

CONTROLLING QUACKGRASS IN THE NURSERY

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Abstract. The results of three separate studies indicate that pronamide (Kerb) and glyphosate (Roundup) will control quackgrass. Pronamide can be used as an over-spray on existing quackgrass in established nursery stock. Glyphosate, when labelled, will have a role in controlling quackgrass prior to planting and as a directed spray under trees and large nursery stock.

Quackgrass, the major weed problem in Ohio nurseries, has been controlled by producers through tillage or with a limited number of herbicides. Cultivation and hoeing yield, at best, temporary control. The use of herbicides has been limited to spot treatment of post-emergence herbicides such as dalapon and aminotriazole or fall or winter applications of the pre-emergence herbicide dichlobenil.

Two new herbicides have recently been labelled for the control of quackgrass. Pronamide, marketed as Kerb, a pre-emergence compound, has been registered for use in nursery stock for the control of quackgrass and winter weeds. Glyphosate, sold as Roundup, a post-emergence material, is registered for weed control in industrial areas and prior to planting field crops but not in nursery plantings.

Three field studies in commercial nurseries have recently been completed in which pronamide and glyphosate have been evaluated for pre-plant and post-emergent quackgrass control.

Study Number 1 — Pre-plant Quackgrass Control.

If quackgrass can be controlled prior to planting nursery stock, subsequent need for control will be significantly reduced. With this in mind, a study was initiated to evaluate several herbicides for pre-plant control of quackgrass. The data as shown in Table 1 indicates that glyphosate at 2.0 lbs. ai/A (active ingredient per acre) and dichlobenil were the most effective herbicides 11 months following treatment if coupled with disking. All herbicide rates are in active ingredient per acre.

In most instances disking every 6 weeks resulted in greater quackgrass control as had been noted in earlier studies (4). The results of this study coincide with the findings of Hall and Parochetti (3) who noted that glyphosate was superior to pronamide in control of quackgrass after 10 months in sod. Ahrens (2) reported that glyphosate at 1.5 and 3.0 lbs. resulted in excellent control of quackgrass without injury to ornamentals when applied to quackgrass 8-10" tall 8 days prior to planting.

Table 1. The effect of 5 pre-plant applied herbicides in the control of quackgrass.

Treatment*	Pounds ai/A	Percent Quackgrass Control	
		Disked**	Non-disked
Glyphosate EC	2.0	85	40
Dichlobenil 4G	6.0	85	45
Pronamide 50W	2.0	60	60
Pronamide 50W	4.0	75	70
Pronamide 50W + Simazine 80W	2.0 + 2.0	70	55
Simazine 80W	4.0	75	50
EPTC 10G	15.0	50	35
Control	—	30	25

*Herbicides applied November 6, 1973 and evaluated October 8, 1974.

**Plots were harrowed with a tractor-drawn disk every 6 weeks from May-August.

Study Number 2 — Evaluation of Pronamide and Glyphosate in Taxus and Spruce

Herbicides were applied November 11, 1974 to a planting of 3-4' *Taxus cuspidata* (syn. *T. c.* 'Capitata') and 4-5' *Picea pungens* 'Moerheimi' heavily infested with quackgrass (5).

Quackgrass was essentially eliminated as shown in Table 2 with glyphosate alone and in combination with pronamide. Pronamide at 4.0 lbs. was more effective in controlling quackgrass than the recommended rate of 2.0 lbs. The addition of dichlobenil and simazine did not enhance the effectiveness of pronamide in quackgrass control.

Table 2. Effects of pronamide and its combinations in the control of quackgrass in *Taxus* and *Picea*.*

Herbicide	ai/A	Percent Quackgrass Control
Control	—	10
Pronamide 50W	2.0	70
Pronamide 50W	4.0	85
Pronamide 50W + Dichlobenil 50W	2.0 + 4.0	70
Pronamide 50W + Dichlobenil 50W	2.0 + 6.0	70
Pronamide 50W + Simazine 80W	2.0 + 2.0	60
Pronamide 50W + Simazine 80W	2.0 + 3.0	70
Pronamide 50W + Glyphosate	2.0 + 1.5	100
Glyphosate	1.5	100

*Herbicides applied November 7, 1974 and data recorded May 20, 1975.

Pronamide which should be applied in autumn or winter will not control late spring or summer weeds thus increasing the need for combining with another herbicide. No injury occurred to the *Taxus* or *Picea*; however, the glyphosate was applied as a directed spray and contact with the foliage was avoided. The results agree with the

findings of Ahrens (1) in which pronamide at 2.0 and 4.0 lbs. controlled quackgrass without appreciable injury to *Taxus*.

