



Republic of the Philippines
Department of Environment and Natural Resources

FOREST MANAGEMENT BUREAU

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MEMORANDUM

FOR : The Regional Directors
Regions 2, 3, 4A, 5, 6, 9, 12, 13, NCR & NIR

FROM : The Director

SUBJECT : **TECHNICAL BULLETIN NO. 22-G, OPERATING AND MAINTENANCE PROCEDURES FOR THE SEEDING MACHINE AND TRAY FILLER**

DATE : **DEC 22 2016**

I. This Technical Bulletin

This Technical Bulletin is to introduce some operating and maintenance procedures for the Urbinati seeding machine and the tray filler. This bulletin allows the users to have information about how to operate and service the equipment.

II. Users of the Technical Bulletin

The users of the Technical Bulletin are the Nursery Managers, Growers, Assistant Growers and readers who will operate a seeding machine and tray topper for a mechanized nursery for native plants as well as exotic plants in the tropics.

III. Technical Procedures and Maintenance (Operating Tips)

To prolong the life and prevent the early breakdown of the seeding machine and the tray filler, the following operating and maintenance procedures should be strictly followed:

1. Operation of the machine – Only trained or qualified operators should run or operate the machines.

2. Environmental or atmospheric conditions for the machines or equipment. Environmental conditions different from the one described below may cause damages to the machines or equipment.
 - Minimum environmental temperature: + 1 °C
 - Maximum environmental temperature: + 40 °C
 - Do not allow water or moisture to enter the electrical or computer box of the machines.
 - The electrical equipment works correctly in atmospheric conditions with humidity lower than 50 % at a temperature of 40°C and with humidity of 90 % at a temperature lower than 20°C (without condensed water). *To attain 50% humidity, allow dry air to enter the building to force out the stale air by opening the windows and doors.*
 - Although the machine's electrical system has a sealing effectiveness against intrusion of foreign bodies, it is recommended that the seeding machine should be covered with cloth after use. Plastic is not advisable because it will increase humidity and water condensation inside the machine.

3. Do not change the setting or parameters unless necessary. The dimensions of the trays and the center to center of the cells have been measured, computed and entered into the PLC Program (computer) of the seeding machine and tray filler. There is no need to change the settings unless the said settings were erased.

4. Daily procedures to be carried out before start up to prevent accidents or errors:
 - general visual check of the entire machine (any obvious deformation or breakages in the structure, guards. etc.);
 - inspection of the electrical power supply cable and compressed air supply line;
 - start-up with working efficiency test and safety device tests;
 - check that the safety and protection devices are all working properly;
 - check that all the safety guards are working properly and that the door of the control panel is closed;
 - check that the individual parts of the machine have not been damaged;
 - check that all external energy supplies have been connected properly;
 - check that the electrical equipment has maintained its original level of protection (this operation must be performed by a qualified technician); and
 - check that the electrical connection is correct by checking the run direction of the drives, as explained in the relevant point

5. Routine Maintenance - Any breakage or damage to the casings and to the electrical equipment should be repaired immediately
6. Cleaning – Clean machine as necessary. Machine should be covered when not in use. Stop operation 15-20 minutes before quitting time to perform daily cleaning procedures:
 - thoroughly clean the machine in general using compressed air to remove dust and residual material;
 - if necessary use a dry cloth to remove any processing residues;
 - when carrying out this operation wear suitable protective equipment such as dust mask and eye goggles; and
 - make a visual check for any liquid leaks or lack of lubrication.

ATTENTION: DO NOT spray water on the machine or equipment.

7. Periodic inspections
 - After the first 12 months and then every 12 months, have a specialised mechanical and electrical technician carry out a complete inspection of the machine.
 - Every 12 months of service, have an electrical maintenance technician check all the electrical parts (contacts, terminals, interlocks, etc.) and replace any broken or faulty components with original spare parts
 - Every 160 working hours, carry out the following inspections on the pneumatic (air) circuit:
 - check the setting and condition of the filter-regulator unit;
 - check the general condition of hoses, connectors and connecting blocks on the whole line;
 - check the condition of the actuator valves;
 - check the condition of the cylinders;
 - replace any cracked or worn hoses
 - Every 4 years of service change all the flexible pneumatic hoses on the line.
8. Lubrication maintenance - After the first 8 hours and then every 12 months, grease the bearings as follows:
 - remove the protective cap;
 - bring the nozzle of the grease pump up to the grease nipple;
 - inject the amount of grease required; and
 - replace the protective cap.

9. Table of Servicing Procedures

Intervention	Point of Intervention	Interval
Bearings	Grease	First 8 hours and then every 500 hours
Air Filter	Cleaning	First 8 hours and then every 1000 hours
Air circuit	Visual check on condition of pipes	Daily at the start of production
Electrical system	Visual check on lead conditions	Daily at the start of production
Machine	Cleaning	Daily at the end of production
Machine	Complete inspection of mechanical parts and replace worn out parts	12 months
Machine	Complete inspection of electrical parts and replace worn out parts	12 months
Conveyor belt	Check tension	First 8 hours and then every 500 hours
Conveyor belt	Check centring	First 8 hours and then every 500 hours
Sensors and/or microswitches	Working efficiency test	Daily at the start of production
Sensors and/or microswitches	Cleaning	First 8 hours then every 300 hour
Emergency mushroom button	Operating tests	Daily at the start of production
Nozzles	Cleaning	First 8 hours and then every 300 hours
Vacuum pumps	Clean filters	Every 100 hrs
Air hoses	Check	Replace as needed
Manifold cleaning wires	Check	Replace as needed

FOR INFORMATION AND GUIDANCE.

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