

Volunteer potato control recommendations for 2016

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An integrated approach using preventative, cultural, mechanical, biological, chemical is recommended. Preventative measures can go a long way for avoiding the problem in the first place. ***However, right now the issue is killing the volunteer potatoes already in the field.*** These suggestions/recommendations are not complete. More may be posted shortly.

Objectives:

- Kill emerged volunteer potato plants.
- Prevent volunteer potatoes from re-sprouting.
 - Volunteer potatoes have a large carbohydrate reserve in the tuber and can re-sprout even after the foliage has been destroyed.
- Prevent the volunteer plant (mother) from producing new tubers (daughter tubers) which can become a problem in next year's crop.
- Reduce weight of daughter tubers if they are already being produced by control time.

Volunteer potato control methods for spring/early summer 2016:

- Herbicide application.
- Cultivation.
 - Repeated cultivations and hand weeding can control volunteer potatoes, but are most effective and economical when combined with other control methods.
 - Two or more cultivations are required to reduce volunteer potato tuber production by more than 50% but cultivation does not control potatoes in the crop row.
 - Research has shown that cultivating four times during the season beginning when volunteer potatoes were at the 6 to 8 leaf stage and hooking, and repeating each time potatoes regrew to this stage, reduced potato competitiveness and nearly eliminated production of new tubers.
- Combination of herbicide and cultivation (examples are given below).

A healthy crop is more competitive than a crop with nutrient, water, pest, etc. issues.

Timing:

- ***Optimum postemergence herbicide application time to volunteer potato is at tuber initiation*** (tuber initiation is when the tip of the stolon (underground stem) starts to swell to form a new potato tuber).



- Depending upon the herbicide used, possible translocation to the tuber just being initiated which is a sink for photosynthates, and hence, a chance for the herbicide to also go to the daughter tuber and kill.
- If the herbicide application occurs earlier than tuber initiation, then the original volunteer potato tuber (mother tuber) may re-sprout.
- Herbicide application later than tuber initiation is usually too late because daughter tubers which have already formed by spraying time can survive and produce volunteer potato plants in the following year's crop.
- Studies have shown crop yield loss if volunteer potato plants are sprayed too late because in addition to competition which has already occurred, the mother plant with the developing daughter tubers is competing with the crop for water and nutrients even more now than before daughter tuber production began.

Herbicides:

This herbicide list is not complete. Herbicides listed for use in some crops may also be labeled for use in other crops. Most labels state "suppression" not control of volunteer potatoes. Rates are not always given for herbicides listed.

Unless noted, application timing is postemergence (after the volunteer potato has emerged).

Read and follow labels closely for labeled crops, proper rates, timing of applications, crop growth stage, adjuvant recommendations, and crop rotation restrictions.

Trade names are used to simplify information – no endorsement or discrimination is intended.

General herbicide information:

- Sulfonylureas, such as Harmony, can injure volunteer potato vegetation but usually aren't effective at preventing re-sprouting and daughter tuber production.
- *Repeated* applications of contact (burndown) herbicides such as, oxyfluorfen (Goal), carfentrazone (Aim), fomesafen (Reflex), glufosinate (Rely), or paraquat (Gramoxone) can be effective.
- Cultivation 7 to 10 days after postemergence applications of Starane (fluroxypyr), oxyfluorfen (Goal and others), glyphosate (Roundup and others), and/or dicamba (Banvel, Clarity, and others) has been shown to significantly reduce the number of tubers (daughter tubers) produced by the volunteer potato plant (mother plant) compared to herbicides alone.
- Some crops have labels for use of burndown herbicides such as paraquat, carfentrazone (Aim), or glyphosate (Roundup and others) after planting but before crop emergence.
- There are pre-mix products (more than one herbicide in the container) which might be labeled for volunteer potato control.

Roundup Ready Crops

Glyphosate (Roundup) is an option. As mentioned, the most effective application time is when the volunteer potato plant is at the tuber initiation phase.

Corn

Roundup (glyphosate) in Roundup Ready corn – most effective if applied when volunteer potatoes are at the tuber initiation stage.

Callisto 4 SC (mesotrione) can effectively reduce daughter tuber formation at 2 to 3 fl oz/A (with 1 % v/v crop oil concentrate + UAN (32% N) at 2.5% v/v). AMS (ammonium sulfate) can be substituted for the UAN.

- Cultivation after Callisto application may not improve volunteer potato control.

Aim 2 EC (carfentrazone-ethyl) one application alone (0.5 fl oz/A) can kill exposed foliage of potato, but new shoots continued to emerge and reduced corn yield;

Aim 2 EC 0.5 fl oz/A two or three times applied one week apart is more effective than a single application.

Aim 2 EC + dicamba (Banvel, Clarity, or others) (0.5 fl oz + 8 fl oz/A) in a single application at tuber initiation.

Starane 2/3 pt/A (a second application may be needed – do not exceed 1.33 pt/A per year)

NOTE: the Starane ULTRA label states 0.4 pt/A.

Distinct (diflufenzopyr + dicamba) 6 fl oz/A early postemergence + 0.4 fl oz/A mid- or late-postemergence (do not exceed 10 fl oz/A per year).

atrazine (Aatrex, Atrazine, and others)

Small grains

Starane (fluroxypyr) 2/3 pt/A (2nd application may be needed, do not exceed 1.33 pt/A per year).

Aim 2 EC (see corn recommendations)

bromoxynil (Buctril and others)

dicamba (Banvel, Clarity, and others)

2,4-D + dicamba

Roundup pre-harvest would most likely be too late to prevent daughter tuber production, however, translocation to the daughter tuber during bulking phase could prevent daughter tubers from sprouting the following year (ala glyphosate drift onto a seed potato crop).

Sugar beet

Roundup in Roundup Ready sugar beet. Most effective application timing is when volunteer potatoes are at the tuber initiation stage.

Nortron (ethofumesate)

- Nortron applied preemergence retards volunteer potato emergence, and applied postemergence, can reduce volunteer potato competition with the crop.

clopyralid (Stinger, Curtail, and others)

Dry bean

Raptor 1SC (imazamox)

Basagran 4L (bentazon)

Raptor + Basagran

NOTE: Since dry bean is usually planted later than others in southern Idaho, volunteer potato could already be present in the field so there may be an opportunity to implement various control measures before planting.

Onions

oxyfluorfen (Goal and others) – 2 to 3 applications.

NOTE: spray coverage with oxyfluorfen is important – use the appropriate spray gallonage/pressure.

oxyfluorfen + bromoxynil – 2 to 3 applications.

Starane (fluoroxypyr) + bromoxynil – 2 to 3 applications.

Alfalfa

Raptor (imazamox).

Pursuit (imazethapyr- methyl).

2,4-DB.

These alfalfa herbicides can stunt the volunteer potato plants and alfalfa cuttings can further weaken those plants.

Colorado potato beetle are known to be attracted to potatoes that are chemically and physically stressed.

Information included in this list has been gathered from a number of publications and resources including those by Rick A. Boydston, Agronomist, USDA-ARS, Pullman, WA; Don W. Morishita, Professor, Extension Weed Specialist, Superintendent Kimberly R&E Center, University of Idaho; Joel Felix, Associate Professor, Weed Scientist, Malheur Agricultural Experiment Station, Oregon State University; *and from* Colorado State University, Michigan State University, University of Wisconsin, and University of Nebraska.