**Chrysanthemum Cultural – Supplementary Notes - Jan /May 2013**

John Harden has asked I publish a summary of the key points from my notes and charts as presented at the recent meetings. Each month I follow the monthly cultural notes as published by Don, and then also seek new ideas and opinions from professional chrysanthemum growers. My chosen contacts are:

Ray Gray…….....Owner Kings Mums, Oregon.
Koa Kaname ……Senior Grower, Longwood Gardens, Philadelphia
Ivor Mace ….....UK. - The best grower in the world of large Exhibition Mums.

**1) Propagation**:
During the National Chrysanthemum show in Portland I spent some time at Kings Mums with Ray Gray who commented that his business would have gone under if it were not for "Earthpots " These enabled him to achieve 98% success when propagating Mum cuttings.

A small group of members tested them this year, notably: Bob Ewing, Mark Ross, Steve Backstrom and myself. Steve was the only one who did not see amazing results. We also averaged 98% rooting success. My cuttings were kept at 63-65F and fully rooted within 4 weeks. Bob's cutting bed was a little warmer and he felt three weeks were adequate. Some difficulty experienced in getting rooted cuttings out of the trays –suggest circling the plugs with a small pin prior to potting on.

Next step: Costs works out to about .04cents per cutting. I will take orders from interested ECA members for 72 count trays at the December, January and February meetings for delivery at the following meeting. If members wish to clean existing trays and order just the plug inserts this can also be arranged.

**2) Start Dates – Large and Medium Exhibition blooms**:
For many years many of my exhibition chrysanthemums have bloomed early. So this year a test between recommended ECA grow dates with those used by Ivor Mace (geographical climate virtually identical.) There are significant differences in suggested dates as can be seen in the chart below. *The jury is still out on this one.* I'm the test guinea pig using Ivor's dates in 2013. Let's see how my plants are doing in August (Picnic time) and then again at show time. My suspicion is that we are starting too early particularly when only stopping once.

**Gigantic start/stop dates – published recommendations**

| Grower | Start cuttings | 1st stop | 2nd stop |
|---|---|---|---|
| ECA –two stop | Dec/Jan | 1 March | 5 May |
| ECA – One stop | Dec/Jan | - | 1 May |
| | | | |
| Mace – two stop* | End Jan | 1 April | 20 May |
| Mace – One stop | 1st March | - | 20May |

*Note: Ivor believes 10 weeks are needed between stops for large exhibition blooms.

**3) Soil Make up & Chemistry**

For every 100 Chrysanthemum growers there are probably 100 different soil mix recipes. This is a quick attempt to look at different mixes and question whether these differences are significant.

**a) Growing Soilless**

The simplest solution for ECA members is to grow in a 100% soilless mix. I and many other ECA members did this successfully for many years. The only noticeable difference is how some of the fertilizer chemicals (notably salts) do not fully dissolve in soilless pots but build up on top of the soil. Hence there is a need to frequently flush the pots with water to dissolve the salts.

*Comparison of primary Soilless Mixes*

| Ingredients | M & R Mix | Specialty Soils – Growers Mix |
|---|---|---|
| Sphagnum – Peat Moss | 63.03% | 55.00% |
| Pumice | 20.00% | 35.00% |
| Vermiculite | 3.60% | - |
| Perlite | 8.50% | - |
| Sawdust | 8.2% | 10.00% |

Not a whole lot of difference between the two suppliers. What is probably more important are the trace elements of other minerals included in there mixes. Notably: Iron, Boron, molybdenum, manganese, copper and zinc. We are only just learning these details and Don was able to obtain the complete M & R mix breakdown for the last meeting – copy provided at the end of these notes

**b) Growing with Soilless & Compost mixes**

For the purpose of this exercise I assumed a 50% soilless and 50% compost mix, although it should be noted that quite a few members prefer a 60% soilless and 40% compost mix. All percentages shown on the next page are approximate by volume to the total mix. The three primary components of our mixes are:-

** The soilless base: peat moss, sawdust, soil, etc.*
** Roughage found in the soilless mixes – non other added: gravel, vermiculate. Pumice.*
** Compost & Compost Boosters.*

Note the two professional growers shown overleaf do not use soilless mixes and prefer clay based soils they make up themselves. There are good reasons for doing this but making soil is a complex and time consuming process which is not recommended for ECA growers at this time

| **Description** | **Adding M & R @ 50%** | **Adding Growers Mix @50%** | **Ivor Mace** | **Longwood Gardens** |
|---|---|---|---|---|
| *Peat Moss, Soils & Sawdust* | | | | |
| Peat Moss – Sphagnum | 31.3% | 27.0% | 50% | 17% |
| Peat Moss – Sedge (old) | - | - | 15% | - |
| Saw Dust | 4.2% | 5.0% | - | - |
| Soil | - | - | 23% | 23% |
| Sub Total | 35.5% | 33.0% | 88% | 40% |
| | | | | |
| *Roughage* | | | | |
| Pumice | 10% | 17.0% | - | - |
| Vermiculite | 1.8% | 2.0% | - | 20% |
| Perlite | 4.2% | - | - | - |
| Cornish Grit | - | - | 12% | - |
| Terra Green | - | - | - | 17% |
| Sub Total | 16% | 19% | 12% | 37%* |

