

**Fiveleaf Akebia**

*Akebia quinata* (Houtt.) Dcne.

Lardizabala family (Lardizabalaceae)

**NATIVE RANGE**

Central China, Japan and Korea

**DESCRIPTION**

Fiveleaf akebia, also known as chocolate vine, is a woody perennial plant that grows either as a twining vine or a groundcover. It has slender stems that are green when young and brown at maturity. The leaves are dull blue-green in color and alternate along the stem. Each leaf is divided into five stalked leaflets that meet at a central juncture. Leaflets are 1½ to 3 inches long and are notched at the tip. The flowers are reddish to purple-brown, about 1 inch across, and have a sweet fragrance likened to chocolate. Flowering occurs in springtime (March-April). The fruits, if produced at all, are large, soft, edible sausage-shaped pods 2¼ to 4 inches in length, that ripen in late September to early October. The inside of the pod has a whitish pulpy core with many tiny black seeds. Akebia is deciduous in cooler climates but may remain evergreen in warmer regions, such as Louisiana.

**ECOLOGICAL THREAT**

Fiveleaf akebia is a vigorous vine that grows as a groundcover and climbs shrubs and trees by twining. Once established, its dense growth crowds out native plants.

**DISTRIBUTION IN THE UNITED STATES**

Fiveleaf akebia is found in 16 states in the eastern U.S. and has been reported to be invasive in Kentucky, Maryland, New Jersey, Pennsylvania, Virginia and the District of Columbia.

**HABITAT IN THE UNITED STATES**

Akebia is shade and drought tolerant and can invade many types of habitats, preferring lighter, well drained soils and sunny to partially shaded environs.

**BACKGROUND**

Fiveleaf akebia was brought to the United States in 1845 as an ornamental which eventually escaped from cultivation and has since become naturalized in warmer climates.

**BIOLOGY & SPREAD**

Akebia spreads primarily by vegetative means and is capable of growing twenty to forty feet in a single growing season. In the mid-Atlantic region, fruits are not always produced. Seeds of akebia may be dispersed by birds. Long distance spread of akebia is largely through human activities.

**MANAGEMENT OPTIONS**

Control options must be determined on a site-by-site basis. Manual, mechanical and chemical control methods are all effective for control of akebia. Employing a combination of methods often yields the best results and may reduce potential impacts to native plants, animals and people. The method you select depends on the extent and type of infestation, the amount of native vegetation on the site, and the time, labor and other resources available to you. For small or scattered infestations manual and mechanical methods may suffice. Systemic herbicides or a combination of manual, mechanical and chemical are probably more effective and practical for large infestations.

Whenever possible and especially for vines climbing up trees or buildings, a combination of cutting followed by application of concentrated systemic herbicide to rooted, living cut surfaces is likely to be the most effective approach. For large infestations of ivy spanning extensive areas of ground, a foliar herbicide may be the best choice to minimize soil disturbance that could lead to reinfestation.

### **Biological**

There are no biological controls currently available for akebia.

### **Chemical**

Systemic herbicides like triclopyr (e.g., Garlon® 3A and Garlon® 4) and glyphosate (e.g., Accord®, Glypro®, Rodeo®) are absorbed into plant tissues and carried to the roots, killing the entire plant within about a week. Herbicide applications can be made any time of year as long as temperatures are between about 50 and 85 degrees Fahrenheit for several days and rain is not expected for 24 hours. Repeated treatments are likely to be needed. Follow-up monitoring should be conducted to ensure effective control. Herbicidal contact with desirable plants should always be avoided. In areas where spring wildflowers or other native plants are interspersed, application of herbicides should be conducted prior to their emergence, or delayed until they have died back. If desirable native grasses are intermingled with akebia, triclopyr should be used because it is selective for broad-leaved plants and will not harm grasses.

Glyphosate products referred to in this fact sheet are sold under a variety of brand names (Accord®, Rodeo®, Roundup Pro® Concentrate) and in three concentrations (41.0, 50.2 and 53.8% active ingredient). Other glyphosate products sold at home improvement stores may be too dilute to obtain effective control. Triclopyr comes in two forms – triclopyr amine (e.g., Garlon® 3A, Brush-B-Gone®, Brush Killer®) and triclopyr ester (e.g., Garlon® 4, Pathfinder®, and Vinex®). Because Garlon® 3A is a water-soluble salt that can cause severe eye damage, it is imperative that you wear protective goggles to protect yourself from splashes. Garlon® 4 is soluble in oil or water, is highly volatile and can be extremely toxic to fish and aquatic invertebrates. It should not be used in or near water sources or wetlands and should only be applied under cool, calm conditions.

