AEM Tier II Worksheets
Greenhouse Maintenance

Background

Properly constructed greenhouse facilities pose little threat to the environment. Yet, poor operation and maintenance can threaten the integrity of a facility; and if pollutants are allowed to leave the greenhouse, nearby surface and groundwater resources can be threatened. Preventive maintenance minimizes factors that cause deterioration and reduces potential water quality concerns. Timely repair of small problems prevents them from becoming larger issues, and minimizes algae growth and other pest problems. Environmental control is a key component of healthy plants and a healthy environment.

Agricultural Water Quality Principle: Greenhouses should be operated and maintained to prevent pollutants from leaving the greenhouse and entering surface or groundwater resources. Likewise, it is important that clean runoff not be allowed to enter the greenhouse, where it could mix with polluted runoff and exacerbate potential problems.

Glossary

Ambient Temperature: The outdoor temperature surrounding the greenhouse. It determines indoor temperature trends.

Evaporative Cooling: The introduction of moist air which draws heat energy as it evaporates, leaving indoor air cooler; works best when outdoor humidity is low.

Glazing: The single or double layering of plastic film, acrylic or glass that acts as the greenhouse wall or ceiling and is integral to light, temperature, and humidity of the greenhouse.

Shading: The use of fabric or chemical products to reduce solar energy's effect on indoor light levels and temperature.

AEM Tier II Worksheets Greenhouse Maintenance		Potential Concern		
	1-Lower Risk	**Level 2**	**Level 3**	**4-Higher Risk**
Is external water (including roof and upslope runoff) prevented from entering the greenhouse?	All runoff is diverted from entering the greenhouse.			There is no control of water from rooftops, upslope runoff can enter the greenhouse.
How is glazing maintained to prevent excess water entry?	Glazing repairs are made immediately upon discovery of damage or leaks; glazing is inspected weekly	Leaks and glazing are maintained and repairs are made promptly	Leaks and glazing are repaired annually as needed.	Leaks and broken glazing are not repaired.
How is concrete maintained?	Concrete is well maintained and concrete damage is repaired promptly; expansion joints are sealed	Cracking is repaired promptly	Concrete cracking is repaired annually as needed	Concrete is not maintained
How are shading materials selected and applied?	Shade cloth used		Lime-based white wash is used	Paint-based white wash is used.
How are plastic coverings disposed?	Recycled	Sanitary landfill		Buried, burned or piled on property.

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	1-Lower Risk	**Level 2**	**Level 3**	**4-Higher Risk**
How are irrigation systems maintained?	Systems are periodically inspected; hose couplings and connections are kept tight and leak free; irrigation leaks are repaired immediately;		Irrigation systems do not receive regular inspection; leaks are repaired when noticed	Irrigation systems do not receive regular inspections; only major leaks are repaired.
What are spill cleanup procedures?	Spills are cleaned up promptly; secondary containment is used where appropriate	Spills are cleaned up promptly	Spills are cleaned up as soon as possible	Spills are routinely ignored
How are weeds managed?	Weeds are pulled by hand or mechanically removed.	Weeds are treated with an appropriate herbicide		Weeds are treated with an herbicide not approved for greenhouse use.

Other:

1. Are vermin prevented from tunneling under or around the structure and drainage systems?
2. What treatment methods are used to reduce microbial and algae growth on evaporative cooling pads?
3. Are employees responsible for maintenance activities thoroughly trained in the maintenance activity itself, as well as precautions to prevent personal accidents and environmental releases?
4. Are work areas regularly cleaned and floors kept free of debris to eliminate pest refuges and harborages?
5. Are all mechanical, pump, sump and drain systems and equipment put on recommended preventive maintenance schedules and monitored for problems?
6. Are maintenance concerns sufficiently communicated?