



## Weed Management Strategies in Potato

*Authored by Akash Brar, Graduate Research Assistant, Eastern Shore AREC, Virginia Tech; and Vijay Singh, Associate Professor and Extension Specialist, Eastern Shore AREC, Virginia Tech*

### Introduction

The Accomack and Northampton counties in the Eastern Shore of Virginia produce about 80% of Virginia's total potato crop (Northampton County, 2023). Keeping the weeds under check is one of most important prerequisites in achieving satisfactory potato yields. Weed infestation and herbicide resistance are continuously haunting the growers owing to the lesser number of viable herbicide options than before. The menace of weeds in the upcoming season depends to a larger extent on the practices being followed over the previous years and can be prevented by certain practices planned well in advance.



(a) Common ragweed



(b) Common lambsquarters



(c) Palmer amaranth



(d) Large crabgrass



(e) Yellow nutsedge

Figure 1. Problematic weeds in potato in the Eastern Shore of Virginia

Procuring certified weed-free potato seeds for planting is the foremost prevention technique that avoids introduction of new weeds into the field. Tillage and harvest machinery should be cleaned thoroughly of weed seeds before moving from one field to another. Crop rotation is another strategy that facilitates use of herbicides in other crops that cannot be used in potato crop. Timely elimination of weeds before seed setting is required to keep the weed seed bank under check.

The success of a weed control program is based on the regular and timely identification of prevalent weeds in the field, growth stage of weeds and the crop. In the Eastern shore of Virginia, major weed issues in potato are common ragweed, common lambsquarters, Palmer amaranth, large crabgrass, and yellow nutsedge (Figure 1).



Figure 2. Application of herbicides before row closure

### Devising the weed control strategy

Two major components of an effective weed control program in potato are tillage and herbicides. To lessen the generation of weed seeds or propagules,

potato fields should always be tilled after prior crops are harvested. If weeds approach reproductive stages before potatoes are sown, more tillage is necessary. The majority of weeds can then be eliminated by cultivation (drag off/ hilling) timed just before potato emergence. There are several possible options for combining tillage and herbicides at various timings for effective weed control.

## Approach 1

This approach (Figure 3) skips the need to apply a preemergence herbicide. From planting to potato emergence, there is a 4-week period during which weeds emerge but there is no crop competition. During this period, drag-off with a harrow can control weeds that have already emerged. After the emergence of potato, the first flush of weeds can be controlled with a hilling tillage operation between the crop rows. Subsequently, emerging weeds can be controlled with postemergence herbicide. Postemergence applications should be made before canopy closure to ensure sufficient spray coverage of the weeds.

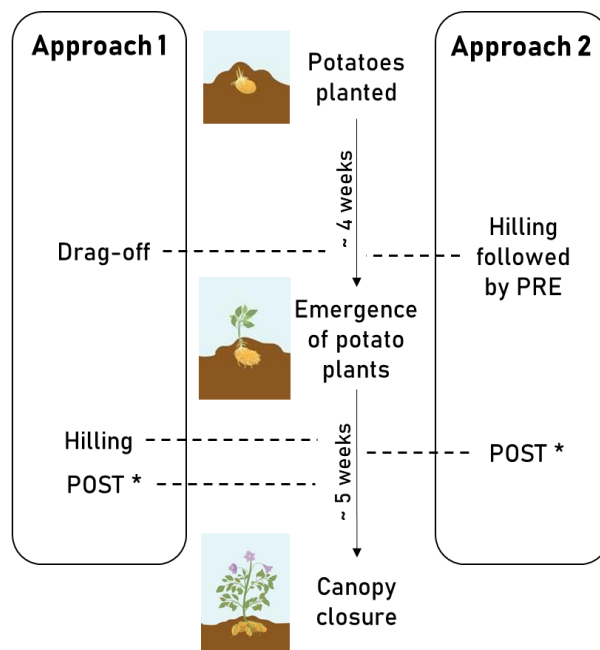
## Approach 2

Another approach (Figure 3) combines tillage and herbicide use. In this approach, a hilling (tillage) operation is performed just prior to potato emergence, knocking off the weeds that have emerged to that point. Soon after this hilling operation and well before the potato emergence, a preemergence herbicide can be applied. A postemergence application may be made before the canopy closure if needed.

