

Table 1: Cover Crop - Common Species and Properties

Cover Crop	Erosion Reduction	Increase soil organic matter	Capture, recycle, redistribute nutrients in the soil profile	Promote biological nitrogen fixation	Weed suppression	Provide supplemental hay	Provide supplemental grazing	Rooting Depth / Plant Water Use /1	Minimize / reduce soil compaction	Seed size (Large or Fine)	Crop Type /2	Seeding rate, lbs/acre	Seeding depth, inches	Salinity tolerance	C:N Ratio	Attract Beneficial Insects	Mycorrhizal fungi association	Tolerance to Frost
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
annual ryegrass	G	G	G	P	G	F	F	SM	P	F	CG	5	0.25 - 1.0	G	H	N	F	P
barley	G	G	F	P	G	F	F	MM	F	L	CG	48	0.75 - 2.0	G	M	N	P	P
berseem clover	P	P	F	G	F	F	G	MH	F	F	CB	4	0.25 - 1.0	F	L	Y	P	P
buckwheat	G	F	G	P	G	P	P	SL	P	F	WB	48	0.5 - 1.5	P	L	Y	P	P
canola	F	F	G	P	P-G**	F	F	MM	G	F	CB	5	0.25 - 0.75	G	L	Y	P	P
chickling vetch	F	F	F	G	P	F	F	DM	F	L	CB	50	1.5 - 3.0	P	L	Y	P	P
common vetch	F	F	F	G	G	G	G	SH	F	L	CB	20	1.0 - 1.5	F	L	Y	P	P
corn	G	G	G	P	P-G**	F	F	DH	G	L	WG	25	1.0 - 1.5	P	H	N	G	P
cowpea	P	P	F	G	G	F	F	SL	F	L	WB	50	1.0 - 1.5	P	L	Y	F	P
crimson clover	F	F	F	G	F	F	G	MM	F	F	CB	4	0.25 - 0.75	P	L	Y	G	P
flax	F	F	F	P	P	P	P	SM	P	F	CB	50	0.25 - 0.75	P	H	Y	G	G
hairy vetch	G	F	F	G	P	F	F	SM	F	L	WB	20	0.5 - 1.5	P	L	Y	F	G
horse bean	F	F	F	G	F	G	G	DM	G	L	WB	20	1.0 - 1.5	F	L	Y	P	F
kale	F	F	G	P	F	F	G	DH	G	F	CB	3	0.25 - 0.5	P	L	Y	P	G
kura clover	F	F	F	G	P	F	G	SH	F	F	CB	2	0.25 - 1.0	P	L	Y	P	G
lentil	P	P	F	G	P	F	F	SL	P	F	CB	50	1.0 - 1.5	P	L	Y	F	G
medic	P	P	G	G	F*	F	F	MM	F	F	CB	2	0.25 - 0.75	P	L	Y	F	G
millet	G	G	F	P	G	G	F	SL	F	L	WG	15	0.25 - 0.75	F	M	N	G	G
mustard, tame	F	F	F	P	G	F	F	MH	F	F	CB	5	0.25 - 0.75	P	L	Y	P	F
oat	G	G	F	P	F	G	F	MM	F	L	CG	65	0.5 - 1.5	P	M	N	P	F
pea	P	P	P	G	F	G	F	SL	P	L	CB	75	1.5 - 3.0	P	L	Y	F	F
phacelia	F	F	F	P	F	P	F	SL	P	F	CB	5	0.25 - 0.75	P	L	Y	F	G
radish	P	P	G	P	G	P	G	DH	G	F	CB	4	0.25 - 0.5	P	L	Y	P	F
Red beet	P	P	G	P	F	P	F	DM	G	L	CB	4	0.5 - 0.75	F	L	Y	P	F
red clover	F	F	F	G	G	F	G	DM	F	F	CB	3	0.25 - 0.75	P	L	Y	G	F
safflower	F	F	G	P	F	F	G	DH	F	L	WB	30	1.0 - 1.5	F	M	Y	F	F
sorghum	G	G	G	P	G	G	F	MM	G	L	WG	5	0.5 - 1.5	P	M	N	G	F
soybean	P	P	F	G	P-G**	F	F	SM	P	L	WB	50	1.0 - 1.5	P	L	Y	F	F
spring rye or wheat	G	G	G	P	G	F	F	MH	F	L	CG	90	0.5 - 1.5	F	M	N	P	G

