

Foreword

The formulation of this national standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) with funding from the Department of Agriculture.

This standard has been technically prepared in accordance with BPS Directives Part 3:2003 – Rules for the Structure and Drafting of International Standards.

The word “shall” is used to indicate requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted.

The word “should” is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that certain course of action is preferred but not necessarily required.

In the preparation of this standard, the following documents/publications were considered:

Performance Report on the UPLB Peanut Sheller. Agricultural Mechanization Development Program, CEAT, UPLB, Laguna. 1984.

Philippine Postharvest Industry Profile: Groundnut. Bureau of Postharvest Research and Extension, Muñoz, Nueva Ecija.

Regional Network for Agricultural Machinery (RNAM) Test Codes and Procedures for Farm Machinery, Technical Series No. 12:1983.

Agricultural Machinery – Peanut Sheller – Specifications

1 Scope

This standard specifies the requirements for construction and performance of power-operated peanut sheller.

2 References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this National Standard:

PAES 102: 2000	Agricultural Machinery – Operator’s Manual – Content and Presentation
PAES 103:2000	Agricultural Machinery – Method of Sampling
PAES 221:2004	Agricultural Machinery – Peanut Sheller – Methods of Test
PAES 311:2001	Engineering Materials – Bolts and Nuts for Agricultural Machines – Specifications and Applications
PAES 313:2001	Engineering Materials – Screws for Agricultural Machines – Specifications and Applications

3 Definitions

For the purpose of this standard the following definitions shall apply:

3.1**blower loss**

ratio of the weight of kernels blown by the sheller fan, to the weight of the total kernel input of the sheller, expressed in percent

3.2**damaged kernel**

wholly or partially broken and insect-damaged kernel

3.3**kernel**

edible part of peanut

3.4

main kernel outlet

outlet at which shelled kernel moves out of the machine

3.5

peanut sheller

machine used to remove kernels from the shell by breaking/splitting the pods (see Figure 1)

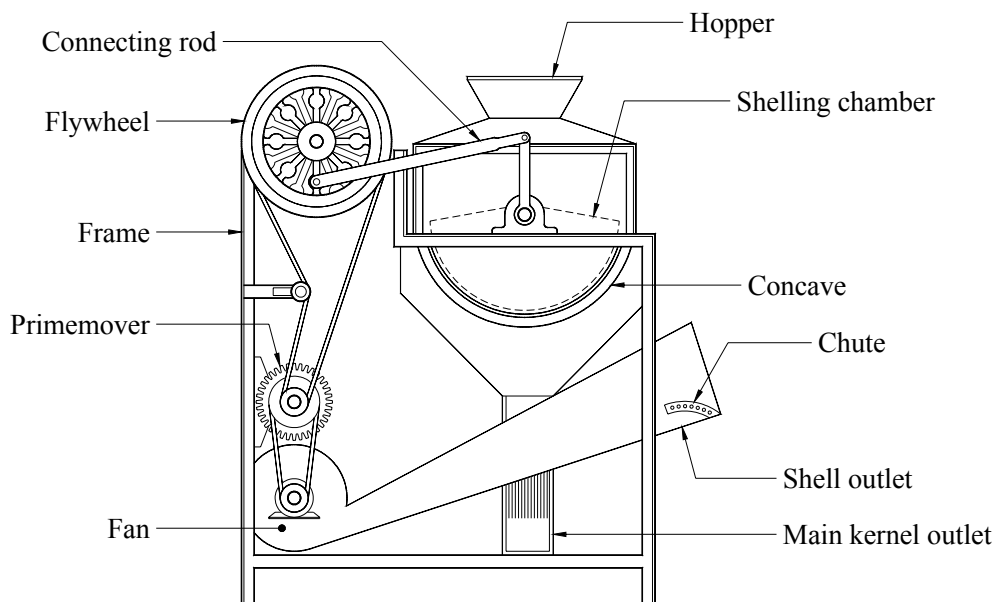


Figure 1 – Typical design of a peanut sheller

3.6

pod

unbroken shell with kernel inside

3.7

purity

amount of kernels free of foreign matter expressed as percentage of the total weight of the sample

