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ENH 1070

Pre- and Postemergence Herbicides for Use Around Palms and Cycads[1]

Robert H. Stamps, Jeffrey G. Norcini, Timothy K. Broschat and Charles W. Meister[2]

Palms and cycads are important landscape ornamentals, especially in Florida. However, as a group, they are slow growing so it is very important to optimize growing conditions in order to make their production economical and their establishment in the landscape rapid. Due, in part, to the length of time required to produce marketable plants, weeds frequently become a problem during production. Of course, weeds use valuable water and nutrients that could otherwise be utilized by these crops. In addition, weeds compete with young plants for light. Weeds may also release chemicals that inhibit the growth of other plants (this is known as allelopathy).

Weed management costs in the nursery can be very high if only hand labor is employed. Pre- and postemergence herbicides can significantly reduce the need for hand weeding and, thereby, reduce production costs. In the landscape, pre- and postemergence herbicides can reduce maintenance costs.

Disclaimer: Mention of a commercial or proprietary product or chemical does not constitute a recommendation or warranty of the product by the authors or the University of Florida, Institute of Food and Agricultural Sciences, nor does it imply its approval to the exclusion of other products that may also be suitable. Products should be used according to label instructions and safety equipment required on the label and by federal or state law should be employed. Users should avoid the use of chemicals under conditions that could lead to groundwater contamination. Pesticide registrations may change so **it is the responsibility of the user to ascertain if a pesticide is registered by the appropriate state and federal agencies for an intended use.**

Selected palms and cycads specifically labeled as tolerant to preemergence herbicides are listed in Table 1. However, palms as a group tend to be somewhat unpredictable in their phytotoxic responses to herbicides.

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[2] Robert H. Stamps, Professor, Mid-Florida Research and Education Center-Apopka, Jeffrey G. Norcini, Associate Professor, North Florida Research and Education Center-Quincy, Timothy K. Broschat, Professor, Ft. Lauderdale Research and Education Center; and Charles W. Meister, Scientist, Pesticide Research Lab-Gainesville.

This may be due to genetic and/or developmental differences among plants. Therefore, use these products with caution and on a small scale at first. This is especially true for palm seedlings. In fact, some herbicide labels specifically prohibit the use of the products on seedlings.

Some herbicides (such as BroadStar™, Corral®, Dimension®, Granular Herbicide 75, Kansel+®, OH2®, oryzalin, Preen® Plus, PrePair®, Showcase™, Snapshot™ TG, Treflan™, XL®) may include a statement on their labels that allows their use on an ornamental species not listed on the label, provided that the user makes a trial application of the product at the recommended rate to a small number of plants in order to determine if the product causes injury (phytotoxicity) to the tested species. **Users should check for injury for up to 10 months after application** since it may take this long for injury symptoms to develop in palms and cycads. Growers are also advised to further test the effects of multiple applications of any herbicide because plants that seemingly are tolerant of a single herbicide application may exhibit phytotoxicity symptoms following a second application (at the recommended rates and intervals). Regardless, the user assumes responsibility for any plant damage or other liability resulting from the use of any herbicide on plant species not recommended on the product label. Product labels may also limit the total amount of product that can be used on a given area per year.

Table 1 lists selected palms and cycads in alphabetical order (by genus) in rows and selected preemergence herbicides (by trade name, or active ingredient where more than one product has the same active ingredient) in columns. If one of the plants is listed on a herbicide label there will be a letter in the box where the crop row and the herbicide column intersect. The letters indicate: C = labeled for use on container-grown plants, F = labeled for use on field-grown (in-ground) plants, L = labeled for use in the landscape and X = the herbicide should not be used on the crop. **Please note that none of the preemergence herbicides are labeled for use in enclosed shadehouses or greenhouses.** Also note that landscape areas may be differentiated into subgroups such as commercial, industrial, residential and roadside, and that herbicide usage may be limited to one or only some of these landscape planting types. Read each label carefully.

The only postemergent herbicides specifically labeled for use on palms and one cycad are fluzifop-P-butyl (Fusilade® II, Ornamec®) and sethoxydim (Sethoxydim G-Pro, Vantage®). These herbicides will kill many annual and some perennial grasses; however, they are not effective on broadleaf weeds and sedges. Check the labels of these grass herbicides to determine whether they must be applied as directed sprays or can be sprayed over-the-top of the crop. The palms and cycad included on the labels are listed in Table 2. The locations where these two products can be used are indicated in Table 2 by the letter designations listed above for Table 1 and the following: G = product is labeled for use on the crop when it is growing in a greenhouse and N = product is labeled for use in nurseries.

