



# Weed Control in Garlic, New York 2012

Summarized by Christy Hoepting, Cornell Cooperative Extension Vegetable Program

## Organic Weed Control Options

### **Straw mulch for frost protection and weed control**

**Pros:** provides OM, protects plants during winter, regulates moisture availability and soil temperature. **Cons:** May introduce weeds, may inhibit mechanical harvest, may complicate N banding.

### **Plastic mulch**

**Pros:** very complete weed control, may cause plant to initiate bulbing sooner, warms soil in the spring. **Cons:** Must install irrigation, may complicate mechanical harvest, plastic waste.

### **Vinegar**

**Pros:** Effective burndown of small weeds. **Cons:** Limited control of larger weeds, will damage garlic.

### **Flaming**

**Pros:** Effective burndown of small weeds. Fun. **Cons:** Limited control of larger weeds, cannot be used in mulched bed systems.

### **Cultivation**

**Pros:** Effective between-row control of various sized weeds. **Cons:** limited in-row control. Possibility of damaging crop – “tractor blight”.

## Conventional Weed Control Options

### Pre-plant or Pre-emergence to garlic, PRE-emergent to weeds

#### **Prefar 4E**

**EPA No. 10163-200, Gowan**

**Active Ingredient:** bensulide

**Weeds controlled:** selected annual grasses

**Rates:** 5-6 qts/acre, surface applied

**Notes:** Needs to be rained or irrigated within 36 hours to activate.

May be used thru or under plastic.

## Pre-plant or pre-emergence to garlic, POST-emergent to weeds

### **Gramoxone SL** (replacing Gramoxone Inteon)

**EPA No. 100-1217, Syngenta**

**Active Ingredient:** paraquat dichloride

**Weeds controlled:** burn down of most annual broadleaf and grass weeds, suppresses perennial weeds

**Rates:** Apply a single application of 2.5 to 4 pts/acre prior to crop emergence

**Notes:** Allow maximum weed and grass emergence prior to treatment, up to 1 to 6 inches.

For burn down of grass and cereal cover crops, especially wheat, apply Gramoxone Inteon prior to tillering or after the boot stage.

## Pre-emergence to Garlic, PRE-emergent to weeds)

### **Prowl 3.3EC\*** and **Prowl H<sub>2</sub>O**

**EPA No. 241-337 (EC) and 241-418 (H<sub>2</sub>O), BASF**

**Active ingredient:** pendimethalin

**Weeds controlled:** annual grasses, some broadleaves like pigweed, Shepherd's purse, chickweed, suppression of nightshades, lambsquarters and velvet leaf

**Rates:**

| <b>Soil Type</b>        | <b>Prowl 3.3EC</b>  | <b>Prowl H<sub>2</sub>O</b> |
|-------------------------|---------------------|-----------------------------|
| Coarse                  | 1.8 pts/acre        | 1.5 pts/acre                |
| Medium                  | 2.4 pts/acre        | 2.0 pts/acre                |
| Fine                    | 3.6 pts/acre        | 3.0 pts/acre                |
| <b>Maximum per crop</b> | <b>3.6 pts/acre</b> | <b>3.0 pts/acre</b>         |

**Caution:** Do not irrigate more than 0.5 inches of water following application of Prowl. May cause stunting.

**PHI:** 45 days

**\*Note:** Prowl 3.3EC is also available in generics, such as the following:

**Pendant 3.3EC** – EPA No. 1381-216, Windfield Solutions

**Stealth** – EPA No. 34704-868, Loveland

### **Chateau WDG** (available as a supplemental label)

**EPA No. 59639-119, Valent**

**Active ingredient:** flumioxazin

**Weeds controlled:** broadleaves including mustards, chickweed, nightshades, and some annual grasses

**Crop stage:** 3 days after planting garlic.

**Rates:** Apply up to 6 oz/acre. Do not apply more than 6 oz/acre during a single growing season.

## **Post-emergence to garlic, PRE-emergent to weeds**

### **Prowl 3.3EC\* and Prowl H<sub>2</sub>O**

**EPA No. 241-337 (EC) and 241-418 (H<sub>2</sub>O), BASF**

**Active ingredient:** pendimethalin

**Weeds controlled:** annual grasses, some broadleaves like pigweed, Shepherd's purse, chickweed, suppression of nightshades, lambsquarters and velvet leaf

**Crop Stage:** Garlic must have 1-5 true leaves

**Rates:**

| <b>Soil Type</b>        | <b>Rate</b>         |                             |
|-------------------------|---------------------|-----------------------------|
|                         | <b>Prowl 3.3EC</b>  | <b>Prowl H<sub>2</sub>O</b> |
| Coarse                  | 1.8 pts/acre        | 1.5 pts/acre                |
| Medium                  | 2.4 pts/acre        | 2.0 pts/acre                |
| Fine                    | 3.6 pts/acre        | 3.0 pts/acre                |
| <b>Maximum per crop</b> | <b>3.6 pts/acre</b> | <b>3.0 pts/acre</b>         |

**Notes:** May be applied as a split application at both PRE and POST timings

**PHI:** 45 days

**\*Note:** Prowl 3.3EC is also available in generics, such as the following:

**Pendant 3.3EC** – EPA No. 1381-216, Windfield Solutions

**Stealth** – EPA No. 34704-868, Loveland

### **Outlook**

**EPA No. 7969-156, BASF**

**Active ingredient:** dimethenamid-P

**Weeds controlled:** annual grasses, yellow nutsedge, some broadleaves like pigweed, Shepherd's purse and chickweed, suppression of nightshades

**Crop Stage:** Garlic needs to have at least 2 leaves, application prior to 2-leaf stage may result in significant injury

**Rates:**

Coarse soils: 12-18 fl oz/acre

Medium soils: 18-21 fl oz/acre

Single application up to maximum rate or split applications of 6-11 fl oz, a minimum of 14 days apart

**Caution:** Stunting is more likely to occur when soil is cold and wet, use lower rates.

Outlook needs to be moisture-activated, weed control not as good when soil is dry.

