



**VOLUNTARY UNIFORM PRODUCT
GUIDELINES FOR HORTICULTURAL MULCHES,
GROWING MEDIA AND LANDSCAPE SOILS**

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MULCH & SOIL COUNCIL

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Mulch & Soil Council Uniform Product Guidelines

These Uniform Product Guidelines (UPG) are voluntary product standards and definitions. MSC members are expected to subscribe to these guidelines in principle. However, companies enrolled in the MSC Product Certification Program must adopt these guidelines as mandatory standards as part of the program registration and licensing requirements.

Part I. Purpose and History

The purpose of these voluntary Uniform Product Guidelines is to promote:

- 1 uniform terminology and labeling that enables industry, consumers, buyers, and regulators to achieve a common understanding of mulch and soil products and product ingredients
- 2 fair and open competition in the mulch and soil industry
- 3 standards for product performance that enable individuals to understand and choose the best product for their application.

Part II. Product Categories

Subject to the labeling requirements defined in Part III and product terms and definitions described in the Glossary of Terms (Part IV), mulch and soil products are divided into one of the following product categories:

MULCH

Any product or material except peat or peat moss, that is advertised, offered for sale, or sold for primary use as a horticultural, above-ground dressing.

HORTICULTURAL GROWING MEDIA

Any product or material advertised, offered for sale or sold for primary use as an in-container growing media with minimum product suitability determined by the test procedures defined in Appendices A & B of this document.

LANDSCAPE SOIL & SOIL AMENDMENTS

Any product or material advertised, offered for sale or sold for primary use as an in-ground soil amendment, conditioner or replacement. Landscape soils and soil amendments may be generally characterized in terms of pH and EC, but suitability for use is determined by the test procedure defined in Appendix C of this document.

Part: III: General Product Labeling

The MSC recognizes the following labeling requirements for all mulches, horticultural growing media, and landscape soils/amendments. The source of these requirements is specified.

- 1) All products must have a label that declares the product identity. (AAPFCO¹, NIST²)
- 2) Product names, ingredient names, soil characteristics, and label terminology must conform to the product definitions of this guideline. (MSC³)
- 3) Product names that incorporate or refer to a single specific material must be comprised of 100% of that material. (MSC³)
- 4) Product names that list a specific material as “first-mentioned” among other materials must be comprised of more than 50% of that product. (AAPFCO¹)
- 5) Product names that list a component material or materials on other than a first-mentioned basis must be comprised of at least 10% of the named material(s) and such materials shall be listed in the name in the declining order of their volume content. (AAPFCO¹, MSC³)
- 6) Product names which indicate a specific animal manure by picture, graphic, drawing, or any means other than by name (i.e., cow, sheep, poultry, etc.) shall contain more than 50% of that specific animal manure as part of its total manure content by volume. (AAPFCO¹)
7. A product label shall appear on each product bag. Product labels shall contain an ingredient statement that lists the individual ingredients in declining order by percent of volume or weight as determined by the quantity statement. Individual ingredients must comply with accepted terms in Part IV (Glossary of Terms) of these guidelines. Materials that are less than 3% of total product volume, individually, may be grouped together under the category “other materials”. The specific percentage of product

volume/weight of each listed material need not be given on the product label. (MSC)

- 8) All product packaging and labeling shall conform to requirements of NIST Handbook 133.
- 9) All products shall conform to AAPFCO Handbook 52 and each successive edition as well as the standards and guidelines of the MSC, and all product claims made must be verifiable using repeatable independent scientific methods.
- 10) Colorized Products must conform to the definitions and guidelines for the product name claimed.
- 11) Mulch or soil products shall not contain Chromated Copper Arsenate-treated (CCA) wood or any ingredients whose original manufacturer recommends against grinding or mulching.

Part IV: Glossary of Terms

Aged: Exposed to weathering and/or natural decay.

Bark: The corky exterior covering of trees, including the cambium, with a maximum wood content (interior xylem) of 15%.

Brand or Product Name: A specific designation applied to an individual product.

