Winners in Garden Contest

BARAGA President, Abdul Majid, announced the winners of the Best Garden Contest. The three judges awarded the three winners as follows:

1st: Dmitry Itskovich - $60 Vancity pre-paid Visa card and a coupon for Lunch for two at Fraser Park Restaurant

2nd: Janina Bacerak - $40 Vancity Pre-paid Visa card and a coupon for Lunch for two at Fraser Park Restaurant

3rd: Dulls Kleamyck - $25 Vancity Pre-paid Visa card and a coupon for Lunch for two at Fraser Park Restaurant

Seven other prizes were awarded (alphabetically listed: Angelo Andofatto, Roman Brobrownik, Jan Koziatek, Eric Lin, Chris Mann, Francesco Marin, and Hildegard Rumpf. These gardeners received a coupon for either breakfast or Lunch at Fraser Park Restaurant.

The prizes were awarded for a combination of good gardening practices, including the variety of crops being grown, the neat appearance, and sound environmental approach of the winning allotments.

BARAGA wishes to acknowledge and thank Vancity Credit Union and Fraser Park Restaurant for providing the prizes for this contest.

Angel Food Runners

BARAGA is pleased to announce a new partnership with the Greater Vancouver Food Bank Community Angel Food Runners!

Community Angel Food Runners is the prepared and perishable food recovery program of the Greater Vancouver Food Bank Society. Through the Community Angel Food Runners, quality food is donated from restaurants, hotels, cafeterias and schools and community gardens and then delivered to meal-providing agencies. The program runs seven days a week and saves over 870,000 pounds of food a year which would otherwise be wasted. Instead we are able to provide 1.25 million meals for people in need.

If you have extra produce to donate, drop off your donation in the white box by the second shed next to the BARAGA office anytime after 7:00 pm on Tuesday evenings. Pick-up will be between 10:00-12:00 am on Wednesdays. If this works, we will add another pick-up for Saturdays.

What can you donate?

✧ FRESH and HEALTHY vegetables – we want to provide delicious, nutritious produce.
✧ CLEAN (relatively) vegetables – dirt impacts the...
cleaning of the refrigerator truck.

TOPPED OFF vegetables – remove any inedible part of the produce.
Place produce in bags to help out the Food Bank folks.

*Quote from the Vancouver Sun, Monday, September 23*

Community Angel - the food bank's perishable food recovery program - has two refrigerated trucks on the road six days a week and one on Sunday, making pickups from more than 200 regular donors, from grocers such as Whole Foods, restaurants, caterers and hotels including the Westin Bayshore to social enterprise urban farms such as the Downtown Eastside's SOLEfood. But home, school and community gardeners, such as Burnaby's allotment group and the vegetable gardeners at VanDusen Botanical Garden are also among the regulars. The trucks make up to 30 pickups a day and then spend the last hour dropping the food off at community kitchens, social service agencies and the food bank's distribution hubs. "What's so exciting about Food Runners is how quick it is," said Low. "If we get a call, that food is being consumed by people who need it that afternoon." Drivers are trained to inspect donations for quality and safety, but so much of the food comes from food industry professionals that quality control is essentially built into the system. "I've done a lot of things in my life, but to me this is so rewarding, because you can see how the food is received, they are ready for it and incorporate it into their meal plan for the day," said Low.

- Byron Quam

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**Powdery Mildew & Milk**

Powdery mildew is one of the most common and easily recognized plant diseases. Almost no type of plant is immune, however some are more susceptible than others. Lilacs, crab apples, phlox, monarda, roses, grapes, squash and cucumbers are all likely targets for powdery mildew. At BARAGA the most likely target of powdery mildew are cucumbers and squash.

Powdery mildew is actually a group of diseases that all show up as a powdery white coating on leaves, stems and sometimes even flowers. It does not usually kill plants, but it can weaken them and diminish photosynthesis, leading to poor yield and plants that don't last the season. Most mildews are caused by related members of a fungus family.

It is spread by fungi spores that are carried by the wind or splashed onto leaves. Powdery mildew favours humid, rather than wet conditions. The spores form when the humidity is high and disperse when the humidity diminishes. Spores can over-winter on plants or plant debris and start the process all over again. Garden sanitation and planting disease resistant varieties are your best powdery mildew controls. That means removing, perhaps burying deeply, all foliage from infected plants. The spores will likely be killed in hot compost, but will survive cold composting.

Milk has become the latest secret weapon in fighting powdery mildew. Actually it's not so secret and it's been used in treating diseases for decades. It's been tried as an additive to improve the spreading and sticking of other pesticides and Dr. Linda Chalker-Scott cites many studies where milk was tested against the transmission of tobacco mosaic and other viruses. - to mixed reviews.

Most recently, milk has been getting a lot of good press as an anti-fungal spray and specifically against powdery mildew on cucumbers and squash. Though more expensive than sulphur, milk and whey sprays cost less than synthetic fungicides.

Experimenters report using a 10% solution (15 grams of milk powder in one litre of water) of milk sprayed on the plants to be protected every two weeks. Since sunlight is necessary for the treatment to be effective it should only be applied on dry, sunny days. In the whey (part of the milk) “a protein, ferroglobulin, under the influence of ultraviolet light produces an oxygen radical that is extraordinarily toxic.” This does not harm the plant which is protected by a waxy layer, but destroys any fungus encountered. It is suggested that the most effective use is as a preventive, rather than applying after mildew is detected.

