

The Greenhouse Business

EMERGING OF A NEW MARKET REALITY— LOCALLY GROWN AND REDUCED CARBON FOOT PRINTS

Mohyuddin Mirza

Lots of exciting things are happening in the area of food and health. One hears many terms being used and it appears that we are looking for a “buzz” word which appeals to consumers. I see more information coming from Ontario and B.C. A colleague sent me this information. A sign in Ontario saying “Local Food Plus” – LFP Certified Food available here. Below the sign it said , when you choose LFP, you:

- √ Enjoy fresh food from Ontario
- √ Support environmentally responsible farming
- √ Conserve energy and cut greenhouse gases
- √ Ensure fair conditions for farm workers
- √ Provide humane care for livestock
- √ Preserve farming land wild life habitat
- √ Foster a strong local economy

And then I was browsing through a greenhouse trade magazine and a computer control company advertisement read: Make your Greenhouse ‘ Green ‘. For some people green means money, for others it means protecting the environment. With our system it can be both.

- √ Reduce carbon emissions
- √ Reduce electrical consumption
- √ Reduce run-off
- √ Reduce fertilizer use
- √ Reduce water use
- √ Increase output and quality.

Personally when I buy vegetables I always make an effort to buy locally grown. I never thought that locally grown may mean all of the above points. When I buy vegetables and see a familiar name of a greenhouse on the package, my mind computes several facts like, no pesticide applied, grown only a few km from here, good grower, always tells the truth about the produce, was harvested yesterday, takes pride in his/her business, seeks new information and knowledge, and so on. This happens in a fraction of a second and the produce is in my cart.

What's In this Issue?

- ◆ Emerging of a New Market Reality –Locally Grown Pg 1/2
- ◆ Managing Vegetable Crops Pg 3
- ◆ What do you do when there are no cucumber fruits on your plants Pg 4
- ◆ Evaluation of Greenhouse Substrates containing Zerolite Pg 5
- ◆ Recent Developments in Aquaponics at Crop Diversification Centre Pg 6

(Continued on Pg. 2)

Volume 7,
Number 4

The Greenhouse Business

(Continued from Pg 1)

Farmers Markets have played a major role in this direct to consumer approach and they are fairly successful. Last Thursday I went to Millwoods open market and all produce was gone by 8:15 p.m. I enjoy going to these markets, not only for the good quality produce but also meeting the growers. Many times growers mention that they have sold everything within two hours and it was one of their best days. If your produce is sold within a few hours, this means that there is market demand for your product so you should build more capacity by growing more and supplying more. Sometimes the thinking is "Don't grow more", it will result in oversupply and you may have to drop the price. I think in these markets you can get a better price. There is more demand so expand your business.

I think another part of locally grown business is the commercial, wholesale market. Lot of changes have taken place in this market segment. When I started my job in 1979, there were local buyers in Edmonton and Calgary for major chain stores and they were well connected with growers. These buyers visited greenhouses and farms, had a cup of coffee with growers and established good working relationships. Individual stores had "permission" to buy locally as much as possible. These buyers would come on tours, would participate in grower's forums, would show up at research open houses and thus provide feedback and inputs for future needs and directions.

Now many of these buyers have been centralized and buyers are somewhere in U.S. Electronic buying is the norm. It is very encouraging to see that some large wholesalers buy more local produce, and proudly display it as locally grown. One large store I walked into I saw a picture of wife and husband team involved in greenhouse vegetable production. I frequently see pictures of growers on promotional material which comes in with newspapers. One wholesaler is giving a big push to locally grown produce. I think the need is that growers must make sure that they are able to build their supply capacity as this market segment expands. We have to give confidence to consumers that locally grown is healthy, safe, nutritious, reduced carbon foot printed, ethically grown and if you buy locally, you are helping local economy.



The Greenhouse Business

MANAGING VEGETABLE CROPS AFTER BEDDING PLANT SEASON

Mohyuddin Mirza

There are a few bedding plant growers who produce tomatoes after bedding plants are done. Greenhouse structures used for this type of production are basically plastic greenhouses with a fan for ventilation. Growers set up 3 gallon containers, add the bedding plants soilless mix, use hand watering or set up a drip irrigation system and start producing tomatoes in early July. Seedlings are grown in May or many left over tomato seedlings are used. Many times greenhouse varieties are not used. I remember many growers used to use the old tomato variety Vendor which will set first 4-5 clusters very good and then thin off at the top. This type of fruit set suits the market need of growers very well. I am not sure if this variety is still available. The idea is to get quick crop with least inputs and costs and bring some additional revenue. With the hot weather a few problems have come to my attention.