Canadian Sphagnum Peat Moss: Sphagnum Peat Moss harvested or mined in Canada.

Cedar Mulch: Products derived 100% from trees of the genus Thuja or juniperus.

Coir Pith: The processed pith found between fibers of coconut husks generally used to improve water, air, and nutrient retention in horticultural mixes. It generally appears reddish-tan and granular to fibrous, has a slightly acidic pH, and is available in different size gradations.

Coir Fibre: Fiber from the outer husk of the coconut (*Cocos nucifera*), one widely used in planting beds and as a rooting medium.

Compost: Soil amendment, landscape soil or horticultural growing media derived from the biological decomposition of organic matter accomplished by mixing and piling in such a way to promote aerobic and/or anaerobic decay which minimizes

pathogens, viable weed seeds, and odors. It shall have soluble salts ≤ 20 mmhos/cm and pH of 4.5-8.04. Suitability for use shall be determined by the testing protocol described in Appendices A-C and the requirements of the United States Environmental Protection Agency in 40CFR, Part 503, Table 3. (See also, Landscape Soil, Potting Soil.)

Container Soil/Mix: (See Potting Soil.)

Cypress Bark Mulch: products derived from the genus *Taxodium* and a maximum wood content of 15%.

Cypress Mulch: products derived 100% from trees of the genus *Taxodium*.

Forest Products: Untreated wood and its untreated by-products generated from the harvest of timber. These products may include lumber, sawdust, bark and similar materials but do not include reprocessed wood from fabricated consumer or industrial products.

Garden Soil: (See Landscape Soil.)

Hardwood Bark Mulch: products derived from deciduous hardwood trees and a maximum wood content of 15%.

Hardwood Mulch: products derived 100% from deciduous hardwood trees.

Hemlock Bark Mulch: products derived from the genus *Tsuga* and a maximum wood content of 15%.

Hemlock Mulch: products derived 100% from the genus *Tsuga*.

Horticultural Growing Medium: Any substance or mixture of substances which is promoted as or is intended to function as a commercial or consumer growing medium for the managed growth of horticultural crops in containers.

Humus: A material for soil conditioning that is derived primarily from the decomposition of animal or vegetable matter in such manner as the origin of the material is not recognizable. It shall have soluble salts ≤ 5.5 mmhos/cm and pH of 3.5-7.54. Suitability for use shall be determined by the testing protocol described in Appendix C. (See also, Landscape Soil, Soil Amendment.)

Landscape Soil: A material, mix or blend for in-ground growing of plants, and made primarily from natural soils, bark, peat, humus, compost, and/or manure. It may

include fertilizer, pesticides, and/or additives intended as soil conditioners (e.g., perlite, vermiculite, sand, peat moss, charcoal). It shall have soluble salts ≤ 20 mmhos/cm and pH of 4.5-7.54. Suitability for use shall be determined by the testing protocol described in Appendix C.

Manure: Dried, pulverized, shredded, composted, or otherwise processed, manipulated, or treated animal manures are the excreta of animals together with whatever organic bedding or other materials are needed to follow good dairy barn, feedlot, poultry house, etc., practice in order to maintain proper sanitary conditions, to conserve plant food elements in the excreta, and to absorb the liquid portion without the addition of other material. It shall have soluble salts ≤ 100 mmhos/cm and pH of 4.5-9.04. Suitability for use shall be determined by the testing protocol described in Appendix C. (See also, Soil Amendment.)

Mulch Blends: Bark, wood products, or reprocessed wood products containing more than one genus or a mix of forest products and/or reprocessed wood that have been mechanically screened and/or shredded. If reprocessed wood products are used in any portion of a blend, such use must be indicated on the product ingredient label.

Mulch: Any product or material except peat or peat moss, that is advertised, offered for sale, or sold for primary use as a horticultural, above-ground dressing; for decoration, moisture control, weed control, erosion control, temperature control, or other similar purposes. (NIST)

Peat: Naturally occurring material for soil conditioning formed chiefly from the decomposition of organic matter in a water-saturated environment. It is composed chiefly of organic matter that contains some nitrogen of low activity. It shall have soluble salts ≤ 3.5 mmhos/cm and pH of 4.5-7.24. Suitability for use shall be determined by the testing protocol described in Appendix C. (See also, Soil Amendment.)

