

**Chart 1 TOP REGIONAL COVER CROP SPECIES<sup>1</sup>**

Bioregion	N Source	Soil Builder	Erosion Fighter	Subsoil Loosener	Weed Fighter	Pest Fighter
Northeast	red cl, hairy v, berseem, swt cl	ryegr, swt cl, sorghyb, rye	rye, ryegr, sub cl, oats	sorghyb, swt cl, forad	sorghyb, ryegr, rye, buckwheat	rye, sorghyb, rape
Mid-Atlantic	hairy v, red cl, berseem, crim cl	ryegr, rye, swt cl, sorghyb	sub cl, cowpeas, rye, ryegr	sorghyb, swt cl, forad	rye, ryegr, oats, buckwheat	rye, sorghyb, rape
Mid-South	hairy v, sub cl, berseem, crim cl	ryegr, rye, sub cl, sorghyb	sub cl, cowpeas, rye, ryegr	sorghyb, swt cl	buckwheat, ryegr, sub cl, rye	rye, sorghyb
Southeast Uplands	hairy v, red cl, berseem, crim cl	ryegr, rye, sorghyb, swt cl	sub cl, cowpeas, rye, ryegr	sorghyb, swt cl	buckwheat, ryegr, sub cl, rye	rye, sorghyb
Southeast Lowlands	winter peas, sub cl, hairy v, berseem, crim cl	ryegr, rye, sorghyb, sub cl	sub cl, cowpeas, rye, ryegr, sorghyb	sorghyb	berseem, rye, wheat, cowpeas, oats, ryegr	rye, sorghyb
Great Lakes	hairy v, red cl, berseem, crim cl	ryegr, rye, sorghyb, ryegr, swt cl	oats, rye, ryegr	sorghyb, swt cl, forad	berseem, ryegr, rye, buckwht, oats	rye, sorghyb, rape
Midwest Corn Belt	hairy v, red cl, berseem, crim cl	rye, barley, sorghyb, swt cl	wht cl, rye, ryegr, barley	sorghyb, swt cl, forad	rye, ryegr, wheat, buckwht, oats	rye, sorghyb
Northern Plains	hairy v, swt cl, medic	rye, barley, medic, swt cl	rye, barley	sorghyb, swt cl	medic, rye, barley	rye, sorghyb
Southern Plains	winter peas, medic, hairy v	rye, barley, medic	rye, barley	sorghyb, swt cl	rye, barley	rye, sorghyb
Inland Northwest	winter peas, hairy v	medic, swt cl, rye, barley	rye, barley	sorghyb, swt cl	rye, wheat, barley	rye, mustards, sorghyb
Northwest Maritime	berseem, sub cl, lana v, crim cl	ryegr, rye, sorghyb, lana v	wht cl, rye, ryegr, barley	sorghyb, swt cl	ryegr, lana v, oats, wht cl	rye, mustards
Coastal California	berseem, sub cl, lana v, medic	ryegr, rye, sorghyb, lana v	wht cl, cowpeas, rye, ryegr	sorghyb, swt cl	rye, ryegr, berseem, wht cl	sorghyb, crim cl, rye
Calif. Central Valley	winter peas, lana v, sub cl, medic	medic, sub cl	wht cl, barley, rye, ryegr	sorghyb, swt cl	ryegr, wht cl, rye, lana v	sorghyb, crim cl, rye
Southwest	medic, sub cl	sub cl, medic, barley	barley, sorghyb		medic, barley	

<sup>1</sup>ryegr=annual ryegrass. buckwht=buckwheat. forad=forage radish. rape=rapeseed. sorghyb=sorghum-sudangrass hybrid. berseem=berseem clover. winter peas=Austrian winter pea. crim cl=crimson clover. hairy v=hairy vetch. red cl=red clover. sub cl=subterranean clover. swt cl=sweetclover. wht cl=white clover. lana v=LANA woollypod vetch.

