



## Fight against Blight

### ISSUE 4: VOLUNTEER CONTROL (GROUNDKEEPERS)

Blight control does not start in the growing crop – it starts much earlier



**Volunteer potatoes** act as a primary infection source by over-wintering infected tubers, and provide unprotected foliage that can act as an entry point throughout the season for blight. They can also act as a reservoir or a host for other problems such as spraing, PCN, black scurf, black dot, powdery scab etc. Volunteers are also a host for aphids and aphid transmitted potato viruses.

#### The Facts

#### Evidence from trials

• High, variable tuber return at harvest	12-300 thousand per hectare
• Higher plant population from volunteers than commercial seed rates	Typical ware crop seed rate: 40-50 thousand per hectare
• Return of true potato seed is high but the incidence of volunteers from this source is low, possibly because they behave like normal broadleaved weeds resulting in good control from residual herbicides	5-15 berries per plant @ 50-150 seeds per berry = 20-30 million seeds per hectare, with a high viability of 60%+
• Tubers that are left in the soil tend to be small	70% are in the 10-30mm size range
• Daughter tuber numbers can vary from volunteer potato plants	Trials show between 0 and 4 tubers per plant
• Volunteers tend to emerge and senesce over long periods making it very difficult to achieve good control with one herbicide application	Trials show volunteers start to emerge in April and can senesce from June through to September
• Tubers can be killed when subjected to periods of frost	Tubers are killed by 50 hours or more at a temperature below $-2^{\circ}\text{C}$

#### Cultural methods of control

Cultural control helps with pesticides to form a two pronged attack on volunteer potatoes, but practical and commercial considerations will dictate the limits to which they can be used.

- Don't grow tubers of a size that cannot be harvested!
  - good even tilth, no compaction
  - even planting at desired density, tightly graded seed of even vigour
  - appropriate fertiliser use
  - well scheduled irrigation
  - well timed haulm desiccation to ensure good haulm / tuber separation (effective burn-off)
  - good PCN and Rhizoctonia control

- Set harvesters to minimise tuber return
  - reduce web rod spacing (account for the balance between work rate and over filling webs)
  - set share depth and angle of primary web to avoid cutting tubers
- Target easy lifting conditions for most efficient pick-up of tubers
- Cultivations – where possible establish following crop without ploughing
  - maximise effect of frost kill and scavenging animals
  - not always possible after wet lifting conditions, follow with a competitive crop (wheat, barley)
- Use set aside in the rotation where possible

### **Herbicides for volunteer potato control**

There are several issues that must be considered with herbicide use:

- residual herbicides are not always effective – food reserves in the tuber are too large
- long period of emergence requires repeated applications of contact herbicides
- herbicide restricted by crop growth stage timing restraints
- selective herbicides never completely effective - good haulm control may not prevent production of viable daughter tubers
- growing crop hinders spray coverage

### **Herbicide products**

#### *Cereals*

- Selective herbicides such as fluroxypyr (e.g. Starane) and sulfonyl-ureas (e.g. Ally) all give haulm control and variable effect on daughter tuber viability
- Consider adding fluroxypyr to sulfonyl-ureas to improve control – although best option is straight fluroxypyr at 2.0L.
- Glyphosate (e.g. Roundup) has performed well in trials to control volunteer potatoes. However, a lot of volunteers can germinate early and pose a blight risk before traditional glyphosate spray timings in cereals.

#### *Sugar beet*

- Clopyralid (e.g. Dow Shield) tends to give good control of volunteer potatoes, but is best used in programmes along with ethofumesate (e.g. Nortron Flo), phenmedipham (e.g. Betanal Flo) and triflurosulfuron-methyl (e.g. Debut) to give better results in both haulm and daughter tuber vigour control. Good results can be achieved with multiple applications.

#### *Oilseed Rape*

- Clopyralid can be used for early season control although crop competition and latest application timings make control difficult
- Pre-harvest glyphosate can be used if volunteers are present

#### *Set aside*

- Glyphosate in set aside has performed well in trials in helping to reduce volunteer potato burdens. However, this tends to work best later in the season, which can leave unprotected foliage upon which blight can sporulate. In a high risk season this can be treated with paraquat & diquat to remove the green foliage.
- Control can be reduced at lower rates

### **Control strategies**

Consider the following:

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| <ul style="list-style-type: none"> <li>• Optimising tuber size distribution</li> <li>• Applying maleic hydrazide (e.g. Source II or Fazor) (not on seed, first earlies or crops grown under polythene)</li> <li>• Setting the harvester to lift smaller tubers where possible</li> <li>• Keeping returned tubers near soil surface</li> <li>• Following with competitive crop</li> </ul> | <ul style="list-style-type: none"> <li>• Hitting volunteers whenever possible as no single herbicide treatment is entirely effective.</li> <li>• Using selective herbicides in following crops e.g. fluroxypyr, sulfonyl ureas and clopyralid</li> <li>• Using pre-harvest glyphosate</li> <li>• Cleaning up stubbles with glyphosate</li> <li>• Watching out for volunteers in shaded crops like winter oilseed rape and maize</li> </ul> |
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**Before application always read the label and check with your buyer / protocol that active ingredients are permitted.**

If you require any specific advice about your own situation please contact your local agronomist.

[www.potato.org.uk/blight](http://www.potato.org.uk/blight)