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Managing Director, Scotherbs
Science in Practice for Seasonal Crop Production

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I hope you have enjoyed the short video about Scotherbs - I would like to give you some background as to how important science and innovation has been and will continue to be to Scotherbs.

Scotherbs was founded in 1984 and trialling new ideas was immediately essential as there were no manuals on 'how to grow' fresh herbs on a commercial scale. A lot of knowledge was gained by trial and error - and to some extent this is still the case and there is no doubt this is what makes the business exciting and interesting for us all 25 years later!

Developments at Scotherbs are primarily driven by our need to serve the customer better. We work with them to recognise their priorities and align our plans alongside these. Overall, working with demanding customers ensures that you are continuously improving your business in one way or another.

Presently we are supplying a wide range of customers across all sectors. Annually we undertake 12 retailers and industry audits to ensure that we are complying with the customers' standards of supply. We also have to ensure that these audits are carried out on all our growers abroad too. The audit demands have increased over the last few years mainly driven by food safety and legal compliance.

In any existing product area innovation must bring about an improved product at a reduced cost and more recently reduce the impact on the environment. You also require to keep in mind that it is essential to remember that you have to manage the risks associated with supplying a product with an average shelf life of 4 days without fail 7 days a week. You are ultimately aiming to increase business security to enable you to have the confidence to invest in your business' future.

The main developments in the growing operation at Scotherbs have been over the years, continual increases in protected cropping although there are still acres of field crops. Spanish tunnels were initially used mainly as rain/weather shelters allowing the herbs to be harvested no matter what the weather and ensure quality and continuity. These tunnels are a similar construction and purpose to the fruit tunnels which have also extended the season –especially for strawberries. There are also trials being carried out using various coloured plastics to alter the amount and wave length of light reaching the plant but, this is still very new within the herb industry. Unfortunately there is not much impartial knowledge available although HDC, the Horticultural Development Company is fortunately active in assessing new technologies and passing this information on to the grower groups.

Fully enclosed plastic tunnels are now more evident in the herb industry – this is leading to herbs being grown approx 4 weeks earlier and later than the normal season length. Scotherbs currently uses 15 tonnes of herbs per week and any extension to home production as against imported herb crop, as long as the quality is not compromised, means that we are a more competitive business.

There are of course costs associated with developments. Businesses must be in a financially sound condition to allow investment in capital developments especially in the current financial conditions. Communicating the cost of production both to our customers and the final consumer is, as always, of major importance to maintain confidence for suppliers to invest in the future.

Weed control, especially with the relatively recent decrease in available pesticides, has meant new technologies have been introduced – soil sterilization using calienta mustard both as a soil conditioner and a sterilant is being trialled. The crop burners are being used more frequently with the associated increase in energy costs. For some crops there is nothing for it but hand weeding with again substantial increased costs. Mechanisation gets between the rows but not between the plants

Plastic mulches are also being used to control weeds and act as a method of heating up the soil sometimes by +5oc promoting earlier growth – there has been

mixed success with this method – it is very dependant on the type of mulch used and the herb – parsley and blue plastic mulch don't seem to work!

Early fleecing of crops can help in advancing crops by up to 10 days but as with all developing techniques it is very dependent on herb type and management – the shelf life of the softer herbs can be compromised and it is very important that the fleece is removed before the crop grows too big! Wind damage can be a factor.

Biocontrols are very important to Scottherbs in our integrated pest management system. An example being nematodes for thrips - thrips are resistant to a variety of chemicals and the reduction in possible treatments will only exacerbate this. Some of the chemical applications act only on the adult thrips whereas the nematodes kill the larvae in the soil before they hatch. One of the problems with biologicals is that some residue pests can remain in the crop for some consumers this can be as much of an issue as the idea of chemicals! You can't win all the time!

New varieties of certain herbs can also lead to better yields, quality and shelf life – a stronger plant will be more resistant to disease and in most cases allow the growing season to be extended. Presently, the coriander variety grown is primarily a variety for seed production leading to earlier bolting as opposed to leaf production - there are trials being carried out on strains of Russian and Asian varieties which will hopefully lead to increased Kg per square m.

All these developments within the industry cost money! Seed and chemical companies cannot justify the investments required to carry out trials for a relatively small sector such as the herb industry.

