

BIOCHAR LABELING GUIDANCE DOCUMENT



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**Project methodology**

R. Alexander Associates, Inc. (RAA) was pleased to have assisted the biochar industry in the development of this guidance document. Within, we have outlined the most typical means to register biochar products, sold in different forms, and depending upon whether claims are made on the product itself. We also attempted to identify specific 'outlier' state requirements, such as California, Oregon and Arkansas, but cannot guarantee being able to list them all.

RAA used its current knowledge, as well as discussions with state Control Officials (16) to generate the registration and labeling guidance document. The project budget did not allow for all of the state control officials to be interviewed.

Acknowledgment

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AAPFCO and State DOA's – who they are and relevance

The Association of American Plant Food Control Officials (AAPFCO) is an organization of fertilizer control officials from each state in the United States, from Canada and from Puerto Rico who are actively engaged in the administration of fertilizer laws and regulations. These same 'control officials' are engaged in the administration of soil amendment laws and regulations.

Each State in the United States, Puerto Rico and Canada has its own fertilizer (and soil amendment) regulatory program. AAPFCO strives to gain uniformity among each of these entities without compromising the needs of the consumers, protection of the environment or fair competition among the industry.

The association's purpose is to achieve uniformity consensus by providing a forum through which members may unite to:

- Promote uniform and effective legislation, definitions, rulings and enforcement practices;
- Encourage and sponsor the adoption of the most effective and adequate sampling and analytical methods;
- Develop high standards of inspection techniques and enforcement practices;
- Promote adequate labeling and safe use of fertilizers and soil amendments;
- Provide facilities and opportunities for the free exchange of information, discussion and cooperative study of problems confronting members of the Association; and
- Cooperate with members of the industry to promote the safe and effective use of fertilizers and protection of soil and water resources.

Text above modified from AAPFCO website

All of the continental US states regulate the sale and distribution of fertilizer; while 36 do the same for soil amendment products (list in Appendix). Soil amendments may also be referred to as soil conditioners or soil ameliorants. Therefore, if a product (including biochar) is defined as a fertilizer or a soil amendment, and is distributed in an aforementioned state, it must be registered for sale in that state.

Related AAPFCO Definitions

Fertilizer – any substance containing one or more recognized plant nutrient(s) which is used for its plant nutrient content and which is designed for use or **claimed to have value in promoting plant growth**, except unmanipulated animal and vegetable manures, marl, lime, limestone, wood ashes and other products exempted by the regulation by the (State Departments of Agriculture, or equivalent).

Specialty Fertilizer – a fertilizer distributed for non-farm use. (Example, turf, landscape fertilizers)

Soil Amendment – (commonly referred to a Soil Additive or Soil Conditioners), means any substance or a mixture of substances which is intended **to improve the physical, chemical, biochemical, biological or other characteristic of the soil**, except fertilizer, agricultural liming materials, unmanipulated animal manures, unmanipulated vegetables manures, pesticides and other materials exempt by regulation.

From AAPFCO OP#72

Current definition and ramification

Biochar has been defined through AAPFCO since 2016 as a soil amendment, and most state control officials regulate it as such. A soil amendment product cannot make plant growth claims. It's only benefit can be to improve the physical, chemical, biochemical, biological or other characteristic of the soil. That stated, control official interviews determined that many states would also allow nutrient claims to be made on biochar products, thus allowing it to be registered as a fertilizer, if nutrient content is identified in the product. However, some states may further require that nutrient release from the biochar product has been proven through university research.

Related AAPFCO Definitions

Biochar - is a solid material obtained from thermochemical conversion of biomass in an oxygen-limited environment (pyrolysis) containing at least 60% carbon. Feedstocks may be composed of crop residue, wood or other forest waste, and animal manures. Materials transported in salt water, painted, or treated with preservatives are not permitted. When listing biochar in an ingredient statement, the feedstock shall be designated by prefixing the term biochar with the feedstock from which it was produced; i.e. poultry litter biochar, green waste biochar, papermill biochar, etc. When more than one feedstock is involved, all feedstocks greater than 10% of the total volume are to be listed by decreasing volume. Their uses include soil amendments.

From AAPFCO OP#72

Most state control officials interviewed were familiar with biochar, but only to a limited extent. Further, most recognize the AAPFCO definition of biochar; requiring a 60% minimum carbon content. That stated, few states would require analytical data proving that fact.

