

## WILD COLLECTION

Many botanicals in trade are collected in the wild rather than cultivated. From the choice of collection location to the collection techniques used, careful consideration of the relevant factors will help ensure the wild collection operation yields properly identified botanical materials of the desired quality, and is able to do so year after year on a sustainable basis.

Wild collectors of fresh produce such as blueberries may be (depending on certain exemptions) subject to specific agricultural practice requirements established in 21 CFR Part 112. Whether or not Part 112 applies, this section outlines recommended practices to ensure the identity, quality and sustainability of the crops produced.

### 4. WC.1 Wild collection

#### WC.1.1. Permits and permissions

Whether wild collection occurs on public or private property, the wild collector must conform to rules established by federal, state and local governments, and by land managers and owners.

- i. Procure the necessary permits, licenses, and permissions prior to collecting from public lands or entering private property.<sup>73</sup> Allow sufficient time for the processing and issuance of these permits at the planning stage. Maintain permits, licenses, and written permissions on file for as long as they remain relevant to the collection activities and for several years thereafter.
- ii. Public property.
  1. If collecting from government-owned land, contact the appropriate government office and obtain a permit or license, if required, before collecting.
    - When collecting from U.S. National Forest or National Grasslands, or on land controlled by the Bureau of Land Management, contact the appropriate office of the U.S. Forest Service regarding permits.
    - Collection of plants is not allowed in any U.S. National Park.

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<sup>73</sup> Depending on the circumstances, permits, licenses and permissions may be arranged by the collector or by the dealer who will buy the harvest.



- If collecting on U.S. state-owned public lands,<sup>74</sup> contact the appropriate state office before harvesting. Note that some states do not allow plants to be collected on state-owned lands. Obtain a state harvest license if required for the harvest crop.<sup>75</sup>
2. Follow all rules that apply to permitted collecting on public lands, including limits and seasonal requirements, if any; established restraints on collection in camping areas and near trails and roadsides; requests for submission of harvest data; fee payment; and any other rules.
  3. Carry all required permits and licenses while collecting.
- iii. Private property.
1. Obtain permission from the owner or owner's agent to enter and to collect on any private property. Certain state or local laws may require such permission to be in writing.
  2. Obtain a state harvest license if collection occurs in a state where such a license is required for the plant to be collected.
  3. Comply with any agreements that have been made with the owner or agent of private property on which collection occurs.
  4. Carry a copy of applicable permissions when collecting.

### WC.1.2. Collection site

- i. Collectors should select harvest sites where the target plant can be readily found and is also likely to be of good quality and free of pollution and other deleterious contaminants. Choice of collection site can impact the marketability of the material.
- ii. Species habitat. Be aware of the normal habitat for the species and choose collection sites to target healthy stands of plants growing in their normal range. Survey potential collection areas to determine whether the target species occurs in large enough quantities for collection to be sustainable.
- iii. Site characteristics. Record and maintain relevant information regarding the collection site. Such records should be maintained for as long as collections are conducted at the site, and for several years thereafter. Factors to consider and document may include:

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<sup>74</sup> The boundary of each U.S. coastal state extends for three miles seaward from its coastline. Most U.S. coastal states have policies that require permits for commercial harvest of seaweeds, and collectors of these plants must adhere to relevant state rules.

<sup>75</sup> For example, a license is required to harvest wild American ginseng in some U.S. states, whether collected on public or private land.



1. Obtain information about prior use of the site, if any.
2. If the site has been recently under cultivation, try to determine what, if any, fertilizers and pesticides were used.
3. Determine whether any recent chemical applications have been made to control insects or invasive species, or for other management purposes.
4. Consider soil tests prior to harvest on locations that have been the site of significant human activity, such as abandoned home sites, dumps or landfills, quarries, etc.
5. Determine whether water sources at or near the site are potential sources of pollution (e.g., downstream from industrial facilities, mine tailings, parking lots, golf courses, underground storage tanks, etc.).
6. Be aware of any buried utilities that are present at the site.
7. Refrain from harvesting if there are indications that the site may harbor environmental hazards.
8. Do not harvest in close proximity to roads or to railroad rights-of-way if these pose a risk of unacceptable contamination; a risk assessment may be appropriate.
9. Do not harvest under above-ground power lines if the buyer has specified a concern about such locations.

