Preemergence Herbicide Application Timings: Pros and Cons

Robert G. Hartzler
Iowa State University, hartzler@iastate.edu

Meaghan J. B. Anderson
Iowa State University, mjanders@iastate.edu

Prashant Jha
Iowa State University, pjha@iastate.edu

Follow this and additional works at: https://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, and the Agriculture Commons

Recommended Citation
https://lib.dr.iastate.edu/cropnews/2617

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
Preemergence Herbicide Application Timings: Pros and Cons

Abstract
Preemergence herbicides are the foundation of herbicide-based weed management systems, and effective use of these products is essential to protect crop yields and reduce selection pressure for herbicide resistant weeds. In a perfect world, applying preemergence herbicides immediately after planting would provide the greatest likelihood of maximum performance, but equipment and labor availability limit many farms from using this approach. This article will provide a brief overview of the pros and cons of different application strategies

Disciplines
Agricultural Science | Agriculture
Preemergence Herbicide Application Timings: Pros and Cons

April 9, 2020

Preemergence herbicides are the foundation of herbicide-based weed management systems, and effective use of these products is essential to protect crop yields and reduce selection pressure for herbicide resistant weeds. In a perfect world, applying preemergence herbicides immediately after planting would provide the greatest likelihood of maximum performance, but equipment and labor availability limit many farms from using this approach. This article will provide a brief overview of the pros and cons of different application strategies.

| Early preplant: Applications made more than 7 to 10 days prior to planting. |
|---------------------|-----------------|
| **Pros**            | **Cons**        |
| - Applications typically completed before summer annual weeds begin to germinate, thus increasing the likelihood of timely activation by rainfall. | - Residual activity into the growing season is shorter than when product is applied near planting. Use of layered residual (including a residual with postemergence application) approach reduces this risk. |
| - May provide a weed-free seedbed at planting. In no-till systems, include a burndown product to control emerged winter annual and other weeds. | - Final seedbed preparation tillage may ‘dilute’ the herbicide within the soil profile if tool is run too deep, and may result in uneven distribution of the herbicide. |
|                      | - Planter units may move herbicide out of the crop row, allowing weed escapes |
- Application completed before planting, spreading workload.
- If planting is delayed, much of the value of the herbicide may be lost.

---

Preplant/Preemergence: Applications made within a week before or after planting.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| - Product applied near time that summer annuals initiate emergence.  
- Residual control extended later into growing season than early preplant applications. | - If rain doesn’t occur within a week of planting, early-emerging weeds may escape control due to lack of herbicide activation.  
- Planter units may move herbicide out of the crop row if applied preplant, allowing weed escapes. |

---

Delayed preemergence: Applications made more than a week after planting.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
</table>
| - May spread workload.  
- Residual control is extended later into growing season. | - Herbicide options may be reduced if crop has emerged before application.  
- Summer annual weeds likely will have emerged at application, requiring additional postemergence product to control these weeds.  
- Rainfall is needed within a few days of the application to activate product.  
- Application delays can result in early-season competition between crops and weeds, and may allow weeds to exceed... |
Herbicide resistant weeds have limited our ability to ‘rescue’ fields when weather delays preemergence applications following planting. Thus, consider how you can ensure that all acres are protected with appropriate preemergence herbicide applications when prolonged wet periods or other factors interfere with field operations.
Waterhemp escapes in crop row due to preemergence herbicide being moved by row cleaners.

Category: Weeds