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Georgia History in Pictures

Cultivating Kudzu: The Soil Conservation Service and the Kudzu Distribution Program

BY MART ALLEN STEWART

WHEN preparing the soil for kudzu, says a widely circulated gardening tip, “Go out and stomp on the soil for a while just to get its attention and prepare it for kudzu.” Once the vine is planted, the best fertilizer is “40 weight non-detergent motor oil.”



Flourishing fields at a Soil Conservation Service kudzu nursery. This and all subsequent photographs document the production of kudzu seedlings in Soil Conservation Service nurseries in the Southeast. *All photographs from the Soil Conservation Service Papers, Hargrett Rare Book and Manuscript Libraries, University of Georgia Libraries.*

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According to this tongue-in-cheek gardening wisdom, “Kudzu actually doesn’t need anything to help it grow, but the motor oil helps to prevent scraping the underside of the tender leaves when the kudzu starts its rapid growth.” The oil should be changed “every thousand feet or every two weeks, whichever comes first.” “Contrary to what may be told by the Extension Service, kudzu can profit from a good mulch,” the advice continues. A good mulch of concrete blocks will assure a hardier crop: “Although this causes a temporary setback, your kudzu will accept this mulch as a challenge and will reward you with redoubled determination in the long run.”¹

Such spins on kudzu by Georgians and other southerners have become commonplace. The vine is much maligned—and has become legendary—for its vigor and invasiveness. Visitors are told about hitchhikers on kudzu-lined country roads who have disappeared without a trace. They are advised to keep their car windows up while driving down the same roads, lest the rapid growing vine reach in and grab the wheel. Tourists are warned not to park next to lots or fields overrun with kudzu, should they ever want to find their cars again. Some southerners have taken this prolific heehaw and dressed it up chic: In Atlanta, representations of kudzu grace brown-paper shopping bags from Lenox Square and the interior of the upscale Buckhead home-cookin’ restaurant, the Kudzu Cafe.²

Poets and novelists have also embraced kudzu and imagined it a primal force of the South. “Knee-high meadow,” Atlanta-born poet James Dickey called it, “came in through your closed/leafy windows and almighty sleep.” Old Mr. Zed, a character in Lisa Alther’s novel, *Kinflicks*, sows this one-plant jungle as a “secret weapon” against the modern. He plants it around the factory and town that he would like to see disappear: “Before Hullsporters were even aware of their existence, the grasping tendrils would

¹Henry Cate [cate3@netcom.com], “Gardening Tips from Down South: How to Grow Kudzu,” Southern Culture List [stcultu@gibbs.oit.unc.edu], March 15, 1995. The author thanks the Bureau of Faculty Research at Western Washington University for a grant that paid the expense of reproducing the photographs in this essay.

²George Laycock, “Mile-a-Minute Vine,” *Audubon* 85 (May 1983): 30; Carol Bishop Hips, “Kudzu,” *Horticulture, The Magazine of American Gardening* 72 (June-July 1994): 36. See also C. Ritchie Bell and Charles Reagan Wilson, “Kudzu,” in *Encyclopedia of Southern Culture*, ed. Charles Reagan Wilson and William Ferris (Chapel Hill, N.C., 1989), 383-84. The author thanks Amanda Eurich for providing a sample of a kudzu-decorated Lenox Square shopping bag.



The first step in the production of the seedling was preparation of the seed, which was “scarified” to facilitate germination. The caption read: “A high percent of kudzu seed have waterproof coats. It is necessary to break this waterproof coat so moisture will be absorbed when the seeds are planted.”



“Good soil preparation is essential in kudzu seedling production,” this caption read. “Plowing, discing, smoothing, cultipacking are used to prepare a clod free friable seed bed.”

