

foliage, rich flower color, vigor, attractive low mounding habit with or without pinching, branches that do not splay open, and almost complete flower coverage

***Eurybia hemispherica* (syn. *Aster paludosus* subsp. *hemisphericus*), prairie wood aster.** This plant is recommended because of its very attractive flower color, pleasing and unusual foliage texture, relatively clean foliage, and spreading habit that is not aggressive. The stems do have a tendency to be floppy, which suggests using them for bank planting where this could be used create a cascading effect.

***Eurybia spectabilis* (syn. *Aster spectabilis*), showy aster.** The reasons to recommend this plant include its large flowers produced over a long period of time, nice fall and winter burgundy-colored foliage, insect and disease resistance, and rhizomatous habit that is not aggressive. Its chief problem is its stems, which tend to splay open rather than remaining upright.

ADDITIONAL READING

- Armitage, A.M.** 1997. Herbaceous perennial plants. Stipes Pub., Champaign, Illinois.
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- Hawke, R.** 2002. Plant evaluation at the Chicago Botanic Garden. Perennial Plants, Autumn, 2002.
- Picton, P.** 1999. The gardener's guide to growing asters. Timber Press, Portland, Oregon.
- Rickett, H.W.** 1967. Wild flowers of the United States, McGraw-Hill, New York.

Utilization of Global Assets for the Production of Nursery Products®

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INTRODUCTION OF FOREMOSTCO, INC.

Foremostco, Inc (FMSTCO) is a leading grower/distributor of ornamental plants, annuals, perennials, foliage, and landscape material to the floriculture industry. Currently importing 20% of all plants brought into the country.

FMSTCO provides a steady supply and wide array of year-round availability of cuttings (rooted and unrooted), vegetative and tissue cultured liners, air-layered plants, seeds, bulbs, canes, and rhizomes.

FMSTCO has an organized sourcing network throughout Malaysia, Thailand, China, Taiwan, Costa Rica, Guatemala, Honduras, El Salvador, Nicaragua, Mexico, Brazil, Israel, South Africa, Ireland, United Kingdom, Denmark, Holland, Germany, Belgium, New Zealand, Australia, as well as Canada and the U.S.A.

FMSTCO directly employs 200 people with another 2300 directly associated to the operations that provide products to the company, utilizing about 5000 acres of production area.

FMSTCO maintains an automated, around-the-clock logistics department, which provides rapid in-house expediting of shipments, U.S.A. customs-certified staff that handles the customs processes, and U.S.D.A. clearance.

Why Do We Do This?

- Quality
- Reliability
- Cost

HOW THIS CAN BE ACCOMPLISHED

Breeding and Genetics.

- **Private Companies/Individual Breeders.** In house research and development departments continue to make seed crosses, complete trials, and market testing before distribution of product. We have done our best to support their efforts and work exclusively with breeders allowing us to maximize their investments by collecting royalties and providing distribution to growers.
- **University Programs.** As with private companies we are able to return royalty fees back to research departments both in the U.S.A. and worldwide to further research.
- **Localized Plant Markets.** Mom-and-Pop small businesses selling their products. In most cases these products are only available in “local” markets. Our ability to plug into this system allows us to obtain remote genetic material and promote to our customers.
- **Nature and Conservancy Groups.** As new species are found and later made commercially viable we are able to obtain rare or endangered species, produce with agreements and eventually fund more projects with returning royalties. We must pay attention to all governmental regulations, U.S.A. and others, as well as being mindful of CITES agreements.
- **Trade Shows and Auctions.** Available in regional markets. With a more organized system we are able to develop long-term relationships and in turn allows us to obtain commercially produced genetic material and quickly get it into the hands of our customers.
- **Remote Exploration for New Genetics.** Occasional and deliberate exploration of habitats, with permission allows us to locate some new genetics.

TECHNOLOGY

Modern High Technology

- **Computerization:** The ability to duplicate repeatable growing protocols to provide the most efficient methods for production.
- **Computerization and Mechanical Automation:** The ability to move stock plants to a central processing area for making cuttings improves efficiencies and quality and enables some companies to produce products in a perfect greenhouse environment that may not necessarily be located in an ideal country. Denmark production — high labor costs — poor outdoor conditions can be overcome with the additional on environmental controls in the greenhouses and labor saving machines.
- **Tissue Culture Laboratories:** Allows for rapid, sterile, and homogenous products to be produced. Labor-intensive products can

be grown in relatively cheaper labor markets allowing competitive pricing.

