

# Consider Herbicide Carryover Potential Before Planting Wheat This Year



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**A**lthough some areas of the state have received average or above average rainfall during the growing season, other areas like southwest Missouri have experienced severe drought conditions. Under especially dry conditions, the risk of carryover injury to wheat from corn or soybean herbicides is much higher.

The amount of rainfall received during the course of the growing season is one of the most important factors that influences the likelihood of herbicide carryover injury to wheat. Soil moisture is critically important for herbicide degradation, especially in the first few weeks after herbicide application. If adequate rainfall is not received during this time period, then the chemical and microbial processes responsible for herbicide degradation are reduced significantly and the herbicide molecules are more likely to become bound (adsorbed) to soil particles. All of this results in less herbicide degradation and increases the likelihood of herbicide carryover to wheat. Some herbicides are also degraded chemically in a process called hydrolysis. Hydrolysis is a reaction of the herbicide in question with soil water; therefore when soil water is limited, chemical hydrolysis of the herbicide is also reduced.

Another factor that influences the likelihood of herbicide carryover is the type of herbicide applied. As a general rule, corn or soybean herbicides with residual soil activity have the highest potential for causing carryover injury to wheat in Missouri. This is because residual herbicides are designed to remain in the soil profile for a specified period of time in order to prevent weed seedling germination, and also because most of the wheat planted in Missouri will follow either corn or soybeans.

In fields where corn was the previous crop, triazine herbicides are of the greatest concern in terms of herbicide carryover injury to wheat. These include atrazine or a variety of prepackaged mixtures that contain atrazine as one of the active ingredients (Bicep II Magnum, Degree Xtra, Guardsman Max, Harness Extra, Lexar, etc.). I have received several calls from southwest Missouri farmers and retailers who indicated they received little to no rainfall following applications of atrazine in corn this season. These are the areas that are most at risk for

herbicide carryover injury to wheat this fall. However, it is important to note that these labels do not allow for rotation to wheat until the year following application.

In fields where soybeans were the previous crop, the likelihood of carryover injury to wheat is usually lower because there are fewer residual herbicides applied in soybean. However, as a result of our glyphosate-resistant waterhemp problem throughout the state, fomesafen (Flexstar, Rhythm, in Prefix, etc.) has now become a more common post-emergence herbicide of choice in soybean, and this has a 4-month wheat replant interval. Regardless of the herbicide used, a good habit to get into is to consult the herbicide label for rotation information prior to application so that subsequent crop rotations can be planned. In addition to the herbicide label, information on crop rotation restrictions for some common corn and soybean herbicides can also be found in the Missouri Pest Management Guide for Field Crops (MU Extension Publication #M171) at <http://weeds.cscience.missouri.edu/publications/m00171.pdf>.

The rate of herbicide applied and the timing of the herbicide application are other factors that influence the likelihood of herbicide carryover injury to wheat. Simply put, the higher the rate of herbicide applied and the later the herbicide application was made, the greater the chance that some of the herbicide will remain to cause carryover injury to wheat. This is often an issue when corn was the previous crop and atrazine was applied later in the season and/or at rates higher than 2 lbs per acre. It is important to note that the label does not allow for rotation to any other crops except corn and grain sorghum until the following year if atrazine was applied after June 10.

What does all of this mean for growers who are trying to decide where to plant wheat this year? I think it means that wheat growers should be more aware of the higher potential for herbicide carryover injury that can occur in areas that have experienced extreme drought conditions. The best practice is to follow the label and consider the herbicide use history of each field in relation to each of the factors discussed above. If several of these factors indicate a high probability of herbicide carryover, then it is a good idea to abandon the field until next spring and rotate to another location where the probability of herbicide carryover is not as high.  $\Delta$

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