



WATER RESOURCES RESEARCH GRANT PROPOSAL

Title: Impact of Manure on Stream Water Quality

The Wesserunsett Stream, located in Somerset County, is listed on the Maine Department of Environmental Protection (DEP) list of priority waters for nutrient and bacterial contamination. Agricultural non-point source pollution has been identified as the likely contributing factor. As a result of this problem condition, University of Maine Cooperative Extension (UMCE) water quality program staff applied for and received a water quality education grant to do focused educational outreach with the farming community in the Wesserunsett watershed. In working with the various livestock farms within the watershed, we found two farms that very likely contribute to the nutrient and bacterial loading of the stream. One farm, located on Cold Brook Stream (a tributary of Wesserunsett Stream) currently has no manure storage. While some of the manure is stockpiled in approved sites, most, particularly the milking cow manure is too wet to stack, and is not properly attended to. The other farm, located within sight of the other farm on the Wesserunsett Stream, has the oldest manure storage in Somerset County. The storage has no roof and during heavy rain events, nutrients and bacteria from manure flow out of the storage down the hill and into the stream. The actual impact of this manure on stream water quality is unknown. It would be useful for our educational outreach program to be able to demonstrate the water quality impact of manure reaching the stream with data from farms that the other producers know. Further, if we could implement best management practices (BMPs) to correct the problem, it may encourage other dairy producers to consider adopting similar BMPs, greatly enhancing our educational effectiveness. Obtaining water quality data to support the effectiveness of manure storage is critical to our success. From a hydrologic perspective, these streams provide an interesting opportunity to do this type of assessment. The stream sizes, bottom compositions, and flow characteristics are very similar, and the two streams join below the second farm providing an opportunity to study down stream impacts. Thus, from a research and an educational perspective, this is a nearly ideal situation. This study meets the objectives of the proposal by characterizing the source and magnitude of an agriculturally related pollution source to surface water and evaluating the effect of BMPs to correct the situation.