

# FINGER LAKES

# VINEYARD NOTES

Newsletter #6

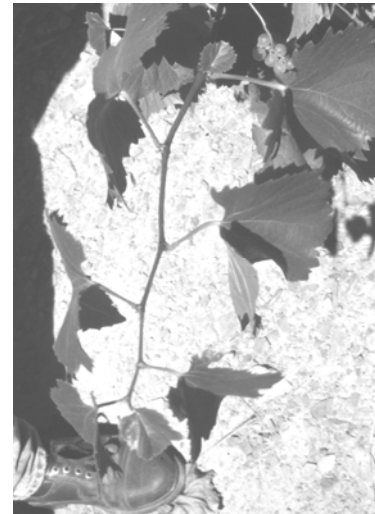
August 1st, 2005

## Cornell Cooperative Extension

### Finger Lakes Grape Program

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**Figure 1.** Water stressed Vignoles shoot. Note drooping leaves.

## VINE WATER USE AND GETTING A "FEEL" FOR WATER STRESS

Alan Lakso -Dept. Horticulture – NYSAES  
Tim Martinson

*Early this week, I visited a few vineyards that are showing classic signs of water stress. A young Pinot noir vineyard on Howard gravelly loam soil near Hector showed the following symptoms: 1) basal to mid-shoot leaves yellowing; 2) leaf angle to petiole: leaves pointing downward, not tracking sun, with an acute angle between petiole and leaf (<30 degree angle in this case) 3) Berries shriveling, 4) Shoots short, completely stopped growing, shoot tip dried up. 4) Worse on the knoll, with better growth, no yellow leaves in dips. I have also seen signs in Aurore and native vineyards. If the weather stays dry and hot, we can expect to see water stress showing up in more locations through August and early September. Management options to reduce water stress would include 1) eliminating weed and row middle vegetation with contact herbicides or tillage, OR mulch application to conserve water, 2) Irrigation if you have it. The following information from Alan Lakso provides some insight into how much water vines use, and how*

*much to replace with irrigation, what impact limiting other vegetation in the vineyard might have on water use, and diagnosing water stress by 'feel' before you get to the point of leaf yellowing.*

-TEM

### How much water do vines use in this hot weather?

Alan Lakso has pretty good numbers on water use for Concord vines, from work done at the Fredonia Lab. He also estimated water use for *vinifera* vines (data not from direct vine measurements). He states:

*Concords:* For a normal July week here, we found that healthy single curtain vines (not shut down by stress) with full canopies used about 1 acre-inch/week (about 27,000 gallons or 40-45 gal/week/vine at 8x9). In Fredonia we have used 40 gallons/vine/week in dry periods and have kept the vines in good function, though not too vigorous. In the hottest days (like we have been having lately) we measured peak water use rates of up to 1.5 acre-inches/week (or 60-65 gal/vine/week at 8x9). Usually we have not had extended periods that hot, but we have this year. For GDC's in mid-summer I think 20% more is about right.

*Vinifera*: We do not have direct full vine measures, so we have to estimate. I would normally say that due to the desire to not have as much vigor as we want in Concords that a normal July rate would be 0.5-0.6 ac-inches/week (about 12-15,000 gal/acre/week) for full canopies and trellis filled VSP. I should mention that in the ATA study on Riesling at a Finger Lakes vineyard from 2001-2003, we found that 2/3 acre-inch/week (18,000 gal) was fine POST-veraison. When we used the same amount PRE-veraison we stimulated too much vegetative growth and had canopy density problems. I would recommend no more than 1/2 acre-inch/week at least up to veraison. Also I see many vineyards that do not have full trellis fill. In those cases I would reduce the rate some (maybe 25%) as the vines will not use as much water. Note that one acre-inch is about 27,000 gallons per acre, or roughly 30-33 gallons per vine at 806 vines per acre (9x6 ft spacing). One-half acre-inch would be about 15 gallons per vine per week.

*Cover crop/weed water use*: In several years of cover crop studies we found that with 3-foot herbicide strips the row middle covers used maybe half as much as the vines (again full single curtain canopies at 8x9). As long as they are green and active it did not make much difference which species of cover crop it was. The big reductions in water use were due to cultivation, mulching or killing with roundup. So if the vines need more water and the row-middle covers are still green, killing the covers will be worth a good irrigation (equivalent to 1.5 to maybe 2 inches of water if kept dead for a month).