## Chart 2 PERFORMANCE AND ROLES

Species	Legume N Source	Total N (lb./A) <sup>1</sup>	Dry Matter (lb./A/yr.)	N Scavenger <sup>2</sup>	Soil Builder <sup>3</sup>	Erosion Fighter <sup>4</sup>	Weed Fighter	Good Grazing <sup>5</sup>	Quick Growth
Annual ryegrass <i>p. 74</i>			2,000-9,000	●	●	●	●	●	●
Barley <i>p. 77</i>			2,000-10,000	●	●	●	●	●	●
Oats <i>p. 93</i>			2,000-10,000	●	●	●	●	●	●
Rye <i>p. 98</i>			3,000-10,000	●	●	●	●	●	●
Wheat <i>p. 111</i>			3,000-8,000	●	●	●	●	●	●
Buckwheat <i>p. 90</i>			2,000-4,000	○	●	●	●	○	●
Sorghum-sudan <i>p. 106</i>			8,000-10,000	●	●	●	●	●	●
Mustards <i>p. 81</i>		30-120	3,000-9,000	●	●	●	●	●	●
Radish <i>p. 81</i>		50-200	4,000-7,000	●	●	●	●	●	●
Rapeseed <i>p. 81</i>		40-160	2,000-5,000	●	●	●	●	●	●
Berseem clover <i>p. 118</i>	●	75-220	6,000-10,000	●	●	●	●	●	●
Cowpeas <i>p. 125</i>	●	100-150	2,500-4,500	●	●	●	●	●	●
Crimson clover <i>p. 130</i>	●	70-130	3,500-5,500	●	●	●	●	●	●
Field peas <i>p. 135</i>	●	90-150	4,000-5,000	●	●	●	●	●	●
Hairy vetch <i>p. 142</i>	●	90-200	2,300-5,000	●	●	●	●	●	●
Medics <i>p. 152</i>	●	50-120	1,500-4,000	●	●	●	●	●	●
Red clover <i>p. 159</i>	●	70-150	2,000-5,000	●	●	●	●	●	●
Subterranean clovers <i>p. 164</i>	●	75-200	3,000-8,500	●	●	●	●	●	●
Sweetclovers <i>p. 171</i>	●	90-170	3,000-5,000	●	●	●	●	●	●
White clover <i>p. 179</i>	●	80-200	2,000-6,000	●	●	●	●	●	●
Woollypod vetch <i>p. 185</i>	●	100-250	4,000-8,000	●	●	●	●	●	●

<sup>1</sup>Total N—Total N from all plant. Grasses not considered N source. <sup>2</sup>N Scavenger—Ability to take up/store excess nitrogen. <sup>3</sup>Soil Builder—Organic matter yield and soil structure improvement. <sup>4</sup>Erosion Fighter—Soil-holding ability of roots and total plant. <sup>5</sup>Good Grazing—Production, nutritional quality and palatability. Feeding pure legumes can cause bloat.

○ = Poor; ◐ = Fair; ◑ = Good; ◒ = Very Good; ◓ = Excellent

**Chart 2 PERFORMANCE AND ROLES** continued

Species	Lasting Residue <sup>1</sup>	Duration <sup>2</sup>	Harvest Value <sup>3</sup>		Cash Crop Interseed <sup>4</sup>	Comments
			F*	S*		
NON LEGUMES	Annual ryegrass	●	○	○	●	Heavy N and H <sub>2</sub> O user; cutting boosts dry matter significantly.
	Barley	●	○	○	○	Tolerates moderately alkaline conditions but does poorly in acid soil < pH 6.0.
	Oats	○	○	○	○	Prone to lodging in N-rich soil.
	Rye	●	○	○	○	Tolerates triazine herbicides.
	Wheat	○	○	○	○	Heavy N and H <sub>2</sub> O user in spring.
	Buckwheat	○	○	○	○	Summer smother crop; breaks down quickly.
	Sorghum-sudangrass	○	●	○	○	Mid-season cutting increases yield & root penetration.
BRASSICAS	Mustards	○	○	○	○	Suppresses nematodes and weeds.
	Radish	○	○	○	○	Good N scavenging and weed control; N released rapidly.
	Rapeseed	○	○	○	○	Suppresses <i>Rhizoctonia</i> .
	Berseem clover	○	●	○	○	Very flexible cover crop, green manure, forage.
	Cowpeas	○	●	○	○	Season length, habit vary by cultivar.
	Crimson clover	○	○	○	○	Established easily, grows quickly if planted early in fall; matures early in spring.
	LEGUMES	Field peas	○	○	○	○
Hairy vetch		○	○	○	○	Bi-culture with small grain expands seasonal adaptability.
Medics		○	○	○	○	Use annual medics for interseeding.
Red clover		○	○	○	○	Excellent forage, easily established; widely adapted.
Subterranean clover		○	○	○	○	Strong seedlings, quick to nodulate.
Sweetclovers		○	○	○	○	Tall stalks, deep roots in second year.
White clover		○	○	○	○	Persistent after first year.
Woollypod vetch	○	○	○	○	Reseeds poorly if mowed within 2 months of seeddrop; overgrazing can be toxic.	

