

**Table S1.** Data used in the analysis.

VFS [1-3,5-7,9,11-13,15,17,28]	NTM [8,16,18,19,21-27]	LCR [4,10,14,20]	WWTP	WWTP+SW
0,31	0,66	0,06	0,85	0,60
0,62	-0,35	0,35	1,04	0,56
0,33	0,33	0,44	1,50	0,86
0,47	0,53	0,57	0,70	0,20
0,54	0,47	0,6	1,26	0,43
0,6	0,63	0,39	1,09	0,48
0,53	0,79	0,35	1,22	0,84
0,93	0,7	0,49	1,14	1,79
0,79	0,59	0,75	1,11	1,00
0,55	-0,12	0,2	0,58	0,85
0,77	0,8	0,44	1,10	0,37
0,89	0,84	0,71	1,09	0,57
0,72	0,76	0,69	1,02	0,34
0,68	0,39	0,25	1,13	1,82
0,72	0,57	0,56	1,23	0,25
0,65	0,56	0,88	1,03	1,70
0,65	0,69	0,88	1,03	0,37
0,4	0,69	0,46	1,06	1,20
0,27	0,06	0,38	1,05	1,26
0,38	0,36	0,19	1,13	0,77
0,7	-0,44	0,12	1,05	1,14
0,83	0,9	0,18	1,07	1,24
0,68		0,12	1,20	1,36
0,76			1,05	1,77
0,84			1,12	0,96
0,87			1,02	1,24
0,78			1,00	0,78
0,97			0,97	1,23
0,93			1,26	1,24
0,86			0,90	1,64
0,89			1,09	1,30
0,98			1,11	1,50
0,86			0,59	1,30
0,86			1,05	1,23
0,88			0,95	1,18
0,85			0,56	1,54
0,82			1,06	1,29
0,35			1,05	1,33
0,14			0,80	1,24
0,28			0,95	1,30
0,66			1,18	0,90
0,82			1,16	1,28
0,36			1,09	1,06
0,53			1,15	0,64
0,68			1,18	0,82
0,73			1,18	0,93
0,55			1,03	1,10
0,7			1,18	0,91
0,78			1,13	0,98
0,51			1,16	1,07
0,41			0,83	0,89
0,32			0,79	1,09
0,24			0,99	1,10
0,74			0,81	2,82
0,63			1,04	1,02
0,74			1,11	1,50
0,8			1,06	1,19
0,88			1,29	1,07
0,82			1,26	1,34
0,77			1,25	1,07
0,89			1,18	1,33
0,84			1,01	1,08
0,27			1,04	1,46
0,66			1,06	0,96
0,55			1,11	1,18

0,61	1,29	0,71
0,88	1,30	0,83
0,82	0,87	0,93
	0,93	1,08
	1,34	0,98
		1,28
		1,20
		1,04
		0,84
		1,07
		0,96
		1,02
		1,02
		1,32
		1,02

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## References

1. Abu-Zreig, M.; Rudra, R. P.; Whiteley, H. R.; Lalonde, M. N.; Kaushik, N. K. Phosphorus removal in vegetated filter strip. *J. Environ. Qual.* **2003**, *32*, 613–619. <http://doi.org/10.2134/jeq2003.0613>.
2. Abu-Zreig, M.; Rudra, R.P.; Lalonde, M.N.; Whiteley, H.R., Kaushik, N.K. Experimental investigation of runoff reduction and sediment removal by vegetated filter strips. *Hydrol. Process.* **2004**, *18*, 2029–2037. <https://doi.org/10.1002/hyp.1400>
3. Al-wadaey, A.; Wortmann, C.; Franti, T.G.; Shapiro, C.; Eisenhauer, D.E. Effectiveness of Grass Filters in Reducing Phosphorus and Sediment Runoff. *Water Air Soil Poll.* **2012**, *223*, 5865–5875. <http://doi.org/10.1007/s11270-012-1322-2>.
4. Avalos, J.M.M.; Fouz, P.S.; Vázquez, E.V.; González, A.P.; Bertol, I. Crop Residue Effects on Organic Carbon, Nitrogen and Phosphorus Concentrations and Loads in Runoff Water. *Commun. Soil. Sci. Plan.* **2009**, *40*, 200–2013. <https://doi.org/10.1080/00103620802625542>
5. Blanco-Canqui, H.; Gantzer, C.J.; Anderson, S.H.; Alberts, E.E.; Thompson, A.L. Grass Barrier and Vegetative Filter Strip Effectiveness in Reducing Runoff, Sediment, Nitrogen, and Phosphorus Loss. *Soil. Sci. Soc. Am. J.* **2004**, *68*, 1670–1678. doi:10.2136/sssaj2004.1670
6. Clausen, J.C.; Guillard, K.; Sigmund, C.M.; Martin Dors, K. Water Quality Changes from Riparian Buffer Restoration in Connecticut. *J. Environ. Qual.* **2000**, *29*, 1751–1761. doi:10.2134/jeq2000.00472425002900060004x
7. Daniels, R.B.; Gilliam, J.W. Sediment and Chemical Load Reduction by Grass and Riparian Filters. *Soil Sci. Soc. Am. J.* **1996**, *60*, 246–251. doi:10.2136/sssaj1996.03615995006000010037x
8. DeLaune, P.B.; Sij, J.W. Impact of tillage on runoff in long term no-till wheat systems. *Soil Till. Res.* **2012**, *124*, 32–35. <https://doi.org/10.1016/j.still.2012.04.009>
9. Dickey, E.C.; Vanderholm, D.H. Performance and Design of Vegetative Filters for Feedlot Runoff Treatment. In *Livestock Waste, a Renewable Resource*, Proceedings of 4th International Symposium on Livestock Wastes, Amarillo, TX, USA, 15–17 April 1980; pp. 257–260
10. Faucette, L.B.; Risse, L.M., Nearing, M.A.; Gaskin, J.W.; West, L. T. Runoff, erosion, and nutrient losses from compost and mulch blankets under simulated rainfall. *J. Soil Water Conserv.* **2004**, *59*(4), 154–160.
11. Lee, K-H.; Isenhardt, T.M.; Schultz, R.C.; Mickelson, S.K. Nutrient and sediment removal by switchgrass and cool-season grass filter strips in Central Iowa, USA. *Agroforest. Syst.* **1999**, *44*, 121–132. <https://doi.org/10.1023/A:1006201302242>
12. Lee, K-H.; Isenhardt, T.M.; Schultz, R.C. Sediment and nutrient removal in an established multi-species riparian buffer. *J. Soil Water Conserv.* **2003**, *58*, 1–8.
13. Lim, T.T.; Edwards, D.R.; Workman, S.R.; Larson, B.T.; Dunn, L. Vegetated Filter Strip Removal of Cattle Manure Constituents in Runoff. *Trans. ASAE*, **1998**, *41*, 1375–1381.
14. Liu, Y.; Tao, Y.; Wan, K.Y.; Zhang, G.S.; Liu, D.B.; Xiong, G.Y.; Chen, F. Runoff and nutrient losses in citrus orchards on sloping land subjected to different surface mulching practices in the Danjiangkou Reservoir area of China. *Agr. Water Manage.* **2012**, *110*, 34–40. <https://doi.org/10.1016/j.agwat.2012.03.011>
15. Magette, W.L.; Brinsfield, R.B.; Palmer, R.E.; Wood, J.D. Nutrient and Sediment Removal by Vegetated Filter Strips. *Trans. ASAE*, **1989**, *32*, 663–667. doi: 10.13031/2013.31054
16. Mallarino, A.P.; Ul Haq, M.; Helmers, M.J., Rusk, R. Crop Yields and Phosphorus Loss with Surface Runoff as Affected by Tillage Systems and Phosphorus Sources. *Iowa State Research Farm Progress Reports*,

