE Standard
- International Standard
- Export Standard

**Card 8**

**P-13**

**Moisture Content**

The moisture content shall be determined using an approved moisture meter calibrated according to a method prescribed by QSAE.



$$M_{\text{wet basis}} = \frac{w - d}{w} \times 100$$

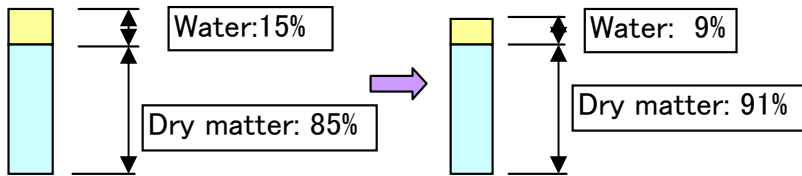
Where w = wet weight, d = dry weight, and M = moisture content on a percent basis.

What is moisture content?

**Card 9**

**P-14**

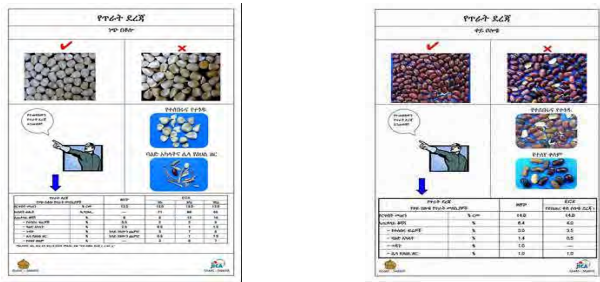
- \* How to use moisture meter
- \* Percentage of moisture content



$$1,000\text{qt} \times \frac{(100-15)}{100} = X \times \frac{(100-9)}{100} \quad \therefore X = 1000 \times \frac{85}{91} = 934\text{qt} \quad (-66\text{qt})$$

**Card 10**

**P-15**



Why is the Quality Standard needed?

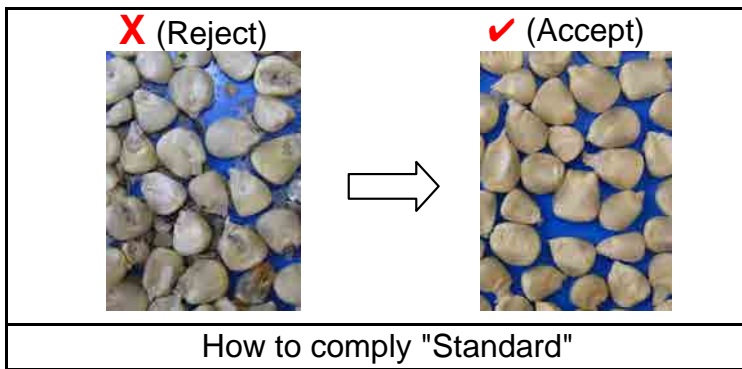
**P-16**

Why is the Quality Standard needed?

- Quality business like ECX, WFP, international tender, etc.
- Requirement of each business varies from the customer.
- Tender evaluation is conducted by a qualified personnel.
- Quality grade of commodity is inspected according to the standard criteria.
- Tenderer must comply with the standard to make a successful bid.

Card 11

P-17



P-18

How to comply the standard

1. Take the grain/bean samples.
2. Inspect the quality by criteria of standard.
3. Evaluate quality grade of present sample.
4. Pile up as one stack and put the stack card.
5. Refine the received batch unless quality complies with standard.
6. Inspect quality again after refining.
7. Pile up on another stack as complied with.

Card 12

P-19



P-20

How to inspect the grain quality & insect infestation

- Inspect the quality of product.
- Inspect insect infestation.
- Always inspect damage of pest.
- Evaluate the proper implementing time of pest control.
- Shine a flashlight on the stacking bags to inspect clearly at dark place.
- Inspect the clearance among bags: insect, powder, spilling of product.

Card 13

P-21



P-22

Laboratory equipment for quality inspection

- Moisture Meter
- Triple-beam balance
- Sample divider
- Sieve

Card 14

P-23



P-24

Post-Harvest machinery:

- Multi-purpose Grain Thresher
- Grain Cleaner
- Winnower
- Portable bag sewing machine

\* Advantage of Post-Harvest machines:

Possible to accomplish effective/efficient/uniform/even quality

**Card 15****P-25**

A digital scale showing a weight of 13.5g.	A pile of broken and damaged pulses.	A pile of foreign matter like sticks and stones.
A pile of defective pulses.	A pile of pulses of different colors.	A close-up of a live insect on a pulse.
A pile of total impurities.	A pile of sound grain.	A pile of sound beans.

What means "Max. 8% impurities"?

**P-26**\* What means "Max. 8% impurities"?

- Let's inspect the quality of maize/beans practically.

**Card 16****P-27**

- \* To know better selling price.
- \* To comply with requirement of customer.



Advantage by improvement of quality control

**P-28**How to improve quality control:

- To remove impurities according to the criteria of quality standard.
- To dry commodity until designated moisture content. (overdrying means loss.)
- To manage pest control if needed.
- To prevent insect infestation at any cost.
- No unforgiving contamination of foreign matter.
- No residue of agri-chemicals & pesticide/herbicide & fumigant.
- Safety as food materials.

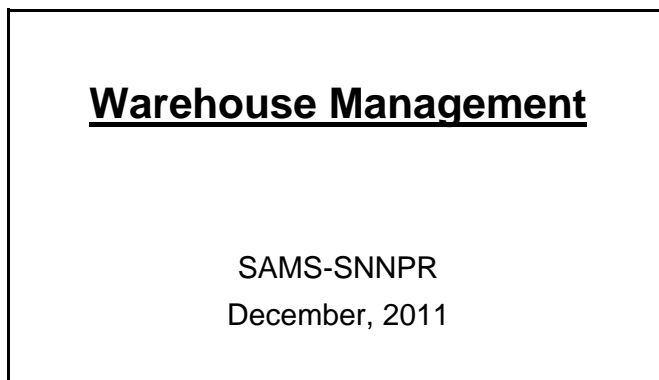
How to reduce Post-Harvest loss?

How to reduce post-harvest loss?

- Appropriate warehouse management
- Periodical insect inspection
- Proper pest control: insect, rodent, bird, fungi, microorganism.
- Never forget three slogan: Ventilation, Inspection, Sanitation
- Protect from quality deterioration during storage.
- Protect from post-harvest handling loss.

**Card 1**

**P-1**



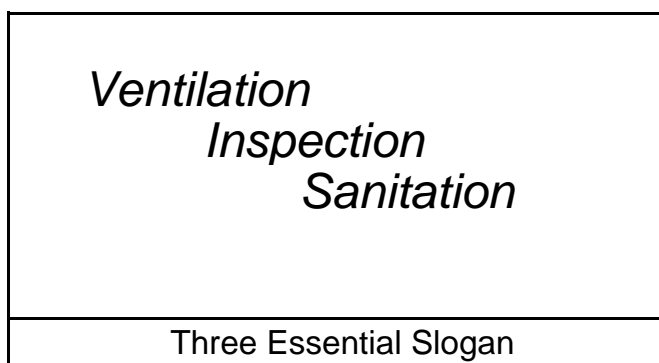
**P-2**

Appropriate Warehouse Management :

- \* What is "warehouse management"?
- \* What is important things for appropriate WH management?
- \* Poster developed by JICA Study Team with WFP/P4P.
- \* Model warehouse at Angacha CU.

**Card 2**

**P-3**



**P-4**

Essential Slogan of Warehouse Management:

- \* Don't forget the most essential matters of warehouse management.
- \* Three slogan: 1. Ventilation 2. Inspection 3. Sanitation
- \* Prevent post-harvest loss by appropriate warehouse management.
- \* FAO reported that post-harvest loss during storage is nearly 30% in Ethiopia.
- \* Prevent quality deterioration by improper storage.
- \* Prevent from the contamination against food product.

**Card 3****P-5****P-6****Ventilation:**

- \* Keep dry and clean air without bad smell.
- \* Keep cool and clean circumstance:
- \* Protect from fungi and microorganism during storage.
- \* Protect from insect attack.
- \* Protect from high temperature: Survival activity of insect is very spirited. Insect is inactive at less than 15°C.
- \* Protect from high humidity which is the suitable environment of fungi.
- \* Protect from bad smell: Odor quickly spreads to product and bags.
- \* Protect from contamination such as agrichemicals, pesticide and fertilizer.

**Card 4****P-7****P-8****Inspection:**

- \* Inspect the quality of product.
- \* Inspect insect infestation.
- \* Always inspect damage of pest.
- \* Evaluate the proper implementing time of pest control.
- \* Shine a flashlight on the stacking bags to inspect clearly.
- \* Inspect the clearance among bags: insect, powder, spilling of product.

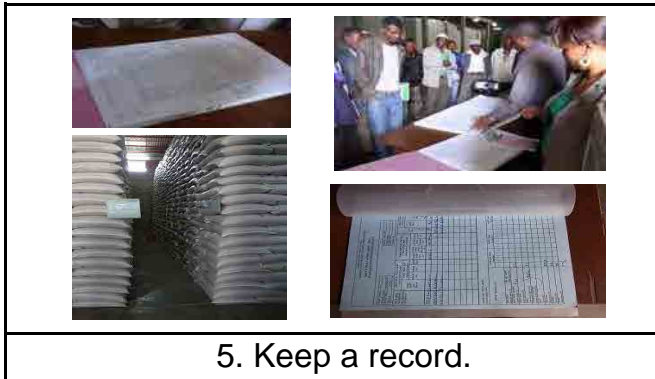


**Card 5****P-9****P-10****Sanitation:**

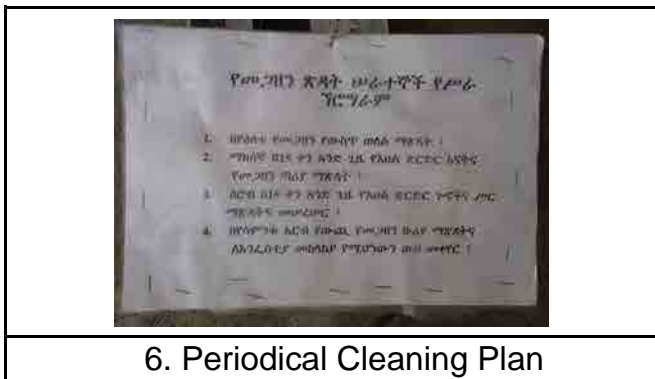
- \* Always keep clean surrounding surface of stacking:
- \* As a result of sanitation, pest control is implemented without fail.
- \* Sanitation tools : brush, mop, duster with long handle
- \* Make a sanitation plan for warehouse.

**Card 6****P-11****P-12****Pallet/Vinyle Sheet/Log:**

- \* Prepare the wooden pallet at the bottom floor.
- \* Avoid moisture from floor: either mud or concrete.
- \* Vinyl sheet can be used instead of wooden pallet.
- \* Log can be also used for moisture protection from floor.
- \* Prevent deterioration by contamination.
- \* Never put bags on the floor directly without any shield.

**Card 7****P-13****5. Keep a record.****P-14**Keep a record:

- \* Check sheet shall be prepared for all product in the warehouse.
- \* Date of pest control and fumigation shall be recorded.
- \* A name plate is attached on each stacks.
- \* Any record can be browsed to all personnel of warehouse management.
- \* Inventory information can be known anytime.