3.8

scattering loss

ratio of the weight of kernels that fell out from the machine during shelling operation to the weight of the total kernel input of the sheller, expressed in percent

3.9

separation loss

ratio of the weight of kernels that come out of the shelling chamber at the shell outlet, to the weight of the total kernel input of the sheller, expressed in percent

3.10

shell

hull of the pod

3.11**shell outlet**

outlet at which shells come out of the machine in case of the machine with blower(s)

3.12**shelled kernels**

whole and damaged kernels freed from shell

3.13**shelling efficiency**

ratio of the weight of the shelled kernels collected at all outlets, to the total kernel input of the sheller, expressed in percent

3.14**shelling recovery**

ratio of the weight of the shelled kernels collected at the main outlet, to the total weight of the kernel input of the sheller, expressed in percent

3.15**unshelled loss**

ratio of the weight of kernels that remained in the pods collected from all outlets, to the weight of the total kernel input of the sheller, expressed in percent

3.16**whole kernel**

unbroken and non-insect damaged kernel

4 Classification

Peanut sheller shall be classified according to:

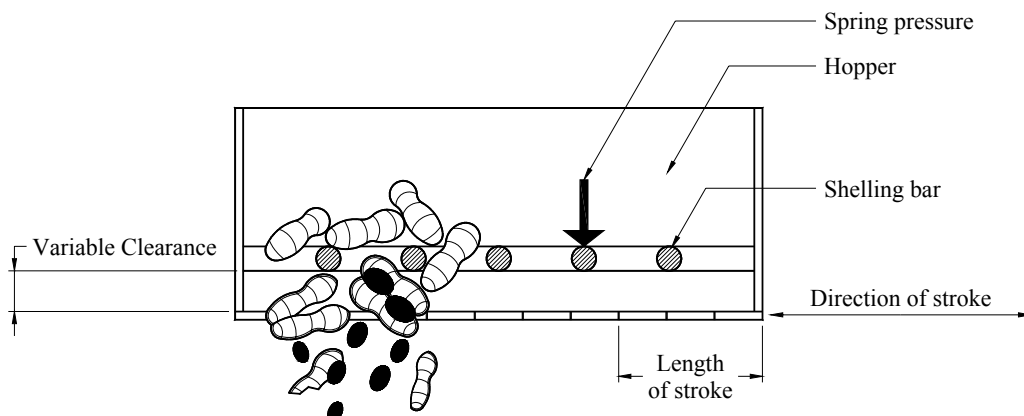
4.1 Shelling mechanism**4.1.1 Reciprocating**