Study Number 3 — Evaluation of Pronamide in Established Evergreens.

Several herbicides were applied on November 6, 1973 to *Taxus media* 'Hicksii', *Juniperus chinensis* 'Hetzii', and *Buxus microphylla* var. *koreana* to control quackgrass and dock (6). The results as expressed in Table 3 indicated that pronamide satisfactorily controls both quackgrass and dock.

No injury to the ornamentals was observed; however, subsequent unreported studies have indicated that pronamide will injure boxwood.

Table 3. Control of quackgrass and dock in Hicks yew, Hetz juniper and Korean boxwood.

Treatment*	Pounds ai/A	Percent Weed Control Quackgrass	Dock
Control	—	20	20
Pronamide 50W	2.0	75	75
Pronamide 50W	3.0	80	80
Pronamide 50W + Simazine 80W	2.0 + 1.0	80	70
Simazine 80W	3.0	70	20
Dichlobenil 4G	6.0	45	60

*Herbicides applied November 6, 1973 and data recorded June 4, 1974.

SUMMARY

Two promising new new herbicides, pronamide (Kerb) and glyphosate (Roundup) will control quackgrass. Pronamide can be used to effectively control existing quackgrass in established nursery plantings. Glyphosate, although not labelled for use in nursery crops, is highly effective in the control of quackgrass. When labelled, glyphosate will have a role as a pre-plant treatment and as a directed spray in tree or large nursery plantings.

LITERATURE CITED

1. Ahrens, J. F. 1974. Fall applications of herbicides for control of quackgrass and yellow nutsedge in *Taxus cuspidata capitata*. *Proc. Northeastern Weed Sci. Soc.* 28:379-385.
2. Ahrens, John F. 1974. Preplant herbicides for control of quackgrass in ornamentals. *Proc. Northeastern Weed Sci. Soc.* 28:372-378.
3. Hall, John R. and James V. Parochetti. 1974. Quackgrass control with glyphosate, pronamide and dalapon. *Proc. Northeastern Weed Sci. Soc.* 28:407-410.
4. Smith, Elton M. 1972. Control of quackgrass prior to planting. *Nursery Notes* Vol. VI, No. 3.
5. Smith, Elton M. 1975. Controlling existing quackgrass in woody ornamentals. *Turf and Landscape Report* — 1975, O.A.R.D.C. pgs. 37-38.

6. Smith, Elton M. 1975. Quackgrass, chickweed and dock control in nursery plantings. Nursery Notes Vol. VIII, No. 1.

Tuesday Afternoon. December 2, 1975

The afternoon session convened at 1:30 pm with Mr. Ed Bunker serving as moderator for a special presentation by the group of visiting Australian members. The second portion of the afternoon program was moderated by Mrs. Judith L. Shirley.

GERMINATING PALM SEEDS

EDWARD J. BUNKER

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Linnaeus said "Man dwells naturally within the tropics and lives on the fruit of the palm tree. He exists in other parts of the world and there makes shift to feed on corn and flesh." I am sure in everyone's mind a picture of the tropics conjures up palm trees swaying in the balmy breeze.

In the realm of economically important plants, palms stand second to grain-yielding grasses. The world's first sealed milk bottle — the coconut palm; it also gives us copra and coir for mats and roofing of homes. Dates — the staff of life; we have palm cabbage; arrack — a potent alcoholic drink; leaves for thatch and brooms, cabinet wood and veneers. Fruit, such as *bactris*, the peach palm, are very nutritious; sago palm; betel nuts chewed by over 400,000,000 people; palm oils — and the list goes on and on. In Southeast Asia, *Borassus flabellifer* has over 800 uses to the native people there.

In our western civilization the palm has become important for its decorative and durable capabilities. It is with these so called decorative palms that we are involved. In propagation some palms can be increased by division and a few can be air-layered, but seed propagation is by far the most important means of increasing stocks.

The special issue of *The American Horticultural Magazine*, Jan., 1961 lists palms as to their viability and length of time they hold this trait. Germination times are also listed in this fine book and I would recommend it to you.

This report is about some tests we are carrying out with planting palm seed, either cleaned or with the fruit pulp attached. I believe in many cases the fruit acids are beneficial to germination, hasten it and also give much higher germination results. The palms we have tested and the results are shown in Table 1. Germination was recorded as having occurred when the first seedling appeared. All seed were collected from the same plant within each species and planted in peat-perlite, 1:1, over variable heat between 75 and 82° F.