

Soil drainage and physical degradation study seeks assistance of farmers

Project details on “Effect of Soil Structure and Field Drainage on Water Quality and Flood Risk” can be found at: <http://www.crew.ac.uk/projects/soil%20structure%20and%20water>

A farmer recognised challenge:

Farmers across Scotland were recently asked about soil science research needs. Drainage and soil structural damage were viewed to be the greatest concern, likely due to the direct impacts at the farm gate and visual evidence of standing water on fields in winter. Good functioning soil will percolate the water and attenuate agrochemicals; it will store more water that can be accessed by plants; and it will provide better conditions for the growth of crops and grasses for grazing.



Soil compaction measurements in action at the James Hutton Institute.



Visual assays will quickly assess compaction damage and drainage issues. A subset of farms will have detailed monitoring.

A University of Aberdeen led study:

SEPA have recently commissioned Scotland’s Centre of Expertise for Waters (CREW) to assess the extent of drainage problems on agricultural fields, the potential underlying causes including soil structural degradation, and the potential implications to flood risk and water quality. A group of soil scientists, led by the University of Aberdeen, will visit farms to conduct a field survey of soil structure, examine drainage systems and discuss issues with the farmers. At a subset of farms, water transport, run-off and erosion in the field will be measured, with soil cores taken for more detailed laboratory analysis. Added to this work will be predictions of soil vulnerability to structural damage, an examination of satellite images and a review of existing reports to assess the extent of the problem. The outputs of this project will be used to guide future policy and research in Scotland aimed at improving water quality, reducing flood risk and helping farming in Scotland manage soils to the advantage of both the business and the environment.

Assistance of farmers in selected catchments:

We are keen to work closely with farmers during the field sampling programme. This will require access to land where a few small pits will be dug to compare in-field soil structure with field boundaries. If the farmer is available, we would also like to discuss field drainage face-to-face, or leave a questionnaire to complete later. In return, each farm will be provided with a report on the soil structure condition observed on their farm. Data included in our report will provide a broad assessment of soil structure and drainage issues in selected catchments.

