Radiation sensitivity of plants.

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ABSTRACT

Mutation breeding may be the most effective means when applied to ornamental plants. It helps to improve or to modify a few but important traits like flower color, of the already established varieties without disturbing other major characteristics. Since its establishment in 1961, the Institute of Radiation Breeding helped the breeders by gamma ray irradiation service. In recent years, requests of irradiation to plant materials has increased and their plant species were broadened. To prescribe the radiation dosage for each plant species, wide survey of radiation sensitivity became necessary.

The data presented here were cited and edited from several references or sources to help prescription of the appropriate dosage for such materials. On its use, it is advised that most data are LD50, RD50 or unproved data cited from records of the irradiation service. The dosage of these 50 % reduction may be too high for the mutation induction to be used in breeding, but it may help to prescribe better dosage estimate for 80 % survival or remaining vigor of the plant materials (in other words, 20% reduction dose may be advised).

Furthermore, it is known that in some cases, radio-sensitivity is controlled by only a few genes, in soy bean or in barley. So, if the time and amount of the sample allow the test run, it is suggested to make preliminary test to determine the irradiation dosage. In such preliminary test, one dose class may be e.g. 10 to 20 seeds, with dose classes more than 5 or 7 extending from no effect to 90% death.

In the data list presented here, Column 1 is arranged in alphabetical order of genus names for searching by scientific name. Common names in English are also shown. In the list, multiple entries are made, if a species has known in other names, for convenience of searching, e.g. Okura is listed both in *Abelmoschus* and *Hibiscus*.

This explanation and References are also recorded both in TEXT FILES and WORD-97 Document files.

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Table 1. Radiation dose data for mutation induction in plants.

*: kR,if not indicated otherwise.

**: Suggested dosage in reference or case example. Also examples from irradiation records at the Inst.Rad.Breed. NIAR,MAFF.

#: Data for thermal neutrons also in the reference.

Species	Organ irradiated	Radiation dose(kR)* Suggested**	LD-50	RD-50	Variety used or Remarks	Reference	Common (English) name

Please note that column adjustment is not made yet, but this may be used for searching the references.
The original list was made in a Japanese word processor, so please use EXCEL file data rather than this WORD file.

Abelmoschus esculentus M.	seeds		70	50	'Kakuho-'	1	okra (gumbo)
Abelmoschus esculentus		0.4< kR/d		chronic		4	okra (gumbo)
Aberia sp.	rooted cuttings	3				1	
Abies balsamea			0.75		prediction	29	balsam fir
Abies concolor			0.81		prediction	29	white fir
Abies grandis			0.62		prediction	29	grand fir
Abies lasiocarpa			0.62		prediction	29	alpine fir
Acer rubrum		4.5			polyploid,slight grw inh.	5	red maple
Acer rubrum (6n or 8n)		0.1-0.2kR/d			chronic,severe damage	7	red maple
Acer rubrum			5.11			29	red maple
Acer saccharum		3.0		slight growth inhibit.		5	sugar maple
Acer saccharum			4.72			29	sugar maple
Acer spicatum		0.1-0.2kR/d			chronic,severe damage	7	mountain maple
Achimenes sp.	detached leaves	3(1-4)				1	
Aconitum sp.	tuber	(2.5-10)				26	monk's hood
Aconitum sp.	tuber	(5 -20)				26	monk's hood
Adiantum sp.	spores	30				1	
Aechmea fasciata	seeds	30 -40				1	
Aegilops cylindrica	seeds		30		(CCDD)	28	
Aegilops squarrosa L.	seeds		30		(DD)	28	
Aegilops triuncialis L.	seeds	40			($CCC^{u}C^{u}$)	28	
Aegilops ventricosa	seeds		30 -40		($DDM^{v}M^{v}$)	28	
Aesculus octandra			7.11		prediction	29	yellow buckeye
Agave rigida				8-12	prediction	29	sisal hemp
Agropyron cristatum	seedling			2.00		29	crested wheatgrass
Agropyron cristatum				2-4	predicted	29	crested wheatgrass
Agropyron trachycaulum				2-4	predicted	29	bearded wheatgrass
Agropyron intermedium				4-6	predicted	29	wheatgrass
Agrostis gigantea	seeds		30			4	red top
Agrostis sp.	seeds		20			4	bent grass
Agrostis sp.		(40)				26	bent grass
Allium cepa		10 -20			#	2	onion
Allium cepa		15			'Grobol', X-ray	3	onion
Allium cepa		<0.05 kR/d			chronic,	4	onion
Allium cepa	seeds	<10				4	onion
Allium cepa		0.4-0.8kR/d		chronic, severe damage		7	onion
Allium cepa	seeds	(2.5-8)				26	onion
Allium cepa			2.90	'Yellow Sweet Spanish		27	onion
Allium cepa				1.89	'Yellow Sweet Spanish	29	onion
Allium cepa				1-2	prediction	29	onion
Allium fistulosum	<0.05 kR/d		chronic			4	
Allium fistulosum	seeds		<10			4	
Allium fistulosum	seeds		(2-3.75)			26	
Allium porrum				1-2	prediction	29	leek
Allium sativum L.	bulb		0.4-0.8			24	garlic
Allium sativum L.	bulb	(0.4-1.2)				26	garlic
Allium sativum L.	bulb	(0.8-2)				26	garlic
Allium sativum L.	cultured tissue	(1-2)				26	garlic
Allium sativum L.	bulblets	(1.12)				26	garlic
Allium sativum L.				1-2	prediction	29	garlic
Allium tuberosum	seeds		(2-20)			26	
Allium schoenoprasum				1-2	prediction	29	chives
Aloe brevifolia				1.55		27	aloe
Aloe brevifolia				1.55		29	aloe
Alnus japonica		0.05-0.1kR/d			chronic,	4	alder
Alstroemeria sp.	rhizomes		0.35-0.5		diploid	1	lily of Inca
Alstroemeria sp.		0.5 -0.7			triploid	1	lily of Inca
Alstroemeria sp.	rhizomes		(3)			26	lily of Inca

Alstroemeria sp.	rhizomes		(0.4-0.7)				26	lily of Inca
Alstroemeria sp.			(0.5-1)				26	lily of Inca
Alstroemeria sp.		seeds		(0.7-4)			26	lily of Inca
Alstroemeria sp.		seeds		(20)			26	lily of Inca
Althaea rosea Cav.	seeds			120	59	'Majorette'	1	hollyhock
Althaea rosea		seeds		50-70				ollyhock
Althaea rosea(6n or 8n)			0.4-0.8kR/d			chronic, severe damage	7	hollyhock
Amaranthus tricolor L.	seeds			19	12		1	Joseph's coat
Amaranthus sp.	seeds		(10-20)				26	
Amaryllis belladonna		bulbs			1.05	prediction	29	Belladonna lily
Amaryllis sp.	bulbs		0.5 -1				1	amaryllis
Amorphophallus konjak		tuber		(0.25-2)			26	
Ananas comosus	crown bud			35		1 kR/h	25	pineapple
Ananas comosus	leaf bud				25	1 kR/h	25	pineapple
Ananas comosus	crown section			8.97	25	'Smooth Cayenne'	29	pineapple
Andropogon gerardi					16-20	prediction	29	big bluestem
Andropogon scoparius					6-8	prediction	29	little bluestem
Anemone coronaria L.	seeds			40	--		1	garden anemone
Anemone fulgens	bulbs			2.04	--	prediction	29	anemone,flame
Anemone sp.	seeds	10					1	
Anemone sp.	small tubers		15				1	
Anethum graveolens					6-8	prediction	29	dill
Antirrhinum majus			0.05-0.1kR/d			chronic	4	snap dragon
Antirrhinum majus			0.2-0.4kR/d			chronic, severe damage	7	snap dragon
Aphanostephus skirrobasis			2			slight growth inhibition	5	
Apium graveolens			<0.05 kR/d			chronic	4	celery
Apium graveolens					6-8	prediction	29	celery
Aquilegia akitensis Huth.	seeds			58	30		1	columbine
Aquilegia vulgaris L.	seeds			68	50	'Dragonfly'	1	european columbine
Arachis hypogaea			15 -20			#	2	peanuts
Arachis hypogaea			0.1-0.15kR/d		chronic		4	peanuts
Arachis hypogaea		seeds		20			4	peanuts
Arachis hypogaea	seeds		10		1.26kR/min		29	peanuts
Arachis hypogaea					4-6	prediction	29	peanuts
Arctium lappa L.			10			'Yanagawa-riso'	3	edible burdock
Arctium lappa L.	seeds	<10					4	edible burdock
Armeria maritima Willd.		seeds		11	5	'Dwarf splendens'	1	common thrift
Asparagus officinalis		2 - 8			#		2	asparagus
Asparagus officinalis		0.1-0.15kR/d			chronic		4	asparagus
Asparagus officinalis					6-8	prediction	29	asparagus
Asplenium sp.	spores		10				1	
Aster novi-belgii L.	seeds			22	14		1	New York aster
Astilbe sp.			(0.5-5)				26	astilbe
Astragalus sinicus		seeds	50-70				4	astragol(locoweed)
Astragalus sinicus (2x)	seeds		20-40				28	astragol(locoweed)
Astragalus sinicus (4x)	seeds		20-40				28	astragol(locoweed)
Avena sativa			15 -25			#	2	oats
Avena sativa				17-27	0.84kR/min		29	oats
Avena sativa					2-4	prediction	29	oats
Avena sp.			<0.05 kR/d			chronic	4	oats
Avena sp.		30					4	oats
Avena 'Condor'	2-4 leaf	0.92		YD-50 seed wgt			29	spring oat
Avena 'Orbit'	seedling			3.42			29	spring oat
Avena 'Orbit'	seedling		1.95			YD-50 seed wgt	29	spring oat
Begonia x hiemalis	detached leaves		1.5 -3				1	begonia
Begonia rex-cultorum	detached leaves		10				1	rex begonia
Begonia			0.5-10			'Iron cross'	4	rex begonia
Begonia sp.	plant		(13-18)				26	begonia
Bellis perennis L.		seeds		30	27	'Early White'	1	English daisy
Bellis sp.	seeds		30				4	daisy
Beta cicla					6-8	prediction	29	swiss chard
Beta vulgaris			0.15-0.2kR/d			chronic	4	sugar beet
Beta vulgaris	seeds		30				4	sugar beet
Beta vulgaris		seeds		(20)			26	sugar beet
Beta vulgaris (2x)		seeds		20			28	sugar beet
Beta vulgaris (4x)		seeds		40-70			28	sugar beet
Beta vulgaris	plant				20	YD-50 root wgt	29	sugar beet
Beta vulgaris					8-12	prediction	29	beet
Betula lutea			2			slight growth inhibit.	5	
Betula lutea				4.28			29	yellow birch