### WC.1.3. Sustainability

- i. Collectors of wild plants should apply collection practices that address not only their need to gain economic benefits from the sale of wild-harvested plants, but that also make sure that each of the collected species survives. In addition to preserving (or preferably enhancing) plant populations, collection practices should also minimize damage to the local habitat.
- ii. Collectors should be knowledgeable about each of the plants they harvest and should use collection practices that are appropriate to each species and collection area. Training should preferably be obtained from a qualified and experienced collector.
- iii. To make sure that harvests minimize damage while enhancing the health of the collected species, collectors should use the practices in the following paragraphs as applicable.<sup>76</sup>

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<sup>76</sup> Note that the guidelines provided here may not be particularly relevant to the collection of weedy or invasive species, where eradication may be viewed as a desired outcome.



- iv. Endangered species. Consult national and local legislation such as national “red” lists, as well as international guidance such as the Appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Do not collect species listed in CITES Appendix I or that are otherwise designated as endangered. In the U.S., do not collect plants that are listed as endangered under the U.S. Endangered Species Act <sup>77</sup> or that are not allowed to be harvested under state regulations due to concerns about over-harvest.
- v. Abundance. Collect only from stands of the target species that are abundant and healthy, with multiple plants of differing ages (seedling, juvenile, and mature), to ensure population stability. Avoid collecting from stands where the plant is sparse or that are outside of the species’ normal range. Refrain from collecting in the same location as earlier harvests until the population is sufficiently reestablished.
- vi. Maintaining population stability.
  1. When collecting reproductive plant parts (e.g., flowers, fruit, seed), do not take all of those plant parts from any plant population. Rather, leave enough so that each population will be able to produce an adequate amount of seeds to sustain the population.
  2. When collecting leaves from trees or woody plants, refrain from excessive defoliation of any individual plant.
  3. For collection of bark from trees or shrubs:
    - Do not “girdle” trees by removing the bark all the way around the tree, unless the tree has been or is to be removed for other purposes (e.g., for timber harvest) or is otherwise to be destroyed.
    - Whenever possible and acceptable for meeting quality standards, harvest bark from branches of the tree rather than from its trunk.
    - When possible and applicable to the particular species, prune trees and shrubs in a manner that encourages bark-producing growth, for example, by coppicing, which involves periodic cutting to encourage growth of suckers.

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<sup>77</sup> No North American species listed on CITES Appendix I are commonly in trade as dietary ingredients. At the current time, only one North American species used as a dietary ingredient is listed as endangered under the U.S. Endangered Species Act, the Tennessee purple coneflower (*Echinacea tennesseensis*); inadvertent collection of this species must be avoided.



- As necessary and appropriate, use a dressing that will protect the exposed portion of the tree from invasion of pathogens, rodents, or insects that may cause further damage to the plant.
4. For collection that involves taking the entire plant (e.g., roots):
    - Limit collection in any one population to leave sufficient numbers for regeneration of that population.
    - Collect by thinning plants instead of collecting all of the plants along the margins or in one particular part of a colony.
    - If the species is seed propagated, collect only after the fruit has ripened and the seed has been released, where possible.
  5. When collecting roots of perennials:
    - Leave some plants from each life stage (seedling, juvenile, mature).
    - Collect only plants that are mature enough to have produced viable seed, where possible.
    - For species that can regenerate from portions of roots or root crowns, leave a portion of the root in the ground or replant whole or divided crowns, as appropriate.

vii. Propagation and regeneration.

1. Propagation by seed. For collected species that reproduce sexually, plant the seeds in a suitable environment near the collection site.<sup>78</sup>
2. Asexual propagation. Plant whole or divided root crowns, as appropriate, or prepare other asexual propagation material and plant in a suitable environment near the collection site.<sup>79</sup>
3. Pruning. Consider pruning of trees and woody plants to enhance leaf and flower (and therefore fruit and seed) production.

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<sup>78</sup> If there is a threat of development or other habitat depletion is apparent, it may be preferable to plant the seeds in a different but ecologically similar location.

<sup>79</sup> If there is a threat of development or other habitat depletion is apparent, it may be preferable to plant the propagation material in a different but ecologically similar location.



viii. Habitat stewardship.

