

## WEPS RELATED LITERATURE

### WEPS-Related Peer-reviewed Publications (114)

#### General WEPS (1)

Wagner, L.E. 2013. A history of wind erosion prediction models in the United States Department of Agriculture: The Wind Erosion Prediction System (WEPS). *Aeolian Research*. 10:9-24.

#### Applications and Validations of WEPS (20)

Buschiazzo, D.E. and T.M. Zobeck. 2008. Validation of WEQ, RWEQ and WEPS wind erosion for different arable land management systems in the Argentinean Pampas. *Earth Surf. Process. Landforms*. 33:1839–1850.

Chen, L., H. Zhao, B. Han, and Z. Bai. 2013. Combined use of WEPS and Models-3/CMAQ for simulating wind erosion source emission and its environmental impact. *Sci. Total Environ.* 466–467 (2013) 762–769.

Chung, S.H., F.L. Herron-Thorpe, B.K. Lamb, T.M. VanReken, J.K. Vaughan, J. Gao, L.E. Wagner, F. Fox. 2013. Application of the wind erosion prediction system in the AIRPACT regional air quality modeling framework. *Trans. of the ASABE*. 56(2):625-641.

Coen, G.M., J. Tatarko, T.C. Martin, K.R. Cannon, T.W. Goddard, and N.J. Sweetland. 2004. A method for using WEPS to map wind erosion risk of Alberta soils. *Environmental Modelling and Software*. 19(2):185-189.

Diaz, E.N., Tatarko, J., Jazcilevich, A.D., Garcia, A.R., Caetano, E., and Ruiz-Suarez, L.G. 2010. A modeling study of Aeolian erosion enhanced by surface wind confluences over Mexico City. *Aeolian Research*. 2:143-157.

Feng, G., and Sharratt, B.S. 2007. Validation of WEPS for soil and PM10 loss from agricultural fields on the Columbia Plateau of the United States. *Earth Surface Processes and Landforms*. 32:743-753.

Feng, G., and Sharratt, B.S. 2009. Evaluation of the SWEEP model during high winds on the Columbia Plateau. *Earth Surf. Process. Landforms*. 34, 1461-1468.

Fryrear, D.W., J.E. Stout, L.J. Hagen, and E.D. Vories. 1991. Wind erosion: Field measurement and analysis. *Trans. ASAE*. 34(1):155-160.

## WEPS RELATED LITERATURE

- Funk, R., E.L. Skidmore, and L.J. Hagen. 2004. Comparison of wind erosion measurements in Germany with simulated soil losses by WEPS. *Environmental Modelling and Software*. 19(2):177-183.
- Gao, J., L.E. Wagner, F. Fox, S.H. Chung, J.K. Vaughan, and B.K. Lamb. 2013. Spatial application of WEPS for estimating wind erosion in the Pacific Northwest. *Trans. ASABE*. 6(2):613-624.
- Hagen, L.J. 2004. Evaluation of the Wind Erosion Prediction System (WEPS) erosion submodel on cropland fields. *Environmental Modelling and Software*. 19(2):171-176.
- Hagen, L.J., P.R. Schroeder, and L. Thai. 2009. Estimated particle emissions by wind erosion from the Indiana Harbor Combined Disposal Facility. *Pract. Periodical of Haz., Toxic, and Radioactive Waste Mgmt.* 13(1):20-28.
- Hagen, L.J., Van Pelt, R.S., and Sharratt, B.S. 2010. Estimating the saltation and suspension components from field wind erosion. *Aeolian Research*. 1:147-153.
- Maurer, T. and H.H. Gerke. 2011. Modelling Aeolian sediment transport during initial soil development on an artificial catchment using WEPS and aerial images. *Soil & Tillage Research*. 117:148-162.
- Muth, D.J. and K.M. Bryden. 2013. An integrated model for assessment of sustainable agricultural residue removal limits for bioenergy systems. *Environmental Modelling and Software*. 39:50-69.
- Stetler, L.D. and K.E. Saxton. 1996. Wind Erosion and PM10 emissions from agricultural fields on the Columbia Plateau. *Earth Surface Processes and Landforms*. 21:673-685.
- van Donk, S.J., Huang Xuewen, E.L. Skidmore, A.B. Anderson, D.L. Gebhart, V.E. Prehoda, and E.M. Kellogg. 2003. Wind erosion from military training lands in the Mojave Desert, California, USA. *Journal of Arid Environments*. 54(4):687-703.
- van Donk, S.J. and E.L. Skidmore. 2003. Measurement and simulation of wind erosion, roughness degradation and residue decomposition on an agricultural field. *Earth Surface Processes and Landforms* 28(11):1243-1258.
- Visser, S.M., G. Sterk, D. Karssenber. 2005. Wind erosion modeling in a Sahelian Environment. *Environmental Modelling and Software*. 20(1):69-84.
- Visser, S.M., L. Stroosnijder, W.J. Chardon. 2005. Nutrient losses by wind and water, measurements and modeling. *CATENA*. 63(1):1-22.