**Card 8****P-15****6. Periodical Cleaning Plan****P-16**Periodical Cleaning Plan

- \* Cleaning plan (sanitation plan) shall be decided.
- \* If found any change on some stack, prompt action shall be implemented.
- \* Never forget the sanitation work without any notice.
- \* If the designated day laps over the holiday, the following day after holiday is appl

**Card 9**

**P-17**



**P-18**

First-in First-out:

- \* "First-in First-out" is most important management of warehouse.
- \* Reason: Product shall be always shipped in order of old receipt of product.

**Card 10**

**P-19**



**P-20**

Keep an access line:

- \* Easy to access to all stacks without obstruction.
- \* Possible to pile up and pile out at every stacks on every side.
- \* Possible to use fumigation sheet accordingly.
- \* Easy to inspect the stacks in all direction.
- \* Better ventilation for surrounding bags of stacks.

Card 11

P-21



P-22

Good stacking:

- \* Easy to count the quantity of bags of stacks.
- \* Easy to handle the stacks for any work.
- \* Maximum stacking of bags for piling-up is limited.
- \* Sorting can be managed for each product.
- \* Product is manifestly apparent in warehouse.
- \* A record sheet is easily attached at each stacks.

Card 12

P-23



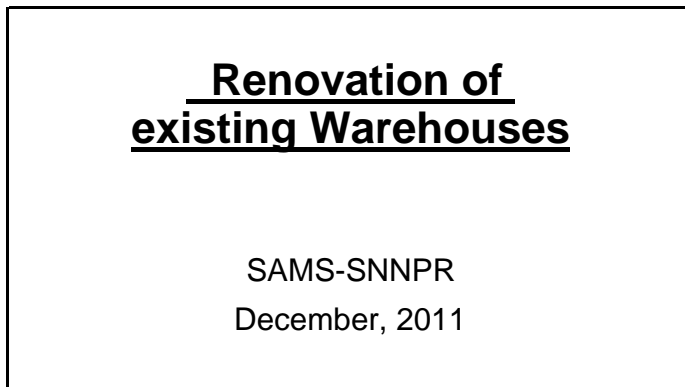
P-24

What is Fumigation?:

- \* High infiltration insecticidal treatment by poisonous gas fumigants. Phostoxin is the popular fumigant.
- \* Proper exposure period of fumigant: min. 7 days by covering fumigation sheet.
- \* Basic elements of fumigation: 100% kill, applied by a trained person.
- \* Never forget most effective but very dangerous.
- \* Most of insects will be killed by this fumigation treatment.
- \* It is a curing treatment, not vaccination.
- \* Must be used in combination with spraying of warehouse & surrounding area.

**Card 1**

**P-1**



**P-2**

How to renovate existing warehouse

- \* Essential points of renovation
- \* Merit of renovation: Reduction of post-harvest loss (Procedure)
- \* First, notice present problems in your warehouse.
- \* Second, think how to renovate existing warehouse.

**Card 2**

**P-3**



**P-4**

Model warehouse at Angacha Union (1/2)

(Outside view)

- \* Holding capacity: 500mt
- \* 2 slide doors and top openings
- \* Easy stock control for "First-in, First-out".
- \* Performing commodity inspection and pest control.

**Card 3**

**P-5**



**P-6**

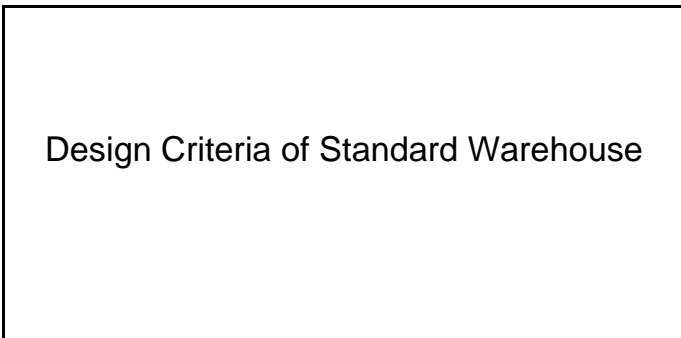
Model warehouse at Angacha Union (2/2)

(Inside view)

- \* Marking access line by permanent paint
- \* Use pallet for moisture protection and fumugation.

**Card 4**

**P-7**



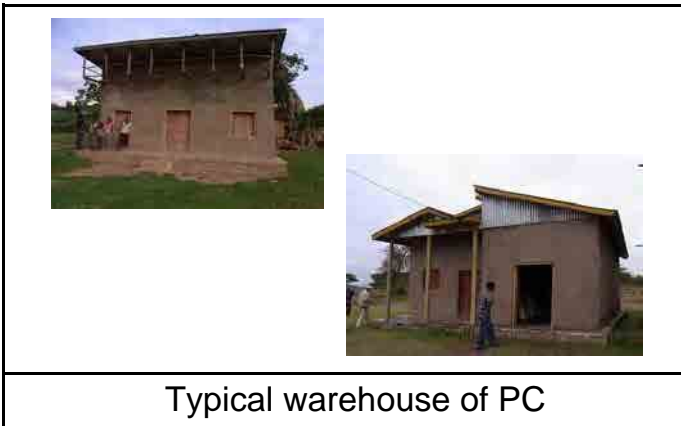
**P-8**

A design criteria of standard warehouse

1. Adequate size: 500mt cereal (L25m x W10m x H5m)
2. To protect commodity from water, pest & thieves.
3. To facilitate appropriate warehouse management.
4. To minimize construction cost.
5. To provide a design for future conversion.
6. Site selection: Economical condition, Municipality Plan, Site Configuration
7. Natural ventilation, Drainage, Layout, Good utility

**Card 5**

**P-9**



**P-10**

Typical warehouse of PC in Ethiopia:

- \* Most structure is made by mud and logs.
- \* Floor is made by mud soil.
- \* Equipped with few top opening and only 1 door.

**Card 6**

**P-11**



**P-12**

Issue-1: Few window & opening:

- |                    |  |
|--------------------|--|
| (Existing)         | Less ventilation due to few windows & opening          |
| (After renovation) | Add more windows/top openings (square/round with mesh) |

(Advantage)

- 1 Better ventilation to avoid high temperature/high humidity.
- 2 Prevent from growing of fungi and microorganism.

**Card 7****P-13****P-14**Issue-2: Humidity trouble from floor:

(Existing) No pallet, sheet nor log. Direct bag stacking on floor.

(After renovation) Use pallet/vinyl sheet/log for bag stocking.

(Advantage)

- 1 Avoid quality deterioration from fungi.
- 2 Prevent from contamination of agrichemicals remained on floor.
- 3 Prevent from contamination of other grains on floor.
- 4 Prevent pest by higher humidity of floor.

**Card 8****P-15****P-16**Issue-3: Bad stacking

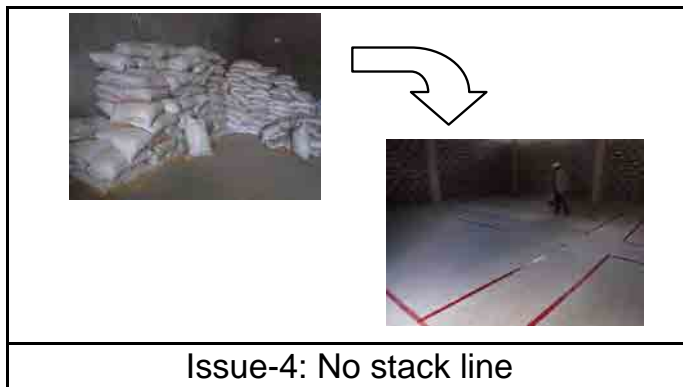
(Existing) Product is not manifestly apparent in warehouse.

(After renovation) Maximum stacking of bags for piling-up.

(Advantage)

- 1 Product is manifestly apparent in warehouse.
- 2 Easy to inspect insect infestation
- 3 Easy to keep a record
- 4 Better ventilation of surrounding air of stacks.

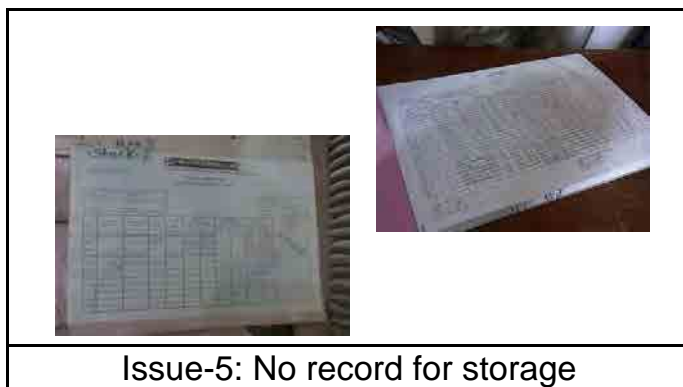


**Card 9****P-17****P-18**Issue-4: No stack line:

(Existing) No access line in a warehouse.  
 (After renovation) Always stacks are inside of access line.  
 Keep a stack line.

(Advantage)

- 1 Keep the principle "First-in, First-out"
- 2 Neat, uniform, rectangular, proportional
- 3 Better ventilation
- 4 Easy inspection
- 5 Easy pest control

**Card 10****P-19****P-20**Issue-5: No record for storage:

(Existing) No storage record  
 (After renovation) Exists booklet and notebook for receiving/shipping record of product.

(Advantage)

- 1 Make a check-sheet of storage product.
- 2 Record inspection and fumigation.

**Card 11****P-21****P-22**Issue-6: Poor sanitation

(Existing) Dirty, dusty and pest inside.

(After renovation) Clean, neat and easier for pest control

(Advantage)

- 1 Easy inspection of insect infestation without fail.
- 2 Periodical cleaning plan is decided.
- 3 Cleaning tools are equipped with.

**Card 12****P-23****P-24**Issue-7: Less inspection time

(Existing) Purpose of inspection is not understandable.

(After renovation) Periodical inspection is implemented.

(Advantage)

- 1 Insect infestation is prevented early.
- 2 Quality control can be managed.
- 3 Post-harvest loss during storage can be deducted by inspection.
- 4 Water trap for pest control

**Card 13**

**P-25**



**Issue-8: No cleaning plan**

**P-26**

Issue-8: No cleaning plan

(Existing)

No cleaning plan exists.

(After renovation)

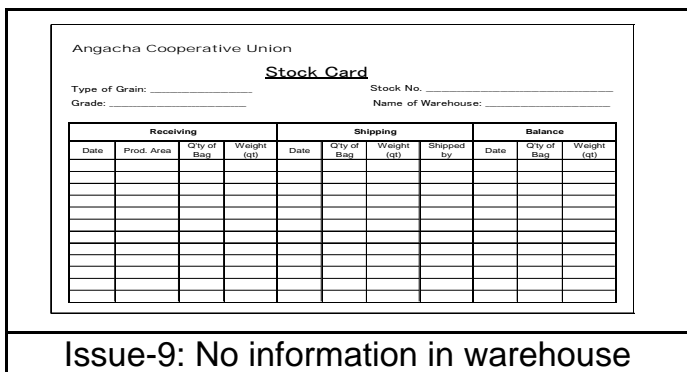
Periodical cleaning shall be conducted.

(Advantage)

- 1 If found out any change on some stack, prompt action shall be implemented.
- 2 Never forget the sanitation work without any notice.
- 3 If the designated day laps over holiday, cleaning is applied on following day after holiday.

