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## Ideas from the Scandinavian Propagator's Exchange®

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In 1999 I was the lucky recipient of the Eastern Region, North America I.P.P.S. exchange propagator to the Scandinavian Region. It was a memorable trip and my wife and I saw a great deal of horticulture.

Denmark was the choice of the Scandinavian Region for their 1999 meeting and that was the ultimate destination. However, fortune was in our favor and we had an opportunity to fly to The Netherlands first and then proceed onto Denmark. This was a choice that was planned and should a future recipient have the opportunity I would highly recommend a stopover in Holland.

While not much time was allotted for the Holland excursion, having only one day, I opted to go to the Tropenberg Arboretum in Rotterdam. For those interested in North American natives this is a must stop as it represents one of the finest collections of North American plants that I have seen. Much can be learned from going to the Arboretum and admiring the work of Professor Van hoey Smith.

Traveling by train, my wife and I made our way to Denmark, through the countryside of Holland and then Germany. Train travel in Europe is an excellent way to travel and much can be seen and learned from observation from the train cars. We traveled well into the night to the nursery of Anton Thompsen to the upper northern part of the country near the North Sea.

Anton was our first host and a most gracious and kind man. His nursery is known in local vernacular as Thompsen Plant Skole. Anton was born in the U.S.A. and speaks impeccable English. He knows a lot about U.S.A. horticulture and brought back to Denmark some of the skills he learned in the U.S.A. He really has two nurseries, a full service retail garden center and a wholesale nursery. The nurseries grow and offer a large range of plant material to meet customer demands and they are specialists in the production of *Chamaecyparis lawsoniana*, *Ilex aquifolium* cultivars, and woody hydrangea.

They propagate many of their own field liners in very modern up-to-date greenhouses equipped with mist, bottom heat, and supplemental lighting. They grow the liners on in 2-liter pots in outdoor beds surrounded by windscreens of *Sorbus* and *Thuja*. Once these plants are rooted they are moved to the field to be grown as finished plants.

Anton pointed out to me that he works closely with the Danish Institute of Horticultural Science and is always on the lookout for new and improved material.

Two important venues of plant usage are planter boxes and containers and the use of many formal plantings in cemeteries. Most cemeteries in Denmark are fully landscaped with hedges and very interesting plantings utilizing many dwarf and miniature plants. This is a trend that should be encouraged in the U.S.A.

Our next host was Carsten Leth. Carsten is a plant breeder and keenly interested in developing new and exciting cultivars of bedding and greenhouse plants. One of his particular interests is in the genus *Exacum*. Starting with wild seed sources he has ventured into the production a range of colored forms and double- and triple-flowered cultivars. He is like many plant breeders in Denmark in that much of the breeding work is done by individual greenhouses and often times they are the ones to control the distribution and production of their own breeding efforts. Very little material appears to be licensed to other growers and secrets are jealously guarded.

Carsten took us to see two other operations, both were equally impressive and both very different from one another. One stop was at the greenhouses of Kristian Matsen. His greenhouses are devoted to the production of a range of Christmas plants such as *Pinus pinea*, poinsettia, *Solanum*, and Christmas and Easter cactus. In addition to those markets he too is heavily involved in plant breeding and specializes in the genus *Campanula*, which is produced by the 10s of thousands for the supermarket trade.

Carsten's partner in his seed breeding operations is Leif Markbart. Leif has his own greenhouse operations specializing in bedding plants and tropical perennials. One of his most significant crops is a water fern from Vietnam. He gets the tiny plants shipped via next day air from Vietnam, from these he grows 200 cell plugs that he in turn ships to Hong Kong. From there they are grown in 3-inch pots and then shipped to Japan. He gets a percentage from the crop that is sent to Japan.