### **Basal bark application**

Use a string trimmer, pruning snips or hand saw, remove some of the foliage in a band a few feet from the ground at comfortable height. To the exposed stems, apply a 20% solution of triclopyr ester (Garlon® 4) (2.5 quarts per 3-gallon mix) in commercially available basal oil with a penetrant (check with herbicide distributor) to vine stems. As much as possible, avoid application of herbicide to the bark of the host tree. This can be done year-round although efficacy may vary seasonally; temperatures should be above 50°F for several days.

### **Cut stem application**

Cut each vine stem close to the ground or at a comfortable height and cut again a little higher up. Remove cut pieces to make a vine-free band around the tree trunk. The upper portions of cut vines will eventually die, rot and fall off the host tree. To the freshly cut surfaces of the living rooted stems apply a 25% solution of triclopyr amine (Garlon® 3A) or glyphosate (e.g., Accord®) mixed in water. Homeowners can apply products like Brush-B-Gone®, Brush Killer® and Roundup Pro® Concentrate undiluted to cut stems. Using a paint brush or a plastic spray bottle, apply herbicide to the cut surface especially the perimeter inside the bark which is the living portion of plant.

### **Foliar application**

From summer to fall, apply 2 to 5% solution (8 to 20 oz. per 3-gallon mix) of triclopyr ester (Garlon® 4) mixed in water with a non-ionic surfactant to the leaves. Thoroughly wet the foliage but not to the point of runoff. Some control may be achieved with glyphosate as a 2 to 4-percent solution (8 to 16 oz. per 3-gallon mix) mixed in water with a 0.5 to 1.0 %non-ionic surfactant, but repeat applications are likely to be necessary. During foliar applications some of the herbicide is also absorbed through the stem for additional (basal bark) effect.

### **Manual and Mechanical**

Vines growing as groundcover can be pulled up by hand and left on-site or bagged and disposed of as trash. Always wear gloves and long sleeves to protect your skin from poison ivy and barbed or spined plants. For climbing vines, first cut the vines near the ground using pruning snips at a comfortable height to kill upper portions and relieve the tree canopy. Rooted portions will remain alive and should be pulled, repeatedly cut to the ground or treated with herbicide. Because cutting will likely result in vigorous regrowth repeated cutting is needed to ensure long term control. Cutting can be done any time of year using a weed whip or mower. Cut vines to the ground and repeat as needed until no regrowth occurs. If

time or resources are limited, akebia should be cut back to the ground once each year at the end of the summer at a minimum.

### **Mulching**

Mulching may be an effective choice for smaller ground-cover infestations and when herbicides are not appropriate. Cover the entire infestation with several inches of mulch. This may include wood chips, grass clippings, hay or similar degradable plant material. Shredded or chipped wood may be the best option since hay and grass may potentially carry weed seeds. Covering the area with cardboard may improve the effectiveness and longevity of this method. The mulch should stay in place for at least two growing seasons and may need to be augmented several times. Mulching can also be done following herbicide treatment.

**USE PESTICIDES WISELY:** Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

**NOTICE:** mention of pesticide products on this page does not constitute endorsement of any material.

### **SUGGESTED ALTERNATIVE PLANTS**

In the eastern U.S., some great native vines that are available as substitutes for Akebia including trumpet honeysuckle (*Lonicera sempervirens*), trumpet creeper (*Campsis radicans*), Virginia creeper (*Parthenocissus quinquefolia*), cross vine (*Bignonia capreolata*), and Dutchman's pipe (*Aristolochia durior*). Contact your local native plant society for other suggestions.

### **OTHER LINKS**

- <http://www.invasive.org/search/action.cfm?q=Akebia%20quinata>

### **AUTHORS**

Jil M. Swearingen, National Park Service, Washington, DC  
Adrienne Reese Department of Horticulture, Virginia Tech, Blacksburg, VA  
Robert E. Lyons, Department of Horticulture, Virginia Tech, Blacksburg, VA

### **PHOTOGRAPH**

C.E. Williams, Clarion University, Clarion, PA

### **EDITOR**

Jil M. Swearingen, National Park Service, Washington, DC

### **REFERENCES**

Dirr, Michael. Manual of Woody Landscape Plants. Illinois: Champaign, 1990.

DeWolf, Gordon, et al. Taylor's Guide to Ground Covers. Boston: Houghton Mifflin, 1987.

Swearingen, J. 2006. WeedUS: Database of Plants Invading Natural Areas in the United States  
<http://www.nps.gov/plants/alien/>

Wyman, Donald. Shrubs and Vines for American Gardens. Toronto: The Macmillan Company, 1969.