

GROWERTALKS

Culture Notes

3/26/2014

Using Florel to Delay Flowering in Garden Mums

Bernard Chodyla



All garden mum varieties have their genetically determined flowering time under natural day conditions. It takes a considerable amount of effort to manipulate this genetic trait to be able to take advantage of the very early and late-season sale opportunities. The most common technique is using black cloth, which creates artificial short days in order to bring mums to flower earlier than expected under natural daylight. Delaying garden mums' flower time is more complicated and involves lighting or using chemicals like ethephon that prevents plants from initiating

flower buds. Ethephon is found in many brand name PGRs like Florel, Ethrel or Collate and is applied as a spray or drench. Ethephon is absorbed by the tissue and it releases ethylene, which is responsible for flower bud abortion and promotes branching in most plants.

We know that Florel, if applied correctly, will prevent so-called premature budding in garden mums. This treatment requires initial 300 to 500 ppm Florel spray at 10 to 12 days after stick and reapplying it every 10 to 14 days until eight weeks prior to the expected flower date. In theory, we should be able to continue this rather inexpensive flower delay treatment and program our favorite varieties precisely for a specific ship date.

Two separate experiments in New Jersey and Florida were conducted to show that Florel could be used successfully to delay and program flowering for a specific date. Four garden mum varieties—Conaco Gold, Urano Red, Granata Red and Girona—were tested in the New Jersey trial (see table). All varieties were transplanted inside on July 1 into 8-in. containers and spaced outside on August 3 until finish. Florel at 500 ppm was sprayed on unrooted cuttings in propagation and weekly after transplanting to ensure a continuous supply of ethylene in the plant tissue. The expected first-color date (see table) is either the average natural flower date for each variety in New Jersey or eight weeks after the last Florel spray, whichever comes later.

Variety	Florel applications dates				Actual first color	Expected first-color date: natural flower date or 8 weeks after last Florel	Days from last Florel to first color
	6-Jul	13-Jul	20-Jul	27-Jul			
Conaco Gold					22-Sep	22-Sep	
Conaco Gold	X				24-Sep	22-Sep	80
Conaco Gold	X	X			24-Sep	22-Sep	73
Conaco Gold	X	X	X		27-Sep	22-Sep	69
Conaco Gold	X	X	X	X	29-Sep	22-Sep	64
Urano Red					2-Sep	1-Sep	
Urano Red	X				6-Sep	1-Sep	62
Urano Red	X	X			7-Sep	8-Sep	56
Urano Red	X	X	X		9-Sep	15-Sep	51
Urano Red	X	X	X	X	12-Sep	22-Sep	47
Granata Red					7-Sep	3-Sep	
Granata Red	X				9-Sep	3-Sep	64
Granata Red	X	X			9-Sep	8-Sep	58
Granata Red	X	X	X		12-Sep	15-Sep	54
Granata Red	X	X	X	X	14-Sep	22-Sep	49
Girona					1-Sep	3-Sep	
Girona	X				2-Sep	3-Sep	58
Girona	X	X			9-Sep	8-Sep	58
Girona	X	X	X		20-Sep	17-Sep	60
Girona	X	X	X	X	20-Sep	22-Sep	55

Conaco Gold is a mid-September variety with an average flower date of September 22, so there was no delay under natural day, since last Florel was applied nine weeks prior to that day. As for the early September varieties like Urano Red, Granata Red and Girona, the flower delay was expected starting with the treatment that received the last Florel on July 13, which is, on average, seven weeks prior to expected flower day under natural day.

All early September varieties in the trial were expected to flower gradually eight weeks after

the last Florel treatment, so growers could use such a spray regimen to reliably schedule their production for the specific finish day. The results were mixed—Urano Red and Granata Red initially showed color exactly eight weeks after the last Florel treatment, but plants treated the last time on July 20 or 27 flowered seven weeks or even earlier since the last spray. Only Girona flowered as expected, close to the eight-week mark after the last Florel treatment (see photo).

The trial in Florida was conducted outside using Padre Yellow, which is one of the best mid-September varieties for large containers. Growers would like to learn how to reliably delay this variety for October sales. All groups in this trial flowered in the same week and there were no significant flower delays observed. We reached the conclusion that it was due to Florel being sprayed outside around noon and drying up quickly before plants were able to absorb it.

Ethephon-based products applied properly have the potential to be used in garden mum production for delaying the natural flowering and crop scheduling. Unfortunately, each garden mum variety responds differently and growers should test their favorite varieties before attempting to use Ethephon in such manner on a large scale. **GT**

Bernard Chodyla is GroLink's Belgian Mum Technical support for the U.S. and Canada.