Betula sp.		0.05-0.1kR/d		chronic			4	birch
Bombax malabaricum D.C.		seeds		30	27		1	cotton tree
Bougainvillea sp.	rooted cuttings		1 - 2.5				1	
Bouteloua gracilis				12-16		prediction	29	blue grama
Brassica campestris L.		seeds		120	86	'Kurokawa-kanzaki'	1	
Brassica campestris		seeds		80<			4	
Brassica campestris				8-12		prediction	29	bird rape
Brassica hirta					8-12	prediction	29	white mustard
Brassica juncea			35			'Svalof's white mustard'	3	mustard
Brassica juncea				12-16		prediction	29	indian mustard
Brassica napobrassica					8-12	prediction	29	rutabaga
Brassica napus	seeds	80<					4	
Brassica napus		0.2-0.3 kR/d		chronic			4	
Brassica napus					>24	prediction	29	winter rape
Brassica nigra		seeds		>>55		#	6	black mustard
Brassica nigra					8-12	prediction	29	black mustard
Brassica oleracea L.		seeds		96	78	'Benisango'	1	flowering cabbage
Brassica oleracea		seeds		50 -70			4	
Brassica oleracea			20 -40			#	2	cauliflower
Brassica oleracea			0.05-0.1 kR/d			chronic	4	cabbage
Brassica oleracea		seeds		30			4	cabbage
Brassica oleracea L.		seeds			15.1		27	
Brassica oleracea		seedling			11.23	'Ferrys Round Dutch'	29	cabbage
Brassica oleracea var.*acephala*					6-8	prediction	29	kale
Brassica oleracea var.*botrytis*					6-8	prediction	29	cauliflower
Brassica oleracea var.*gemmifera*					12-16	prediction	29	brussel sprouts
Brassica oleracea var.*italica*					8-12	prediction	29	broccoli
Brassica pekinensis			0.05-0.1 kR/d			chronic	4	chinese cabbage
Brassica pekinensis		seeds		20			4	chinese cabbage
Brassica pekinensis				8-12		prediction	29	chinese cabbage
Brassica rapa					12-16	prediction	29	turnip
Brassica rapus			60 -150			#	2	rape
Brassica rapus	seeds		20				4	
Brassica sp.	seeds		(40)				26	
Bromus inermis					4-6	prediction	29	smooth brome
Bromus sp.			10 -20			#	2	bromegrass
Buddleia sp.	plants		2 - 3				1	buddleia
Cajanus cajan	seeds			15		1.26kR/min	29	pigeon pea
Calanthe discolor		bulbs		(4.4)			26	calanthe
Calendura officinalis L.	seeds			120<	120<	'Nakate Nakayasu'	1	pot marigold
Calendura officinalis	seeds		80<				4	pot marigold
Callistephus chinensis Nees.	seeds		21	16	'Momoyama-zakura		1	China marigold
Callistephus chinensis	seeds	10					4	China marigold
Calochortus (av.of 2 spp.)	bulbs			2.15		prediction	29	mariposa lily
Calonyction aculeatum House	seeds				15	10 'Aka'	1	common moon flower
Camellia sinensis						(see Thea sp.)		tea plant
Campanula medium L.	seeds			20	15	'Blue'	1	Canterbury bells
Campanula medium L.	seeds			15	10	'Dwarf Bell of Holland'	1	Canterbury bells
Canavalia gladiata		seeds		20			4	
Canna generalis			0.2-0.4kR/d		chronic, severe damage		7	canna
Canna sp.	rhizomes		1 - 3				1	canna
Capsella bursa-pastoris				58.0			27	
Capsicum annuum L.	seeds			17	14	'Kyokko'	1	red pepper
Capsicum annuum L.	seeds		17	15		'Goshiki-togarashi'	1	red pepper
Capsicum annuum L.			13.5			'Zlaten medal'	3	red pepper
Capsicum annuum					#		2	ed pepper
Capsicum annuum var.*grossum*	seeds		10				4	bell pepper
Capsicum annuum var.*grossum*	seeds		(16)				26	bell pepper
Capsicum annuum L. (2x)			20 -30				28	red pepper
Capsicum annuum L. (4x)			40				28	red pepper
Capsicum flutescence(2n,4n)			0.2-0.4kR/d		chronic,	severe damage	7	red pepper
Capsicum flutescence	seeds		24			1.26kR/min	29	red pepper
Capsicum flutescence					6-8	prediction	29	red pepper
Capsicum sp.			0.1-0.15kR/d			chronic	4	red pepper
Capsicum sp.	seeds		(11)				26	
Cardiospermum halicacabum L.	seeds			11	8		1	balloon vine
Carica papaya			20 -35		#		2	papaya
Carica papaya				12			29	papaya
Cariopteris incana Miq.	seeds		16	11			1	blue spirea
Carthamus tinctorius L.	seeds				40		20	safflower

Carthamus tinctorius L.	seedling			6			20	safflower
Carthamus tinctorius L.	callus				12		20	safflower
Carthamus tinctorius					4-6	prediction	29	safflower
Carthamus sp.	seeds				#		6	
Carya cordiformis				7.69		prediction	29	bitternut hickory
Carya laciniosa				4.10		prediction	29	shellbark hickory
Carya ovata				6.03		prediction	29	shagbark hickory
Carya tomentosa				7.69		prediction	29	mockernut hickory
Carya illinoensis				2.90		prediction 'Sioux'	29	pecan
Castanea denntata				3.77		prediction	29	American chestnut
Castanea sp.	scion	(2)				ｷﾞｿﾖｷﾞ	26	chestnut
Castanea sp.	cuttings		2.5- 5		#		2	chestnut
Castanea sp.			5 -10		#		2	chestnut
Catharanthus roseus G.Don.	seeds			18	15	'Little Pinkie'	1	
Cedrus libani				0.84		prediction	29	cedar-of-Lebanon
Celosia cristata	seeds			66	40	'Crusader'	1	feather cockscomb
Celosia cristata	seeds			48	22	'Golden Torch'	1	cockscomb
Celosia cristata(4n)			0.4-0.8kR/d			chronic, severe damage	7	cockscomb
Celosia sp.			0.1-0.15kR/d			chronic	4	cockscomb
Centaurium sp.	seeds				#		6	
Chaenomeles speciosa		seeds		15-20				
Chamaecyparis obtusa			<0.05 kR/d			chronic	4	
Chamaecyparis obtusa S.et Z.		7.6-11.2R/d				chronic	19	
Chamaecyparis pisifera		<0.05 kR/d				chronic	4	
Chenopodium album(4n)			0.4-0.8kR/d			chronic, severe damage	7	
Cheiranthus cheiri L.	seeds			70	50	'Tom Thumb Yellow'	1	wall flower
Cheiranthus cheiri	seeds		50-70				4	wall flower
Chionodoxa luciliae	bulbs			2.81		prediction	29	Glory-of-the-snow
Chlorophytum elatum			0.50			slight growth inhibit.	5	
Chrysanthemum arcticum(8n)			0.8-1.6kR/d			chronic, severe damage	7	
Chrysanthemum coccineum Willd.	seeds			10	5		1	common pyrethrum
Chrysanthemum ircutianum(4n)			0.4-0.8kR/d			chronic, severe damage	7	
Chrysanthemum lacustre(22n)			0.8-1.6kR/d			chronic, severe damage	7	
Chrysanthemum lacustre(22n)					6.75		27,29	
Chrysanthemum maximum Ram.	seeds			60	36	'Spring Shasta'	1	shasta daisy
Chrysanthemum maximum	seeds		40				4	shasta daisy
Chrysanthemum morifolium		cuttings,rooted cuttings	1.5- 2.5				1	chrysanthemum
Chrysanthemum morifolium			5 -20			'Yellow Delaware'chronic	12	chrysanthemum
Chrysanthemum nipponicum	seeds		30				4	
Chrysanthemum nipponicum			0.2-0.4kR/d			chronic, severe damage	7	
Chrysanthemum nipponicum					3.02		27	
Chrysanthemum paludosum	seeds			40	9		1	
Chrysanthemum yezoense(10n)			0.8-1.6kR/d			chronic, severe damage	7	
Chrysanthemum yezoense (6n)					9.15		27	
Chrysanthemum sp.			3 - 4			#	2	chrysanthemum
Chrysanthemum sp.			2.5				4	chrysanthemum
Chrysanthemum sp.			0.4< kR/d			chronic	4	chrysanthemum
Chrysanthemum sp.		(1.3-1.74)					26	chrysanthemum
Chrysanthemum sp.			(3)				26	chrysanthemum
Chrysanthemum sp.	seeds		(20-30)				26	
Cirsium japonicum D.C.	seeds			20	16	'Rakuonji'	1	
Cirsium japonicum	seeds		10				4	
Cirsium sp.	seeds		(20-60)				26	thistle
Citrullus vulgaris	seeds		30				4	watermelon
Citrullus vulgaris				>30		# (X-ray)	7	watermelon
Citrullus vulgaris			0.15-0.2 kR/d			chronic	4	watermelon
Citrullus vulgaris (2x)			20				28	watermelon
Citrullus vulgaris (4x)			40				28	watermelon
Citrullus vulgaris	seeds			60	1.28kR/min		29	watermelon
Citrullus vulgaris					6-8	prediction	29	watermelon
Citrus paradisi				3.27		prediction	29	grapefruit
Citrus reticulata				4.91		prediction 'Cleopatra'	29	mandarin orange
Citrus sinensis				4.18		prediction 'Parson Brown'	29	sweet orange
Citrus limonia				4.18		prediction 'Villa Franca'	29	lemon
Citrus sp.	scion	(4- 8)					26	unshu orange
Citrus sp.	callus		(12-20)				26	
Citrus sp.	scion		(8)				26	
Clematis sp.	rooted cuttings		0.2- 0.5				1	clematis
Clematis sp.	rooted cuttings		(1 -1.5)				26	clematis
Coix lacryma-jobi var.Ma-yuen	seeds		30				4	