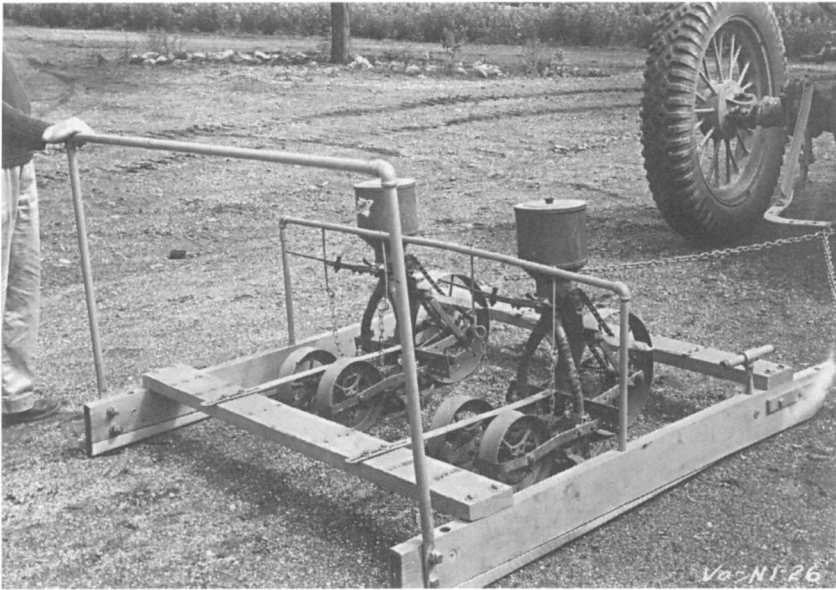
choke out all life in the Model City. The site would be returned to Nature.” Kudzu has become the stuff of folklore, joke, symbol, and metaphor.³

The plant that “ate the South,” as it has come to be known, did not do so without assistance, however. In the 1930s and 1940s, the U.S. Soil Conservation Service, in a program that carefully nurtured pre-legend kudzu plants from seed to seedlings, grew and distributed millions of seedlings to southern farmers. Between 1935 and 1946, more than half a million acres in the South were planted in kudzu, most with seedlings grown on Soil Conservation Service nurseries. For those who know kudzu as a plant best fertilized with “40 weight non-detergent oil,” this seedling production process, as it was illustrated and explained with the photographs and captions reproduced here, seems incomprehensible—even sinister. As in most relationships between humans, plants, and the environment, however, this process has a history in which it makes sense.⁴

Kudzu (*Pueraria lobata*; formerly *P. thunbergiana*), which had been cultivated in Japan for centuries, made its appearance in the United States in 1876 at the Japanese pavilion at the Philadelphia Centennial Exposition and was introduced to southerners at the Japanese pavilion at the New Orleans Exposition of 1884-1886. Because of its luxuriant, rapid growth, broad and layered leaves, and lovely purple or magenta wisteria-like flowers, it soon gained popularity as a shade plant and became known as the “porch vine.” By early in this century, some farmers were growing kudzu as a forage crop, mainly because of the indefatigable efforts of C. E. Pleas, a farmer of Chipley, Florida. Pleas noticed that the kudzu that escaped from his shade planting was being eaten with relish by his goats, pigs, cows, and even his large free-ranging flock of chickens. After successful experiments with the kudzu as a forage crop, Pleas began pitching its virtues and selling rootstock through the mails,

³James Dickey, “Kudzu,” in *Poems, 1957-1967* (New York, 1967), 142; Lisa Alther, *Kinflicks* (New York, 1976), 69-70.

⁴T. S. Buie, “Soil Conservation and Land Use in the South: A Report to the Cotton Subcommittee of the House Committee on Agriculture by the Soil Conservation Service (ca. 1947),” Soil Conservation Papers, MS 2163, Hargrett Rare Book and Manuscript Library, University of Georgia Libraries, Athens, Georgia (hereinafter cited as SCS Papers). The Soil Conservation Service Nurseries in the southeastern region produced 2 million seedlings in 1935. This increased to 30 million in 1940 and 40 million in 1941: “Introduction” [to photographs illustrating kudzu production], 3:17, SCS Papers.



