

FEB 1977

STABY - OSU

#2 fuel oil at 32¢ per gallon equals about 23¢ per therm.

So, what do we conclude? It's hard to be sure, but in the next 5 years gas will probably be less available for greenhouse heating than oil, and possibly more expensive than oil. It's a good bet both will increase in price.

For New Greenhouses - I would suggest a boiler, even if you can get natural gas. Reserve space near the driveway and near the boiler in case you need oil tanks. If you can't get natural gas, another alternative is oil-fired hot air heaters. Design your greenhouses to accommodate double-plastic insulation, and also roof vents and side vents for natural ventilation, especially along the coastal strip. Exhaust fan ventilation represents about 24 H.P. per acre for power requirements, and we need to take another look at removing fans.

Polyethylene plenum tubes look good for insulated vent closures at the greenhouse peak or even on the sides. New greenhouses can be designed to accommodate these tubes.

For Old Greenhouses - It looks like A-frames, modified A-frame-sawtooth designs, and pure sawtooth structures can all be modified to utilize inflatable plenum tubes for top ventilator closure. Take a look at Fred and Don Weston's range on La Costa Ave., Leucadia. One way or another, double-plastic can be used on all greenhouses. In San Diego County, I feel that all foliage operations, heated to 70°F. should be covered with double-plastic, as the fuel savings is about 40 percent. At 60°F. temperature, I still feel double-plastic is a worthwhile investment. At 60°F. you may be trading dollars but there are a lot of other advantages of double-plastic--such as, less condensate moisture, more uniform temperature, and better crop response. At 50°F., as for carnations, double-plastic does not save much fuel for the extra cost, in a mild climate.

IF YOU TRIED DOUBLE-PLASTIC THIS WINTER, AND YOUR FUEL COST IS THE SAME AS LAST YEAR--remember that the natural gas price is increasing. Compare your actual fuel used. If you still have single plastic and your fuel bill does not concern you, remember this has been a very warm winter.

"Pulsing" Flowers Before Shipping

"Pulsing" is not new, but the term is new. We have been doing research and preaching for several years on the benefits of giving flowers a shot of sugar and bactericides after grading and bunching, and then cooling the flowers at least overnight before packing for shipment.

"Pulsing" is perhaps a little different than just using commercial preservatives since with some flowers we are talking about "loading" the stems with rather high sugar concentrations at the grower-shipper level, assuming the same merchandise will never see a preservative solution again. For instance, a hard-to-open gladiolus variety can be harvested greener than normal, pulsed in a 20 percent sugar solution with 200 ppm HQC and 50 ppm silver nitrate for 16 to 20 hours at room temperature, and the flowers will open better on the spike and last longer than a normal-cut gladiolus.

Mature Bird-of-Paradise buds (before the orange bract pops out) can be pulsed for 16-20 hours in a 10 percent sugar solution similar to above, then stored dry for 21-28 days in cartons at 45°F. and will open well when placed in plain water.

Carnations are also best cut very tight (1/4 to 1/2 open), pulsed in 5 to 10 percent sucrose solution for several hours, cooled at 33°F. for several hours, and then shipped.

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check in 177. Birds

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Roses and chrysanthemums also benefit from "pulsing" and proper cooling, but a 2 percent sugar solution is the limit for these. In fact, certain rose varieties may develop some injured leaves at 2 percent sugar. These varieties might have to be treated in 1 percent solution and the HQC should be dropped to 100 ppm.

Be sure you use the right sugar concentration for each species of cut flower. Too little sugar will not work for glads and Birds while too much sugar is disastrous with roses and chrysanthemums.

How Do You Make The Solutions? This information has been published in this newsletter at least twice before, but here goes again.

	Sugar %*	Weight Sugar Per Gallon of Water	
		Grams	Ounces
Chrysanthemums	1	38	1.3
and Roses	2	76	2.7
	3	114	4.0
Carnations	5	190	6.7
	10 Birds	380	13.4
	20 Glads	760	26.8

*Add sugar after other ingredients in solution.

Preparing Small Quantity of Solutions - This is a little difficult because without gram scales you can't measure the small amount of chemicals needed for one or five gallons of final solution. So, you have to make a concentrated stock solution first and use this to re-dilute to the final solution for the flowers. DO NOT use the stock solution for the flowers!

Weight of Chemicals Per Gallon of Stock Solution
(prepare stock solution with distilled or deionized water)

Chemical	Grams	Ounces
8-quinolinol citrate (HQC)	100	3.5
silver nitrate	12	0.5

To Make Final Solution for the Flowers - Use one liquid ounce (about 30 cc) of the stock solution above per gallon of water. This rate gives a standard final solution of 200 ppm HQC and 25 ppm silver nitrate. Now, add the amount of sugar for the kind of flowers you will be pulsing.

Read the text again to be sure you've mixed everything correctly and added the right percent sugar for the right flowers.

Mixing Large Quantities of Solution (direct mixing)

Chemical	50 Gallons		100 Gallons		500 Gallons	
	Grams	Ounces	Grams	Ounces	Grams	Ounces
8-quinolinol citrate	38	1.3	76	2.7	379	13.4
silver nitrate	5	0.2	10	0.3	47	1.7

How Long Can You Keep Solutions? After pulsing several buckets of flowers for 16 to 20 hours, the left-over solution can be combined in fewer buckets and re-used essentially until it's all gone. Do not add new solution to the old, but use up the old and make new solution in new buckets.

Slime Problem? Occasionally, a slime problem will develop in the older solutions. This doesn't often happen and we don't understand why. We suggest using clean buckets and increasing the silver nitrate to 50 ppm if slime develops.

What Kind of Water? Research has clearly demonstrated that deionized or distilled water extends cut flower life above Colorado River water, which contains about 800 ppm of dissolved salts. Deionized or distilled water is a must for making concentrated stock solutions, since the chemicals settle out in Colorado water.

Sincerely,

Seward T. Besemer

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Farm Advisor

STB:ba

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