



**Forestry Note  
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Forestry Notes provide technical information on management practices and related topics for use by NRCS conservationist, cooperators, and land owners and managers.

### **Where To Get Help**

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## **DECISION KEY FOR LONGLEAF SITE PREPARATION AND POST-PLANT HERBACEOUS WEED SUPPRESSION ON AGRICULTURAL LANDS**



This Forestry Note is adapted from the following Longleaf Pine Alliance publications "Longleaf Note #4 Before Planting Dichotomous Key For Site Preparation on Agricultural Lands" and "Longleaf Note #5 After Planting Dichotomous Key For Herbaceous Release on Agricultural Lands". All herbicide treatments are based on Longleaf Pine Alliance recommendations.

**Use of trade names is for reader's information and does not constitute official endorsement or approval by the U. S. Department of Agriculture to the exclusion of any suitable product or process.**

# Longleaf Site Preparation on Agricultural Lands

## Adapted from Longleaf Pine Alliance “Longleaf Note #4 Before Planting Dichotomous Key For Site Preparation on Agricultural Lands”

All herbicide treatments are based on Longleaf Pine Alliance recommendations.

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Artificial regeneration of longleaf pine on agricultural lands has proven to be a particularly challenging endeavor. Frequently, the more fertile the site the better the chance one will incur a planting failure. Agricultural sites tend to have more aggressive herbaceous competitors than cutover areas. Planting failures are common in established bermuda, bahai, and fescue grass pastures. Studies conducted by The Longleaf Alliance indicate seedling survival is more dependent upon a proper site preparation prior to planting, than a correct herbaceous release following planting. Both a proper site preparation and herbaceous release are usually necessary to obtain acceptable survival and growth in the first few growing seasons.

As an additional caution, some sites that were once appropriate for longleaf, may be inappropriate owing to changes in soil pH or soil nutrient levels. Sites that have been heavily limed may be basic (>7.0 pH) rather than acidic (< 7.0 pH). Establishing pine trees on basic soils may prove difficult. Additionally, sites that have been repeatedly treated with chicken litter may have toxic concentrations of elements that would normally be beneficial to seedling survival and growth. Have the soils tested for acidity and soil nutrient levels prior to establishing any pine species on old fields or pastures.

Site is a pasture or an old field with grasses present (fescue, bahia, broomsage, bermuda) (**go to A**).  
Site is an old field without a significant component of grasses (**go to B**).

- A** Bermuda grass is present. (**go to A1**)  
Bermuda grass is not present. (**go to A2**)

- A1** Recommended site preparation treatments in the order they should be applied:
  - #1 Broadcast chemical site prep
  - #2 Ripping (strongly recommended if hand-planting, or hardpan is present)

Chemical site preparation is necessary at highest recommended rates of glyphosate (Roundup or a similar generic formulation) or imazpyr (Arsenal) or a tank-mix. Possible chemical site preparation rates are glyphosate at 5 quarts/acre (anytime grass is actively growing), Arsenal at 20 oz/acre (spring or early summer application), or a tank-mix recommended by licensed herbicide applicators. Ripping should follow the chemical site preparation. Do not plant seedlings directly in a rip furrow. If bareroot seedlings are utilized, ripping should be done at least 2 months prior to planting to allow some settling of the soil. Container seedlings may be planted immediately after ripping provided that seedlings are not planted in the rip furrow and the plug protrudes 1-2” above the soil surface. In all cases subsoiling, and machine planting should follow the contour of the land.

- A2** Recommended site preparation treatments in the order they should be applied:
  - #1 Broadcast or banded chemical site prep (**optional**)
  - #2 Ripping (strongly recommended if hand-planting or hardpan is present)

For grasses other than bermuda, herbicides can be applied at reduced rates as a broadcast or banded chemical site preparation. Possible chemical site preparation rates are glyphosate at 3 quarts/acre or 16 oz Arsenal & 2 qt. glyphosate while grasses are actively growing. Ripping should follow the chemical site preparation. Never plant seedlings directly in a rip furrow. If bareroot seedlings are utilized both ripping should be done at least 2 months prior to planting to allow some set-

tling of the soil. Container seedlings may be planted immediately after ripping provided that seedlings are not planted in the rip furrow and the plug protrudes 1-2” above the soil surface. In all cases ripping and machine planting should follow the contour of the land.