<sup>1</sup>Lasting Residue—Rates how long the killed residue remains on the surface. <sup>2</sup>Duration—Length of vegetative stage.  
<sup>3</sup>Harvest Value—Economic value as a forage (F) or as seed (S) or grain. <sup>4</sup>Cash Crop Interseed—Rates how well the cover crop will perform with an appropriate companion crop.  
 ○=Poor; ○=Fair; ○=Good; ○=Very Good; ●=Excellent

### Chart 3A CULTURAL TRAITS

Species	Aliases	Type <sup>1</sup>	Hardy through Zone <sup>2</sup>	Tolerances					Habit <sup>3</sup>	pH (Pref.)	Best Established <sup>4</sup>	Min. Germin. Temp.
				heat	drought	shade	flood	low fert.				
Annual ryegrass <i>p. 74</i>	Italian ryegrass	WA	6	☐	☐	☐	☐	☐	U	6.0-7.0	ESp, LSu, EF, F	40F
Barley <i>p. 77</i>		WA	7	☐	☐	☐	☐	☐	U	6.0-8.5	F, W, Sp	38F
Oats <i>p. 93</i>	spring oats	CSA	8	☐	☐	☐	☐	☐	U	4.5-7.5	LSu, ESp W in 8+	38F
Rye <i>p. 98</i>	winter, cereal, or grain rye	CSA	3	☐	☐	☐	☐	☐	U	5.0-7.0	LSu, F	34F
Wheat <i>p. 111</i>		WA	4	☐	☐	☐	☐	☐	U	6.0-7.5	LSu, F	38F
Buckwheat <i>p. 90</i>		SA	NFT	☐	☐	☐	☐	☐	U/SU SU	5.0-7.0	Sp to LSu	50F
Sorghum-sudan <i>p. 106</i>	Sudax	SA	NFT	☐	☐	☐	☐	☐	U	6.0-7.0	LSp, ES	65F
Mustards <i>p. 81</i>	brown, oriental white, yellow	WA, CSA	7	☐	☐	☐	☐	☐	U	5.5-7.5	Sp, LSu	40F
Radish <i>p. 81</i>	oilseed, Daikon, forage radish	CSA	6	☐	☐	☐	☐	☐	U	6.0-7.5	Sp, LSu, EF	45F
Rapeseed <i>p. 81</i>	rape, canola	WA	7	☐	☐	☐	☐	☐	U	5.5-8	F, Sp	41F
Berseem clover <i>p. 118</i>	BIGBEE, multicut	SA, WA	7	☐	☐	☐	☐	☐	U/SU SU	6.2-7.0	ESp, EF	42F
Cowpeas <i>p. 125</i>	crowder peas, southern peas	SA	NFT	☐	☐	☐	☐	☐	SU/C	5.5-6.5	ESu	58F
Crimson clover <i>p. 130</i>		WA, SA	7	☐	☐	☐	☐	☐	U/SU	5.5-7.0	LSu/ESu	
Field peas <i>p. 135</i>	winter peas, black peas	WA	7	☐	☐	☐	☐	☐	C	6.0-7.0	F, ESp	41F
Hairy vetch <i>p. 142</i>	winter vetch	WA, CSA	4	☐	☐	☐	☐	☐	C	5.5-7.5	EF, ESp	60F
Medics <i>p. 152</i>		SP, SA	4/7	☐	☐	☐	☐	☐	P/SU	6.0-7.0	EF, ESp, ES	45F
Red clover <i>p. 159</i>		SP, B	4	☐	☐	☐	☐	☐	U	6.2-7.0	LSu; ESp	41F
Subterranean cl. <i>p. 164</i>	subclover	CSA	7	☐	☐	☐	☐	☐	P/SP	5.5-7.0	LSu, EF	38F
Sweetclovers <i>p. 171</i>		B, SA	4	☐	☐	☐	☐	☐	U	6.5-7.5	Sp/S	42F
White clover <i>p. 179</i>	white dutch ladino	LP, WA	4	☐	☐	☐	☐	☐	P/SU	6.0-7.0	LW, E to LSu, EF	40F
Woollypod vetch <i>p. 185</i>	Lana	CSA	7	☐	☐	☐	☐	☐	SP/C	6.0-8.0	F	

