The primary purpose of cover crops is to produce vegetation that intercepts raindrops and/or slow wind speed near soil surface. Through these actions, soil erosion is greatly reduced. Plant roots hold soil against the force of erosion. Cover crops enhance soil health by increasing organic matter and soil aggregate stability. In addition, plants hold soil mineral nutrients and then release them during growth of succeeding crops. Their above ground growth helps reduce weed growth. In Missouri, most cover crops are planted in fall, so the ability to grow under cool temperatures is advantageous. Winter hardiness affects the amount of spring growth and whether or not plants need to be controlled before planting grain crops.

Our garden places cover crops into four categories: grass species, legume species, *Brassica* species, and other broad-leaf species. Many plants from the grass family can be used for cover crops, but the most common are crops often used as small grain crops and annual forage crops. The most common cover crop in Missouri and the Midwest is the small grain, rye. Other small grain crops sometimes used as cover crops include: triticale, oat, and wheat. See The MU Small Grain Crops garden for more information.

Legume plants form an association with bacteria that is capable of changing atmospheric gas from plant unavailable to available forms through nitrogen fixation. So, legume cover crops are often used before planting of corn or grain sorghum. Several of the legume species grow slowly in fall and produce sparse cover during winter (e.g. hairy vetch). Winter survival of some legume cover crops (e.g. crimson clover) is infrequent, so spring cover and nitrogen fixation is minimal.

Most members of the Brassica family produce large leaves that cover the soil surface and deep taproots. Winter survival ranges from excellent for rapeseed to minimal for others species including radish, turnip, and mustard. Spring soil coverages depends on winter survival, but fall coverage is excellent. Plant parts contain glucosinolate that degrades into sulfur containing compounds. These thiocyanates may have pathogen control properties including nematodes.

Several other species are used for cover crops. An example is buckwheat. Buckwheat is a short-season annual species. If planted in the fall, it will not survive winter, but can also be planted in spring. In either season, buckwehat grows fast and produces quick cover.

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MU Cover Crops Garden

Bradford Research Center

573-884-7945

I-70 to Highway 63
South on 63 for 1 mile to the "Broadway & WW" overpass exit
Turn left (east) on Broadway/WW for 6.5 miles
Turn right on Rangeline Road (watch for the sign) for 2 miles.
Headquarters are on the right.

MU Cover Crops Garden, 2018

NW

10 CC Hairy vetch	9 CC Austrian winter pea	8 CC Crimson clover	7 CC Berseem clover	6 CC Mustard	5 Pulse crop	4 Pulse	3 Pulse crop	2 Pulse crop	1 Pulse crop	*Row 4*
10 CC Annual ryegrass	9 CC Buckwheat	8 CC Radish	7 CC Turnip	6 CC Rapeseed	5 Pulse crop	4 Pulse crop	3 Pulse crop	2 Pulse crop	1 Pulse crop	*Row 3*
10 Small grain	9 SG Rye	8 SG Triticale	7 SG Oat	6 Small grain	5 Small grain	4 Pulse crop	3 Pulse crop	2 Pulse crop	1 Pulse crop	*Row 2*
10 Small grain	9 Small grain	8 Small grain	7 Small grain	6 Small grain	5 Pulse crop	4 Pulse crop	3 Pulse crop	2 Pulse crop	1 Pulse crop	*Row 1*

SW

Cover crops

Brassica	Legumes	Other broad-leaf	Grass	Small grain crops also used as cover crops

Rows of boxes are number from south to north, columns of boxes are numbered from east to west
See other handouts for maps of MU Pulse Crops Garden and MU Small Grains Garden