**Card 14**

**P-27**



**Issue-9: No information in warehouse**

**P-28**

Issue-9: No information in warehouse

(Existing)

No check sheet of stocking commodity


(After renovation)

Easy confirmation of stock condition


(Advantage)

- 1 Keep efficient warehouse management.
- 2 Reduction of post-harvest loss.
- 3 Protection of insect infestation


**የፍራፍሬ ምርት ማሰባሰቢያ ዘዴዎችን አንላውጥ**  
 በምርት ላይ የሚደርሰውን ብዛት ይቀንሳል።  
 የደረሰና የበበሉ ፍራፍሬዎችን ብቻ በመምረጥ ማወረድ ይቻላል።  
 በምርት አሰባሰብ ወቅት የሚደርሰ የሆኑት የመውደቅና የመቆሰል አደጋ አይኖሩም።  
 አሁን ያለው የምርት ማሰባሰቢያ ዘዴ




ፍራፍሬውን በመምታት ወይም በመወርመር ለማውረድ የሚደረግ ሙከራ ከፍተኛ ጉዳት ያደርሳል።




የተሻሻለ የምርት ማሰባሰቢያ ዘዴ




የደረሰ ፍራፍሬ መርቦ በተሻሻለ ምርት መብብስያ ማውረድ ጉዳት ብዙሉን ይቀንሳል።




በትኩረት በደርቀ መስኮችና በዘላቂ ላይ መዘመር



ጥፋን በመጠቀም በጋራ ማጓጓዣና በጣራ ጥላ ዘር ማቆየት





በርካታ የተበለጠ ፍራፍሬዎች በጋራዎች ተቀባይነት ማግኘት



አስተዳደር የፍራፍሬዎች ብልህነት እና በብዛት ተቀባይነት ያለው ፍራፍሬዎች ስያሜ

**SAMS - SNNPR**  
 Development Study on  
 the Strengthening Agricultural  
 Marketing System in SNNPR


(Manuscript)

**Let's change the ways of harvesting fruits!**  
 You can reduce the wastages.  
 You can harvest matured fruits selectively.  
 No more injury / fall from a tree of your Kids.


**Current practices**




Beat to drop fruits; causes many damages




**Improved practices**



Harvest matured fruits with tools; less damages



Carry on shoulder/back, pile under sun




Carry with cart and boxes, keep under a roof



Many damaged fruits are rejected by traders

**Damaged fruits are less, and much more sales**

**SAMS - SNNPR**  
 Development Study on  
 the Strengthening Agricultural  
 Marketing System in SNNPR

(Manuscript)

**Let's change the ways of harvesting fruits !**



**Do not**  
beat or grapple  
to drop fruits;  
it causes  
many damages



**New tool for fruits harvesting is introduced.**

**You can reduce the wastages.  
You can harvest matured fruits selectively.  
No more injury / fall from a tree of your kids.**



Sharp edge  
to cut stem



**This tool is easily made by local metal workshop at affordable price. We will provide know-how to make it. Contact to WoMC Office at your place.**



**SAMS - SNNPR**  
Development Study on  
the Strengthening Agricultural  
Marketing System in SNNPR



**የፍራፍሬ ምርት ማሰባሰቢያ ዘዴዎችን አንላውቀ**



**ፍራፍሬውን በመምታትና በማንጠስ አታውረድ፤ ከፍተኛ ጉዳት ይደርሳልና።**

**አዲስ የተሸሻሉ ፍራፍሬ ማውረጃ ቁሳቁሶች በጥቅም ላይ ዋለ።**

**በምርት ላይ የሚደርሰውን ብዛት ይቀንሳል።**

**የደረሰና የበሰሉ ፍራፍሬዎችን ብቻ በመምረጥ ማወረድ ይቻላል።**

**በምርት አሰባሰብ ወቅት የሚደርስ የግዳት የመውደቅና የመቀበል አደጋ አይኖርም።**



**ፍራፍሬ የተንጠለጠለበትን ጥንድ መቆረጫ በሌት ያለው ጠርዝ።**



**ፍራፍሬ መቀበልያ ጠርዝ**



**ይህ የፍራፍሬ ማውረጃ ቁሳቁስ በቀላሉ በአካባቢያችሁ በሌላ የብረት-ብርት ሥራ በተመጣጣኝ ዋጋ ሊመረት ይችላል።**

**የፍራፍሬ ማውረጃ ቁሳቁሱን ለመምረት የሚያስችል ክህሎት አንባባለን።**

**በአካባቢው ያለውን የወረጃ ግብይትና ሕ/ሥራ ጽ/ቤት ይጠይቁ**



**SAMS - SNNPR**  
Development Study on  
the Strengthening Agricultural  
Marketing System in SNNPR



የሙከራ ትግበራ ፕሮጀክት 03: የማንጎ/ አሾካዶ ምርት አሰባሰብና አያያዝ ማሻሻያ

ለአካባቢ ብረታ ብረት ሥራ ድርጅት የተዘጋጀ ማኑዋል

የፍራፍሬ ማውረጃ ቁሳቁስ አሠራር



ጃይካ የጥናት ቡድን እና ግብይትና ሕብረት ሥራ ቢሮ

መጋቢት 2004 ዓ/ም

**ማውጫ**

የማኑዋሉ አላማ

1. የፍራፍሬ ማውረጃ ቁሳቁስ መጠን፣ ቅርጽና ይዘት
2. ለአንድ የፍራፍሬ ማውረጃ ቁሳቁስ የሚያስፈልግ ጥሬ ዕቃ
3. የአሠራር ሂደት
4. የቅርጽ ማውጫ አጠቃቀምና ተፈላጊውን ቅርጽ መፍጠር
5. የቅርጽ ማውጫ አሠራር

**ዕዘል**

ዕዘል 1. የፍራፍሬ ማውረጃ ቁሳቁስ ሙሉ ምስል

የፍራፍሬ ማውረጃ ቁሳቁስ ግማሽ እስኬል ምስል

ዕዘል 2. የፍራፍሬ ማውረጃ ቁሳቁስ ቅርጽ ማውጫ ሙሉ ምስል

የፍራፍሬ ማውረጃ ቁሳቁስ ቅርጽ ማውጫ ግማሽ እስኬል ምስል

ዕዘል 3. ሌላ ዓይነት ቅርጽ ማውጫ፤ ለቅርጽ ማውጣትና ብዩዳ

**የማኑዋሉ አላማ**

የፍራፍሬ ማወረጃ ቁሳቁስ ቀለል ያለ ዲዛይን ያለው ዋጋውም ዝቅተኛ የሆነ በሙከራ ትግበራ ፕሮጀክት 03 አማካኝነት ተሠርቶ በተግባር ጥቅም ላይ ውሏል። ይህንን ፍራፍሬ ማውረጃ ቁሳቁስ ፍርፍሬ አማራች በሆኑ አካባቢዎች ለማስተዋወቅ አርሶ አደሩ በቀላሉ በወረዳ ደረጃ ፍራፍሬ ማውረጃውን ማግኘት የሚችልበት ሁኔታ መፍጠር አስፈላጊ ነው።

እንደአጋጣሚ የብረት በር የሚሠሩ የአካባቢ የብረታ ብረት ሥራ ድርጅቶች በወረዳ ከተማ ደረጃ ይገኛሉ። በሙከራ ትግበራ ፕሮጀክት ወቅት እነዚህ ድርጅቶች ናሙማ በማየት ብቻ የፍራፍሬ ማውረጃ ሲሠሩ ማየት ተችሏል። ይሁንና ከዚህ በታች በተመለከተው ምስል እንደሚታየው ተመሳሳይ ቅርጽ እንዲኖረው አድርጎ መሥራት ለብረታ ብረት ድርጅቶች አዳጋች መሆኑን መገንዘብ ተችሏል።



በስተግራ: ወንዶ ገነት በሚገኝ ብረታ ብረት ሥራ ድርጅት የተሠራ ፍራፍሬ ማውረጃ  
በስተቀኝ: ናሙና የፍራፍሬ ማውረጃ

ስለዚህ ቅርጽ ማውጫ በቀላሉ ተመሳሳይ ቅርጽ ያለው ፍራፍሬ ማውረጃ ለመሥራት እንዲያስችል ተዘጋጅቷል። በተጨማሪ ቅርጽ ማውጫውን በመጠቀም ፍራፍሬ ማረውጃ መፈብረክ ቀላል ከመሆኑም በላይ ፍጥነት ይኖረዋል።

ይህ ማኑዋል በዋናነት 2 ቴክኒካዊ ጉዳዮችን በወረዳ ከተማ ደረጃ ለሚገኙ ለአካባቢ የብረታ ብረት ሥራ ድርጅት ለማሳየት የተዘጋጀ ነው። ይህም 1) ቅርጽ ማውጫ አጠቃቀም እና ተፈላጊውን ቅርጽ ለማምጣት እንዴት እንደሚቻል 2) ቅርጽ ማውጫ እንዴት እንዲሠራ ማስገንዘብ ናቸው።

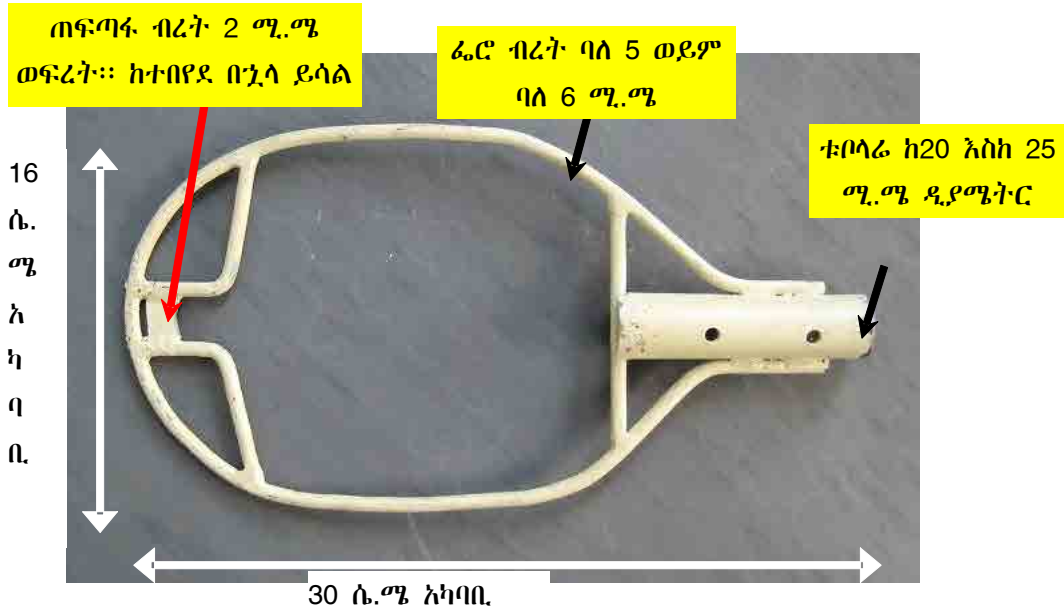
ይህ መመሪያ በክልልና ወረዳ ግብይትና ሕብረት ሥራ አማካኝነት ተባዝቶ ፍራፍሬ ማውረጃ ቁሳቁስ መሥራት ለሚፈልጉ የአካባቢ ብረታ ብረት ሥራ ድርጅቶች እንደሚሠራጭ ተስፋ አደርጋለሁ።

ጃይካ ጥናት ቡድን  
ዮሴፊኒ 93  
መጋቢት 2004 ዓ/ም



**1. የፍራፍሬ ማውረጃ መጠን፣ ቅርጽና ይዘት**

የፍራፍሬ ማውረጃው መጠን 30 ሴ.ሜ በ 16 ሴ.ሜ ይሆናል። ፍራፍሬ የተንጠለጠለበትን ለመቁረጥ የሚስችል ስለት እንዲኖረው ማድረግ በጣም ወሳኝ ነው።



