

Weed	Growth habit	Seed weight (mg)	Seed dormancy at shedding	Factors breaking dormancy	Optimum temperature range for germination (F)	Seed mortality in untilled soil (% per year)	Seed mortality in tilled soil (% per year)
<i>Broadleaf weeds</i>							
Common cocklebur	tall, erect	50–75	Variable	scd, at	86/68–91/77	50	–
Common groundsel	short, branched	0.16–0.25	No	li	50–68	45	100
Common lambsquarters	tall, erect	0.5–0.72	Yes	cms, li, at, ni	64–77	8–51	31–52
Common purslane	prostrate	0.08–0.15	No	li, at, ni	86–95	60 (hot climate)	17–29 (cool climates) 76–87 (hot climate)
Common sunflower	tall, branched	4.3–8.7	Yes	cms	68–77	26–47	–
Field pennycress	medium, branched	0.8–1.5	Yes	cms, wst, li, at, ni	59/43–95/68	10	50
Galinsoga species	short, branched	0.17–0.27	No	li	54–97	50–99	–
Hemp sesbania	tall, erect	6–15	Yes	scd	58–104	27	65
Horseweed	medium, erect	0.03–0.07	No	li	68/50–86/68	76	–
Jimsonweed	tall, branched	6–12	Yes	scd, cms, li, at	68–95	6–50	–
Kochia	tall, branched	0.2–0.85	No	–	68–77	97–100	–
Morningglory species	vining	19–35	Yes	scd, wst	59–95	36–70	58
Nightshade species	short, branched	0.4–1.3	Variable	cms, li, at, ni	77–86	15	28–45
Palmer amaranth	tall, erect	0.44–0.49	Yes	li, at, ni	86–99	39–80	–
Pigweed species	medium, branched	0.25–0.54	Variable	li, at, ni	86–104	39–88	36–41
Prickly lettuce	medium, erect	0.45–0.62	No	li, at	54–75	40–85	–
Prickly sida	short, branched	2.3	Yes	scd	86–104	60	88
Ragweed, common	medium, branched	1.2–7.7	Yes	cms, li, at	77/68–95/86	7–12	–
Ragweed, giant	tall, branched	17–45	Yes	cms, at, ni	50–75	66–95	–
Russian-thistle	medium, branched	1.1–1.7	Yes	at	59/32–77/41	99	–

Typical emergence season	Optimum emergence depth (inches)	Photosynthesis type	Frost tolerance	Drought tolerance	Mycorrhiza	Response to nutrients	Emergence to flowering (weeks)	Flowering to viable seed (weeks)	Pollination	Typical & high seed production potential (seeds per plant)
mid-spring to early summer	0.4-4	C ₃	low	high	yes	high	10-16	3-4	self, can cross	1,800 & 10,000
early spring to early summer	0-0.8	C ₃	high	low	yes	low	4-5	1-2	self, can cross	1,500 & 38,000
early spring to summer	0.1-0.2	C ₃	low	moderate	no	high	5-12	2-3	both	30,000 & 300,000
late spring to summer	0-0.1	C ₄	low	high	no	high	2-8	1-2	self	10,000 & 100,000
spring	0-4	C ₃	high	moderate	yes	variable	9-17	8	cross	- & 5,000
spring and fall	0-0.8	C ₃	high	low	no	moderate	5-7	1-2	self, can cross	500 & 14,000
late spring to summer	0-0.1	C ₃	low	low	yes	high	4-8	1-2	both	10,000 & 100,000
mid-spring to summer	0.4-1.2	C ₃	low	moderate	yes	low	6-7	6	both	2,000 & 20,000
fall and spring	0-0.1	C ₃	high	high	yes	low	8-12	2-3	self, can cross	50,000 & 300,000
mid-spring to early summer	0.4-2	C ₃	low	low	-	high	5-9	4	self, can cross	1,500 & 30,000
spring	0-0.4	C ₄	moderate	high	no	high	8-16	-	self, can cross	20,000 & 100,000
summer	1-2	C ₃	low	low	yes	high	4-8	4	both	300 & 15,000
mid-spring to summer	0-1.6	C ₃	low	low	yes	high	5-10	4-8	self, can cross	10,000 & 500,000
late spring to summer	0-0.5	C ₄	low	high	no	moderate	3-8	2-3	cross	40,000 & 400,000
late spring to summer	0.2-0.8	C ₄	low	moderate	no	high	3-8	3-8	self	50,000 & 500,000
fall and spring	0-0.1	C ₃	high	high	yes	moderate	8-12	3	self, can cross	5,000 & 50,000
mid-spring to summer	0.2	C ₃	low	moderate	yes	high	8-12	2-3	self, can cross	2,000 & 8,000
early to late spring	0-1	C ₃	low	high	yes	high	10-20	-	both	3,000 & 60,000
early to late spring	0.5-2	C ₃	moderate	low	probably	moderate	8-18	3	cross	200 & 2,000
early spring	0.4-1	C ₄	low	very high	no	low	10	-	both	15,000 & 150,000

