7th European Workshop on Standardized Procedure for the Inspection of Sprayers in Europe

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Advice for functional inspection of postharvest application equipment
Postharvest application equipment is used for pesticide application to the crops –mainly fruits- in the time period between harvest and marketing.

Advice for functional inspection of postharvest application equipment
Application equipment for pesticides in the sorting and packaging line. Fruits are sprayed by means of nozzles. Wax can be used as well to get a film that protects the fruits and make them more attractive. Fruits are treated before being shipped to the market.
Application equipment for pesticides within the sorting and packaging line
Spray tank, pump and control unit
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Application unit

Pneumatic nozzles
Drencher. Fruit containers are sprayed with a high volume of water. The containers can be static or moving along a belt, but the application time has to be always monitored. Fruits are treated when they arrive at the storage facilities.
Drencher
Drencher. Pesticide dose control
Drencher. Older systems, mainly used for container disinfection

Pumps
Washers. Fruits are washed using water with soap and a fungicide. The products are applied as foam. Afterwards fruits can be rinsed and dried

Bath. Fruits are immersed in a container full of application liquid. The duration of the application is the time fruits take to go through the container
Contents of the SPISE advice (I)

Preinspection

2.1. Presence of the operator during the inspection
2.2. Assessment of the risk for the inspector
2.3. Cleaning
2.4. Equipment framework
2.5. Air unit

Inspection

3.1. Leaks
3.1.1. Static leaks
3.1.2. Dynamic leaks

3.2. Pump capacity

3.3. Agitation
3.3.1. Hydraulic agitation
3.3.2. Mechanical agitation
3.3.3. Pneumatic agitation
3.4. Spray tank
  3.4.1. Lid
  3.4.2. Induction hopper
  3.4.3. Pressure compensation
  3.4.4. Tank contents indicator
  3.4.5. Tank emptying

3.5. Measurement and regulation systems. Other control systems
  3.5.1. Pressure indicators
  3.5.2. Pressure adjustment devices
  3.5.3. Direct injection and dosing systems
  3.5.4. System to switch off the application in the absence of fruits
  3.5.5. System to control the duration of the application
  3.5.6. Position control system
  3.5.7. Temperature control system
  3.5.8. Other control devices

3.6. Pipes and hoses

3.7. Filters
Contents of the SPISE advice (III)

3.8. Application unit
3.8.1. Nozzles identification
3.8.2. Dripping
3.8.3. Spray boom. Stability and alignment
3.8.4. Spray boom. Nozzle similarity
3.8.5. Spray boom. Nozzles. Orientation and separation
3.8.6. Vertical spray boom. Symmetry

3.9. Distribution
3.9.1. Uniformity
3.9.2 Nozzle flow rate
3.9.3. Pressure distribution
3.9.3.1. Pressure drop
3.9.3.2. Compensative returns

3.11. Rollers. Brushes
3.12. Cleaning devices
3.5.4. **System to switch off the application in the absence of fruits**
In all the application equipment without liquid recirculation, it shall be a device to switch off the application system, whenever no crop is present in the application zone. Method of inspection: visual check.

3.5.5. **System to control the duration of the application**
It has to be possible to control the duration of the application time. Method of inspection: visual check and function test.

3.5.6. **Position control system**
The different devices (sensors, actuators) to control the position of the application system have to work properly.
Method of inspection: visual check and function test.

3.5.7. **Temperature control system**
If available, devices to adjust the temperature have to work properly. The range and accuracy of the temperature measuring systems have to be suitable for the working conditions. The temperature measurement error has to be less than 10% of the real value. Method of inspection: visual check and measurement.
3.5.8. Other control devices

All the other regulation and control systems of the application equipment have to work properly and be in good condition.
Method of inspection: visual check and function test.

3.11. Rollers. Brushes

Rollers, brushes and other devices that carry fruits through the application zone, shall work properly, at the intended velocity, and be in good condition.
Method of inspection: visual check.

3.12. Cleaning devices

If available, devices for cleaning the spray application equipment have to work properly.
If available, pesticide can cleaning devices have to work properly.
It is recommended that a clean water container or source (e.g. a tap) is available for the equipment operator.
Method of inspection: visual check and function test.
Thank you for your attention!