

# Weed Management in Bulb Crops (Onion, Leek, Garlic, Shallot)<sup>1</sup>

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Bulb crops are a crop grouping that includes all of the *Allium* species except chives. Bulb crops include onions (dry and green), leeks, garlic, and shallots. Very few shallots or garlic crops are grown in Florida. Dry bulb onions, green and bunching onions, and leeks are the main crops of this group grown in the state. Where herbicides are limited, the culture of these crops must accommodate cultivation. Bulb crops do not shade out weeds that emerge in the rows. Also, many of the crops, such as dry bulb onions and leeks, require a long growing season. Therefore, a plan for weed control must be made before planting.

Avoid fields that are infested with nutsedge, hard-seeded legumes, or other difficult-to-control weeds. Many weed problems can be reduced by preparing the land well ahead of planting and using Roundup in a “cropping systems” approach, and/or using paraquat in a “stale seed bed” approach. Preemergence and early postemergence herbicides may control many weeds for 4–6 weeks.

Onions and leeks are fairly shallow rooted, and care must be taken not to prune these roots with cultivation, especially when onions begin to bulb. Pulling or hoeing occasional large broadleaf weeds, while labor intensive, may be preferable when plants are older and bulbing.

Emerged grass weeds may be controlled either by Select®, Fusilade® or Poast®. Care should be taken not to apply any herbicide beyond the preharvest interval specified on the labels.

Herbicide performance depends on weather, irrigation, soil type, and proper selection for the weed species to be controlled. Obtain consistent results by reading the herbicide label and other information about proper application and timing of each herbicide.

Table 1 includes herbicides and directions for application before crop emergence or transplanting. Table 2 lists herbicides for use after crop emergence or transplanting.

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Table 1. Preplant/preemergence chemical weed control in onion, leek, garlic, and shallot.

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA code	Crops	Weeds controlled / remarks
Bensulide 5–6	(Prefar®) 4 E 5–6 qt.	8	Dry bulb vegetables: onion, garlic, shallot	Annual broadleaf and grass control. Incorporate or irrigate 1–2 inches deep within 36 hrs. of application. Consult label for rotation restrictions.
Bromoxynil 0.25–0.38	(Buctril®) 2 EC 1.0–1.5 pt.	6	Onion (dry bulb)	Broadleaf weeds. Preemergence is restricted to muck soils containing greater than 10% organic matter. Apply at least 3–4 days prior to emergence. Weeds should not exceed the four-leaf stage, 2 inches in height, or 1 inch in diameter.
Carfentrazone Up to 0.031	(Aim®) 2 EC Up to 2 fl. oz.	14	Onion, garlic, leek, chive, shallot	Apply as a preplant burn down for emerged broadleaf weeds. Use crop oil concentrate (COC), methylated seed oil, or nonionic surfactant (NIS) at recommended rates. Maximum rate of 0.096 lb. a.i./A per season. No pretransplant interval.
DCPA 4.5–6.0	(Dacthal®) W75 6–8 lb. (Dacthal®) 6 F 6–8 pt.	3	Onion (dry bulb, green), leek, shallot	Annual grasses and certain broadleaf control. Apply at seeding or planting. Maximum rate of 10.5 lb. a.i./A per season.
Flumioxazin Up to 0.06	(Chateau®) 51 WDG Up to 2 oz.	14	Onion (dry bulb)	Broadleaf control. Apply to transplanted onions between the 2- and 6- leaf stage. Apply to direct seeded onions between the 3- and 6- leaf stage.
Flumioxazin Up to 0.19	(Chateau®) 51 WDG Up 6 oz.	14	Garlic	Broadleaf control. Apply within 3 days of planting garlic.
Glyphosate	(Various formulations) Consult label	9	Onion, garlic, leek, chive, shallot	Control of emerged broadleaf and grass weeds. Consult individual labels for restrictions.
Oxyfluorfen 2.0	(Goal® 2XL) 2 EC 2.0 pt. (GoalTender®) 4 EC 1.0 pt.	14	Onion (dry bulb), garlic (dry bulb)	Certain broadleaf weeds. Transplanted only. Apply within 2 days of transplanting. Necrotic lesions, twisting, or stunting of plants can occur if applications are made during cool, wet weather or prior to the full development of the true leaves.
Paraquat 0.5–1.0	(Gramoxone®) 2 SL 2–4 pt.	22	Onion (dry bulb)	Controls emerged weeds. Apply prior, during, or after planting, but before crop emergence. Only 2 applications a season. Use a nonionic surfactant.
Paraquat 0.63–1.0	(Gramoxone®) 2 SL 2.5–4.0 pt. (Firestorm®) 3 SL 1.7–2.7 pt.	22	Onion (seeded), garlic	Emerged broadleaf and grass weeds. Apply as a preplant burndown. A maximum of 1 lb. a.i./A per season.
Pelargonic acid	(Scythe®) 4.2 EC 3–10% v/v	27	Onion, garlic, leek, chive, shallot	Emerged broadleaf and grass weeds. Apply before emergence of crop. Product is a contact, nonselective, foliar applied herbicide. There is no residual activity.
Pendimethalin 0.5–0.75 mineral 1.0–2.0 muck	(Prowl®) 3.3 EC 1.2–1.8 pt. mineral 2.4–4.8 pt. muck (Prowl® H <sub>2</sub> O) 3.8 1.0–1.5 pt. mineral 2.0–4.0 pt. muck	3	Onion (dry bulb), shallot (dry bulb)	Mineral soils: Apply when crop has 2 to 9 true leaves. Muck soils: May be applied as sequential application: preemergence through loop stage, early postemergence (2 to 6 true leaf stage), late postemergence (6 to 9 true leaf stage). Do not exceed 5.9 lb. a.i./A in a growing season. PHI 45 days.
Pyraflufen 0.0008–0.003	(ET® Herbicide/ Defoliant) 0.5–2.0 fl. oz.	14	Bulb vegetables	Emerged broadleaf and grass weeds. Apply as a preplant burndown treatment.

