BIOSECURITY NOVA SCOTIA

TIPS FOR ON-FARM WATER MANAGEMENT RELATED TO BIOSECURITY

Water is used widely on farms including but not limited to watering animals, irrigation, pesticide and fertilizer applications, and frost control. Because water plays such an essential role in agriculture production, it's vital to ensure there is a safe and dependable supply to suit the needs of the operation. Depending on the farm, sources of water can vary from rainfall, to surface water (e.g. irrigation ponds), groundwater from wells, or municipal water systems. This water interacts with the farm landscape through several mechanisms, including rainfall, leaching (drainage tile), run-off, and standing water.

Considering the prevalence of water in agricultural systems, it has the potential to have enormous impacts on a farm's biosecurity. It's important to know the source, availability, and quality of water, as these are significant considerations for healthy plants, soil, and livestock.

There are a number of simple steps that can be taken to reduce the risk of pathogen introduction and transmission through on-farm water sources.

- **Maintain and clean (sanitize or disinfect) water systems regularly.**
- **Conduct annual water tests on all water sources (wells, irrigation ponds, etc.) to test for mineral content and bacteria contamination:**
  - » Water must be free of coliform bacteria and E. coli contamination
  - » Water mineral levels must be below the maximum acceptable concentrations for agricultural water use
  - » The following resource gives guidelines on agricultural water: **http://www.agr.gc.ca/eng/agriculture-and-climate/agricultural-practices/agriculture-and-water/wells-and-groundwater/groundwater-quality/?id=1371508979896**
- **Ensure water samples are taken at various locations:**
  - » Source (e.g. irrigation pond, well)
  - » Distribution lines/end-use location (e.g. taps, wash nozzles)
- **Treat water if necessary**
  - » Issues that could be corrected by water treatment include low or high mineral or pH levels (i.e. water softener, acidification, etc.), or bacterial contamination (i.e. UV light, chlorination, etc.)
- **Know the previous use of recycled containers to identify possible pathways of pest introduction**
  - » If unsure of prior use, reconsider and use another container
- **Check chlorine levels regularly, if it's being used to treat the water**
  - » Chlorine levels that are too high may lead to toxicities in plants or complications for livestock
  - » Note that total chlorine is not the same as the free chlorine, which is what will sanitize the water
- **Flush water lines regularly, especially when being used to deliver medications**
- **Flush lines to prevent mineral build-up when mineral content tests above normal**
- **Clean water tubs regularly to prevent algae and bio-film build-up, especially in the summer months**
- **Use a back-flow valve on all hoses used to fill buckets, sprayers, etc. to prevent source water contamination.**

To limit standing water, make use of topography to assist with drainage and reduction of standing water in production areas. Assess soil conditions, including subsoil compaction and water holding capacity, to ensure optimum drainage.

Water can also contribute to the creation of conditions more suitable for disease pressures to establish. For example, overwatering via overhead irrigation can lead to fruit rots and expedited deterioration of the crop. Some diseases are vectored by water droplets/splashing, so overhead irrigation may contribute to the spread of disease.

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