Several types of seeders or planters were used to plant the seed at the nurseries. This one gave "satisfactory results on hill land."



Sprinkler irrigation systems were an "insurance against drought" in the early stages of production. This caption read: "One of the most critical requirements in kudzu seedling production is sufficient moisture for good germination and emergence of the young seedlings."

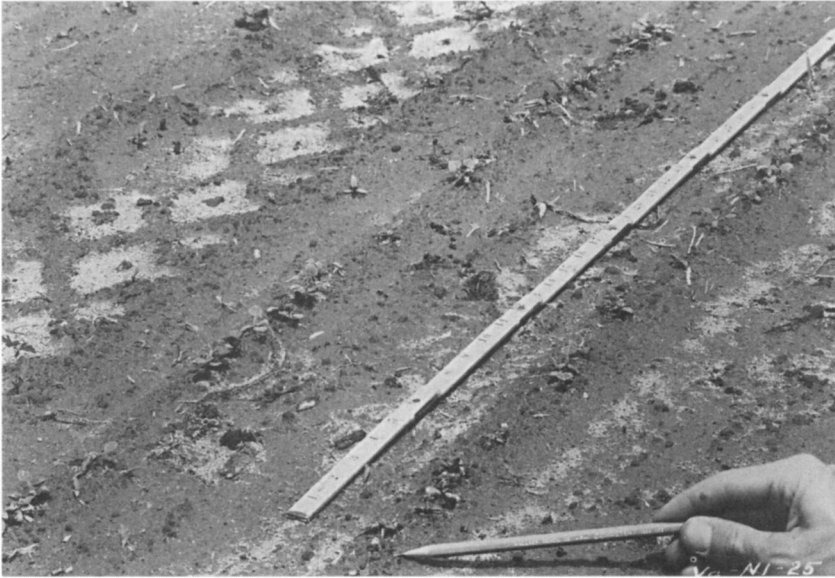
and in 1925 he praised the plant with a pamphlet, "Kudzu—Coming Forage of the South."⁵

By the early 1930s, some agricultural experts had taken up Pleas's cause and had also become advocates of the plant's virtues as a forage plant. Kudzu could be grown cheaply, without the use of manure or lime, could be easily intercropped with corn, and would provide a feed plant with a protein content 2 percent higher than the highly rated alfalfa hay. It could be grown, agronomists explained, on lands with poor soils that would scarcely support other crops. Moreover, kudzu, a member of the bean family, was a legume, and replenished nitrogen poor soil. Because it eventually rooted itself deep, it could tap minerals and moisture not available to most plants and, once established, was virtually drought resistant. The heavy fibrous stems and a disposition to sprawl made it a hard crop to bale. But because the vine grew so vigorously, forage specialists considered it excellent for "continuous moderate grazing." "It will graze more hogs per acre than any legume plant we have ever grown," claimed J. Slater Wight from Cairo, Georgia, in a report to the annual meeting of the Georgia State Agricultural Society in 1930.⁶

By 1934, about 10,000 acres in the South had been planted in kudzu, mainly for forage. When the newly formed Soil Conservation Service decided to tout the plant for erosion control the next year, however, and began producing seedlings in Soil Conservation Service nurseries in Virginia, North Carolina, South Carolina, Alabama, and Georgia, the number of acres given over to kudzu grew rapidly. "I raised a hell of a lot of it in those years," reflected the retired Soil Conservation Service agronomist John Powell, in an interview in 1983. Powell grew kudzu at a government nursery near Americus, Georgia in the 1930s. Between 1935 and 1942, such SCS nurseries grew a hundred million kudzu seedlings. These were shipped throughout the Southeast and distributed to farmers, who applied the vine to rilled and gullied croplands, and to railroads and highway departments that planted the seedlings

⁵Hipps, "Kudzu," 38; Laycock, "Mile-a-Minute Vine," 30; Bell and Wilson, "Kudzu," 383.