**Testing for Water Stress.** Grape leaves depend on evaporative cooling by water evaporation from inside the leaf (called transpiration). The water escapes from the stomatal pores on the bottom of the leaf and cools the leaf. If the vine is under water stress, the stomatal pores on the leaf close partially or completely to conserve water, but this prevents the evaporative cooling; so the leaf heats up in the sun.

Narrow thin leaves like desert shrubs have can lose heat effectively by giving it off to the air, so they don't heat up so much even if stressed. Large wide leaves like many grapes or tropical plant have do not give off heat to the air very well; consequently they depend on evaporative cooling through their pores. So large wide leaves will heat up markedly in the sun if their pores are closed and there is not much wind to take away the heat.

To do a simple test in the vineyard to look for water stress development:

- Find a time in the mid-day or afternoon that it is fully sunny and not much wind on canopy surface.
- A little test first is to simply remove a few large leaves, lay them in the sun, and feel them every few minutes over 15-20 minutes as they lose water, close their pores and heat up. This will give you a feel for how hot they can get.
- Feel shaded leaves on the exterior of the canopy for reference (they should be near air temperature). Also if any vines are known to be well supplied with water (irrigated or in a wetter spot), their exposed leaves would be good references too.

Feel between your thumb and fingers large leaves that are directly exposed to full sun. The large leaves will show the effect more than smaller leaves and also have more water in them so it is easier to feel the temperature. Exposed leaves will be somewhat warmer without any stress, but will be markedly warmer if the vine is water stressed. Water-stressed large Concord leaves for example can be as much as 15-18 degrees F hotter than well-watered ones. This is easy to feel, as they are clearly hot. On a sunny 90-degree day, the leaves can be as much as 110 F (hotter than your hot tub!).

## VARIABLE RAINFALL IN THE FINGER LAKES

*Bill Wilsey  
Finger Lakes Grape Program*

We all know that it's been dryer this year but just how much rainfall have we had and how variable has it been? Listed below are the rainfall totals for weather stations in vineyards around the Finger Lakes:

Location	May	June	July	Total
Barrington	0.41	2.78	1.13	4.32
Branchport	0.49	3.20	1.34	5.03
Dresden	0.27	4.85	1.40	6.52
Friend	0.43	5.48	0.59	6.50
Geneva	1.24	5.48	1.07	7.79
Himrod	0.58	4.02	1.16	5.76
Lansing	0.62	3.49	0.66	4.77
Pulteney	0.13	1.70	0.61	2.44
Valois	0.53	3.81	0.89	5.23
<i>Average</i>	<i>0.52</i>	<i>3.87</i>	<i>0.98</i>	<i>5.37</i>

We would expect about 3” of rain for each month in a normal year. The average monthly rainfall in the area was only 0.52 in May, about 2.5” below normal; 3.86” in June which was normal or slightly higher; and 0.91” in July which was about 2” below normal. Overall, we have been about 4.5” below normal in the Finger Lakes.

Fredonia has been even worse. Fredonia has been way below normal each month. Rainfall totals only 1.18” for the 3 month period which is 8.86” below the long term average.

The northern Finger Lakes has received more rain than the southern areas. Geneva had the most rainfall in May, but that was only 1.24”. Geneva, Dresden Himrod and Friend had the most rain in June. Geneva, Himrod, Barrington and Branchport had the most rain in July. On average, the more northern sites received 6.02” or about 2.2” more than southern sites. Geneva received the most rain during the 3 month period at 7.74”.

The rainfall that we did receive was very spotty. May rainfall ranges were between 0.13” and 1.24”. June ranges were 1.7” to 5.48”. July ranges were 0.61” to 1.34”. To further emphasize the variability, on June 29, Friend had 2.68” of rain but Pulteney only had 0.19”.

## JULY CLUSTER WEIGHTS IN SELECTED FINGER LAKES VINEYARDS

*Timothy E. Martinson*

We have been collecting cluster weight and berry weight data at 1200 growing degree days in 16 Finger Lakes vineyards – 5 Riesling, Cabernet Franc, and Pinot noir blocks and one (hedged) Concord block – for the past three years.

