

Andy's Advice

Andy Robinson
Potato Extension Agronomist NDSU / U of M

Herbicide Carryover in the Soil, What Does it all Mean?

This time of year when growers are looking for fields to plant potatoes, knowing the previous herbicides can determine if a potato crop can be planted in that field. Herbicide persistence into the next growing season can restrict potato production (Figure 1). There are many herbicides that can carryover in the soil for one or more years. Carryover of herbicides can affect emergence rate and growth, causing a reduction in potato yield and/or quality. The carryover potential of herbicides varies because of their chemical structure. Soil characteristics and environmental conditions also will affect the potential for carryover.

It is easy to send a soil sample to a laboratory and have it tested for herbicide carryover in the soil. When the results come back I often get asked what does “x” parts per billion (ppb) mean? Can I plant potatoes in this field? The challenge with this type of report are: what part of the field did this sample come from, was there overlap in the spraying, how does the soil type in the sampled region of the field compare to the rest of the field. Additionally, our detection methods are so good that infinitesimal levels of pesticides are often found. To give some perspective to these levels of measurement, consider the following: 1 part per billion is equivalent to 3 seconds in 100 years, or 1 part per million (ppm) is equivalent to 1 inch in 16 miles. Currently there is not a good way or data set to quantify ppb of herbicide in the soil with the ability to plant potatoes in that ground. When deciding where to plant your next potato crop, the best practice is to review previous herbicide applications to a field and follow the crop rotation restrictions on the label.

Restrictions for planting potatoes in North Dakota can be found in the herbicide carryover section of the North Dakota Weed Control Guide (<http://z.umn.edu/carryover>). This information is from current registration labels as available. For states outside of North Dakota, check the herbicide labels for specific instructions on potato rotation.



Figure 1. Herbicide carryover in the soil on the right and no carryover on the left.