

Foreword

The formulation of this National Standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) with support from the Department of Agriculture.

This standard has been technically prepared in accordance with BPS Directives Part3:2003 – Rules for the Structure and drafting of the International Standards.

The word “shall” is used to indicate mandatory requirements to conform to the standard.

The word “should” is used to indicate that among several possibilities one is recommended as particularly as suitable without mentioning or excluding others.

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

Catalogue on Fiber Properties, Products, and Machines, Tools and Devices for Fiber Extraction and Processing. Section No. 3:1984.

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

FIDA Multi-Fiber Decorticating Machine Leaflet. Fiber Technology and Utilization Division. Fiber Industry Development Authority. Diliman, Quezon City.

FIDA Autofed Decorticating Machine Leaflet. Fiber Technology and Utilization Division. Fiber Industry Development Authority. Diliman, Quezon City.

Fiber Recovery and Stripping Output of Fiber Extraction Machines / Devices Leaflet. Fiber Technology and Utilization Division. Fiber Industry Development Authority. Diliman, Quezon City.

FIDA Official Standards for Fiber Plants. Fiber Industry Development Authority. Diliman, Quezon, City.

Agricultural Machinery –Fiber Decorticator– Specifications

1 Scope

This standard specifies the construction and performance requirements for decorticator used for fiber plants such as abaca, maguey, pineapple, banana, ramie and sisal.

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 229:2005 Agricultural Machinery – Fiber Decorticator – Methods of Test

3 Definitions

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

3.1**fiber**

slender and greatly elongated natural filament of fiber plant

Note: raw material only and not fiber partially or entirely manufactured

3.2**fiber decorticator**

decorticator

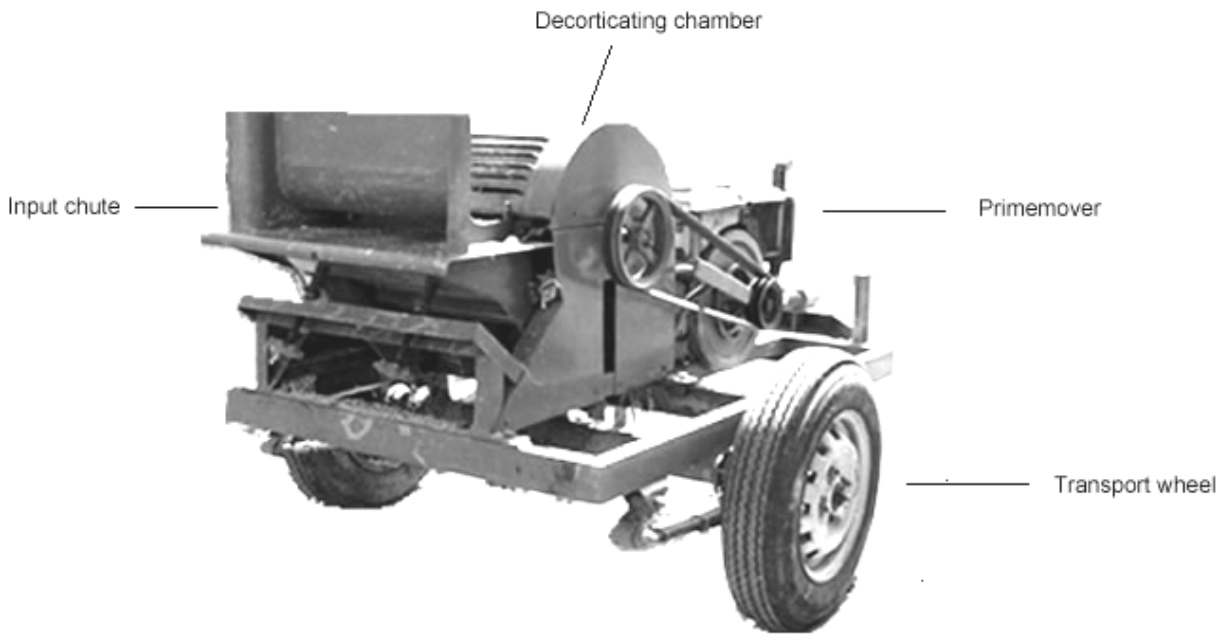
mechanical device used for extracting fibers by crushing, beating and scraping actions effected by the rotating cylinder with equally spaced blades and breaker or scraper block (Fig. 1)