Table 1 shows our estimates for all three years. As in 2004, cluster weights are considerably lower than 2003 (before the 2004 winter injury in these Seneca Lake vineyards). For Riesling, Cabernet Franc, and our one Concord block, cluster weights are also lower than in 2004. Much of the difference is attributable to lower berry weights. Berries per cluster are similar or slightly higher than last year’s numbers.

Lower berry weights may be the result of the hot and dry weather conditions this season. Although I have not seen many signs of water stress, it may be affecting berry growth, compared to last year’s wet conditions at this time. We have data from only one Concord vineyard, so the results may not be representative of other blocks. Data from Fredonia (see following article), however, indicate that they are seeing a 15-20% reduction in berry size in Western NY. Our information from the *V. vinifera* vineyards is consistent with these estimates, and indicates that we can probably count on lighter

weight clusters at harvest – that is, less crop weight even in vineyards with a normal cluster count.

**Table 1.** Cluster and Berry Weights at 1200 growing degree-days, 2003-2005

	Year	Riesling	Cabernet Franc	Pinot Noir	Concord
No. Vineyards		5	5	5	1
Cluster Weight (g)	2005	31.0	43.0	40.0	39.2
	2004	40.1	70.7	41.1	-
	2003	76.3	81.3	99.5	63.4
Berry Weight (g)	2005	0.43	0.45	0.48	1.68
	2004	0.64	0.76	0.58	-
	2003	0.63	0.73	0.78	2.04
Berries per cluster	2005	72.9	95.1	85.4	23.3
	2004	62.1	93.2	71.4	
	2003	121.8	112.7	132.2	31.1

## CONCORD BERRY DEVELOPMENT - 30 DAYS AFTER BLOOM IN FREDONIA

*Hans Walter-Peterson*  
*Lake Erie Regional Grape Program*

Based on our bloom date of June 13 at the Vineyard Lab, we hit 30 days after bloom on July 13. Berry weights taken from 120 node vines by the crew at the vineyard (thank you ladies!) ranged from 1.1 to 1.5 grams, with the average weight at 1.28 grams. The 6-year average for berry weights at 30 days after bloom at the Vineyard Lab is 1.5 grams. So assuming the berry curve continues to progress as it has in previous years, we would end up with 2.56 gram berries (1.28 x 2) at harvest, which would be about a 15-20% reduction in berry size from our average (see the charts below [go to <http://lenewa.netsync.net/public/update.htm> to see the charts associated with this article.]).

The implications of this for those who are doing crop estimations are that, based on our information right now, you should reduce your assumed final berry weight by about 15-20%. If you normally would assume you get 2.75-gram berries, use 2.2 - 2.3 as your final berry weight. If you assume smaller 2.5 gram berries in normal years on minimal pruned or hedged vines, assume you will end up with 2.0-2.1 gram berries. We have no basis to assume that anything different will happen right now with regard to berry development and our dry conditions right now. If the current pattern continues and we remain dry through the rest of the season, berry size will probably be even smaller than what we're predicting right now, but we have no way of knowing that. We will continue to provide information regarding berry development for the rest of the season to see how our conditions are influencing it.

## BRUSH PILES AND GRAPE CANE BORER

GREG ENGLISH-LOEB  
DEPT. ENTOMOL. NYSAES

**Brush Piles and Cane Borer.** I have noticed a number of large brush piles at a number of Finger Lakes vineyards. These piles of dead wood are ideal places for grape cane borer larvae to develop (the larvae feed on dead wood) thereby possibly creating a large population of adult grape cane borers that can damage live canes in the fall and winter. If possible to carry out safely, I would recommend burning these wood piles before larvae complete their development, especially if the vineyard has been experiencing cane borer problems in the past. Right now the larvae are pretty small. But based on our observations over the last couple of years, the new adults start coming out in mid August.

**Cane Borer Survey Planned for Postharvest.** Dr. Greg English-Loeb and Bill Wilsey of our program are conducting a project looking at Cane borer populations and injury throughout the Finger Lakes. The project includes a spray trial at a Seneca Lake vineyard. We also plan to do an extensive survey of vineyards throughout the region in early November, after harvest. If you would like us to visit your vineyard as part of this project, please give Bill Wilsey a call at 315-536-5134, or e-mail at [wtw2@cornell.edu](mailto:wtw2@cornell.edu).

