

# ESTABLISHING WARM-SEASON GRASSES

In recent years, new advances in herbicides, no-till drills, and alternative planting methods testing have greatly increased our knowledge and ability to successfully establish warm-season grasses (WSG) in the Midwest. Ultimately, successful stand establishment is determined by two factors: (1) proper pre-planting site preparation, and (2) proper seed placement.

## *Site Preparation*

The goals of site preparation are: (1) rid the site of cool-season grass and weed competition, and (2) prepare a seedbed that will allow for good seed-to-soil contact. How these two goals are reached is dependent on the existing cover.

If the field is going to be cropped prior to establishing WSG, it is best to plant the field to soybeans using weed control products that do not provide carry-over. Previously cropped soybean fields provide a good seed bed for drilling WSG, providing the stubble has been sufficiently removed. Cornfields may also provide a good seedbed provided the stubble is mown as short as possible. **Caution should be used when converting a previously cropped field to WSG, if the herbicides used on the crop may provide residual carry-over. Certain chemicals can severely harm or kill newly established WSG. Check herbicide label for this information.**

If the field has an established cover of tall fescue or other cool-season grasses, these grasses must be eliminated prior to or at the time of planting. Table 1 lists various methods that may be employed to kill cool-season grass cover. In all methods, it is important that any excessive top growth of grasses and weeds first be removed by burning, mowing/baling, or heavy grazing. This will allow the herbicide to be more effective and permit improved seed placement. Allow the existing vegetation to re-grow approximately 6 - 12 inches, then apply the herbicides. **Always consult and follow herbicide label directions and precautions.**

**Table 1. Methods for Controlling Fescue and Other Cool-Season Grasses**

Timing	Method	Positives	Negatives
Fall	Remove excess vegetation (graze, hay, burn, mow) in late summer (August). Allow vegetation to grow @ 6 - 12 inches.  <u>Tank Mixture:</u> per acre <b>1 quart Roundup</b> 17 pounds of ammonium sulfate/100 gallons of water.	Least expensive method.  All forbs can be added safely to planting.  Provides adequate control of fescue.	<b>Does not provide residual benefits</b> for controlling late germinating grasses and weeds.
Fall  <b>and</b>  Spring	Remove excess vegetation in late summer (August). Allow vegetation to grow @ 6 - 12 inches.  <u>Tank Mixture:</u> per acre in <b>Sept. / Oct.</b> <b>1 quart Roundup + ammonium sulfate</b>  <b>And</b>  Allow vegetation to grow @ 6 - 12 inches. <u>Tank Mixture:</u> per acre in <b>April / May</b> <b>1 quart Roundup + ammonium sulfate</b>	Will remove more than 90% of the tall fescue.  All forbs can be added safely to planting.	<b>Does not provide residual benefits</b> for controlling late germinating grasses and weeds.  Requires a Fall and Spring application.
Fall  <b>and</b>  Spring	Fall plow and disc Apply Fall cover crop of ½ bu. wheat/acre  Apply after grasses/weeds have grown @ 6 - 12 inches.	Plowing and disking exposes cool season grass root systems to winter freezing and buries seed.	<b>Does not provide residual benefits</b> for controlling late germinating grasses and weeds.  Requires tillage and seeding

	<u>Tank Mixture:</u> per acre <b>1 quart Roundup+ ammonium sulfate</b>	All forbs can be added safely to planting.	equipment.
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**Table 1. Methods For Controlling Fescue and Other Cool-Season Grasses (Continued)**

Spring	Remove excess vegetation in late winter (Jan. - March). Apply tank mixture after vegetation has grown @ 6 - 12 inches  <u>Tank Mixture:</u> per acre <b>4 oz. Plateau*</b> <b>1 - 2 quarts Roundup</b> 1 quart methylated soybean oil(MSO)  * Plateau is also available in an ECO-PAK. One ECO-PAK contains 2-1.43 ounce dry WSP(water soluble packets). Each WSP equals 4 ounces of liquid Plateau.	<b>Approved for use on CRP acreage</b>  Quickest method - one pass over field after green-up.  Plateau provides residual benefits for <b>4 to 6 weeks</b> to control late germinating grasses and weeds.  Best used on extremely fertile CRP sites having intensive weed pressure, such as filter strips along rivers and large streams.	4-oz. rate of Plateau alone will not effectively remove fescue. Must be used in conjunction with Roundup.  <b><u>Certain</u> forbs will be killed or suppressed.</b> See Table 5 for tolerant forb species.
Spring	Remove excess vegetation in late winter (Jan. - March). Apply tank mixture after vegetation has grown @ 6 - 12 inches  <u>Tank Mixture:</u> per acre <b>8 - 12 oz. Plateau</b> 1 quart methylated soybean oil(MSO)	Will kill more than 95% of tall fescue.  More cost effective than applying both Plateau and Roundup  Residual benefits up to 8 weeks.	<b>High rate of Plateau not approved for use on CRP acreage.</b>  <b><u>Most</u> forbs will be killed or suppressed.</b> See Table 5 for tolerant forb species.
Spring	Remove excess vegetation in late winter (Jan. - March). Apply tank mixture after vegetation has grown @ 6 - 12 inches  <u>Tank Mixture:</u> per acre <b>2 quart Roundup (with surfactant if not included in mixture)</b>	All forbs can be added safely to planting	<b>Usually does not provide satisfactory kill of fescue.</b>  <b>Does not provide residual benefits</b> for controlling late germinating grasses and weeds.