Peat Moss: Naturally occurring material formed chiefly from the partial decomposition of moss plants and organic matter in a water-saturated environment. It shall have soluble salts ≤ 3.5 mmhos/cm and pH of 3.0-6.54. Suitability for use shall be determined by the testing protocol described in Appendix C. (See also, Potting Soil, Landscape Soil and Soil Amendment.)

Peat Moss, Sphagnum: A material obtained from a sphagnum peat deposit (bog) of which an oven

dried sample contains a minimum of 66-2/3% sphagnum moss fiber by weight. Those fibers shall be stems and leaves that have recognizable fibrous and cellular structure. (AAPFCO) (See also, Potting Soil, Landscape Soil and Soil Amendment.)

Perlite, Horticultural: A unique volcanic aluminosilicate mineral which expands to about 13 times its original volume when it is heated to a temperature of approximately 1,600° F. It is commonly used as a potting-compost ingredient or separately as a medium for rooting cuttings or for hydroculture.

Pine Bark Mini-nuggets: products derived from the genus Pinus with particle size from 0.5" to 1.25" in diameter and a maximum wood content of 15%.

Pine Bark Mulch: products derived from the genus Pinus and a maximum wood content of 15%.

Pine Bark Nuggets: product derived from the genus Pinus with particle size from 1.25" to 2.75" in diameter and a maximum wood content of 15%.

Pine Mulch: products derived 100% from conifers of genus Pinus.

Planting Mix: (See Landscape Soil.)

Potting Mix: (See Horticultural Growing Media)

Potting Soil, Standard: Any material for in-container growing of plants with suitability for use determined by the testing protocol described in Appendix A.

Potting Soil, Premium: Any material for in-container growing of plants, with suitability for use determined by the testing protocol described in Appendix B.

Potting Soil, Professional: A potting soil formula used in commercial container production businesses with documented sales to professional growers of these establishments.

Processed: Deliberately treated or manipulated to modify or transform physical, chemical, or biological characteristics of the natural state of the substance.

Product Label: An information panel which shall be prominently displayed on the product bag and which shall list the contents of the bag by component materials in declining order by percentage of volume.

Product Name: The primary identification of a product given by the manufacturer and printed most prominently on the front of a product bag for the purpose of identifying the product to the consumer.

Raw: In the natural state, and not prepared, modified or manipulated for use.

Reprocessed Wood Products: Any wood recycled from forest products used in a consumer or industrial product and recycled by chipping, shredding, or other means as a mulch or filler material.

Seed Starter: A special purpose soil product formulated for in-container growing of plants from seed with suitability for use determined by the testing protocol described in Appendix D1.

Sludge/ Biosolids: The solid precipitate, resulting from water or sewage treatment processes, that contains human waste matter. It shall have soluble salts ≤ 20 mmhos/cm and pH of 4.5-7.24. Suitability for use shall be determined by the testing protocol described in Appendix C and the requirements of the United States Environmental Protection Agency in 40CFR, Part 503, Table 3. (See also, Soil Amendment.)

Soil Amendment: Any substance which is intended to improve the physical characteristics of the soil, except commercial fertilizers, agricultural liming materials, unmanipulated animal manures, unmanipulated vegetable manures, pesticides and other materials exempted by regulation. (AAPFCO) Suitability for use shall be determined by the testing protocol described in Appendix C.

Soil Conditioner: (See Soil Amendment.)

Soil: Any product or material except peat or peat moss that is advertised or offered for sale, or sold for primary use as a horticultural growing media, soil amendment, and/or soil replacement. (NIST)

Soiless: Without naturally occurring earth soil such as topsoils, mineral soil, clay, and silt.

Stump & Root Mulch: products derived 100% from the processing of tree stumps and/or roots.

