

Egg plant	30	40	40	20	130\1	October	Arid Region
	30	45	40	25	40	May/June	Mediterranean
Sweet peppers (bell)	25/30	35	40	20	125	April/June	Europe and Medit.
	30	40	110	30	210	October	Arid Region
Tomato	30	40	40	25	135	January	Arid Region
	35	40	50	30	155	Apr/May	Calif., USA
	25	40	60	30	155	Jan	Calif. Desert, USA
	35	45	70	30	180	Oct/Nov	Arid Region
	30	40	45	30	145	April/May	Mediterranean
c. Vegetables - Cucumber Family (<i>Cucurbitaceae</i>)							
Cantaloupe	30	45	35	10	120	Jan	Calif., USA
	10	60	25	25	120	Aug	Calif., USA
Cucumber	20	30	40	15	105	June/Aug	Arid Region
	25	35	50	20	130	Nov; Feb	Arid Region
Pumpkin, Winter squash	20	30	30	20	100	Mar, Aug	Mediterranean
	25	35	35	25	120	June	Europe
Squash, Zucchini	25	35	25	15	100	Apr; Dec.	Medit.; Arid Reg.
	20	30	25	15	90	May/June	Medit.; Europe
Sweet melons	25	35	40	20	120	May	Mediterranean
	30	30	50	30	140	March	Calif., USA
	15	40	65	15	135	Aug	Calif. Desert, USA
	30	45	65	20	160	Dec/Jan	Arid Region
Water melons	20	30	30	30	110	April	Italy
	10	20	20	30	80	Mat/Aug	Near East (desert)
d. Roots and Tubers							
Beets, table	15	25	20	10	70	Apr/May	Mediterranean
	25	30	25	10	90	Feb/Mar	Mediterranean & Arid

ตารางที่ ก7-1 (ต่อ) ช่วงเวลาเจริญเติบโตของพืชเพื่อการวางแผนการเพาะปลูกตามภูมิภาค (วัน) (FAO, 2012)

Crop	Init. (L _{ini})	Dev. (L _{dev})	Mid (L _{mid})	Late (L _{late})	Total	Plant Date	Region
Cassava: year 1	20	40	90	60	210	Rainy	Tropical regions
year 2	150	40	110	60	360	season	
Potato	25	30	30/45	30	115	Jan/Nov	(Semi) Arid Climate
	25	30	45	30	130	May	Continental Climate
	30	35	50	30	145	April	Europe

	45	30	70	20	165	Apr/May	Idaho, USA
	30	35	50	25	140	Dec	Calif. Desert, USA
Sweet potato	20	30	60	40	150	April	Mediterranean
	15	30	50	30	125	Rainy seas.	Tropical regions
Sugarbeet	30	45	90	15	180	March	Calif., USA
	25	30	90	10	155	June	Calif., USA
	25	65	100	65	255	Sept	Calif. Desert, USA
	50	40	50	40	180	April	Idaho, USA
	25	35	50	50	160	May	Mediterranean
	45	75	80	30	230	November	Mediterranean
	35	60	70	40	205	November	Arid Regions
e. Legumes (<i>Leguminosae</i>)							
Beans (green)	20	30	30	10	90	Feb/Mar	Calif., Mediterranean
	15	25	25	10	75	Aug/Sep	Calif., Egypt, Lebanon
Beans (dry)	20	30	40	20	110	May/June	Continental
	15	25	35	20	95	June	Pakistan, Calif.
	25	25	30	20	100	June	Idaho, USA
Faba bean, broad bean	15	25	35	15	90	May	Europe
	20	30	35	15	100	Mar/Apr	Mediterranean
- dry	90	45	40	60	235	Nov	Europe
- green	90	45	40	0	175	Nov	Europe
Green gram, cowpeas	20	30	30	20	110	March	Mediterranean

ตารางที่ ก7-1 (ต่อ) ช่วงเวลาเจริญเติบโตของพืชเพื่อการวางแผนการเพาะปลูกตามภูมิภาค (วัน) (FAO, 2012)