## Preemergence (Soil-Applied) herbicides

Preemergence application of Matrix SG (Group 2, 1.0-1.5 oz/A) immediately after hilling or drag-off provides good control of major grass and broadleaf weeds. Preplant as well as preemergence application of Dual Magnum (Group 15, 1-2 pt/A) or preemergence application of Boundary 6.5EC (Group 15 + 5, 1.5-2.4 pt/A) is effective in suppressing yellow nutsedge along with major grasses and broadleaf weeds. Check the label for the exact rate, as herbicide rates depend on soil type and organic matter. The inclusion of Group 15 herbicides is important if sedges are a major problem. Other effective preemergence options include Outlook (Group 15, 12-21 fl oz/A) or Reflex (Group 14,

0.75-1 pt/A), which can provide excellent broadleaved weed control. Avoid applying Dual Magnum/Outlook under cold conditions, as it can cause crop injury.



\*if needed

PRE: Preemergence herbicide;

POST: Postemergence herbicide

Figure 3. Different approaches for the combination of tillage and herbicides for effective weed management in potato

## Postemergence herbicides

Postemergence application of Matrix SG (Group 2, 1.0-1.5 oz/A) provides good control of major grass and broadleaf weeds. If grass weeds are a major problem in the field, postemergence application of Group 1 herbicides, Select Max (9-32 fl oz/A) or Poast (1-2.5 pt/A) is recommended. Use Poast (Group 1) herbicide if goosegrass is a major issue compared with other grasses. Metribuzin 75 (Group 5, 0.33-0.66 lb/A) is another option for postemergence control of broadleaf weeds, but it is weak on grasses. Herbicide labels should be consulted, and appropriate adjuvants must be used for all the postemergence applications.

**Table 1A. Herbicides for Weed Control in Potato - Preemergence**

Herbicide (Group)	Product rate	Remarks
Matrix SG (Group 2)	1.0-1.5 oz/A	Use NIS @ 0.25% v/v if weeds are already emerged
Prowl 3.3 EC (Group 3)	1.8-3.6 pt/A	Incorporate after application
Reflex (Group 14)	0.75-1.0 pt/A	Avoid preplant incorporation or application to emerged potatoes
Dual Magnum (Group 15)	1.0-2.0 pt/A	Avoid cool/wet soil conditions after application
Outlook (Group 15)	12-21 fl oz/A	Avoid application under cold conditions
Boundary 6.5EC (Group 15 + 5)	1.5-2.4 pt/A	Apply after planting but before crop emergence, or apply after drag-off

**Table 1B. Herbicides for Weed Control in Potato – Postemergence**

Herbicide (Group)	Product rate	Remarks
Select Max (Group 1)	9-32 fl oz/A	Do not apply any pesticide within 2-3 days, use NIS @ 0.25% v/v
Poast (Group 1)	1.0-2.5 pt/A	Use COC @ 1.0% v/v, avoid COC when hot/humid, do not apply any pesticide within 2-3 days
Matrix SG (Group 2)	1.0-1.5 oz/A	Use NIS @ 0.25% v/v
Metribuzin 75 (Group 5)	0.33-0.66 lb/A	Certain cultivars are sensitive

## Summary

The use of Dual magnum (Group 15)/ Boundary 6.5EC (Group 15 + 5) as preemergence, followed by Matrix SG (Group 2) + Metribuzin 75 (Group 5) as postemergence consistently provided excellent control of grasses, broadleaved weeds, and sedges in our previous studies. In case of weeds resistant to Group 2 herbicides, adding Metribuzin (Group 5) facilitates effective control. Reflex and Outlook can also be used for preemergence applications if nutsedges are not an issue.

## Links

For more information, please refer to [2024/2025 Mid-Atlantic Commercial Vegetable Production Recommendations](https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/456/456-420/SPES-586.pdf) (https://www.pubs.ext.vt.edu/content/dam/pubs\_ext\_vt\_edu/456/456-420/SPES-586.pdf)

## References

Northampton County. 2023. Potatoes. Available at: [https://www.co.northampton.va.us/business/bountiful\\_northampton/agriculture/potatoes](https://www.co.northampton.va.us/business/bountiful_northampton/agriculture/potatoes)

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