- B** Patches of bermuda grass or crabgrass are present (**go to B1**).  
No bermuda or crabgrass are present (**go to B2**)
- B1** Bermuda grass is present in patches (**go to B3**)  
Only crabgrass (no bermuda) is/was present (**go to B4**)
- B2** Site was in soybeans, or ground was fallow for at least one year (**go to B4**)  
Site was in other crop (cotton, corn, wheat, etc.) (**go to B5**)

**B3** Recommended site preparation treatments in the order they should be applied:

- #1 Spot treat patches of bermuda grass with herbicide.
- #2 Ripping (strongly recommended if hand-planting or hardpan is present)

Patches of bermuda grass may be sprayed with a 2% solution of glyphosate or 0.75% solution of Arsenal

**B4** Recommended site preparation treatments in the order they should be applied:

- #1 Ripping (strongly recommended if hand-planting or hardpan is present)

**B5** Recommended site preparation treatments in the order they should be applied:

- #2 Ripping (strongly recommended if hand-planting or hardpan is present)

A post-plant weed suppression is recommended during the first growing season following planting.

## **Longleaf Post-Plant Weed Suppression on Agricultural Lands**

**Adapted from Longleaf Pine Alliance “Longleaf Note #5 “After Planting Dichotomous Key**

**For Herbaceous Release on Agricultural Lands”**

All herbicide treatments are based on Longleaf Pine Alliance recommendations.

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The Longleaf Alliance has conducted four herbicide screening trials over longleaf pine seedlings; two in an old pecan orchard with a full complement of old-field weeds, and two herbicide screening trials on agricultural crop fields in Monroe and Geneva Counties, Alabama. From these and other studies, a good site preparation proved a

critical first step. In the absence of a good site preparation, post-plant herbicide treatments tend to be less effective in promoting good survival and growth of newly planted longleaf pine seedlings. Prior to applying any herbicides “over the top” of newly planted longleaf pine seedlings a small number of seedlings should be excavated. Insure that new roots have developed since planting. If new roots have not grown from the plug or the original root system, it is inadvisable to apply soil-active herbicides over the newly planted seedlings. If, on the other hand, a vigorous root system is developing (more than 4” of new growth since planting), the seedlings can better tolerate soil active herbicides. Before applying any herbicide over longleaf pine it is important to test the soil pH. One of the most popular herbicides (Oust/sulfometuron) becomes more active as soil pH increases. If the soil has a pH above 6.0, Oust should only be applied at the lowest recommended rate. If the soil is above 6.5 pH, do not apply more than 1 oz of Oust to the acre. If the soil is above 6.7, Oust should be avoided on these soils.

Site was a pasture, a cultivated field with a large component of grasses, or a fallow old-field. (**go to C**)  
Site was a clean old field with no significant component of grasses prior to planting. (**go to D**)

**C** Area received no site preparation. (**go to C1**)  
Area received site preparation prior to planting. (**go to C4**)

**C1** Site is fertile old field/pasture (**go to C2**)  
Site is infertile sandy soil (**go to C3**)

**C2** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast Oust at 2-4 oz/acre between Mid-March and early-April.

#2 Band spray Arsenal at 4-6 oz/acre as a post-emergent herbaceous release after May 10<sup>th</sup>. (**optional**)

#3 Mow between rows (**optional**).

Two post-planting release treatments may be necessary if the site is a fertile old field and bermuda-grass is present, bahia grass is not killed during the initial herbaceous release, or if crab-grass germinates after the initial chemical treatment. If young crabgrass germinants are present, it is imperative that a post-emergent (second) herbicide be applied.