Crop	Init. (L _{ini})	Dev. (L _{dev})	Mid (L _{mid})	Late (L _{late})	Total	Plant Date	Region
Groundnut	25	35	45	25	130	Dry	West Africa
	35	35	35	35	140	season	High Latitudes
	35	45	35	25	140	May/June	Mediterranean
Lentil	20	30	60	40	150	April	Europe
	25	35	70	40	170	Oct/Nov	Arid Region
Peas	15	25	35	15	90	May	Europe
	20	30	35	15	100	Mar/Apr	Mediterranean
	35	25	30	20	110	April	Idaho, USA
Soybeans	15	15	40	15	85	Dec	Tropics

	20	30/35	60	25	140	May	Central USA
	20	25	75	30	150	June	Japan
f. Perennial Vegetables (with winter dormancy and initially bare or mulched soil)							
Artichoke	40	40	250	30	360	Apr(1 st yr)	California
	20	25	250	30	325	May(2 nd yr)	(cut in May)
Asparagus	50	30	100	50	230	Feb	Warm Winter
	90	30	200	45	365	Feb	Mediterranean
g. Fibre Crops							
Cotton	30	50	60	55	195	Mar-May	Egypt; Pakistan; Calif.
	45	90	45	45	225	Mar	Calif. Desert, USA
	30	50	60	55	195	Sept	Yemen
	30	50	55	45	180	April	Texas
Flax	25	35	50	40	150	April	Europe
	30	40	100	50	220	October	Arizona
h. Oil Crops							
Castor beans	25	40	65	50	180	March	(Semi) Arid Climates
	20	40	50	25	135	Nov.	Indonesia

ตารางที่ ก7-1 (ต่อ) ช่วงเวลาเจริญเติบโตของพืชเพื่อการวางแผนการเพาะปลูกตามภูมิภาค (วัน) (FAO, 2012)

Crop	Init. (L _{ini})	Dev. (L _{dev})	Mid (L _{mid})	Late (L _{late})	Total	Plant Date	Region
Safflower	20	35	45	25	125	April	California, USA
	25	35	55	30	145	Mar	High Latitudes
	35	55	60	40	190	Oct/Nov	Arid Region
Sesame	20	30	40	20	100	June	China
Sunflower	25	35	45	25	130	April/May	Medit.; California
i. Cereals							
Barley/Oats/Wheat	15	25	50	30	120	November	Central India
	20	25	60	30	135	March/Apr	35-45 °L
	15	30	65	40	150	July	East Africa
	40	30	40	20	130	Apr	
	40	60	60	40	200	Nov	
	20	50	60	30	160	Dec	Calif. Desert, USA
Winter Wheat	202	602	70	30	180	December	Calif., USA

	30	140	40	30	240	November	Mediterranean
	160	75	75	25	335	October	Idaho, USA
Grains (small)	20	30	60	40	150	April	Mediterranean
	25	35	65	40	165	Oct/Nov	Pakistan; Arid Reg.
Maize (grain)	30	50	60	40	180	April	East Africa (alt.)
	25	40	45	30	140	Dec/Jan	Arid Climate
	20	35	40	30	125	June	Nigeria (humid)
	20	35	40	30	125	October	India (dry, cool)
	30	40	50	30	150	April	Spain.; Calif.
	30	40	50	50	170	April	Idaho, USA
Maize (sweet)	20	20	30	10	80	March	Philippines
	20	25	25	10	80	May/June	Mediterranean
	20	30	50/30	10	90	Oct/Dec	Arid Climate
	30	30	30	103	110	April	Idaho, USA
	20	40	70	10	140	Jan	Calif. Desert, USA

ตารางที่ ก7-1 (ต่อ) ช่วงเวลาเจริญเติบโตของพืชเพื่อการวางแผนการเพาะปลูกตามภูมิภาค (วัน) (FAO, 2012)