Weed	Growth habit	Seed weight (mg)	Seed dormancy at shedding	Factors breaking dormancy	Optimum temperature range for germination (F)	Seed mortality in untilled soil (%/year)	Seed mortality in tilled soil (%/year)
<i>Broadleaf weeds (cont.)</i>							
Sicklepod	medium, branched	23–28	Yes	scd	68–97	28–40	46
Smartweed, ladythumb Smartweed, Pennsylvania	short, branched	1.4–4 3.6–6.8	Yes	cms, at	86/59–95/68	25–50	24–43
Sowthistle, annual species	medium, branched	0.27–0.42	No	li	41–95	53–55	48–65
Velvetleaf	tall, erect	6–12	Variable	scd	75–86	3–17	32–53
Waterhemp	tall, erect	0.19–0.27	Yes	cms, li, at	68–91	30–78	40
Wild buckwheat	twining	4.7–7	Yes	scd, cms, at	68–77	20–52	32–50
Wild mustard	medium, branched	1–2.3	Yes	cms, li, at, ni	50–68	22–45	20–52
Wild radish	medium, branched	2–12	Yes	cms, at	39–68	32–33	29
<i>Grass weeds</i>							
Barnyardgrass	tall	1.7–2.1	Yes	cms, li	77–100	37–42	–
Fall panicum	tall	0.2–0.9	Yes	cms, li, at	68/50–95/68	39–56	–
Foxtail, giant Foxtail, green Foxtail, yellow	prostrate to tall	1.5–1.6 0.6–1.5 1.9–4.2	Yes	cms, at	68–86	72–93	–
Goosegrass	prostrate	0.4–0.5	Yes	cms, li, at, ni	86/68–104/86	18–44	–
Large crabgrass	prostrate	0.46–0.59	Yes	cms, at	68–86	45–54	–
Sandbur, field Sandbur, longspine Sandbur, southern	short, tufted	1.7–3.4 6.8 2.4–7.9	Variable	scd, cms, at, ni	77/50–95/77	19–67	46
Shattercane	tall, erect	19–22	Variable	scd, at	77–95	57–99	–
Wild oat	medium	14–24	Yes	wst, ni	59–82	70–90	–
Wild-proso millet	tall	3.8–7.2	Variable	cms	68–86	10–60 (black seed)	–
Witchgrass	short	0.15–0.65	Yes	cms, li, at, ni	86/59–95/68	–	–