Coix sp.	seeds	(20)				26	
Coleus blumei(4n)		0.2-0.4kR/d			chronic, severe damage	7	coleus
Coleus (4n) sp.	0.05-0.1 kR/d				chronic	4	coleus
Colocasia esculenta		10				4	taro
Commelina coelestis	0.1-0.2kR/d				chronic, severe damage	7	dayflower
Conifer	rooted cuttings	2				1	
Convallaria majalis	bulbs(roots)		1.86		prediction	29	lily-of-the-valley
Coptis japonica	plant	30			chronic, then cultured	22	
Coptis japonica		(20-40)				26	
Coptis japonica	embryoid	(0.25-1.25)				26	
Corchorus capsularis		5 -20			#	2	jute
Corchorus capsularis	seeds				#	6	jute
Corchorus olitorius	seeds				#	6	jute mallow
Coreopsis tinctoria Nutt.	seeds		14	3		1	plain coreopsis
Cornus florida		0.05-0.1kR/d			chronic, severe damage	7	dogwood
Cosmos bipinnatus Cav.	seeds		70<	70<	'Sensation'	1	cosmos
Cosmos sulphureus Cav.	seeds		22	15	'Dwarf Yellow'	1	yellow cosmos
Cosmos sulphureus Cav.	seeds		13	12	'Sunset'	1	yellow cosmos
Cosmos sp.	rooted cuttings	2				1	cosmos
Cosmos sp.	0.1-0.2kR/d				chronic, severe damage	7	cosmos
Cosmos sp.		<0.05 kR/d			chronic	4	cosmos
Crepis capillaris		1			slight growth inhibit.	5	
Criptomeria japonica		<0.05 kR/d			chronic	4	Japanese ceder
Cryptomeria japonica			1.22		prediction 'Araucarioides'	29	cryptomeria
Crocus sp.	dormant corms	1 -1.5		directly after	harvest	1	crocus
Crocus spp.	bulbs		0.98		prediction	29	crocus
Cucumis melo		15 -20			#	2	cantaloupe
Cucumis melo	seeds		50		#	6	cantaloupe
Cucumis melo var.*cantalupensis*				8-12	prediction	29	cantaloupe
Cucumis melo				6-8	prediction	29	muskmelon
Cucumis melo		0.2-0.3kR/d			chronic	4	
Cucumis melo	seeds	40				4	
Cucumis sativus		20 -40			#	2	cucumber
Cucumis sativus		0.2-0.3 kR/d			chronic	4	cucumber
Cucumis sativus	seeds 40					4	cucumber
Cucumis sativus	pollen in anther	2 - 4			mutagenesis	23	cucumber
Cucumis sativus	seeds	(40)				26	cucumber
Cucumis sativus	young plants	(1-8)				26	cucumber
Cucumis sativus				2-4	prediction	29	cucumber
Cucurbita sp.		20 -25			#	2	squash
Cucurbita pepo	seeds			7.3	'Royal Acorn'	27	squash
Cucurbita pepo	seedling		6.65		'Royal Acorn'	29	squash
Cucurbita pepo				6-8	prediction	29	acorn squash
Cucurbita pepo var.*medullosa*				20-24	prediction	29	zucchini squash
Cucurbita maxima				20-24	prediction	29	winter squash
Cucurbita moschata				16-20	prediction	29	butternut squash
Cucurbita sp.	seeds	40				4	pumpkin
Cucurbita (pumpkin)(4n)	0.8-1.6 kR/d				chronic, severe damage	7	pumpkin
Cucurbita sp.		0.3-0.4 kR/d			chronic	4	pumpkin
Cucurbita sp.	seeds (30-50)					26	
Cupressus duclouxiana			1.58		prediction	29	bhutan cypress
Cyanotis somaliensis				8.35		27,29	
Cymbidium sp.	cultured tissue	(6)				26	Cymbidium
Cymbidium sp.	back bulb	(2.5-5)				26	Cymbidium
Cynara scolymus L.	seeds		70	62	'Green globe'	1	globe artichoke
Cynara scolymus	seeds	50-70				4	globe artichoke
Cynara scolymus				8-12	prediction	29	globe artichoke
Cynodon dactylon		0.2-0.3 kR/d			chronic	4	Bermuda grass
Cynodon dactylon		(3 - 7)				26	Bermuda grass
Cyclamen persicum	seeds	9 -10				1	cyclamen
Cyclamen persicum	seeds	(15)				26	cyclamen
Cyclamen sp.	seeds (0.5-1)					26	cyclamen
Dactylis glomerata				4-6	prediction	29	orchard grass
Dactylis sp.	seeds	10				4	orchard grass
Dactylis sp.	seeds		11			29	orchard grass
Dahlia sp.	tubers	1.5 -2.5			freshly harvested	1	dahlia
D.x cultorum Thorsr.et Reis.			19	15	'Red skin'	1	dahlia
Dahlia (8n)		0.05-0.1			chronic	4	dahlia
Dahlia (hybrid)(8n)		0.2-0.4kR/d			chronic, severe damage	7	dahlia
Datura fastuosa L.	seeds		13	10	'Golden Queen'	1	

Datura quercifolium	callus	(10 -70)				26	
Datura stramonium		0.2-0.4kR/d			chronic, severe damage	7	
Datura striata	callus	(5 -30)				26	
Daucus carota		0.15-0.2 kR/d			chronic	4	carrot
Daucus carota	seeds	50-70				4	carrot
Daucus carota				8-12	prediction	29	carrot
Delphinium ajacis L.	seeds		19	15	'Early Rocket Pink'	1	larkspur
Dianthus caryophyllus		7.5		#		2	carnation
Dianthus sp.	cutting	(12)				26	carnation
Dianthus sp.	cutting (4 - 8)					26	carnation
Dianthus sp.	rooted cuttings	4 - 6				1	
Dianthus sp.	unrooted cuttings	8 -12			base shielded	1	
Dianthus sp.	rooted cuttings	30			'Angel'	1	
Dianthus barbatus L.	seeds		33	24	'Kanzaki-shiranui'	1	sweet william
D. barbatus x *D.sinensis*	seeds		90	48	'Fire Storm'	1	
Dianthus sp.	seeds	40				4	
Digitaria sanguinalis	1.6-6.0kR/d				chronic, severe damage	7	
Dimorphotheca sinuata D.C.	seeds		70<	66	'Tetra -orange'	1	Cape marigold
Dimorphotheca sinuata D.C.	seeds		40	20	'Polar star'	1	Cape marigold
Dimorphotheca sp.	seeds	50-70				4	
Dioscorea batatas Decue.	bulbil(ﾑｶｺﾞ)	2 -5				24	Chinese yam
Dioscorea batatas	bulbil(ﾑｶｺﾞ)	2 -5				26	Chinese yam
Diospyros sp.		<0.05 kR/d			chronic	4	persimon
Diospyros sp.	scion	2 -4				26	persimon
Diospyros sp.	scion	2.5				26	persimon
Diospyros sp.	scion	4 -8				26	persimon
Dolichos lablab	seeds		50		#	6	hyacinth bean
Echinacea purpurea Moench.	seeds		7	6		1	purple cornflower
Echinacea purpurea	seeds	<10				4	purple cornflower
Echinochloa utilis	seeds 50 -70					4	
Echinochloa utilis	seeds	(30)				26	
Echinochloa utilis	seeds	(20 -40)				26	
Echinops ritro L.	seeds		23	9		1	small globe thistle
Echinops sp.	seeds 10					4	small globe thistle
Eleusine coracana	seeds		30		#	6	finger millet
Eriobotrya japonica	scion (5 -10)					26	
Eriobotrya japonica	young plants	(4 - 6)				26	
Eriobotrya japonica	young plants	(4 - 6)			'Yellow nuget'	26	loquat
Eucalyptus obliqua			3.00		prediction	29	eucalyptus
Euphorbia sp.	rooted cuttings	3 - 5				1	euphorbia
Eustoma grandiflorum	young plants	(2.5- 5)				26	lisianthus
Eustoma grandiflorum	seeds		(2.5- 5)		fine seeds	26	lisianthus
Eustoma grandiflorum	seeds	(12)			fine seeds	26	lisianthus
Exacum sp.	cultured plant	(0.4)				26	
Fagopyrum sp.		5 -10			#	2	buckwheat
Fagopyrum esculentum	seeds	40				4	buckwheat
Fagopyrum esculentum	seeds (15 -25)					26	buckwheat
Fagopyrum sagittatum				6-8	prediction	29	buckwheat
Fagus grandifolia			6.41		prediction	29	american beech
Festuca arundinacea		0.1-0.15kR/d		chronic		4	tall fescue
Festuca elatior	seeds		19			29	fescue
Festuca elatior	3wk seedling			3.71		29	meadow fescue
Festuca elatior	7wk seedling		2.48			29	meadow fescue
Festuca elatior	3-7wk seedling			3.57		29	meadow fescue
Festuca elatior				2-4	prediction	29	meadow fescue
Festuca ovina				4-6	prediction	29	sheep fescue
Festuca rubra	seeds 10					4	red fescue
Festuca sp.	seeds	<10				4	
Ficus carica			6.21		prediction 'Celeste'	29	common fig
Fragaria sp.		6 -10		#		2	strawberry
Fragaria sp.	callus (4 - 8)					26	strawberry
Fragaria var.'Takane'	stolon		6.53		YD-50 fruit wgt	29	strawberry
Fragaria sp.				12-16		29	strawberry
Fraxinus americana		3.5			slight growth inhib.	5	white ash
Fraxinus americana			7.74			29	white ash
Fraxinus americana			7.11		prediction	29	white ash
Fritillaria meleagris	bulbs	0.65			prediction	29	fritillary,checkered
Forsythia x *intermedia*	rooted cuttings	4 - 8				1	forsythia
Gaillardia pulchella Foug.	seeds		70<	70<		1	rosering gaillardia
Gaillardia pulchella	seeds	50-70				4	rosering gaillardia