### ***Seeding Methods***

The method used for sowing WSG will depend on (1) the initial site preparation and (2) the availability of equipment in your locality. Table 2 lists the various methods that may be used to establish warm-season grasses based on the type of seedbed that has been prepared. The optimum time frame for planting WSG is from April through June, after soil temperature reaches a minimum of 55 degrees F. Seed germination will occur above 65 degree F. Seeding can be extended to mid-July in years of good rainfall.

**Important: Regardless of the method used, seed should not be planted deeper than 1/4 inch. This is the most common mistake made when planting WSG. It is better to have the seed somewhat exposed on the soil surface than to have it planted too deep.** Repeat the above sentence 3 times in your mind.

If the area to be seeded consists of bare soils on a potentially erosive site, a light cover crop of wheat, oats or annual ryegrass should be established at or prior to the time of planting, or covered with a light straw mulch immediately after planting. Consult your District Conservationist or District Wildlife Biologist for further recommendations.

**Table 2. Methods for Seeding Warm-Season Grasses**

Seed Bed	Equipment Choice	Method	Comments.
Grass or wheat sod prepared by one of the methods listed in Table 1.	*Native Grass Drill	Place seed in the special WSG box (this box is specially adapted with agitators and picker wheels to carry the fluffy seed down the drop tubes). Place any additional forbs being added to your seeding in the legume box, or add periodically to fluffy seed box. <b>Keep seed box at least half full at all times.</b> Make adjustments according to speed and soil type.	This is the easiest and quickest method to insure even distribution, soil contact, and proper planting depth.  When set right, a fair amount (30%) of the seed should be visible in the drill rows.
Bare, firmed seedbed - <b>rolled or culti-packed or previous year crop field.</b>	*Native Grass Drill	Same as above.  Crop fields with annual weeds may need herbicide spraying with 1 pint to 1 quart Roundup and 4 oz. Plateau, tank mixed.	Surface should be firm but not crusted over.  Ideal seedbed should barely show footprints.  When set right, a fair amount (30%) of the seed should be visible in the drill rows.
Same as Above.	Custom Service - Truck Broadcast  <u>or</u>  Conventional Cyclone Seeder	Mix seed using a carrier of: -- lime at the rate of 200 lbs. / acre, or -- wheat at the rate of 40 lbs. / acre, or -- oats at the rate of 32 lbs./acre, or -- fertilizer ( <b>No Nitrogen fertilizers</b> ).  <b>Make sure to overlap passes.</b>  <b>Follow up by rolling or culti-packing.</b>	<b>Increase amount of seed by 25%.</b>  WSG will not broadcast as far as the carriers. <b>It is important to overlap rows to insure even coverage.</b>  <b>Mow prior to oat or wheat seed head formation if these grains are used as a carrier.</b>
Same as Above.	Air Seeder*	Mix seed using a carrier of: -- 100 lbs. of potash/acre, or -- 60 - 100 lbs. of pelletized lime /acre.  <b>Follow up by rolling or culti-packing.</b>	No need to overlap rows.  Large amount of acreage can be planted in a relatively short time.
Same as Above.	WSG Hand Broadcaster*	This type of broadcaster is specially equipped with picker wheels at the base of the box to pull the seed out.  <b>Follow up by rolling or culti-packing.</b>	<b>Increase amount of seed by 25%.</b>  Not recommended for areas greater than an acre.

\* Contact your local SWCD, District Wildlife Biologist, or local Quail Unlimited, Pheasants Forever, or Wild Turkey Federation Chapter for information on the local availability of these equipment items for your use.

## *WSG Seed and Soil Types*

Warm-season grasses are purchased in Pure Live Seed (PLS) amounts. PLS is the seed that grows minus the other plant parts that inherently come with the seed. The % PLS of any particular lot of seed is calculated by the following formula:

% PLS = % Pure Seed X (% Germination + % Dormant Seed). The PLS percentage times the bulk weight of the sack will give the pounds of PLS. Figures for percent purity, percent germination and firm seed are furnished by the seed dealer and usually are listed on the individual seed sacks.