1. Minimize habitat disruption. Avoid trampling of surrounding plants and use appropriate equipment for collection. Take care to repair any unavoidable impacts (for example, by filling holes after digging roots).
2. Be aware of land-use and zoning activities in collection areas and provide input to community leaders to protect these habitats. Also, report any signs of trespassing, property damage or habitat loss in collection areas.
3. Protect wildlife habitat and keep in mind that many wild plants provide important food for wildlife.
4. Consider making note of the species, age classes, cover species, abundance, and other habitat parameters so any changes can be recorded and shared with land regulating agencies.

ix. Records.

1. Records should be maintained to document information and collection practices that ensure the sustainability of the harvest, such as:
  - Information about the plant's biology, life cycle, reproduction, etc.
  - Information about the plant's age(s), abundance, and health at the collection site(s).
  - Any special collection practices used, the proportion of plants harvested from any given population, and any steps taken to propagate or regenerate the plant.
2. All records with relevance to a particular cycle of harvest should preferably be retained past the time when the harvested crop is no longer in the marketplace, which may be several years or more.<sup>80</sup>

### WC.1.4. Identification

- i. Wild collectors should have appropriate training and experience to ensure that all harvested plants are correctly identified. Wild collectors should limit their harvest to plants that they can accurately identify to the correct species, and to subspecies and/or variety where applicable.

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<sup>80</sup> Even when the harvested crop is sold in fresh form (i.e., a perishable form that might be expected to leave the marketplace quickly), downstream companies may process (e.g., by drying or extracting) the material into a shelf stable form that remains in the marketplace for years.



- ii. Consider bringing an authenticated specimen or voucher to the field for comparison during collection. This may be especially important if the plant parts most easily used for identification (e.g., flowers) are not present at harvest time.
- iii. If the collector is unsure of the identity while in the field, specimens should be taken to a local expert for verification before returning to the field to collect; alternately, the specimens may be compared to taxonomic keys, pharmacopoeial descriptions, etc.
- iv. If positive identification requires examination of the flower or fruit, but at the time of collection the flowers or fruits are not present, visit the collection site during the flowering or fruiting period to confirm the identification prior to collecting from that site.
- v. Be aware of any local species that are easily confused with the target species, and take special care to exclude these from the harvest. This is especially critical if a toxic plant may be confused with the target plant.
- vi. Whenever necessary to ensure identity, engage a qualified botanist, pharmacognosist, or similarly qualified expert to provide positive identification of the harvested material.
- vii. Maintain records of all steps performed to ensure the correct identification of wild collected plants, including the qualifications of wild collectors. Maintain such records for at least several years; or for collectors, for as long as a wild collector is active in collections.

### WC.1.5. Other considerations

- i. Consider developing a comprehensive written wild collection plan.
- ii. Produce crops. If the material being collected is a food meeting the definition of “covered produce” in 21 CFR Part 112 (e.g., wild blueberries, wild mushrooms, etc.), and if the wild collecting operation does not qualify for the exemptions in 21 CFR §112.4 and §112.5, then the wild collector must comply with the sections of Part 112 that apply to the activities the wild collector performs (such as harvesting, sorting, washing, or packing).<sup>81</sup>
- iii. Non-covered-produce crops. If the material being collected is not a food or does not meet the definition of “covered produce” in 21 CFR 112 comply with the general farm standards described in Section 5 of this document.<sup>82</sup>

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<sup>81</sup> See Appendices 1 and 2 for further information. The wild collector does not have to comply with those standards in Part 112 that apply to activities the collector does not perform. For example, since the wild collector is not performing growing activities, the wild collector does not have to comply with sections of Part 112 that apply to growing (e.g., standards for agricultural water quality or biological soil amendments).

<sup>82</sup> Wild collection operations are defined as “farms” under U.S. regulations. However, not all farms have to comply with the requirements of 21 CFR Part 112.



- iv. Organic materials. If the crop is intended to be certified organic per the USDA National Organic Program,<sup>83</sup> conform to all relevant federal and regional regulations governing organic certification. Disclose the organic status of the crop in records and labeling to ensure that downstream recipients of materials produced from these crops are informed of the organic status.

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<sup>83</sup> In the U.S., only crops grown and certified under the USDA National Organic Program or that are recognized as organic crops through USDA international agreements are permitted to be called “organic.” See <https://www.ams.usda.gov/services/organic-certification/international-trade>.