Crop	Init. (L _{ini})	Dev. (L _{dev})	Mid (L _{mid})	Late (L _{late})	Total	Plant Date	Region
Millet	15	25	40	25	105	June	Pakistan
	20	30	55	35	140	April	Central USA
Sorghum	20	35	40	30	130	May/June	USA, Pakis., Med.
	20	35	45	30	140	Mar/April	Arid Region
Rice	30	30	60	30	150	Dec; May	Tropics; Mediterranean
	30	30	80	40	180	May	Tropics
j. Forages							
Alfalfa, total season ⁴	10	30	var.	var.	var.		last -4°C in spring until first -4°C in fall
Alfalfa ⁴ 1 st cutting cycle	10	20	20	10	60	Jan Apr	Calif., USA.
	10	30	25	10	75		Idaho, USA.
Alfalfa ⁴ , other cutting cycles	5	10	10	5	30	Mar	Calif., USA.
	5	20	10	10	45	Jun	Idaho, USA.
Bermuda for seed	10	25	35	35	105	March	Calif. Desert, USA
Bermuda for hay (several cuttings)	10	15	75	35	135	---	Calif. Desert, USA

Grass Pasture ⁴	10	20	--	--	--		7 days before last -4°C in spring until 7 days after first -4°C in fall
Sudan, 1 st cutting cycle	25	25	15	10	75	Apr	Calif. Desert, USA
Sudan, other cutting cycles	3	15	12	7	37	June	Calif. Desert, USA
k. Sugar Cane							
Sugarcane, virgin	35	60	190	120	405		Low Latitudes
	50	70	220	140	480		Tropics
	75	105	330	210	720		Hawaii, USA

ตารางที่ ก7-1 (ต่อ) ช่วงเวลาเจริญเติบโตของพืชเพื่อการวางแผนการเพาะปลูกตามภูมิภาค (วัน) (FAO, 2012)

Crop	Init. (L _{ini})	Dev. (L _{dev})	Mid (L _{mid})	Late (L _{late})	Total	Plant Date	Region
Sugarcane, ratoon	25	70	135	50	280		Low Latitudes
	30	50	180	60	320		Tropics
	35	105	210	70	420		Hawaii, USA
l. Tropical Fruits and Trees							
Banana, 1 st yr	120	90	120	60	390	Mar	Mediterranean
Banana, 2 nd yr	120	60	180	5	365	Feb	Mediterranean
Pineapple	60	120	600	10	790		Hawaii, USA
m. Grapes and Berries							
Grapes	20	40	120	60	240	April	Low Latitudes
	20	50	75	60	205	Mar	Calif., USA
	20	50	90	20	180	May	High Latitudes
	30	60	40	80	210	April	Mid Latitudes (wine)
Hops	25	40	80	10	155	April	Idaho, USA
n. Fruit Trees							
Citrus	60	90	120	95	365	Jan	Mediterranean
Deciduous Orchard	20	70	90	30	210	March	High Latitudes
	20	70	120	60	270	March	Low Latitudes
	30	50	130	30	240	March	Calif., USA
Olives	30	90	60	90	2705	March	Mediterranean
Pistachios	20	60	30	40	150	Feb	Mediterranean
Walnuts	20	10	130	30	190	April	Utah, USA

o. Wetlands - Temperate Climate							
Wetlands	10	30	80	20	140	May	Utah, USA
(Cattails, Bulrush)	180	60	90	35	365	November	Florida, USA
Wetlands(short veg.)	180	60	90	35	365	November	frost-free climate

ตารางที่ ก7-2 ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
a. Small Vegetables	0.7	1.05	0.95	
Broccoli		1.05	0.95	0.3
Brussel Sprouts		1.05	0.95	0.4
Cabbage		1.05	0.95	0.4
Carrots		1.05	0.95	0.3
Cauliflower		1.05	0.95	0.4
Celery		1.05	1	0.6
Garlic		1	0.7	0.3
Lettuce		1	0.95	0.3
Onions				
- dry		1.05	0.75	0.4
- green		1	1	0.3
- seed		1.05	0.8	0.5
Spinach		1	0.95	0.3
Radish		0.9	0.85	0.3
b. Vegetables	0.6	1.15	0.8	
- Solanum Family				
Egg Plant		1.05	0.9	0.8
Sweet Peppers (bell)		1.052	0.9	0.7
Tomato		1.152	0.70-0.90	0.6
c. Vegetables	0.5	1	0.8	
- Cucumber Family				
Cantaloupe	0.5	0.85	0.6	0.3
Cucumber				