## DEC REQUIRES PHOTO ID FOR PESTICIDE APPLICATORS

William Smith  
*Pesticide Management Education Program*

1) By now most, if not all, current New York State certified pesticide applicators/technicians have received a letter from the New York State Department of Environmental Conservation (NYSDEC) requesting their NYS Department of Motor Vehicle (DVM) driver license ID number. Per the NYSDEC letter, an applicator/technician will be issued a new ID card in the future that contains the same picture as the one on their NYS driver license -- thus the need for the DVM ID number.

2) Several PMEP website changes/updates have been made to the Pesticide Applicator Certification directory at <http://pmep.cce.cornell.edu/certification/index.html> during June and July 2005.

## WINERY-RELATED LEGISLATION PASSED IN NEW YORK

*Timothy E. Martinson*

By now, everyone knows that **Direct Shipping** was passed into law during this session. Wineries can now ship up to 36 cases of wine per customer per year to states that allow direct shipping, and wineries in those states can now ship direct to consumers in New York. This is expected to provide a boost to small wineries in

our area. I hope to feature an article about what the potential impact will be for grape demand in the Finger Lakes in the near future. Many people worked very hard to accomplish this in the wake of the Supreme Court ruling that ruled that states could not differentiate between in-state and out-of-state businesses in allowing or prohibiting direct shipping.

Lesser known is the bill **permitting farm wineries to purchase out-of-state fruit** in the event of a crop disaster where production is down at least 40% (Assembly bill number: A8851). The bill authorizes the Commissioner of Agriculture to permit wineries to obtain out-of-state fruit if natural disasters destroy 40 percent of the crop of a *specific variety*. Individual wineries must also certify that they have made a reasonable effort to source the fruit from within New York. Ag and Markets is directed to develop regulations and procedures to make this possible.

This sounds good, but it is unclear where the information will come from to help Ag & Markets make such a determination. For example, this year my guess is that the Cayuga White crop will be half – or less- of an average crop, due to winter injury. But the official statistics on the crop size don't come out until next January – too late for wineries to source fruit for the current vintage (but maybe not too late for bulk wine purchases). Current ag statistics for last year show that some hybrids (e.g. Baco noir and deChaunac) would have passed the test, but statistics for individual vinifera varieties are not broken out. Would area wineries be required to source the same varieties? It might be hard to purchase 'Cayuga' from out-of-state.

Moreover, last year's statistics actually showed the *vinifera* crop increasing by 400 tons, despite an estimated 1,100 drop (43%) in tonnage originating in the Finger Lakes. (Note: for the 4,900 ton estimated 2005 *vinifera* crop to have increased statewide despite dropping by 1,100 tons in the Finger Lakes, tonnage from the rest of New York would have had to have *doubled* from the 2003 crop year).

The bottom line, in my opinion, is that it will be a challenge for Ag and Markets to come up with a way to certify the low crop in time for wineries to make decisions about sourcing grapes from elsewhere, and also a challenge for wineries to certify that they are unable to buy the grapes from NY. Most likely, those who need to obtain more fruit to keep their tasting rooms open and have an adequate supply of wine on hand for customers will simply apply for a commercial winery license.

## UPCOMING EVENTS

### COFFEE POT MEETINGS IN AUGUST –

**Thursday, August 18 – 10:30 to noon.** *Hunt Country Vineyards, Branchport.*

*Topic: Sustainable Viticulture Projects for the Finger Lakes.* Hunt Country Vineyards received a SARE (Sustainable Agriculture Research and Extension) grower grant to investigate the use of ground covers to potentially reduce the use of under the row herbicides. Our program, along with the Lake Erie regional grape program and the Long Island grape program have received a grant to develop a sustainable viticulture grower self-assessment workbook designed for our growing conditions and varieties. We will be working with the NYS Wine Grape Growers, Canandaigua, and National Grape Cooperative on this. Come and find out about these projects

**Thursday, September 1 – 10:30 to noon.** *Phil Davis Vineyard. Peach Orchard Rd, Hector (off Rte 414).*

*Topic: Appropriate use of bird scare devices and other methods to limit bird damage.*

Use of propane cannons for bird control during the harvest season has provoked some resistance from homeowners that live close to vineyards. Jim Ochterski, Schuyler County Cornell Cooperative Extension, and Dr. Paul Curtis, wildlife control specialist with Cornell University, will discuss both the reactions and how to manage bird control devices for maximum effectiveness. We'll then share ideas on how to use these devices in a manner that minimizes the 'nuisance' factor with neighbors.