Low Technology. Using good sanitation practices but smart low-tech methods to achieve.

- **Concrete Floors.** These reduce disease pressure, improve the working environment, and increase repeatable quality.
- **Foot baths/double door entry.** Slow the transmission of disease and insect problems keeping stock materials free from viruses ultimately improving quality.
- **Thrips Screens.** In general for virus-sensitive crops this is very effective in insuring proper insect controls.
- **Cultural Practices.** Washing of hands, wearing of gloves, and suits limit the exposure to potential problems.

LABOR

- **Costs** — in high-cost countries — the employees are more skilled but with higher pay. These higher labor costs can be offset by automation. Bulky stock production that requires large production areas to produce products must be grown in areas where labor costs are lower. Typically these workers are not school educated but very well trained in the work skills that are required to complete their tasks.
- **Availability** – of labor even in Central America and Mexico is a challenge. As middle class jobs are available workers tend to avoid the rigors of nursery work. Selections of towns/villages and countries are very important. An operation with a small labor pool will struggle to meet the peak demands of shipping
- **Quality** – Desire to do a good job is important for choosing an effective work staff. We look to work with companies who value their employees, pay a good wage, offer training and contain a “can-do spirit.”

Utilizing Localized Microclimates: Usable Sunlight, Temperature, Humidity, and Day Length. We attempt to match conditions best suited for a particular crop. The tropics have many microclimates. The coastal areas are typically hot and moist, which is excellent for tropical ornamentals but disastrous for cool weather dry climate crops. Many of the Central American countries have mountain ranges that create microclimates. We are able to locate growing areas in isolated valleys or at high or low altitudes. A cool, dry area to grow *Hedera* ivy is perfect, while cool, wet climates to grow other items such as ferns are best. Typically governmental data is limited, and we rely on locals to give us input on the local weather conditions. We will also review the local flora and fauna, which is usually the best indicator of climate. We are able to modify climate somewhat by shade houses and greenhouses. This affords us additional controls for periods of excessive rains or droughts. Light levels are critical to determine the optimum growing conditions. If we have perfect temperatures and rain, low light levels will prevent good production.

SEASONALITY

- Tropics
- Temperate climates
- Northern versus Southern Hemisphere
 - Seed production
 - Growing and dormant crops

Typically stock plants will produce at high levels when the cutting material is needed the least. For this reason we look to the opposite hemispheres on many of the products that we grow. If peak usage of cuttings is in the spring we can some times tailor-make the stock to produce high yields when they are needed the most. Seed production from South America is opposite North America. We are therefore able to utilize fresh seed year round, thus improving our yields, consistency, quality, and dependability.

TRANSPORT LOGISTICS

- Temperature-controlled post-harvest using precoolers, temperature controlled trucks.
- Airlines for quick transport.
- Working closely with U.S.D.A. to meet all requirements.
- Live computer control for shipment status.

Epimedium: Back to Basics®

Anthony Eversmier

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INTRODUCTION

Propagating a new plant is just as challenging as remembering how to produce more familiar plants on a daily schedule. When learning a new plant, I try to keep the concept basic and true to how the plant grows in nature.

In Spring 1995 we started growing *Epimedium*. It was not until 1996 that we started experimenting with the idea of propagation. Early production of 1-qt material was purchased in from an outside source and potted for final sale. We decided to try propagation as a means of reducing price and servicing our customer with a better quality product.

Early propagation was successful by division, but the total yields were low and the cultivars were few. We needed a project for our winter propagation schedule, and *Epimedium* was just the kind of project that could fill a greenhouse in a 2-week timeframe. Propagation and production usually occurs in late November just prior to our *Anemone* and *Astilbe* crop production in early December.

Our experimenting over the years has given us insight into which cultivars grow the best in our Mid-Atlantic location. In response to our success, landscapers have been purchasing *Epimedium* selections that will flourish and perform for many years to come in the Mid-Atlantic region.

Wholesale suppliers are very important to achieving our production goals. Quality fresh bare-root plants definitely make the best propagation material. Setting the