Vermiculite, Horticultural: An aluminosilicate mineral, heat-treated to form expanded or 'exfoliated' granules with very low bulk density and a laminated structure that allows for good aeration and water retention.

Top Soil: (See Landscape Soil.)

Water-holding Polymer: Polyacrylamides, polyvinyl alcohols, starches and other substances, specifically manufactured to increase water retention in soil or substrates.

Western Bark Mulch: products derived from conifer trees common to the Western region of North America with no more than 15% wood content.

Western Bark Nuggets: products derived from conifer trees common to the Western region of North America with particle size from 1.50" to 2.25" in diameter, and a maximum wood content of 15%.

Western Bark Mini-Nuggets: products derived from conifer trees common to the Western region of North America with particle size from 0.75" to 1.50" in diameter, and a maximum wood content of 15%.

Western Mulch: products derived 100% from conifers common to the Western region of North America.

Wetting Agent: A liquid or granular compound applied to horticultural mixes to improve their ability to wet, rewet and distribute water.

Wood Mulch: Wood, wood products, or reprocessed wood that is mechanically shredded and/or screened.

Wood: The interior hard fibrous (cellulitic) xylem of trees.

References:

¹ MSC, The Mulch & Soil Council-Membership Approved

² NIST, National Institute of Standards and Technology, Gaithersburg, MD. Handbooks 130 and 133.

³ AAPFCO, American Association of Plant Food Control Officials, West Lafayette, IN. Official Publication Handbook, No. 52, et seq.

⁴ Stated as a recommended characterization only, subject to suitability verification as defined in Appendix C. Saturated Media Extract Method (SME).

APPENDICES

- A: Standard Potting Soil (SPS)
- B: Premium Potting Soils (PPS)
- C: Landscape Soils & Soil Amendments (LSSA)
- D: Special Purpose Soil Products
 - 1. Seed Starter Soil (SSS)

Standard Potting Soils (SPS)

Purposes are to use commonly grown plants as a bioassay to assure that these potting soils: (1) do not contain materials that would prevent the growth and development of plants, (2) will support plant growth.

Materials

Plant species: radish, 'Early Scarlet' (*Raphanus sativus*); tomato, 'Celebrity' (*Lycopersicon esculentum*); and marigold, 'Janie' (*Tagetes patula*).

Pots: Four (4), 4-inch square (or round) plastic pots per species.

Control potting soil: To assure testing uniformity, the MSC produces and distributes a uniform control sample. Companies wishing to conduct in-house testing should order control media directly from the association.

Environment: standard greenhouse environment or equivalent. 75-85°F Day / 60-70°F Night.

Procedure

1. Pots are filled with potting soil. Pots should be filled to overflowing and the excess brushed away so that the soil is even with the top of the pot. Pots may be grouped in trays (such as 1020 trays) for ease in handling.
2. All pots should be thoroughly watered prior to sowing to insure adequate moisture.
3. Five (5) seeds of each species are placed on the soil surface (four pots per species). All seeds should be covered with a very light layer of the same fresh soil before testing.
4. Anytime a test is made, the control soils must also be used (four pots per species, three species per soil test). Seeds should be sown and covered exactly as in step 2 above. The control soils are to insure that the seeds germinate properly and that the testing environment was adequate.
5. Pots should be misted using a standard 3-point fogging nozzle. Pots should be misted as needed to insure adequate moisture. Pots may need misting four times daily in summer; less in winter. Misting should occur until seedlings have established. This may be 3 to 5 days for radish, 5 to 7 days others.
6. After germination, plants should be watered as needed.
7. After 14 days, plants should be counted for percent survival.
8. After percent survival is determined to be within 99% confidence level of the control samples, each pot is thinned to one plant per pot. Plants will be grown for a total of four weeks from sowing. Plants will be watered as needed but should receive no fertilizer.
9. If plant growth stalls after 4 weeks (fails to produce a set of fully expanded leaves), one application of a 20-10-20 general purpose fertilizer will be made at 200 ppm N.
10. One additional week of growth will be allowed after fertilization — to assess if growth will resume.

