Importance Of Controlling *Oxalis* Weed Species

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There are many different species of oxalis with *Oxalis stricta* (yellow woodsorrel), *O. corniculata* (creeping woodsorrel), and *O. dillenii* ssp. *dillenii* (woodsorrel) being the most common found in ornamental nurseries. Typically these weeds follow an annual cool season life cycle, however they can be a perennial nuisance in hoop houses and greenhouses where the environmental conditions are more moderate. Removal of mature weeds and control of seedling emergence are required for effectively control. Understanding the reproductive strategies of this weed is an important aspect of control.

O. corniculata and *O. dillenii* ssp. *dillenii* are both creeping and stoloniferous, with many stolons originating from a single taproot and lacking underground rhizomes. The stolons have numerous nodes that readily root which in turn produce new at the nodes. *O. corniculata* has leaves that are mostly purple tinged while *O. dillenii* ssp. *dillenii* has leaves that may vary from light green to brownish in color. *O. stricta* is an upright species with several branches originating from the base of the plant, lacks a taproot and spreads vegetatively by underground rhizomes. All three oxalis species reproduce primarily from seed production. At maturity, the pods expel seed for several feet in all directions to ensure adequate seed distribution in your nursery.

Eliminating seedling emergence is essential to a successful oxalis control program. Ideally, if the mature weeds are removed prior to seed distribution then the reproduction cycle can be broken. This is important because *Oxalis* species are particularly troublesome weeds in container production in the Southeast that compete with ornamental plants for essential nutrients and moisture. A research project conducted at the Nursery Research and Service Center at Tennessee Technological University illustrates this competition effect.

Echinacea purpurea 'White Swan' plugs were transplanted into 1801 cell packs using Promix BX media. *Oxalis stricta* and *Oxalis dillenii* seedlings were selected from a greenhouse population and transplanted with the *Echinacea* plugs. Treatment populations were 1 weed seedling or 3 weed seedlings of either *Oxalis* species per cell. A weed free control was included. Each treatment was replicated 12 times and allowed to grow for 60 days. At 60 DAT data collected included dry weight and leaf area for the *Echinacea purpurea* 'White Swan'.

Both species of *Oxalis* inhibited growth of *Echinacea purpurea* 'White Swan'. Dry weight and leaf area was reduced for all weed density treatments (Table 1). This study highlights the importance of controlling weed populations that will compete with your ornamental crops. Control your weeds and you will produce a healthy, vigorous and more importantly, a very salable crop.

Table 1.
Dry weight and leaf area of *Echinacea purpurea* 'White Swan' grown with two *Oxalis* species at three weed population densities.

	Echinacea purpurea 'White Swan'	
Weed Population	**Dry Weight (g)**	**Leaf Area (cm^2)**
1 *Oxalis dillenii*	0.75 b[z]	109.24 b
3 *Oxalis dillenii*	0.71 b	109.29 b
1 *Oxalis stricta*	0.57 b	94.37 bc
3 *Oxalis stricta*	0.22 c	52.03 c
Weed-free Control	1.78 a	218.63 a

[z]Mean separation by Least Significant Difference (LSD), P=0.05.