



Herbicides for Native Warm-season Grasses

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The herbicide recommendations in this guide were generated using Virginia Cooperative Extension's 'Pest Management Guide, label recommendations, and local experience.

There may be instances where herbicides other than those mentioned may be legal and effective. Virginia Cooperative Extension does not endorse any specific company or product; product names are used when a product represents a unique combination of active ingredients not found elsewhere on the market, or if use of a product name clarifies the recommendation. In some cases generic herbicides with active ingredients identical to trade-named herbicides exist, and this guide attempts to highlight some of those options. Be sure to read all labels as generics may differ in concentration from the products listed in this guide.

How to use this guide

- The example applications may be given on both a *per acre* basis for calibrated application equipment, and on a *per gallon* basis for spot spraying.
- The example applications are calculated using label specifications for mid-to-high application rates. Intentionally “doubling up” on the rate when mixing spray, or by accidental overlap when spraying can cause crop injury.
- The *per gallon* herbicide rates were calculated under the assumption that most people, **when spot spraying by hand, will apply a total volume of somewhere around 75 gallons/acre. It’s also assumed that weeds will be sprayed until thoroughly wet, but not to the point of runoff. This is a starting point only, your case may vary dramatically depending on weed density, sprayer type, and individual application technique.**

General Considerations for Weed Control in Native Warm Season Grasses



Native warm-season perennial grasses have a reputation for slow establishment when compared to their cool-season counterparts. Some of this is due to the priority which native warm-season grasses put on root development, which will result in a deep-rooted, long lived plant once established. It is therefore critical to be patient during the establishment phase, which may become very weedy. Begin developing a plan well in advance of planting to deal with weed competition during establishment and beyond. The herbicides used in native warm-season plantings may be uncommon, and custom applicators may have little experience with them. It would be wise to communicate your plans early to allow custom applicators time to fit your spray job into their schedule.

Always start with a weed-free seedbed through the use of a chemical “burndown” application to kill all existing vegetation prior to or at planting. Done too far in advance of planting, a field that has been burned down will quickly repopulate with weeds and compete with native warm-season grasses. If possible, use a burndown chemical (or add a tankmix partner) that has persistence in the soil (known as residual) that helps to control germinating weeds for a period of time ranging from weeks to months. This use of residual weed control is called preemergence control. Use caution and follow label guidelines to select only herbicides that are safe to plant into immediately with native warm season grasses; many herbicides have plantback restrictions months in length.

Once your native warm-season stand has germinated and begun to grow, it is likely that weeds will soon threaten to compete with the young seedlings. Before selecting a postemergent herbicide (one sprayed after the crop has emerged) it is important to get an idea of the population of the native warm-season grass stand to determine whether replanting is necessary. Because of replant restrictions, certain herbicides should not be used if replanting is planned. Various postemergent herbicides require that the crop be well-established before it can be safely sprayed, usually indicated by a certain number of mature leaves or as a function of time. In addition to this guide, an herbicide’s label will give important details about all of these considerations and ultimately serves as the authority on legal and safe use of the chemical.

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Switchgrass

(*Panicum virgatum*)



Switchgrass - Establishment

Glyphosate can be used as a burndown prior to or at planting. It possesses no residual activity. Typically, any required non-ionic surfactant is already included in most glyphosate products.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used prior to or at planting as a burndown that controls broadleaf weeds only. It also has residual activity on emerging broadleaf weeds.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
1 quart AMS (liquid ammonium sulfate)

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO
12 mL (1/2 oz) AMS

Sulfosulfuron ('Outrider') can be used prior to planting as a burndown to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc. You must wait 14 days after spraying before seeding switchgrass.

