

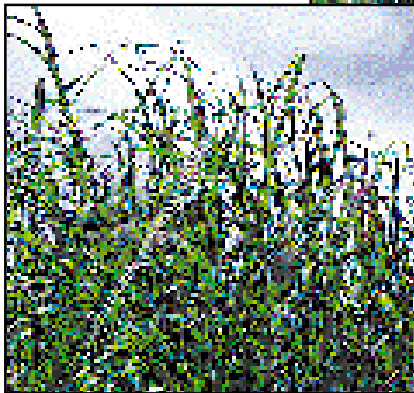
Interseeding

Iowa Fact Sheet



Natural Resources Conservation Service
Des Moines, Iowa

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Why interseed?

Interseeding is a good way to improve existing stands of single species grasses on fields utilized for pasture, wildlife, or idle land. Interseeding yields a mixture of grasses and legumes/forbs that gives the fullest benefit for wildlife or forage for livestock.

Most plans which include introduced species call for a minimum of 50-70 percent introduced grass and 30-50 percent legumes.

Native grass stands may need improving as well. This may be done by adding species of native grasses and/or by including forbs or legumes in the mixture. Depending upon the purpose of improving the native grass stand, either native forbs and legumes or introduced

General rules

All seed should be of high quality and comply with Iowa seed and weed laws. Certified or Source Identified seed is recommended. Legume seed quality should not drop below 70 percent Pure Live Seed. Introduced legume seeds should be inoculated, with an inoculant specific to the legume species.

Site preparation for interseeding, including mowing, spraying, and/or tillage to suppress or kill the existing stand, should be done in the late summer before interseeding. Fields may be grazed heavily to reduce competition for the new seedlings, prior to seedling emergence.

During the time it takes for the new seedlings to become established, weeds and existing cover

reduce competition. Native species may be mowed no closer than 8 inches and introduced species no closer than 4 inches. Herbicide use may be restricted due to susceptibility of legumes/forbs to herbicides.

After a stand is established no disturbance should be done during the primary nesting season for wildlife in areas where wildlife habitat is the primary or secondary purpose. The primary nesting season in Iowa is May 15 through August 1.

Standard Evaluation

The current stand needs to be evaluated for weeds. If weeds such as Musk and Canada Thistle are present at a level that require a broadcast herbicide treatment this needs to be done to reduce weed pressure to a manageable level prior to adding legumes.

Allow adequate time prior to seeding legumes so that a previous herbicide treatment does not negatively impact new legume seedlings.

Seed selection

Select combinations of plant species and cultivars best adapted to site conditions. Specific recommendations can be found in the NRCS Field Office Technical Guide, Section IV, Conservation Cover or Pasture and Hayland Planting. Select forage species and varieties adapted to your specific area and soil drainage class.

Items to consider when selecting plant species:

- Include several plant species in the seeding mixture to provide greater diversity within the field, improve chances of seeding establishment across varying soil conditions, and increase wildlife benefits.
- If you have side hill seeps or areas that tend to be wet, do not use species such as alfalfa that are intolerant to wetness. Select species more tolerant such as ladino clover.
- If no soil test is taken and no soil amendment (lime) will be applied, select species that are more tolerant of

low pH values such as alsike clover, sweet clover, and ladino clover. Red clover is somewhat tolerant of lower pH values.

- Select species best suited for targeted wildlife species.
- To ensure 30 percent of established stand in legumes, develop a seeding mixture that consists of 50 percent seeding rate from legumes. See Tables 2 and 3 of the Field Office Technical Guide, Section IV, Conservation Cover Standard 327.
- For pasture and hayland plantings select compatible species when developing a mix. See the Pasture and Hayland Planting (512) Standard in Table 7 for species compatibility. If seeding Tall Fescue do not include any other grass because the livestock will normally not graze the fescue as readily and will dominate. However legumes are encouraged to be interseeded in Tall Fescue.

Weed control critical during establishment year

For successful seeding establishment, weeds must be controlled. To manage weed competition after plants emerge, mow native species no closer than 8 inches and introduced species no closer than 4 inches. Herbicide use is restricted in introduced cool season grass/legume and native grass/forb stands due to susceptibility of legumes/forbs to herbicides.

