Table 1. Herbicides with application restrictions related to soil type and depth to groundwater. List is not comprehensive, but includes herbicides found in 2010 and 2011 Corn and Soybean Herbicide Evaluations (see link). Chemicals in bold in herbicide combinations trigger the application restriction.

Trade name	Chemical name	Soil and Groundwater Conditions for Restriction	Restricted in Dakota Co.?	Restriction Comments
Authority Assist	**sulfentrazone** + imazethypyr	Sand with < 1% OM[1]	No[2]	No soils classified as simply "sand" in Dakota County.
Authority First/Sonic	**sulfentrazone** + cloransulam	Sand with < 1% OM[1]	No[2]	No soils classified as simply "sand" in Dakota County.
Authority MTZ	**Sulfentrazone** + metribuzin	Sand with < 1% OM[1]	No[2]	No soils classified as simply "sand" in Dakota County.
Clarity/Banvel	dicamba	Sands with <3.0% OM **AND** shallow groundwater	No[2]	No soils classified as simply "sand" in Dakota County.
Harness/Surpass/ Breakfree/others	acetochlor	Loamy sand with <2.0% OM **OR** Sandy loam with <1.0% OM **AND** < 30 ft. to groundwater	**Yes**	Requires 150 ft. application setback from wells. See mapping tool for areas potentially affected.
Micro-Tech/IntRRo	alachlor	Soils highly permeable (loamy sands & sandy loams) **AND** <30 ft. to groundwater	**Yes**	Application restricted. See mapping tool for areas affected.
Outlook	dimethanamid	Sands with <3.0% OM **AND** < 30 ft to groundwater	No[2]	No soils classified as simply "sand" in Dakota County.
Spartan	sulfentrazone	Sand with < 1.0% OM	No[2]	No soils classified as simply "sand" in Dakota County
Status/Distinct	diflufenzopyr + **dicamba**	Sands with <3.0% OM **AND** shallow groundwater	No[2]	No soils classified as simply "sand" in Dakota County
Surestart	**acetochlor** + flumetsulam + chlopyralid	Loamy sand with <2.0% OM **OR** Sandy loam with <1.0% OM **AND** < 30 ft. to groundwater	**Yes**	Requires 150 ft. application setback from wells. See mapping tool for areas potentially affected
Verdict	saflufenacil + **dimethanamid**	Sands with <3.0% OM **AND** < 30 ft to groundwater	No[2]	No soils classified as simply "sand" in Dakota County
Warrant	acetochlor (encapsulated)	Loamy sand with <2.0% OM **OR** Sandy loam with <1.0% OM **AND** < 30 ft. to groundwater	**Yes**	Requires 150 ft. application setback from wells. See mapping tool for areas potentially affected

[1]OM=Organic matter

[2]Groundwater advisories **do** apply on permeable (coarse-textured) soils with shallow groundwater.

Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the University of Minnesota or Dakota County is implied. Information provided is not intended to replace actual local groundwater knowledge.

For more information, visit www.dakotacounty.us and search *agriculture*. Please contact Phyllis Bongard at University of Minnesota Extension-Dakota County at 651-480-7757 or by e-mail at bonga028@umn.edu.

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