Per acre (broadcast)
2 oz 'Outrider'
8 oz non-ionic surfactant

Switchgrass - Maintenance

Glyphosate can be used during the dormant season prior to green-up of established switchgrass. It will non-selectively control any actively growing plant.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used during the Dormant Season ONLY on established switchgrass to provide post-emergence and some pre-emergence control of broadleaf weeds. For good control, most weeds should be sprayed before they exceed 4" in height.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
No AMS or UAN

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO

2,4-D and dicamba can be used during the dormant or growing season to control broadleaf weeds in established switchgrass or in seedling switchgrass that is well-developed, as defined by the presence of 5 fully developed (collared) leaves.

Per acre
2.5 pints 2,4-D ester (3.8 lbs. ai/gal)
8 oz dicamba (4 lbs. ai/gal)
8 oz non-ionic surfactant

Per gallon of water (spot treatment)
16 mL (1/2 oz) 2,4-D ester
3 mL (1/10 oz) dicamba
9.5 mL (1/3 oz) non-ionic surfactant

Atrazine can be used in-season on established switchgrass to control broadleaf and grass weeds including: ragweed, barnyard grass, downy brome, cocklebur, fall panicum, foxtail, Kentucky bluegrass, marehail, pigweed, and smooth brome, etc. Spray in spring prior to weed emergence.

Per acre (broadcast)
2 quarts atrazine (4 lbs. ai/gal)

Quinclorac ('Facet L') can be used in-season on established switchgrass as a postemergence product with residual control. Quinclorac will control selected broadleaf and annual grass weeds (including foxtail) when applied to weeds under 4" tall.

Per acre
1 quart 'Facet L'
2 pints crop oil concentrate (COC) or 1-2 pints methylated seed oil (MSO)

Sulfosulfuron ('Outrider') can be used in established switchgrass (defined as 3 fully-collared leaves) to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc.

Per acre (broadcast)
2 oz 'Outrider'
8 oz non-ionic surfactant

Big Bluestem

(*Andropogon gerardii*)



Big Bluestem - Establishment

Glyphosate can be used as a burndown prior to or at planting. It possesses no residual activity. Typically any required non-ionic surfactant is already included in most glyphosate products.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used prior to or at planting as a burndown that controls broadleaf weeds only. It also has residual activity on emerging broadleaf weeds.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
1 quart AMS (liquid ammonium sulfate)

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO
12 mL (1/2 oz) AMS

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at low rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)
30 gal water or less preferred
12 oz 'Plateau'
1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)
1 gal water
4.5 mL 'Plateau'
9 mL (1/3 oz) MSO

Big Bluestem - Establishment

Sulfosulfuron ('Outrider') can be used prior to planting as a burndown to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc. You must wait 14 days after spraying before seeding big bluestem.

Per acre (broadcast)
2 oz 'Outrider'
8 oz non-ionic surfactant

Big Bluestem - Maintenance

Glyphosate can be used during the dormant season prior to green-up of established big bluestem. It will non-selectively control any actively growing plant.

<u>Per acre (broadcast)</u> 2 quarts glyphosate (4 lbs. ai/gal)	<u>Per gallon (spot spray)</u> 1 oz glyphosate
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Saflufenacil ('Sharpen') can be used in-season on established big bluestem to provide post-emergence and some pre-emergence control of broadleaf weeds. For good control, most weeds should be sprayed before they exceed 4" in height.

<u>Per acre (broadcast)</u> 25 gal water (less volume requires recalculation of adjuvants) 2 oz 'Sharpen' 1 quart MSO (methylated seed oil) No AMS or UAN	<u>Per gallon (spot spray)</u> 1 gal water 0.75 mL 'Sharpen' 12 mL (1/2 oz) MSO
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2,4-D and dicamba can be used during the dormant or growing season to control broadleaf weeds in established big bluestem or in seedling big bluestem that is well-developed, as defined by the presence of 5 fully developed (collared) leaves.

