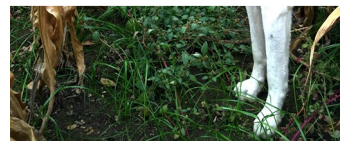
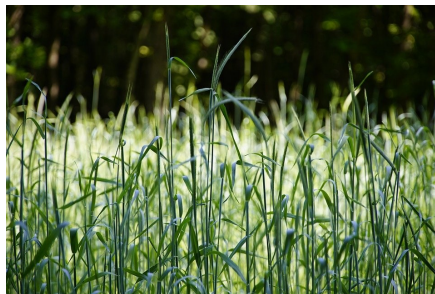
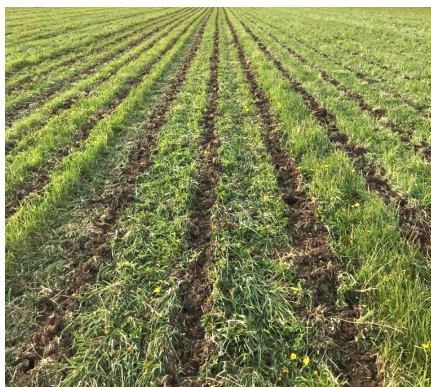




COVER CROP GUIDE



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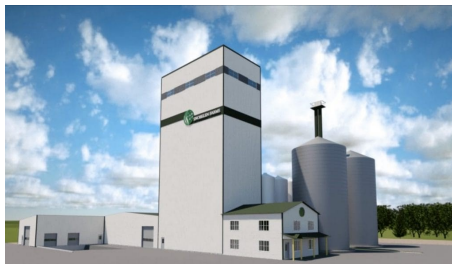
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Lucknow

- Head office
- Food grade soybean facility
- Receiving facility
- Cleaning, processing, and packaging pedigree seed
- Seed treating



Palmerston

- Receiving facility
- Cleaning, processing, and packaging pedigree seed
- Seed treating

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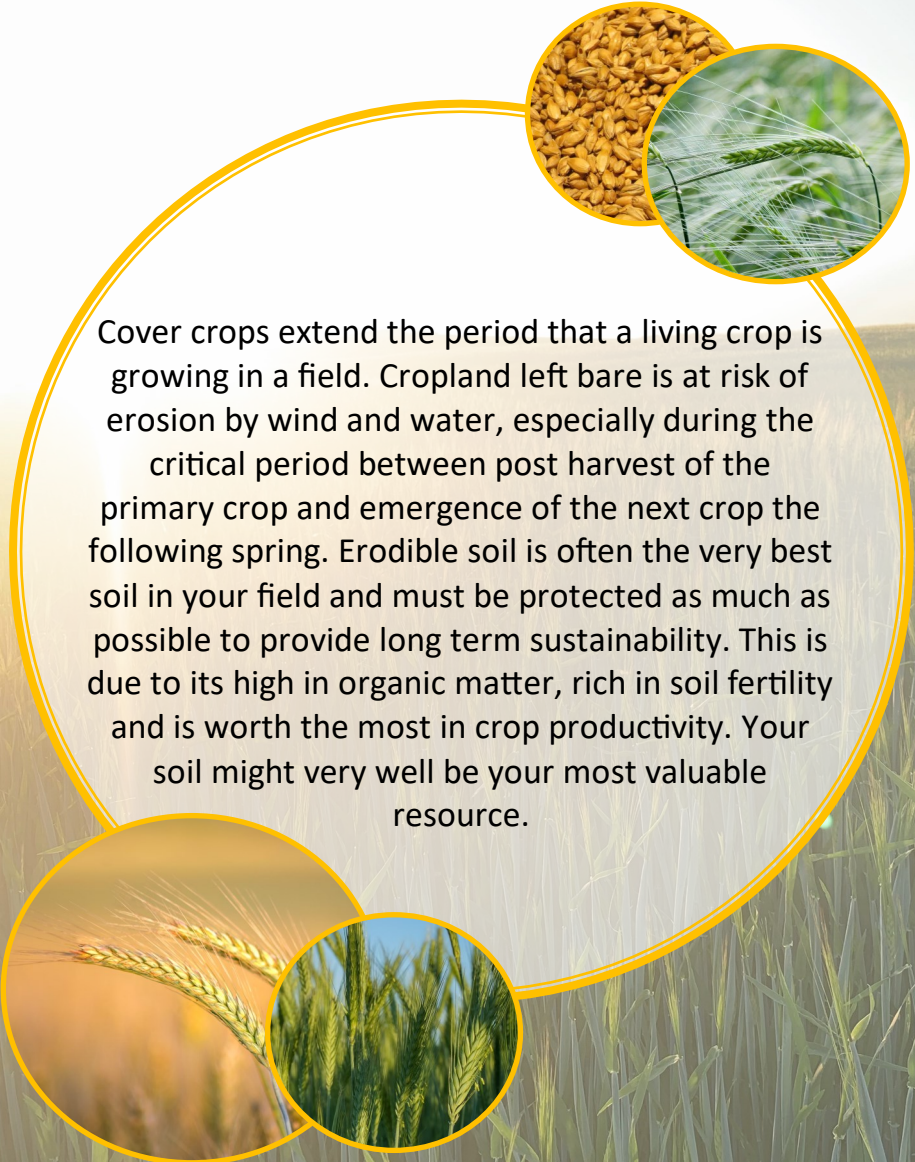
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THE PURPOSE OF COVER CROPS



Cover crops extend the period that a living crop is growing in a field. Cropland left bare is at risk of erosion by wind and water, especially during the critical period between post harvest of the primary crop and emergence of the next crop the following spring. Erodible soil is often the very best soil in your field and must be protected as much as possible to provide long term sustainability. This is due to its high in organic matter, rich in soil fertility and is worth the most in crop productivity. Your soil might very well be your most valuable resource.

