# Benefits of Three Cover Crops for Corn Based on Cover Crop and Weed Biomass and Corn Yield

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This project studies the effects of cover crops when used as companion crops for corn. A cover crop is planted in the same soil: before the main crop is planted, after the main crop is planted, or while the main crop is growing. Cover crops are mainly used to capture excess nitrogen in the soil, prevent runoff, and feed microbes. Corn is a main crop that needs multiple nutrients to grow, particularly nitrogen, phosphorus, and potassium which are stored and sometimes produced by cover crops. Common cover crops for corn include annual ryegrass, white clover, and tillage radishes. The most common of these crops is annual ryegrass because it makes use of many nutrients in the soil and soaks up extra nitrogen at the end of the growing season. A conventional way to establish a cover crop with corn is to use it as a "companion crop," which means to plant the cover crop in between rows of corn. Corn can occasionally become competitive with certain cover crops, therefore a non-competitive crop is needed in order to perfect the use of cover crops. I tested all three cover crops to determine which was the most efficient. The most effective cover crop was decided based on cover crop biomass, weed biomass, survival of the cover crop after corn harvest, and cover crop height. With the results, I was able to determine specific benefits of each cover crop and how well they grew as companion crops to corn.

**Awards Won:**