* Also adds Pulverized Dolomitic limestsone and granular rootshield

| | | |
|---|---|---|
| *Composts & Manure* | | |
| Harvest Supreme mix | | |
| manure | 08.5% | |
| compost other | 40.0% | |
| Cedar Grove mix | | |
| Per Bob Ewing ratios | | |
| manure | | 07.0% |
| compost other | | 28.0% |
| Cedar Grove Booster | | |
| Per Bob Ewing ratios | | |
| Manure | | 03.0% |
| Compost other | | 10.0% |
| | | |
| Total manure | 8.5% | 10.5% |
| Total compost other | 40.0% | 38.0% |

Compost notes: Mark Ross and myself a year ago independently changed from Cedar Grove to Harvest Supreme compost for similar reasons. Harvest Supreme is a drier less wet and oily mix which contains an amazing mix of ingredients beyond sawdust, wood chips and food waste. Plus it also contains "Mycorrhizae" – more on this later

An interesting exercise but I can find no way of knowing for sure which mix is best. I prefer a 60/40 soilless/Harvest Supreme mix and will add about 2 handfuls of extra roughage (Perlite or Pummice ) per10 gallon mix and a tablespoon of Alfalfa. Others also add teaspoons of kelp for trace minerals.

**4) Trace Minerals & Fertilizers**

The recipe information received at the last meeting for M & R Soilless shows it to be a very good mix providing chrysanthemums with many of the trace minerals needed.

For the last year I have supplemented the addition of trace minerals by changing to a Seaweed based fertilizer called "Maxsea.

No significant discussion on fertilizers at meetings, but two interesting comments received from the professionals.

Longwood Gardens: They use two fertilizers: On Wednesdays Peters Cal/Mag 15/5/15 at 250PPM starting in mid June. They need to water twice a day in summer and add this fertilizer once in every 10 waterings. The most critical time is near completion – in the time after the last pinch as final laterals and buds form.

On Mondays and Fridays – all waterings Peters 20/10/20 mix (except when they lime) at 280-300PPM. Clear water on weekends and pull back after final pinch.

Ivor Mace. He has changed from chemical based fertilizers to organics.

**5) Mycorrhiza & Patented Biological Fungicides.**

All very new, and the jury is very much still out.

*Mycorrhiza* – Fungi that form a mutualistic relationship with the roots of most plants that can enhance the transfer of nutrients from the soil to the plant. Three ECA members independently started adding this into their soil mixes a year ago, myself included. My additions came only in the Harvest Supreme compost mix and my results were mixed and inconclusive. There appear to be no negative effects with these fungi. So this year I have increased the dosage by keeping an open bowl on my potting table and when the Mums are "potted on" I press the damp roots into the bowl, before the new potting. I'm told direct root contact is important hence this new trial. Will see the results this Fall.

*Control of soil born pathogens with Patented Biological Fungicides*: A very new area of opportunity that appears to offer growers great potential for better and healthier plants. All major growers in the UK are now adding biological fungicides to their soil mixes, either directly or indirectly with organic fertilizes where they are incorporated into the mix. It also looks like Longwood Gardens is doing the same.

Difficult to know which one is best, as those used in the UK are not available here. I decided to try using "Actinovate" and purchased my first packet a week ago. The proof I hope to see will be in seeking the health of the foliage this Fall. I'm looking for healthy green leaves without brown spots on any of my plants at Show Time

6) Hardy Garden Mums

At the request of the NW Flower and Garden Show folks I spent time late last year researching supplies of Mums capable of withstanding 20-30F of frost. This search lead to Faribault Growers in Minnesota and a number of their catalogues were circulated at the last meeting. This is another area where the jury is still out as Don and I hold very different viewpoints.

Don believes such mums can grow well in areas of sever frost, but not in the milder Pacific Northwest climate where by November we often haven't had any significant frost and consequently he feels such Mums would rot rather than go dormant.

I differ and believe most hardy Garden varieties can do just fine in the Seattle area. To support this viewpoint please take a look at the lifetime work (40+ years) of Judy Barker. She has devoted her life to finding, and cultivating rare Hardy Garden Mums. Presently she is growing over 150 varieties. Like Ivor Mace her home is in southern part of the UK where the climate is identical to that of Seattle. Her work can be found on website: www.gardenchrysanthemums.org.uk