Gazania x *splendens* hort.					60	46	'Sunshine Hybrida'	1	pied gazania
Gazania	sp.	seeds		40					gazania
Gentiana	sp.	seeds		(2.5-12)				26	Gentiana
Gerbera	sp.	plants	1.5					1	gerbera
Gerbera jamesonii Bolus.					20	13	'Super Giant Yellow Shade'	1	gerbera
Gerbera	sp.	seeds		10				4	gerbera
Gladiolus	sp.	dormant corms		4			diploid	1	gladiolus
Gladiolus	sp.			7 -20			#	2	gladiolus
Gladiolus H.V. Friendship				5.0			polyploid,slight grw inhib.	5	gladiolus
Gladiolus H.V. Friendship					32.1			27	ｸﾞﾗｼﾞｵﾗｽ	gladiolus
Gladiolus (hybrid)(6n)			1.6-6.0kR/d				chronic, severe damage	7	gladiolus
Gladiolus	sp.		0.4< kR/d				chronic	4	gladiolus
Gladiolus (av.of 4 var.)					12.66		prediction	29	gladiolus
Glycine max			10 -20				#	2	soy bean
Glycine max			10				'ﾅｯﾄｳｺﾂﾌﾞ','ﾈﾏｼﾗｽﾞ'	4	soy bean
Glycine max (rs-1)				<0.05 kR/d			chronic	4	soy bean
Glycine max (rs-1)		seeds	<10					4	soy bean
Glycine max (Rs-1)				0.05-0.1 kR/d			chronic	4	soy bean
Glycine max (Rs-1)		seeds		20				4	soy bean
Glycine max		seeds		10 -20			depends on rs or Rs	14	soy bean
Glycine max		seeds	(10 -20)					26	soy bean
Glycine max		seeds		(10)				26	soy bean
Glycine max		seeds		(20)				26	ﾀﾞｲｽﾞ	soy bean
Glycine max		seeds			11			29	soy bean
Glycine max 'Hill'		early blooming				0.96	YD-50 bean wgt	29	soy bean
Glycine max						8-12	prediction	29	soy bean
Gomphocarpus fructicosus R. Br.		seeds			70<	32		1	
Gomphocarpus	sp.	seeds		30				4	
Gomphrena globosa L.		seeds			25	19	'Dairin-sekishoku'	1	globe amaranth
Gomphrena globosa L.		seeds			14	11	'Orange Haageana'	1	globe amaranth
Gossypium araboreum L.		seeds			26	22	'Kiribana -kooseimen'	1	cotton
Gossypium hirsutum (4n)				0.2-0.4kR/d			chronic, severe damage	7	cotton
Gossypium hirsutum						6-8	prediction	29	cotton
Gossypium	sp.		15 -40				#	2	cotton
Gossypium	sp.		0.05-0.1 kR/d				chronic	4	cotton
Gossypium	sp.	seeds		10				4	cotton
Graptopetalum bartramii (2n)			1.6-6.0kR/d				chronic, severe damage	7	
Graptopetalum MacDougallii(22n)			1.6-6.0kR/d				chronic, severe damage	7	
Guzmania	sp.	seeds		3.3				1	guzmania
Gypsophila elegans M.B.		seeds			56	40	'Coventgarden Market'	1	common gypsophila
Gypsophila elegans		seeds	30					4	common gypsophila
Haemanthus katherinae Baker					0.96			27	
Haworthia fasciata						1.65		27,29	
Hedera helix		plants		4				1	common ivy
Helianthus annuus L.		seeds			46	34	'Taiyoo'	1	common sunflower
Helianthus annuus			0.1-0.15 kR/d				chronic	4	common sunflower
Helianthus annuus L.			0.4-0.8kR/d				chronic, severe damage	7	common sunflower
Helianthus annuus L.		seeds		(20 -24)				26	common sunflower
Helianthus annuus L.						4-6	prediction	29	common sunflower
Helianthus debilis Nutt.		seeds		13	11			1	
Helichrysum bracteatum Willd.		seeds			30	24	'Hot Bikini'	1	strawflower
Helichrysum bracteatum		seeds		20				4	strawflower
Helipterum manglessii F.V.Muell.		seeds			70	66	'Shell Rose'	1	Mangles sunray
Helipterum roseum Benth.		seeds			70<	70	'Brilliant'	1	Mangles sunray
Helipterum roseum		seeds	50-70					4	
Helipterum	sp.	seeds		50-70				4	Mangles sunray
Hibiscus cannabinus L.					6.43			27	
Hibiscus esculantus		seeds					# (see Abelmoschus)	6	okra
Hibiscus esculantus							prediction(see Abelmoschus)	29	okra
Hibiscus trionum L.					22	--		1	flower of an hour
Hibiscus	sp.	rooted cuttings		5			75 R/min	1	hibiscus
Hibiscus	sp.		10 -20		30-50 R/h			1	hibiscus
Hibiscus	sp.			0.5			'Hiroshima'	1	hibiscus
Hibiscus	sp.			0.4< kR/d			chronic	4	hibiscus
Hibiscus	sp.	seeds		(12.5-16.5)				26	hibiscus
Hordeum bulbosum		seeds	(20)					26	
Hordeum vulgare				5 -15		#		2	barley
Hordeum vulgare			15 -20		two rowed var.			4	barley
Hordeum vulgare				40			'Akashinnriki`	4	barley
Hordeum vulgare			<0.05 kR/d		chronic			4	barley

Hordeum vulgare	seeds		10				4	barley
Hordeum vulgare	seeds	20					4	2-rowed barley
Hordeum vulgare	seeds		(10 -20)				26	2-rowed barley
Hordeum vulgare	seeds		30				4	6-rowed barley
Hordeum vulgare	seeds				1.80		29	barley
Hordeum vulgare	seeds			13 -20			29	barley
Hordeum vulgare	callus	(18)					26	barley
Hordeum vulgare	2-4 leaf			0.47		'Maris Badger'	29	spring barley
Hordeum vulgare	ear emergence			0.62		'Maris Badger'	29	spring barley
Hordeum vulgare	seedling			1.99		'Mari',FDSexp	29	spring barley
Hordeum vulgare	seedling			1.37		'Mari',FDSexp	29	spring barley
Hordeum vulgare	seedling		1.91			'Mari'	29	spring barley
Hordeum vulgare					1-2	prediction	29	spring barley
Humulus lupulus	cutting		(1 - 4)				26	hops
Humulus lupulus					4-6		29	hops
Hyacinthus orientalis			0.20			slight growth inhib.	5	hyacinth
Hyacinthus sp.	bulbs		0.2- 0.5			before wounding basis	1	hyacinth
Hyacinthus sp.	bulbs			1.06		av.of 3 var.	29	hyacinth
Ilex (4n)			0.1-0.2kR/d			chronic, severe damage	7	(holly)
Impatiens balsamina L.	seeds			17	15	'Dwarf Bush Parade'	1	garden balsam
Impatiens sultanii			0.05-0.1kR/d			chronic, severe damage	7	
Ipomoea batatas			0.2-0.3 kR/d			chronic	4	sweet potato
Ipomoea batatas	tuber		20				4	sweet potato
Ipomoea batatas	seeds		40				4	sweet potato
Ipomoea batatas LAM			10 -20				13	sweet potato
Ipomoea batatas	tuber		(2.4-10)				26	sweet potato
Ipomoea batatas					12-16	prediction	29	sweet potato
Ipomoea noctiflora			0.4-0.8kR/d			chronic, severe damage	7	
Ipomoea tricolor Cav.				14	11	'Heavenly Blue'	1	
Iris sp.	freshly harvested corms	1					1	
Iris sp.	bulbs		10 -35			#	2	Iris
Iris sp.			0.2-0.3 kR/d			chronic	4	Iris
Iris (hybrid)(4n)			0.8-1.6kR/d			chronic, severe damage	7	
Juglans nigra					3.83	prediction	29	eastern black walnut
Juglans regia				4.80		prediction	29	persian walnut
Juncus effusus	rootted plants		(20 -50)				26	mut rush
Juniperus communis				1.49		prediction	29	common juniper
Juniperus virginiana				1.35		prediction	29	eastern red cedar
Kalanchoe blossfeldiana			0.8-1.6kR/d			chronic, severe damage	7	
Kalanchoe daigremontiana			0.4-0.8kR/d			chronic, severe damage	7	
Kalanchoe daigremontiana				47.5			27	
Kalanchoe tubifolia		1.6-6.0kR/d				chronic, severe damage	7	
Kalanchoe x *hybrida* Hort.				42.2			27	
Kalanchoe sp.	detached leaves		1.5- 2				1	
Kalmia latifolia			0.2-0.4kR/d			chronic, severe damage	7	mountain laurel
Kniphofia uvaria		bulbs			0.84	prediction	29	torch lily
Laburnum sp.	plants	2 - 3					1	golden chain
Lactuca sativa			20 -40			#	2	lettuce
Lactuca sativa		0.1-0.15 kR/d				chronic	4	lettuce
Lactuca sativa			0.1-0.15 kR/d			chronic	4	lettuce
Lactuca sativa	seeds		40				4	lettuce
Lactuca sativa		0.4-0.8kR/d				chronic, severe damage	7	lettuce
Lactuca sativa	seeds	(20)					26	lettuce
Lactuca sativa	seeds	(10 -30)					26	lettuce
Lactuca sativa				6.91	7.30	'Summer Bibb'	27	lettuce
Lactuca sativa	seedling		4.79	4.51		'Summer Bibb',FDS exp	29	lettuce
Lactuca sativa	seedling		5.03	4.07		'Summer Bibb',8hr CR	29	lettuce
Lactuca sativa					4-6	prediction	29	lettuce
Lagenaria leucantha	seeds		21	16			1	
Lagerstroemia indica L.	seeds			26	16	'Issai-kei'	1	Indian lilac
Larix decidua				0.77		prediction	29	european larch
Larix laricina				0.69		prediction	29	eastern larch
Larix leptolepis				0.85		prediction	29	japanese larch
Larix leptolepis			0.70			slight growth inhib.	5	
Larix occidentalis				0.85		prediction	29	western larch
Larix 2 spp.				0.7-0.83			29	
Lenophyllum pusillum			0.8-1.6kR/d			chronic severe damage	7	
Lenophyllum texanum			1.6-6.0kR/d			chronic, severe damage	7	
Lens culinaris					1-2	prediction	29	lentil
Leonotis leonurus R.Br.	seeds			17	11		1	lion's tail