⁶R. P. Bledsoe, "Kudzu for Every Farm," *Agricultural Bulletin* (Fall 1931): 11; S. M. Tracy, *Forage for the Cotton Belt*, U.S.D.A. Farmers Bulletin 1125 (Washington, D.C., 1920), 8; J. Slater Wight, "Kudzu as a Forage and Cover Crop," in *Minutes of the 84th Annual Meeting of the Georgia State Agricultural Society* (Cairo, Ga., August 29-30, 1930), SCS Papers.



According to this caption, "The young seedlings appear in a few days. Frequent showers are needed to get a good stand of kudzu seedlings. A drought following plantings results in a poor stand. From six to ten young seedlings per foot of row is considered a good stand."

along exposed rights-of-way. Many farmers were at first suspicious of the vine, but well-publicized research on its erosion retarding and "gully healing" qualities and the inclusion of kudzu in government assistance programs overcame their resistance. (Some farmers received as much as \$8.00 per acre for planting kudzu.)⁷

The eroded lands of the old cotton belt of Georgia and neighboring states was targeted early by New Deal agricultural reformers as a major problem area. A century or more of cotton monoculture had long before stripped the thin soils of the belt of fertility and kept them open to erosion. Reformers regarded these eroded, infertile soils and the agriculture that produced them at the root of the poverty and attendant social problems of the region. Both land use and social problems could be solved with a

⁷Buie, "Soil Conservation and Land Use in the South," 98, SCS Papers; Hipps, "Kudzu," 38; John J. Winberry and David M. Jones, "Rise and Decline of the 'Miracle Vine': Kudzu in the Southern Landscape," *Southeastern Geographer* 13 (November 1973): 66; William Shurtleff and Akiko Aoyagi, *The Book of Kudzu: A Culinary and Healing Guide* (Brookline, Mass., 1977), 14.



The young plants “require careful cultivation.” The caption continues: “Good care during the early life of kudzu seedlings is essential. The young plants are small and tender. If stunted at this stage they are very slow to recover.”

proper dose of progressive soil conservation, the reformers reckoned. A permanently thriving agriculture is possible, argued Hugh Hammond Bennett, the head of the SCS, in his influential textbook on soil conservation, “even where the land is highly vulnerable to erosion, when people are willing to pay the price of protecting it. Where the price has not been paid, civilizations have disintegrated and disappeared.” The broad-leafed vine, kudzu, then, could not only save the soil but could also assist in saving the South. SCS publicist Russell Lord put it bluntly: “Southward, men count heavily on kudzu as a gully mender, and as a restorer of washed-down fields.”⁸

In order to send this “gully-mender” out into the countryside, the Soil Conservation Service had to engender a steady supply of

⁸Gerald F. Vaughn, “C. A. Wiley and New Deal Land Reform in Georgia’s Cotton Belt,” *Georgia Historical Quarterly* 80 (Summer 1996): 300-303; Hugh Hammond Bennett, quoted in Roderick Frazer Nash, ed., *American Environmentalism: Readings in Conservation History* (New York, 1990), 136; Russell Lord, *To Hold This Soil*, U.S.D.A. Miscellaneous Publication No. 321 (Washington, D.C., 1938), 50.

seedlings. Kudzu produces few seeds and these have a low germination rate; in any case, kudzu cannot usually be established from seed in the United States. SCS agronomists refined the system used earlier by agronomists who experimented with kudzu as a forage crop and developed a process for growing the necessary kudzu seedlings. Seed for the crop came from Japan until late in 1941, and after this was gathered from fields that were already established.⁹