Seeding dates for cool and warm season species

| <i>Type of Seeding</i> | <i>Introduced or Native Cool Season Species (Grasses and Legumes)</i> | <i>Introduced or Native Warm Season Species (Includes Prairie Restoration Mixtures)</i> |
|------------------------|---|---|
| Spring | March 1 - May 15 | April 1 - June 1 |
| Late Summer | August 1 - Sept. 15 | Not Recommended |
| Dormant | November 15 - Freeze-up | November 15 - Freeze-up |
| Frost ¹ | February 1 - March 15 | February 1 - March 15 |

1 - Refer to the NRCS Field Office Technical Guide for applicable plant species.

Interseeding rates for legumes/forbs by site conditions*

| Broad Mix # 1 | lb/ac | Low pH Mix #1 | lb/ac | Wet sites Mix # 1 | lb/ac | Native Broad Mix | oz/ac |
|----------------------|--------------|----------------------|--------------|--------------------------|--------------|-------------------------|--------------|
| Red Clover | 1.0 | Alsike | 0.5 | Ladino | 1.0 | Il Bundle flower | 10 |
| Alfalfa | 1.0 | Sweet Clover | 0.8 | Alsike | 1.0 | Partridge pea | 10 |
| Birdsfoot Trefoil | 1.0 | Ladino | 0.3 | Wet sites Mix # 2 | | Purple prairie clover | 8 |
| Alsike | 0.3 | Red Clover | 0.8 | Birdsfoot Trefoil | 2.0 | Roundhead lespedeza | 6 |
| Broad Mix #2 | | Low pH Mix #2 | | Red clover | 2.0 | White prairie clover | 8 |
| Alfalfa | 2.0 | Birdsfoot Trefoil | 2.0 | | | Show tick trefoil | 6 |
| Red Clover | 1.5 | Red Clover | 2.0 | | | | |
| Birdsfoot Trefoil | 1.5 | | | | | | |

Note: To increase diversity, additional grass may be interseeded. Introduced species: Red top, .5 lb/ac; Timothy, 1.3 lb/ac; Orchardgrass, 2 lb/ac. Native species: Indian grass, 1 lb/ac; Little Blue Stem, 2 lb/ac; Prairie drop, .25 lb/ac.

** See the Native Seeding Calculator to customize seeding mix to fit the hydrology for the site and/or producer objective.*

Choosing establishment methods

There are a variety of ways to establish legumes within existing grass stands, with benefits and limitations to each. Success rates for different methods vary as well. It's not a good idea to cut corners if you're trying to establish a good stand. Here are the pro's, con's, and tips for success for the various methods.

Conventional seeding

The existing stand is totally destroyed through tillage, and new seeding is established by broadcasting or drilling into a clean-tilled field.

Pros

- May incorporate nutrients and amendments such as lime.
- Opportunity to destroy perennial weeds in current stand.

Cons

- Soil erosion increases greatly.
- Erosion can wash new seedlings out or sediment can bury them.
- Higher field preparation costs.
- Weed competition can be greater especially from annual weeds.
- Need a nurse crop for erosion control and to suppress weed competition.
- More trips through the field resulting in more fuel use.

Tips for success

- Select sites at low risk for soil erosion.
- For introduced grasses and legumes, lime and fertilize according to soil test results.
- For introduced grasses and legumes, seed with a nurse crop at 1.5 bu/ac. of oats.
- Drill or broadcast seed uniformly at 1/4 or 1/2 inch depth.
- Roll seedbed to get good soil-to-seed contact.
- Mow to control weeds and destroy nurse crop before seed head stage.
- Depending on program requirements, site may be harvested as

Dormant seeding

Seed is broadcast or drilled into existing or clean tilled soil after the growing season and before freeze-up. The seed remains dormant until the following spring.

Pros

- Completed at time of year when labor is more available.
- Establishment is usually more successful than frost seeding if seed is drilled.
- Seedlings take advantage of early spring moisture.
- Stand establishment has fair to good success.
- Soil erosion is minimized.