ትክክለኛው ቅርጽ እና ልኬት በዕዘል 1. የፍራፍሬ ማውረጃ ቁሳቀስ ሙሉ ምስል ተመልክቷል።

**2. ለአንድ ፍራፍሬ ማውረጃ የሚያስፈልግ ጥሬ ዕቃ**

እንደ ፍራፍሬ ማውረጃ ለመሥራት የሚከተሉ ጥሬ ዕቃዎች አዘጋጅ።

ከተገለጸው በላይ ውፍረት ያለው ፊሮ ብረት አትጠቀም፤ ለማጉበጥና ቅርጽ ለማውጣት ያስቸግራል። የፍራፍሬ ማውረጃውም ክብደት ይጨምራል።

(1) ፊሮ ብረት ባለ 5 ወይም ባለ 6 ሚ.ሜትር

- 69 ሴ.ሜ ብዛት 1
- 8.5 ሴ.ሜ ብዛት 2
- 9.5 ሴ.ሜ ብዛት 1

(2) ቱቦላሬ 20 — 25 ሚ.ሜ ዲያሜትር፡ 10 ሴ.ሜትር ብዛት 1

(3) ጠፍጣፋ ብረት፣ ባለ 2 ሚ.ሜትር ውፍረት፡ ትንሽ ብረት ብዛት 1

**3. የአሠራር ሂደት**

የፍራፍሬ ማውረጃ አሠራር በጣም ቀላል ነው።

ደረጃ 1. ፊሮ ብረቱን በተባለው ቁመት ቁረጥ።

ደረጃ 2. ፊሮ ብረቱን (69 ሴ.ሜ ብዛት 1 እና 8.5 ሴ.ሜ ብዛት 2) በተፈለገው ቅርጽ አጉብጥ።

- የፍራፍሬ ማውረጃ ሙሉ መጠን ምስል (ዕዘል 1) ቅርጽ ለማውጣትና ለማስተካከል ተጠቀም።
- በሚቀጥለው ክፍል የተገለጸውን ቅርጽ ማውጫ ባለ 69 ሴ.ሜ ፊሮ ብረት ለማጉበጥ ተጠቀም።

ደረጃ 3. ከላይ እንደተገለጸው የተዘጋጀውን በይድ

ደረጃ 4. ጠፍጣፋውን ብረት በግራይደር ወይም በሞረድ በመሞረድ ስልት አውጣ

ደረጃ 5. በቱቦላሬው ላይ ትንሽ ቀዳዳዎች ብሳ


**4. የቅርጽ ማውጫ አጠቃቀምና ተፈላጊውን ቅርጽ መፍጠር**

የቅርጽ ማውጫውን መጠቀም ሥራህን ቀላልና ፍጥነት እንዲኖረው ይረዳል። በተጨማሪ የፍራፍሬ ማውረጃው ተመሳሳይ ቅርጽ እንዲኖረው ያደርጋል። ቅርጽ ማውጫ እንዴት እንደሚሠራ በሚከተለው ክፍል እዚህ መመሪያ ላይ ተገልጽዋል።



**የቅርጽ ማውጫ አጠቃቀም**

<p>ሁለት ብሎኖች (አማካይ ቦታ)</p>	
<p>1. በባለ 69 ሴ.ሜ ቁራጭ ፊር ብረት አጋማሽ ላይ ምልክት አድርግ። ፊር ብረቱን በሁለቱ ብሎኖች መካከል አድርግ። ምልክቱ በሁለቱ ብሎኖች መካከል ላይ መሆን አለበት።</p>	<p>2. የብረቱን ሁለቱን ጫፎች በመያዝ በ 'U' ቅርጽ አገብጥ።</p>

 <p>3. ሁለቱን ጫፎች በተመሳሳይ መልኩ እስከ መጨረሻ አገብጥ።</p>	 <p>4. ጫፎችን ለማገብጥ የብረት ቱቦ ተጠቀም</p>
--	--

 <p>5. ሁለቱን ጫፎች በተመሳሳይ መልኩ አገብጥ።</p>	 <p>6. ብረቱን ከቅርጽ ማውጫ ውስጥ አውጣ የብረቱን ጫፍ አስፈላጊ ከሆነ አስተካክለህ ቁረጥ*</p>
--	--

\* ማስታወሻ:

ከላይ በፎቶ የተመለከተው ፌሮ ብረት ከተፈለገው ቁመት (69 ሴ.ሜ) ይበልጣል። ብረቱ በ69 ሴ.ሜ ርዝመት ከተቆረጠ ጫፎችን ብረቱን ከአገብጥን በኋላ መቁረጥ አያስፈልግም።

**5. የቅርጽ ማውጫ አሠራር**

የቅርጽ ማውጫ አሠራር በጣም ቀላል ነው። ወፈር ባለ ጠፍጣፋ ብረት ላይ 12 ቀዳዳዎችን መብሳት። በትክክለኛ ቦታ ላይ ቀዳዳዎችን መብሳት ዋሳኝ ነው።

**(1) ጥሬ ዕቃ**

ጠፍጣፋ ብረት (ውፍረት 3 ሚ.ሜ፣ መጠን 35 ሴ.ሜ በ 25 ሴ.ሜ)	ብዛት 1
ብሎን (ዲያሜትር 9 ሚ.ሜ፣ ቁመት 30 ሚ.ሜ፣ ባለ 16 ሚ.ሜ)	ብዛት 12
ዳዶ	ብዛት 12

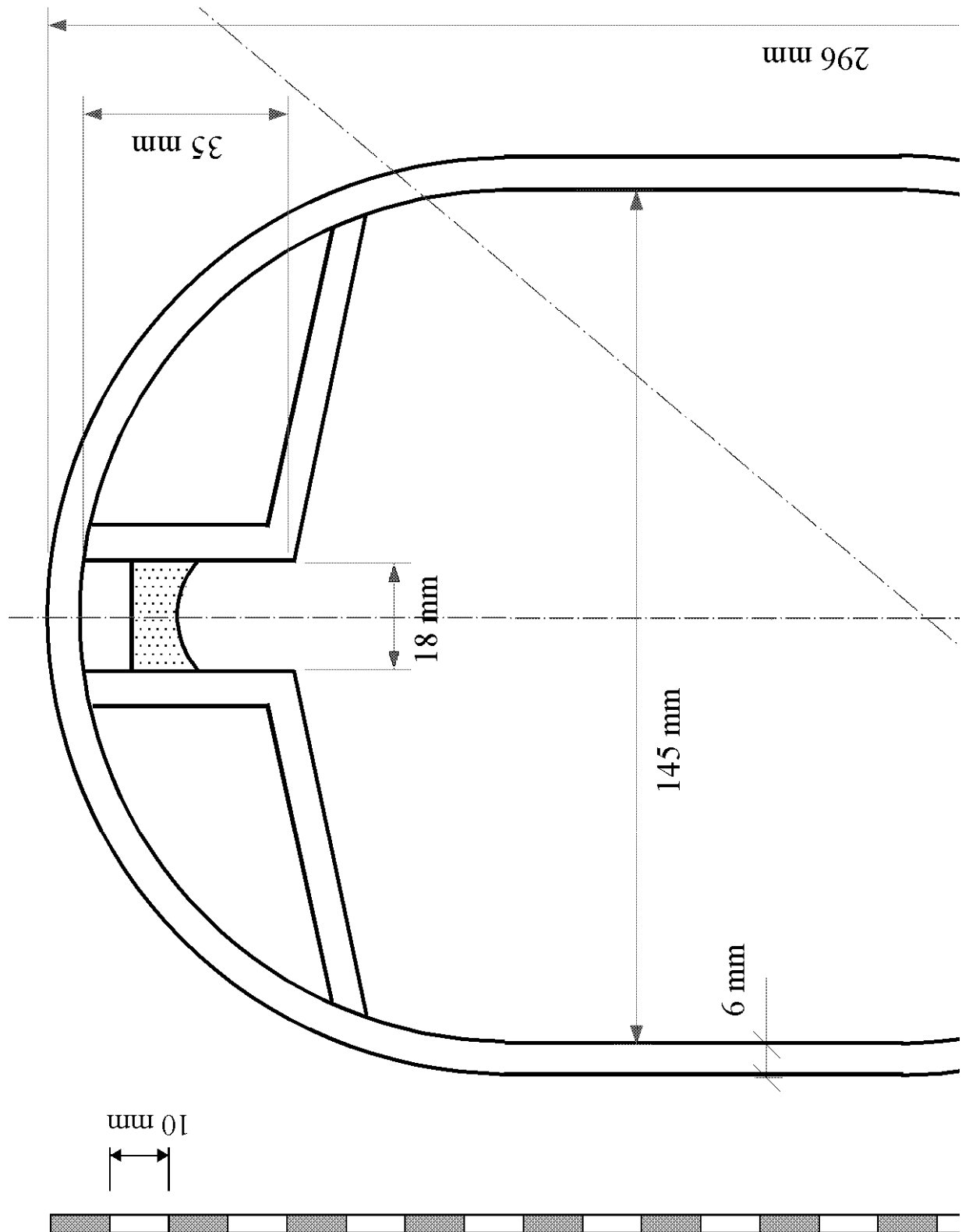
**(2) የአመራረት ሂደት**

- ዕዝል 2 ላይ የተመከተውን የቅርጽ ማውጫ ሙሉ ምስል በማየት እጅግ በጣም ትክክለኛ በመሆን 12 ቀዳዳዎችን መብሳት፤
- ባለ 10 ሚ.ሜ ስፋት ያላቸው ቀዳዳዎችን የኤሌክትሪክ መብሻ በመጠቀም በትኩረት ቦታው መብሳት፤
- ከዚህ በታች በፎቶ እንደተመለከተው 12ቱን ብሎኖች ማሰር።