<sup>1</sup>B=Biennial; CSA=Cool season annual; LP=Long-lived perennial; SA=Summer annual; SP=Short-lived perennial; WA=Winter annual

<sup>2</sup>See USDA Hardiness Zone Map, inside front cover. NFT=Not frost tolerant. <sup>3</sup>C=Climbing; U=Upright; P=Prostrate; SP=Semi-prostrate; SU=Semi-upright. <sup>4</sup>E=Early; M=Mid; L=Late; F=Fall; Sp=Spring; Su=Summer; W=Winter

○=Poor; ◐=Fair; ◑=Good; ◒=Very Good; ◓=Excellent

## Chart 3B PLANTING

Species	Depth	Seeding Rate					Cost (\$/lb.) <sup>1</sup>	Cost/A (median) <sup>2</sup>		Inoc. Type	Reseeds <sup>3</sup>
		Drilled		Broadcast				drilled	broadcast		
		lb./A	bu/A	lb./A	bu/A	oz./100 ft <sup>2</sup>					
Annual ryegrass	0-1/2	10-20	.4-.8	20-30	.8-1.25	1	.70-1.30	12	24		U
Barley	3/4-2	50-100	1-2	80-125	1.6-2.5	3-5	.17-.37	20	27		S
Oats	1/2-1 1/2	80-110	2.5-3.5	110-140	3.5-4.5	4-6	.13-.37	25	33		S
Rye	3/4-2	60-120	1-2	90-160	1.5-3.0	4-6	.18-.50	25	35		S
Wheat	1/2-1 1/2	60-120	1-2	60-150	1-2.5	3-6	.10-.30	18	22		S
Buckwheat	1/2-1 1/2	48-70	1-1.4	50-90	1.2-1.5	3-4	.30-.75	32	38		R
Sorghum-sudangrass	1/2-1 1/2	35	1	40-50	1-1.25	2	.40-1.00	26	34		S
Mustards	1/4-3/4	5-12		10-15		1	1.50-3.00	16	24		U
Radish	1/4-1 1/2	8-13		10-20		1	1.50-2.50	22	32		S
Rapeseed	1/4-3/4	5-10		8-14		1	1.00-2.00	11	16		S
Berseem clover	1/4-1 1/2	8-12		15-20		2	1.70-2.50	22	39	crimson, berseem	N
Cowpeas	1-1 1/2	30-90		70-120		5	.85-1.50	71	113	cowpeas, lespedeza	S
Crimson clover	1/4-1 1/2	15-20		22-30		2-3	1.25-2.00	27	40	crimson, berseem	U
Field peas	1/2-3	50-80		90-100		4	.61-1.20	50	75	pea, vetch	S
Hairy vetch	1/2-1 1/2	15-20		25-40		2	1.70-2.50	35	65	pea, vetch	S
Medics	1/4-1 1/2	8-22		12-26		2/3	2.50-4.00	58	75	annual medics	R
Red clover	1/4-1 1/2	8-10		10-12		3	1.40-3.30	23	28	red cl, wht cl	S
Subterranean clover	1/4-1 1/2	10-20		20-30		3	2.50-3.50	45	75	clovers, sub, rose	U
Sweetclovers	1/4-1.0	6-10		10-20		1.5	1.00-3.00	16	32	alfalfa, swt cl	U
White clover	1/4-1 1/2	3-9		5-14		1.5	1.10-4.00	19	30	red cl, wht cl	R
Woollypod vetch	1/2-1	10-30		30-60		2-3	1.25-1.60	30	65	pea, vetch	S

<sup>1</sup>Per pound in 50-lb. bags as of summer/fall 2006; To locate places to buy seed, see *Seed Suppliers* (p. 166).

<sup>2</sup>Mid-point price at mid-point rate, seed cost only. <sup>3</sup>R=Reliably; U=Usually; S=Sometimes; N=Never (reseeds).

