

CONTROLLING 40 YEAR OLD KUDZU SITES IN PENNSYLVANIA

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INTRODUCTION

Pennsylvania (PA) appears to have been the first state to have received kudzu (*Pueraria lobata* (Willd.) Ohwi). In 1876 the Japanese pavilion of the Philadelphia Centennial Exposition displayed live kudzu. A herbarium specimen (Carnegie Museum, Pittsburgh) dates kudzu in West End Park, Pittsburgh to 1920. It is unknown if this is the same kudzu patch that was eradicated in West End Park in 2003. Current sites in PA are most often roadside banks, forest areas, quarries, slag mine deposits, homeowner property boundaries and rarely open space locations such as pipelines. Kudzu locations in the state have routinely been monitored since the early 1980's, and many of these sites have been documented as producing viable seed. Kudzu was designated a PA Noxious Weed in 1989. Since the advent of soybean rust, renewed interest in limiting the spread of kudzu began in PA. During the summer of 2006 the Department confirmed the viability, distribution and population size of previously known locations of kudzu in Pennsylvania. In addition, monitoring was conducted to determine if any "new sites" of kudzu have become established from seed dispersal, and the Department also continued control measures for sites enrolled in a Pilot Eradication Program began in 2000 with 5 locations treated as of 2003.

MATERIALS AND METHODS

Pilot Eradication Program: By the end of 2006 an additional 18 locations have been enrolled in the program. Herbicides used in the program since 2003 include aminopyralid, clopyralid, metsulfuron and triclopyr. The goal of the Pilot Eradication Program is to treat sites for 3 consecutive years to assist property owners in eradicating kudzu. Treatments at 6 sites in Lebanon County were used as research plots to collect base line data on clopyralid efficacy, rate and longevity. These sites were a combination of **virgin sites** or **previous years treated sites** and roadside banks, open space areas, and forest areas.

Site 1. Roadside Banks

Site 2. Open Space Areas

Site 3. Forest Areas



Treatments: Three types of treatment applications were applied at various dates throughout the season: **high volume foliar**, **low volume foliar** and **cut stump/basal bark application**. Applications were monitored at 4, 7, 10, 11, 13 and 16 weeks after treatment (WAT).

RESULTS

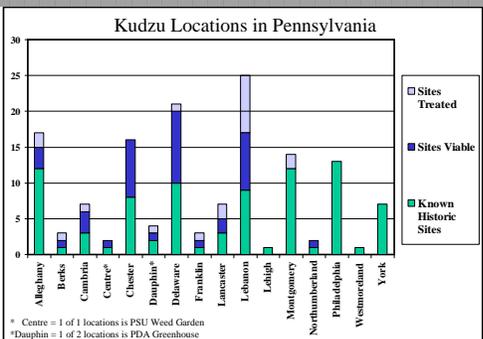
Virgin Sites: All cut stump, high volume foliar and low volume broadcast **MAY 2006** treatments of clopyralid were still preventing vegetative re-growth at **16 WAT**. However, "missed" untreated vegetation was discovered at every site at 4, 7, 11, 13, and 16 WAT and was treated accordingly. Cut stump applications were critical to 100% site control in all forest areas due to mature woody vines that were not impacted by the foliar applications. As of frost, all treated sites of kudzu were not producing vegetative growth but "seedlings" were discovered where mature vegetation removal had occurred.

Previous Years Treated Sites: Several sites in Allegheny and Lebanon Counties were treated with a mixture of metsulfuron (Escort XP), triclopyr (Garlon 4) and clopyralid (Transline) plus surfactant in 2003 and 2004. These sites were "suppressed" and showed no vegetation growth in May and the first week of June 2006. However, by mid June all previously treated sites had begun to produce vegetative growth and a high volume foliar application (clopyralid) was made. None of the previously treated sites showed any evidence of seedling emergence.

Site 1. Roadside Banks

Site 2. Open Space Areas

Site 3. Forest Areas



High Volume Foliar 13.68 oz per acre

Skid Mount / Gas Powered Turf Sprayer - 375 Litre (100 US Gal)
Hypro Medium Pressure Diaphragm Pump
<http://www.ritenhouse.ca/asp/Product.asp?PG=1023>

100 gal/acre delivery @ 16 psi
Transline (clopyralid) (10.26 oz)
Water (75 gal)

Low Volume Foliar 2% v/v

Birchmeyer Backpack (2.5 gal size)
Transline (clopyralid) (6.0 oz)
Water (2.5 gal)

Cut Stump/Basal Bark 2% v/v

Plastic Bottle (16 oz size)
Transline (clopyralid) (0.24 oz)
Water (12 oz)

Transline is a registered herbicide of Dow AgroSciences.

Mound of Kudzu in a Quarry



A New Kudzu Seedling Along a Construction Road



Various Ages of Woody Kudzu Vines



SUMMARY OF 2006 KUDZU ERADICATION PROGRAM

The current distribution of kudzu in PA seems limited to Zone 6 of the U.S. National Arboretum Plant Hardiness Zone Map. Forty-eight (48) sites were visually confirmed as still viable. Most sites are estimated to be less than 1/2 acre in size although a few sites are quite extensive (1 to 5 acres). The majority of the untreated sites were also producing seed in 2006. An additional 33 sites were confirmed by other sources as viable populations and will be visited in 2007 by PDA to collect site specific data. Based on the results in 2006, regardless of the coverage and effectiveness of the initial high volume foliar application, it requires several repeated visits to "find" and treat every single kudzu crown in a site. Cut stump applications to all mature woody vines (see picture above) within each site will be essential to achieving the eradication goal of the 3 year program for each enrolled site.

The historical information and the physical data collected suggests current kudzu sites in PA are at least 30 years old and it is believed that all of them were purposely planted for soil stabilization or other recommended uses. Based on the rings in the large woody vines and historical data, we believe that many sites date back to at least the 1960's. Sites are self-seeding underneath the canopy of the current populations but no evidence of "newly established" populations from seed dispersal away from spatially distinct populations was observed. However, dozens of seedlings did emerge in disturbed soil in a clear cut/ construction road that was made through a stand of kudzu for a housing development.

May 2006 High Volume Foliar Treatment



May 2006 Basal Bark Cut Stump Treatment