Fruit quality does become an issue with such crops and the main reason is that night heat is not provided in most cases. Alberta nights even in July are fairly cool, 10C is common. Fruit skin shows cracks like in this picture. It is good idea of provide as much shade as possible. Greenhouse can be shaded and also more leaves are allowed to develop and retained so that fruit is covered.

Other problems reported:

- ◆ Blossom End Fruit Rot. Basically it is a calcium shortage due to irregular watering practices. Calcium movement to the farthest end of fruit is slowed down. Maintaining good watering practices would help, meaning that don't go on a wet and dry cycle, instead keep the growing media moist. The problem can be reduced by regularly spraying the leaves and fruits with a solution of calcium chloride or calcium nitrate.
- ◆ Tops of plants becoming thin and spindly and yellow. This is the result of heavy fruit load on first few clusters. The problem generally disappears once fruit harvest starts from the first cluster. Focus on proper pH management.

General environmental issues remain with such crops because greenhouse structures don't have proper environmental controls. Very warm day temperatures and cooler night temperatures makes the plant too vegetative. Big fruit is set on the first clusters and the top fruit ripens before getting to full size.

Volume 7,
Number 4

The Greenhouse Business

WHAT DO YOU DO WHEN THERE ARE NO CUCUMBER FRUITS ON YOUR PLANTS?

Mohyuddin Mirza

Sometimes strange things happen. One grower called me to say he had planted new seedlings which are about 5 feet tall now, and most of the plants don't show any flowers. If there are no flowers there would not be any cucumbers to deliver two weeks down the road. On the phone I was thinking about all sorts of possibilities, ranging from plants being too vegetative to high E.C. in the root zone, and possibly a variety that was not suited for summer cultivation. Here are the pictures:



When I visited the greenhouse the plants appeared to be in good health although slightly vegetative. The internode length was reasonable. Heavy infestation of onion thrips was noticed. During July, onion thrips move into the greenhouse, but I never have seen them causing this kind of damage to the fruit/flower buds. I checked the fertilizer program and irrigation practices, which were o.k. The grower had started an aggressive biocontrol release program.

On my way back from this greenhouse I stopped by to talk to our famous Dr. Ken Fry at Olds College and mentioned this problem. He pointed out that onion thrips can attack very young buds of cucumbers, unlike western flower thrips. So that is what appeared to be the case.

I also noticed that old crop was still around in one half of the greenhouse. It was loaded with thrips and they just moved over to new crop. Good sanitation practices require that you get rid of old crop, clean the greenhouse thoroughly and then plant new seedlings. Obviously the grower did not do that in this case. Significant yield loss could occur in this case. Paying attention to these details is essential to maintain sustainability of your business.

The Greenhouse Business

EVALUATION OF GREENHOUSE SUBSTRATES CONTAINING ZEOLITE AT THE CROP DIVERSIFICATION CENTRE IN BROOKS

Nick Savidov, CDCS, Brooks

Zeolites are naturally occurring chemicals which have the potential to provide an excellent nutrient buffering in greenhouse substrates due to their high cation exchange capacity. Zeolites can also act as water moderators, in which they will absorb up to 55% of their weight in water and slowly release it under plant demand.

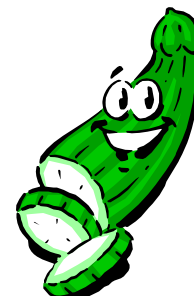
Only very limited research has been undertaken on the use of zeolites in soilless media, and these studies undertaken in Alberta between 2001 and 2005 are intended to clarify the situation.

This research was undertaken at the Crop Diversification Centre South, Alberta Agriculture and Food, Brooks, Alberta, Canada between 2001 and 2004 in which a number of varieties of two vegetable crops (sweet peppers and cucumber) were grown in a series of experiments using a range of different growing media, at two different levels of carbon dioxide, using different additions of zeolite to the media.

Results were presented from a series of trials undertaken in Alberta, Canada over 4 years (2001 -2005) to evaluate the effect of the addition of zeolite amendments for the growing of greenhouse cucumbers and peppers in a range of different growing media, including perlite, coir, rockwool and sawdust. In most instances, the differences between various substrates were not statistically significant. Coir was superior to sawdust when used as a substrate to produce long English cucumbers. The effect of coir on bell pepper production compared to sawdust was not consistent in this study and varied significantly depending on a variety.