Diquat dibromide (Diquat, Reward®), glufosinate-ammonium (Finale®) and pelargonic acid (Scythe®) are postemergence contact (none or limited translocation) herbicides that generally only kill the above-ground portion of the weed. These herbicides are applied as directed sprays just to the weeds (avoid contact with the crop) and are most effective on annual weeds and weeds without extensive root systems.

Glyphosate-containing products (Glyfos®, RoundUp®, Touchdown®, etc.) are systemic postemergence herbicides that are translocated throughout the plant. They will kill annual and perennial broadleaf weeds, grasses and sedges. These products are quite safe for use as carefully applied directed sprays around palms. However, should injury occur, palms will usually grow out of any symptoms within a couple of months.

The use of a combination of a preemergence and a postemergence herbicide can save labor and extend the time intervals between herbicide applications.

Additional information about these herbicides can be found in "Preemergence Herbicides for Use In Ornamentals" (OH94) and "Postemergent Herbicides for Use in Ornamentals" (ENH95).

At this time, the authors know of no other herbicides that are labeled for use on ornamental palms and cycads, or of palms and cycads other than those included in Table 1 that are included on ornamental preemergence herbicide labels. Please let us know of any corrections or additions that need to be made to this publication (PHONE: 407/884-2034 ext. 164, E-MAIL: rstamps@ufl.edu).

Table 1. Palms and cycads tolerant of various preemergence herbicides (C = product is labeled for use on the crop when it is growing outdoors in containers, F = product is labeled for use on the crop when it is growing in the field, L = product is labeled for use on the crop when it is growing in the landscape, X = do not use product on indicated genus, species or hybrid).

Scientific name (Common name)	BroadStar™	Corral™	Devrinol® 50DF	Devrinol® 2G	Dimension®	Gallery™	Granular Herbicide 75	Kansel+®	OH2®	oxyfluorfen + oxadiazon [1]	pendimethalin [2]	Pennant Magnum®	PrePair®	Ronstar® G	Showcase™	simazine [3]	oryzalin [4]	Treflan™ G [5]	trifluralin + isoxaben [6]	XL®
Adonidia merrillii [synonym *Veitchia merrillii*] (Adonidia, Christmas palm)						F, L	C, F, L						C, F, L	C, F, L			F, L	C, F, L	F, L	F, L
Archontophoenix cunninghamiana (king palm)					F, L	C, F, L														
Arecastrum romanzoffianum [see *Syagrus romanzoffiana*] (queen palm)																				
Arenga pinnata [synonym *A. saccharifera*] (sugar palm)													C, F, L	C, F, L						
Arenga saccharifera [see *Arenga pinnata*] (sugar palm)																				
Butia spp. (pindo palm, jelly palm)		C, F									C, F									
Caryota spp. (fishtail palms)													C, F, L	C, F, L						
Chamaedorea spp.	C, F								C, F	C, F, L			C, F, L							
Chamaedorea cataractarum (cat palm)						F, L	C, F, L								F		F, L	C, F, L	F, L	F, L

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Chamaedorea costaricana (bamboo palm, Costa Rican palm)						C, F, L	C, F, L								C, F		F, L	C, F, L	C, F, L	F, L
Chamaedorea elegans [synonym *Collinia elegans*] (parlor palm, neanthe bella palm)						C, F, L	C, F, L						C, F, L	C, F, L	C, F		F, L	C, F, L	C, F, L	F, L
Chamaedorea erumpens [see *Chamaedorea seifrizii*] (bamboo palm)																				
Chamaedorea seifrizii [synonym *C. erumpens*] (bamboo palm)													C, F, L							
Chamaerops [see *Chamaerops humilis*] (European fan palm, Mediterranean fan palm)																				
Chamaerops excelsa [see *Rhapis excelsa*] (lady palm)																				
Chamaerops fortunei [see *Trachycarpus fortunei*] (windmill palm)																				
Chamaerops humilis (European fan palm, Mediterranean fan palm)		C, F			F, L	C, F, L					C, F									
Chrysalidocarpus lutescens [see *Dypsis lutescens*] (areca palm)																				
Cocos plumosa [see *Syagrus romanzoffiana*] (queen palm)																				