By the mid-1940s kudzu had gained other champions, most notably, Channing Cope, a cheerful columnist for the *Atlanta Constitution*, who grew kudzu for forage on his Yellow River Farm southeast of Atlanta. Cope praised the virtues of kudzu in his column and on his morning radio program and set a kudzu-growing program into print in a popular account (it sold 80,000 copies) of his agricultural antics, *Front Porch Farmer*. In 1943, Cope, who a more recent *Constitution* contributor dubbed “the Neville Chamberlain of Southern agriculture,” claimed that kudzu had become the new “King” of the South. He organized the Kudzu Club of America, which soon had 20,000 members. They scouted the countryside for new places suitable for growing the vine. Both the Soil Conservation Service and Kudzu Club were wildly successful: By 1945, about a half million acres in the South were planted in kudzu.¹⁰

Unfortunately, the virtue that the vine’s promoters praised most highly, its vigor and rapid rate of growth, soon revealed itself a virtue in excess. By the 1950s, foresters and highway engineers were complaining that wherever it was planted, the vine grew upward or outward at the rate of sixty to a hundred feet a season. It engulfed and smothered pine trees or established a dense mat several feet thick along the sunny sides of roads. Power companies

⁹Winberry and Jones, “Rise and Decline of the ‘Miracle Vine,’” 66. A full consideration of the qualities of kudzu for soil erosion and the process by which it was produced at Soil Conservation Service nurseries can be found in R. Y. Bailey, *Kudzu for Erosion Control in the Southeast*, U.S.D.A. Farmers Bulletin No. 1840 (Washington, D.C., 1944). The photographs reproduced in this essay come from two very similar versions of a pamphlet produced by the Soil Conservation Service. The pamphlets are undated, but internal evidence in the introduction of the first version (from which most of the photographs are drawn) suggests a 1941 compilation date. The second was put together soon after the kudzu seed supply from Japan dried up. Both versions are loosely bound, and may not have been published, but were likely circulated. Both of them are in the SCS Papers, 3:17 and 3:18.

¹⁰Henry Woodhead, “Happy Birthday, Miracle Vine,” *Atlanta Journal and Constitution Magazine*, September 19, 1976, 18, 21; Channing Cope, *Front Porch Farmer* (Atlanta, Ga., 1949), 25-41; Laycock, “Mile-a-Minute Vine,” 31; Winberry and Jones, “Rise and Decline of the ‘Miracle Vine,’” 66.

cursed the vine that climbed up power poles where it sometimes shorted out lines. Some railroaders contended that kudzu crossing the tracks was mashed to a green lubricant under the press of the engine—and then caused wheels to spin and trains to stop. Both farmers and urban gardeners living adjacent to naturalized banks or empty lots cursed the vine's invasiveness; kudzu puts down new roots wherever the vine touches the ground, and these can grow to hog-sized tubers that swell several feet into the ground. The new king of the South, as it turned out, had faint restraint, and the ground cover that the Soil Conservation Service only a few years before had celebrated as a solution to erosion—and social and economic—problems had become a pest. The U.S. Department of Agriculture removed kudzu from its list of acceptable cover crops for its Agricultural Conservation Program in the 1950s. In 1970, the department demoted the plant to weed status. By 1993, a study by the Congressional Office of Technology Assessment claimed that kudzu accounted for about \$50 million annually in lost farm and timber production.¹¹

But the plant cannot be blamed for the changing land use patterns in the post-World War II South that have emphasized pine forests and farms—which are more difficult to protect from kudzu invasions—than field crops. And kudzu retains qualities that its designated status as “weed” deny. Some farmers still praise it as a forage plant with a high percentage of digestible protein, and a few continue to grow it for hay. When it can be managed, kudzu is an excellent control for erosion on newly cut channels and steep road cuts; it will also grow on mine spoils and in places that will support no other plants. In Japan, kudzu fiber is used for making cloth and a high-quality acid-free paper prized by artists. The Japanese also consume various parts of the plants and extract a starch from the root that is used in a variety of products; in 1990, to the puzzlement of local residents, a Japanese food-processing com-