- Fresh Market	0.6	1.002	0.75	0.3
- Machine harvest	0.5	1	0.9	0.3
Pumpkin, Winter Squash		1	0.8	0.4

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
Squash, Zucchini		0.95	0.75	0.3
Sweet Melons		1.05	0.75	0.4
Watermelon	0.4	1	0.75	0.4
d. Roots and Tubers	0.5	1.1	0.95	
Beets, table		1.05	0.95	0.4
Cassava				
- year 1	0.3	0.803	0.3	1
- year 2	0.3	1.1	0.5	1.5
Parsnip	0.5	1.05	0.95	0.4
Potato		1.15	0.754	0.6
Sweet Potato		1.15	0.65	0.4
Turnip (and Rutabaga)		1.1	0.95	0.6
Sugar Beet	0.35	1.2	0.705	0.5
e. Legumes (<i>Leguminosae</i>)	0.4	1.15	0.55	
Beans, green	0.5	1.052	0.9	0.4
Beans, dry and Pulses	0.4	1.152	0.35	0.4
Chick pea		1	0.35	0.4
Fababean (broad bean)				
- Fresh	0.5	1.152	1.1	0.8
- Dry/Seed	0.5	1.152	0.3	0.8
Grabanzo	0.4	1.15	0.35	0.8
Green Gram and Cowpeas		1.05	0.60-0.35 ⁶	0.4
Groundnut (Peanut)		1.15	0.6	0.4
Lentil		1.1	0.3	0.5
Peas				
- Fresh	0.5	1.152	1.1	0.5
- Dry/Seed		1.15	0.3	0.5
Soybeans		1.15	0.5	0.5-1.0

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
f. Perennial Vegetables	0.5	1	0.8	
Artichokes	0.5	1	0.95	0.7
Asparagus	0.5	0.957	0.3	0.2-0.8
Mint	0.6	1.15	1.1	0.6-0.8
Strawberries	0.4	0.85	0.75	0.2
g. Fibre Crops	0.35			
Cotton		1.15-1.20	0.70-0.50	1.2-1.5
Flax		1.1	0.25	1.2
Sisal ⁸		0.4-0.7	0.4-0.7	1.5
h. Oil Crops	0.35	1.15	0.35	
Castorbean (<i>Ricinus</i>)		1.15	0.55	0.3
Rapeseed, Canola		1.0-1.15 ⁹	0.35	0.6
Safflower		1.0-1.15 ⁹	0.25	0.8
Sesame		1.1	0.25	1
Sunflower		1.0-1.15 ⁹	0.35	2
i. Cereals	0.3	1.15	0.4	
Barley		1.15	0.25	1
Oats		1.15	0.25	1
Spring Wheat		1.15	0.25-0.4 ¹⁰	1
Winter Wheat				
- with frozen soils	0.4	1.15	0.25-0.4 ¹⁰	1
- with non-frozen soils	0.7	1.15	0.25-0.4 ¹⁰	
Maize, Field (<i>field corn</i>)		1.2	0.60-0.35 ¹¹	2
Maize, Sweet (<i>sweet corn</i>)		1.15	1.0512	1.5
Millet		1	0.3	1.5

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
Sorghum				

- grain		1.00-1.10	0.55	1-2
- sweet		1.2	1.05	2-4
Rice	1.05	1.2	0.90-0.60	1
j. Forages				
Alfalfa Hay				
- averaged cutting effects	0.4	0.9513	0.9	0.7
- individual cutting periods	0.4014	1.2014	1.1514	0.7
- for seed	0.4	0.5	0.5	0.7
Bermuda hay				
- averaged cutting effects	0.55	1.0013	0.85	0.35
- Spring crop for seed	0.35	0.9	0.65	0.4
Clover hay, Berseem				
- averaged cutting effects	0.4	0.9013	0.85	0.6
- individual cutting periods	0.4014	1.1514	1.1014	0.6
Rye Grass hay				
- averaged cutting effects	0.95	1.05	1	0.3
Sudan Grass hay (annual)				
- averaged cutting effects	0.5	0.9014	0.85	1.2
- individual cutting periods	0.5014	1.1514	1.1014	1.2
Grazing Pasture				
- Rotated Grazing	0.4	0.85-1.05	0.85	0.15-0.30
- Extensive Grazing	0.3	0.75	0.75	0.1
Turf grass				
- cool season ¹⁵	0.90	0.95	0.95	0.1
- warm season ¹⁵	0.80	0.85	0.85	0.1
k. Sugar Cane	0.4	1.25	0.75	3