Pass/Fail

If the test soil produces cotyledons and the first set of true leaves, and the percent survival is within 99% confidence level of controls, the test soil will have passed the MSC Grow Test for Standard Potting Soils. If the test soil stalls during the four weeks, but resumes growth after the fertilizer treatment, it will be assumed that the reason for the stall was due to a lack of nutrition and not due to toxicity. Therefore, this test soil will have passed the Standard Potting Soil Test.

Premium Potting Soils (PPS)

Purposes are to use commonly grown plants as a bioassay to assure that these potting soils: (1) do not contain materials that would prevent the growth and development of plants, (2) will promote plant growth and provide performance greater than standard potting soils

Materials

Plant species: radish, 'Early Scarlet' (*Raphanus sativus*); tomato, 'Celebrity' (*Lycopersicum esculentum*); and marigold, 'Janie' (*Tagetes patula*).

Pots: Four (4), 4-inch square (or round) plastic pots per species.

Control potting soil: To assure testing uniformity, the MSC produces and distributes a uniform control sample. Companies wishing to conduct in-house testing should order control media directly from the association.

Environment: standard greenhouse environment or equivalent. 75-85°F Day / 60-70°F Night.

Procedure

1. Pots are filled with potting soil. Pots should be filled to overflowing and the excess brushed away so that the soil is even with the top of the pot. Pots may be grouped in trays (such as 1020 trays) for ease in handling.
2. All pots should be thoroughly watered prior to sowing to insure adequate moisture.
3. Five (5) seeds of each species are placed on the soil surface (four pots per species). All seeds should be covered with a very light layer of fresh soil before testing.
4. Anytime a test is made, the control soil must also be used (four pots per species, three species per soil test). Seeds should be sown and covered exactly as in step 2 above. This control soil is to insure that the seeds germinate properly, that the testing environment was adequate, and as a standard to compare the test soil.
5. Pots should be misted using a standard 3-point fogging nozzle. Pots should be misted as needed to insure adequate moisture. Pots may need misting four times daily in summer; less in winter. Misting should occur until seedlings have established. This may be 3 to 5 days for radish, 5 to 7 days others.
6. After germination, plants should be watered as needed.
7. Plants should be counted for percent survival. Time will vary depending on species and season grown. This could be as early as 5 to 7 days for radish. All plants should be counted after 14 days from sowing.
8. After percent survival is determined to be within 99% confidence level of the control samples, each pot is thinned to one plant per pot. Plants will be grown for a total of four weeks from sowing. Plants will be watered as needed but should receive no fertilizer.
9. At 4 weeks after sowing, test plants will be compared to controls. Plant dry weights will be taken.

Pass/Fail

In order to pass the MSC Grow Test for Premium Soils, a test soil must grow plants equal to or greater than the control soil. Plant top dry weights clipped at the soil level must be statically equal to or greater than the control soil (99% confidence level).

Landscape Soils & Soil Amendments (LS/SA)

Purposes are to use commonly grown plants as a bioassay to assure that these soil amendments: (1) do not contain materials that would prevent the growth and development of plants, (2) will support plant growth.

Materials

Plant species: radish, 'Early Scarlet' (*Raphanus sativus*); tomato, 'Celebrity' (*Lycopersicon esculentum*); and marigold, 'Janie' (*Tagetes patula*).

Pots: Four (4), 4-inch square (or round) plastic pots per species.

Control potting soil: To assure testing uniformity, the MSC produces and distributes a uniform control sample. Companies wishing to conduct in-house testing should order control media directly from the association.

Environment: standard greenhouse environment or equivalent. 75-85°F Day / 60-70°F Night.