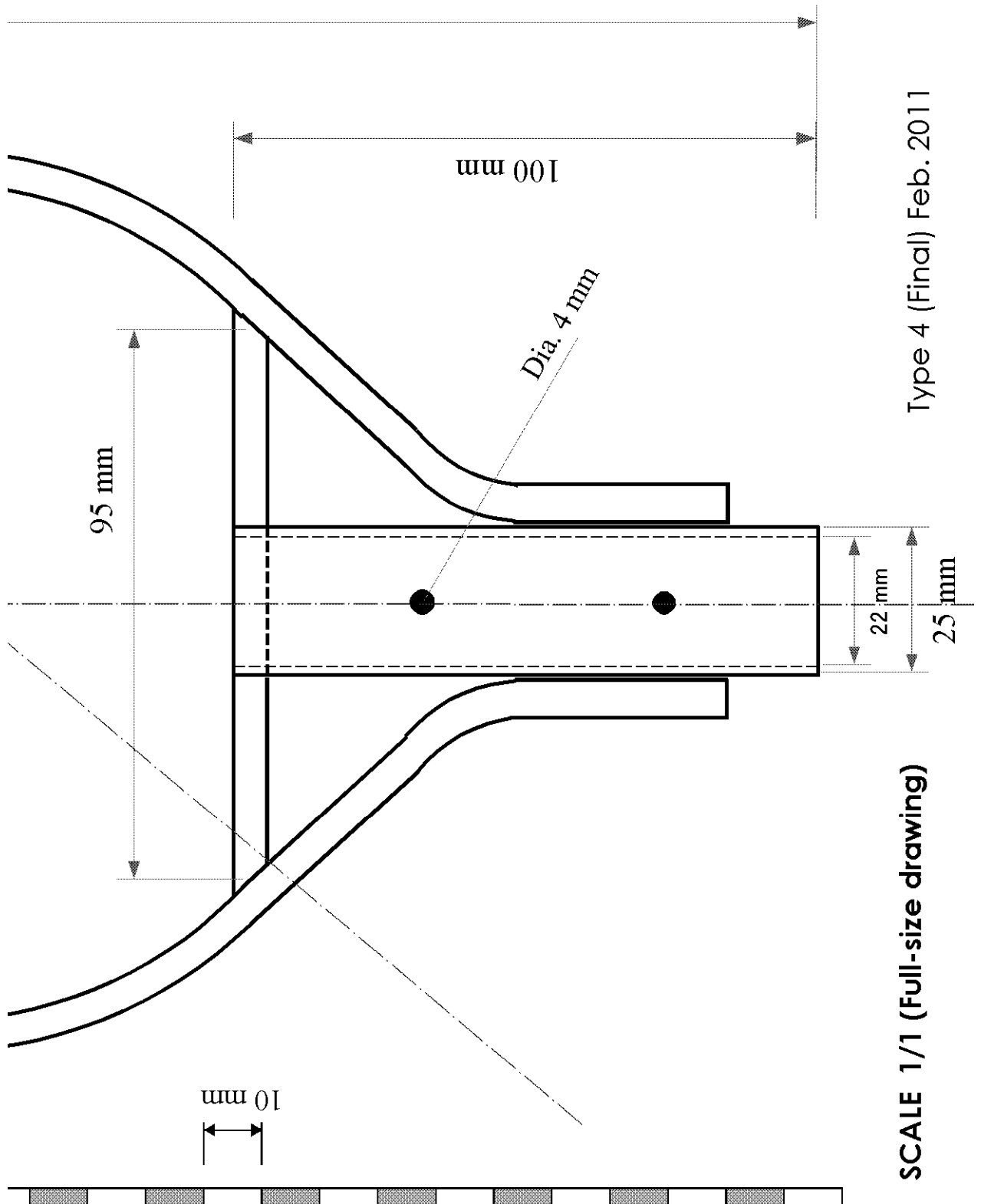
**ፎቶ: 12ቱን ብሎኖች እንዴት በጠፍጣፋ ብረት ላይ እንደሚታሰሩ የሚያሳይ**



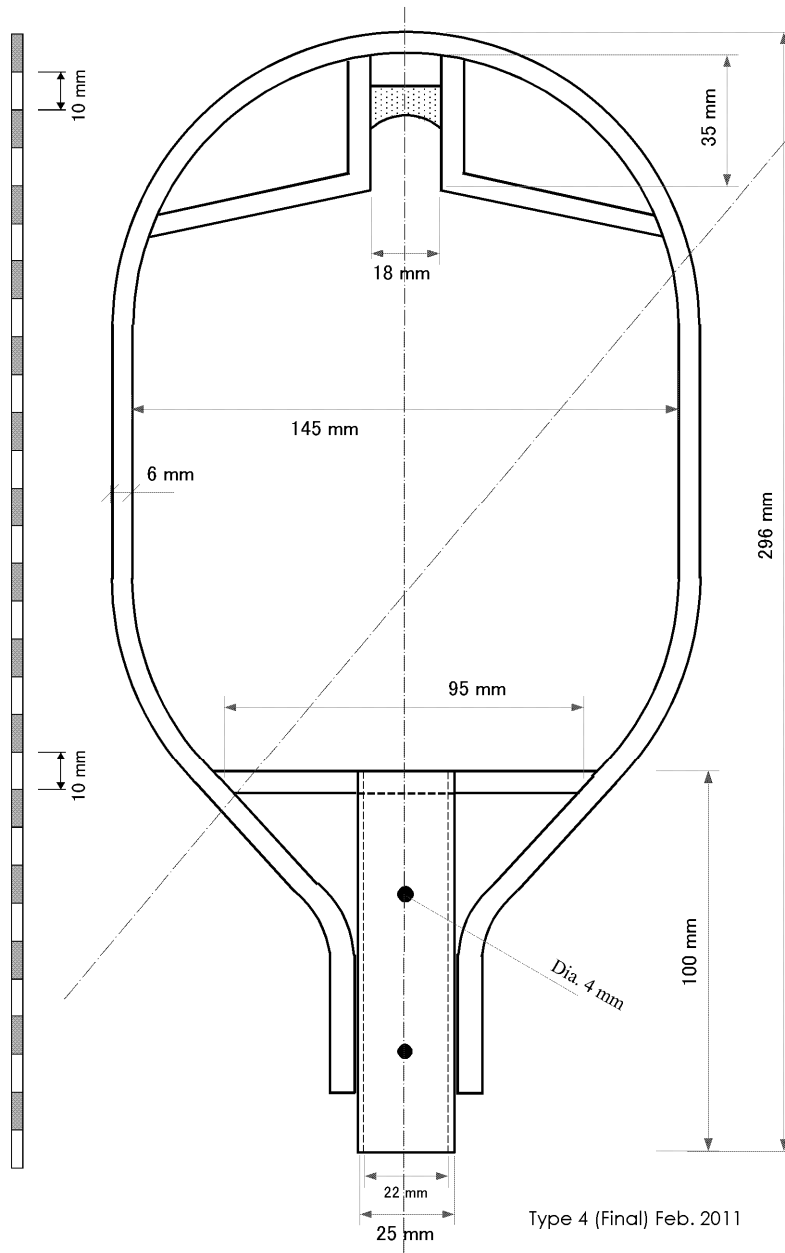
ዕዝል 1. የፍራፍሬ ማውረጃ ቁሳቀስ ሙሉ ምስል (ገጽ 1)



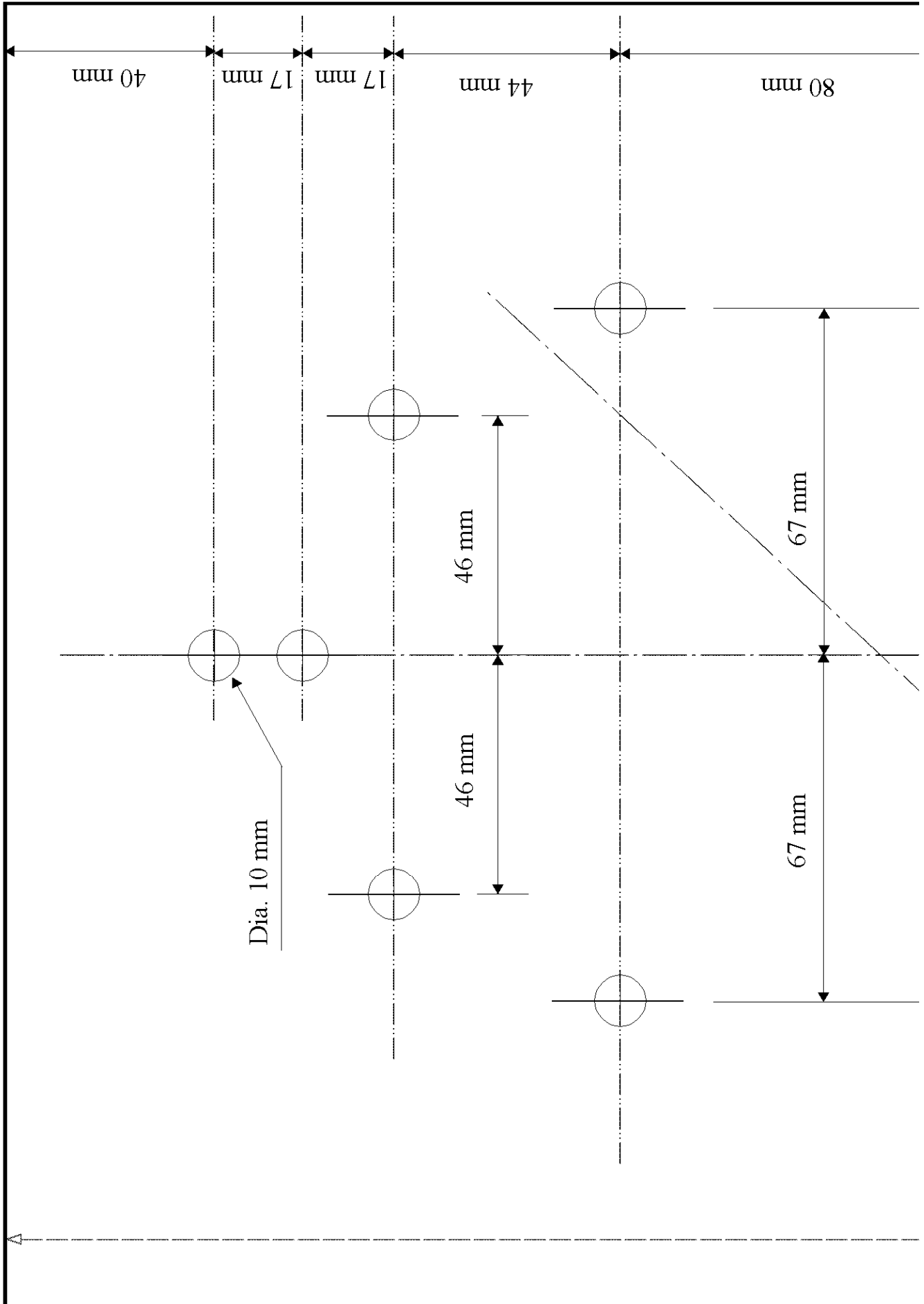
የፍራፍሬ ማውረጃ ቁሳቀስ ሙሉ ምስል (ገጽ 2)



