

## DISCOVERING NEW WAYS TO PREVENT EROSION

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Every year, billions of tons of soil are eroded from the land and deposited in and around our lakes and streams. This is a tragic loss of a resource and it results in serious consequences to our waterways, such as habitat destruction, reduced recreation and water storage capacity, and clogged navigation channels. While farming is often a major source of this sediment, erosion rates on construction sites can be many times that found on farms. Exposed soil on construction sites is usually required to be covered within a certain amount of time, but there are many choices of materials for this purpose with varying rates of success at preventing erosion.

The most common ground cover on construction sites is straw, applied by hand or using large blower machines. Straw alone is easily blown or washed off the area where it was applied, so typically a “glue,” or tackifier, is applied over the straw to hold it together like a blanket. The most common tackifier historically has been an asphalt product because it is inexpensive and very effective. However, as a petroleum product, it is not considered environmentally friendly. It is also highly unpopular among those to apply it because it stains any skin or clothing that it contacts. There are many alternatives that are or could be used, such as a wood fiber slurry (hydromulch), natural products such as guar gum, and others. However, there has been no research on the effectiveness of any tackifier at both holding straw where applied and growing vegetation to prevent erosion after the straw disappears.

Our group will be conducting tests on an array of potential tackifiers as alternatives to asphalt. Testing will include the use of a wind tunnel to determine the point of failure for the tackifier candidates under wet and dry conditions. Once several products are found to be sufficiently effective, test plots will be established on construction sites to see how they perform under “real” conditions. In addition, their effect on grass growth will be determined under controlled conditions. The intern will work with a team of scientists, technicians, and students and will be assigned a project to complete within the overall goals of the study.