



Introduction to Summer Cover Crops

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WSU Puyallup

Goals for Cover Crop Use

- Soil builder
- Nitrogen fixation
- Nutrient scavenging
- Weed suppression
- Erosion control
- Grazing potential
- Quick growth

Why Summer Cover Crops?

- Long-term rotational goals, such as weed and disease management
- Take advantage of fallow periods between spring and fall crops to build soil and reduce weed pressure

Desirable Traits of Summer Cover Crops

- Rapid growth
- Competitive against weeds
- Tolerate drought

Classes of Cover Crops

- Grass family
- Legumes
- Other broad-leaved crops

Grass Family: Sudangrass

- Heat-loving, killed by frost, but does well in Puyallup
- Need to wait for warm soil temps to plant
- Competes well against weeds
- Tolerates drought
- Tolerates mowing



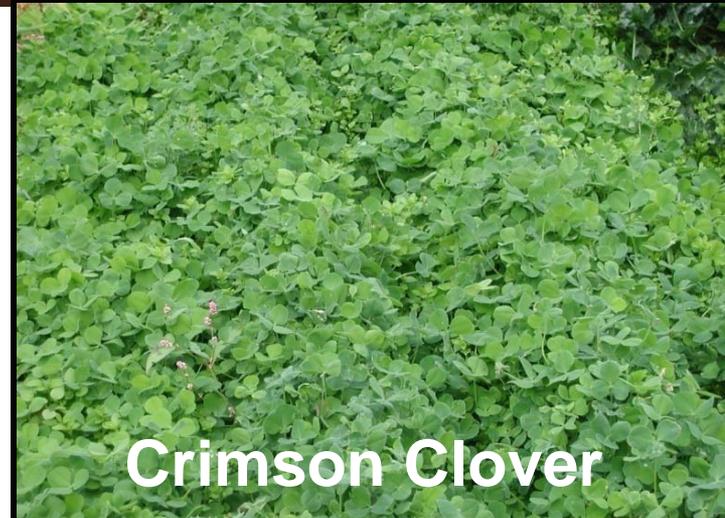
Grass Family: Oats

- Establishes in cooler soils than sudangrass
- Good companion for legumes



Legume Family: Clovers

- Supply nitrogen to soil
- Poor at suppressing summer weeds
- Some success with summer mowing



Crimson Clover



White clover

Legume Family: White Clover – Summer Weed Competition



It's clear who's winning in this field

Legume Family: Fava Bean

- Vigorous, rapid growth in summer
- Competitive against summer weeds in our environment
- Could be grown as a food crop



Legume Family: Hairy Vetch

- Our most reliable winter legume cover crop
- More competitive in summer role than clovers
- Chickling vetch and lana vetch have potential summer roles



Legume Family: Sunn Hemp

- Tropical legume
- Rapid growth in response to heat
- Not as well adapted to our summers?



Other Cover Crops

- Buckwheat
- Brassicas

*These fit important summer niches
in our environment*

Other: Buckwheat

- Grows quickly
- Good weed suppression
- Biomass breaks down quickly
- Killed by frost



Other: Brassicas

- Mustards, oilseed radish, canola
- Grows fast from small seed.
- Excellent weed suppression
- Some evidence of disease suppression
- Don't let them go to seed or they will become a big weed problem



