










































































































































## Chart 2 PERFORMANCE AND ROLES

		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
NON LEGUMES	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						
BRASSICAS	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						
LEGUMES	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> .
LEGUMES	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.
	Field peas	●	●	●	●	●	Biomass breaks down quickly.
	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 4A **POTENTIAL ADVANTAGES**

Species	Soil Impact			Soil Ecology				Other		
	subsoiler	free P&K	loosen topsoil	nematodes	disease	allelopathic	choke weeds	attract beneficials	bears traffic	short windows
<b>NON LEGUMES</b>	Annual ryegrass <i>p. 74</i>	●	●	●	●	●	●	●	●	●
	Barley <i>p. 77</i>	●	●	●	●	●	●	●	●	●
	Oats <i>p. 93</i>	○	●	●	○	●	●	○	●	●
	Rye <i>p. 98</i>	●	●	●	●	●	●	●	●	●
	Wheat <i>p. 111</i>	●	●	●	●	●	●	●	●	●
	Buckwheat <i>p. 90</i>	○	●	●	○	●	●	●	○	●
<b>BRASSICAS</b>	Sorghum-sudangrass <i>p. 106</i>	●	●	●	●	●	●	●	●	●
	Mustards <i>p. 81</i>	●	●	●	●	●	●	●	●	●
	Radish <i>p. 81</i>	●	●	●	●	●	●	●	●	●
<b>LEGUMES</b>	Rapeseed <i>p. 81</i>	●	●	●	●	●	●	●	●	●
	Berseem clover <i>p. 118</i>	●	●	●	○	○	●	●	●	●
	Cowpeas <i>p. 125</i>	●	●	●	○	○	○	●	○	●
	Crimson clover <i>p. 130</i>	●	●	●	●	●	●	●	●	●
	Field peas <i>p. 135</i>	●	●	●	●	●	●	●	●	●
	Hairy vetch <i>p. 142</i>	●	●	●	●	●	●	●	○	○
	Medics <i>p. 152</i>	●	●	●	●	●	●	●	●	●
	Red clover <i>p. 159</i>	●	●	●	●	●	●	●	●	●
	Subterranean clover <i>p. 164</i>	○	●	●	●	●	●	●	●	●
	Sweetclovers <i>p. 171</i>	●	●	●	●	●	●	●	●	○
	White clover <i>p. 179</i>	●	●	●	○	○	●	●	●	●
	Woollypod vetch <i>p. 185</i>	●	●	●	●	●	●	●	●	●

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

Chart 4B **POTENTIAL DISADVANTAGES**

Note change in symbols ○ = problem ● = not a problem

NON LEGUMES

BRASSICAS

LEGUMES

Species	Increase Pest Risks			Management Challenges					Comments Pro/Con
	Weed potential	Insect/ nematodes	crop disease	hinder crops	establish	till-kill	mow-kill	mature incorp.	
Annual ryegrass	○ <sup>1</sup>	●	●	●	●	●	●	●	If mowing, leave 3-4" to ensure regrowth.
Barley	●	●	●	●	●	●	●	○	Can be harder than rye to incorporate when mature.
Oats	●	●	●	●	●	●	●	●	Cleaned, bin-run seed will suffice.
Rye	●	●	●	●	●	●	●	○	Can become a weed if tilled at wrong stage.
Wheat	●	●	●	●	●	●	●	●	Absorbs N and H <sub>2</sub> O heavily during stem growth, so kill before then.
Buckwheat	○	●	●	●	●	●	●	●	Buckwheat sets seed quickly.
Sorghum-sudangrass	●	●	●	●	●	●	●	●	Mature, frost-killed plants become quite woody.
Mustards	●	●	●	●	●	●	●	●	Great biofumigation potential; winterkills at 25° F
Radish	●	●	●	●	●	●	●	●	Winter kills at 25° F; cultivars vary widely.
Rapeseed	●	●	●	●	●	●	●	●	Canola has less biotoxic activity than rape.
Berseem clover	●	●	●	●	●	●	●	●	Multiple cuttings needed to achieve maximum N.
Cowpeas	●	●	●	●	●	●	●	●	Some cultivars, nematode resistant.
Crimson clover	●	○	●	●	●	●	●	●	Good for underseeding, easy to kill by tillage or mowing.
Field peas	●	●	●	●	●	●	●	●	Susceptible to <i>sclerotinia</i> in East.
Hairy vetch	●	●	●	●	●	●	●	●	Tolerates low fertility, wide pH range, cold or fluctuating winters.
Medics	●	●	●	●	●	●	●	●	Perennials easily become weedy.
Red clover	●	●	●	●	●	●	●	●	Grows best where corn grows well.
Subterranean clover	●	○	●	●	●	●	○	●	Cultivars vary greatly.
Sweetclovers	●	●	●	●	●	●	●	●	Hard seed possible problem; does not tolerate seeding year mowing
White clover	●	●	●	●	●	○	●	●	Can be invasive; survives tillage.
Woollypod vetch	●	●	●	●	●	●	●	●	Hard seed can be problematic; resident vegetation eventually displaces.

<sup>1</sup>Note change in symbols, this page only: ○ = problem. ● = Could be a moderate problem. ● = Could be a minor problem.

● = Occasionally a minor problem. ● = not a problem