At Carsten's urging we also visited a *Dendranthema* (syn. *Chrysanthemum*) grower. They do not grow anything but *Dendranthema* and produce a different crop of about 20 cultivars each month. The cultivars for January are not the same as those produced for June. They grow under some 20 hectares of glass with as little as 6 people: the entire operation is computer driven robots that handle 95% of the physical activity. They are very closely affiliated with Yoder Brothers from California.

The Scandinavian Region of the I.P.P.S. is closely modeled after the North American versions. It appears as though they devote a meeting to a single topic and that topic changes from year to year. They do not appear to be as plant orientated as the North American regions. The members are from many small nurseries and greenhouses and the spirit of competition with the rest of Europe is not far from the agenda. This is not a bad characteristic but merely one that address a regional concern and it is not to imply that they are uninterested in plants, rather the emphasis is placed in other directions.

As is found in North America much can be learned from the tours as part of the meeting. One such destination was a greenhouse grower who specializes in lettuce. This grower is amazing with some 7 hectares of production underglass with about 20 selections of lettuce. His operation is completely innovative from making their own soil plugs for producing liners to his marketing efforts, which are largely geared towards the catering industry. The man is a genius, but what is really stimulating is the possibility of using his techniques to produce lettuce as a bedding plant.

Another nursery we visited is that of Eric Lund-Anderson. Eric has a field and bareroot production nursery of the first caliber. He grows a range of plant material for hedging, commercial plantings, and ground cover uses. Eric's nursery is especially big

on ground cover production (*Hedera helix*) and in B&B tree production, such as *Quercus robur*, the only oak native to Denmark. It should be noted that in Denmark it doesn't appear as though any one nursery competes with any other nursery in the country. The Danish nursery industry is very competitive but their marketing schemes and arrangements don't allow for much internal competition. Rather an emphasis is made on competing with the Dutch, German, and Italian growers. This attitude has a profound impact upon what the individual nurseries grow.

Eric was also a most entertaining host and he knew I was interested in seed production and distribution and so he arranged a tour of the countryside with a stop over at a seed production nursery.

One important facet of horticulture in Denmark is the Danish Institute of Horticultural Science (DIHS). This is the most proactive government support facility with which I have become acquainted. Their efforts to work with the nursery and greenhouse industry are exemplary and they take on many projects as a result of nursery operations requests.

There is no one specific emphasis. At the time of my meeting with them there was research on reducing nitrogen run off from nursery operations by Dr. Lillie Andersen. One of the results of her work was the use of calcined clay in peat-based media and she was able to cut fertilizer use by one half and still have a totally marketable plant. The cost savings for this have great potential along with reducing the nitrogen run off which has a very beneficial environmental affect. In her spare time Lillie manages to work on terrestrial orchid research as well. Some of her work was a stimulus for my poster in the North American Eastern Region meeting concerning the production of *Bletilla striata* on rotted wood substrate.

Other activities of the DIHS were in developing alternatives to peat moss in growing media. The plant currently under evaluation is *Miscanthus* species. New plant material is of great interest to the staff and Dr. Paul Brander leads the way with evaluation of *Ilex aquifolium*, *Euonymus*, *Shepherdia*, *Aronia*, conifers, *Quercus robur*, *Sorbus*, *Liatris*, and a host of other plant genera. They intend to promote the Danish nursery industry with all of their efforts and are very dedicated to their work.

I had the good fortune to meet Dr. Martin Jensen who is a leading authority on seed physiology and he works closely with seed production and storage — an area of interest for myself.

Dr. Peter Bronnum works on postharvest physiology of bareroot plants and he has worked on electrolyte activity to determine the timing of harvesting of bareroot plants. His research lead to my efforts at using electrolyte leakage to ascertain the timing of the taking of cuttings, a report of which is being presented at this meeting.

Horticulture and plant propagation are major league activities in Denmark. Much can be learned from visiting the growers and especially the researchers at the DIHS. The exchange program provided me with a wonderful opportunity to “ Seek and Share “ and benefit from the intense devotion to our industry.