## **WEPS RELATED LITERATURE**

### **Weather Submodel (5)**

- Hagen, L.J. 2007. Ratios of erosive wind energies on dry days and all days in the western United States. *Trans. ASABE*. 50(6):1981-1986.
- Richardson, C.W. 1981. Stochastic simulation of daily precipitation, temperature and solar radiation. *Water Resources Res.* 17(1):182-190.
- Skidmore, E.L. and J. Tatarko. 1990. Stochastic wind simulation for erosion modeling. *Trans. ASAE*. 33(6):1893-1899.
- van Donk, S.J., C. Liao and E.L. Skidmore. 2008. Using temporally limited wind data in the Wind Erosion Prediction System. *Trans. ASAE*. 51(5):1585-1590.
- van Donk, S.J., L.E. Wagner, E.L. Skidmore, J. Tatarko. 2005. Comparison of the Weibull Model with measured wind speed distributions for stochastic wind generation. *Trans. ASAE*. 48 (2):503-510.

### **Hydrology Submodel (3)**

- Durar, A.A. 1991. Simulation of soil-water dynamics for wind erosion modeling. Ph.D. diss. Kansas State Univ., Manhattan, KS (Diss. Abstr. 91-28491).
- Durar, A.A., J.L. Steiner, S.R. Evett, E.L. Skidmore. 1995. Measured and simulated surface soil drying. *Agron. J.* 87(2):235-144.
- Saxton, K.E. and W. J. Rawls. 2006. Soil water characteristic estimates by texture and organic matter for hydrologic solutions. *Soil Sci. Soc. Am. J.* 70:1569-1578.

### **Soil Submodel (29)**

- Fryrear, D.W., C.A. Krammes, D.L. Williamson, and T.M. Zobeck. 1994. Computing the wind erodible fraction of soils. *J. Soil and Water Cons.* 49(2):183-188.
- Hagen, L.J., B. Schroeder, and E.L. Skidmore. 1995. A vertical soil crushing-energy meter. *Trans. ASAE*. 38(3):711-715.
- Hagen, L.J., E.L. Skidmore, and D.W. Fryrear. 1987. Using two sieves to characterize dry soil aggregate size distribution. *Trans. ASAE*. 30(1):162-165.
- Kohake, D.J. 2003. Wind erodibility of organic soils. M.S. thesis. Kansas State University, Manhattan.