Cover Crop Choice

Cover Crop	Type/Variety	Genus sp.	Type	Seeding Rate (lbs/A) Drilled	Columns Broadcast	Uses/Roles	Planting Time	Min. Germs Temp (F)	Seed Source	Cost/lb
Annual Ryegrass		<i>Lolium multiflorum</i>	Winter Annual	10-30	20-70	NS, SB, EP, WP, G, QE, IS	40D before frost	40	Skagit Farmers Supply, Lakeview Organic Grain, Johnny's	0.70-1.30
Barley	Robust	<i>Hordeum vulgare</i>	Winter Annual	50-100	80-125	NS, SB, EP, WP, G, QE, IS	Fall, Winter	38	Inland Empire Milling, Lakeview Organic Grain, FEDCO, Johnny's	0.17-0.37
Clover	Crimson	<i>Trifolium incarnatum</i>	Winter Annual	15-20	25	SB, EP, WP, G, IS, N	Late Summer	60	Johnny's, Territorial, Osborne, FEDCO	1.25-2.00
Clover	Subterranean	<i>Trifolium subterraneum</i> , <i>T. yanninicum</i> , <i>T. brachycalyculinum</i>	Cool-season annual	10-20	20-30	SB, EP, WP, G, IS, N	Late Summer/Early Fall	38	Pennington	2.50-3.50
Clover	Red/Medium Red/Mammoth	<i>Trifolium pratense</i>	Short-lived perennial(Biennial)	8-10	10-18	SB, WP, G, IS, N	Late Summer	41	Johnny's, FEDCO, Territorial	1.40-3.30
Clover	White/White Dutch/NZ/Ladino	<i>Trifolium repens</i>	Winter Annual	3-9	5-14	EP, WP, G, IS, N	Early Fall	40	Territorial, Osborne, Johnny's, FEDCO	1.10-4.00
Clover	Yellow sweet/White sweet	<i>Melilotus officinalis</i> (Yellow) <i>M. alba</i> (White)	Biennial	6-10	10-20	SB, EP, WP, G, N	Spring/Summer	42	Johnny's, FEDCO	1.00-3.00
Fava Bean	Diana/Banner	<i>Vicia faba</i>	Winter Annual	180-200	200	SB, G, N	Fall	50	Osborne, Territorial	3.55
Oats	Cayuse/Reeves/Wabasha/Buff	<i>Avena sativa</i>	Cool-season Annual	80-110	110-140	NS, EP, WP, QE, IS	Fall	38	American Organic, Lakeview Organic Grain, Skagit Farmers Supply, Osborne	0.13-0.37
Pea	Field/Austrian	<i>Pisum sativum</i> var. <i>Arvense</i>	Winter Annual	50-80	90-100	EP, G, QE, IS, N	Fall, Spring	41	Johnny's, Osborne, FEDCO	0.61-1.20
Radish	Oilseed	<i>Raphanus sativus</i> var. <i>oleiferus</i>	Cool-season Annual	8-13	10-20	NS, SB, EP, WP, QE	Late-Summer/Early Fall	45	Johnny's, FEDCO	1.50-2.50
Rye	Merced	<i>Secale cereale</i>	Cool-season Annual	60-120	90-160	NS, SB, EP, WP, QQ, IS	Late-Summer/Fall	34	Skagit Farmers Supply, Lakeview Organic Grain, Johnny's, Osborne	0.18-0.50
Triticale	Juan	<i>Triticale hexaploide</i>	Winter Annual	100-125	125-150	NS, SB, QE, IS	Fall	40	American Organic Seed, Osborne	1
Vetch	Common	<i>Vicia angustifolia</i>	Winter Annual	60-90	90-100	SB, IS, N	Fall	55	Osborne, Territorial	
Vetch	Hairy	<i>Vicia villosa</i>	Winter Annual	15-20	25-40	SB, IS, N	Fall	60	Osborne, Johnny's	1.3-2.50
Vetch	Lana/Woollypod	<i>Vicia villosa</i> ssp. <i>dasycarpa</i>	Cool-season Annual	10-30	30-60	SB, WP, QE, N	Fall	45	Osborne	1.25-1.65
Vetch	Chickling (AC Greenfix)	<i>Lathyrus sativus</i>	Cool-season Annual	50-75	60-90	SB, QE, N	Late Summer/Early Fall	55	Johnny's	1.81
Wheat	Winter (Red or White)	<i>Triticum aestivum</i> var. <i>Expedition</i>	Winter Annual	60-120	60-150	NS, SB, EP, WP, G, QE	Late Summer/Fall	38	American Organic Seed, Lakeview Organic Grain, FEDCO	0.10-0.64

NS - Nitrogen Scavenger SB - Soil Builder EP - Erosion Prevention WP - Weed Prevention
G - Grazing QE - Quick Establishment IS - Able to be inter-seeded N - Nitrogen addition