RE-SITE GATEWAYS AWAY FROM HIGH RISK AREAS

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Description
Re-locate gateways, if possible, from down to up-slope in order to avoid, or limit direct connection between fields, high risk areas and associated water courses.

Complementary measures: relocate livestock tracks, machinery tracks and access roads with the same objective; change the direction of the soil tillage within fields.

Rationale, mechanism of action
Gateways are high risk areas. They represent an opening in field boundaries and can act as critical source area for surface runoff. In grazing fields, livestock tend to congregate near gateways, causing soil compaction and poaching, thereby increasing the risk of surface runoff and erosion [1]. Ruts from tractor wheels tend also to converge and can channel surface water to these areas. Access roads may represent 1.5 % of the total surface on the average farm in some parts of Europe. The impact increases when the gateway is near or directly connected to a water course or road.
At the landscape level, gateways, livestock and vehicle tracks can represent a network of preferential flow pathways that can connect fields hydrologically to a water course. Consequently, moving the gate is a simple way to decrease local hydrological connectivity and reduce sediment and P losses**.**

Relevance, applicability & potential for targeting
Moving gateways is applicable to all sloping land. It is commonly relevant and there are few cases that would limit the adoption of this measure. It is applicable to all farming systems. However, some gateways are specifically located to provide convenient access to particular sites (woodland, farm buildings, other fields) and re-location could involve the construction of new tracks. In some cases, re-location is unlikely without financial incentive, and even then there may be reluctance if it means diverting a track. The method should be combined with other measures which create riparian zones or buffer strips along rivers (see factsheets [1,2]). The option is particularly relevant to sloping areas with many fields.

Effectiveness, including certainty
N: There will be no effect on nitrate.
P: Cuttle et al. [3] estimate that relocating gateways can potentially result in a small to moderate reduction in sediment and P losses in the UK [3]. Effectiveness must be considered including other benefits in terms of water and ecosystem quality (reduction of sediment transfer and fecal contamination).

Time frame
Benefits can be expected in the short term, within a few months to one year (i.e., the time needed to establish vegetation cover around the new gate)

Environmental side-effects / pollution swapping
The option can potentially reduce the loss of total suspended solids (TSS) and fecal indicator organisms, directly to water courses and via tracks and roads.

Administrative handling and control
The option is likely to require some financial incentive, which needs significant administrative handling.

Costs: investment, labor
No specific skills and technical equipment are needed to apply this option, other than those already available on farms. Costs include amortised capital costs for the gateway (and associated fencing), and labour costs.

References
[1] Gascuel-Odoux, C., J.M. Dorioz, T. Krogstad & M. Bechmann. 2008. Create and manage vegetated buffers at field boundaries. Factsheet COST 869. www.cost869.alterra.nl/fs/FS_vegetated_buffers.pdf
[2] Gascuel-Odoux C. & J.M. Dorioz. 2008. Field boundaries and their potential buffer functions. Factsheet COST 869. www.cost869.alterra.nl/fs/FS_field_boundaries.pdf
[3] Cuttle, S., Macleod, C., Chadwick, D., Scholefield, D., Haygarth, P., Newell-Price, P., Harris, D., Shepherd, M., Chambers, B. & Humphrey, R. (2007) An Inventory of Methods to Control Diffuse Water Pollution from Agriculture (DWPA) USER MANUAL. Defra report, project ES0203, 115 pp. p. 82-83 http://www.cost869.alterra.nl/UK_Manual.pdf