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S449 BMPs for Nurseries and Greenhouses

Description of Pollutant Sources: These BMPs are for use by commercial container plant, greenhouse grown, and cut foliage production operations. Common practices at nurseries and greenhouses can cause elevated levels of phosphorus, nitrogen, sediment, bacteria, and organic material which can contribute to the degradation of water quality.

Pollutant Control Approach: Minimize the pollutants that leave the site by controlling the placement of materials, stabilizing the site, and managing irrigation water.

Applicable Operational BMPs:

- Establish nursery composting areas, soil storage, and mixing areas at least 100 feet away from any stream or other surface water body and as far away as possible from drainage systems.
- Do not dispose of collected vegetation into waterways or storm sewer systems.
- Do not blow, sweep, or otherwise allow vegetation or other debris into the drainage system.
- Regularly clean up spilled potting soil to prevent its movement, especially if fertilizers and pesticides are incorporated. ([Haver, 2014](#))
- Use soil mixing and layering techniques with composted organic material to reduce herbicide use and watering.
- Utilize soil incorporated with fertilizers and / or pesticides immediately; do not store for extended periods. ([Haver, 2014](#))
- Cover soil storage and compost storage piles. Refer to [S429 BMPs for Storage or Transfer \(Outside\) of Solid Raw Materials, Byproducts, or Finished Products](#).
- Dispose of pathogen-laced potting substrate and diseased plants appropriately.
- Place plants on gravel, geotextile, or weed cloth to allow infiltration and minimize erosion, including inside greenhouse structures. ([Haver, 2014](#))
- Properly reuse, recycle, or dispose of used polyfilm, containers, and other plastic-based products so that they do not collect stormwater. ([FDACS, 2014](#))
- Evaluate and manage irrigation to reduce runoff, sediment transport, and erosion.
 - Place irrigation inputs to keep moisture primarily in the plant's root zone. This will significantly reduce nutrient related impacts from fertilizers. ([FDACS, 2014](#))

- Avoid over-irrigating. This may exceed the soil's water-holding capacity and lead to runoff or leaching. ([FDACS, 2014](#))
- Consider and adjust as needed the uniformity of application, the amount of water retained within the potting substrate, and the amount of water that enters containers compared to that which exits the containers and / or falls between containers. ([FDACS, 2014](#))
- Consolidate containers and turn off irrigation in areas not in production. This may require individual on / off valves at each sprinkler head. ([Haver, 2014](#))
- Based on the stage of plant growth, space containers and flats as close as possible to minimize the amount of irrigation water that falls between containers. ([FDACS, 2014](#))
- Group plants of similar irrigation needs together. ([FDACS, 2014](#))
- Consider minimizing water losses by using cyclic irrigation (multiple applications of small amounts). ([FDACS, 2014](#))
- Consider using sub-irrigation systems (e.g. capillary mat, ebb-and-flow benches, and trays or benches with liners); these systems can conserve water and reduce nutrient loss, particularly when nutrients are supplied in irrigation water that is reused. ([FDACS, 2014](#))
- Refer to [S450 BMPs for Irrigation](#) for additional BMP considerations.
- Refer to [S443 BMPs for Fertilizer Application](#) and [S435 BMPs for Pesticides and an Integrated Pest Management Program](#).

Applicable Structural BMPs:

- Use windbreaks or other means (e.g. pot in pot) to minimize plant blowover. ([FDACS, 2014](#))
- Cover potting areas with a permanent structure to minimize movement of loose soil. Use a temporary structure if a permanent structure is not feasible. ([Haver, 2014](#))
- Control runoff from central potting locations that have a watering station used to irrigate plants immediately after potting. Either:
 - Collect runoff in a small basin and reuse the runoff.
 - Or, route runoff through an onsite vegetative treatment area.
 - Or, use a graveled area and allow runoff to infiltrate.
- Surround soil storage and compost storage areas with a berm or wattles.
- Utilize a synthetic (geotextile) groundcover material to stabilize disturbed areas and prevent erosion in areas where vegetative cover is not an option. ([FDACS, 2014](#))

- In areas with a large amount of foot traffic, use appropriate aggregate such as rock and gravel for stabilization. ([FDACS, 2014](#)).
- Store potting substrate that contains fertilizer in a dedicated area with an impermeable base. If the storage area is not under a roof to protect it from rainfall, manage runoff by directing it to a stormwater treatment area. ([FDACS, 2014](#)).

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