## WEPS RELATED LITERATURE

- Kohake, D.J., L.J. Hagen, and E.L. Skidmore. 2010. Wind erodibility of organic soils. *Soil Sci. Soc. Am. J.* 74(1):250-257.
- Layton, J.B., E.L. Skidmore, and C.A. Thompson. 1994. Winter-associated changes in dry-soil aggregation as influenced by management. *Soil Sci. Soc. Am. J.* 57:1568-1572.
- Lyles, L. and J. Tatarko. 1987. Precipitation effects on ridges created by grain drills. *J. of Soil and Water Cons.* 42(4):269-271.
- Lyles, L. and J. Tatarko. 1988. Soil wind erodibility index in seven north central states. *Trans. ASAE.* 31(5):1396-1399.
- Potter, K.N. 1990. Estimating wind-erodible materials on newly crusted soils. *Soil Sci.* 150(5):771-776.
- Potter, K.N. 1990. Soil properties' effect on random roughness decay by rainfall. *Trans. ASAE.* 33(6):1889-1892.
- Potter, K.N., and T.M. Zobeck. 1990. Estimation of soil microrelief. *Trans. ASAE.* 33(1):156-161.
- Potter, K.N., T.M. Zobeck, and L.J. Hagen. 1990. A microrelief index to estimate soil erodibility by wind. *Trans. ASAE.* 33(1):151-155.
- Saleh, A. 1993. Soil aggregate and crust density prediction. *Soil Sci. Soc. Am. J.* 57:524-526.
- Saleh, A. 1993. Soil roughness measurement: Chain Method. *J. Soil and Water Cons.* 48(6):527-529.
- Saleh, A. 1994. Measuring and predicting ridge orientation effect on soil surface roughness. *Soil Sci. Am. J.* 58(4):1228-1230.
- Skidmore, E.L. and J.B. Layton. 1992. Dry soil-aggregate stability as influenced by selected soil properties. *Soil Sci. Soc. Am. J.* 56:557-561.
- Tatarko, J. 2001. Soil aggregation and wind erosion: Processes and measurements. *Annals of Arid Zone.* 40(3): 251-263.
- Wagner, L.E. and D.J. Ding. 1994. Representing aggregate size distributions as modified lognormal distributions. *Trans ASAE.* 37(3):815-821.
- Wagner, L.E. and Y. Yu. 1991. Digitization of profile meter photographs. *Trans. ASAE.* 34(2):412-416.

## WEPS RELATED LITERATURE

- Zobeck, T.M. 1989. Fast-Vac - A vacuum system to rapidly sample loose granular material. *Trans. ASAE.* 32(4):1316-1318.
- Zobeck, T.M. 1991. Abrasion of crusted soils: Influence of abrader flux and soil properties. *Soil Sci. Soc. Am. J.* 55(4):1091-1097.
- Zobeck, T.M. 1991. Soil properties affecting wind erosion. *J. Soil and Water Cons.* 46(2):112-118.
- Zobeck, T.M., M. Baddock, R.S. Van Pelt, J. Tatarko, V. Acosta-Martinez. 2013. Soil property effects on wind erosion of organic soils. *Aeolian Research.* 10:43-51.
- Zobeck, T.M., and D.W. Fryrear. 1986. Chemical and physical characteristics of windblown sediment, I. Quantities and physical characteristics. *Trans. ASAE.* 29(4):1032-1036.
- Zobeck, T.M., and D.W. Fryrear. 1986. Chemical and physical characteristics of windblown sediment, II. Chemical Characteristics and total soil and nutrient discharge. *Trans. ASAE.* 29(4):1037-1041.
- Zobeck, T.M. and T.W. Popham. 1990. Dry aggregate size distribution of sandy soils as influenced by tillage and precipitation. *Soil Sci. Soc. Am. J.* 54(1):197-204.
- Zobeck, T.M. and T.W. Popham. 1991. Influence of abrader flux and soil properties. *Soil Sci. Soc. Am. J.* 55(4):1091-1097.
- Zobeck, T.M. and T.W. Popham. 1992. Influence of microrelief, aggregate size, and precipitation on soil crust properties. *Trans. ASAE.* 35(2):487-492.
- Zobeck, T. M., T. W. Popham, E. L. Skidmore, J. A. Lamb, S. D. Merrill, M. J. Lindstrom, D. L. Mokma and R. E. Yoder. 2003. Aggregate-mean diameter and wind-erodible soil predictions using dry aggregate-size distributions. *Soil Sci. Soc. Am. J.* 67:425-436.

