

Objectives

- **Soil erosion preventer**
 - Plant as early as possible (before Aug. 15)
 - Select winter-hardy cover crop
- **Soil builder**
 - Increase soil organic matter
 - Improve soil structure
 - Increase living organisms
- **Reduce soil moisture(wet years),conserves moisture dry years**
- N source and N scavenger
- **Grazing value**
- Weed fighter
- Diseases controller
- **Enhance wildlife/pollinators**

Cropping system/Tillage/Location

- **No-till or conventional**
- **Current crop/next cash crop**
- **Planting window**
 - Prevented Planting (warm- and cool-season)
 - Before August 15 (warm- and cool-season)
 - After August15 (cool-season)
- Herbicide carry-over (restrictions)
- Soil type and limitations
 - Heavy clay
 - Saline



HOW TO SELECT A COVER CROP OR COVER CROP MIX?

Dr. Marisol Berti, PI
Professor
*Forages and cover crops
production research*
Marisol.berti@ndsu.edu

Professional Development Program

“Enhancing Soil Health
with Cover Crops in North
Dakota”

[https://www.ag.ndsu.edu/
plantsciences/research/fo
rages/cover-crops](https://www.ag.ndsu.edu/plantsciences/research/forages/cover-crops)

Funding Source:



COOL-SEASON COVER CROPS/FALL PLANTING

Cereals/ grasses	Brassicas	Legumes (Nfix)	Others
<ul style="list-style-type: none"> • Winter cereal rye (E, S, Nsc, M) • Winter triticale (E, S, Nsc, M) • Triticale (E, S, Nsc, G) • Barley (E, S, Nsc, G) • Oats (E, S, Nsc, G) • Black oats (E,S,G) • Annual ryegrass (E, S, G) • Winter wheat (S, E,G) 	<ul style="list-style-type: none"> • Radish (S, G, Nsc, Psc) • Turnip (S, G, Nsc,Psc) • Kale (S,E, G) • Winter canola (S,E,G) • Rape (S,E,G) • Winter camelina (S,E,P) • Mustards (S,E) • Ethiopian cabbage (S,E) • Field Pennycress (S,E,P) • Crambe (S,E,P) 	<ul style="list-style-type: none"> • Forage pea(E, G) • Winter Austrian peas (E,G) • Hairy vetch (E, G,P) • Crimson clover (E,G,P) • Red clover (E,G,P) • White clover (E,G) • Sweetclover (S, E,G,P) • Balansa clover (E,G,P) • Chickling vetch (E,G) • Faba bean (E,G,P) • Lentil (E,G) • Lupin (S, P) • Alfalfa (S, Nsc) 	<ul style="list-style-type: none"> • Flax (Psc,P) • Plantain • Chicory

WARM-SEASON COVER CROPS/ SUMMER PLANTING/PREVENTED PLANTING

Cereals/grasses	Legumes (Nfix)	Others
<ul style="list-style-type: none"> • Forage sorghum (S,E,G,M) • Sudangrass (S, E,G,M) • Sorghum x sudan (S,E,G,M) • Foxtail millet (German and Siberian)(S, E,G,M) • Japanese millet (E,G,M) • Pearl millet(E,G,M) • Proso millet(E,G,M) • Teff (E,G,M) 	<ul style="list-style-type: none"> • Cowpea (G) • Soybean (G) • Mung bean • Adzuki bean • Sunnhemp 	<ul style="list-style-type: none"> • Amaranth (P, M) • Buckwheat (P, Psc) • Phacelia (Nsc, P) • Sunflower (P, Nsc) • Safflower (P) • Okra

Mixtures: Choose cover crops with different benefits.

Mix 1 soil builder (S) + N source (Nfix)/N scavenger (Nsc) + erosion preventer (E) + others

Mix 2: non-legume broadleaf + legume +cereal

Mix 3: Warm- and cool-seasons (before August 15)

Mix 4: For grazing include 5 or more species from different groups

Other ecosystem services: Grazing =G, Wildlife=W, Pollinators=P, Moisture = M, P scavengers= Psc

PLAN AHEAD
PURCHASE QUALITY SEED FROM A KNOWN SOURCE