<u>Per acre</u> 2.5 pints 2,4-D ester (3.8 lbs. ai/gal) 8 oz dicamba (4 lbs. ai/gal) 8 oz non-ionic surfactant	<u>Per gallon of water (spot treatment)</u> 16 mL (1/2 oz) 2,4-D ester 3 mL (1/10 oz) dicamba 9.5 mL (1/3 oz) non-ionic surfactant
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Atrazine can be used in-season on established big bluestem to control broadleaf and grassy weeds including: ragweed, barnyard grass, downy brome, cocklebur, fall panicum, foxtail, Kentucky bluegrass, maretail, pigweed, and smooth brome, etc. Spray in spring prior to weed emergence.

Per acre (broadcast)
2 quarts atrazine (4 lbs. ai/gal)

Big Bluestem - Maintenance

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at lower rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)

30 gal water or less preferred

12 oz 'Plateau'

1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)

1 gal water

4.5 mL 'Plateau'

9 mL (1/3 oz) MSO

Sulfosulfuron ('Outrider') can be used in established big bluestem (defined as 3 fully-collared) leaves to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc.

Per acre (broadcast)

2 oz 'Outrider'

8 oz non-ionic surfactant

Quinclorac ('Facet L') can be used in season on established big bluestem as a postemergence product with some residual control. Quinclorac will control selected broadleaf and annual grass weeds (including foxtail) when applied to weeds under 4" tall.

Per acre

1 quart 'Facet L'

2 pints crop oil concentrate (COC) or 1-2 pints methylated seed oil (MSO)

Little Bluestem (*Schizachyrium scoparium*)



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Little Bluestem - Establishment

Glyphosate can be used as a burndown prior to or at planting. It possesses no residual activity. Typically any required non-ionic surfactant is already included in most glyphosate products.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used prior to or at planting as a burndown that controls broadleaf weeds only. It also has residual activity on emerging broadleaf weeds.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
1 quart AMS (liquid ammonium sulfate)

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO
12 mL (1/2 oz) AMS

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at lower rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)
30 gal water or less preferred
12 oz 'Plateau'
1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)
1 gal water
4.5 mL 'Plateau'
9 mL (1/3 oz) MSO

Little Bluestem - Establishment

Sulfosulfuron ('Outrider') can be used prior to planting as a burndown to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc. You must wait 14 days after spraying before seeding little bluestem.

Per acre (broadcast)
2 oz 'Outrider'
8 oz non-ionic surfactant

Little Bluestem - Maintenance

Glyphosate can be used during the dormant season prior to green-up of established little bluestem. It will non-selectively control any actively growing plant.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used in-season on established little bluestem to provide post-emergence and some pre-emergence control of broadleaf weeds. For good control, most weeds should be sprayed before they exceed 4" in height.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
No AMS or UAN

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO

2,4-D and dicamba can be used during the dormant or growing season to control broadleaf weeds in established little bluestem or in seedling little bluestem that is well-developed, as defined by the presence of 5 fully developed (collared) leaves.

Per acre
2.5 pints 2,4-D ester (3.8 lbs. ai/gal)
8 oz dicamba (4 lbs. ai/gal)
8 oz non-ionic surfactant

Per gallon of water (spot treatment)
16 mL (1/2 oz) 2,4-D ester
3 mL (1/10 oz) dicamba
9.5 mL (1/3 oz) non-ionic surfactant

Atrazine can be used in-season on established (at least one full growing season) little bluestem to control broadleaf and grassy weeds including: ragweed, barnyard grass, downy brome, cocklebur, fall panicum, foxtail, Kentucky bluegrass, marestalk, pigweed, and smooth brome, etc. Spray in spring prior to weed emergence.

Per acre (broadcast)
1 quart atrazine (4 lbs. ai/gal)

Little Bluestem - Maintenance

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at lower rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)

30 gal water or less preferred

12 oz 'Plateau'

1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)

1 gal water

4.5 mL 'Plateau'

9 mL (1/3 oz) MSO

Quinclorac ('Facet L') can be used in season on established little bluestem as a postemergence product with residual control. Quinclorac will control selected broadleaf and annual grass weeds (including foxtail) when applied to weeds under 4" tall.