Typical emergence season	Optimum emergence depth (inches)	Photosynthesis type	Frost tolerance	Drought tolerance	Mycorrhiza	Response to nutrients	Emergence to flowering (weeks)	Flowering to viable seed (weeks)	Pollination	Typical & high seed production potential (seeds per plant)
late spring to summer	0-3	C ₃	low	moderate	yes	moderate	6-12	-	both	5,000 & 16,000
early to mid-spring	0-2	C ₃	low	moderate low	unclear	moderate	6-9	4	both	100 & 2,000 20,000 & 100,000
spring, summer, fall	0-0.4	C ₃	high	low	yes	low	6-9	1	self	- & 20,000
mid-spring	0.5-1	C ₃	low	high	yes	high	11-12	2	self	1,000 & 10,000
late spring to summer	0-1	C ₄	low	low	no	high	3-7	3-4	cross	200,000 & 1,000,000
early spring	0.4-1.6	C ₃	low	moderate	no	high	6-12	3	self	- & 20,000
spring	0-0.8	C ₃	high	low	no	high	3-6	5-6	cross	3,000 & -
spring and fall/winter	0.4-1.2	C ₃	high	low	no	high	3-7	3-4	cross	500 & 10,000
mid-spring to early summer	0.5-2	C ₄	low	low	yes	high	5-8	3	self, can cross	10,000 & 100,000
mid-spring to mid-summer	0-1	C ₄	low	low	probably	moderate	7-13	3-4	cross	10,000 & 100,000
mid-spring to early summer	0.5-2	C ₄	low	moderate	yes	high	5-13	2-3	self, can cross	1,000 & 10,000
spring to summer	0-0.8	C ₄	low	moderate	yes	high	5	5	self, can cross	5,000 & 50,000
spring	0-0.8	C ₄	low	high	yes	high	8-10	-	self, can cross	1,000 & 145,000
spring	0.4-4	C ₄	moderate	high	yes	-	7-13	0	self	1,000 & 100,000
late spring to summer	1-2	C ₄	low	moderate	yes	moderate	8-11	1-2	self, can cross	3,000 & -
spring and early fall	0.8-2.8	C ₃	low	low	yes	high	7-8	3-4	self, can cross	100 & 500
late spring	1-2	C ₄	low	high	probably	moderate	2-4	4-5	self, can cross	500 & 90,000
late spring to early summer	0-0.5	C ₄	low	high	yes	high	8-13	3-4	self, can cross	- & 11,000

Weed	Growth habit	Seed weight (mg)	Seed dormancy at shedding	Factors breaking dormancy	Optimum temperature range for germination (F)	Seed mortality in untilled soil (% per year)	Seed mortality in tilled soil (% per year)
<i>Broadleaf weeds</i>							
Catchweed bedstraw	sprawling	4–17	No	cms, ni	33–72	41	51–65
Common chickweed	short, matting	0.36–0.51	Yes	wst, li, at, ni	54–68	17–30	33–72
Chamomile species	medium, branched	0.4–1.2	Yes	scd, li, at, ni	68–86	11–37	42–51
Flixweed	medium, branched	0.12	Yes	wst, li, at, ni	59/43–68/50	25	23–33
Henbit Purple deadnettle	short, sprawling	0.5–0.6 0.65–0.92	Yes	wst, li, at	41–68	20	39–60
Shepherd's-purse	short, erect	0.09–0.14	Yes	cms, li, at, ni	59/43–86/59	11–24	35–52
<i>Grass weeds</i>							
Annual bluegrass	short, erect to prostrate	0.19–0.48	Variable	cms, wst, li, at, ni	41–68	17–26	26–50
Downy brome	medium	2.5–3.7	Variable	ni	59–68	99	–
Italian ryegrass	medium	1.3–2.6	Variable	li	50/41–77/41	58–64	–

Typical emergence season	Optimum emergence depth (inches)	Photosynthesis type	Frost tolerance	Drought tolerance	Mycorrhiza	Response to nutrients	Emergence to flowering (weeks)	Flowering to viable seed (weeks)	Pollination	Typical & high seed production potential (seeds per plant)
fall and spring	0.8–2.4	C ₃	high	low	unclear	high	6–10	4	self, can cross	350 & 1,500
fall and spring	0–0.4	C ₃	high	low	no	high	6	2	self	1,500 & 15,000
fall and spring	0–1	C ₃	high	moderate	unclear	moderate	8–12	–	cross	2,000 & 20,000
fall, some early spring	–	C ₃	high	low	no	low	4–6	6	self	2,000 & 76,000
late summer to fall, spring	0–1	C ₃	high	low	yes	moderate	2–5	2–4	both	1,000 & 50,000
fall and spring	0–0.5	C ₃	high	moderate	no	moderate	4–16	2–3	self, can cross	3,000 & 50,000
late summer to fall, spring	0–1	C ₃	high	low	yes	high	1–8	1–2	self, can cross	2,000 & 20,000
fall and spring	0–2	C ₃	high	high	variable	high	4	4	self	50 & 500
fall and spring	0.25–0.5	C ₃	moderate	low	yes	high	4–8	3	cross, can self	– & 300