The type of medium used, strongly determined the effect of zeolite. Zeolite (10% and 20%) had a beneficial effect in most cases when added to sawdust and in some cases when added to perlite (long English cucumbers). The effect of zeolite amendments to coir was not consistent. The effect of zeolite on crop production was also dependent on its mineral composition as shown in a 2005 study. The precise mechanism of zeolite effect on greenhouse crops requires further investigation.

Copy of detailed report is available from nick.savidov@gov.ab.ca



The Greenhouse Business

RECENT DEVELOPMENTS IN AQUAPONICS AT CROP DIVERSIFICATION CENTRE SOUTH

Nick Savidov, CDCS, Brooks

Aquaponics is a new approach to produce food in a sustainable manner. Aquaponics facility consists of both plant and fish components. The fish water, rich in nutrients, is re-circulated and used for plant growth, while the plants are used as a biofilter for water regeneration, which goes back to fish in a close loop. An aquaponics module based on Rakocy model, University of Virgin Islands, was constructed at the Crop Diversification Centre South, Brooks, in 2002. Although this model proved to be efficient in outdoor conditions, it had not been tested under Canadian greenhouse applications before.

An extensive study during the project duration from 2002 till 2007 demonstrated the technical feasibility of aquaponics technology under Alberta growing conditions. More than 60 different crops and varieties were tested in the greenhouse. Production trials for 24 crops (5 greenhouse vegetables and 19 herbs) were conducted to evaluate which crops would grow well under this system. A protocol was developed for aquaponics production in Alberta. This trial produced the highest yields reported in the literature for aquaponics technology. The yields of two major greenhouse crops, cucumber and tomato, calculated on annual basis exceeded average values for commercial greenhouse production based on conventional hydroponic technology in Alberta.

Although, the project proved to be very successful, a new approach has been used to improve the existing facility. The Team at CDCS redesigned the facility with the help of aquaculture program specialists in Lethbridge, which included Dan Watson, Eric Hutchings, and Mike Sanderman.

In the new facility the Team managed:

- ◆ to radically improve usage of greenhouse space (more than 2 times). With the same gas bill the produces will be able to double the yield of greenhouse crops;
- ◆ to significantly decrease labor requirements through new design and better protocol for crop management based on the design;
- ◆ to entirely eliminate water discharge from the system using innovative Biofloc system. It is a completely contained system now, which allows introduction of new fish species in Alberta, such as barramundi, without any contact with the environment. No fertilizers or pesticides are used to produce crop.

The system developed in Brooks is unique by its efficiency in space, labor, and water usages and environmental impact. The new redesigned facility gives an opportunity for a massive commercialization of the technology in Alberta more real.

Volume 7,
Number 4

The Greenhouse Business

ACCELERATE YOUR BUSINESS- A MANAGEMENT FORUM TO CREATE CLARITY, FOCUS
AND COMMITMENT ACROSS YOUR ORGANIZATION

Mohyuddin Mirza

In a globally competitive environment it is always good to examine one's business for clarity, focus and commitment. After you have run your business for a few years, and successfully as well, many times I find that clarity is lost. The original goals have been changed, new staff has been brought in, maybe your children are slowly taking over. Your children may not have the same business goals as you developed. So it is a good time to attend this course and get clarity and focus back. Here are some details about this wonderful program:

- **Edmonton, Tuesday, September 30th, 2008, 7:00 a.m to 5:00 p.m.** 7:00 am starts means that there is breakfast included **with the registration. Radisson Hotel, 4440 Gateway Blvd..**
- **Calgary, Thursday, October 2, 2008, 7:00 a.m to 5:00 p.m.** Radisson Hotel, 2120 16th Avenue N.E.
- **\$ 125.00 per person**
- Donald Cooper is the presenter of this program. A very impressive bio is available for you to see at www.donaldcooper.com. He is also a keynote speaker at Hort East.

A registration fee subsidy is available to rural participants by contacting Alberta Business Family Institute, Creating Pathways project office at 780-672-0376

Greenhouse companies should plan to send 2-3 of their staff to take advantage of this program. Register on line at www.manufacturinginnovation.ca

.....
The Greenhouse Business is published bi-monthly by the Business Development Branch of Business and Innovations
Division of Alberta Agriculture and Rural Development.

Editor: Dr. Mohyuddin Mirza, Crop Diversification Centre, North, 17507 Fort Rd., Edmonton, AB.

Canada, T5Y 6H3. Phone: (780) 415-2303, Fax: (780) 422-6096, Email:

mohyudin.mirza@gov.ab.ca

Newsletter Layout: Linda Thomas, Fairview

Disclaimer: *The identified use or notation of any particular brand of product is not identified as a recommendation nor should any recommendation be inferred.*

.....