Many states do not allow claims suggesting that biochar can modify soil pH, as that would be considered a liming agent claim. Because of the minimum calcium carbonate equivalency requirements in the Uniform Agricultural Liming Materials Bill, it would be difficult to register biochar as a liming agent in most states. *(80% CCE is a typical minimum)*

Biochar labeling requirements

All fertilizer and soil amendment products must be sold along with a proper (or legal) label. The label must meet the labeling requirements of all of the states in which the product is marketed. For a product sold in packaged form, the label is typically the package itself. For a bulk product, a printed label would accompany the product before or during shipment. It should be noted that that AAPFCO updated its labeling definition in 2017 to include electronic communication (websites, etc); essentially making all written communication a 'label'. Therefore, any related biochar document must be truthful, and for some states, be backed up by university research.

Related AAPFCO Definitions (from Uniform Soil Amendment Bill)

Label – means the display of all written, printed or graphic matter upon the immediate container or statement accompanying a soil amendment.

Labeling – means any advertising, promotional, or promotion of any soil amendment including but not limited to all written, printed, graphic or electronic communication used in promoting the sale of such soil amendment.

From AAPFCO OP#72

The data required on a product label depends on what the product is sold as, which is also closely related to the claims (product benefits) made on the label.

General Labeling Requirements:

Soil Amendment Label

- Net volume (and in some states, weight also)
- Brand name
- Guaranteed analysis – ingredient type statement
- Purpose of product
- Directions for application
- Name and address of applicant

Fertilizer Label

- Net weight
- Brand and grade
- Guaranteed analysis – chemical breakdown (e.g., WIN)
- Directions for use for fertilizer distributed to the end user
- Derivative statement – source of nutrients
- Name and address of registrant / licensee

Other information describing the product or producer may also be placed on the product label, but often, claims mentioned on the label are either 1) difficult to prove or 2) not related to soil improvement or plant growth, are found on biochar labels (including websites). Be careful here, as some state control officials will seek to review these promotional materials, and require their modification before granting approval for sale in their state. This can be a costly error, if packaging is purchased before an official review is made of it, and it is deemed inappropriate by one or more state control officials. In this example, a control official could disallow the sale of the product in their state, until the label is corrected.

Some of the trickier information required on a biochar product label is the ingredient statement, if sold as a soil amendment, and guaranteed analyses, if the product is sold as a fertilizer.

Examples of Ingredient statements and guaranteed analyses:

Biochar (wood-based) sold as a single ingredient soil amendment:

CONTAINS NON PLANT FOOD INGREDIENT (*CDFA version*)

Soil Amending Guaranteed Analysis

100 % Wood Biochar

Or

Soil Amending Guaranteed Analysis (*Most states would allow this version or CDFA's version.*)

Active Ingredients

100 % Wood Biochar

Or

Ingredients: Wood Biochar (*A few states would allow this version.*)

Biochar (wood-based) sold as an ingredient in a blended soil amendment:

Ingredients: Compost, aged pine bark, sand, and wood biochar

CONTAINS NON PLANT FOOD INGREDIENT

Soil Amending Guaranteed Analysis

Active Ingredients

25% Wood Biochar

75% Total Other Ingredients

(Ingredients listed by volume in product, listed in descending order)

Biochar (wood-based) sold as an ingredient in a potting soil:

Ingredients: Peat moss, compost, wood biochar, perlite.

(Ingredients listed by volume in product, listed in descending order)

Biochar (biosolids-based) sold as a single ingredient fertilizer:

2-4-0.5

Guaranteed Analysis

Total Nitrogen (N) 2.0%
0.1% .. Water Soluble Nitrogen
1.9%.. Water Insoluble Nitrogen
Available Phosphate (P₂O₅) 4.0%
Soluble Potash (K₂O).....0.5%

Derived from: biosolids biochar

Biochar sold as a soil amending ingredient in a fertilizer:

2-1-2

Guaranteed Analysis

Total Nitrogen (N) 2.0%
0.1% .. Water Soluble Nitrogen
1.9%.. Water Insoluble Nitrogen
Available Phosphate (P₂O₅) 1.0%
Soluble Potash (K₂O).....2.0%

Derived from: Feather meal, bone meal, kelp meal

ALSO CONTAINS NON PLANT FOOD INGREDIENT(S)

Soil Amending Guaranteed Analysis

Active Ingredients

5% Wood Biochar

95% Total other ingredients

(A few states require that hard or soft wood to be specified on the labels)

Allowable biochar claims

Often, numerous product claims are made about biochar on its packaging or label. Sometimes, the claims are difficult to prove, or they are unrelated to the applications explained on the product label. It must also be stated that control officials will evaluate your product claims against your prescribed product application rates. Therefore, don't make voluminous claims, while suggesting low (or unproven) application rates. Also, be careful that your stated claims (listed product benefits) are backed up by university research. Most states do not require that the research be completed on your particular product, but it should be on biochar produced from a similar feedstock. If selling your biochar for both landscaping and some industrial application, consider creating a label for each application, listing the claims, application rates, etc. of the specific market on that specific label.