### **Crop Submodel (18)**

- Armbrust, D.V. 1990. Rapid measurement of crop canopy cover. *Agron. J.* 82:1170-1171.
- Armbrust, D.V. and J.D. Bilbro. 1993. Predicting grain sorghum canopy structure for soil erosion modeling. *Agron. J.* 85(3):664-668.
- Armbrust, D.V. and J.D. Bilbro, Jr. 1997. Relating plant canopy characteristics to soil transport capacity by wind. *Agron. J.* 89:157-162.
- Armbrust, D.V. and A. Retta. 2000. Wind sandblast damage to growing vegetation. *Annals of Arid Zone.* 39(3): 273-284.

## WEPS RELATED LITERATURE

- Bilbro, J.D. 1991. Relationships of cotton dry matter production and plant structural characteristics for wind erosion modeling. *J. Soil and Water Cons.* 46(5):381-384.
- Bilbro, J.D. 1992. Sunflower dry matter production and plant structural relationships for wind erosion modeling. *J. Soil and Water Cons.* 47(2):194-197.
- Bilbro, J.D., and D.W. Fryrear. 1988. Annual herbaceous wind barriers for protecting crops and soils and managing snowfall. *Agric., Ecosyst. and Envir.* 22/23:149-161.
- Bilbro, J.D. and D.W. Fryrear. 1991. Pearl millet versus gin trash mulches for increasing soil water and cotton yields in a semiarid region. *J. Soil and Water Cons.* 46(1):66-69.
- Bilbro, J.D. and D.W. Fryrear. 1994. Wind erosion losses as related to plant silhouette and soil cover. *Agron. J.* 86(3):550-553.
- Bilbro, J.D., J.D. Undersander, D.W. Fryrear, and C.M. Lester. 1991. A survey of lignin, cellulose, and acid detergent fiber ash contents of several plants and implications for wind erosion control. *J. Soil and Water Cons.* 46(4):314-316.
- Hagen, L.J. 1996. Crop residue effects on aerodynamic processes and wind erosion. *Theor. and Appl. Climatol. Theoretical and Applied Climatology.* 54:39-46.
- Hagen, L.J. and D.V. Armbrust. 1994. Plant canopy effects on wind erosion saltation. *Trans. ASAE* 37(2):461-465.
- Lyles, L. and B.E. Allison. 1976. Wind erosion: The protective role of simulated standing stubble. *Trans. ASAE* 19(1):61-64.
- Retta, A. and D.V. Armbrust. 1995. Estimation of leaf and stem area in the Wind Erosion Prediction System (WEPS). *Agron. J.* 87:93-98.
- Retta, A., D.V. Armbrust and L.J. Hagen. 1996. Partitioning biomass in the crop submodel of WEPS (Wind Erosion Prediction System). *Trans. Amer. Soc. Agric, Engin.* 39(1):145-151.
- Retta, A., D.V. Armbrust, L.J. Hagen and E.L. Skidmore. 2000. Leaf and stem area relationships to masses and their height distributions in native grasses. *Agron. J.* 92(2):225-230.
- Skidmore, E.L. and R.G. Nelson. 1992. Small-grain equivalent of mixed vegetation for wind erosion control and prediction. *Agron. J.* 83(1):98-101.
- van de Ven, T.A.M., D.W. Fryrear, and W.P. Span. 1989. Vegetation characteristics and soil loss by wind. *J. Soil and Water Cons.* 44:347-349.