3.3**fiber quality**

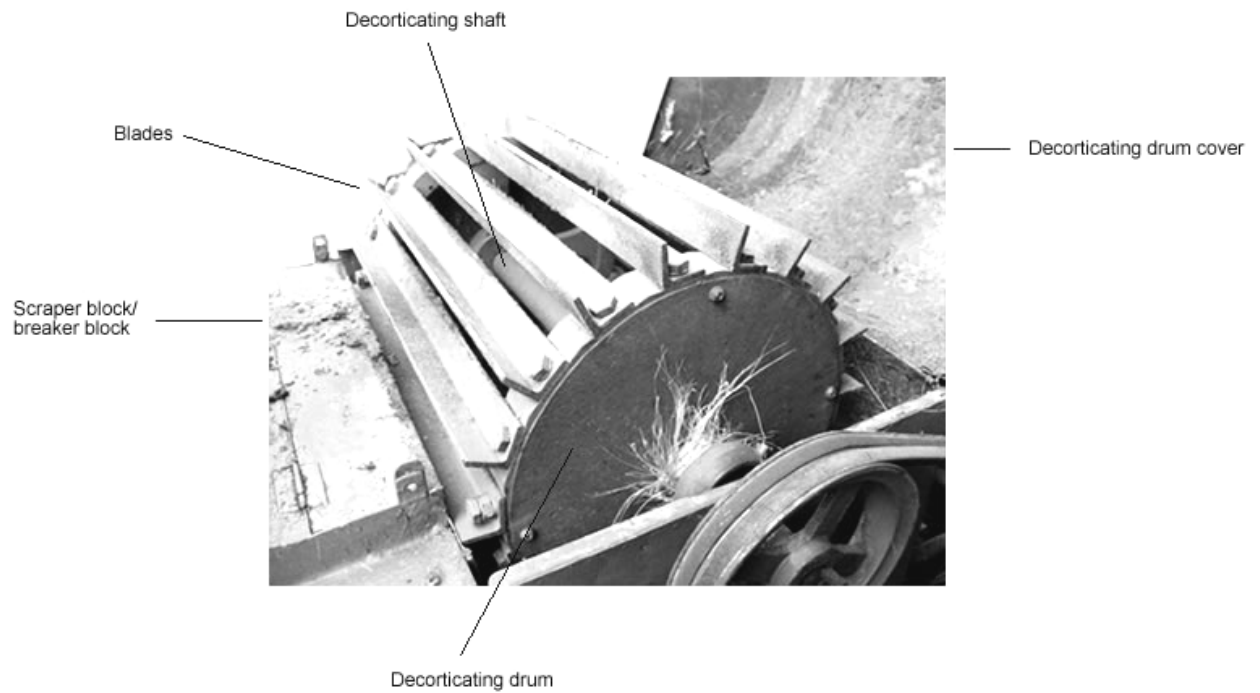
refers to the physical, chemical and morphological properties of fibers extracted

3.4**fiber recovery**

ratio of the dry weight of fiber extracted and total fresh weight of stalks / leaves, expressed in percent



(a) Fiber Decorticator



(b) Decortivating drum

Figure 1 Typical design of a fiber decorticator

3.5**input capacity**

weight of the raw materials (fresh stalks / leaves) fed to the machine per unit time, kg/h

3.6**scraper block**

breaker block

part of the decorticator where raw materials are beaten up and crushed

4 Classifications

Decorticating machines shall be classified based on the following:

4.1 Method of feeding**4.1.1 Manually fed****4.1.1.1 Horizontal****4.1.1.2 Inclined****4.1.2 Mechanically fed****4.2 Mobility****4.2.1 Mobile****4.2.2 Stationary****5 Materials of Construction**

Mild steel and metal sheet shall be generally used for the manufacture of the different components of the decorticating machine.

6 Construction and Performance Requirements

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

6.2 Provision of belt cover or guard and belt tightening.

6.3 Provision for the safety of the operators in the feeding port and other moving parts.

6.4 Provision of mechanism for clearance adjustment between rotating cylinder and breaker/scraper block.

6.5 Provision of mechanism for easy disengagement of power transmission.

6.6 The height of the feeding port/table shall be accessible to an ordinary Filipino without the use of stools, ladders, etc.

6.7 The performance criteria for decorticating machine shall be as specified in Table 1.

Table 1 - Performance Criteria for Fiber Decorticator.

Fibers	Criteria	
	Fiber Recovery, % minimum	Noise Level, dB (A), maximum
Abaca	3.37	95*
Banana	0.59	
Maguey	3.75	
Pineapple	1.42	
Ramie	5.00	
Sisal	3.52	

*Allowable noise level for four (4) hours of continuous exposure based on Occupational Safety and Health Standards, Ministry of Labor, Philippines. 1983.

6.8 The minimum fiber quality extracted by the decorticator shall be specified in Table 2.

Table 2 – Fiber Quality Extracted.

Fibers	Quality	Description
Abaca	AD-1-ABACA DECORTICATED SUPERIOR	Fiber of this grade is of good cleaning and its color ranges from ivory white to light ochre. This grade shall be free from any shade of purple, red and greenish streaks.
Banana	-	-
Maguey	MR-1-MAGUEY ONE	In all fiber of this grade the cleaning process has been properly and carefully carried out. There are practically no scales in the fiber. The cleaning is good and the color is dull white.
Pineapple	PID-1-PIÑA DECORTICATED ONE	Produced when the fiber is properly decorticated and dried. The fiber is almost free from scales, epidermal layers and pulps. The cleaning is good and the color varies from ivory white to almost white
Ramie	RD-A-RAMIE SPECIAL	Fiber washed simultaneously or immediately after decortications with fresh water. It's completely free from bark, sticks (broken stems) or foreign matters. The color ranges from light straw or light greenish to light yellowish ivory or creamy and the cleaning is good.
Sisal	SR-1-SISAL ONE	In all fiber of this grade the cleaning has been properly carried out. There are practically no scales in the fiber. The cleaning is good and the color is dull white.

7 Workmanship and Finish

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

7.2 Metallic surfaces shall be free from rust and shall be painted properly. Cutting section shall be coated with anti-corrosive varnish.

7.3 The decorticator shall be free from unnecessary sharp edges and surfaces.

8 Warranty for Construction and Durability

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

8.2 The construction shall be rigid and durable without breakdown of its major components (i.e. crushing mechanism, etc) within six months from the original purchase.

9 Maintenance and Operation

9.1 Each decorticator 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 decorticator shall be sampled for testing in accordance with PAES 103.

11 Testing

Sampled decorticator shall be tested in accordance with PAES 229.

12 Marking and Labeling

12.1 Each decorticator 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 Input 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.