

Vegetable Irrigation Needs*

Wisconsin School for Beginning Market Growers

Crop	Minimum Soil Moisture ¹	Interval between 1" water events	Critical Moisture Periods	Drought Tolerance ³	Effective Rooting Depth	Defects Caused by Water Deficit	Comments
Asparagus	40%	20	transplanting, spear development, ferning	H	24-36"	Shriveling	Can withstand most drought
Beans, snap	50%	7	Flowering, fruit set and development	L-M	18-24"	Poor pod fill and pithy pods	Beans have high water needs but many growers do not irrigate
Beans, soy	40%	14	Flowering	L-M	18-24"	Poor pod fill	Irrigation prior to flowering has little benefit
Beet	50%	7	Root enlargement	M	6-12"	Cracking, woody roots, poor flavor	Need consistent even water throughout growth
Broccoli	70%	5	Head development	L	6-12"	Poor flavor	Do not let soil dry out for 4 weeks after transplanting
Brussel Sprout	70%	5	Sprout development	M	12-24"		Do not let soil dry out for 4 weeks after transplanting
Cabbage, standard	70%	10	Head development	M-H	12-24"	Growth cracks	Do not let soil dry out for 4 weeks after transplanting; too much water can lead to split heads
Cabbage, Chinese	70%	5	Head development	L	6-12"	Tough leaves	
Cantaloupe	60%	10	Flowering, fruit set, early development	M	12-24"		Withhold water as melons ripen
Carrot	50%	7 to 10	Germination thru root development	L-M	6-12"	misshapen roots, root hairs	Consistent moisture helps ensure well formed roots and good flavor
Cauliflower	60%	5	Head development	L	6-12"	Ricey curd, buttoning	Do not let soil dry out for 4 weeks after transplanting
Celery, Celeriac	70%	5	Continuous	L	6-12"		Moisture deficit can halt growth irreversibly

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Collards	50%	7 to 14	Continuous	M	6-12"	Tough leaves	
Corn, sweet	50%	7 to 14	Silking, tasseling, ear development	M-H	18-24"	Poor ear fill	Irrigation prior to silking has little benefit
Cucumber	50%	7	Flowering, fruit set and development	L	18-24"	Pointed fruit	
Eggplant	50%	7	Flowering, fruit set and development	M	18-24"	Blossom end rot, misshapen fruit	
Kale, Mustard Greens	70%	7	Continuous	L	6-12"	Tough leaves	
Leek	70%	5	Continuous	L-M	6-12"		
Lettuce	60%	5 to 7	Continuous	L-M	6-12"	Tough leaves	Irrigate to keep growth continuous and rapid
Okra	40%	7 to 14	Flowering	M-H	24"+	Tough pods	
Onion	70%	7	Bulbing thru maturation	L	6-12"		Shallow roots demand frequent watering; Do not water after tops fall over
Parsnip	40%	7 to 14	Root enlargement	M-H	18-24"+		
Peas	40%	7	Flowering, fruit set and development	M-H	18-24"	Poor pod fill	
Peppers	50%	7	Transplanting, flowering, fruit set, early development	L-M	6-12"	Blossom end rot	
Potato, Irish	70%	7	Flowering (tuber set), enlargement	M	18-24"	Misshapen roots, scab	
Pumpkin	40%	14	Fruiting	M-H	18-24"+	Blossom end rot	
Radish	70%	5	Continuous	L	6-12"	Pithy roots	
Rhubarb	20%	14 to 21	Emergence	M-H	18-24"+		
Rutabaga	50%	7 to 14	Root enlargement	M	12-24"	Tough roots	
Squash, summer	70%	5	Fruiting	L	18-24"	Pointed fruit	
Squash, winter	40%	7 to 10	Fruiting	M	24"+		

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Sweetpotato	20%	14	Last 40 days	M	18-24"+	Misshapen roots	
Tomato	50%	5 to 7	Flowering, fruit set and development	M	18-24"	Blossom end rot	Consistent water helps avoid blossom end rot and increases fruit size
Turnip	50%	7 to 10	Root enlargement	M	18-24"	Woody roots	
Watermelon	40%	14	Flowering, fruit set, early development	M-H	24-36"	Blossom end rot	Can withstand most drought

1: Available Soil Moisture (ASM). The percentage of soil water between field capacity and the permanent wilting point

3: L = Low, needs frequent irrigation; M = Moderate, needs irrigation in most years; H = High, seldom needs irrigation

* Adapted from:

Basics of Vegetable Crop Irrigation, Alabama Cooperative Extension

Midwest Vegetable Production Guide for Commercial Growers 2012, Purdue