Procedure

1. The test soil amendment will be blended with pH adjusted sand (builder's grade) in volumetric ratios according to label directions.
2. All pots should be thoroughly watered prior to sowing to insure adequate moisture.
3. Pots are filled with the landscape soil. Pots should be filled to overflowing and the excess brushed away so that the soil is even with the top of the pot. Pots may be grouped in trays (such as 1020 trays) for ease in handling.
4. Five (5) seeds of each species are placed on the soil surface (four pots per species). All seeds should be covered with a very light layer of fresh soil before testing.
5. Anytime a test is made, the control soil must also be used (four pots per species, three species per soil test). Seeds should be sown and covered exactly as in steps 2-4 above. This control soil is to insure that the seeds germinate properly and that the testing environment was adequate.
6. Pots should be misted using a standard 3-point fogging nozzle. Pots should be misted as needed to insure adequate moisture. Pots may need misting four times daily in summer; less in winter. Misting should occur until seedlings have established. This may be 3 to 5 days for radish, 5 to 7 days others.
7. After germination, plants should be watered as needed.
8. After percent survival is determined to be within 99% confidence level of the control samples, each pot is thinned to one plant per pot. Plants will be grown for a total of four weeks from sowing. Plants will be watered as needed but should receive no fertilizer.
9. After 14 days, plants should have produced cotyledons and the first set of true leaves. If plant growth stalls after 4 weeks (fails to produce a set of fully expanded leaves), one application of a 20-10-20 general purpose fertilizer will be made at 200 ppm N.
10. One additional week of growth will be allowed after fertilization to assess if growth will resume.

Pass/Fail

If the blend of test soil and sand produces cotyledons and the first set of true leaves, the test soil will have passed the MSC Toxicity Test for Landscape Soils and Soil Amendments. If the test soil stalls during the four weeks, but resumes growth after the fertilizer treatment, it will be assumed that the reason for the stall was due to a lack of nutrition and not due to toxicity, and will pass the test.

Special Purpose: Seed Starter Soil

Purposes are to use commonly grown plants as a bioassay to assure that these potting soils:

- (1) do not contain materials that would prevent the growth and development of plants,
- (2) will support the germination and establishment of young seedlings.

Materials

Plant species: Radish, 'Early Scarlet' (*Raphanus sativus*); Tomato, 'Celebrity' (*Lycopersicon esculentum*); Marigold, 'Janie' (*Tagetes patula*); Basil, 'Sweet Green' (*Ocimum minimum*); Impatiens 'Dazzler Red' (*Impatiens walleriana*); and Zinnia "Dreamland Red" (*Zinnia elegans*).

Pots: Four (4), 4-inch square (or round) plastic pots per species.

Control potting soil: To assure testing uniformity, the MSC produces and distributes a uniform control sample. Companies wishing to conduct in-house testing should order control media directly from the association.

Environment: standard greenhouse environment or equivalent. 75-85°F Day / 60-70°F Night.

Procedure

1. Pots are filled with potting soil. Pots should be filled to overflowing and the excess brushed away so that the soil is even with the top of the pot. Pots may be grouped in trays (such as 1020 trays) for ease in handling.
2. All pots should be thoroughly watered prior to sowing to insure adequate moisture.
3. Five (5) seeds of each species are placed on the soil surface (four pots per species). All seeds should be covered with a very light layer of the same fresh soil before testing.
4. Anytime a test is made, the control soils must also be used (four pots per species, six species per soil test). Seeds should be sown and covered exactly as in step 3 above. The control soils are to insure that the seeds germinate properly and that the testing environment was adequate.
5. Pots should be misted using a standard 3-point fogging nozzle. Pots should be misted as needed to insure adequate moisture. Pots may need misting four times daily in summer; less in winter. Misting should occur until seedlings have established. This may be 3 to 5 days for radish, 5 to 7 days for the others.
6. After germination, plants should be watered as needed.
7. After 14 days, plants should be counted for percent survival.
8. After percent survival is determined to be within 95% confidence level of the control samples, each pot is thinned to one plant per pot. Plants will be grown for a total of four weeks from sowing. Plants will be watered as needed but should receive no fertilizer.

Pass/Fail

If the test soil produces cotyledons and the first set of true leaves, and the percent survival is within 95% confidence level of controls, the test soil will have passed the MSC Grow Test for Seed Starter Soils.