**Example:** The tag from a 25 lb. bag of seed lists the following information.

% Pure Seed	99.00	% Germination	75.00
% Other Crop	.10	% Dormant (Hard)	10.00
% Inert Matter	.50	% Total Germ.	85.00
% Weed Seed	.40	Noxious Weeds	432

The % PLS for this bag of seed would be: 84%

$$\% \text{ PLS} = .99 \times (.75 + .10)$$

$$\% \text{ PLS} = .99 \times .85 = \mathbf{84\%}$$

The pounds of PLS in this bag would be 25 lbs. X 0.84 = **21 lbs. PLS**

Most WSG plantings consist of a mixture of grasses best adapted to site conditions. The rate at which they are planted is dependent on the site conditions and their intended use. In general, wildlife mixes should consist of 3-4 lbs. PLS per acre, while vegetative mixes should consist of 5-6 lbs. PLS per acre. Whether planting WSG for wildlife or forage, **certain legumes and/or forbs should be added at the time of planting to fix nitrogen and provide food for wildlife.** Consult your District Conservationist or District Wildlife Biologist for specific seeding recommendations. Table 3 lists WSG that are suitable for planting under various soil conditions.

**Table 3. Suitability of WSG to Various Soil Types**

Soil Type	Suitable Grasses
Shallow, dry , infertile soils	Little bluestem Indiangrass Side-oats grama
Sand dunes, high sand content soils	Little bluestem, Sand bluestem, Sand lovegrass Big bluestem Indiangrass Switchgrass
Bottomland or poorly drained soils	Indiangrass Big bluestem Switchgrass
Well drained soils	Big bluestem Little bluestem Indiangrass Side-oats grama Switchgrass

## *Follow-Up Weed Control*

In some cases, follow-up weed control may be necessary during the establishment year to provide WSG with optimum growing conditions. If weeds are extremely thick or if large infestations of noxious weeds are present, follow-up weed control is warranted. It should be pointed out, however, that many weeds ( primarily annual weeds, such as foxtail and common ragweed, and perennial forbs) are important sources of food for wildlife, especially the Bobwhite quail. **The purpose of weed control is to control their density during the establishment year, not totally eliminate their presence.** WSG provide wildlife with cover. The annual weed and forbs component within the planting provides the food. Weed control options are listed in the following table.

**Table 4. Post-Seeding Weed Control Options**

Option	Method	Comments
Mowing	Set mower to a 6 - 8 inch height. Start early and mow frequently or rake and remove weed cover. Do not mow after August 1st.	Mowing will drastically reduce the winter food and cover value of the planting during the establishment year.
<b>Plateau herbicide</b>  <b>Do not exceed 12 oz. per year on any one acre.</b>	<b><u>Forbs included in planting:</u></b> Apply Plateau with a <b>silicone or nonionic</b> surfactant when weeds are actively growing.  <b><u>Forbs NOT included in planting:</u></b> Apply Plateau with a <b>MSO</b> surfactant when weeds are actively growing.	May be applied directly over WSG and forbs*. <b>Important. Please see footnote below for use on switchgrass and forbs.</b> Best used to treat large Johnsongrass or weed infestations. May be applied anytime weeds or problem grasses are actively growing. However, it is best-applied 14 days after planting for control of small-emerged weeds and pre-emergent control of later germinating weeds and grasses at a 4 oz. rate with the appropriate surfactant.
Roundup herbicide	Spot spray or wipe Roundup mixture according to label depending on weed species to control.	<b>Use only for spot treatment - not general application. It is not a selective herbicide. It will kill your WSG and forbs.</b>

\*Plateau Herbicide will kill switchgrass seedlings when actively growing and may severely injure or stunt older plantings. To control tall fescue in switchgrass plantings, apply Plateau in the fall when the fescue is actively growing and switchgrass is dormant.

\*Depending on the application rate, many forbs are resistant to Plateau (See Table 5). Use only a silicone or nonionic (not a MSO) surfactant when controlling weeds and grasses in plantings containing forbs. Consult the Plateau label for detailed information.

**Table 5. Wildflowers (forbs) Tolerant to Pre- or Post-Emergent Application of Plateau Herbicide**

4 Oz. / Acre		6 Oz. / Acre	8 Oz. / Acre	12 Oz. / Acre
Illinois Bundleflower	Clasping Coneflower	Illinois Bundleflower	Illinois Bundleflower	Illinois Bundleflower
Partridge Pea	Plains Coreopsis	Partridge Pea	Partridge Pea	Partridge Pea
Blackeyed Susan	Dwarf Red Coreopsis	Blackeyed Susan	Blackeyed Susan	
Purple Coneflower	Lanceleaf Coreopsis	Purple Coneflower	Purple Coneflower	
Red Mexican Hat	Cosmos	Red Mexican Hat		
Upright Coneflower	Yellow Cosmos	Upright Coneflower		
Perennial Lupine	Shasta Daisy	Perennial Lupine		
Red Corn Poppy	Drummond Phlox			
Corn Poppy	Purple Prairie Clover			
California Poppy	Korean Lespedeza			

Plateau and RoundUp are registered products of American Cyanamid Company and Monsanto Company, respectively. The active ingredient in Plateau is imazameth. The active ingredient in RoundUp is glyphosate. Other brands of herbicide containing these ingredients may be substituted, however, application rates, time of application, and results may vary. Always thoroughly read and use herbicide products according to label specifications.

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IN  
INDIANA

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