

'Cynthiana' Grape Cultivar Propagation Study - 2002

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'Cynthiana' Grape Propagation

'Cynthiana' (Norton) grape has shown promise as a wine grape for adapted regions of Southern Iowa, but unlike most grape cultivars, it is difficult to propagate from cuttings. Studies have found that rooting can be improved with rooting hormones such as indole-3 butyric acid (IBA). The use of bottom heat to simulate root development before bud break has also been shown to be beneficial. This study was established to evaluate the effect of bottom heat in combination with rooting hormone treatments on the rooting of 'Cynthiana' grape cuttings.

IBA Treatments

IBA treatments were prepared at rates of 0, 0.5, 1.0 and 2.0 % by dissolving the IBA in 50% ethyl alcohol.



Preparing Sand Beds

Portable sand beds with and without heating cables on the bottom were constructed and scored for the placement of the grape cuttings.



Preparing Cuttings

3 to 4 bud cuttings were prepared by cutting the base square about $\frac{3}{8}$ " below the basal bud, and cutting the tops at an angle about 1" above the top bud.



Cut

Cut

IBA Treatments

For each treatment, 100 Cynthiana cuttings were dipped in an IBA solution of either 0, 0.5, 1.0 or 2 %, and any excess liquid was removed by tapping the cuttings on the lip of the beaker.



Sticking Cuttings

After treating with one of the IBA concentrations, the cuttings were stuck in dry sand. Water was applied after a sand bed was filled with cuttings.



Pre-treatment

The portable sand beds with cuttings were moved to a cold storage room held at about 55°. Beds with heating cables were maintained at about 80°. Each treatment was replicated 3 times.



Pre-treatment Results

After 2 weeks the cuttings were removed and evaluated for root and root initial development.



% Rooting after Pre-treatment

Treatment	Roots	Initials	Total
Bottom Heat			
0 % IBA	2	9	11
.5 % IBA	21	17	39
1 % IBA	25	22	47
2 % IBA	29	22	51
No Heat			
0 % IBA	0	0	0
.5 % IBA	0	0	0
1 % IBA	0	0	0
2 % IBA	0	0	0

Field Rooting

To evaluate field rooting, the cuttings were then taken to the field on June 5, and stuck through black plastic. Special precautions were taken with cuttings that had already developed roots.



Field Rooting

Because the cuttings were transferred to the field late, rooting success was low. However, differences between treatment combinations existed.



**Without
Bottom Heat**

**With
Bottom Heat**

Field Rooting

In November, the rooted cuttings were dug,...



Field Rooting

... gathered, and put in cold storage prior to grading

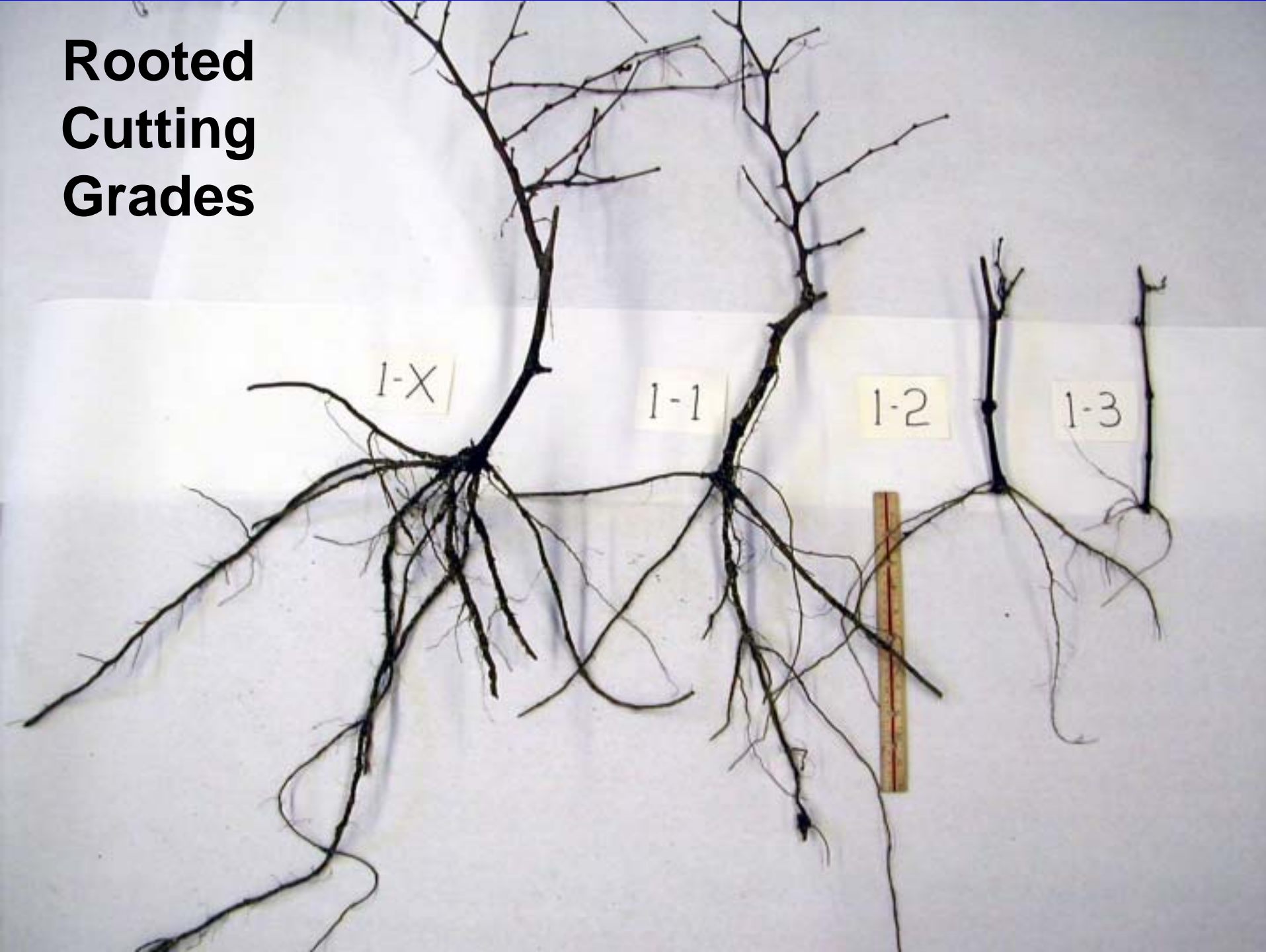


Field Rooting

The rooted cuttings were counted and graded for size and quality:

- 1 – X One year, premium grade
Top growth greater than 1 ft, roots greater than 1 ft, numerous and well developed.
- 1 – 1 One year, number one grade
Top and root growth greater than 1 ft.
- 1 – 2 One year, number two grade
Top and root growth less than 1 ft, but greater than 6 in.
- 1 – 3 One year, out-of-grade
Top and root growth less than 6 in. ; suitable for planting back in the nursery.

Rooted Cutting Grades



% Field Rooted & Grade

Treatment	Total	GRADE		
		# x & # 1	# 2	# 3
Bottom Heat				
0 % IBA	22	4	10	8
.5 % IBA	27	13	9	5
1 % IBA	41	23	11	7
2 % IBA	36	28	8	1
No Heat				
0 % IBA	15	1	6	8
.5 % IBA	16	4	4	7
1 % IBA	19	5	7	8
2 % IBA	23	7	9	8