Per acre

1 quart 'Facet L'

2 pints crop oil concentrate (COC) or 1-2 pints methylated seed oil (MSO)

Sulfosulfuron ('Outrider') can be used in established little bluestem (defined as 3 fully-collared leaves) to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc.

Per acre (broadcast)

2 oz 'Outrider'

8 oz non-ionic surfactant

Indiangrass

(*Sorghastrum nutans*)



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Indiangrass - Establishment

Glyphosate can be used as a burndown prior to or at planting. It possesses no residual activity. Typically any required non-ionic surfactant is already included in most glyphosate products.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Saflufenacil ('Sharpen') can be used prior to or at planting as a burndown that controls broadleaf weeds only. It also has residual activity on emerging broadleaf weeds.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz 'Sharpen'
1 quart MSO (methylated seed oil)
1 quart AMS (liquid ammonium sulfate)

Per gallon (spot spray)
1 gal water
0.75 mL 'Sharpen'
12 mL (1/2 oz) MSO
12 mL (1/2 oz) AMS

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at lower rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)
30 gal water or less preferred
12 oz 'Plateau'
1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)
1 gal water
4.5 mL 'Plateau'
9 mL (1/3 oz) MSO

Indiangrass - Establishment

Sulfosulfuron ('Outrider') can be used prior to planting as a burndown to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc. You must wait 14 days after spraying before seeding Indiangrass.

Per acre (broadcast)
2 oz 'Outrider'
8 oz non-ionic surfactant

Indiangrass - Maintenance

Glyphosate can be used during the dormant season prior to green-up of established Indiangrass. It will non-selectively control any actively growing plant.

<u>Per acre (broadcast)</u> 2 quarts glyphosate (4 lbs. ai/gal)	<u>Per gallon (spot spray)</u> 1 oz glyphosate
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Saflufenacil ('Sharpen') can be used in-season on established Indiangrass to provide post-emergence and some pre-emergence control of broadleaf weeds. For good control, most weeds should be sprayed before they exceed 4" in height.

<u>Per acre (broadcast)</u> 25 gal water (less volume requires recalculation of adjuvants) 2 oz 'Sharpen' 1 quart MSO (methylated seed oil) No AMS or UAN	<u>Per gallon (spot spray)</u> 1 gal water 0.75 mL 'Sharpen' 12 mL (1/2 oz) MSO
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2,4-D and dicamba can be used during the dormant or growing season to control broadleaf weeds in established Indiangrass or in seedling Indiangrass that is well-developed, as defined by the presence of 5 fully developed (collared) leaves.

<u>Per acre</u> 2.5 pints 2,4-D ester (3.8 lbs. ai/gal) 8 oz dicamba (4 lbs. ai/gal) 8 oz non-ionic surfactant	<u>Per gallon of water (spot treatment)</u> 16 mL (1/2 oz) 2,4-D ester 3 mL (1/10 oz) dicamba 9.5 mL (1/3 oz) non-ionic surfactant
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Indiangrass - Maintenance

Imazapic ('Plateau') can be used at planting or any time thereafter to control broadleaf and grass weeds, including tall fescue. It has some residual activity. Depending on the species, imazapic can be used at lower rates safely for the establishment and maintenance of wildflowers and legumes. Weed and crop tolerance is highly species specific, check the label for details.

Per acre (broadcast)

30 gal water or less preferred

12 oz 'Plateau'

1.5 pints MSO (methylated seed oil)

Per gallon (spot spray)

1 gal water

4.5 mL 'Plateau'

9 mL (1/3 oz) MSO

Sulfosulfuron ('Outrider') can be used in established Indiangrass (defined as 3 fully-collared leaves) to control selected broadleaf and grass weeds including downy brome, horseweed, chickweed, mustards, Johnsongrass, etc.

