

Madia elegans - New Crop Summary & Recommendations

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Year

Series: New Floricultural Crops: Formulation of Production Schedules for Wild, Non-domesticated Species

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Madia elegans ssp. **Vernalis**



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Taxonomy

The taxonomic description of my crop is *Madia elegans* ssp. *Vernalis*. A synonym for *Madia elegans* is tarweed. However, *Madia elegans* ssp. *Vernalis* is known by its common name the spring madia. The spring madia is a member of the Asteraceae family, which has over 22,000 species in the family. The Asteraceae family is also known as the sunflower or daisy family. Most species of the Asteraceae family are herbaceous but there are some shrubs, vines, and trees. *Madia elegans* ssp. *Vernalis* is herbaceous.

Geographical distribution

Madia elegans ssp. *Vernalis* is native to North America, and is only found in the United States in different areas of California and Oregon. There are documented findings of *Madia elegans* spp *vernalis* in herbariums along the California coast from Los Angeles County to Humboldt county. They have been found from sea level to elevations of 3281 feet. *Madia elegans* is native to 48 degrees latitude, and thrives in coastal climactic conditions.

Native Habitat

The native habitat of *Madia elegans* ssp. *Vernalis* is the coastal regions of California. Coastal regions of California vary in climate due to differences in elevation and latitude. Generally California is known for its rainy winters and dry summers. Due to its close proximity to the Pacific Ocean, temperatures are usually moderate. Other plants that grow in the coastal regions of California are *Abronia*

latifolia (Yellow Sand Verbena) *Achillea millefolium rosea* (Island Pink Pink Yarrow) , *Artemisia pycnocephala* (Sandhill Sage) , and *Carex praegracilis* (Clustered Field Sedge) to name a few.

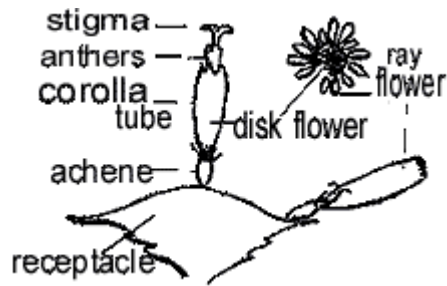
Taxonomic Discription

Madia elegans ssp. *Vernalis* is known to be a profuse spring bloomer with 1-2 inch wide yellow daisy like flowers. The plant grows between 2-3 feet and keeps it flowers open in afternoon sun unlike other subspecies of *Madia elegans*. This plant can be used in the landscape by using it at the front of borders or mixed in with low-growing plants. Pollinators are known to be attracted to this plant. It has been found growing in grassy sites and is said to be tolerant of many soils and water levels. *Madia elegans* thrives in full sun.

The *Madia elegans* has a composite flower type with disk flowers and ray flowers. The disk flowers connect to the receptacle in the middle of the inflorescence and the ray flowers surround the outside of the disk flowers. *Madia elegans* has a large tap root, with erect stems. The leaves come in whorls. *Madia elegans* is a dicot and an annual herb. It is said to be able to grow in all USDA winter hardiness zones, however there is not enough research to back this up.

According to Wikipedia, *Madia elegans* ray flowers curl up during the daytime, then open in the late afternoon and stay open all night until mid-morning. The plant has achenes for fruit which were once used by the Pomo and Miwok Indians (Native to the California region) who baked them or used them to ground into a flour pitole. Species of *Madia elegans* are known

to have a pungent smell, which lead to some botanists to call them tarweeds.



Varieties and Cultivars on the Market

At this time, there are no subspecies of *Madia elegans* on the market. However, there are many genus and species of the Asteraceae family on the market today. A few Asteraceae plants on the market are sunflowers, zinnias, daisies, chrysanthemums, dahlias and cosmos.

Product Specification

A marketable cultivar of *Madia elegans* ssp. *Vernalis* will have larger flowers and more color than wild specimens.

***Madia elegans* ssp. *Vernalis* Production Schedule and Propagation**

Method

Madia elegans ssp. *Vernalis* is propagated by seed. Each seed can produced one to seven flowers. In ten weeks after sowing seed you can estimate that you will have bud initiation. By week eleven flowers will be produced. Shipping can occur 10 weeks after sowing seed. The target sales date for this crop is May through August, although it could be grown throughout the year.

