Just how important is grass cover?

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SYNOPSIS. Grass cover on a flood embankment or embankment dam plays an important role in maintaining the condition of the soil structure of the embankment, and in protecting the surface from erosion during overtopping or overflow conditions. But just how sensitive is overall flood embankment or embankment dam performance to the type and condition of grass? Recent studies from different areas of the flood risk management community have identified similar issues and conclusions – namely that the effect of different grass type and condition, in conjunction with soil type and condition, can have a very significant impact on how the embankment or dam performs and potentially fails.

This paper introduces and shows common links between a number of parallel research areas, all of which underpin the assessment of flood embankment and embankment dam performance. Research includes:

1. The development of breach initiation and growth models, under the *European FLOODsite project*;
2. The development of fragility curves for embankment performance (Buijs et al., 2007) supporting performance based asset management;
3. The investigation of grass management activity on erosion performance, under the *Environment Agency grass erosion testing project;*
4. Ongoing research in the Netherlands regarding the performance of vegetation

Consideration is given as to how findings from these recent initiatives fit with the UK CIRIA design guidance produced in the 1980s (Hewlett et al., 1987) and which is commonly used today for both reservoir and flood embankment performance design.