

## Clean Corn Fields

### SITUATION

Everyone knows that a weedy corn field decreases the yield potential of that field, but what's important to understand is how early this yield loss can occur. Yield is determined very early in corn, usually around the V5 growth stage. Between V5 and V6, the row number and kernel number per row are being determined. Kernel number or ear length is strongly affected by environmental stresses.

From V5 on, yield can decrease due to stress factors, but it will never increase, so anything we can do to minimize stress at this growth stage is critical.

---

### FACTORS TO CONSIDER

Keeping your fields clean may sound simple, but as we all know, Mother Nature may not make it that easy. This can be especially true when it is time to apply herbicides. That is why using a pre-emergent herbicide has become so important. Putting down a pre-emergent herbicide can provide an additional week or two of time to your window for getting the next chemical applied.

Typically, we think of yield loss coming from the competition for nutrients and water. However, between the V3 and V6 stages, leaf orientation is being determined. The corn plants will respond to neighboring plants at relatively early stages of vegetative growth. If there is weed competition in the row, the corn's leaves will adjust away from these plants, potentially limiting their ability to intercept sunlight.

The impact of weed control is huge.

- By delaying spraying by just two weeks early in the season, we can lose up to 25 bushels per acre in yield potential.
- A 10-20 percent yield loss can be seen with weeds just 6-8 inches tall.
- If weeds are left unchecked through the entire growing season, we can lose over 50 percent of the yield.
- By leaving weeds unchecked, we are also creating long-term problems. Some weeds like lambsquarter can survive for over 20 years.



## ACTION PLAN

There are a few steps that we can take to stop these yield-robbing weeds.

- 1. A combination of pre- and post-application of herbicides:** This will not only help give you a longer window to apply your post herbicides, but it will also help combat herbicide resistance.
- 2. Alternating herbicide modes of action:** Using different modes of action when applying pre- and post-herbicides each year can significantly increase weed resistance. Using multiple modes of action within the same application also extends the life of the chemical by slowing herbicide resistance.
- 3. Change row spacing:** Using narrower row spacing can help your crop canopy faster, thus, stopping the weeds from growing. A general rule is: 20 to 22-inch rows will close about 7-10 days earlier than 30-inch rows; while 15-inch rows will close about 14-20 days earlier than 30-inch rows.
- 4. Cultivating:** This may seem like old technology, but nothing is more effective at killing weeds than cultivating the soil. It is, however, very time consuming, and you can only kill the weeds between the rows, which accounts for about 70 percent of the weeds in the entire field.

---

## SUMMARY

Weed control may seem like a daunting task at times, but remember that the sooner the weeds can be controlled, the better. Spray on the early side, when weeds are young and small because tall weeds are harder to control. Additionally, tall weeds will have already cost you potential yield. Remember, not all weeds germinate at the same time. Some start early, like lambsquarter, while others like waterhemp, may germinate all summer long. It's important that you know what weeds you are targeting.

---

## RESOURCES

<https://crops.extension.iastate.edu/critical-periods-competition-corn-0>

