### Herbicides (and active ingredient)

<table>
<thead>
<tr>
<th>Herbicides</th>
<th>Max. Allowable Amount Per Acre per Year</th>
<th>Pre-harvest Interval (PHI)</th>
<th>Restricted Entry Interval (REI)</th>
<th>Max. # of apps</th>
<th>HRAC Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Aim® (carfentrazone-ethyl)</td>
<td>6.1 fl oz or 0.096 lb ai</td>
<td>0 days</td>
<td>12 hrs</td>
<td>NA</td>
<td>E</td>
</tr>
<tr>
<td>New Spur® (clopyralid)</td>
<td>1.33 pt or 0.5 lb ai</td>
<td>45 days</td>
<td>12 hrs</td>
<td>NA</td>
<td>O</td>
</tr>
<tr>
<td>Callisto® , Explorer®, etc.</td>
<td>16 fl oz</td>
<td>45 days</td>
<td>12 hrs</td>
<td>2</td>
<td>F2</td>
</tr>
<tr>
<td>Casoron® 4G (dichlobenil)</td>
<td>100 lb</td>
<td>NA</td>
<td>12 hrs</td>
<td>NA</td>
<td>L</td>
</tr>
<tr>
<td>Devrinol® (napropamide)</td>
<td>18 lb or 18 qt</td>
<td>NA</td>
<td>24 hrs</td>
<td>1</td>
<td>K3</td>
</tr>
<tr>
<td>Evital® 5G (norflurazon)</td>
<td>160 lb</td>
<td>NA</td>
<td>12 hrs</td>
<td>1</td>
<td>F1</td>
</tr>
<tr>
<td>Fusilade® DX (fluazifop)</td>
<td>N/A</td>
<td>1 year</td>
<td>12 hrs</td>
<td>NA</td>
<td>A</td>
</tr>
<tr>
<td>Pre® (sethoxydim)</td>
<td>5 pints</td>
<td>60 days</td>
<td>12 hrs</td>
<td>NA</td>
<td>A</td>
</tr>
<tr>
<td>Select Max®, Intensity® One</td>
<td>64 fl oz</td>
<td>30 days</td>
<td>24 hrs</td>
<td>NA</td>
<td>A</td>
</tr>
<tr>
<td>Intensity®, Arrow® (cethodim)</td>
<td>32 fl oz</td>
<td>30 days</td>
<td>24 hrs</td>
<td>NA</td>
<td>A</td>
</tr>
<tr>
<td>Simazine 4L® (simazine)</td>
<td>2 Quarts</td>
<td>NA</td>
<td>12 hrs</td>
<td>1</td>
<td>C1</td>
</tr>
<tr>
<td>Reglone® (diquat dibromide)</td>
<td>N/A</td>
<td>1 year</td>
<td>when dry</td>
<td>NA</td>
<td>D</td>
</tr>
<tr>
<td>Roundup® (glyphosate)</td>
<td>N/A</td>
<td>30 days</td>
<td>4 hrs</td>
<td>NA</td>
<td>G</td>
</tr>
<tr>
<td>Vapam® (metam-sodium)</td>
<td>75 gallons</td>
<td>1 year</td>
<td>5 days</td>
<td>NA</td>
<td>Z</td>
</tr>
</tbody>
</table>

**HRAC = Herbicide Resistance Action Committee** (rotate amongst the groups to hinder weed resistance)

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### Before budbreak (~middle of April)

- **Apply Pre-emergence herbicides prior to vines breaking dormancy.** Timing may vary due to weather. **Do not use Callisto® during this period.**

- **Sethox**
  - Asters, cottongrass, crabgrass, cutgrass, fall panicgrass, ferns, fireweed, haircap moss, loosestrife, mannagrass, marsh St. John’s wort, mare’s tail (*equisetum*), narrow-leaved goldenrod, needlegrass, nutsedge, pitchfork (beggarstick), ragweed, rattlesnakegrass, rushes, smartweed, sorrel, summergrass, velvetgrass, wild strawberry, woolgrass [*Casoron®*]
  - Pitchforks (beggarsticks), smartweed, ragweed, and summergrass [*Simazine 4L®*]
  - Wild bean / groundnut [*Casoron®, then Devrinol® – or spot-treat with Spur® if active*]
  - Asters, narrow-leaved goldenrod, pitchfork, vetch, clover [*Spur®*]
  - Sphagnum moss [*iron sulfate*] [**Improve drainage**]
  - Barnyardgrass, broadleaf panicgrass, broomsedge, Canada rush, corn grass, cutgrass, dulichium, mare’s tail (*equisetum*), needlegrass, nutsedge, smokeweed, spire rush, summergrass, switchgrass, woolgrass [*Evital®*]
  - Brambles / Dewberries [*Late Water, Fall flood, thermal hand-held devices*]
  - Barnyardgrass, cutgrass, fall panicgrass, nutsedge, povertygrass, soft rush, summergrass, warty panicgrass [*Devrinol®*]
  - Dodder [*Casoron® or just pull and flag if small areas; Callisto® later in the season*]