¹¹Hipps, “Kudzu,” 38; Laycock, “Mile-a-Minute Vine,” 31; William K. Stevens, “Invading Weed Makes a Bid to Become the New Kudzu,” *New York Times*, August 16, 1994; Bill Weekes, “Kudos for Kudzu,” *American Forests* 88 (August 1982): 56; Woodhead, “Miracle Vine,” 16; Winberry and Jones, “The Rise and Decline of the ‘Miracle Vine,’” 67. Kudzu, according to the 1993 COTA report, belongs to an elite class of 79 nonindigenous species, out of the 4,500 or so species of plants and animals that have made a home in the United States, that regularly invade, choke, pollute, or otherwise create problems. See Stevens, “Invading Weed.”



Weeding continued: "The dense stand of kudzu seedlings in the rows and their tender growth in the early stages make hand weeding necessary. It should begin soon after the first cultivation. Some hand weeding is desirable in late stages of growth if bunches of grass or weeds have escaped earlier weeding."

pany bought 165 acres in Alabama to cultivate the plant. Basket makers in the Southeast have discovered a small market in kudzu baskets. Researchers at the University of Alabama in 1979 discovered that chemicals extracted from the plant reduced high blood pressure in lab animals. More recently, researchers at the Harvard Medical School tested a traditional Chinese medicine that uses a kudzu root elixir to treat alcoholism, with encouraging results. Finally, without kudzu, the culture of the kudzu region would also be much the poorer. ("The hogs disappear in the leaves," says Dickey in "Kudzu".)¹²

These observations likely provide small comfort to Atlanta gardeners for whom the machete has become a necessary gardening

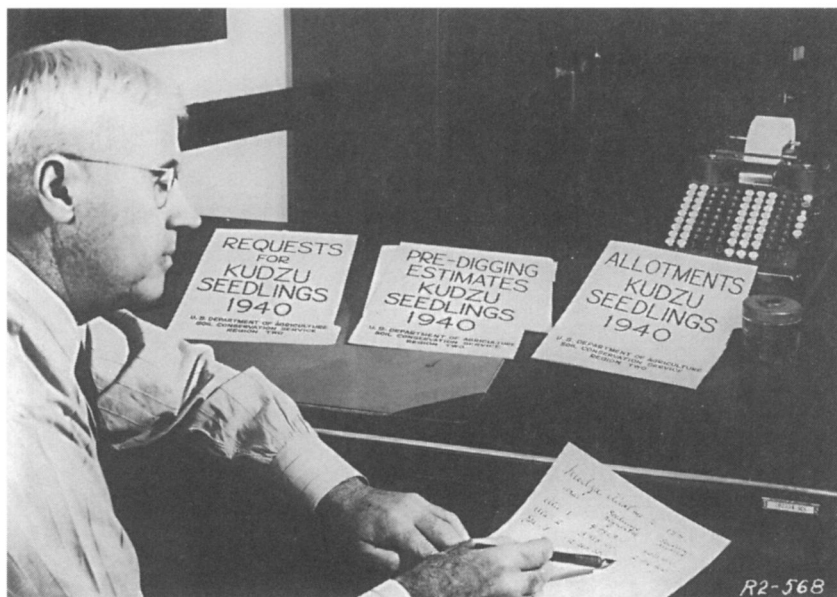
¹²Winberry and Jones, "Rise and Decline of the 'Miracle Vine,'" 67-68; Weekes, "Kudos for Kudzu," 38, 55-56; Hipps, "Kudzu," 36; "King Kudzu?" *Time*, November 5, 1990, 37; "Herbal Tonic Cuts Hamsters' Alcohol Use," *Science News*, November 13, 1993, 319. The single most comprehensive treatment of kudzu in the United States to date is Shurtleff and Aoyagi, *The Book of Kudzu*.



Some cultivation of the "middles" was done with mules, which, the caption pronounced, "are used for kudzu cultivation at all SCS nurseries in the Southeastern Region."