Table 2. Postemergence chemical weed control in onion, leek, garlic, and shallot.

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA Code	Crops	Weeds controlled / remarks
Bromoxynil 0.25–0.38	(Buctril®) 2 EC 1.0–1.5 pt.	6	Onion (dry bulb)	Broadleaf weeds. Soil and onion leaves should be dry before application. Waxy coating on leaves reduces chances for injury. Varieties vary in sensitivity, and use on a trial basis.
Bromoxynil 0.38–0.5	(Buctril®) 2 EC 1.5–2 pt.	6	Garlic	Broadleaf weeds. Apply after emergence but before 12 inches in height. Weeds are most susceptible up to the four-leaf stage or 2 inches in height or 1 inch wide. PHI 112 days.
Carfentrazone Up to 0.031	(Aim®) 2 EC, 1.9 EW Up to 2 fl. oz.	14	Onion (dry bulb), garlic, leek, chive, shallot	Emerged broadleaf control. Post-direct hooded application to row middles for burndown of emerged weeds. Use crop oil concentrate or nonionic surfactant at recommended rates. PHI 0 days.
Clethodim 0.094–0.25 0.07–0.25	(Arrow®, Intensity® One, Select®) 2 EC 6–16 fl. oz. (Select Max®) 1 EC 9–32 fl. oz.	1	Onion (dry bulb), garlic, shallot (dry bulb)	Annual and perennial grass control. Some labels include green onion. Consult label for use of a crop oil concentrate or nonionic surfactant. PHI 45 days.
Clethodim 0.094–0.125	(Arrow®, Intensity® One) 2 EC 6–8 fl. oz. (Select Max®) 1 EC 12–16 fl. oz.	1	Chive, leek	Emerged annual and perennial grasses. Consult labels rate of COC or NIS. Do not apply more than 0.5 lb. a.i./A per season. Select Max is not registered in leek. PHI 14 days.
DCPA 4.5–6.0	(Dacthal®) W75 6–8 lb. (Dacthal®) 6 F 6–8 pt.	3	Onion (dry bulb, green), leek, shallot	Annual grasses and certain broadleaf control. Apply at layby up to 14 weeks after planting. If weeds have emerged, cultivate or weed field. Maximum rate of 10.5 lb. a.i./A per season.
Dimethanamid-p Up to 1.0	(Outlook®) 6 EC Up to 21 fl. oz.	15	Onion (dry bulb, green), garlic, leek, shallot (dry bulb, green)	Broadleaf and grass weeds. Apply after the two true leaf stage. Apply as a single application or split application. Split applications of 10–14 fl. oz. followed by 7–10 fl. oz./A with 14 days between applications. Do not exceed 21 fl. oz./A per growing season. PHI 30 days.
Fluazifop 0.188	(Fusilade® DX) 12 fl. oz.	1	Onion (dry bulb), garlic	Annual and perennial grass weeds. Do not apply more than 48 fl. oz./A per season. Include a COC or NIS in the spray solution. PHI 45 days.
Oxyfluorfen 0.5	(Goal® 2XL) 2 EC 0.5 pt. direct seeded (GoalTender®) 4 EC 0.25 pt. direct seeded		Onion (dry bulb), garlic (dry bulb)	Certain broadleaf weeds. Direct seeded only. Apply after the crop has 2 true leaves. Multiple treatments can be applied and do not exceed 0.5 lb. a.i./A. Necrotic lesions, twisting, or stunting of plants can occur if applications are made during cool, wet weather or prior to development of true leaves. PHI 60 days.
Paraquat 0.5	(Gramoxone®) 2 SL 2 pt.		Onion (dry bulb)	Emerged weeds. Row middles only. Only two applications per season. Limit of three applications per year. PHI 60 days
Pelargonic acid	(Scythe®) 4.2 EC 3–10% v/v		Onion, garlic, leek, chive, shallot	Emerged weeds. Row middles only. Use a shielded sprayer directed to the row middles to reduce drift to the crop.

Active ingredient lb. a.i./A	(Trade name) amount of product/A	MOA Code	Crops	Weeds controlled / remarks
Pendimethalin 0.5–0.75 mineral 1.0–2.0 muck	(Prowl®) 3.3 EC 1.2–1.8 pt. mineral 2.4–4.8 pt. muck (Prowl® H <sub>2</sub> O) 3.8 1.0–1.5 pt. mineral 2.0–4.0 pt. muck		Onion (dry bulb), shallot (dry bulb)	Mineral soils: Apply when crop has two to nine true leaves. Muck soils: May be applied as sequential application: preemergence through loop stage, early postemergence (two to six true leaf stage), late postemergence (six to nine true leaf stage). Do not exceed 5.9 lb. a.i./A per growing season. All soils: Do not irrigate in excess of 0.5 inches after application. Do not apply preemergence through loop stage if rains are expected. PHI 45 days.
Sethoxydim 0.19–0.28	(Poast®) 1.5 EC 1.0–1.5 pt.		Onion, garlic, leek, shallot	Growing grass weeds. Decreased efficacy if weeds are under stress. Do not exceed 4.5 pt./A per season. Include a COC. PHI 30 days.
Treflan 0.35–0.5	(Treflan) 4 EC 0.75–1.0 pt. (Treflan TR-10) 3.75–5.0 lb.	3	Onion (dry bulb)	Broadleaf and grass weeds. Apply at layby to the soil surface between onion rows. Remove weeds that are present. Do not apply in muck soils. PHI 60 days.