Per acre (broadcast)

2 oz 'Outrider'

8 oz non-ionic surfactant

Quinclorac ('Facet L') can be used in season on established Indiangrass as a postemergence product with some residual control. Quinclorac will control selected broadleaf and annual grass weeds (including foxtail) when applied to weeds under 4" tall.

Per acre

1 quart 'Facet L'

2 pints crop oil concentrate (COC) or 1-2 pints methylated seed oil (MSO)

Atrazine can be used in-season on established (at least one full growing season) Indiangrass to control broadleaf and grassy weeds including: ragweed, barnyard grass, downy brome, cocklebur, fall panicum, foxtail, Kentucky bluegrass, marehail, pigweed, and smooth brome, etc. Spray in spring prior to weed emergence.

Per acre (broadcast)

1 quart atrazine (4 lbs. ai/gal)

Eastern Gamagrass (*Tripsacum dactyloides*)



Cape May Wildlife Guide



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Establishment

Glyphosate can be used as a burndown prior to or at planting. It possesses no residual activity. Typically any required non-ionic surfactant is already included in most glyphosate products.

Per acre (broadcast)
2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)
1 oz glyphosate

Atrazine can be used prior to or at planting as a burndown and good residual control on a variety of grass and broadleaf weeds including: barnyardgrass, foxtail, crabgrass, ragweed, pigweed, and lambsquarters, etc. See the label for a detailed list. Atrazine may be tankmixed with glyphosate for better burndown activity. Eastern Gamagrass must be seeded at least ½” deep to avoid damage from atrazine.

Per acre (broadcast)
2 quarts atrazine (4 lbs. ai/gal)
1 qt. COC (crop oil concentrate)—only if killing existing weeds

Saflufenacil (‘Sharpen’) can be used prior to or at planting as a burndown that controls broadleaf weeds only. It also has residual activity on emerging broadleaf weeds.

Per acre (broadcast)
25 gal water (less volume requires recalculation of adjuvants)
2 oz ‘Sharpen’
1 quart MSO (methylated seed oil)
1 quart AMS (liquid ammonium sulfate)

Per gallon (spot spray)
1 gal water
0.75 mL ‘Sharpen’
12 mL (1/2 oz) MSO
12 mL (1/2 oz) AMS

Maintenance

Glyphosate can be used during the dormant season prior to green-up of established Eastern Gamagrass. It will non-selectively control any actively growing plant.

Per acre (broadcast)

2 quarts glyphosate (4 lbs. ai/gal)

Per gallon (spot spray)

1 oz glyphosate

Saflufenacil ('Sharpen') can be used in-season on established Eastern Gamagrass to provide post-emergence and some pre-emergence control of broadleaf weeds. For good control, most weeds should be sprayed before they exceed 4" in height.

Per acre (broadcast)

25 gal water (less volume requires recalculation of adjuvants)

2 oz 'Sharpen'

1 quart MSO (methylated seed oil)

No AMS or UAN

Per gallon (spot spray)

1 gal water

0.75 mL 'Sharpen'

12 mL (1/2 oz) MSO

2,4-D and dicamba can be used during the dormant or growing season to control broadleaf weeds in established Eastern gamagrass or in seedling gamagrass that is well-developed, as defined by the presence of 5 fully developed (collared) leaves.

Per acre

2.5 pints 2,4-D ester (3.8 lbs. ai/gal)

8 oz dicamba (4 lbs. ai/gal)

8 oz non-ionic surfactant

Per gallon of water (spot treatment)

16 mL (1/2 oz) 2,4-D ester

3 mL (1/10 oz) dicamba

9.5 mL (1/3 oz) non-ionic surfactant

Quinclorac ('Facet L') can be used in season on established Eastern Gamagrass as a postemergence product with some residual control. Quinclorac will control selected broadleaf and annual grass weeds (including foxtail) when applied to weeds under 4" tall.

Per acre

1 quart 'Facet L'

2 pints crop oil concentrate (COC) or 1-2 pints methylated seed oil (MSO)