When the plants are well established, an inventory was taken: "The average number of seedlings per foot of row is determined," the caption read. "This is multiplied by the total length of rows, for the total number of seedlings. Estimated losses are deducted."

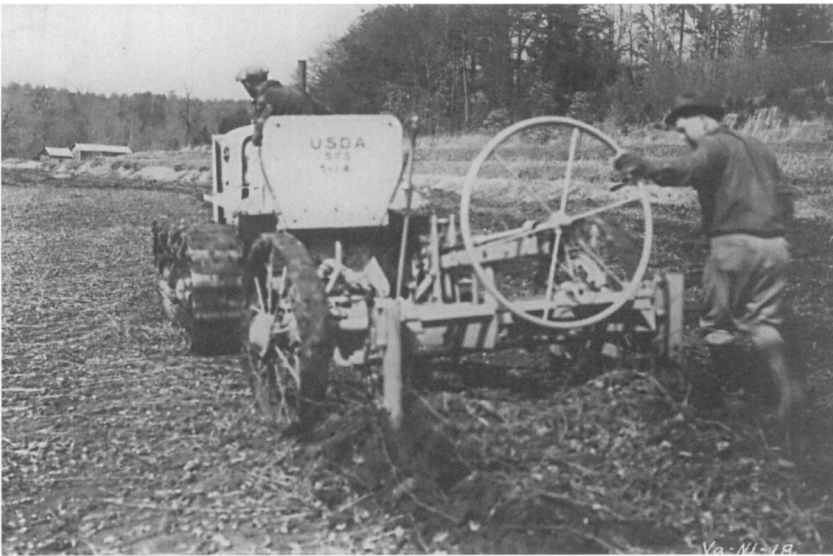


Once the size of the crop had been calculated, allotments were made “according to requests for planting stock from SCS Area Offices.” The caption continued: “Allotments are made to each Area Conservationist, and a copy is sent to the Nursery Manager, who is to furnish the stock. Records of all allotments and balances of unallotted stock are kept in the Regional Nursery Division.”

tool or for rural Georgians who have nightmares about the weed next time. The Soil Conservation Service underestimated kudzu’s knack for colonizing and overestimated the ability of humans to manage it. And the kudzu-happy Channing Cope and his disciples notwithstanding, it was the Soil Conservation Service, more than anyone, who gave Georgia and the South kudzu. Their seedling distribution program assured the presence of this plant throughout the region. These photographs document this process, but also document the naive optimism of SCS reformers. “From six to ten young seedlings per foot of row is considered a good stand,” says one of the captions. A plant that needed to be cultivated so assiduously could also be easily managed, both photographs and captions pronounce. But even the most dispassionate observer cannot subtract from these images and words the plant’s future and the knowledge that method was denied. Both photographs and captions also sing with irony.



After the seedlings became dormant in the fall, Civilian Conservation Corps enrollees removed the vines.



A "tree lifter" was used at some nurseries to cut the roots. The caption read: "Kudzu seedlings have deep fleshy roots in well drained soil. It is necessary to cut these eight to ten inches below the surface of the soil."



After the roots were cut by the “tree lifter,” the seedlings were pulled up by hand. “The fleshy roots require careful handling to avoid injuries, bruises, and tears,” the caption warned.



The harvest was “usually done by a crew of laborers working together.”



The seedlings were then sorted: "The good ones are tied in bundles of 25, and the poor ones discarded. Acceptable seedlings should have a root as large as a common lead pencil and at least six inches long and should not be split or broken."



The "good ones" were then trimmed. The caption explained: "The tops and extra length of roots are cut off with a hatchet."



Bundles of the seedlings were “heeled in”: “A convenient method is to heel in units of 1,000 seedlings (40 bundles). Each tub or other plant carrier has 40 bundles. A space between units in long rows helps facilitate field counting.”



Finally, the seedlings were loaded on trucks for distribution to Soil Conservation districts. The caption explained, flatly: “Seedlings are stacked easily in a truck.”