

THE

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# FORAGER



*Agronomics with livestock in mind!*



## ABOUT WINTER ANNUAL WEEDS

Winter annual weeds have become more prevalent in crop production fields over the last five to ten years. These species germinate anytime between late summer and early spring, but typically emerge in the fall, over-winter as small seedlings, and complete their life cycle in late spring. Some of this newfound abundance of winter annual weeds resulted from the adoption of conservation tillage practices (Wicks *et al.* 1994). Seedlings that were easily removed by pre-plant tillage in conventional systems are commonly allowed to become established and produce seed under no-till conditions where the soil is not disturbed. Winter annuals can also be problematic in conventional tillage systems if they are allowed to emerge after an early fall tillage. Another factor has been the development and use of glyphosate-resistant crops. For example, in 2003 glyphosate-resistant soybeans were planted on approximately 85% of the soybean production acres in the United States (USDA 2003). Increased use of glyphosate-resistant soybeans has led to a reduction in the use of soil-applied herbicides (IN Dept of Ag 2003) that provide suppression of winter annual weeds in the fall (W.G. Johnson, unpublished data). Because glyphosate can be applied to established resistant soybeans, many growers will delay treatment until after crop planting, which allows winter annuals to mature and produce seed. Finally, relatively mild winters in recent years have favored winter annual weed growth and survival (Krausz *et al.* 2003).

### **Impact of winter annual weeds**

Winter annual weeds can have a number of negative impacts on sustainable cropping practices. Dense populations of winter annual weeds can slow drying and warming of soil in the spring. This combination may lead to delayed planting dates and decreased yields. In conventionally tilled fields, the presence of winter annuals can increase tillage, labor, and fuel costs required for spring seedbed preparation. These weeds are also difficult to control in no-till production systems with late spring herbicide applications because of their advanced growth stage. Similarly, winter annual weeds can interfere with crop seeding depth and crop establishment in high residue areas. Winter annual weeds may also host various crop

pests. For example, common chickweed is a good host for black cutworm (Sherrod *et al.* 1979), a common insect pest of corn. In addition, certain winter annual weeds have been identified as alternative hosts for soybean cyst nematode (SCN) (Venkatesh *et al.* 2000).

### **Implications of winter annual weed management**

Winter annual weeds can be managed with herbicides, tillage, or cover crops. Although the presence of winter annuals in production fields may cause a problem, operations necessary to remove these plants can also have negative impacts. Tillage can be effective for control of winter annual weeds but it has also been linked to stimulating SCN population growth by aerating the soil (Koening *et al.* 1995; Young 1987) and increased risk of soil erosion. Removal of winter annual weeds with a fall applied herbicide creates bare soil, which theoretically warms and dries faster in the spring. These conditions have been observed to promote earlier emergence and subsequent management problems of giant foxtail, common lamb's-quarters, and common waterhemp (Young *et al.* 2001; W.G. Johnson, unpublished data).

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