

Sarah Gesare

New Crop Report

HORT 5051

Centropogon erythraeus

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Taxonomy:

Centropogon erythraeus is an herbaceous perennial in Ecuador with its most famous subspecies being found in Loja and Chinchipe provinces. It's a member of the Campanulaceae family (Moreno & Pitman, 2013).

Geographic Distribution:

Centropogon erythraeus is native to Ecuador and Peru (Moreno & Pitman, 2013). In Ecuador its most famous subspecies are found in Loja and Chinchipe provinces. It's likely found along the longitude/latitudinal range of 04°52'59"S79°16'59"W, whereby the climatic conditions are subtropical or tropical. There is no specific literature available on location, thus the latitudinal range is a rough estimate given the native provinces that it's found in. In Ecuador *Centropogon erythraeus* is listed as endangered and is mainly found on roadsides as a colonizing species (Feix, 2012).

Native Habitat:

There is lack of detailed information as to how *Centropogon erythraeus* performs in its native habitat because it recently grabbed grower's and conservative's interest. As an endangered species studies and research on it are now being carried out. However, some websites do mention that it mainly

grows on roadsides and it's noted to be a roadside colonizer in some areas like around Podocarpus National Park (Feix, 2013). These little information can be a basis of further studies that can be carried out in understanding *Centropogon erythraeus* in its native habitat.

Taxonomic Distribution:

Centropogon erythraeus is an herbaceous perennial with an erect and bushy habit. It has "striking, magenta-brown, pubescent leaves and stems" with flowers that are close to 2" long (Seedhunt, 2013). The flowers are "dull rusty red with paler tips" and they are borne briefly late spring and early summer after which basal renewal growth begins (Seedhunt, 2013). Seeds are extremely fine and need to be acclimated when sown (Seedhunt, 2013). Leaves are alternate, entire with an ovate shape (Archive.org, 2013). Fruits are two-celled berry crowned by the calyx lobe (Archive.org, 2013). There is no specific information on the root type of *Centropogon*, but based on the family information, it might contain a tap root. There is no information on any indigenous use of any part of *Centropogon erythraeus*. Further studies can be done in Ecuador to find out about growing habits in the wild and any indigenous uses.

Name and Description of Varieties/ Cultivars on the Market:

Based on information was found on *Centropogon erythraeus* there is no known cultivars on the market. Seeds are available through Ebay or seedhunt.com where those interested can purchase from.

Propagation Methods:

In information gathered there was no mention of vegetative propagation for *Centropogon erythraeus*. Those who had grown it did it through seed propagation, and that was also the basis of this project.

On seedhunt.com it's recommended that the seeds be sown on a damp, fine textured and acidic medium. The medium is then to be covered with glass, or seeds placed on a pan in a plastic bag so as to acclimate gradually (Seedhunt, 2013).

In this project, 50 seeds were sown into 128 plug trays and placed in a mist house at 70 °F. The seeds were not covered because they were fine. By the time of sowing, no information on sowing recommendations had been gathered, thus the above recommendations for acclimating were not followed. By the second week after germination five seeds had germinated giving germination percentages of 1%. The germinated seed were taken from the greenhouse and placed on a capillary mat for hardening off before transplanting. After five days of hardening off the seedlings were transplanted into 4" pots filled with L-C8 media. After a week of transplanting the seedlings begun maturing and they looked suspicious because they were nothing like images found research. However they were not discarded but grown on. By the 4th week after transplanting it was certain that they were not *Centropogon erythraeus* but were lettuce instead. The reason lettuce were present may have been due to contamination of seeds during collection. *Centropogon erythraeus* did not germinate because they were not acclimated.

In order to confirm whether the germination recommendation works, future projects would have to follow it and see how well it works and what would be added to the recommendations based on new findings.

Product Specification:

The ideal form of a marketable variety of *Centropogon erythraeus* is an erect plant around 3-5 feet with some flowers on the stalks. The plant should be well fed so that the foliage quality can be "luxuriant" (Seedhunt, 2013).

