

WATER REQUIREMENTS FOR ACTIVATING PREEMERGENCE HERBICIDES - 5.12.21

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With rain visiting our state today, the topic of how much rainfall does it take is timely. Surface applied herbicides, such as Prowl or Valor, typically need a minimum amount water after application to properly “activate” in the upper soil profile. Activation means the herbicide is dissolved in the soil water solution and readily absorbed by weed seeds as they start to germinate. The difficult question growers often ask is how much is required for a particular herbicide. Several factors affect herbicide activation including soil texture (sand, silt, and clay), organic matter content, residue levels, and temperature. In general, 0.25 to 0.50 inch is sufficient for most soil applied herbicides within a few days of planting/application. In general, we like to see at least 1.0-inch in total precipitation within 2 weeks of a PRE application for optimum activity. Check herbicide product labels for the most up to date information (**Table 1**).

Table 1. Water activation rainfall amount, herbicide water solubility and leaching potential in sandy soils.

Herbicide Product	Rainfall Req. (inches)	Water Solubility (mg/L)	Leaching Potential (sandy soils)
diclosulam (Strongarm)	0.25-0.50	117	low
metolachlor (Dual Magnum)	0.25-0.50	488	medium
flumioxazin (Valor SX,EZ)	0.25	1.8	low
dimethenamid-p (Outlook)	0.25-0.50 ^a	1174	low
acetochlor (Warrant)	0.50 ^b	223	low
pyroxasulfone (Zidua)	0.50	3.5	medium
ethafluralin (Sonalan)	0.50-1.0	0.3	very low
pendimethalin (Prowl H2O&EC)	0.75	0.3	very low
imazethapyr (Pursuit)	** ^c	1400	low

^a According to the product label, a field treated with Outlook must receive a minimum of 0.5 inch of rainfall before using tailwater from the treated field for irrigating other fields. (*I believe this is much higher than the amount required for soil activation for weed control*).

^b If treated area has not received a minimum of 0.5 inch of rainfall within 10 days of application, a shallow incorporation is recommended.

^c Sufficient water to moisten soil profile to 2 inches is normally adequate for the activation of Pursuit.

Some product labels are quite vague in their language about rainfall minimum requirements for preemergence herbicides. I believe 0.25 inches is sufficient to activate most preemergence herbicides. Another complication to consider is that

some preemergence herbicides will sit on top of dry soil and resist breakdown and when rainfall comes, the herbicide will activate (albeit less than the amount you applied). In summary, if a dry period follows a preemergence herbicide application, plan on spraying the first postemergence herbicide application sooner and always tank mix a preemergence herbicide with that first postemergence treatment to extend the soil residual activity on weeds in the field.