

Project Title: Cultural Requirements for Cultural Production of Schisandra chinensis, Wu Wei Zi or Chinese Magnolia Vine

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Project Description: Ever increasing public concern about healthy eating is opening a whole new market for exotic fruits and vegetables. Traditional Chinese medicine is becoming widely accepted as a healthy alternative to our traditional staple foods. Increased use of traditional herbs and medicinal plants has stretched the supply of these products, because most of them are imported in limited quantities directly from their places of origin. There is increased awareness of the potential benefits for growing these products in the United States rather than rely on outside sources. Many of these plant materials are native to areas that have climates similar to various regions within the United States, raising the possibility of growing these plants domestically. Added benefits to developing domestic sources are better control over safety, freshness, and quality. One of the plants that has been used by traditional practitioners of Chinese medicine is Schisandra berry (*Schisandra chinensis*, Turc.), which in Chinese is known as *five flavor fruit*. The plant originates from upper China and Mongolia and is a hardy, woody, dioecious vine. The fruit is thought to provide treatment for heart, lung, and kidney problems among other claims. Cultivation requirements are thought to be similar to those of grapes.



Ripe fruit on vines at Chang Farm in 2005.

Dr. Chang, owner of Chang Farms located in Whately, Mass. has been cultivating Schisandra for over a decade and offers the juice of the berries for sale in the restaurant that he owns in Amherst, Mass. Although he has been successful in harvesting a substantial crop after a decade of growing the vines, not much is known about the cultural practices required to optimize yield and fruit quality for southern New England climatic conditions. This proposal describes a project aimed at developing those cultural practices affecting commercial production such as yield and fruit quality, including propagation of the Schisandra vine, fertilization, pruning, and spacing. The long-term goal of this project is to increase production of the berries by local producers. Eventually this greater production may result in establishment of juice bottling facilities in the Connecticut River Valley and increased opportunities for marketing these products.



Dr. Tso Chen Chang standing with fruiting vines in 2005.

Project Activities in 2004-2005:

• **Literature Review**

An extensive literature review was conducted to provide a complete background of everything that has been published about Schisandra, including legal issues, appropriate soil conditions, nutritional status, and general cultural practices. References listed below.

- **Selection of Planting Site**

The UMass CSOREC Planting and Plant Removal committee agreed to allow for a research planting of Schisandra vines to be used to help determine some of the appropriate cultural practices for commercial production.

- **Evaluation of best method to propagate plant material (cuttings, seed)**

1) During the summer of 2004, seeds were obtained from the Chang Foundation and from the National Temperate Fruit Germplasm Repository in Corvallis Oregon to conduct germination trials on the seeds.

Regimens of different temperatures (stratification) and seed coat scoring (scarification) were tested. Germination rates on all these trials were equally poor, confirming the literature finding that forced uniform seed germination is difficult with this species. Ultimately, over a 18 month period, enough seeds were germinated to provide 50 plants.

2) During the winter of 2004-05, hardwood cuttings were collected on 3 dates to determine if such cuttings are easily rooted and what the best timing of collecting these cuttings would be. Hardwood cuttings rooted very poorly, even when using rooting hormone treatments. Of 300 cuttings taken from varying ages of wood (1 yr, 2 yr, 3+yr old), only 10 rooted satisfactorily.

3) During the summer of 2005, 140 softwood cuttings were collected for rooting. This was, by far, the most successful propagation method for Schisandra. Of the number collected 53 rooted, 64 calloused and 26 died. This is still a low percentage for commercial propagation, but forms a basis from which to develop improved techniques.



- **Site preparation for planting in 2006**

Prior to establishment of the new planting of *Schisandra chinensis* at the CSOREC, removal of existing trees had to be accomplished. This was done during the spring and summer of 2005. Pulling of stumps will be completed in the fall of 2005 and row preparations made for planting in the spring.

Plans for the future: Vine planting is scheduled to take place in the spring of 2006. Once planted, trellis materials will be ordered and installed. (This follows the pattern used when establishing grape vineyards.) Once planted, vines will be staked using 3' bamboo stakes, and protected with grow tubes to accelerate growth and protect vines from deer browsing and contact with herbicide sprays.

Schisandra chinensis is a relatively slow growing vine, so it is difficult to predict when actual pruning and training trials will be established. Once vines have attained enough growth to set up such trials, they will be established. We will also watch for the onset of any insect or disease problems which

may prove significant for commercial production. Soil and tissue tests to determine fertilizer needs may also be performed as needed.

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