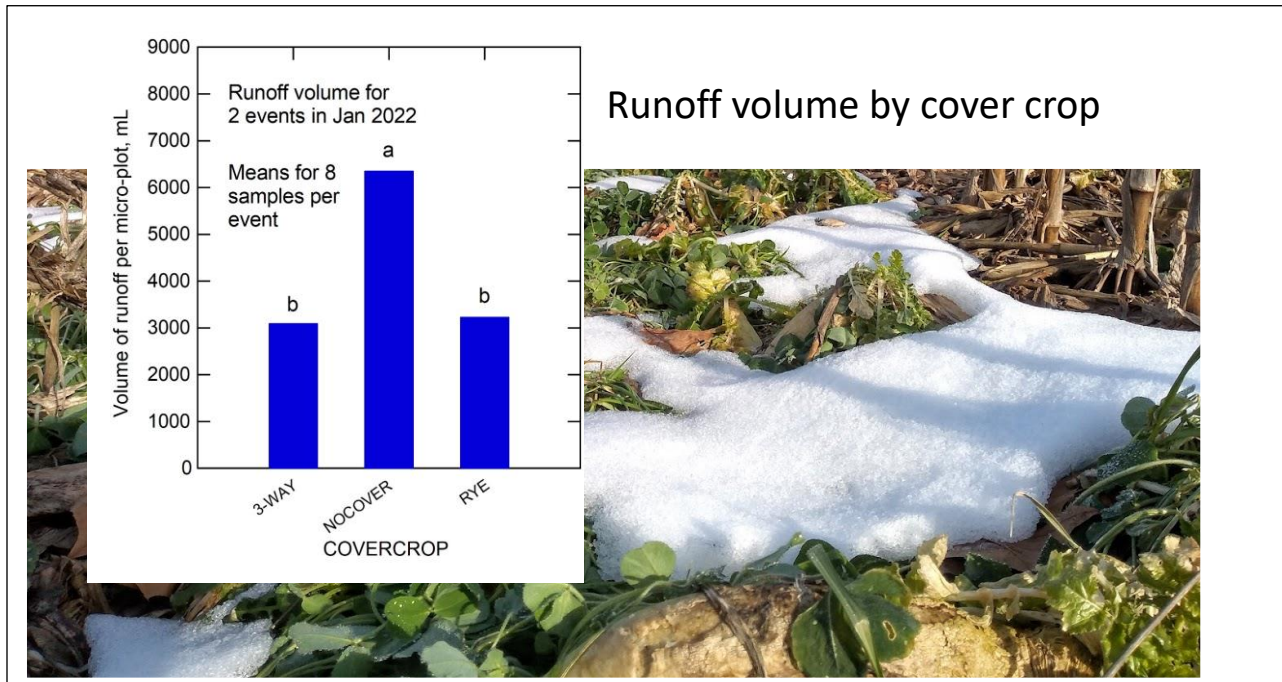


Phosphorus runoff from no-till soils - do cover crops make it better or worse?

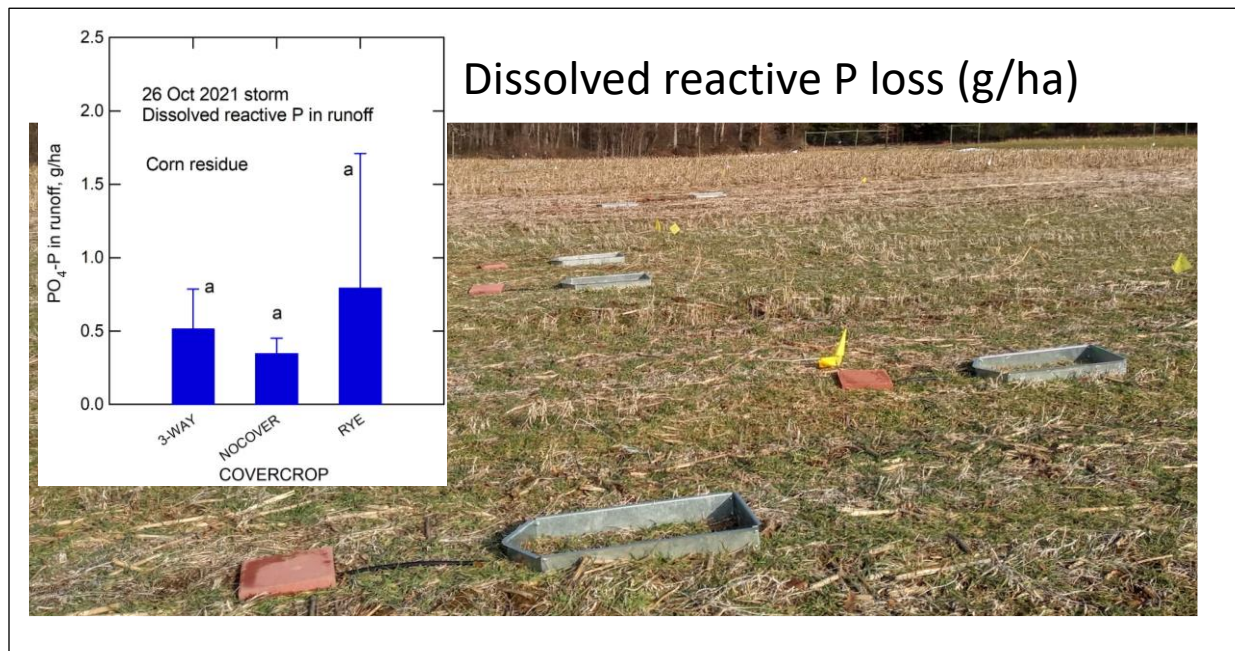
Progress Report to the Maryland Soybean Board

Ray Weil, University of Maryland

In late summer rye or radish-rye-clover cover crops were interseeded into standing corn at senescence and soybeans at first leaf drop. These cover crops were well-established by the time of harvest. After harvest of corn in October and soybeans in November 2021 we installed 24 min-erosion weirs (12 in each type of crop residue). The field has silt loam topsoil with clayey subsoil and somewhat impaired drainage. The slopes at the weirs ranged from 2.5 to 5.5%. To so far, five weather events, two in October, one in November and two in January, produced runoff that was collected and sampled. The two runoff events of January 2022 occurred while we had a complete set of weirs in both the corn and soybean residue. Preliminary analysis of the January data suggest that there was a greater volume of runoff from the corn plots than from the soybean plots and with no-cover (winter weeds and crop residue only) than from either of the cover crops:



We are in the process of analyzing dissolved phosphorus in the filtered runoff samples. Data is presently available only for an event in October. In this event, the presence of either rye or the radish-rye-cover cover crop appears to have had no significant effect on the concentration of P in the runoff:



Runoff collection, processing and analysis are in-going in our lab. Several students have joined in the effort as a senior research project.

In June and July 2021, the national United Soybean Board conducted a feature interview with the project PI, Dr. Weil, which has now been published on the USB website:

Weil, R. 2021. Do cover crops make phosphorus runoff better or worse? Soybean Research and Information Network United Soybean Board.

<https://soybeanresearchinfo.com/research-highlight/do-cover-crops-make-phosphorus-runoff-better-or-worse/>