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
l. Tropical Fruits and Trees				
Banana				
- 1 st year	0.5	1.1	1	3
- 2 nd year	1	1.2	1.1	4
Cacao	1	1.05	1.05	3

Coffee				
- bare ground cover	0.9	0.95	0.95	2-3
- with weeds	1.05	1.1	1.1	2-3
Date Palms	0.9	0.95	0.95	8
Palm Trees	0.95	1	1	8
Pineapple ¹⁶				
- bare soil	0.5	0.3	0.3	0.6-1.2
- with grass cover	0.5	0.5	0.5	0.6-1.2
Rubber Trees	0.95	1	1	10
Tea				
- non-shaded	0.95	1	1	1.5
- shaded ¹⁷	1.10	1.15	1.15	2
m. Grapes and Berries				
Berries (bushes)	0.3	1.05	0.5	1.5
Grapes				
- Table or Raisin	0.3	0.85	0.45	2
- Wine	0.3	0.7	0.45	1.5-2
Hops	0.3	1.05	0.85	5
n. Fruit Trees				
Almonds, no ground cover	0.4	0.9	0.6518	5

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
Apples, Cherries, Pears ¹⁹				
- no ground cover	0.45	0.95	0.7018	4
- no ground cover, no frosts	0.6	0.95	0.7518	4
- active ground cover	0.5	1.2	0.9518	4
- active ground cover	0.8	1.2	0.8518	4
Apricots, Peaches, Stone Fruit ^{19, 20}				
- no ground cover	0.45	0.9	0.6518	3
- no ground cover	0.55	0.9	0.6518	3
- active ground cover	0.5	1.15	0.9018	3

- active ground cover	0.8	1.15	0.8518	3
Avocado, no ground cover	0.6	0.85	0.75	3
Citrus, no ground cover ²¹				
- 70% canopy	0.70	0.65	0.7	4
- 50% canopy	0.65	0.6	0.65	3
- 20% canopy	0.50	0.45	0.55	2
Citrus, with active ground cover or weeds ²²				
- 70% canopy	0.75	0.7	0.75	4
- 50% canopy	0.80	0.8	0.8	3
- 20% canopy	0.85	0.85	0.85	2
Conifer Trees ²³	1	1	1	10
Kiwi	0.4	1.05	1.05	3
Olives ²⁴	0.65	0.7	0.7	3-5
Pistachios, no ground cover	0.4	1.1	0.45	3-5
Walnut Orchard ¹⁹	0.5	1.1	0.6518	4-5

ตารางที่ ก7-2 (ต่อ) ค่าสัมประสิทธิ์พืชเชิงเดี่ยวและค่าความสูงของพืชแต่ละประเภทโดยเฉลี่ย (FAO, 2012)

Crop	K _c ini	K _c mid	K _c end	Maximum Crop Height (h) (m)
o. Wetlands - temperate climate				
Cattails, Bulrushes	0.3	1.2	0.3	2
Cattails, Bulrushes, no frost	0.6	1.2	0.6	2
Short Veg., no frost	1.05	1.1	1.1	0.3
Reed Swamp, standing water	1	1.2	1	1-3
Reed Swamp, moist soil	0.9	1.2	0.7	1-3
p. Special				
Open Water, < 2 m depth or in subhumid climates or tropics		1.05	1.05	
Open Water, > 5 m depth, clear of turbidity, temperate climate		0.6525	1.2525	

