NOVA SCOTIA ENVIRONMENTAL FARM PLAN

Factsheet

Bunker Silage Seepage Collection and Diversion

The EFP factsheet, *Silage Seepage: A Farm Problem Worth Avoiding,* discusses factors affecting silage quality and concentrates on management practices to prevent seepage issues. However, there are some harvest scenarios where seepage cannot be avoided. Silage seepage is highly acidic and extremely corrosive. Environmental problems associated with silage seepage typically come from inadequate collection systems allowing seepage to enter a well or watercourse. A properly designed collection and storage system is essential to mitigate seepage issues.

A project at Phillip Vroegh's Sunny Point Farm in East Noel, NS is evaluating a seepage collection and precipitation diversion system for the bunker silos on the farm. The project involved constructing the bunker aprons to be sloped in the direction towards the collection pit to create effluent flow paths. If the bunkers begin to seep silage effluent, the seepage drains toward the collection pit along the flow paths (Figure 1).

Figure 1: System is designed for any silage seepage to flow to the collection pit and into the storage tank

When the effluent reaches the collection pit (Figure 2), it passes through a 1x1" screen filter which catches any debris. Once through the filter, the screened seepage flows through a 4" plastic diversion pipe. During low flow periods, the seepage will drip from the diversion pipe into a 4" PVC low flow pipe; that runs perpendicular to the diversion pipe, and into a storage tank. This low flow pipe is sloped 2% to the storage tank.

Figure 2: Screen filter, collection pit and diversion pipe

During a rainfall event which would cause high flow, the water will follow the flow paths to the collection pit. However, when it reaches the collection pit, the rain water will flow through the initial screen filter and over the top of a high flow weir into a vegetative buffer strip that eventually outlets into a drainage ditch. Any rain water that does flow through the diversion pipe flows through with enough velocity to by-pass the low flow pipe resulting in this rain water being diverted into the vegetative buffer (Figure 3).

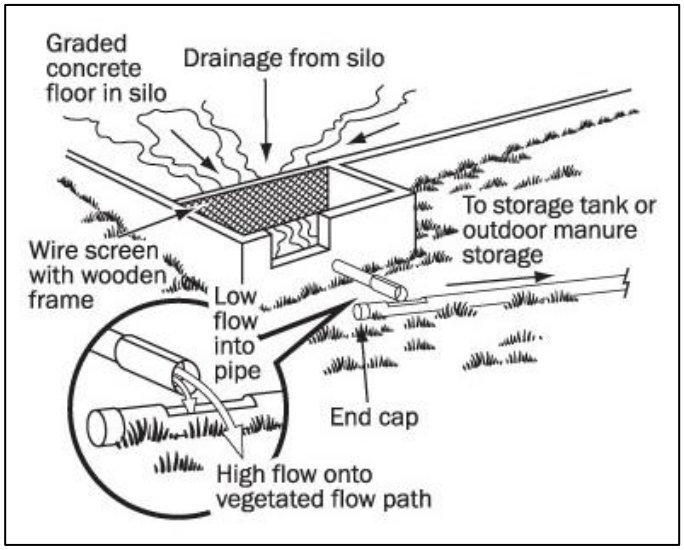

Figure 3: Low-flow collection system diagram. (Source: AEM)

Storage and Treatment of Silage Seepage

Once in the storage tank, this seepage can be pumped to a manure pit as needed. ***Do not add silage leachate in an under-barn storage (located below animals), because dangerous gases may be produced when the effluent and manure are mixed.*** Where outdoor liquid manure storages are not available on the farm, ensure the tank is large enough to provide sufficient storage capacity to contain seepage between typical manure application intervals.

For more information, contact the EFP office: 902-893-2293 or view the OMAFRA factsheet “How to Handle Seepage From Farm Silos” (http://www.omafra.gov.on.ca/english/engineer/facts/15-003.htm)