Figure 2 –Typical example of reciprocating peanut sheller

4.1.2 Rotary

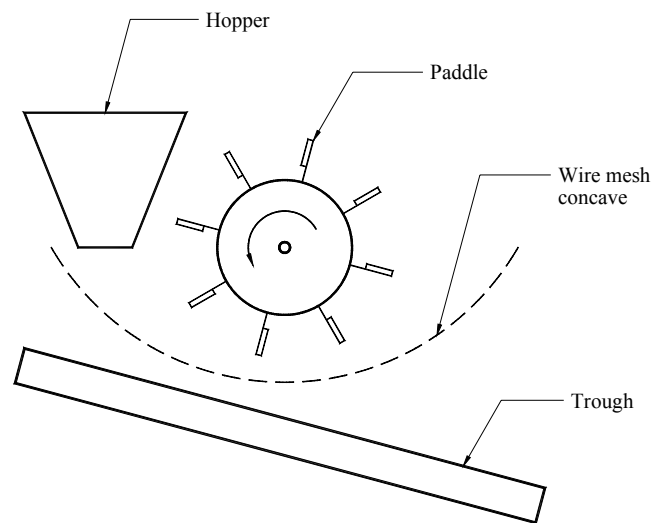


Figure 3 – Typical example of rotary peanut sheller

4.2 Cleaning component

4.2.1 Sheller with no separating device

4.2.2 Sheller with blower(s) only

4.2.3 Sheller with sieve(s) only

4.2.4 Sheller with blower(s) and sieve(s)

5 Materials of Construction

5.1 Steel bars and metal sheet or plate shall be generally used in the manufacture of the different components of peanut sheller.

5.2 Shelling elements should be made of carbon steel.

5.3 Bolts and screws to be used shall conform with the requirements of PAES 311 and PAES 313.

6 Performance Requirements

The peanut sheller when tested in accordance with PAES 221 shall conform to the following requirements:

Table 1 - Performance criteria for peanut sheller.

Criteria	Performance Data
Shelling Recovery, percent, minimum	93
Shelling Efficiency, percent, minimum	95
Losses, percent, maximum	
a) Blower	0.5
b) Separation	1.0
c) Unshelled	5.0
d) Scattering	0.5
Purity of output, percent, minimum	
a) with sieve	85.0
b) with blower	95.0
c) with sieve and blower	98.0
Mechanically Damaged Kernel, percent, maximum	3.5
Noise Level [db(A)], maximum	92

* Allowable noise level for six (6) hours of continuous exposure based on Occupational Safety and Health Standards, Ministry of Labor, Philippines. 1983.

7 Design and Workmanship

7.1 The peanut sheller shall be free from manufacturing defects that may be detrimental to its operation.

7.2 The screen should be replaceable to fit varying sizes of peanut.

7.3 Any uncoated metallic surfaces shall be free from rust and shall be painted properly.

7.4 The peanut sheller shall be free from sharp edges and surfaces that may injure the operator.

7.5 Rotating parts should be dynamically balanced.

7.6 Mechanism for immediate disengagement of power transmission shall be provided.

7.7 Sealed type bearings should be used as protection against dust. There shall be provision for lubrication of non-sealed type bearings and bushings.

7.8 Belt cover or guard and provisions for belt tightening and adjustments shall be provided.

8 Warranty for Construction and Durability

8.1 Warranty against defective materials and workmanship shall be provided for parts except for normal wear and tear of consumable maintenance parts such as belts within six months from the purchase of the peanut sheller and one year warranty for services.

8.2 The construction shall be rigid and durable without breakdown of its major components (i.e. transmission systems, etc) within six months from date of purchase by the first buyer.

9 Maintenance and Operation

9.1 Each peanut sheller unit shall be provided with a set of manufacturer's standard tools required for maintenance.

9.2 An operator's manual, which conforms to PAES 102, shall be provided.

10 Sampling

The peanut sheller shall be sampled for testing in accordance with PAES 103.

11 Testing

Sampled peanut sheller shall be tested in accordance with PAES 221.

12 Marking and Labeling

12.1 Each peanut sheller shall be marked in English with the following information using a stencil or by directly punching it in a plate and shall be positioned at the most conspicuous place:

12.1.1 Registered trademark of the manufacturer

12.1.2 Brand

12.1.3 Model

12.1.4 Serial number

12.1.5 Shelling capacity, kg/h

12.1.6 Power requirement, kW

12.1.7 Name and address of the manufacturer

12.1.8 Name and address of the importer, if imported

12.1.9 Country of manufacture (if imported) / "Made in the Philippines" (if manufactured in the Philippines)

12.2 Safety/precautionary markings shall be provided when appropriate. Marking shall be stated in English and Filipino and shall be printed in red color with a white background.

12.3 The markings shall have a durable bond with the base surface material.

12.4 The markings shall be weather resistant and under normal cleaning procedures, it shall not fade, discolor, crack or blister and shall remain legible.