No standardized list of acceptable product claims exists for biochar products sold for plant and/or soil benefit. Although there are many biochar claims illustrated in university research, few are accepted by all 50 states. **In fact, California only allows two claims, that the product helps the soil hold water (improves water holding capacity) and hold onto nutrients.** So, if a company is trying to create a standard bag for a biochar sold across the US, it would have to minimize the claims made, based on the requirements of California. Allowable biochar claims are those deemed acceptable to individual state control officials. Some control officials will allow many claims, and some do not. *(Some states thoroughly review product labels and some don't.)* It is important for the biochar industry to expand the number of claims in which biochar product can make.

Industry / Future Requirements *(listed in order of priority)*

1. Consider whether the AAPFCO definition for biochar should be modified
 - a. Should products containing less than 60% carbon be allowed to be considered 'biochars'?
 - b. Should the definition allow for the potential of claiming nutrient content?
2. Develop an approved / expanded list of product claims
 - a. The composting industry did this by completing (and submitting) a list of university proven product claims. Research papers defending those claims were also submitted to AAPFCO for review. The goal of this effort would be that once the biochar claims are reviewed and accepted by AAPFCO, that most of the states would allow most of them to be used on product labels without individual biochar producers submitting additional research data (provided an efficacious application rate is used).
3. See if AAPFCO can add biochar to the list of single ingredient soil amendments that when clearly and conspicuously labeled as such are exempt from the guaranteed analysis labeling rule (such as peat, perlite, vermiculite, gypsum and vermicompost).

Do's and Don'ts

Registration

- Once you've decided whether to sell the product as a soil amendment or fertilizer, and you know which states you want to sell into, determine whether fertilizer and/or soil amending regulations exist in those states
- Register the product in all states it is sold into by completing an application and submitting with a copy of the label and registration fees.
 - Applications are specific to each state and the fees vary by state also.
 - Multiple size packages can usually be sold under one registration fee, if the product label text is the same (aside from the volume or weight).

Labeling

- Don't make too many (or inappropriate) product claims. Technically, every claim must be supported by university research.
- Consider making only soil improvement or plant growth claims (place industrial and/or environmental claims on a separate technical document).
- Before printing your label, have it reviewed by several state officials. In some cases this will require submitting a registration application, in other states the control official will complete an unofficial pre review of the label before the registration is submitted.

Seek professional assistance, as necessary.

APPENDIX

State regulating the sales and distribution of soil amendments includes:

Arkansas	Illinois	Mississippi	Ohio (ag use only)	Utah
California	Iowa	Montana	Oregon	West Virginia
Colorado	Kansas	Nebraska	Pennsylvania	Wisconsin
Connecticut	Maine	New Jersey	Rhode Island	Wyoming
Delaware	Maryland	New Mexico	South Carolina	
Florida	Massachusetts	North Carolina	South Dakota	
Georgia	Michigan	North Dakota	Tennessee	
Idaho	Minnesota	Oklahoma	Virginia	

Outlier states – some states either take a hard stance on biochar, or require additional or differing data.

- Arkansas - The Plant Board may require proof of claims made for any soil amendment. If no claims are made, the Board may require proof of usefulness and value of the soil amendment. For evidence of proof the Plant Board will rely on experimental data, evaluations or advice supplied from such sources as the University of Arkansas Agricultural Experiment Station and Cooperative Extension Service. **All experimental results shall be related to Arkansas conditions for which the product is intended.** The Plant Board may accept or reject other sources of proof as additional evidence in evaluating soil amendments.
- California – A minimum 60% carbon content is defined in their state law. Therefore, even if AAPFCO changes their definition, the CDFA would still likely maintain their 60% carbon requirement. *(The USBI or other entity would likely have to approach California separately.)*
- Oregon – Requires the type of wood to be specified on the label, and if both hard wood and soft wood are used, then they both must be listed.

This should not be considered a complete list of outlier states.