The BHTA , The British Herb Trade Association has been the main driving force behind many of the developments within the UK fresh herb growing operations. In the 80's and 90's much work was done with ADAS and PSD regarding weed and disease control and Sola's (Specific Off Label Approvals) were introduced for fresh herbs. This once again increased productivity. Joint technical initiatives both across

countries and sectors have brought many developments – for example water management for microbial controls in irrigation water reduced residual risk for herb growers. There is a wealth of information within the BHTA especially as a technical resource. There is also an excellent website compiled by the HDC for best practice in dealing with Pest and Diseases of fresh herbs.

We are also very fortunate at Scotherbs as we have SCRI -The Scottish Crop Research Institute - 3 miles down the road towards Dundee. We have worked together on a few projects - shelf life extension, bioactives in novel crops, added value projects. It is hoped that we can continue to develop and learn from the many generic projects they currently undertake.

Developments post harvest are also vital to improve the offering to the customer - how to reduce microbial contamination in the packaged crop, shelf life extension, packaging materials technologies, production efficiencies, all leading to maintaining a competitive position in the market. Sometimes the science is there but the added cost to the customer and the consumer sometimes puts its use out of reach.

Sometimes the most difficult part of innovation and research at Scotherbs is to limit the projects that are undertaken – prioritising and ranking their importance from a sustainable business point of view - what will they ultimately contribute to the bottom line? Being the most efficient low cost sustainable producer of quality produce is now more important than ever.

In 2008 I was fortunate to be awarded a Nuffield Scholarship to investigate seasonal extension and herb production with particular reference to renewable technologies. It has been one of the most rewarding opportunities both professionally and personally. I have been given the opportunity to meet some truly amazing and inspiring people.

I have visited growers of morphine poppies, wasabi, salad leaf and fresh herbs in Tasmania and small but highly productive herb producers in NZ. One of the most

innovative companies I visited was New Zealand Fresh Cuts who grow and supply a variety of processed and ready to eat products to their home market and also the Far East countries. Interestingly many of the technical accreditations that we are working to in the UK are being introduced to companies in NZ and Australia and reminded me of our industry 5-10 years ago.

Two things that really struck me when travelling were the endeavour, perseverance and can do attitude of all the countries and producers I visited. In Halifax Nova Scotia I saw micro leaf production happening in a tunnel surrounded by snow, hydroponic growing systems that although seeming low cost were producing the most amazing volume of product – double skinned tunnels leading to a successfully extended growing season. I also became more aware of how lucky we are to have a market the size we have – if you have no market then business development and innovation are not really an option to the same extent.

On returning from my Nuffield adventure the problem was really how to prioritise the ideas.

The main issue I feel in the industry is how to reduce our dependence on imported produce. Scotherbs is actively investigating and trialling all potential methods of 365 day sustainable growing using renewable energy technologies.

Aeroponic, aquaponic, hydroponic, vertical farming systems, using wind turbines, hydro and biomass energy sources.

These techniques I feel are transferable within the horticultural industry and will be vital if we are to sustainably produce products to feed the anticipated population growth. The new feed in tariffs to be introduced in April of this year should also play a big part in making these technologies more attractive to producers.

Recently the Government announced the introduction of a new initiative to support research and development in sustainable agriculture production through the Technology Strategy Board. The aim being that there will be more collaboration

between research bodies and commercial operations - in principle this would seem to be a sensible approach although presently the cuts that are taking place to fund the research establishments may mean that there will be money but no one or place left to carry out the research.

In industry the pressures are increasing to be a low cost efficient producer and so called luxuries such as R&D are not taken into account when prices are being set with the customer. It is very important that support for the research establishments is maintained until the situation settles re funding for projects - otherwise the skills that have been built up over decades will be lost.

We also have to ensure that we are shouting about the opportunities in the growing world –there are new technologies to be developed and this should attract new entrants into the industry. I am passionate about the opportunities to develop businesses and products and would hope with the right communication and education horticulture can be an exciting future for the scientist of tomorrow. It is at the end of the day all about the people - encourage and keep the innovators and entrepreneurs in the industry and ensure we bring these technologies on stream for the benefit of our economy and ultimately its' people .