## WEPS RELATED LITERATURE

### Decomposition Submodel (5)

- Schomberg, H.H., J.L. Steiner, S.R. Evett, and A.P. Moulin. 1995. Climatic influence on residue decomposition prediction in the Wind Erosion Prediction System. *Theor. and Appl. Climatol.* 54:5-16.
- Schomberg, H.H., J.L. Steiner, and P.W. Unger. 1994. Decomposition and nitrogen dynamics of crop residues: Residue quality and water effects. *Soil Sci. Soc. Am. J.* 58:372-381.
- Steiner, J.L., H.H. Schomberg, C.L. Douglas, Jr., and A.L. Black. 1994. Standing stem persistence in no-tillage small-grain fields. *Agron. J.* 86:76-81.
- Steiner, J.L., H.H. Schomberg, and J.E. Morrison. 1994. Residue decomposition and redistribution. In: *Crop Residue Management to Reduce Erosion and Improve Soil Quality in the Southern Great Plains*, B.A. Stewart and W.C. Moldenhauer, (eds.) USDA-ARS Conservation Research Report 37.
- van Donk, S.J., S.D. Merrill, D.L. Tanaka, and J.M. Krupinsky. 2008. Crop residue in North Dakota: measured and simulated by the Wind Erosion Prediction System. *Trans. ASAE.* 51(5):1623-1632.

### Management Submodel (7)

- Hagen, L.J. 1999. Development of a tillage system to prevent soil pulverization and wind erosion. *Scientific Papers of the Agricultural University of Poznan, Poland.* 1:15-57.
- Unger, P. and E.L. Skidmore. 1994. Conservation tillage in the southern Great Plains. In R.M. Carter (ed.) *Conservation Tillage in Temperate Agroecosystems.* Chapter 14, pp. 329-356. Lewis Publishers. Boca Raton, FL.
- Wagner, L.E., N.M. Ambe, and P. Barnes. 1992. Tillage-induced soil aggregate status as influenced by water content. *Trans. ASAE.* 35(2):499-504.
- Wagner, L.E., N.M. Ambe, and D.J. Ding. 1994. Estimating a proctor density curve from intrinsic soil properties. *Trans. ASAE.* 37(3):1121-1125.
- Wagner, L.E. and D.J. Ding. 1993. Stochastic modeling of tillage-induced aggregate breakage. *Trans. ASAE.* 36(4):1087-1092.
- Wagner, L.E. and F.A. Fox. 2013. The Management Submodel of the Wind Erosion Prediction System. *Applied Engin. in Agric.* 29(3): 361-372.
- Wagner, L.E. and R.G. Nelson. 1995. Mass reduction of standing and flat residues by selected tillage implements. *Trans. ASAE.* 38(2):419-427.