Leonotis nepetaefolia R.Br.	seeds			11	8		1	
Lespedeza cuneatum	seeds		37-46			795-840 R/min	29	Sericea
Lespedeza stipulacea	seeds			>40		795 R/min	29	Korean lespedeza
Liatris scariosa Willd.	seeds		17	13		'Scariosa Alba'	1	
Liatris scariosa	seeds		10				4	gay feather
Lilium formosanum	bulbs		0.89			prediction	29	Formosa lily
Lilium longiflorum			0.15			slight growth inhib.	5	Easter lily
Lilium longiflorum			0.03-0.05kR/d			chronic, severe damage	5	Easter lily
Lilium longiflorum	bulbs			1.14		prediction	29	Easter lily
Lilium regale	bulbs			0.91		prediction	29	regal lily
Lilium superbum L.				1.17			27	
Lilium sp.	bulb-scales		0.25				1	lily
Lilium sp.			15 -20			#	2	lily
Lilium sp.			<0.05 kR/d			chronic	4	lily
Limonium dumosum	seeds			7	6		1	
Limonium sinuatum Mill.	seeds		12	4		'American Beauty'	1	sea lavender
Limonium sinuatum	seeds	<10					4	
Limonium sinuatum	cultured tissue		(0.4)				26	statice
Linum usitatissimum			15 -30			#	2	flax
Linum usitatissimum			0.3-0.4 kR/d			chronic	4	flax
Linum usitatissimum	seeds		50-70				4	flax
Linum usitatissimum			0.8-1.6kR/d			chronic, severe damage	7	flax
Linum usitatissimum					12-16	prediction	29	flax
Liriodendron tulipifera		0.2-0.4kR/d				chronic, severe damage	7	tulip tree
Lolium multiflorum			0.05-0.1 kR/d			chronic	4	Italian rye grass
Lolium multiflorum			30				18	Italian rye grass
Lolium multiflorum (2x)	seeds	30					4	Italian rye grass
Lolium multiflorum		seeds		50-70			4	Italian rye grass
Lolium perenne			0.05-0.1 kR/d			chronic	4	perennial rye grass
Lolium perenne	seeds		20				4	perennial rye grass
Lolium perenne		3wk seedling			1.59		29	perennial rye grass
Lolium perenne		7wk seedling			1.93		29	perennial rye grass
Lolium perenne	3-7wk seedling				1.92		29	perennial rye grass
Lolium perenne					2-4	prediction	29	perennial rye grass
Lupinus albus	seeds	20					4	white lupine
Lupinus angustifolius	seeds			> 40		750 R/min	29	blue lupine
Lupinus hirsutus			15 -30			#	2	blue lupine
Lupinus luteus L.	seeds			60	44	'Kibana-ruupin'	1	yellow lupine
Lupinus luteus			15 -25			#	2	yellow lupine
Lupinus luteus	seeds		40				4	yellow lupine
Lupinus sp.	seeds		20				4	lupine
Luzura acuminata (8n)			1.6-6.0kR/d			chronic, severe damage	7	
Luzula multiflora (4n)			1.6-6.0kR/d			chronic, severe damage	7	
Luzura pallescens (4n)		1.6-6.0kR/d				chronic, severe damage	7	
Luzura purpurea			0.2-0.4kR/d			chronic, severe damage	7	
Lycopersicon esculentum			10 -40			#	2	tomato
Lycopersicon esculentum			30			'Sioux','Meeruti'	3	tomato
Lycopersicon esculentum			0.05-0.1 kR/d			chronic	4	tomato
Lycopersicon esculentum		30					4	tomato
Lycopersicon esculentum	seeds					#	6	tomato
Lycopersicon esculentum			0.4-0.8kR/d			chronic, severe damage	7	tomato
Lycopersicon esculentum			10 (1-2kR/d)			male sterile mutation	9	tomato
Lycopersicon esculentum	seeds	20 -30			mutation	9	tomato	
Lycopersicon esculentum	seeds		(40)				26	tomato
Lycopersicon esculentum	seeds			13-37			29	tomato
Lycopersicon sp.	seeds		20 -30				26	mini-tomato
Lycopersicon sp.	seedling			13.30	17.60	'Rutgers' 16 hr CR	29	tomato
Magnolia sp.			0.1-0.2kR/d			chronic, severe damage	7	magnolia
Malus sp.	just grafted plants		2 - 3				1	
Malus	scions		3 - 3.5				1	
Malus pumila	plant		11.5-23			chronic	8	apple
Malus pumila	plant		10 -28.2			100R/d	15	apple
Malus sp.			0.05-0.01 kR/d			chronic	4	apple
Malus sp.	callus		(5 -10)				26	apple
Malus sp.	scion		(2.5)			'ﾌｼﾞ"ｲﾝﾄﾞ"ｵｰﾘﾝ"ｶﾞﾗ'	26	apple
Malus sp.	scion	(2 - 8)				'ﾓﾘ42ｺﾞｳ'	26	apple
Malus sp.	cultured tissue		(9.6-16)			'ﾏﾙﾊﾞ'	26	apple
Manihot dulcis				3.50		prediction 'Valenca'	29	cassava
Manihot esculenta			30				4	cassava
Mathiola incana R.Br.	seeds			50	34	'Miracle Gold'	1	stock

Mathiola incana R.Br.	seeds			50	22	'Christmas White'	1	stock
Mathiola incana R.Br.	seeds			45	39	'Pacific Yellow'	1	stock
Mathiola incana R.Br.	seeds			45	18	'Kan-shio'	1	stock
Mathiola incana R.Br.	seeds			40	22	'Ball White No.16'	1	stock
Mathiola incana R.Br.	seeds			40	18	'Christmas Red'	1	stock
Mathiola incana R.Br.	seeds			38	24	'Aki-no-murasaki'	1	stock
Mathiola incana R.Br.	seeds			38	24	'Aki-no-beni'	1	stock
Mathiola incana R.Br.	seeds			35	22	'Awa-kogane'	1	stock
Mathiola incana R.Br.	seeds			35	18	'Tsuki-no-yosooi'	1	stock
Mathiola incana R.Br.	seeds			30	24	'Yellow Goddes'	1	stock
Mathiola incana R.Br.	seeds			30	18	'Christmas Blue'	1	stock
Mathiola incana R.Br.	seeds			25	18	'Kairyo-benihikari'	1	stock
Mathiola incana R.Br.	seeds			25	18	'Wase-seien'	1	stock
Mathiola incana R.Br.	seeds			25	16	'Christmas Rose'	1	stock
Mathiola incana R.Br.	seeds		36.7 ^8.6	22.3 ^ 6.4		(mean value)	1	stock
Mathiola incana	seeds		10-20				4	stock
Medicago orbiculatus	seeds			21			29	button clover
Medicago sativa			25 -50			#	2	alfalfa
Medicago sativa		0.05-0.1 kR/d				chronic	4	alfalfa
Medicago sativa	seeds		30				4	alfalfa
Medicago sativa	seeds			38-62			29	alfalfa
Medicago sativa					4-6	prediction	29	alfalfa
Medicago sativa					8-12	prediction	29	vernal alfalfa
Melilotus officinalis			0.2-0.4kR/d			chronic, severe damage	7	yellow sweetclover
Melilotus sp.	seeds			59			29	sweet clover
Mentha piperita	cuttings		4 - 6			#	2	peppermint
Mentha piperita					16-20	prediction	29	peppermint
Mentha spicata			12			polyploid,slight grw inhib.	5	spearmint
Mentha spicata					12-16	prediction	29	spearmint
Mimosa pudica L.	seeds			74	41		1	mimosa
Mirabilis jalapa			0.2-0.4kR/d			chronic, severe damage	7	four o'clock
Mollugo verticillata (8n)			0.8-1.6kR/d			chronic, severe damage	7	
Morus rubra			<0.05 kR/d			chronic	4	mulberry
Morus rubra			8.8R/d			chronic	11	mulberry
Morus rubra	plant		10				17	mulberry
Musa textilis			15 -20			#	2	abaca
Muscari armeriacum	detached leaves		1 - 1.5				1	muscari
Muscari av.of 2 spp.	bulbs			3.94		prediction	29	grape hyacinth
Narcissus pseudo-narcissus	bulbs			0.93		prediction	29	daffodil
Narcissus sp.	dormant bulbs		0.4- 1			freshly harvested	1	narcisus
Narcissus sp.		<0.05 kR/d				chronic	4	narcisus
Narcissus av.of 3 spp.	bulbs			1.50		prediction	29	narcisus
Nephelium lit-chi	seeds		(4 -8)				26	lit-chi
Nicotiana alata	seeds		<20				28	
Nicotiana bigelovii (4n)			0.2-0.4kR/d			chronic, severe damage	7	
Nicotiana Debneyi	seeds		20				28	
Nicotiana glauca			0.2-0.4kR/d			chronic, severe damage	7	
Nicotiana glauca	seeds		20				28	
N.glauca x *N.langsdorffii*(6n)			0.2-0.4kR/d			chronic, severe damage	7	
Nicotiana glutinosa	seeds		40				28	
Nicotiana Gossei	seeds		70				28	
Nicotiana langsdorffii			0.2-0.4kR/d			chronic, severe damage	7	
Nicotiana langsdorffii	seeds		20				28	
Nicotiana longiflora	seeds		<<20				28	
Nicotiana megalosiphon	seeds		40 -70				28	
Nicotiana paniculata	seeds		40				28	
Nicotiana rotundifolia	seeds		40				28	
Nicotiana rustica (4n)			0.2-0.4kR/d			chronic, severe damage	7	
Nicotiana rustica	seeds		40				28	
Nicotiana suaveolens	seeds		40 -70				28	
Nicotiana sylvestris	seeds		20				28	
Nicotiana tabacum			30 -40			#	2	tobacco
Nicotiana tabacum	seeds	30					4	tobacco
Nicotiana tabacum	seeds		40			'Bright Yellow'	28	tobacco
Nicotiana tabacum					6-8	prediction	29	tobacco
N.tabacum x *N.Debneyi*	seeds	20 -40				amphidiploid	28	
Nigella damascena L.				2.54		'Miss Jekyll'	27	nigella
Nigella damascena L.					2.20		27,29	nigella
Orchis sp.	seeds		(6 -20)				26	
Orchis graminifolia	bulbs	(1 - 5)					26	

