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Agricultural Machinery Testing and Evaluation Center
1977

ACR 013:2023 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR DISC HARROW

■ Application for AMTEC Test

The test applicant shall submit AMTEC-OP-F1 (Agricultural Machinery Test Application Form) together with the following requirements:

- AMTEC-OP-F16 (Waiver for Machine Specifications)
- AMTEC-OP-F18 (Data Privacy Consent Form)

■ Technical Specifications of the Machine

The test applicant shall submit any document/s indicating the specifications of the machine upon application for testing. In case the said document/s are not available, the applicant shall fill out the Machine Specifications Sheet provided by AMTEC upon request.

- Operator's manual with complete specifications as indicated in Annex B of PAES 133:2004
- Brochure
- Machine specifications sheet (shall be filled out upon request and receipt of copy from AMTEC in case the manual or brochure is not available)

■ Preparation and Operation of the Machine

The disc harrow shall be ready for testing. The officially designated operator of the test applicant shall operate, demonstrate, adjust, and repair the unit. Meanwhile, the officially designated representative shall decide on matters related to the operation of the machine.

■ Running-in of the Machine

A test run shall be conducted prior the official test as to check its condition and make necessary adjustments to the machine.

■ Test Plot

The test applicant shall prepare at least three (3) test plots. Each test plot shall be:

- Rectangular with sides in the ratio of 2:1, as much as possible;
- Size of the test area should be at least 1000 m²;
- The headland shall be at least 3 m in length (depending on tractor size); and
- The test area shall be previously plowed.

■ Other Test Conditions

The following shall also be adequately supplied during the conduct of testing:

- Fuel tank filled to its full capacity;
- 4 L or sufficient fuel for refilling after each trial;
- Tools for machine repair and adjustments; and
- The tractor to be used shall be compatible with the harrow in accordance with the manufacturer's specification of required power.

■ Machine Setting

- The gear setting of the tractor shall be recorded.
- A traveling speed of 7-8 kph shall be maintained during the operation.

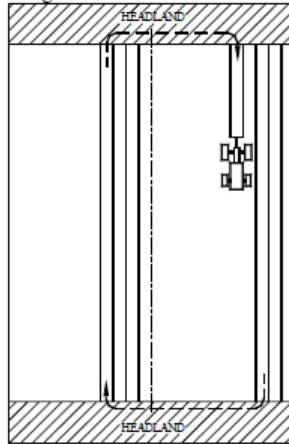


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■ Recommended Tilling Pattern

For the disc harrow, the alternating headland pattern is recommended.



■ Materials of Construction, Construction, Performance, and Other Requirements

AMTEC shall conduct various tests and verification on different performance parameters of the machine including the following requirements as per PAES 120:2001:

■ Materials of Construction

Criteria	Requirement as per PAES 120:2001
Frame, Gang Axle, Scraper, Gang Angling Mechanism, and Hitch	<input type="checkbox"/> All shall be made of mild steel.
Spool	<input type="checkbox"/> It shall be made with cast iron.
Hitch Pin	<input type="checkbox"/> It shall be made with carbon steel.
Disc Blade	<input type="checkbox"/> Shall be made of carbon steel with at least 80% carbon content (AISI 1080) or alloy steel with at least 0.0005% boron content.

■ Construction Requirements

Criteria	Requirement as per PAES 120:2001	
	Items	Requirements
Disc Harrow Construction	Length, m	2 to 8
	Width, m	1 to 10
	Height, m	1 to 1.5
	Number of gangs	Minimum of 2 for offset and single-action disc harrow Minimum of 4 for tandem disc harrow
	Type of disc	Plain or notched
	Number of disc	Minimum of 4 in each gang
	Diameter of discs, mm	400 to 650 (600 maximum for four disc gang)
	Thickness of discs, mm	4 to 6
	Concavity (depth), mm	100 to 300
	Disc angle, °	24 maximum
	Length of spool, mm	175 or 225 ± 2
	Ground clearance, mm	125
	Weight per disc, kg	25 to 70
	Drawbar power requirement per disc, kW	1 to 2.5