Cons

- Seeding rate must be increased over other establishment rates if broadcast.
- Mowing or grazing after seedlings emerge is critical to control competition.

Tips for success

- Reducing competition of the existing stand is important. This can be done chemically, by mowing or heavy grazing (depending upon the program requirements) to reduce existing stand vigor prior to establishing new seeding.
- For introduced grasses and legumes, soil test according to ISU recommendation to the 6 inch depth for phosphorus (P) and potassium (K).
- Apply lime and fertilize according to soil test results.

Frost seeding

Broadcast seed on top of existing stands of introduced grass species in late winter (late January - early March) when freezing and thawing help incorporate seed into the soil.

All commonly grown legumes can be seeded this way. Because of their greater seedling vigor, red clover, alsike clover, and ladino clover are quicker to establish than alfalfa or birdsfoot trefoil.

Pros

- Does not require special drill.
- Labor is more available in late winter.
- Soil erosion minimized.

Cons

- Stand establishment is normally less successful, particularly in years with dry springs.
- Seeding rate must be increased over other establishment rates.
- Mowing or grazing is critical to control competition.

Tips for success

- This method is not recommended in heavy sod fields.
- Recommended only where existing stand is weak and less than 50 percent of the ground is covered with vegetation.
- Use only small, smooth (shiny) seeded species for best incorporation into the soil during freezing and thawing.
- For introduced grasses and legumes, soil test according to ISU recommendation.
- Apply lime and fertilize according to soil test results the year prior to

No-till (Interseeding into sod)

The new seeding is drilled into the existing sod. The sod may be suppressed or killed chemically, or by mowing or grazing. No-till seeding may be done in the spring seeding period, late summer seeding period, or for dormant seeding. Use approved herbicides and a drill designed for no-till planting. Follow label for all herbicides used.

Pros

- Soil erosion is reduced by up to 90 percent.
- Good uniform seedbed.
- Good seed-to-soil contact, greater chance of successful stand.
- Moisture is conserved for seedlings.
- Mulch from old residue conserves moisture and suppresses weeds.

Cons

- Cost associated with suppressing or killing the stand chemically.
- Moisture can be depleted in drought conditions if sod is not killed early.
- New seedlings can be smothered if vigorous existing stand is not suppressed.
- Weather affects chemical performance.

Tips for success

- Use a drill designed for no-till planting.
- Critical to kill weeds and suppress existing stand.
- Mow previous vegetation shortly after August 1 to allow grass to regrow and to ensure good chemical contact.
- Spray herbicide in fall before frost.
- Depending upon program requirements, heavy grazing of the existing stand the previous fall will help suppress competition.
- For introduced grasses and legumes, soil test according to ISU recommendation.
- Apply lime and fertilize according to soil test results.

No-till interseeding options

Strip burndown

Field trials show great success with this method. The goal is to kill narrow strips of existing vegetation to provide an area free of competition for establishment of the legumes. A 15 degree angle nozzle is used to apply chemicals to completely kill 10-inch strips of vegetation. The strips should account for only 20-30 percent of the area— solid blocks or strips of burndown greater than 2 feet wide are not recommended.

Mowing for stand suppression of existing cover

Field trials show good success with this method, depending on weather conditions. Mowing before direct seeding and again after seedlings emerge helps reduce plant competition. It is critical to keep the grass competition down to allow new seedlings to become established.

Drilling places seeds in direct contact with the soil and is preferred over broadcasting. Time of seeding is critical to ensure moisture. Early seeding dates work better than late seedings, especially under drought conditions.

For more information

The Extension Service and the Natural Resources Conservation Service have information on seeding rates, suggested seeding dates by species, soil, site adaptations, and other considerations. Helpful references include the NRCS Field Office Technical Guide and native grass seeding calculator. The Field Office Technical Guide has specific recommendations for conservation cover, and pasture and hayland planting, including species best suited for grazing, wildlife, moisture regime, and flowering period. The seeding calculator is used to select species adapted to specific site conditions. For more information on interseeding and natural resources conservation, visit the NRCS website at www.ia.nrcs.usda.gov.

Notes

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