የፍራፍሬ ማውረጃ ቁሰቁስ ግማሽ እስኬል ምስል

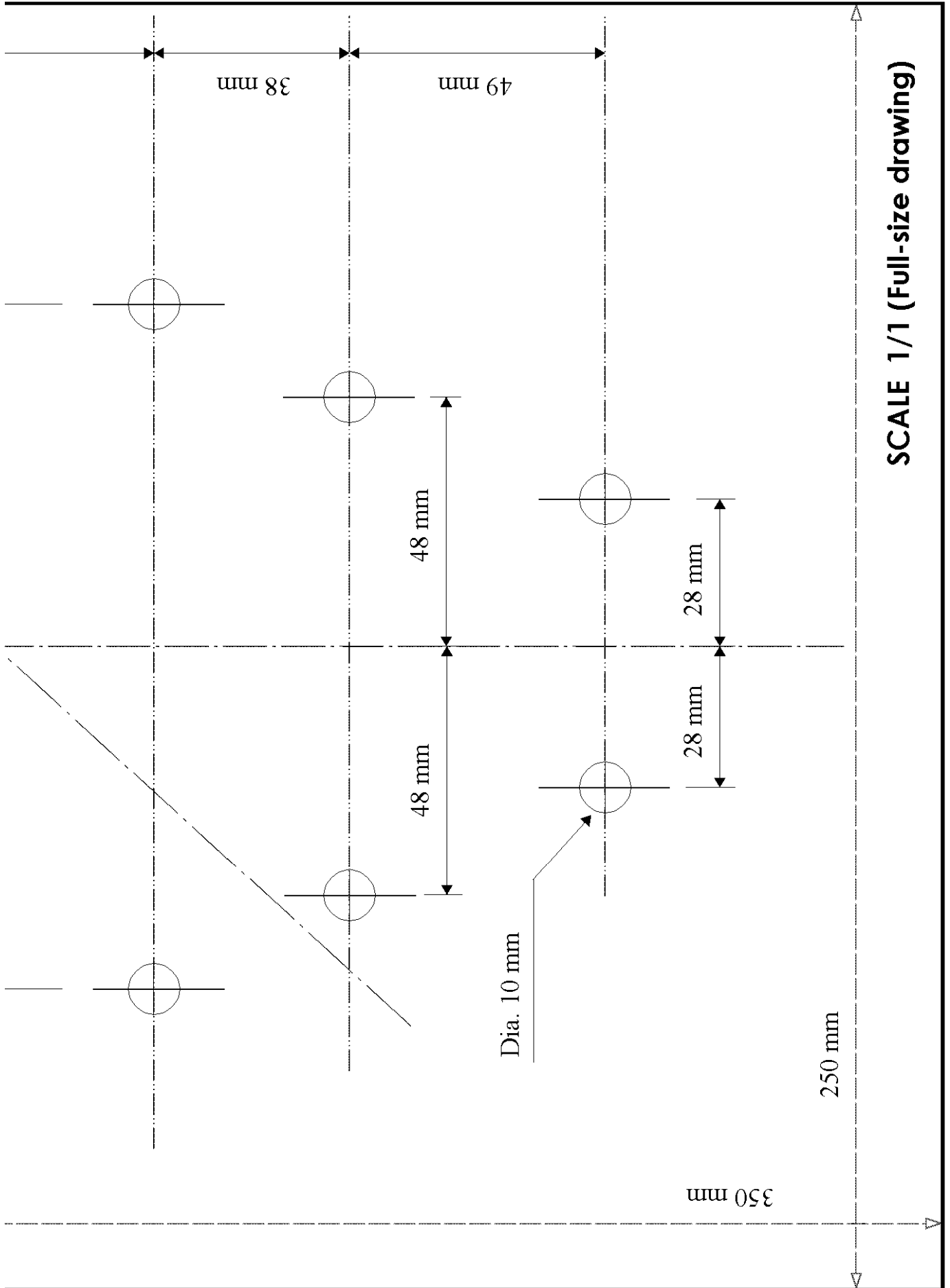


ፅዝል 2. የፍራፍሬ ማወረጃ ቁሳቁስ ቅርጽ ማውጫ መሰሉ ምስል (ገጽ 1)

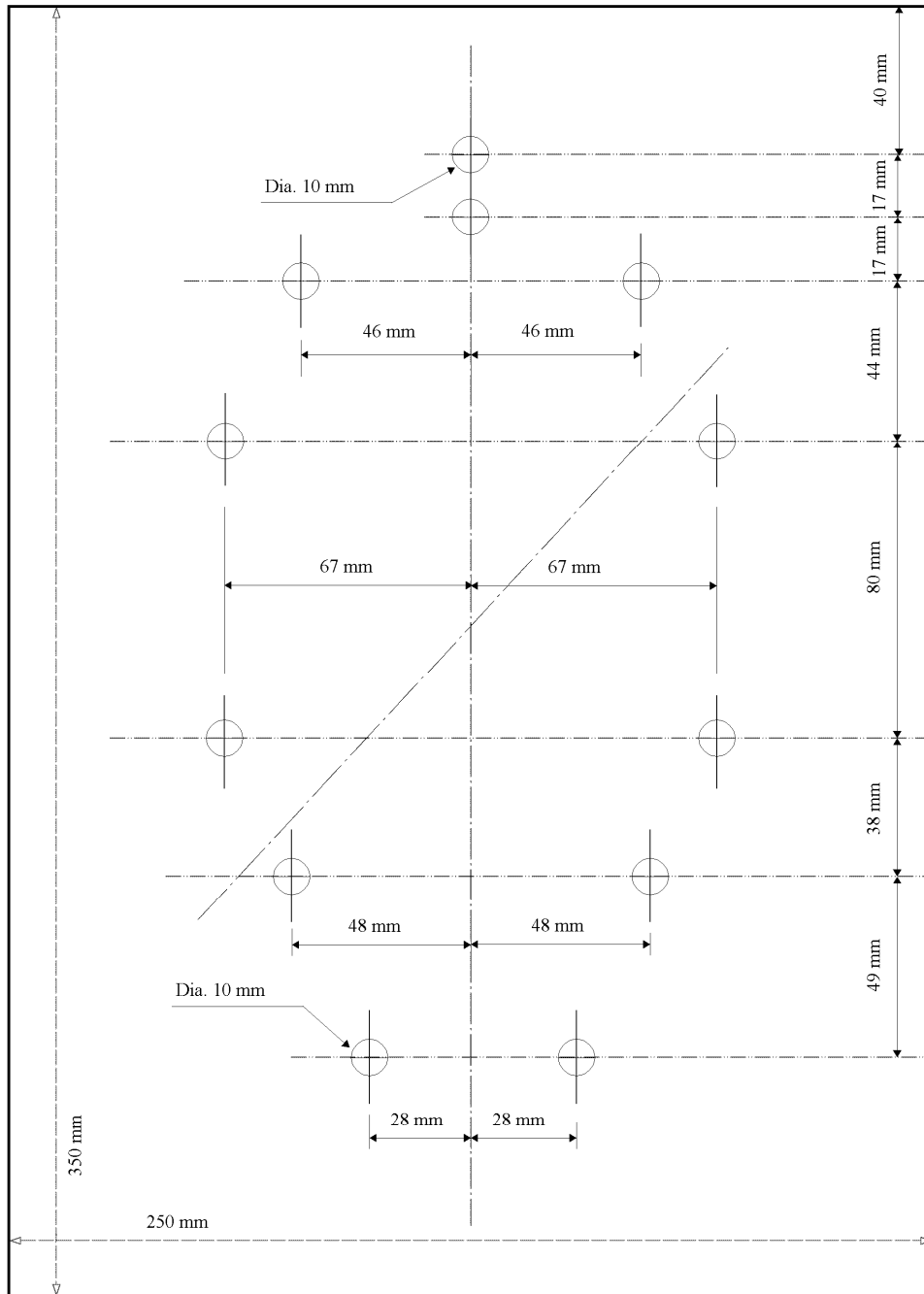




የፍራፍሬ ማወረጃ ቁሳቁስ ቅርጽ ማውጫ ሙሉ ምስል (ገጽ 2)

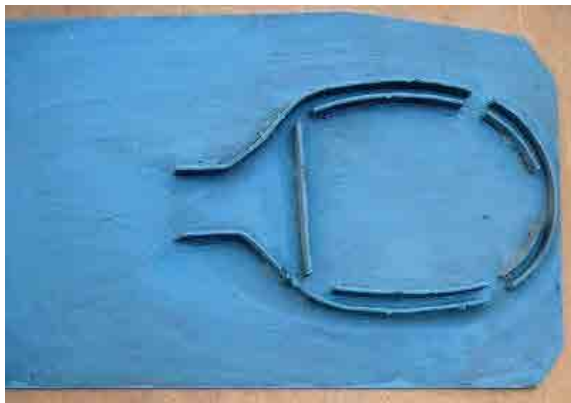


**የፍራፍሬ ማወረጃ ቁሳቁስ ቅርጽ ማውጫ ግማሽ እስኬል ምስል**



SCALE 1/2

**ዕዝል 3. ሌላ ዓይነት ቅርጽ ማውጫ ለቅርጽ ማውጣትና ብዩዳ**



ይህ ቅርጽ ማውጫ ዋሃ በሚገኘው አንድ ብረታ ብረት ሥራ ድርጅት የተሠራ ነው።

ይህ ቅርጽ ማውጫ ብረት በተፈለገው ቅርጽ ለማገብ ጎጥ እና ለብዩዳ ይረዳል።

**የቅርጽ ማውጫ አጠቃቀም**



1. በቅድሚያ የ69 ሴ.ሜ ርዝመት ያለውን ፊር ብረት ሁለቱን ጫፎች (4.5 ሴ.ሜ ከጫፍ በመራቅ) ማገብጥ

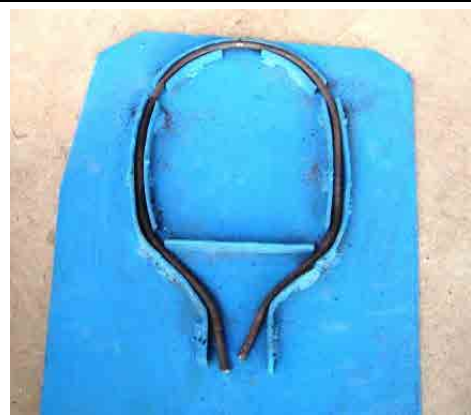
2. የባለ 69 ሴ.ሜ ርዝመት ያለውን ፊር ብረት አጋማሽ ላይ ምልክት አድርጎ በተገቢው ቦታ መካከል ላይ ማስቀመጥ



3. ሁለቱን ጫፎች በመያዝ ብረቱን በ 'U' ቅርጽ ማገብጥ



4. የብረቱን ጫፍ ተፈላጊውን ቅርጽ እንዲይዝ ማጉብጥ። በቅርጽ ማውጫው እንዲገባ መግፋት

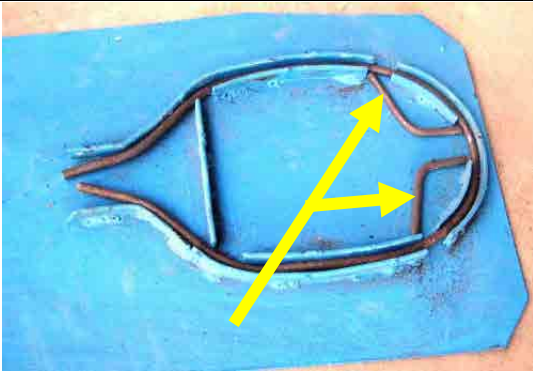



5. ሌላኛውን የብረቱን ጫፍ ቅርጽ እንዲይዝ ማጉብጥ.

6. በዚህ ዓይነት ክቡን አካባቢ ማጉብጥ ይቻላል።



7. ሁለቱን አጫጭር ብረቶችን አጉብጥ

	
<p>8. ሁለት አጫጭር የጎበጡ ብረቶችን በተገቢው ቦታ አስቀምጥ</p>	<p>9. ቀጥ ያለውን ብረት በቅርጽ ማውጫ ላይ አስቀምጥ አሁን ብረታ ብረቶቹ ለብዩዳ ሥራ ዝግጁ ናቸው።</p>



\*\*\*\*\* መጨረሻ \*\*\*\*\*

**PP03 Improvement of harvesting and handling practices of Mango/Avocado**

**Manual for Local Metal workshops**

**How to make a fruit harvesting tool**



**JICA Study Team & BoMC**

**March 2012**

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**Purpose of the Manual**

Fruit harvesting tool of practical use / simple design / cheap price has been developed in the pilot project 03 in the Study. To popularize the developed harvesting tools in fruits producing area, it is necessary to create the situation that “Farmers can buy the tool easily at their woreda”.

Fortunately, there are local metal workshops which make steel door/gate at woreda towns. And it was confirmed in the pilot project that they can duplicate the tool by using (looking) a sample. However, having uniformity in shape is still a challenge for metal workshops as shown in following photos.



Left : Tool duplicated by metal workshop in Wondogenet.

Right : Sample tool given to the metal workshop

Therefore, the bending mold has been prepared to attain a uniform shape easily. In addition, by using the bending mold, manufacturing will become easier and speedy.