### OTHER REGIONAL EVENTS:

**August 17. Pennsylvania Association of Winegrowers Vineyard Walk Around.** Clover Hill Vineyards and Winery in Breinigsville, PA. Cost: \$60 members, \$75 non-members. A vine and vineyard nutrition program is offered at the 2005 Pennsylvania Association of Winegrowers annual vineyard walk around. The meeting will be held on Wednesday, August 17 from 9-5 at Clover Hill Vineyards and Winery in Breinigsville, PA (west of Allentown). The theme is vine nutrition and featured speakers include Dr. Paul Chu from A&L Eastern Labs; Dr. Tim Martinson, Cornell University; and Chris Wilson/Jeff Peat from Helena Chemical. We will tour the estate vineyards that include Sangiovese, Dolcetto, Riesling, Chardonnay, Cabernet Sauvignon, Chambourcin and natives and the ultra modern winery. The Penn State extension wine and grape team will cover viticulture, pathology, and enology from veraison to harvest. A wine tasting will conclude the program. Clover Hill is one of the biggest wineries in Pennsylvania and has just added a multi-million dollar winery/hospitality addition to the winery. You can visit them and find directions at <http://www.cloverhillwinery.com/>. Cost of the meeting is \$60 for PAW members, \$75 for non-members includes handouts,

snacks, lunch and wine tasting. To see a full program and to get registration and information, please visit the PAW web site at <http://www.pawinegrowers.com/> or call Mark Chien at 717-394-6851.

**August 23. Fourth Annual Grape Tailgate Tour.** 1:00 PM to 6:00 PM. Niagara Peninsula, Ontario, Canada. Sponsored by the Ontario Ministry of Agriculture and Food, Vineland Canada. Topics are:

- The Role of Vine Water Stress in Defining Terroir - Andy Reynold, Brock University
- Grape Disease Update - Wendy McFadden-Smith, McSmith Viticultural Research Services
- Using GPS, GIS for IPM Monitoring - Kevin Ker, KCMS Consulting
- Bird Control and Wind Machines for frost and cold injury protections - Hugh Fraser and Ken Slingerland, OMAFRA
- Barbecue at Henry of Pelham Estate Winery

This is a great opportunity to find out what is going on with our neighbors in Ontario, and just a 3 hour drive from the Finger Lakes. Meet at Cave Springs Cellar in Beamsville at 1 p.m. sharp! For information and registration, contact Ken Slingerland at 905-562-1639.

# UPDATED 2004 CROP STATISTICS

Timothy E. Martinson

The NY Agricultural Statistics Service released revised statistics for the NY crop in early July. This report contains breakdowns by production area and variety.

According to this report:

- The total 2004 Finger Lakes crop was 36,703 tons, down 18% from 2003's 44,920 ton crop.
- **American:** 29,823 tons, down 12% from 2003's 34,111 ton crop.
- **Hybrids:** 3,695 tons, down 41% from 2003's 6,346 ton crop
- **V. vinifera:** 1538 tons, down 43% from 2003's 2,695 ton crop

A few puzzling statistics for the Finger Lakes:

- The Niagara crop increased from 5,879 in '03 to 9,914 T in '04, a jump of 69%

- If Niagara was excluded from the 'American' category, then the 'American' crop was down by 29% (Concord -31%; Catawba - 33%; Delaware - 57%; Elvira - 14%)

*Q. How did the 'Niagara' crop jump by 68% while other 'American' varieties dropped by 15 to 33%?*

A: I checked with a major buyer of Niagara grapes in the Finger Lakes. Their '03 crop of Niagaras from this region was around 3,000 T, while their '04 crop was 1,700 T. That's about a 43% drop. Applied across all the acreage, that would suggest that the 'real' Finger Lakes Niagara crop was closer to 3,500 T, not 9,900 T. That's a 6,400 ton discrepancy.