BENEFITS

Protect Water Quality



As the implications of agricultural nutrient run-off become more evident, the requirement to prevent surface erosion becomes more important. Phosphorus attaches to small soil particles and can enter water courses such as creeks, streams and drainage ditches during surface run-off conditions. Cover crops help reduce the impact of surface run-off.

Reduces Soil Erosion



Soil that erodes quickly becomes less productive and the effort to reverse the effects of soil erosion often takes many years and is costly. Well established cover crops help absorb the energy of raindrops (especially in heavy rain events) often associated with the start of soil erosion.

Nutrient Recycling



Deep-rooted cover crops reduce the amount of nitrate nitrogen that can be lost over the fall, winter and spring. Nitrogen fixing cover crops reduce the requirement for N fertilizer applications.

Soil Health



Cover crops can increase soil organic matter over time, improve soil structure, improve water infiltration and build a better soil structure within the rooting zone. Better soil health allows for improved yield potential and helps resist the effects of extreme weather (drought, floods, wind, heavy rainfall, extreme temperatures).

Conserve Soil Moisture



Residue from terminated cover crops increase water infiltration and reduces evaporation, resulting in less moisture stress during drought events. Grass type cover crops absorb moisture.

Weed Control



A well established cover crop will help suppress weed populations as they outcompete weeds for water and nutrients. A growing canopy of a cover crop will also capture more light and change the temperature of the soil surface. In some cases, certain cover crop species can impede the germination and early growth of weeds with the release of natural allelopathic chemicals.

COVER CROP SPECIES



Oats
(*Avena sativa*)

- Fast growing annual grass
- Fibrous root system that helps bind soil to improve structure and protect against soil erosion
- Excellent organic matter/soil builder
- More tolerant than barley of saturated soils, tolerant of low fertility situations
- Quickly establishes in mid to late summer, typically after winter wheat, corn silage, vegetable crops
- High biomass producer if well established, performs best under cool moist conditions
- Effective in reducing water erosion, wind erosion, weed suppression



Cereal Rye
(*Secale Cereal*)

- The hardiest of cereals, can be seeded later in the fall compared to other cover crops
- Rye generally outperforms most other cover crops on poorly prepared land, low soil fertility situations; it is widely adaptable
- Regarded as the most efficient/effective cereal for absorbing unused nitrogen
- Aggressive fibrous root system renders it as an excellent nitrogen scavenger, excellent soil structure builder, contributes to soil organic, competitor to weeds (allopathic effect to some weed species)
- Requires some termination management. May release sequestered nitrogen slowly and therefore succeeding crop may potentially require nitrogen management



Mixed Oats/Peas (field)

- Combines soil building/ nitrogen fixing benefits of both species
- Competes with weeds (cereal), deep fibrous root system for soil structure building, reduces erosion potential
- Typically available in 50/50 and 70/30 mixes (by weight) (oats/peas)



Winter Barley (*Hordeum vulgare*)

- Grows a deep fibrous rooting system that can reach over 6" into the soil profile
- Supports mycorrhizal fungi colonies which helps reclaim over worked, poor, eroded soils
- Has a relatively low water usage as compared to other cover crop species
- Produces carbohydrates in the soil called monosaccharides important in microbial activity
- Matures earlier than winter wheat allowing for earlier harvest and double cropping where growing conditions allow. Makes excellent feed or haylage
- Not as winter hardy as winter wheat

COVER CROP SPECIES



Forage Pea
(*Pisum sativum*)

- Produces large amounts of biomass in the fall
- Fixes large amounts of atmospheric nitrogen
- Has a moderate fibrous root system to improve soil structure
- Germinates quickly, fairly fast growth rate, grows tall and therefore benefits from a cereal companion crop
- It is not very competitive with weeds
- Is quite frost/temperature tolerant (up to -15)
- Must be drilled for stand establishment
- Only recommended in mixes



Field Pea
(*Pisum arvense*)

- Fixes large amounts of atmospheric nitrogen
- Has a deep fibrous root system to improve soil structure
- Does not produce as much biomass as forage peas; lower level of growth
- Easy to terminate and is less tolerant to freezing and low temperatures
- Large seed size makes it more difficult to blend with some other cover crop species
- Must be drilled for stand establishment
- Only recommended in mixes

SUGGESTED SEEDING RATES



Cover Crop Species	Drilled In	Broadcast (& incorporate)	Aerial Application
Oats	50-90 lbs/acre	60-95 lbs/acre	80-110 lbs/acre
Cereal Rye (fall rye)	55-70 lbs/acre	80-100 lbs/acre	90-120 lbs/acre
Spring Barley	50-80 lbs/acre	60-100 lbs/acre	80-120 lbs/acre
Winter Barley	50-80 lbs/acre	60-100 lbs/acre	80-120 lbs/acre
Oat/Pea	60-100 lbs/acre	70-105 lbs/acre	90-120 lbs/acre
Buckwheat	50-60 lbs/acre	60-90 lbs/acre	70-100 lbs/acre



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