2010. Available online: <http://www.epnet.com/academic/bussourceprem.asp> (accessed on 28 August 2019).
17. Mankin, K.R.; Barnes, P.L.; Harner, J.P.; Boyer, J.E. Field evaluation of vegetative filter effectiveness and runoff quality from unstocked feedlots. *J. Soil Water Conserv.* **2006**, *61*, 209–217.
  18. McDowell, L.L.; McGregor, K.C. Plant nutrient losses in runoff from conservation tillage corn. *Soil Till. Res.* **1984**, *4*, 79–91. [https://doi.org/10.1016/0167-1987\(84\)90018-7](https://doi.org/10.1016/0167-1987(84)90018-7)
  19. Mueller, D.H.; Wendt, R.C.; Daniel, T.C. Phosphorus Losses as Affected by Tillage and Manure Application. *Soil Sci Soc. Am.* **1984**, *48*, 901–905. doi:10.2136/sssaj1984.03615995004800040040x
  20. Nicolaisen, J.E.; Gilley, J.E., Eghball, B., Marx, D.B. Crop Residue Effects on Runoff Nutrient Concentrations Following Manure Application. *Trans. ASAE*, **2007**, *50*, 939–944.
  21. Richardson, C.W.; King, K.W. Erosion and Nutrient Losses From Zero Tillage on a Clay Soil. *J. Agr. Eng. Res.* **1995**, *61*, 81–86. <https://doi.org/10.1006/jaer.1995.1034>
  22. Sharpley, A.N.; Smith, S.J. Wheat tillage and water quality in the Southern Plains. *Soil Till. Res.* **1994**, *30*, 33–48. [https://doi.org/10.1016/0167-1987\(94\)90149-X](https://doi.org/10.1016/0167-1987(94)90149-X)
  23. Shipitalo, M.J.; Owens, L.B.; Bonta, J.V.; Edwards, W.M. Effect of No-Till and Extended Rotation on Nutrient Losses in Surface Runoff. *Soil Sci. Soc. Am. J.* **2013**, *77*, 1329–1337. doi:10.2136/sssaj2013.01.0045
  24. Smith, S.J.; Sharpley, A.N.; Naney, J.W.; Berg, Jones, O.R. Water Quality Impacts Associated with Wheat Culture in the Southern Plains. *J. Environ. Qual.* **1991**, *20*, 244–249. doi:10.2134/jeq1991.00472425002000010039x
  25. Smith, D.R.; Francesconi, W.; Livingston, S.J.; Huang, C. Phosphorus losses from monitored fields with conservation practices in the Lake Erie Basin, USA. *Ambio*. **2015**, *44*, S319–S331.
  26. Tiessen, K.H.D.; Elliott, J.A.; Yarotski, J.; Lobb, D.A.; Flaten, D.N.; Glozier, N.E. Conventional and Conservation Tillage: Influence on Seasonal Runoff, Sediment, and Nutrient Losses in the Canadian Prairies. *J. Environ. Qual.* **2010**, *39*, 964–980. doi:10.2134/jeq2009.0219
  27. Verbree, D.A.; Duiker, S.W.; Kleinman, P.J.A. Runoff Losses of Sediment and Phosphorus from No-Till and Cultivated Soils Receiving Dairy Manure. *J. Environ. Qual.* **2010**, *39*, 1762–1770. doi:10.2134/jeq2010.0032
  28. Young, R.A.; Huntrods, T.; Anderson, W. Effectiveness of Vegetated Buffer Strips in Controlling Pollution from Feedlot Runoff. *J. Environ. Qual.* **1980**, *9*, 483–487. doi:10.2134/jeq1980.00472425000900030032x