Ornithogalum virens	bulbs			1.12		prediction	29	star-of-Bethlehem
Ornithogalum sp.	detached leaves		0.5- 1				1	ornithogalum
Orychophragmus violaceus	seeds			30	20		1	
Orychophragmus violaceus	seeds	20					4	
Oryza alata	seeds	20					28	rice (wild)
Oryza australiensis	seeds	< 20					28	rice (wild)
Oryza eichingeri	seeds	< 20					28	rice (wild)
Oryza latifolia	seeds	< 20					28	rice (wild)
Oryza minuta	seeds		< 20				28	rice (wild)
Oryza officinalis	seeds	<< 20					28	rice (wild)
Oryza sativa			20 -25			#	2	rice
Oryza sativa			20 -30			japonica var.	4	rice
Oryza sativa(sensitive)	seeds		20				4	rice
Oryza sativa	seeds		30				4	lowland rice
Oryza sativa	seeds		30				4	upland rice
Oryza sativa			0.2-0.3 kR/d			chronic	4	
Oryza sativa	seeds			40		#, GEB 24	6	rice
Oryza sativa	plant		150 -300R/day			mutation	16	rice
Oryza sativa	seeds		(20 -30)				26	rice
Oryza sativa f.*spontanea*	seeds	40 -50					28	rice
Oryza sativa	seeds			<15-42		0.65-1.26 kR/min	29	rice
Oryza sativa	panicle emergence				14.3	'CI-8970-S'	29	rice
Oryza sativa					12-16	prediction	29	rice
Paeonia sp.			<0.05 kR/d			chronic	4	peony
Panicum miliaceum	seeds		30				4	common millet
Paspalm dilatatum			10 -30			#	2	dallisgrass
Paspalm dilatatum	seeds		20				4	dallisgrass
Paspalm dilatatum	seeds		(15 -30)				26	dallisgrass
Paspalm dilatatum	seeds			>32		0.71 kR/min	29	dallisgrass
Paspalm dilatatum					12-16	prediction	29	dallisgrass
Pastinaca sativa					6-8	prediction	29	parsnip
Pelargonium sp.	plants		1 - 1.25				1	pelargonium
Pennisetum typhoides	seeds			30		#	6	
Pennisetum glaucum					4-6	prediction	29	pearl millet
Perilla sp.	seeds		(5 -10)			26	ジソ	
Persea americana				2.81		prediction	29	american avocado
Petroselinum crispum					8-12	prediction	29	parsley
Petunia hybrida			10 -15			#	2	petunia
Petunia hybrida			0.4-0.8			chronic, severe damage	7	petunia
Petunia sp.			0.1-0.15 kR/d			chronic	4	petunia
Petunia sp.	plants		(7 -15)				26	petunia
Petunia sp.	plants		(11 -15)				26	petunia
Petunia parodii	callus		(45)				26	petunia
Pharbitis nil Choisy	seeds			14	11	'Scarlet O'Hara'	1	morning glory
Pharbitis nil Choisy	seeds		(3.6)				26	morning glory
Phaseolus anglaris	seeds		10			'Monbetsu 26 go'	4	adzuki bean
Phaseolus anglaris	seeds	10					4	adzuki bean
Phaseolus anglaris	seeds		(10)				26	adzuki bean
Phaseolus aureus					8-12	prediction	29	mung bean
Phaseolus limensis		6 -12				#	2	lima bean
Phaseolus limensis					4.10	'Fordhook 242'	27	lima bean
Phaseolus limensis	seedling		6.21			'Fordhook 242',FDSexp.	29	lima bean
Phaseolus limensis	seedling			2.39		'Fordhook 242',FDSexp.	29	lima bean
Phaseolus limensis	flower bud			0.42		'Fordhook 242'16hr CR	29	lima bean
Phaseolus limensis	flower and pod				1.46	'Fordhook 242'16hr CR	29	lima bean
Phaseolus limensis	pod			6.34		'Fordhook 242'16hr CR	29	lima bean
Phaseolus limensis	seedling			4.19		'Fordhook 242'16hr CR	29	lima bean
Phaseolus limensis					2-4	prediction	29	lima bean
Phaseolus lunatus L.		7				'Tzanava-3'	3	haricot bean
Phaseolus mungo	seeds			>50		#	6	black gram
Phaseolus vulgaris			8 -16			#	2	common bean
Phaseolus vulgaris		0.3-10				'Granda','Finde'	3	common bean
Phaseolus vulgaris		0.8-1.6 kR/d				chronic, severe damage	7	common bean
Phaseolus vulgaris		0.05-0.1 kR/d				chronic	4	kidney bean
Phaseolus vulgaris	seeds		20				4	kidney bean
Phaseolus vulgaris	seeds		(3 -15)				26	kidney bean
Phaseolus vulgaris					4-6	prediction	29	kidney bean
Phleum pratense			0.1-0.15 kR/d			chronic	4	timothy
Phleum pratense			10				4	timothy
Phleum pratense					6-8	prediction	29	timothy

Phlox drumondii	seeds			40	16	'Dwarf Beauty Scarlet'	1	drummond phlox
Phlox drumondii	seeds	20					4	phlox
Physalis alkekengi L.	seeds			18	14	'Tanba-houzuki'	1	Chinese lantern plant
Phytolacca decandra (4n)		0.2-0.4kR/d				chronic, severe damage	7	
Picea abies				0.73		prediction	29	norway spruce
Picea engelmanni				0.73		prediction	29	engelmann spruce
Picea glauca			0.30			slight growth inhib.	5	white spruce
Picea glauca				0.77		prediction	29	white spruce
Picea mariana				0.84		prediction	29	black spruce
Picea pungens				0.76		prediction	29	colorado spruce
Picea rubens				0.57		prediction	29	red spruce
Picea 4 spp.				0.63-1.19			29	
Pieris japonica		0.4-0.8kR/d				chronic, severe damage	7	Japanese Andromeda
Pinus caribaea				0.77		prediction	29	slash pine
Pinus contorta				0.70		prediction	29	shore pine
Pinus densiflora			<0.05 kR/d			chronic	4	Japanese red pine
Pinus densiflora				0.60		prediction	29	Japanese red pine
Pinus griffithii				0.50		prediction	29	himalayan pine
Pinus lambertiana				0.41		prediction	29	sugar pine
Pinus nigra				0.61		prediction	29	austrian pine
Pinus ponderosa				0.58		prediction	29	ponderosa pine
Pinus resinosa				0.70		prediction	29	red pine
Pinus rigida				0.67		prediction	29	pitch pine
Pinus strobus		0.15				slight growth inhib.	5	eastern white pine
Pinus strobus				0.52		prediction	29	eastern white pine
Pinus sylvestris				0.62		prediction	29	scotch pine
Pinus taeda				0.63		prediction	29	loblolly pine
Pinus thumbergii	young plant		(0.25)			chronic	26	Japanese black pine
Pinus virginiana				0.69		prediction	29	virginia pine
Pinus 3 spp.				0.47-0.82			29	
Pisum sativum		15 -30				#	2	pea
Pisum sativum			0.75-10			'Sprinter','Kloster'	3	pea
Pisum sativum		50krad				'line 5/2'	3	pea
Pisum sativum			0.05-0.1 kR/d			chronic	4	pea
Pisum sativum	seeds	10					4	pea
Pisum sativum	seeds			>10		#	6	pea
Pisum sativum			0.2-0.4kR/d			chronic, severe damage	7	pea
Pisum sativum				3.40	1.45	'Alaska'	27,29	pea
Pisum sativum				3.75		'Alderman'	27	pea
Pisum sativum	seedling			2.24		'Alaska',FDS exp.	29	pea
Pisum sativum	seedling				1.11	'Alaska',FDS exp.plnt wt	29	pea
Pisum sativum	seedling			1.10		'Alaska',FDS exp.pea wgt	29	pea
Pisum sativum	vegetative				0.39	'Meteor'	29	pea
Pisum sativum	flowering			0.25		'Meteor'	29	pea
Pisum sativum					<1	prediction	29	pea
Pisum sativum var.*arvense*					2-4	prediction	29	field pea
Platycerium sp.	spores	50					1	platycerium
Platycodon grandiflorum A.Dc. seeds				23	15	'Samidare-kikyo-murasaki'	1	baloon flower
Platycodon grandiflorum				40	23	'Samidare-kikyo-shiro'	1	baloon flower
Poa pratensis	seeds		10				4	Kentucky blue grass
Podophyllum peltatum			0.25			slight growth inhib.	5	
Pogostemon cablin	cutting		(10)				26	patchouli
Pogostemon cablin	callus		(5 -20)				26	patchouli
Polyanthes tuberosa	bulbs		2				1	tuberosa
Poncirus trifoliata	callus		(1 -3)				26	trifoliate orange
Populus tremuloides				4.80		prediction	29	quaking aspen
Populus sp.		0.05-0.1 kR/d			chronic		4	poplar
Portulaca grandiflora Hook. Cuttings			1 - 4				1	portulaca
Portulaca grandiflora	Potted plants		10				1	portulaca
Portulaca grandiflora				36	19	'Jewel'	1	portulaca
Portulaca grandiflora				17	11	'Aka'	1	portulaca
Prunus amygdalus				3.11		prediction	29	almond
Prunus armeniaca	cuttings		4 - 6			#	2	apricot
Prunus armeniaca				3.00		prediction 'Blenheim'	29	apricot
Prunus avium				3.60		prediction	29	mazzard cherry
Prunus x *cerasus*				5.85		prediction	29	sour cherry
Prunus domestica				4.60		prediction	29	garden plum
Prunus percica			10 -20			#	2	peach
Prunus persica	cuttings		2 -6			#	2	peach
Prunus persica			<0.05 kR/d			chronic	4	peach

