

# Cashew Processors Training Program Quality Assessment & Harvest/P-Harvest Handlings



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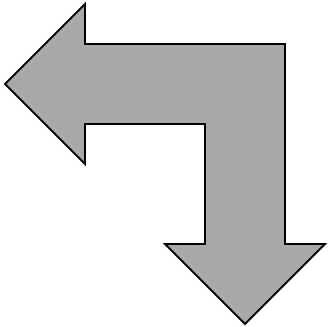


**AFRICAN CASHEW ALLIANCE**

# Its important to understand the efficiency links from cashew plantation to cashew processing



Plantation



Processing

Efficiency starts from plantation extends to processing to packaging and to sales.

For example; a better out turn would obviously lead to an overall more efficient system

In today cashew processing world is very important to understand the efficiency aspects related to production & processing with benchmarking and adaptability

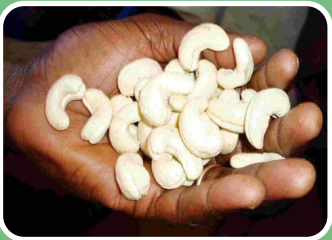
# BETTER QUALITY MEANS MORE MONEY...



**Best Agricultural Practices**



**Harvest & Post Harvest Handlings**

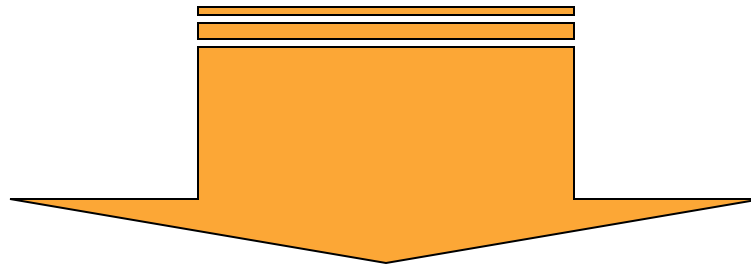


**Quality Assessment –  
Outturn Test**

# BEST AGRICULTURAL PRACTICES

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- ✓ **Seeds Selection**
- ✓ **Production of quality cashew plants**
- ✓ **Cleaning and Pruning**
- ✓ **Chemical Fumigations for diseases**
- ✓ **Substitution of old cashew trees with new cashew plants**
- ✓ **Stop traditional ways of cleaning – bush firing**



**Guaranteed Quality Cashew Production...**

# HARVEST & POST HARVEST HANDLINGS



Stop plucking with hands before cashew nut get fully matured, should wait until cashew fall down on ground itself with its fruit

Daily collection of cashew nuts together with cashew apple from ground

Proper separation of cashew nuts from cashew apple (use knife)

Note: While separating cashew nut from cashew apple, shouldn't leave any part of apple on the cashew nut head

# HARVEST & POST HARVEST HANDLINGS CONTINUE...



Must dry collected cashew nuts in sunlight for minimum 2 days



Dried cashew nut must be store in jute bags where its get more air ventilation.  
Never store cashew nuts in plastic bags because its affects negatively the cashew quality



Cashew nut bags must be store in organized piles on top of the wooden pallets, keeping distance to the warehouse walls

# QUALITY ASSESSMENT – OUTTURN TEST

Outturn is the Weight of good kernels (with Peel) in Lbs weight units, when we cut a bag of cashew nuts or 80 Kgs. Outturn is always expressed in pounds weight units like 44 pound quality , 48 pound quality etc.

Outturns are measured by cutting tests performed on samples of raw nuts which permit the factory manager or the exporter/importer assess the final kernel obtainable from a given lot of raw nuts.

Different Countries have different Out-turn of raw nuts. Like

<b>India</b>	<b>50-56</b>	<b>Vietnam</b>	<b>50-56</b>
<b>Brazil</b>	<b>50-55</b>	<b>Guinea Bissau</b>	<b>48-56</b>
<b>Ivory Coast</b>	<b>48-52</b>	<b>Ghana</b>	<b>44-48</b>
<b>Benin</b>	<b>46-50</b>	<b>Nigeria</b>	<b>40-46</b>
<b>Mozambique</b>	<b>42-46</b>	<b>Tanzania</b>	<b>45-52</b>
<b>Kenya</b>	<b>40-46</b>	<b>Madagascar</b>	<b>40-46</b>
<b>Indonesia</b>	<b>48-52</b>		

**Note: More out-turn means better quality.**



# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

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## How to take a sample to calculate Out turn

- Different lots have different treatment while taking sample.
- Small Lot we can take small quantities from different locations of the sample and mix them well and get a sample of 1kg.
- Big Samples small quantities can be takes from different locations as shown in picture

## Sample Characteristics

- Sample Should be well Dried, Normally we dry the sample for 2 days under sunlight.
- Sample should represents the characteristics of the lot.
- It should be random sample.



# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

## How to take a sample from different lots



Small Lot



Medium Lot



Big Lot

## Small quantities of different parts of lots (Primary Sample)



## Mix these small parts of lots and obtain a sample



# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

## Size Classification of Cashew Nut



Big Cashew Nut :

0 – 168 Cashew nuts/1kg



Medium Cashew Nut:

169 – 199 Cashew nuts/1kg



Small Cashew Nut:

200 – E Cashew nuts/1kg

# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

## How to calculate Out-Turn of a sample of Cashew Nuts

- Take a random sample of cashew nuts of 1kg weight.
- The sample should be well dried ( Humidity approx 8-8.5%).
- Cut the sample nuts through the line of intersection Shell and the kernel together ( Use castor seed oil or edible oil on hands before cutting cashew nuts is recommended to avoid the corrosive effect of the CNSL).
- Separate shell from kernels ( Kernels should contain peel also , Peel is considered to be a part of the kernel while calculate the Out-Turn).
- Separate the kernels into different grades for out turn like Good kernels, Spotted kernels, Bad Kernels, Premature kernels, Humidified kernels.
- Weigh all grades separately with a electronic balance.
- Different grades have different % of useful kernels to calculate Out-turn.

# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

## How to calculate Out-Turn of a sample of Cashew Nuts Continues...

- Good kernels – 100%
  - Dotted Kernels – 50%
  - Bad Kernels – 0 %
  - Premature Kernels- 50%
  - Humidified kernels – 20 %
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- Calculate Total useful kernels weight use for Out-turn
  - Useful Kernel Weight = Good kernels (100%)+Dotted kernels (50%) + bad kernels (0%) +Premature Kernels ( 50%)+ Humidified kernels (20%).
  - Calculate Out-turn  
Outturn = Total Useful kernel weight ( In Grams)\*80 /454

Note : Out- turn is always expressed in Lbs units.

The % of useful kernel can be different on phical aspects of the sample

# QUALITY ASSESSMENT – OUTTURN TEST CONTINUE...

## Types of kernels (examples)



Cashew nuts de-shelled



Bad Kernels



Premature kernels



Spotted kernels



Humidified kernels



Shell



Good kernels



# QUALITY ASSESSMENT – OUTTURN TEST RESULTS

## Example of Out-turn

After cutting a sample of 1 kg of raw nuts we find the following data-

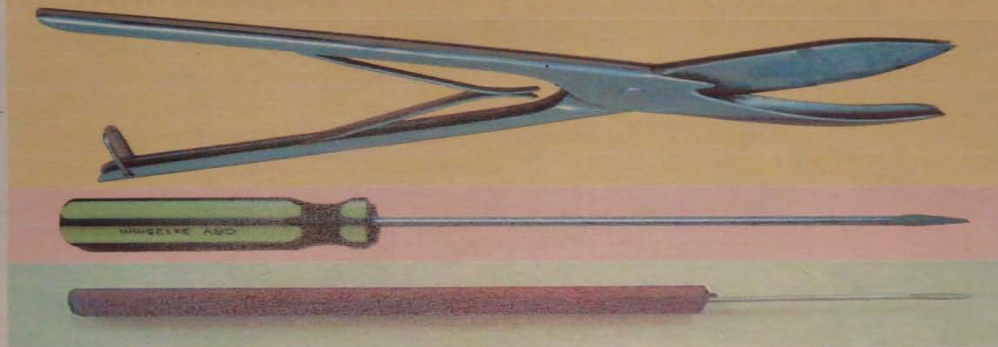
- Good kernels = 240 Grams
- Dotted kernels = 15 Grams
- Bad kernels = 10 grams
- Premature kernels = 16 grams
- Humidified kernels = 10 grams

First calculate

- Total useful good kernels = Good kernels (100%)+Dotted kernels (50%) + bad kernels (0%) +Premature Kernels ( 50%)+ Humidified kernels (20%).
- Total useful Kernels =  $240+7.5+0+8+2$
- = 257.5 Gms
- Outturn = Total Useful kernels weight \* 80 / 454
- =  $257.5 * 80 / 454$
- = 45.37 Lbs quality

# OUTTURN KIT

needed for  
the test?



The specialist  
tools to calcula  
outturn of a sa  
raw cashew ne

- One scissors specially for de-shelling cashew nuts
- One scoop or scoop key (could be from a screwdriver or made from a craft metal)



Materials needed for out-turn test

- One electronic balance with precision to 0.1 gram
- 4 different colored bowls for kernels (green, yellow, red, blue)
- Oil bowl or latex gloves



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# THANKS!

## CONTACT DETAILS

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