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Collinia elegans [see *Chamaedorea elegans*] (parlor palm, neanthe bella palm)																				
Cycas revoluta (king sago, king sago palm, sago palm)					F, L	C, F, L	C, F, L								X			C, F, L	C, F, L	
Cyrtostachys lakka [see *Cyrtostachys renda*] (sealing wax palm)																				
Cyrtostachys renda [synonym *C. lakka*] (sealing wax palm)													C, F, L	C, F, L						
Daemonorops spp. (rattan palms)													C, F, L	C, F, L						
Dypsis lutescens [synonym *Chrysalidocarpus lutescens*] (areca palm)						F, L	C, F, L				C, F						F, L	C, F, L	F, L	F, L
Euterpe spp. (manac palm)													C, F, L	C, F, L						
Licuala spp. (licuala palm)													C, F, L	C, F, L						

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Livistona chinensis (Chinese fan palm, Chinese fountain palm)						F, L	C, F, L										F, L	C, F, L	F, L	F, L
Palm								C, F, L								F				
Phoenix spp. (date palms)											C, F									
Phoenix roebelenii (pigmy date palm, miniature date palm)						C, F, L	C, F, L										F, L	C, F, L	C, F, L	F, L
Ptychosperma macarthurii (Macarthur palm)													C, F, L	C, F, L						
Rhapis excelsa [synonym *Chamaerops excelsa*] (lady palm)														C, F, L						
Syagrus romanzoffiana [synonyms *Arecastrum romanzoffianum*, *Cocos plumosa*] (queen palm)					F, L	C, F, L	C, F, L								X		F, L	C, F, L	C, F, L	F, L

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Trachycarpus spp.		C, F									C, F									
Trachycarpus fortunei [synonym *Chamaerops fortunei*] (windmill palm)					F, L	C, F, L														
Veitchia merrillii [see *Adonidia merrillii*] (Adonidia, Christmas palm)																				
Washingtonia		C, F									C, F									
Washingtonia robusta (Washington fan palm, Mexican fan palm)			C, F, L	C, L	F, L	F, L	C,F, L					F, L			X		F, L	C, F, L	F, L	F, L
Zamia furfuracea (cardboard palm)						C, F, L														

[1] O-O Herbicide™, Lasar™

[2] Pendulum®, Pre-M®; see individual labels for specific genera and/or species listed. Also, see Corral™, a granular formulation of pendimethalin labeled for use in nurseries.

[3] Princep®, Simazine, Sim-Trol®

[4] Quali-Pro™ Oryzalin 4 Pro, Surflan®, Vegetation™ Manager Oryzalin 4 Pro

[5] Not for use on plants being grown for sale or other commercial use, or for commercial seed production or for research purposes. For use on plants for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or on golf courses or lawns and grounds.

[6] Preen® Plus, Snapshot™ TG

Table 2. Palms and cycads tolerant of various postemergence herbicides (F = product is labeled for use on the crop when it is growing in the field, G = product is labeled for use on the crop when it is growing in a greenhouse, L = product is labeled for use on the crop when it is growing in the landscape, N = product is labeled for use in nurseries).

Scientific name (Common name)	fluazifop-P-butyl[1]	sethoxydim[2]
Arecastrum romanzoffianum [see *Syagrus romanzoffiana*] (queen palm)		
Chamaerops [see *Chamaerops humilis*] (European fan palm, Mediterranean fan palm)		
Chamaerops fortunei [see *Trachycarpus fortunei*] (windmill palm)		
Chamaerops humilis (European fan palm, Mediterranean fan palm)	F, G, L, N	F, L, N
Chrysalidocarpus lutescens [see *Dypsis lutescens*] (areca palm)		
Cocos plumosa [see *Syagrus romanzoffiana*] (queen palm)		
Cycas revoluta (king sago, king sago palm, sago palm)	F, G, L, N	F, L, N
Dypsis lutescens [synonym *Chrysalidocarpus lutescens*] (areca palm)	F, G, L, N	
Livistona chinensis (Chinese fan palm, Chinese fountain palm)	F, G, L, N	
Phoenix canariensis (Canary Island date palm)	F, G, L, N	
Phoenix roebelenii (pigmy date palm, miniature date palm)	F, G, L, N	F, L, N
Syagrus romanzoffiana [synonyms *Arecastrum romanzoffianum*, *Cocos plumosa*] (queen palm)	F, G, L, N	F, L, N
Trachycarpus fortunei [synonym *Chamaerops fortunei*] (windmill palm)	F, G, L, N	F, L, N
Washingtonia robusta (Washington fan palm, Mexican fan palm)	F, G, L, N	

[1] Fusilade® II, Ornamec®
[2] Sethoxydim G-Pro, Vantage®