## WEPS RELATED LITERATURE

### Erosion Submodel (26)

- Fryrear, D.W. 1986. A field dust sampler. *J. Soil and Water Cons.* 41(2):117-120.
- Fryrear, D.W. 1987. Ridging reduces wind damage to cotton. *Appl. Agric. Res.* 1(5):311-314.
- Fryrear, D.W. 1992. Measured wind erosion of agricultural lands. *A&WMA Trans Series*, ISSN 1040-8177, No. 22 1:433-439.
- Fryrear, D.W. and A. Saleh. 1993. Field wind erosion: Vertical distribution. *Soil Sci.* 155(4):294-300.
- Hagen, L.J. 1991. A Wind Erosion Prediction System to meet user needs. *J. Soil and Water Cons.* 46(2):106-111.
- Hagen, L.J. 1991. Wind erosion mechanics: Abrasion of aggregated soil. *Trans. ASAE.* 34(4):831-837.
- Hagen, L.J. 2001. Processes of soil erosion by wind. *Annals of Arid Zone.* 40(3):233-250.
- Hagen, L.J. 2004. Fine particulates (PM10 and PM2.5) generated by breakage of mobile aggregates during simulated wind erosion. *Trans. ASABE.* 47(1):108-112.
- Hagen, L.J. 2008. Updating soil surface conditions during wind erosion events using the Wind Erosion Prediction System (WEPS). *Trans. ASABE.* 51(1):129-137.
- Hagen, L.J. and D.V. Armbrust. 1992. Aerodynamic roughness and saltation trapping efficiency of tillage ridges. *Trans. ASAE.* 35(4):1179-1184.
- Hagen, L.J., Casada, M.E. 2013. Effect of canopy leaf distribution on sand transport and abrasion energy. *Aeolian Research.* 10:37-42.
- Hagen, L.J. and D.E. James. The PM-10 production potential of soils in the Las Vegas Valley of Nevada. In S. Basacca, S. Lilligren and K. Newell (eds.) *Dust Aerosol, Loess Soils and Global Change.* Washington State Univ. College of Agriculture and Home Economics, Misc. Pub. No. MISC0190, Pullman, WA, pp.45-48.
- Hagen, L.J., E.L. Skidmore, and J.B. Layton. 1988. Wind erosion abrasion: Effects of aggregate moisture. *Trans. ASAE.* 31(3):725-728.
- Hagen, L.J., E.L. Skidmore, and A. Saleh. 1992. Wind erosion: Predictions of aggregate abrasion coefficients. *Trans. ASAE.* 35(6):1847-1850.



## WEPS RELATED LITERATURE

- Hagen, L.J., S. van Pelt, T.M. Zobeck, and A. Retta. 2007. Dust deposition near an eroding source field. *Earth Surface Processes and Landforms*. 32(2):281-289.
- Hagen, L.J., L.E. Wagner, and E.L. Skidmore. 1999. Analytical solutions and sensitivity analyses for sediment transport in WEPS. *Trans. Amer. Soc. Agric, Engin*. 42(6):1715-1721.
- Larney, F.J., M.S. Bullock, S.M. McGinn, and D.W. Fryrear. 1995. Quantifying wind erosion on summer fallow in southern Alberta. *J. Soil and Water Cons*. 50(1):91-95.
- Mirzamostafa, N., L.J. Hagen, L.L Stone, E.L. Skidmore. 1998. Soil aggregate and texture effects on suspension components from wind erosion. *Soil Sci. Soc. Am. J*. 62:1351-1361.
- Skidmore, E.L. 1994. Wind erosion. In R.Lal (ed.) *Soil Erosion Research Methods*, 2nd ed., Soil and Water Cons. Soc., Ankeny, IA. pp. 265-293.
- Skidmore, E.L., L.J. Hagen, D.V. Armbrust, A.A. Durar, D.W. Fryrear, K.N. Potter, L.E. Wagner, and T.M. Zobeck. 1994. Methods for investigating basic processes and conditions affecting wind erosion. In R. Lal (ed.) *Soil Erosion Res. Methods*, 2nd ed., Soil and Water Cons. Soc., Ankeny, IA. pp. 295-330.
- Stout, J. 1990. Wind erosion within a simple field. *Trans. ASAE*. 33(5):1597-1600.
- Stout, J.E., and D.W. Fryrear. 1989. Performance of a windblown-particle sampler. *Trans. ASAE* 32(6):2041-2045.
- van Donk, S.J. and E.L. Skidmore. 2001. Field experiments for evaluating wind erosion models. *Annals of Arid Zone*. 40(3):281-302.
- Vigiak, O., G. Sterk, A. Warren and L. J. Hagen. 2003. Spatial modeling of wind speed around windbreaks. *Catena*. 52(3-4):273-288.
- Vories, E.D. and D.W. Fryrear. 1991. Vertical distribution of wind-eroded soil over a smooth, bare field. *Trans. ASAE*. 34(4):1763-1768.
- Zobeck, T.M., and C.A. Onstad. 1987. Tillage and rainfall effects on random roughness: A review. *Soil & Tillage Research*. 9:1-20.