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In recent years, cover crops have gained considerably more popularity as new crop species and practices have been identified that fit into Wisconsin crop rotations. Most of the early cover crop research has focused on basic agronomic principles such as what species to select, when to plant, how to establish a good stand, and nutrient credit benefits. Here are a few examples of popular cover crops scenarios being used across Wisconsin:

1. Winter rye and winter triticale planted after corn silage or soybeans for spring forage.
2. Oats or barley planted after winter wheat for fall forage. Summer seeded small grains also provide a place to spread manure when the soil series has fall nitrogen restrictions.
3. Frost seed red clover into winter wheat to provide late summer erosions control, weed suppression, nitrogen credits, and potentially forage.
4. Forage radish planted in late summer to early fall to help loosen soil and alleviate compaction.

Early adopters learned through trial and error what complications come with using cover crops. Herbicide use in the previous crop(s) is one common complication to establishing cover crops as some herbicides persist in the soil and can injure and even prevent establishment. Glyphosate tolerant crops have reduced the occurrence of cover crop injury as glyphosate has no residual soil activity, but some herbicides that have soil activity are still commonly utilized in Wisconsin. These herbicides offer several advantages to our production systems by providing longer periods of weed management. While this is a tremendous advantage in the crop, it can present difficulty when cover crops are to be utilized in the rotation as often cover crops are not listed on herbicide labels, can be sensitive to herbicides that originated in crops planted more than one year prior to the cover crop, and grow over a short timeframe that make recovering from injury difficult. While agrichemical companies refer growers to the herbicide label for rotational crop planting intervals, many of these cover crops are not listed specifically on the label, therefore requiring the grower to observe the interval listed for a crop not labeled.

Let's look at a hypothetical scenario. Lumax® is a corn herbicide that contains metolachlor, atrazine, and mesotrione. An application is made May 1st pre-emergence to silage corn. Then silage corn is harvested in early September and winter wheat is planted at the end of month. The rotational interval for planting winter wheat, barley or rye is 4 ½ months, so enough time has passed for successful planting of a small grain. However, the following April, the grower decides to frost seed red clover into the wheat stand. According to the label, eighteen months need to pass for "other" crops (red clover is not specifically listed on the label) to be planted. While the tolerance of red clover to Lumax® is not known, the label didn't specifically list red clover on the label thus this planting was not in compliance with the label.

In the case of forage radish, no labels we are aware of address rotation intervals because it is so new to commercial production. Producers may look at related crops or weeds on the label to try to make an educated guess at the planting interval. While this can work, often herbicide tolerance is species specific, therefore it is not recommended.

A scenario involving forage radish would be a grower wishes to plant it after canning peas that have been treated with Pursuit® (imazethapyr) earlier in the year. While no information on forage radish is on the label, people often look at the plant-back interval for related crops (e.g. cauliflower) on the label which state 18 months is required. Others may look at efficacy on related weed species like wild mustard. Although these may offer some advice, it would still not be in compliance with the label. Since forage radish is not listed, the official plant-back interval is 40 months. This appears to be exceedingly long, especially if some injury can be tolerated since the cover crop will not be harvested.

More research is needed to understand the potential for herbicide persistence to damage cover crops. While this should not be a deterrent from trying cover crops, field observations are indicating this is an issue growers need to think about when they use residual herbicides. As research is conducted with respect to plant-back intervals with cover crops and communicated to agrichemical companies, we hope it will be incorporated into the label, but until this is done we recommend always following the product label, as the label is the law.