

Roughly Estimated Weed Tolerances in Small Grain Fields Harvested for Agricultural Seed

(main reference: Manage Weeds on Your Farm: a Guide to Ecological Strategies, Charles L. Mohler & Anotnio DiTommaso)

Assuming 2000 lbs/acre grain yield

10 noxious weeds seeds per pound of agricultural small grain seed allowed legally

Sq. Ft /plant

Weed	Species	seed wt	seeds / plant	10% Seeds/Plant	10 weed seeds / 1 lb grain seed	Area/plant ft X ft	Plants/acre
Bedstraw	Galium spp.	7.25 mg	300 - 400	40	88	9	495
Bindweed	Convolvulus arvensis	10 mg	25 - 300	30	66	8	660
Canada thistle	Cirsium arvense	1.2 mg	0 - 5000	500	1100	33	40
Corn cockle	Agrostemma githago	10.1 mg	<=3000	300	660	26	66
Horse nettle	Solanum carolinense	1.5 mg	< 5000	500	1100	33	40
Quackgrass	Elytrigia repens	2 mg	25 - 40	10	22	5	1980
Russian Knapweed	Acroptilon repens	1.4 mg	50 - 500	50	110	10	396

20 lbs weed seed is the 1% legal limit on a 2000 lb grain yield/acre

Plants/ac

Sq Ft./plant

Seeds / plant

Common weeds		seed wt mg	seeds/plant	Plants/ac for 20 lb weed seed/ac	Sq Ft./plant for 20 lb weed seed/acre	Area/weed ft X ft	Seeds / plant used in calculations
Lambsquarters	Chenopodium album	1.1	400 to 100K	20636	2.1	1.5	400
Pigweed, redroot	Amaranthus retroflexus	0.45	4 ft plant 100K	20178	2.2	1.5	1000
Foxtail, Giant	Setaria faberi	1.45	240 ave; upto 1500	26092	1.7	1.3	240
Crabgrass, Giant	Digitaria sanguinalis	0.52	upto 145K seeds	12042	3.6	1.9	1450
Ragweed, common	Ambrosia artemisiifolia	2.4	3000 to 60K	757	57.6	7.6	5000
Mustard, wild	Brassica kaber	1.7	2000 to 3500	2671	16.3	4.0	2000
Shepherd's purse	Capsella bursa-pastoris	0.11	3000 ave	27515	1.6	1.3	3000
Campion, white	Silene alba	0.58	500 seeds/ pod, up to 50 pods, 25,000 seeds	3131	13.9	3.7	5000
Velvetleaf	Abutilon theophrasti	9	25-45 seeds/ capsule; <=70K seeds	202	215.9	14.7	5000

Aaron Gabriel, Cornell Cooperative Extension, 2016

How many weeds do you get planting agricultural seed with 1% weed seed?

1% impurity is legal limit in agricultural seed

Assume 1 lb of weed seed in 100 lbs of cereal grain being planted

Assume

Common weeds		seed wt mg	seeds/plant	Weeds seeds per pound	50% survival weeds/acres	sq ft/weed
Lambsquarters	Chenopodium album	1.1	400 to 100K	412727	206364	0.2
Pigweed, redtop	Amaranthus retroflex	0.45	4 ft plant 100K	1008889	504444	0.1
Foxtail, Giant	Setaria faberi	1.45	240 ave; upto 1500	313103	156552	0.3
Crabgrass, Giant	Digitaria sanguinalis	0.52	upto 145K seeds	873077	436538	0.1
Ragweed, common	Ambrosia artemisiifolia	2.4	3000 to 60K	189167	94583	0.5
Mustard, wild	Brassica kaber	1.7	2000 to 3500	267059	133529	0.3
Shepherd's purse	Capsella bursa-pastoris	0.11	3000 ave	4127273	2063636	0.02
Campion, white	Silene alba	0.58	500 seeds/pod, up to 50 pods, 25,000 seeds	782759	391379	0.1
Velvetleaf	Abutilon theophrasti	9	25-45 seeds/capsule; <=70K seeds	50444	25222	1.7

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Roughly Estimated Weed Tolerances in Small Grain Fields Harvested for Certified Seed

(main reference: Manage Weeds on Your Farm: a Guide to Ecological Strategies, Charles L. Mohler & Anotnio DiTommaso)

Assuming 2000 lbs/acre grain yield

Zero noxious weeds seeds per pound of small grain allowed legally

0.6 lbs weed seed is the 0.03% legal limit on a 2000 lb grain yield/acre for certified seed d(w/o cleaning)

Common weeds		seed wt	seeds/plant	Plants/ac	Sq Ft./plant	Area/weed ft X ft	Seeds/plant used in calculations
		mg		for 0.6 lb weed seed/ac	for 0.6 lb weed seed/acre		
Lambsquarters	Chenopodium album	1.1	400 to 100K	619	70.4	8.4	400
Pigweed, redroot	Amaranthus retroflexu	0.45	4 ft plant 100K	605	72.0	8.5	1000
Foxtail, Giant	Setaria faberi	1.45	240 ave; upto 1500	783	55.6	7.5	240
Crabgrass, Giant	Digitaria sanguinalis	0.52	upto 145K seeds	361	120.6	11.0	1450
Ragweed, commo	Ambrosia artemisiifoli	2.4	3000 to 60K	23	1918.9	43.8	5000
Mustard, wild	Brassica kaber	1.7	2000 to 3500	80	543.7	23.3	2000
Shepherd's purse	Capsella bursa-pastori	0.11	3000 ave	825	52.8	7.3	3000
Campion, white	Silene alba	0.58	500 seeds/ pod, up to 50 pods, 25,000 seeds	94	463.7	21.5	5000
Velvetleaf	Abutilon theophrasti	9	25-45 seeds/ capsule; <=70K seeds	6	7196.0	84.8	5000

How many weeds do you get planting certified seed with 0.03% weed seed?

0.03% impurity is legal limit in certified seed

Assume 0.48 ounces of weed seed in 100 lbs of certified cereal grain

Common weeds		seed wt		Weeds seeds per 0.48 oz	Assume 50% survival	
		mg	seeds/plant		weeds/acre	sq ft/weed
Lambsquarters	Chenopodium album	1.1	400 to 100K	12382	6191	7.0
Pigweed, redtop	Amaranthus retroflex	0.45	4 ft plant 100K	30267	15133	2.9
Foxtail, Giant	Setaria faberi	1.45	240 ave; upto 1500	9393	4697	9.3
Crabgrass, Giant	Digitaria sanguinalis	0.52	upto 145K seeds	26192	13096	3.3
Ragweed, common	Ambrosia artemisiifolia	2.4	3000 to 60K	5675	2838	15.4
Mustard, wild	Brassica kaber	1.7	2000 to 3500	8012	4006	10.9
Shepherd's purse	Capsella bursa-pastor	0.11	3000 ave	123818	61909	0.7
Campion, white	Silene alba	0.58	500 seeds/ pod, up to 50 pods, 25,000 seeds	23483	11741	3.7
Velvetleaf	Abutilon theophrasti	9	25-45 seeds/ capsule; <=70K seeds	1513	757	57.6

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