

Best Management Practices for Housekeeping

Rationale

Good housekeeping is a fundamental principle of effective greenhouse operations. Good housekeeping prevents pest harborages, allows for easier and quicker problem identification, and sets a tone of order and discipline. Housekeeping has safety implications; clean and orderly greenhouses reduce the risk of tripping or slipping, and facilitate identification of other hazards.

Proper arrangement and spacing of plants facilitates good airflow, efficient irrigation, and effective pesticide application, thereby decreasing pest and disease incidence and reducing pesticide use.

Control of watering and fertilizer applications by properly trained staff and greenhouse users can reduce overuse of water and fertilizer. Excess watering causes puddling on floors and, combined with warm temperatures and high light levels in greenhouses, provides excellent conditions for algal growth. Reduced water and fertilizer application lessens environmental impact, amount of algae, and potential accidents from slippery walkways. Algae growth on greenhouse glazing prevents adequate light transmission, and algae present on bench tops and in pots inhibits plant growth and attracts insects. Sanitation and environmental modifications are the preferred method of algae growth prevention and control.

Environmental Principle: With proper watering techniques, good sanitation practices, and correct spacing of plants there will be less environmental impact from excess fertilizers and chemicals, and a reduction of algae in the greenhouse setting.

Operational Aspects	Environmental Assurance		
	Level 1	Level 2	Level 3
Overview			
Emergency Preparedness	greenhouse staff trained to handle emergencies; spill kits are accessible	greenhouse staff trained to handle emergencies; spill kits are accessible; floors are kept as dry as possible	greenhouse staff trained to handle emergencies; spill kits are accessible; floors are kept as dry as possible
Environmental Awareness	staff are made aware of hazard to surface and groundwater by excess runoff and overuse of sanitizers and disinfectants	staff are made aware of hazard to surface and groundwater by excess runoff and overuse of sanitizers and disinfectants; staff are encouraged to reduce hazards	staff are made aware of hazard to surface and groundwater by excess runoff and overuse of sanitizers and disinfectants; hazards are identified and eliminated, or are reduced and closely monitored

Operational Aspects	Environmental Assurance		
	Level 1	Level 2	Level 3
Training	all employees are trained in the importance of good housekeeping, proper watering practices, sanitation, and appropriate use of disinfectants	all employees are trained in the importance of good housekeeping, proper watering practices, sanitation, and appropriate use of disinfectants ; employees are trained to operate disinfectant application equipment	all employees are trained in the importance of good housekeeping, proper watering practices, sanitation, and appropriate use of disinfectants ; employees are trained to operate disinfectant application equipment
Communication	staff communicate with greenhouse users, managers and fellow staff regarding housekeeping and disinfectant application where and when appropriate	staff communicate with greenhouse users, managers and fellow staff regarding housekeeping and disinfectant application where and when appropriate	staff communicate with greenhouse users, managers and fellow staff regarding housekeeping and disinfectant application where and when appropriate
Management			
Plant Care	plants are arranged to provide good airflow and access for effective watering and pesticide application; plants are watered only as needed; if present, algae layer manually removed from potting media surface to allow water and air flow, and decrease susceptibility to shore flies and fungus gnats	plants are arranged to provide good airflow and access for effective watering and pesticide application; plants are watered only as needed; if present, algae layer manually removed from potting media surface to allow water and air flow, and decrease susceptibility to shore flies and fungus gnats	plants are arranged to provide good airflow and access for effective watering and pesticide application; plants are watered only as needed; potting media surface is allowed to dry out between waterings; proper well drained growing media is selected for each crop; if present, algae layer manually removed from media surface; media is treated for gnats and flies if present
Sanitation	all surfaces are kept free of plant debris and weeds; floors are squeegeed to reduce puddling	all surfaces are kept free of plant debris and weeds; floors are squeegeed to reduce puddling; benches, floors, tools and plant containers are disinfected when possible	all surfaces are kept free of plant debris and weeds; floors are squeegeed to reduce puddling; benches, floors, tools and plant containers are disinfected pre-crop, during crop and post crop; physical weed mat barrier is in place over gravel or soil floors to reduce weeds and algae growth

Operational Aspects	Environmental Assurance		
	Level 1	Level 2	Level 3
Floor Construction	well drained gravel floors	concrete floors to reduce the amount of excess moisture in the greenhouse	concrete floors to reduce the amount of excess moisture in the greenhouse; floors sloped and grooved to drain properly and prevent pooling; concrete surface textured to reduce slipping
Ventilation	outdoor air inlets managed to prevent excessive greenhouse humidity	outdoor air inlets managed to prevent excessive greenhouse humidity; proper ventilation from horizontal airflow fans	outdoor air inlets managed to prevent excessive greenhouse humidity; proper ventilation from horizontal airflow fans
Light Reduction	opaque tubing is used for irrigation lines to exclude light; fertilizer tanks are covered to exclude light	opaque tubing is used for irrigation lines to exclude light; fertilizer tanks are covered to exclude light	opaque tubing is used for irrigation lines to exclude light; fertilizer tanks are covered to exclude light;
Disinfectant Use	in accordance with label; surfaces should be clean and free of debris before use	in accordance with label; surfaces should be clean and free of debris before use; disinfectants used for pre-crop clean up and regularly during crop production for sanitation	in accordance with label; surfaces should be clean and free of debris before use; disinfectants are part of a regular schedule before, during and after plants are in the greenhouse; applied to floors, walls, benches, tools and plant containers for sanitation
Safety			
Slipping hazard communication	staff, users and visitors are made aware of safety hazards of wet floors through training or signage	staff, users and visitors are made aware of safety hazards of wet floors through training and signage	staff, users and visitors are made aware of safety hazards of wet floors through training and signage
Footwear	Open-toed footwear is discouraged; use of non-skid footwear is encouraged	Open-toed footwear is prohibited; use of non-skid footwear is encouraged; non-skid footwear is provided to staff	Open-toed footwear is prohibited; staff are required to use non-skid footwear