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subterranean clover	F	F	F	G	G	F	G	MH	F	F	CB	4	0.25 - 1.0	P	L	Y	F	F
sudangrass, sudan-sorghum hybrid	G	G	G	P	G	G	G	MM	G	L	WG	25	0.5 - 1.5	F	M	N	G	F
sugarbeet	P	P	G	P	F	P	G	DH	G	F	CB	2	0.25 - 0.5	G	L	Y	P	P
sunflower	F	F	G	P	F	P	G	DM	G	L	WB	4	0.5 - 1.0	F	M	Y	F	P
sunn hemp	F	F	G	G	G	P	P	DH	G	F	WB	5	0.5 - 1.0	P	L	N/A	F	P
sweet clover	G	F	F	G	F*	P	F	MM	F	F	CB	4	0.25 - 1.0	F	L	Y	F	G
Teffgrass	G	G	F	P	G	G	G	SH	P	F	WG	5	0.25 - 0.5	F	H	N	G	G
triticale	G	G	G	P	G	F	F	MH	F	L	CG	90	0.5 - 1.5	G	M	N	P	G
turnip	P	P	G	P	G	P	G	DH	G	F	CB	4	0.25 - 0.5	P	L	Y	P	P
turnip - psaja	F	F	G	P	F	P	G	DH	G	F	CB	4	0.25 - 0.5	P	L	Y	P	F
white dutch clover	F	F	F	G	P	F	G	MH	P	F	CB	1	0.25 - 1.0	P	L	Y	P	G
winter canola	F	F	G	P	P-G**	F	F	MM	G	F	CB	5	0.25 - 0.75	G	L	Y	P	F
winter rye or wheat	G	G	G	P	G	F	F	MH	F	L	CG	90	0.75 - 2.0	P	M	N	P	F

/1 Rooting Depth/Water Use

SL= Shallow rooted/Low water use
SM= Shallow rooted/Medium water use
SH= Shallow rooted/High water use
ML= Medium rooted/Low water use
MM= Medium rooted/Medium water use
MH= Medium rooted/High water use
DL= Deep rooted/Low water use
DM= Deep rooted/Medium water use
DH= Deep rooted/High water use

Shallow = 6 - 18 inches
Medium = 18 - 24 inches
Deep = 24 + inches

/2 Crop types

CG = cool season grass
CB = cool season broadleaf
WB = warm season broadleaf
WG = warm season grass

Ratings

L = Low
M = Medium
H = High
N/A = Not Available
G = Good
F = Fair
P = Poor

*These species are considered invasive on rangeland, avoid use in fields adjacent to rangeland.
**Poor weed competitor, but herbicide-tolerant varieties are available.

Table 1 is compiled from several sources listed below and in the ND NRCS Cover Crop Design and Installation Guide reference section and from field observations across North Dakota.

- Managing Cover Crops Profitably, 3rd edition, SARE
- Cover Crop Chart (v. 1.3) produced by the USDA-ARS Northern Great Plains Research Laboratory (NGPRL), Dr. Mark Liebig.
- The USDA-NRCS PLANTS Database
- Midwest Cover Crops Council website
- USDA-SARE publications and website
- NDSU-Ext. Service data and publications
- Other relevant, peer-reviewed journal articles on cover crops from multiple sources throughout the U.S. and Canada.

Information on specific crops is occasionally generalized and/or approximate, and may not reflect performance in on-farm conditions. NRCS does not guarantee the performance of specific crops based on information provided within the Cover Crop Chart.