

August 8, 2006

MEMORANDUM

To: Chief, Division of Management Authority

From: Chief, Division of Scientific Authority /s/ Robert Gabel

Subject: General Advice for Exports of Artificially Propagated American Ginseng including Woodsgrown and Woods-cultivated Specimens

This general advice replaces the memorandum on “General advice on artificially propagated American ginseng (*Panax quinquefolius* L.) from States with approved CITES export programs” issued by the Division of Scientific Authority (DSA) on December 11, 2003.

Based on our analysis of available information, we find that the export of specimens of field-cultivated and woodsgrown and woods-cultivated American ginseng and its recognizable parts, including roots of any age, will be considered artificially propagated as defined in CITES Resolution Conf. 11.11 (Rev. CoP13) for the following States: Alabama, Arkansas, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Michigan, Minnesota, Missouri, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Tennessee, Vermont, Virginia, Washington, West Virginia, and Wisconsin.

This general advice does not apply to specimens of wild-simulated American ginseng. DSA has been unable to determine that the methods used to produce wild-simulated American ginseng consistently meet the criteria of CITES Resolution Conf. 11.11 (Rev. CoP13) for artificially propagated specimens. Therefore, specimens of wild-simulated American ginseng are covered in a separate finding for wild American ginseng.

We will continue to monitor State harvest reports and export data compiled by the Division of Management Authority for artificially propagated specimens of American ginseng, with the understanding that this general advice may be modified in the future, if deemed necessary, based on any new pertinent information that becomes available.

American ginseng (*Panax quinquefolius*) is hereafter referred to simply as “ginseng.”

Basis for advice:

1. Ginseng was listed in Appendix II of CITES in 1975. More specimens of ginseng are traded internationally than any other native U.S. medicinal plant. The overall majority of U.S. ginseng exports are roots harvested from artificially propagated plants.
2. Ginseng is a long-lived herbaceous perennial of the Araliaceae family. The species is

native to eastern deciduous forests of North America, occurring from southern Canada (Ontario and Quebec), west to South Dakota and Oklahoma, and south to Georgia (Small and Catling 1999; NatureServe 2006). The States of Idaho, North Dakota, Oregon, and Washington, included in this general advice, are outside the species' range.

3. From 1999 to 2004, exports of artificially propagated ginseng roots (which included some amount of woodsgrown and woods-cultivated roots) amounted to 92.7% (5,196,612 pounds) of the total ginseng (5,608,741 pounds) exported from the United States (DMA 2005).

Field-cultivated ginseng

4. During the late 1800s and early 1900s, field cultivation of ginseng became a popular alternative to wild harvest of ginseng (USDA 1928; Williams 1957). In the early 1900s, the U.S. Department of Agriculture promoted field cultivation of ginseng as a commercially viable business opportunity (USDA 1928). In 1901, there were approximately 20 acres of field-cultivated ginseng in the United States (USDA 1928); in 1997, there were approximately 3,800 acres in production (Hankins 1997). The major center for field-cultivated ginseng in the United States is Wisconsin (predominately in Marathon County), where 90% of the country's cultivated ginseng is grown (Hankins 1997; Small and Catling 1999; Persons and Davis 2005). The United States was once the world's largest producer of field-cultivated ginseng; however, production has dramatically decreased due to competition from Canada, China, and South Korea (Persons and Davis 2005).
5. Ginseng seeds and wild root transplants were originally collected from local wild populations for use in home gardens (Boehm et al. 1999; Proctor et al. 1999; Agriculture and Agri-Food Canada 2006). Further expansion of cultivated ginseng was achieved by planting seeds produced from wild-collected plants grown in cultivation (Agriculture and Agri-Food Canada 2006). The greatest expansion of field-grown ginseng occurred during the 1950s and 1960s from seeds produced from cultivated plants grown in Wisconsin (Persons and Davis 2005).
6. Field-cultivated ginseng is usually harvested at 3 or 4 years of age because of diseases that threaten older plantings (Beyfuss 1999; Agriculture and Agri-Food Canada 2006). Yields range from 2,000 to 4,000 pounds of dried roots per acre (Hankins 1997; Brun 1999).
7. Roots of field-cultivated plants are usually cream colored, smooth and fat in shape, and exhibit few concentric rings as compared to wild ginseng roots, and typically have a shorter rhizome (neck) than wild ginseng roots (Hankins 1997).

