



AMTEC
Agricultural Machinery Testing and Evaluation Center
1977

ACR 024:2023 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR POWER SPRAYER FOR MANGO

■ Application for AMTEC Test

The test applicant shall submit AMTEC-OP-F01 (Agricultural Machinery Test Application Form) together with the following requirements:

- AMTEC-OP-F16 (Waiver for Machine Specification)
- 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 158:2011
- 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 power sprayer for mango shall be ready for testing. The officially designated operator of the test applicant shall adjust, repair, and 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.

■ Materials for Testing

The test applicant shall prepare the following for the conduct of the test:

- Fuel sufficient for the duration of the test and engine oil (for engine-operated power sprayer); and
- Two lance and two hose.

■ Machine Setting

The power sprayer for mango test settings that shall be set by the test applicant and maintained through the duration of the test include the following:

- Pressure: _____ Speed (rpm): _____
- Nozzle Setting (low, med, high, etc).

■ Performance and/or Fabrication Test Requirements

AMTEC shall conduct various tests and verification on different performance parameters of the machine including the following requirements as per PNS/PAES 158:2011:

■ Performance Requirements

Criteria	Requirement as per PNS/PAES 157:2011
Noise Level, dB(A)	92*
Droplets	Shall be uniformly sized
Operating Pressure, MPa	1.21 (175 psi) to 1.75 (250 psi)
Discharge Rate, L/min	At least 15

* Measured one meter away from the source of noise.



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■ Fabrication Requirements	
Criteria	Requirement as per PNS/PAES 157:2011
Power Sprayer Components	<input type="checkbox"/> It shall consist of main frame, prime mover, pump, spray hose, lance, and nozzle.
Main Frame	<input type="checkbox"/> It shall be made of mild steel (e.g. AISI 1020) or better material. <input type="checkbox"/> It shall have a thickness of at least 6 mm. <input type="checkbox"/> It shall be constructed from welded angular or flat bars. <input type="checkbox"/> Its handle shall be covered with a non-slip and non-corrosive material.
Prime Mover	<input type="checkbox"/> It shall be mounted on the main frame with hexagonal bolts of at least 10 mm (3/8") diameter. <input type="checkbox"/> Lock nuts shall be used to secure the prime mover to the frame.
Pump	<input type="checkbox"/> It shall be mounted on the main frame with hexagonal bolts of at least 10 mm (3/8") diameter with lock nuts used. <input type="checkbox"/> It shall be a positive displacement type and shall have a return line integrated in the system.
Spray Hose	<input type="checkbox"/> It shall be made of chemical-resistant polyvinylchloride or better material. <input type="checkbox"/> Inside diameter shall be at least 10 mm (3/8"). <input type="checkbox"/> It shall have a length range of 15-200 m.
Lance	<input type="checkbox"/> It shall be made of non-corrosive steel or better material. <input type="checkbox"/> Length shall at least be 1 m.
Nozzle	<input type="checkbox"/> It shall be made of non-corrosive material. <input type="checkbox"/> It shall be detachable from the lance to allow replacement. <input type="checkbox"/> It shall be adjustable to produce mist or stream.
Filters	<input type="checkbox"/> It shall have at least two (2), made of non-corrosive material. <input type="checkbox"/> It shall allow easy cleaning, maintenance, and/or replacement. <input type="checkbox"/> It shall have a mesh of 100 per square centimeter.
Frame-mounted sprayer	<input type="checkbox"/> Intake hose shall have an inside diameter of at least 16 mm. <input type="checkbox"/> It shall be provided with filter at the end to prevent possible contaminants from clogging the pump line. <input type="checkbox"/> The material of the hose may either be rubber or synthetic material. If rubber, it shall have one or more plies of fiber reinforcement. <input type="checkbox"/> Hoses shall be retained on connectors and couplings preferably by clamps or clips of the worm drive type. Threaded connections may be of any design provided the strength and size permit liquid tight joints to be made by thumb pressure at the highest operating pressure of the sprayer. <input type="checkbox"/> The power sprayer shall be equipped with belt tensioner
Wheel-mounted Sprayer	<input type="checkbox"/> Tank, tank cover, and gaskets shall be made of chemical-resistant polyvinylchloride or better material. Tank thickness shall at least be 6 mm (1/4") thickness. It must have a water-tight condition. <input type="checkbox"/> Ground clearance shall at least be 200 mm.
Others	<input type="checkbox"/> Pressure relief valves shall be installed to regulate pump pressure. <input type="checkbox"/> Cut-off valve shall be installed on the handle of the lance to allow instant stopping of the spray. <input type="checkbox"/> Pressure gauge shall have an accuracy of $\pm 1\%$ of maximum pressure. <input type="checkbox"/> Hose clamps shall be made of non-corrosive material. <input type="checkbox"/> There shall be no crack on welded area. <input type="checkbox"/> There shall be no fusion between adjacent layers of weld and base metals. <input type="checkbox"/> All craters shall be filled to provide the specified weld size, except for the end of intermittent fillet welds outside of their effective length



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- Welded joints shall not be less than 4mm size fillet weld.
- Undercut shall not exceed 2 mm for any length of weld.
- Hoses shall be retained on connectors and couplings (clamps or clips) of the worm drive type (frame-mounted type).
- Threaded connections may be of any design as long as it can permit liquid-tight joints to be made by thumb pressure at the highest operating pressure of the sprayer (frame-mounted type).
- It shall be equipped with a belt tensioner (frame-mounted type).

■ Workmanship and finish

Criteria	Requirement as per PNS/PAES 157:2011
Chemical tank	Shall have rounded corners
Safety locks	Shall be provided to avoid accidental opening of the valve
Mufflers	Shall have protective cover to protect the operator from burns
Belt and pulley assembly	Shall have protective cover
Bolts and nuts	Shall conform with standards for strength application and shall be made of hot-galvanized steel for corrosion resistance

■ Suspension and Termination of Test

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.

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)

■ Testing Fee

1. The testing fee for power sprayer for mango is Php 13,000.
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 submit 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