Prunus persica			0.2-0.4kR/d			chronic, severe damage	7	peach
Prunus persica	scions	(6)					26	peach
Prunus persica				4.60		prediction	29	peach
Prunus sp.	just grafted plants		2 - 3				1	
Prunus sp.	cuttings		6 -12			#	2	almond
Prunus sp.			8 -12			#	2	almond
Prunus sp.	Cuttings		2 - 4			#	2	cherry
Prunus sp.	scions		(2 - 6)				26	cherry
Pseudotsuga douglasii				0.99		prediction	29	douglas fir
Pseudotsuga sp.				0.46			29	
Psidium guajava	seeds			17			29	guava
Psidium sp.	plants		(2 - 8)				26	guava
Pteris sp.	spores		30				1	
Pyrus communis			6 -10			#	2	pear
Pyrus malus	cuttings		2 - 5			#	2	apple
Pyrus malus			0.1-0.2kR/d			chronic, severe damage	7	apple
Pyrus malus				4.60		prediction 'Northern Spy'	29	apple
Pyrus serotina	plant		4 -15R/d			chronic,'Nijisseiki'	21	Japanese pear
Pyrus serotina	scions		(6)			'Nijisseiki'	26	Japanese pear
Pyrus sp.			0.05-0.1 kR/d			chronic	4	pear
Quamoclit cardinalis hort.	seeds			70	46	'Cardinal Climber'	1	cardinal climber
Quercus borealis var.*maxima*				3.65			29	Eastern red oak
Quercus rubra			2.0			slight growth inhib.	5	
Raphanus sativus			20 -50			#	2	radish
Raphanus sativus		0.15-0.2 kR/d		chronic			4	radish
Raphanus sativus			40				4	radish
Raphanus sativus	seeds	(8 -15)					26	radish
Raphanus sativus				19.0	14.7	'Cherry Belle'	27	radish
Raphanus sativus	seedling			12.90	8.87	'Cherry Belle',FDS exp.	29	radish
Raphanus sativus (2x)	seeds		40				28	radish
Raphanus sativus (4x)	seeds		70				28	radish
Raphanus sativus					8-12	prediction	29	radish
Ranunculus sp.	tubers		10			LD-50	1	ranunculus
Rheum rhaponticum			15 -40			#	2	rhubarb
Rheum rhaponticum					4-6	prediction	29	rhubarb
Rhododendron sp.	rooted cuttings		1 - 6				1	rhododendron
Rhododendron (hybrid)			0.1-0.2kR/d			chronic, severe damage	7	rhododendron
Rhus succedanea	seeds		(16 -20)				26	
Rhus succedanea	seeds		(18 -22)				26	
Ricinus communis L.	seeds		36	28		'Mizuma'	1	castor bean
Ricinus communis L.	seeds					#	6	castor bean
Ricinus communis L.			0.4-0.8kR/d			chronic, severe damage	7	castor bean
Ricinus communis L.					8-12	prediction	29	castor bean
Rosa multiflora			15 -20			#	2	multiflora rose
Rosa sp.			15 -20			#	2	rose
Rosa sp.	dormant plants		4 -10				1	rose
Rosa sp.	cuttings		6 - 8			#	2	rose
Rosa sp.			0.1-0.15 kR/d			chronic	4	rose
Rosa (Hybrid Tea Rose)			0.4-0.8kR/d			chronic, severe damage	7	rose
Rosa sp.			10				10	rose
Rosa sp.	dormant twig		(30)				26	rose
Rosa sp.	fruits		(1.5)				26	rose
Rosa sp.	plants	(10 -15)					26	rose
Rudbeckia hirta L.	seeds			6	5		1	gloriosa daisy
Rudbeckia hirta L.	seeds			19	15	'Marmalade'	1	gloriosa daisy
Rumex aquaticus	(14x)				12.8		27,29	
Rumex confertus					9.60		29	
Rumex conglomeratus	(2x)				16.0		27,29	
Rumex crispus	(6x)			21.3	21.1		27,29	
Rumex hydrolapathum	(20x)				6.00		27,29	
Rumex maritimus	(4x)			16.3	12.0		27,29	
Rumex obtusifolius	(4x)			15.2	15.3		27,29	
Rumex orbiculatus	(16x)			7.80			27,29	
Rumex palustris	(6x)			16.4			27,29	
Rumex pseudonatronatus	(4x)		18.2	17.8			27,29	
Rumex pulcher	(2x)			15.2			27,29	
Rumex salicifolius	(2x)			14.1			27	
Rumex sanguineus	(4x)		14.0	12.4			27,29	
Rumex scutatus	(2x)		13.7				27	
Rumex stenophyllus	(6x)			11.3			27	

Rumex stenophyllus	(6x)				24.10		29	
Rumex thyrsiflorus	(2x)			5.08			27	
Saccharinum officinarum		4 -10				#	2	sugar cane
Saccharinum officinarum			0.15-0.2			chronic	4	sugar cane
Saccharinum officinarum					6-8	prediction	29	sugar cane
Saccharinum sp.	young plant		15-20			1 kR/h	25	sugar cane
Saintpaulia sp.	detached leaves		3 - 4				1	African violet
Saintpaulia sp.			0.1-0.15 kR/d			chronic	4	African violet
Saintpaulia sp.		0.4-0.8kR/d				chronic, severe damage	7	African violet
Salvia splendens Sello.	Seeds			17	15	'Vesuvius'	1	salvia
Sambucus canadensis			0.9			slight growth inhib.	5	elder
Sanguisorba officinalis L.	Seeds			15	13		1	great burnet
Saponaria officinalis L.	Seeds			120<	120<	'Vaccaria Rose'	1	rock soapwort
Saponaria	seeds	80<					4	
Scilla sp.	bulbs		0.5- 1				1	scilla
Scilla sp.	detached leaves		0.1- 0.5				1	scilla
Scilla hispanica	bulbs			1.08		prediction	29	Spanish bluebell
Scilla sibirica	bulbs		0.72			prediction	29	Siberian squill
Secale cereale			8 -15			#	2	rye
Secale cereale			<0.05 kR/d			chronic	4	rye
Secale cereale	seeds	10					4	rye
Secale cereale	seeds		(20)				26	rye
Secale cereale	seeds			8-16			29	rye
Secale cereale					1-2	prediction	29	rye
Sedum acre (12n)	0.8-1.6kR/d					chronic, severe damage	7	sedum
Sedum aizoon			0.4-0.8kR/d			chronic, severe damage	7	sedum
Sedum album	(16n)		0.8-1.6kR/d			chronic, severe damage	7	white stonecrop
Sedum alfredii			7.5		23.1	polyploid,slight grw inhib.	5	sedum
Sedum oryzifolium		7.5				polyploid,slight grw inhib.	5	sedum
Sedum rupifragum		15.0		23.0		polyploid,slight grw inhib.	5	sedum
Sedum rupifragum					21.0		29	sedum
Sedum ternatum			12.0			polyploid,slight grw inhib.	5	sedum
Sedum tricarpum			15.0			polyploid,slight grw inhib.	5	sedum
Sesamum indicum	seeds			40		#	6	oriental sesame
Sesamum indicum					8-12	prediction	29	oriental sesame
Setaria italica Beauv.	seeds			46	28	'Benikujaku'	1	Italian millet
Setaria italica			0.2-0.3 kR/d			chronic	4	Italian millet
Setalia italica	seeds		40				4	Italian millet
Setaria italica	seeds					#	6	Italian millet
Setaria italica	seeds		(20)				26	Italian millet(wx)
Setaria italica	seeds			14			29	Italian millet
Setcreasia sp.		0.05-0.1 kR/d				chronic, severe damage	7	
Silene pendula L.	seeds			47	30		1	drooping silene
Silene pendula	seeds	30					4	drooping silene
Solanum mammosum L.	seeds			15	10		1	
Solanum melongena		0.05-0.1 kR/d				chronic	4	eggplant
Solanum melongena	seeds	20					4	eggplant
Solanum melongena					8-12	prediction	29	eggplant
Solanum muricatum	rooted cutting		(4 - 8)				26	
Solanum pseudo-capsicum L.	seeds			25	16	'Big Boy'	1	Jerusalem cherry
Solanum pseudo-capsicum	seeds	10					4	Jerusalem cherry
Solanum tuberosum		0.15-0.2 kR/d				chronic	4	potato
Solanum tuberosum		10					4	potato
Solanum tuberosum		(4 - 8)					26	potato
Solanum tuberosum	shoot emergence				1.66	'Majestic'	29	potato
Solanum tuberosum	stolon formation				2.24	'Majestic'	29	potato
Solanum tuberosum	tuber initiation				9.33	'Majestic'	29	potato
Sorghum nervosum	seeds		25	19		'Tamasudare'	1	broom sorghum
Sorghum sudanense		0.1-0.15 kR/d				chronic	4	sudangrass
Sorghum sudanense	seeds		30				4	sudangrass
Sorghum vulgare			20 -40			#	2	sorghum
Sorghum vulgare		0.1-0.15 kR/d				chronic	4	sorghum
Sorghum vulgare	seeds	30					4	sorghum
Sorghum vulgare	seeds	(10 -20)					26	sorghum
Sorghum vulgare	seeds		> 40			1.26 kR/min	29	sorghum
Sorghum vulgare					4-6	prediction	29	sorghum
Spinacia oleracea		0.1-0.15				chronic	4	spinach
Spinacia oleracea	seeds	10					4	spinach
Spinacia oleracea	seeds		(10 -20)				26	spinach
Spinacia oleracea	seedling			11.80		'Old Dominion'FDS exp.	29	spinach