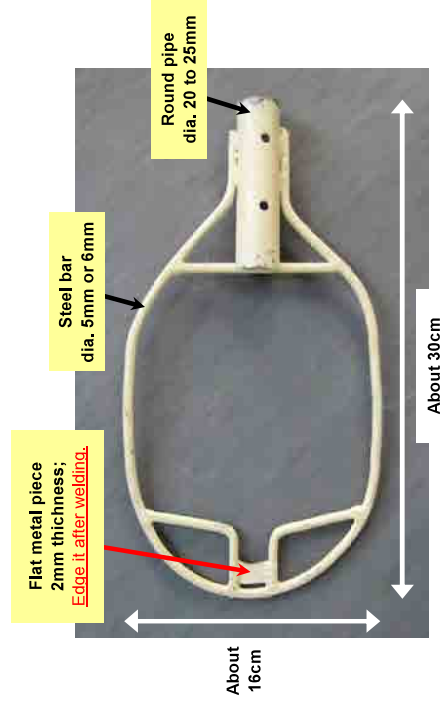
This manual is prepared to show two (2) technical contents to local metal workshops in woreda towns;  
i) How to use the bending mold to have a desired shape, and ii) How to make a bending mold..

I hope that this manual is duplicated and delivered to workshops who want to try manufacturing the harvesting tools for sale by WoMCS and BoMC.

JICA Study Team  
Yoshihiro BAN  
March 2012

**1. Size, shape and feature of harvesting tool**

Approximate size of the tool is 30 cm x 16cm.  
Most important feature is ‘Sharp-edge for cutting fruit stem’.



Precise shape and dimensions are shown in attached full-size drawing (ANNEX 1).

**2. Materials for 1 piece of harvesting tool**

Prepare following materials to make one tool.  
Do not use larger size of steel bar; it is hard to bend and a tool becomes heavy.

- (1) Steel bar, diameter 5mm or 6 mm
  - 69 cm x 1 pc.
  - 8.5 cm x 2 pcs.
  - 9.5 cm x 1 pc.
- (2) Round steel pipe, diameter 20 to 25 mm : 10 cm x 1
- (3) Flat metal piece, 2mm thickness : small piece x 1

**3. Manufacturing process**

Making of tool is very simple.

- Step 1: Cut steel bar and pipe at the specified length.
- Step 2: Bend steel bars (69 cm x 1 pc. and 8.5 cm x 2 pcs.) into the desired shape.
  - Use a full-size drawing (ANNEX 1) for arranging and checking the shape.
  - Use the bending mold being described in the next section to bend 69cm piece.
- Step 3: Weld the prepared parts
- Step 4: Edge a flat metal piece with grinder / hand file to give it a sharp-edge to cut fruit stem.
- Step 5: Drill small holes on pipe.

**4. How to use the bending mold to have a desired shape**

By using the bending mold, your work will become easier and speedy. In addition, it will keep your products in uniform shape. How to make a bending mold is also described in the next section in this manual.



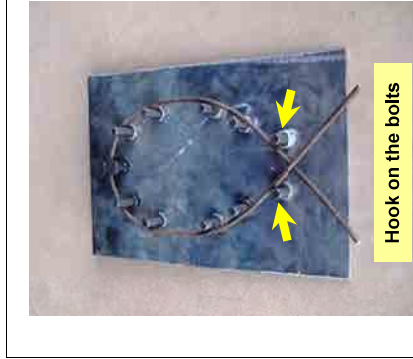
**How to use the bending mold**



1. Make a marking in the middle of cut piece (69 cm) of steel bar.  
Place the steel bar in-between two bolts.  
A marking should be at in-between two bolts (center position).



2. Hold the both ends of steel bar, and then bend it into 'U' shape.



3. Bend the both ends more evenly.



4. Use a piece of iron pipe to bend the ends.



5. Bend the both ends evenly.  
That's all for bending.



6. Take the steel bar out from the mold for welding.  
Cut the both ends into the specific length, if necessary.\*

\* Note :  
Steel bar shown in above photos is longer than the specified length (69cm).  
If you cut a steel bar in 69 cm, you will no need to cut the ends after bending.



### 5. How to make the bending mold

Making of the bending mold is very simple; just make 12 holes in metal plate. Most important is drill hole at exact position.

#### (1) Materials

- Steel plate ( Thickness 3 mm, Size 35 cm x 25 cm ) : 1 pc.
- Bolt ( Dia. 9mm, Length 30 mm, Bolt head 16 mm ) : 12 pcs.
- Nut for above bolt : 13 pcs.

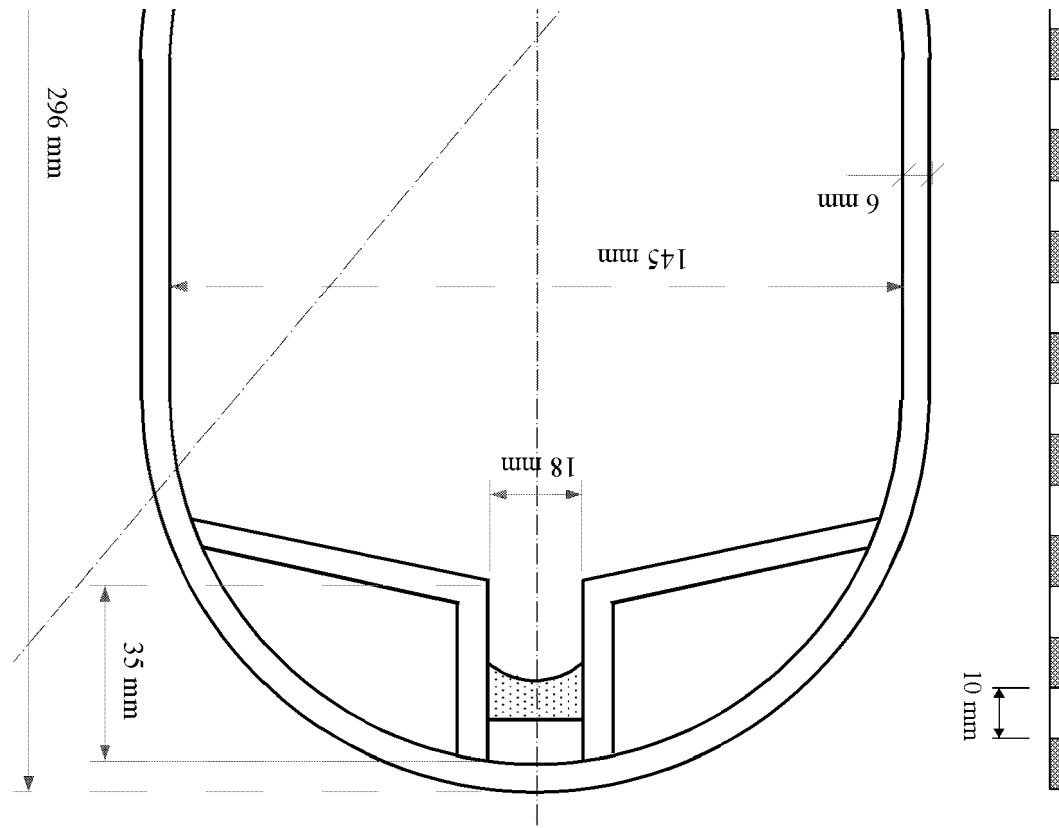
#### (2) Manufacturing process

- Mark the position of 12 holes very-very precisely; by using attached full-size drawing of Bending mold (ANNEX 2).
- Drill 10 mm holes with electric drill at exact position.
- Set 12 pieces of bolt as shown in following photos.

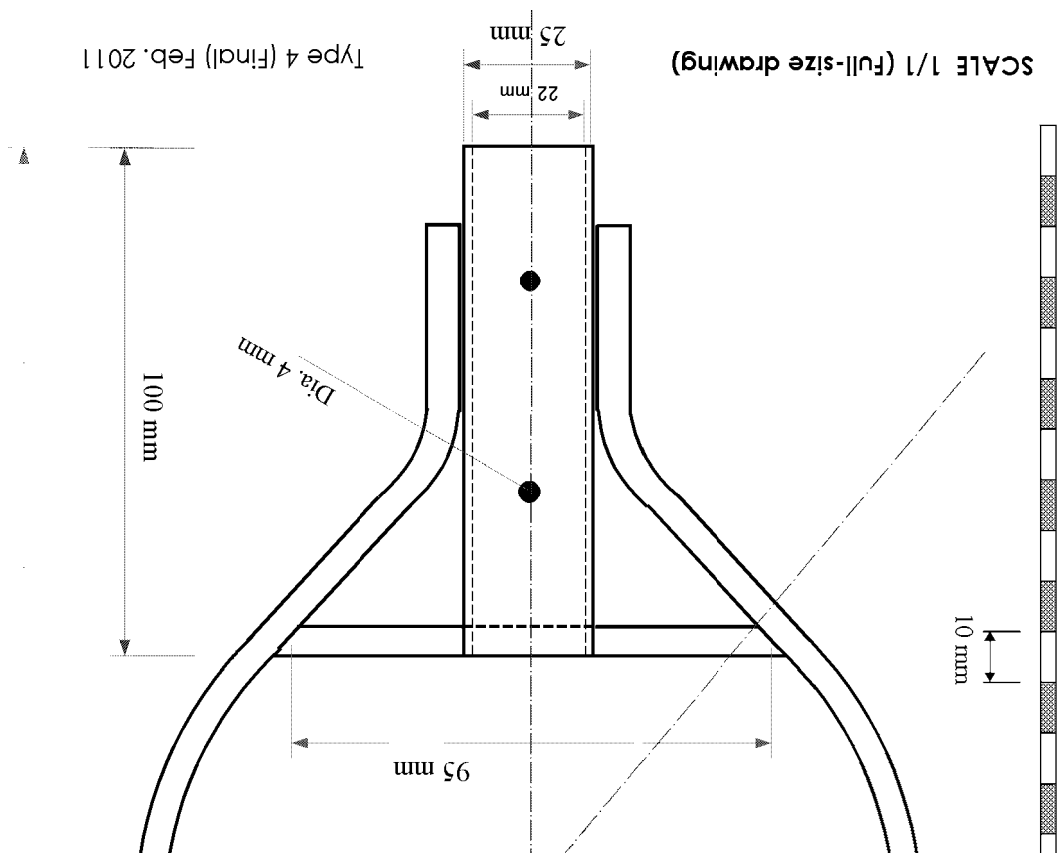
Photo : How to set 12 pieces of bolt in the plate.