**PHI:** 30 days

## **Post-emergence to garlic, POST-emergent to weeds**

### **Goal 2XL and GoalTender**

**EPA No. 62719-424 (2XL) and 62719-447 (Tender), Dow AgroSciences**

**Active Ingredient:** oxyfluorfen

**Weeds controlled:** broadleaf weeds, weak on: mustards, Pennsylvania smartweed and common groundsil, can burn back nutsedge

**Crop Stage:** Garlic should have at least 3 leaves. Do not apply to garlic grown for seed.

**Rates:**

|                         | <b>Goal 2XL</b> | <b>GoalTender</b> |
|-------------------------|-----------------|-------------------|
| Rate                    | 2-4 fl oz/acre  | 1-2 fl oz/acre    |
| <b>Maximum per crop</b> | <b>32 fl oz</b> | <b>16 fl oz</b>   |

Multiple applications can be made per season up to the maximum rate per crop.

**Notes:** Weeds should be 2-4 inches and actively growing.

POST applications of Goal 2XL and GoalTender\* may cause chlorotic leaf banding or lesions and stunting. Symptoms are more severe if garlic emerged under cool, wet, overcast or foggy weather. Injury is temporary.

Do not mix Goal 2XL or GoalTender\* with oils, surfactants, liquid fertilizers or pesticides except as specified on the label.

Do not apply when plants are under stress.

**PHI:** 60 days

\*In general, GoalTender is a safer formulation than Goal 2XL. In herbicide trials in onions, GoalTender caused less crop injury and was less likely to cause injury when used in a tank mix.

### **Buctril\***

**EPA No. 264-437, Bayer CropSciences**

**Active Ingredient:** bromoxynil

**Weeds controlled:** broadleaf weeds, excellent on Pennsylvania smartweed and ragweed, weak on pigweed, suppresses Canada Thistle

**Crop Stage:** after emergence, but before 12 inches in height

**Rates:** apply a single application of 1.5 to 2 pts/acre

**Notes:** Buctril may cause temporary leaf burn.

Applications should be made to dry foliage.

Apply to susceptible weeds up to 4 leaf stage, 2 inches in height or 1 inch diameter, whichever comes first.

**PHI:** 112 days, 60 days in muck soils

\*Note: also available as several generics such as:

**Maestro 2EC** – EPA No. 71368-29, Nufarm

**Brox 2EC** – EPA No. 42750-48, Albaugh Inc.

**Broclean** – EPA No. 34704-891, Loveland

## Select Max\* and Select EC\*\*

EPA No. 59639-132, Valent

**Active Ingredient:** clethodim

**Weeds controlled:** annual and perennial grasses including quackgrass

**Rates:**

|                            | Select Max  | Select EC   |
|----------------------------|---|---|
| <b>Rates:</b>              | 9-16 fl oz/acre for annual grasses<br>12-32 fl oz for perennial grasses | 6-16 fl oz/acre   |
| <b>Maximum per season:</b> | <b>64 fl oz per season</b>  |   |
| <b>Adjuvant:</b>           | Apply with 0.25% v/v<br>Non-ionic surfactant (NIS)                      | Apply with crop oil concentrate<br>(COC) 1% v/v   |
| <b>Notes:</b>              | Make repeat applications a<br>minimum of 14 days apart                  | Addition of liquefied fertilizer is<br>not recommended  |
| <b>PHI:</b>                | 45 days   | 45 days   |
| <b>Generics:</b>           | <b>*Intensity</b> – EPA No. 34704                                       | <b>**Arrow 2EC</b> – EPA No. 66222-60<br><b>Amtide Clethodim 2EC</b> – EPA No.<br>83851-8<br><b>Section 2EC</b> – EPA No. 1381-204<br>Others... |

## Poast

EPA No. 7969-58, BASF

**Active Ingredient:** sethoxydim

**Weeds controlled:** annual and perennial grasses

**Rates:** Apply up to 1.5 pts/acre per application for a maximum of 4.5 pts/acre per season with a minimum of 14 days between applications

**Notes:** Do not cultivate 5 days before or 7 days after applying Poast.

Always use with a crop oil concentrate (COC) or methylated seed oil (MSO).

When temperatures exceed 90°F and relative humidity is greater than 60%, or anytime when temperatures exceed 100°F, Poast + adjuvants should be used with caution to avoid potential leaf injury.

**PHI:** 30 days

## Fusilade DX

EPA No. 7969-58, Syngenta

**Active Ingredient:** fluazifop-P-butyl

**Weeds controlled:** annual and perennial grasses

**Rates:** No more than 48 fl oz per acre

**Notes:** Always use with one of the following: i) crop oil concentrate (COC) at 0.5 to 1% v/v, ii) nonionic surfactant (NIS) with at least 75% surface-active agent at 0.25 to 0.5% v/v, or iii) other adjuvants – see label.

Apply to actively growing grasses at the recommended growth stages – see label.

**PHI:** 45 days