My production procedures:

Sowed *Madia elegans* ssp. *Vernalis* seeds in 288 Plug Tray of Germination Mix

Sowed One Seed Per Cell and Covered ½ with Vermiculite and left the other ½ uncovered

75% of the uncovered seeds germinated 25% of the covered seeds germinated

Also, placed 10 seeds in a tray of GA 70% germinated

Germination took 7-10 days, Germination Temperature 65-75 Degrees F,

Relative Humidity 95-100 %, No Light Required

After germination plants are moved out of mist house.

Fertilizer rate after moving out of mist house is less than 100 ppm N

Maintain a pH of 5.7- 6.3

No PGRs are needed in production. PGRs are generally unnecessary for some species of the Asteraceae family. However, one or two applications of B-nine at 1,200 ppm could prove to be beneficial for *Madia elegans* ssp. *Vernalis* and other Asteraceae species. The most common insect problem for *Madia elegans* spp. *Vernalis* is Aphids

Market Niche

Target sales date for *Madia elegans* ssp. *Vernalis* will be May through August. The Fourth of July and Mother's Day are potential holidays for this crop. My mother loves sunflowers, and I can imagine her loving the sunflower's relative the spring madia as well!

Madia elegans ssp. *Vernalis* can be forced to flower year round if produced right. *Madia elegans*

ssp. *Vernalis* will compete with other ornamental flowers of the Asteraceae family such as zinnias, daisies, chrysanthemums, dahlias and cosmos.

The story behind *Madia elegans* ssp. *Vernalis* is that it was used by indigenous peoples of California for flour. The beauty of the spring madia can inspire you, as it inspired the people of California to be innovative and ground breaking in all walks of life. If bred and produced right, the *Madia elegans* ssp. *Vernalis* could be a major crop. I believe its family's history speaks for itself. Asteraceae plants are beautiful, desirable, and are very profitable.

The initial crop limitations are that they have a small flower and a generic yellow flower. If we can breed larger flowers and encourage different colors to integrate into the subspecies we could have a very marketable plant on our hands. As of now, this plant may be identifiable to the family level by most growers and consumers, but more marketing will need to be conducted to raise awareness of the *Madia elegans* ssp. *Vernalis*. If awareness rises in regards to this product, I believe we can have the plant on the market in the next 7 years.

Needs for Genetic Improvement

To genetically improve the *Madia elegans* ssp. *Vernalis*, I recommend selecting for larger flowers and new colors. By growing larger flowers and implementing new colors into the subspecies the desire for the spring madia will rise in value.

Anticipated Cultural Requirements

Madia elegans ssp. *Vernalis* is said to be able to be grown in all USDA Winter Hardiness Zones, but I believe more research is needed to determine this. This crop is both heat and drought tolerant. Favored temperatures for this crop are 65-75 Degrees F. *Madia elegans* ssp.

Vernalis likes long day photoperiods for flowering. For nutrition, fertilizer rates after moving out of mist house is less than 100 ppm N. After transplanting you can raise the fertilizer rate to 200 ppm N. For soil, the spring madia can grow in a wide variety of soil types. It has grown in soils exposed to salt as well as rocky soils. The best soil type for this crop is sandy loam soil. No plant growth regulators are necessary for the production of this crop; however, one or two applications of B-nine at 1,200 ppm could prove to be beneficial for *Madia elegans* ssp. Vernalis. Container sizes used in the production of *Madia elegans* spp. Vernalis are 288 plug trays, to 1801s, to 4 inch pots. *Madia elegans* ssp. Vernalis is not known to be resistant or susceptible to any particular diseases. The main pest involved with spring madia is the aphid. Fungicides and insecticides can be used successfully on this crop.

References

- CalFlora (2012). “*Madia elegans* ssp. Vernalis” from http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Madia+elegans+ssp.+vernalis
- CalPhotos (2012). “*Madia elegans* ssp. Vernalis” from http://calphotos.berkeley.edu/cgi/img_query?where-genre=Plant&where-taxon=Madia+elegans+ssp.+vernalis
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