Woodsgrown and woods-cultivated ginseng

8. The production of woodsgrown and woods-cultivated ginseng provides an alternative source of ginseng to the export market that may actually alleviate harvest pressure on wild ginseng populations. Since about 1994, interest in woodsgrown ginseng has increased substantially (Persons and Davis 2005). Information on cultivation methods and growing techniques are widely available through a variety of media outlets (e.g., written publications, Internet sites) and are heavily promoted through State extension offices, land-grant universities, local community organizations, and ginseng growers' associations (Pritts 1995; Carmen et al. 2005; Persons and Davis 2005; <http://www.uky.edu/Ag/NewCrops/introsheets/ginsengintro.pdf>; <http://www.hort.purdue.edu/newcrop/newcropsnews/94-4-1/ginseng.html>; <http://www.a-spi.org/AGF/agfnl25.htm>; <http://www.altnature.com/ginseng/>; http://www.growginseng.org/growers_groups.html; sites accessed April 12, 2006).
9. In an attempt to quantify the extent of woodsgrown and woods-cultivated ginseng grown in the United States, Persons conducted a survey in 1994 and again in 2000 of knowledgeable people involved with ginseng in 22 States within the species range, and 3 States outside of its range (Persons and Davis 2005). According to the 2000 survey results, there are approximately 751 growers of woodsgrown and woods-cultivated ginseng (approximately 683 acres) in the 24 States with an approved ginseng export program. Based on the 2000 data, Kentucky, Tennessee, Illinois, and Pennsylvania, in descending order of quantity produced, have the most acreage in production (Persons and Davis 2005).
10. For the best price, woodsgrown and woods-cultivated ginseng requires 6–8 years in the ground to obtain a size suitable for harvesting and marketing (Scott et al. 1995; Davis 1997; Beyfuss 1999; Persons and Davis 2005; <http://www.uky.edu/Ag/NewCrops/introsheets/ginsengintro.pdf>; site accessed April 12, 2006). According to Persons and Davis (2005), half an acre of densely planted woodsgrown and woods-cultivated ginseng plants can produce 300 pounds of roots.

Determination of CITES Resolution Conf. 11.11 (Rev. CoP13)

11. Field-cultivated and woodsgrown and woods-cultivated specimens of ginseng may be exported under the exemption for artificially propagated if they meet the specific criteria established in CITES Resolution Conf. 11.11 (Rev. CoP13), which states:
 - a) *The term ‘artificially propagated’ shall be interpreted to refer only to live plants grown from seeds, cuttings, divisions, callus tissues or other plant tissues, or other propagules under controlled conditions; and that ‘controlled conditions’ means in a non-natural environment that is intensively manipulated by human intervention for the purpose of plant production.*
 - b) *grown from seeds, cuttings, divisions, callus tissues or other plant tissues, spores or other propagules that either are exempt or have been derived from cultivated parental stock, and the cultivated parental stock used for artificial propagation is, to the*

satisfaction of the designated CITES authorities of the exporting country:

- i) established in accordance with the provisions of CITES and relevant national laws and in a manner not detrimental to the survival of the species in the wild; and*
- ii) maintained in sufficient quantities for propagation so as to minimize or eliminate the need for augmentation from the wild, with such augmentation occurring only as an exception and limited to the amount necessary to maintain the vigor and productivity of the cultivated parental stock.*

This finding is based on our evaluation of the following known cultivation practices used to produce field-cultivated and woodsgrown and woods-cultivated ginseng in the United States.