Weed	Growth habit	Perennial overwinter organ	Emergence period from perennial organs	Optimum emergence depth (inches) from perennial organs	Time/stage of lowest reserves	Photosynthesis type	Frost tolerance
<i>Broadleaf weeds</i>							
Bindweed, field Bindweed, hedge	twining	thickened roots	mid-spring to summer	0–6	12–28 inch stems, 4–6 leaves	C ₃	moderate
Canada thistle	medium, erect	thickened roots	mid-spring to fall	4	12-inch shoots, flower bud set	C ₃	low
Common milkweed	medium, erect	thickened roots	late spring to early summer	1–12	mid-summer	C ₃	low
Dandelion	rosette	taproot	early spring	0–4	spring, flowering	C ₃	high
Dock species	rosette	taproot	early spring	0–3	–	C ₃	high
Horsenettle	short, branched	roots	mid-spring to summer	0–12	early summer, flowering	C ₃	low
Plantain, blackseed Plantain broadleaf Plantain, buckhorn	rosette	basal stem	mid-spring	–	–	C ₃	high
Sowthistle, perennial	medium, erect	thickened roots	mid-spring	1–8	5–7 leaves	C ₃	low
Woodsorrel, yellow	short, branched	rhizomes	mid-spring to summer	–	–	C ₃	moderate
<i>Grass, sedge and allium weeds</i>							
Bermudagrass	prostrate grass	rhizomes	late spring	2–4	mid-summer	C ₄	low
Johnsongrass	tall grass	rhizomes	mid-spring	0–4	6–12 inches tall, 4–8 leaves	C ₄	low
Nutsedge, purple	short sedge	tubers	summer	1–6	–	C ₄	low
Nutsedge, yellow	short sedge	tubers	late spring to early summer	4–8	late summer, flowering	C ₄	low
Quackgrass	short grass	rhizomes	early spring	1–6	3 leaves	C ₃	high
Wild garlic	short allium	bulbs	fall and early spring	1–4	2 leaves	C ₃	high

Drought tolerance	Mycorrhiza	Fertility response	Importance of seeds to weediness	Seed weight (mg)	Dormancy of shed seeds	Factors breaking dormancy	Optimum temperature range (F) for seed germination	Seedling emergence period	Emergence to flowering (weeks)
high	yes	low	moderate	8–20 28–34	yes	scd	95/68 77/59	late spring to early summer	6–9
high	yes	moderate	moderate	1–1.7	no	cms, at, ni	77–86	mid-spring	8–10
high	yes	moderate	moderate	3.5–7.4	yes	cms, at, ni	68/50–95/68	spring	6–8
high	yes	moderate	high	0.34–0.54	no	li, at, ni	59/41–77/59	early to mid-summer	4–5
high	no	high	high	0.7–3	variable	cms, li, at	68/50–95/68	spring and fall	4–8
high	yes	moderate	moderate	1.1–1.9	variable	at, ni	68–86	late spring	5–8
high	yes	low	high	0.35–0.7 0.06–0.34 0.8–2.9	variable	cms, li, at, ni	59–86	late spring to summer	6–10
low	unclear	low	moderate	0.38–0.69	no	li, at	77–86	late spring to mid-summer	10–14
moderate	yes	moderate	high	0.13–0.15	no	li	60–80	mid-spring to summer	4–6
moderate	yes	high	low	0.23–0.36	yes	li, at, ni	–	–	10–15
moderate	yes	high	high	2.6–6.2	yes	cms, li, at, ni	95/59	late spring through summer	7
high	yes	moderate	low	0.22–0.3	yes	scd, wst	–	–	3–7
high	yes	low	low	0.13–0.31	yes	li	95	spring	8–12
moderate	no	high	low	2	no	at	77/59	spring	8–12
high	yes	low	low	0.5–1.5	yes	cms	–	–	mid-spring