This would then indicate that the American crop was actually around 23,400 T, not the 34,100 T reported in Table 2. Total crop for Finger Lakes would then be **28,633 T**, down 36% from 2003.

Although *V. vinifera* in the Finger Lakes was down by 1,157 T the statewide crop increased by 7% from 4,550 T in '03 to 4900 T in '04.

This means that the *V. vinifera* tonnage produced outside the Finger Lakes in '04 almost doubled over 2003.

In 2003, non-Finger Lakes *vinifera* was 1855 T. In 2004, it is apparently 3,362 Tons - 181% of the 2003 figure.

*Q. Where did those extra 1500 tons of non-Finger Lakes vinifera grapes come from?*

A: There is no plausible answer to how the *vinifera* crop outside the Finger Lakes could have doubled in one year.

NASS works hard to provide accurate crop statistics based upon voluntary reports from industry. Although we know there are often year-to-year fluctuations, they aren't normally of the magnitude I've highlighted here. I, for one, am curious about what went wrong, and how to make sure it doesn't happen again next year. The industry relies on accurate information about the size of its crop for many purposes. This year's statistics, I'm convinced, didn't reflect the true size of the crop for some of our important grape varieties.

Table reproduced from the annual *Survey of Wineries and Grape Processing Plants*, released July 2005.

**Table 2. NEW YORK GROWN GRAPES PROCESSED**  
Tonnage by Variety and Production Area Received by Wineries and Processing Plants, 2003 and 2004; Prices Paid to Growers, 2002-2004 <sup>1/</sup>

	New York Production Areas										
	Chautauqua-Erie		Niagara County		Finger Lakes		State Total <sup>2/</sup>		Average Prices Paid by Variety (\$ per ton)		
	2003	2004	2003	2004	2003	2004	2003	2004	2002	2003	2004
<b>American Varieties:</b>											
Catawba	899	620	196	-	6,104	4,067	7,650	5,000	237	242	233
Concord <sup>4/</sup>	84,569	84,695	1,852	2,140	17,392	11,989	104,000	99,300	259	187	174
Delaware	<sup>3/</sup>	<sup>3/</sup>	-	-	497	215	550	300	284	284	345
Ives	-	<sup>3/</sup>	-	-	178	170	180	200	302	349	259
Elvira	961	1,299	-	-	4,061	3,468	5,250	4,800	257	264	371
Niagara <sup>4/</sup>	9,514	8,011	1,938	1,707	5,879	9,914	18,000	19,800	285	207	170
<b>French Hybrids:</b>											
Aurora	<sup>3/</sup>	<sup>3/</sup>	-	-	3,493	2,195	3,620	2,200	245	260	281
Baco Noir	-	-	<sup>3/</sup>	-	1,174	347	1,220	350	362	388	483
Cayuga White	-	-	<sup>3/</sup>	-	524	560	650	600	415	394	480
DeChaunac	-	-	-	-	250	144	320	150	321	342	465
Rougeon	-	-	-	-	512	129	530	100	315	313	433
Seyval Blanc	-	<sup>3/</sup>	-	-	393	320	480	400	533	452	506
<b>Vitis Vinifera:</b>											
All	<sup>3/</sup>	<sup>3/</sup>	54	<sup>3/</sup>	2,695	1,538	4,550	4,900	1,454	1,264	1,295
<b>Other Varieties:</b>											
All	<sup>3/</sup>	145	<sup>3/</sup>	<sup>3/</sup>	1,768	1,647	2,000	1,900	453	410	532
<b>TOTAL <sup>4/</sup></b>	<b>96,035</b>	<b>94,957</b>	<b>4,376</b>	<b>3,936</b>	<b>44,920</b>	<b>36,703</b>	<b>149,000</b>	<b>140,000</b>	<b>296</b>	<b>226</b>	<b>205</b>

<sup>1/</sup>Includes New York grown grapes received at out of state plants.

<sup>2/</sup>Includes Hudson Valley, Long Island, and other areas not listed.

<sup>3/</sup>Not published to avoid disclosure of individual operations.

<sup>4/</sup>2003 and 2004 prices are preliminary.

Estimates of future payments by cooperatives have been included based upon historical data.



## Cornell Cooperative Extension

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### Finger Lakes Grape Program

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### Finger Lakes Grape Program

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