Planting artificially stratified seeds¹ is the principal method of propagating field-cultivated and woodsgrown and woods-cultivated ginseng. Although non-stratified ginseng seeds can be planted, most references and growers recommend planting stratified seeds. Some woodsgrown and woods-cultivated growers also plant 1–3-year-old ginseng transplant roots (rootlets). Cultivated ginseng seed and transplant roots are readily available from commercial ginseng growers (Beyfuss 1999).

Field-cultivated ginseng is intensively grown as a monoculture in raised beds under artificial shade of 70–80% (Beyfuss 1999). Cultivation techniques used for field-grown ginseng include standard horticultural practices consisting of mechanical tillage, fertilization, weed control, irrigation, and the use of pesticides. Specialized tractors, sprayers, and diggers have become common on larger corporate ginseng farms that constitute the bulk of the industry.

Woodsgrown and woods-cultivated ginseng usually refers to ginseng that is intensively grown in a forest environment. Typically ginseng is planted in raised beds or tilled rows under a forest canopy of 65–80% natural shade (Scott et al. 1995; Beyfuss 1999; Persons and Davis 2005; <http://www.uky.edu/Ag/NewCrops/introsheets/ginsengintro.pdf>; <http://www.hort.purdue.edu/newcrop/newcropsnews/94-4-1/ginseng.html>; sites accessed April 12, 2006). Site preparation usually begins with clearing the understory vegetation and undesirable trees, shrubs, and large rocks in a wooded area (Scott et al. 1995; Beyfuss 1999; Persons and Davis 2005; <http://www.uky.edu/Ag/NewCrops/introsheets/ginsengintro.pdf>; <http://www.hort.purdue.edu/newcrop/newcropsnews/94-4-1/ginseng.html>; <http://www.sfp.forprod.vt.edu/>; sites accessed April 12, 2006).

Most references recommend tilling the soil at a depth of 4–8 inches either by a rototiller or by hand (Beyfuss 1999; Persons and Davis 2005; <http://www.sfp.forprod.vt.edu/>; site accessed April 12, 2006). Depending on the specific site location where the woodsgrown and woods-cultivated ginseng is grown, soil amendments such as limestone, gypsum, and

¹ Stratified seeds are subjected to a 12-month period of storage in moist sand with a warm–cold treatment to after-ripen the embryo of seeds before germination can occur.

chemical or organic fertilizers may be added to the soil as necessary (Davis 1997; Beyfuss 1999; Das et al. 2001; Persons and Davis 2005; <http://www.ext.vt.edu/pubs/forestry/354-312/354-312.html>; site accessed April 12, 2006). Pesticides are applied for insect, disease, and rodent control, as necessary (Beyfuss 1999; Persons and Davis 2005).

Field-cultivated ginseng farms are regulated by the States covered in this advice, and therefore must operate in accordance with all applicable State and Federal regulations. Woodsgrown ginseng growers in the States covered under this advice must also abide by all applicable State and Federal regulations and laws, including State inspection and certification of their harvested roots.

To meet their long-term planting needs, commercial field-cultivated ginseng growers collect seeds from their own planting stock grown under controlled conditions. Cultivated ginseng plants require a minimum of 3 years of growth to produce a sufficient quantity of seeds for outplanting. Typically, an acre of plants can produce more than 200 pounds of seed per year (Persons and Davis 2005). There are approximately 6,000–8,000 ginseng seeds per pound (Pritts 1995; Beyfuss 1999; Persons and Davis 2005). The optimum seeding rate for field-cultivated ginseng is between 80 and 100 pounds of seed per acre (Brun 1999).

Woodsgrown and woods-cultivated ginseng growers typically collect seeds from their plants to further expand or replant their acreage. Typically, one acre of 4-year-old or older plants can produce 50 pounds or more of seeds per year, which is usually sufficient for most growers (Persons and Davis 2005). First-time growers can readily purchase commercially available propagules (seeds and transplant roots) for planting.

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