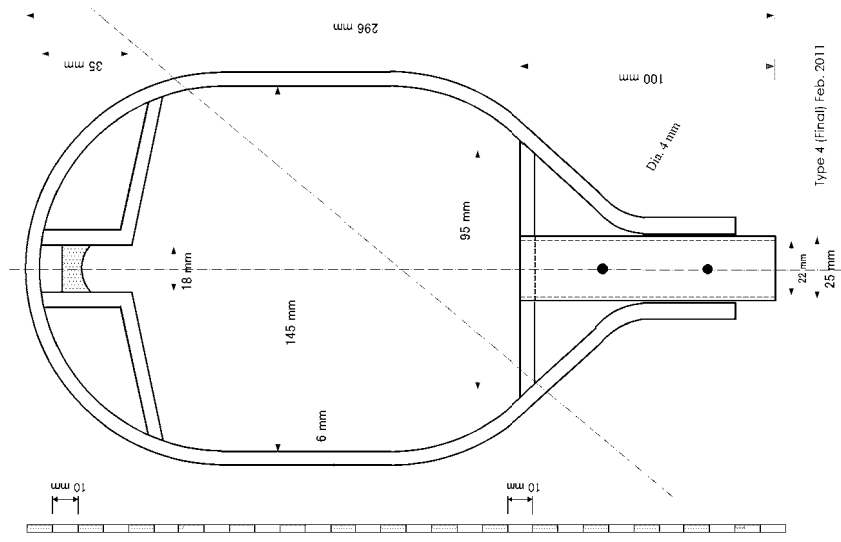
ANNEX 1 : Full-size drawing of Harvesting tool (page 1)



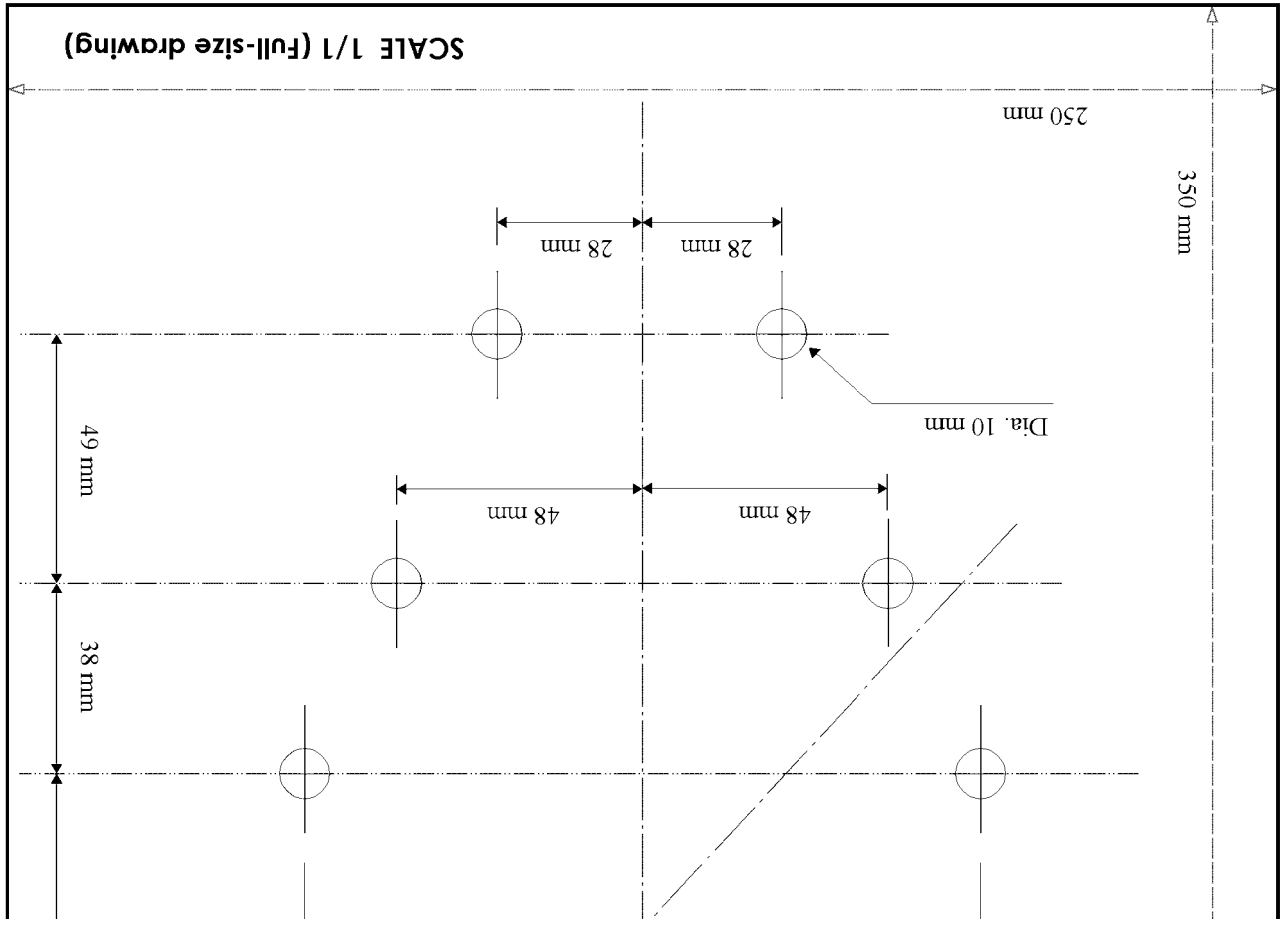
Full-size drawing of Harvesting tool (page2)



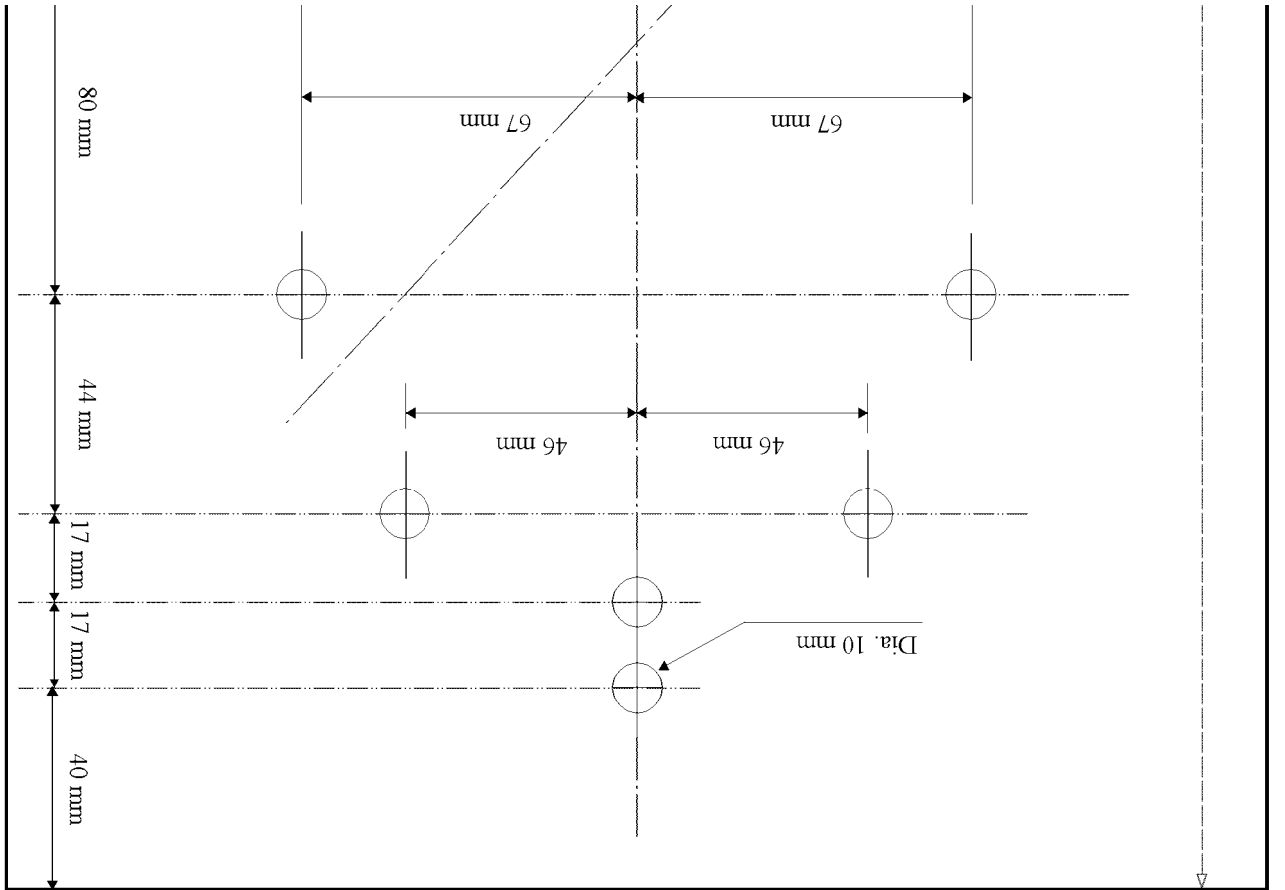
1/2 scale drawing of Harvesting tool



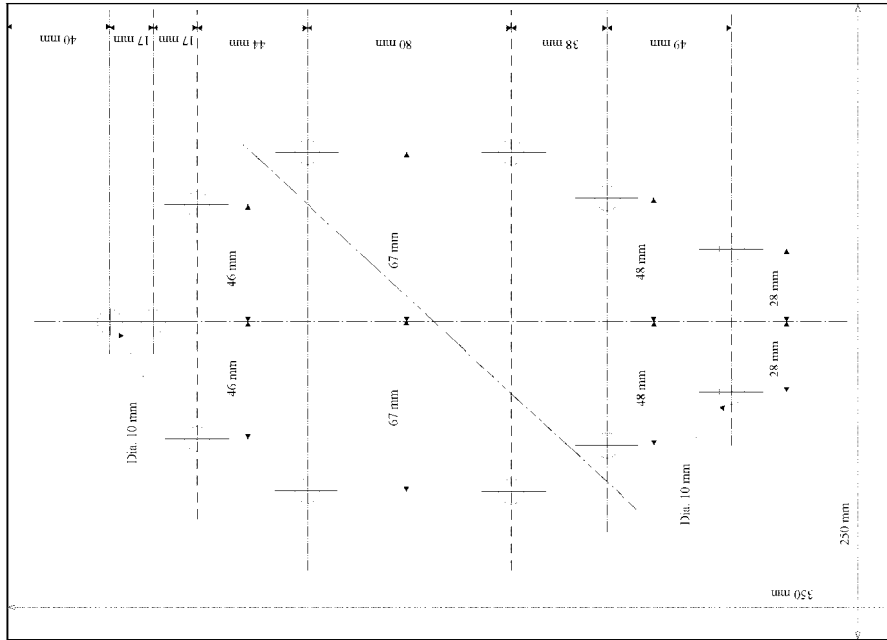
Full-size drawing of Bending mold (page 2)



ANNEX 2 : Full-size drawing of Bending mold (page 1)



1/2 scale drawing of Bending mold



SCALE 1/2

ANNEX 3 : Another type of mold for arranging the shape and welding work



This mold was made by the metal workshop in Hawassa.  
This mold is used for bending and arranging the shape of steel bars, and for welding work.

How to use the mold



1 Bend the both ends of 69 cm piece, at 4.5 cm from the end in advance, as shown in the next photo.



2 Make a marking in the middle of 69 cm steel bar. Place the steel bar at position.



3 Hold the both ends, and bend it into 'U' shape.



4

Bend the end part to arrange the shape. Push it into the mold.



5

Bend another end part to arrange the shape.



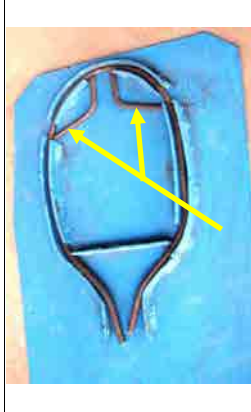
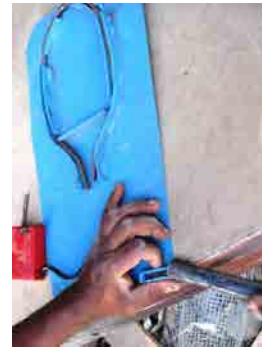
6

That's all for bending a round part.



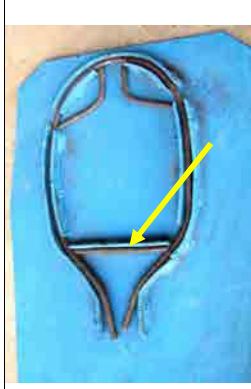
7

Bend two (2) short pieces.



8

Set two (2) short-bent pieces in the mold.



9

Set a straight piece in the mold. Now, pieces are ready for welding.



\*\*\*\*\* END \*\*\*\*\*