Market Niche:

Centropogon erythraeus can be marketed to two segments. It can be marketed differently to the Southern and Northern states' customers due to differences in climates.

To Southern customers it can be marketed as a perennial due to the warmer climate. With further genetic development it can be forced year around. It can be used as a transition in the landscape due to its unique foliage. Since in its native habitat it grows on roadsides, *Centropogon erythraeus* has potential of doing well as a street shrub since it also does well in acidic soils. It could first have to be bred for drought resistance before potentially being a successful street plant. In the North it can marketed as a perennial and grown as a foliage shrub. If it's is controlled, or if bred for a dwarf variety, there potential for it being a container plant.

Whether this plant can be a major horticultural depends on how well it's marketed and how appealing its story will be. An appealing story has potential of generating interest from consumers. One story that can be told it's how it's endangered and if not saved could be extinct. If marketed with an objective of giving a percentage of the sells for research and conservation, maybe it could capture consumer's interest and curiosity.

The initial crop limitations would include the acclimation period and colonizing potential. Research has to be conducted on how to shorten the acclimation period or on how to skip the acclimation period. This may include carrying out experiments and research on success of using cuttings. Has for its potential to colonize where it's introduced, research for invasiveness and colonizing ability in places where it will be grown has to be determined. Given all the limitation that has to be overcome before mass commercialization, it might take about eight years for *Centropogon erythraeus* to be available for to new consumers who at the moment are not familiar to the plant.

Anticipated Cultural Requirements:

Information under this section is a rough estimate based on what was gathered in the research process. There is no specific cultural requirement information on *Centropogon erythraeus* available as of the time of putting this project together.

Winter hardiness for *Centropogon erythraeus* would be expected to found in USDA zones 10a. According to Seedhunt, even though winter hardiness has not been tested, it's been reported that *Centropogon erythraeus* had survived brief periods below 32 deg. F without damage (Seedhunt, 2013).

Given that its native to a montane tropical region, *Centropogon erythraeus* should be anticipated to have little or no drought tolerance. It would prefer rich, moist acidic soils with constant feed for the best results for healthy foliage.

Since it's a slow growing plant it's unlikely that plant growth regulators would be need during its production period. During production, the seeds can sowed into 128 plug trays and transplanted to 4'' deep pots, because it has a tap root.

Information on disease or insect susceptibility could not be found, not even one that is common in the *Centropogon* genus. This is because almost all plants in this genus are endangered as well and little is known about them. Thus as part of pre-commercialization, research on diseases and insect susceptibility should be researched and appropriate fungicides and insecticides recommended.

Production Schedule (Seed):

Other than enthusiast growing *Centropogon erythraeus* for their own use, there is no recorded production schedules suggestion. However given that it takes long to germinate, and that it requires an acclimation period seeds should be sown among the first weeks of the growing calendar. For the first year of trial maybe sowing in week three should be tried. Because no specific number of days to

germination is known, transplanting should be done to aim for the plants being ready for sale in early spring, which would be around beginning of May.

With current information, it would be impossible to begin greenhouse production. Research has to be done on how long it takes for the seeds to germinate, how long it takes for bud initiation and what conditions best favor optimum performance of *Centropogon erythraeus*. This project was not able to answer any of the above concerns, but given the germination recommendation maybe future germination trials might be a success enabling data on germination percentages, period it takes for seeds to germinate to be collected.

Needs Assessment For Genetic Improvement:

The main area that requires immediate genetic improvement would be the germination period; If it can improved to reduce the acclimation period, *Centropogon erythraeus* could be more appealing to growers who wouldn't worry about the cost of growing it for too long.

Others areas for improvement would be winter hardiness for the North. Have a winter hardy variety would enable the consumer to grow it as a perennial instead of an annual.

Literature Cited:

Seedhunt. <http://www.seedhunt.com/pplist.html>. 2013

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(No scientific papers were found on *Centropogon erythraeus*, all information was gathered whatever website that had little information on these plant).