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■ Other Requirements	
Criteria	Requirement as per PAES 120:2001
Others	<ul style="list-style-type: none"> <input type="checkbox"/> The frame shall be rigid and durable. <input type="checkbox"/> The gangs shall be so attached that their angles can be easily changed to desired position with gang angling mechanism. (a) The rear gang(s) in offset and tandem disc harrow shall be so arranged that the disc(s) of rear gang(s) shall not make the same path formed by front gang(s). (b) Bumpers may be provided in the inside end of the front gangs of the single-action and tandem disc harrows to prevent the inside discs from rubbing each other at any gang angle in which the gangs are set. (c) The discs in each gang shall be firmly fixed by spools and there shall not be any relative movement between the disc and the axle. <input type="checkbox"/> The scrapers shall be set in such a way that they shall not touch the face of disc and shall be able to scrape the soil effectively. Arrangement for adjusting the scrapers shall be provided. <input type="checkbox"/> Adequate arrangement for lubrication of bearings shall be provided. The bearings shall be reasonably dust-proof and shall be properly aligned. <input type="checkbox"/> Ball or tapered roller bearings with special dirt seals shall be used. <input type="checkbox"/> Both faces of spool coming in contact with the disc face shall be finished for proper gripping. <input type="checkbox"/> The hitch of disc harrow shall be compatible with the hydraulic system and three-point hitch of the tractor specified in PAES 118. <input type="checkbox"/> In single-action disc harrow, provision may be made for attaching a shovel or a sweep to cut and uncut the soil between two gangs. <input type="checkbox"/> The harrow shall be easy to operate such as: (a) Hitching and unhitching, (b) Depth of cut adjustment, (c) Position change of harrow with respect to the line of pull of tractor, (d) Moving the standards laterally on the frame, (e) Varying the angle between the bodies, (f) Maneuvering, (g) Clearing blockage, (h) Changing from transport to work position, and (i) Scraper adjustment.
■ Performance Requirements	
Criteria	Requirement as per PNS/PAES 120:2001
Depth of cut, mm, maximum	As specified by the manufacturer
Quality of work	During operation, the harrow shall produce good quality of work such as: (a) The ability to harrow throughout the complete implement width and capacity to cut and incorporate plant residues in the soil at minimum blockages.
■ Workmanship and finish	
Criteria	Requirement as per PNS/PAES 120:2001
Presence of manufacturing defects	The disc harrow shall be free from manufacturing defects that may be detrimental to its operation.
Presence of rust	Except for disc blades, other uncoated metallic surfaces shall be free from rust and shall be painted properly.
Presence of sharp edges and surfaces	The disc harrow, except for disc blades, shall be free from sharp edges and surfaces that may injure the operator.



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■ Suspension and Termination of Test

If the test plot does not conform with the recommended quantity and characteristics, AMTEC shall not proceed with the test. Should the test applicant request the conduct of the test despite the non-conformity to the test requirements identified by AMTEC, the applicant shall sign the AMTEC Waiver for Nonconformity to Test Requirements.

- AMTEC-OP-F24 (Waiver for Nonconformity to Test Requirements)

On the other hand, if the machine stops due to breakdown or malfunction during the test run affecting the machine's performance, the test may be suspended. If the machine cannot continue the operation, the test shall be consequently terminated.

■ Other Assistance During Test

1. For field and laboratory testing outside the AMTEC premises, the applicant shall shoulder the transportation expenses (i.e. fuel, toll fees, vehicle rental, plane fare, sea fare, etc.) of the AMTEC Staff assigned for the testing activity.
2. The applicant may assist the AMTEC Staff in looking and/or making arrangements for hotel accommodation near the test site.
3. The applicant shall provide drinking water to the AMTEC Staff during the testing activity.
4. The applicant shall provide any form of shed or sunshade (e.g. tent, umbrella, etc.) for the test equipment, samples (if applicable) and AMTEC Staff during the testing activity in the field.
5. The applicant is requested to assist the AMTEC Staff in finding any means to access a safe and convenient restroom near the test site during the testing activity.

■ Testing Fee

1. The testing fee for disc harrow is Php 7,000.
2. To proceed through AMTEC test, the test applicant shall settle at least 50 % of the testing fee which is non-refundable but transferrable.
3. In cases of additional testing during the field, the test applicant shall immediately pass the required documents and settle at least 50% of the testing fee within 5 working days after the testing proper.
 Additional testing, number of machines: _____
4. Payment/s shall be directed to the following:
 Through UPLB Cashier's Office (8AM to 12PM): AMTEC Trust Fund Code No. 8271632-40A2040101000
 Through Landbank (8:30AM to 3PM): UPLB Trust Fund Account No. 1892100507 or UPLB FI Account No. 1892-1003-29

■ Other Reminders

1. All manufacturers, fabricators, assemblers, and importers (MFAI) shall secure a Certificate of Conformity (CC) from the Bureau of Agricultural and Fisheries Engineering (BAFE) which guarantees that their agricultural and fisheries machinery conforms with PNS/BAFS PABES or other relevant standards identified by BAFE. More information about the application for CC can be found at <http://bafe.da.gov.ph/index.php/certificate-of-conformity-of-manufacturers-fabricators-assemblers-distributors-dealers-importers-and-exporters/>.
2. All MFAI shall employ an Agricultural and Biosystems Engineer (ABE), as mandated by RA 10915 (ABE Law), who shall facilitate all activities and concerns pertinent to AMTEC testing and BAFE requirements.
Do you currently have an ABE in your roster of employees? Yes No