Spinacia oleracea				2-4		prediction	29	roundseed spinach
Spiraea cantoniensis	seeds	(15 -20)					26	spiraea
Stachyurus sp.			0.4-0.8kR/d			chronic, severe damage	7	
Streptocarpus sp.	detached leaves		3				1	streptocarpus
Swertia japonica	seeds	(10 -40)					26	
Syringa sp.	plants	3					1	
Tagetes erecta L.	seeds		76	36		'Yellow Supreme'	1	African marigold
Tagetes patula L.	seeds			72	48	'Gold Finch'	1	French marigold
Taxus media			0.03-0.05kR/d			chronic, severe damage	7	
Taxus 2 spp.				0.475-1.20			29	
Thea sp.		<0.05 kR/d				chronic	4	tea plant
Thea sp.	seeds		<10				4	tea plant
Thea sp.	scions		(1 -4)				26	tea plant
Thuja occidentalis		0.6				slight growth inhib.	5	northern white ceder
Thuja sp.				0.97			29	
Tigridia pavonia	bulbs			3.32		prediction	29	Tigerflower
Tradescantia ohiensis			0.03-0.05kR/d			chronic, severe damage	7	
Tradescantia paludosa			<0.05 kR/d			chronic	4	
Tradescantia paludosa		0.03-0.05kR/d				chronic, severe damage	7	
Tradescantia paludosa				1.44		clone B2-2	27	
Tradescantia sp.				1.57		clone 02	27	
Tradescantia navicularis Ortg.				4.25			27	
Trifolium incarnatum			0.05-0.1 kR/d			chronic	4	crimson clover
Trifolium incarnatum				25- >65			29	crimson clover
Trifolium pratense	seeds		50-70				4	red clover
Trifolium pratense	seeds			35- >108			29	red clover
Trifolium pratense				8-12		prediction	29	red clover
Trifolium repens	seeds	40					4	white clover
Trifolium repens				24.3	12.3	'White Dutch'	27	white clover
Trifolium repens					12.3		29	white clover
Trifolium repens	3wk seedling				11.4		29	white clover
Trifolium repens	7wk seedling				23.4		29	white clover
Trifolium repens	3-7wk seedling			14.0			29	white clover
Trifolium repens	seedling			24.2		'White Dutch'	29	white clover
Trifolium resupinatum			25 -35			#	2	perusian clover
Trifolium squarrosum			25 -35			#	2	clover
Trifolium subterraneum		25 -35		#			2	subternean clover
Trifolium sp.	seeds	50-70					4	
Trillium grandiflorum			0.2			slight growth inhib.	5	trillium
Triticale sp.	seeds		20				4	triticale
Triticale sp.	seeds		(20 -30)				26	triticale
Triticale sp.	seeds		(5 -15)				26	triticale
Triticum aegilopoides(AA)	seeds		10			boeoticum	28	
Triticum aestivum			25 -30				4	bread wheat
Triticum aestivum			<0.05 kR/d			chronic	4	wheat
Triticum aestivum	seeds		20				4	wheat
Triticum aestivum	seeds	(15 -20)					26	wheat
Triticum aestivum				3.11			29	spring wheat
Triticum aestivum					2-4	prediction	29	wheat
Triticum aestivum	2-4 leaf				1.41	'Kloka'	29	spring wheat
Triticum aestivum	ear emergence				0.9	'Kloka'	29	spring wheat
Triticum aestivum	anthesis			1.78		'Kloka'	29	spring wheat
Triticum aestivum	seedling		3.09			'Indus', FDSexp	29	spring wheat
Triticum aestivum	seedling			3.45		'Indus'	29	spring wheat
Triticum aestivum	seedling				2.06	'Indus',	29	spring wheat
Triticum aestivum	ear emergence			0.86		'Capelle'	29	winter wheat
Triticum aestivum	anthesis				1.56	'Capelle'	29	winter wheat
Triticum (vulgare)(AABBDD)	seeds		20			erythrospermum	28	wheat
Triticum vulgare	seeds		14-25				29	wheat
Triticum dicoccoides(AABB)	seeds		10			Kotschyanum	28	
Triticum durum						#	6	durum wheat
Triticum durum (AABB)	seeds	10 (-20)				Reichenbachii	28	durum wheat
Triticum monococcum (AA)	seeds		10 (-20)			flavescens	28	
Triticum Spelta (AABBDD)	seeds	10 (-20)				Duhamelianum	28	
Triticum sp.		15 -20				#	2	wheat
Tritonia crocata	bulbs			6.84		prediction	29	tritonia(montbretia)
Tropaeolum majus L.	seeds			40	30	'Scarlet Globe'	1	nasturtium
Tropaeolum majus L.	seeds			36	17	'Golden Globe'	1	nasturtium
Tropaeolum majus L.				11.5			27	nasturtium
Tsuga sp.				0.696			29	

Tulipa	sp.	dormant bulbs		0.3- 0.5			freshly harvested	1	tulip
Tulipa	sp.			<0.05 kR/d			chronic	4	tulip
Tulipa	sp.	bulbs		(2 - 8)				26	tulip
Tulipa	sp.	bulbs			0.99		prediction	29	tulip(Darwin)
Tulipa fosteriana		bulbs			1.07		prediction	29	tulip 'red emperor'
Tulipa kaufmanniana		bulbs	2 - 8				prediction	29	waterlily tulip
Vaccinium	sp.	cuttings		6 - 8			#	2	blue berry
Vaccinium	sp.	cuttings		(2 - 8)				26	blue berry
Vicia angustifolia				0.2-0.4kR/d			chronic, severe damage	7	
Vicia faba				<0.05 kR/d			chronic	4	broad bean
Vicia faba		seeds		<10				4	broad bean
Vicia faba				0.05-0.1kR/d			chronic, severe damage	7	broad bean
Vicia faba					0.98	1.40	'Sutton's Prolific Longpod'	27	broad bean
Vicia faba		vegetative				0.22	'Sutton'	29	broad bean
Vicia faba		flowering			0.11		'Sutton'	29	broad bean
Vicia faba						< 1	prediction	29	broad bean
Vicia sativa subsp.*sativa*		seeds		10				4	vetch
Vicia tenuifolia		(4n)	0.2-0.4kR/d				chronic, severe damage	7	
Vicia villosa		seeds		10-20				4	hairy vetch
Vicia villosa		seeds			17			29	hairy vetch
Vigna sinensis		seeds		20				4	cow pea
Vigna sinensis		seeds					#	6	cow pea
Vigna sinensis		seeds			11		1.26 kR/min	29	cow pea
Vigna sinensis						6-8	prediction	29	cow pea
Viola cornuta L.		seeds			70<	56	'Blue Perfection'	1	horned viola
Viola	sp.	seeds		50-70				4	
Viscaria viscosa Aschers.		seeds			30	20		1	German catchfly
Viscaria	sp.	seeds	20					4	
Vitis vinifera		cuttings	2 - 6				#	2	grape
Vitis vinifera				<0.05 kR/d			chronic	4	grape
Vitis vinifera		scions		(2 -10)				26	grape
Vitis	spp.	seeds			<4 - <5			29	grape
Xanthium	sp.(4n)		0.4-0.8kR/d				chronic, severe damage	7	
Zea mays			15 -20				#	2	corn(maize)
Zea mays				0.1-0.15 kR/d			chronic	4	corn(maize)
Zea mays		seeds	30					4	corn(maize)
Zea mays		seeds					#	6	corn(maize)
Zea mays H.V.Golden Bantam				0.75			slight growth inhib.	5	corn(maize)
Zea mays					5.23	4.00	'Golden Bantum'	27	corn(maize)
Zea mays		seeds		(10 -30)				26	corn(maize)
Zea mays					4.00			29	corn(maize)
Zea mays (hybrid)						4.20		29	corn(maize)
Zea mays		seeds			> 15			29	corn(maize)
Zea mays		2-leaf		0.8			'Golden Bantum'	29	corn(maize)
Zea mays		seedling			4.99		'B14RFx' FDSexp	29	corn(maize)
Zea mays		seedling		4.57			'B37RF', FDSexp	29	corn(maize)
Zea mays						2-4	prediction	29	corn(maize)
Zephyranths	sp.				0.82		prediction	29	zephyr lily
Zinnia elegans Jacq.		seeds			17	15	'Red Sun'	1	common zinia
Zinnia elegans				0.2-0.4			chronic, severe damage	7	common zinia
Zingiber	sp.	roots		(2 - 3)				26	zinger
Zingiber	sp.	cultured tissue		(4 - 6)				26	zinger
Zoisia	sp.			(40 -50)				26	lawn
Zoisia	sp.			(30 -50)				26	lawn

********** Revised 2000-02-26 **********