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### May to 45 days before harvest or flooding (but not during bloom)

- **Amaranth, atriplex, buffalobur, carpetweed, carrot, chickweed, cocklebur, crabgrass, dodder, horse nettle, jimsonweed, lambsquarters, mustard, nightshade, pigweed, ragweed, smartweed. When applied early: some annual and perennial grasses (but probably better results if followed up with a grass herbicide), most annual broadleaves, many herbaceous perennial broadleaves such as yellow loosestrife*, silverleaf, asters, rushes, birdsfoot trefoil, St. John’s wort, and sedges, and some woody perennials such as blackberry. [*Callisto®* (max of 2 applications per season, whether or not the full rate is used either time) (Permanent control of many perennial weeds may take several years of Callisto® treatment but avoid using it every year if possible) *Level of yellow loosestrife and dodder control has been variable in Massachusetts. Resistance to Callisto® has been reported in other crops after 7 years of use. Therefore, avoid using Callisto® year after year!**]
June through August
- Many broadleaved weeds [Callisto®] (45-day PHI)
- Cinnamon fern, feather fern, sensitive fern [iron sulfate and salt]
- Asters, cinquefoil, feather fern, sensitive fern, marsh St. John’s wort [iron sulfate]
- Actively growing true grasses (annual & perennial) on beds [Poast®] [Select Max®]
- Ditch weeds (in dry ditches) [Roundup®, Rodeo®, possibly Aim®] [Flame cultivation, mowing, or pulling by hand early in the spring & early summer]; duckweed [draining the ditch]
- Tall weeds on beds [Roundup®]
- Wild bean / groundnut [Spur® or salt solution]
- Dodder and poison ivy [spot treatments with concentrated Callisto®]

Weeds outside of the beds
- Summer: Water weeds in farm ponds and reservoirs such as bladderwort, coontail, elodea, and pondweeds [Diquat®] [Reward®] Water temperature should be over 50°F for best activity. Do not use in or on bog ditches!
- Summer: Effective choice for cattails and water lilies [Rodeo® + nonionic surfactant] (but cannot use in interior ditches)
- Woody and broadleaf perennial weeds (non-bed use only!!) [Weedone CB®]
  Weedone is no longer produced, but available product may be used; apply in March, if possible; spray to wet and avoid drift onto the bed! [Crossbow®]
  Crossbow contains trichlopyr for which there is no food tolerance, so be careful using this product – use it only on weeds located far away from the bed(s) because it has the potential to drift (nearby plants such as apple trees, grapes, tomatoes, etc. may also be injured from any drifting)

In the Fall After Harvest
(generally when vines are dormant)
- Asters, blue joint, cattailgrass, Carex spp. (“true” sedges), cutgrass, loosestrife, marsh St. John’s wort, mud rush, narrow-leaved goldenrod, needlegrass, nutsedge, ragweed, sphagnum moss, summergrass, woolgrass [Casoron®]
- Asters, narrow-leaved goldenrod, pitchfork, vetch, clover [Spur®]
- Barnyardgrass, Canada rush, fall panicgrass, needlegrass, nutsedge, summergrass, povertygrass (plus winter sanding), and switchgrass [Eivilta®]
- Barnyardgrass, cutgrass, fall panicgrass, nutsedge, povertygrass, spike rush [Devrinol®]
- Spot-treatments [such as with Roundup WeatherMAX®, Eivilta®, Spur®]
- Pitchforks, smartweed (ladysthumb), ragweeds, & summergrass [Simazine 4L®]

Bed Renovation or New Bed Preparation (non-producing beds only)
- Soil fumigants: Basamid® (dazomet), Vapam® (metam-sodium) Note: Both of these products are in the same HRAC group → Group Z.
- Reglone® (diquat dibromide) + nonionic surfactant (intended for site preparation; cannot be applied by chemigation; use 1.5-2 pints/15 gallons of water by ground; may need repeat applications)
- Fusilade® (fluazifop) post-emergence; for true grasses on non-producing beds; Use 0.75 fl oz. per gallon of water; grasses will turn yellow and die back over a 1 to 4-week period depending on climatic conditions; add a COC at 0.5-1% v:v or 0.25-0.5% v:v if using a NIS.

Aim® by FMC Corporation (recently granted labels for many food crops, including cranberry): This material is “very hot” on cranberry unless the vines are dormant; UMass test plots targeting moss (sprayed whilst vines were dormant) showed a small yield reduction afterwards even though there was no visible injury to the treated vines (and no efficacy observed on the moss); current thinking at the UMass Cranberry Station is that it might be good in ditches or heavily weedy spots where there aren’t many cranberry vines to be concerned about; the material doesn’t move in the plants but merely burns where it makes contact; active cranberry vines that were “fried” by Aim® did eventually recover, but large, woody perennial weeds such as maple saplings recovered as well.

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