**C3** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast **one** of the following pre-emergent herbaceous releases between Mid-March and early-April.

a: Oust 2-4 oz/acre

b: (Tank mix) Velpar L 24-32 oz/acre and Oust 2-4 oz/acre

c: (Tank mix) Velpar DF 10.67 oz/Acre and Oust 2-4 oz/acre

d: Oustar 10-12 oz/acre

#2 Band spray a post-emergent herbaceous release after May 10<sup>th</sup> (**optional**).

a: Arsenal 4-6 oz/acre

#3 Mow between rows (**optional**).

Two post-planting release treatments may be necessary if bermuda-grass is present, bahia grass is not killed during the initial herbaceous release, or if crab-grass germinates after the initial chemical treatment. If young crabgrass germinants are present, it is imperative that a post-emergent (second) herbicide be applied.

**C4** Area received chemical site preparation only. (go to C5)

Area received chemical site preparation and ripping, or ripping alone. (go to C6)

**C5** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast **one** of the following pre-emergent herbaceous releases between Mid-March and early-April.

a: Oust 2-4 oz/acre

b: (Tank mix) Velpar L 24-32 oz/acre and Oust 2-4 oz/acre

c: (Tank mix) Velpar DF 10.67 oz/Acre and Oust 2-4 oz/acre

d: Oustar 10-12 oz/acre

#2 Band spray Arsenal 4-6 oz/acre as a post-emergent herbaceous release after May 10<sup>th</sup> (**optional**).

#3 Mow between rows (**optional**).

Two post-planting release treatments may be necessary if bermuda is present, bahia grass is not killed during the initial herbaceous release, or if crab-grass germinates after the initial chemical treatment. If young crabgrass germinants are present, it is imperative that a post-emergent (second) herbicide be applied.

**C6** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast or band-spray **one** of the following pre-emergent herbaceous releases between Mid-March and early-April.

a: Oust 2-4 oz/acre

b: (Tank mix) Velpar L 24-32 oz/acre and Oust 2-4 oz/acre

c: (Tank mix) Velpar DF 10.67 oz/Acre and Oust 2-4 oz/acre

d: Oustar 10-12 oz/acre

#2 Band spray Arsenal at 4-6 oz/acre as a post-emergent herbaceous release after May 10<sup>th</sup> (**optional**).

#3 Mow between rows (**optional**).

Two post-planting release treatments may be necessary if bermuda is present, if bahia grass is not killed during the initial herbaceous release, or if crab-grass germinates after the initial chemical treatment. If young crabgrass germinants are present, it is imperative that a post-emergent (second) herbicide be applied

**D** Field is a fertile soil (go to D1)

Field is unfertile sandy soil (go to D2)

**D1** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast **one** of the following pre-emergent herbaceous releases between

Mid-March and early-April.

a: Oust 2-4 oz/acre

b: (Tank mix) Velpar L 24-32 oz/acre and Oust 2-4 oz/acre

c: (Tank mix) Velpar DF 10.67 oz/Acre and Oust 2-4 oz/acre

d: Oustar 10-12 oz/acre

#2 Band spray a post-emergent herbaceous release after May 10<sup>th</sup>. (**optional**)

a: Arsenal 4-6 oz/acre

#3 Mow between rows (**optional**).

Two post-planting release treatments may be necessary if bermuda is present, if bahia grass is not killed during the initial herbaceous release, or if crab-grass germinates after the initial chemical treatment. If young crabgrass germinants are present, it is imperative that a post-emergent (second) herbicide be applied

**D2** Recommended herbaceous release treatments in the order they should be applied:

#1 Broadcast **one** of the following pre-emergent herbaceous releases between Mid-March and early-April.

a: Oust 2-4 oz/acre

b: (Tank mix) Velpar L 24-32 oz/acre and Oust 2-4 oz/acre

c: (Tank mix) Velpar DF 10.67 oz/Acre and Oust 2-4 oz/acre

d: Oustar 10-12 oz/acre

#2 Mow between rows (**optional**).