Thanks to Sandra Riley, who suggested this topic for an article in the Seedling and who provided an article describing the use of milk spray developed as a mildicide in the Australian grape trade. Peter Crisp, David and Barbara Bruer, all chemists and vintners connected with the University of Adelaide, Australia, participated in the experiments that are the basis of this treatment for mildew.
Thanks for the Harvest

*All the things we get from plants*

About this time of year when the author was young churches traditionally celebrated a Harvest Festival. The church would be decorated with displays of fruit and vegetables and the theme would be gratitude for a sustaining harvest. The tradition is carried on in Canada with the celebration of Thanksgiving and for most people a bounteous family dinner. What we are really celebrating is all the things we get from plants.

There is good reason to be a sun worshipper. Ultimately we are all completely dependent on the sun. Everything we eat begins with the process of photosynthesis, a process performed only in green plants. Photosynthesis is a process in which plants capture light energy to produce carbohydrates, i.e. glucose, a simple sugar. Of course, there needs to be water and carbon dioxide, the presence of chlorophyll, and a suitable temperature. Oxygen is a byproduct. This is a simplification of some fairly complicated bio-chemistry.

And it gets more complicated; all our foods are derived from these simple sugars. Plants are capable of converting these simple sugars into many different organic compounds to suit their needs. Proteins including DNA/RNA make the basic building blocks of cells. Fats are formed and become a source of stored energy. Enzymes influence the creation of carbohydrates into cellulose and lignin and various other purposes in the plant cell.

Since no animals can photosynthesize they must obtain all the protein, fat, and carbohydrates they need from plants. The protein your body derives from a succulent turkey breast, really derives from the grain the farmer fed the turkey and ultimately from the energy packet the wheat stored in its seed. The fat present on your buttered toast topped with a slice of old cheddar cheese came from a cow, but really originated in the grass that cow grazed in the meadow. Everything we eat comes from plants.

Protein, fat and carbohydrate are the obvious products and the basic building blocks of a nutritious diet. However we get much more than that from plants. Our bodies need a lot of other things to function. Below are some of them:

**Vitamins:** if you were born two hundred years ago you would not have heard of vitamins. Their discovery and function is quite recent. The old people were vaguely aware of dietary deficiencies. For instance, liver which contains vitamin A was prescribed for night blindness. Famously the British navy issued limes and lemons which contain vitamin C to its sailors to ward off scurvy. We need vitamins A, C, D, E and K, also several compounds referred to as vitamins B1,2,3,5,6, 12. If you eat a balanced diet with plenty of fruits and vegetables (see the recommendations of Health Canada) an average person will get all the vitamins required. There are two exceptions vitamin B12 and K. Vitamin B12 is not made by higher plants but by bacteria present in the small intestine. Vitamin K is present in dark green plants, such as cabbage, kale, and spinach, but is most often obtained from bacteria in the human gut.

**Minerals:** just as we need small amounts of all the vitamins, we need very small amounts of several minerals. About 4% of our bodies is composed of minerals, chiefly calcium and phosphorus. Other mineral components are magnesium, sodium, potassium and chloride. There are also trace amounts of iron, zinc, iodine, copper, manganese, fluoride, chromium, molybdenum and cobalt. Readers will recognize many of these are required by plants as well, so it is no surprise that all of them can come from plants with one exception - cobalt (which like vitamin B12, cobalamin, comes from similar sources).

**Phytochemicals:** another thing we all get from plants are phyochemicals. These are chemical compounds manufactured by plants; as yet their significance is not properly understood, but they may be very important. (See article below: Food Colours.)

We do get calories from our food from the vegetables and fruits we grow and harvest. But calories are a measure of energy (a calorie is the amount of energy required to raise one kilogram of water one degree Celsius). From a gram of protein we get 4 calories, from any carbohydrate, 4 calories, from fat, 9, and from alcohol, 7. Typically the calories in fruit and vegetables are low which means we can eat a lot of them. Also we get something called dietary fibre from fruit, vegetables and grains; this is indigestible material (mainly cellulose and lignin) which passes through the gut with many beneficial effects but does not add any calories to food.

In this brief look at the things we get from plants, the reader should note there is no attempt to make any recommendations; those should come from a qualified nutritional specialist. There are dangers in not getting enough of some components and there is a danger of getting too much.
Phytochemicals

Johnny was told by mother to eat his veggies, he whined “Must I?” Then began a hargy/bargy with mum. “Why should I eat them?” It soon emerged that he hated vegetables, whatever they were, broccoli, peas, whatever. Mother said to eat them anyway, veggies were “good for you”, end of discussion! Probably very few argumentive children would think to ask “Why are they good for me?” If the argument took place thirty years ago or more, just possibly Johnnie might have won it, because mum probably could not have said exactly why veggies were particularly good to eat.

If the argument took place today a nutritionally informed mother could start a spiel about phytochemicals and reel off a number of multi-syllabic terms. For a start she might say that broccoli contained vitamin C and dietary fiber; it also contains multiple nutrients with potent anti-cancer properties, such as diindolylmethane (if she could pronounce the word) and small amounts of selenium. Broccoli also contains the compound glucoraphanin, which can be processed into an anti-cancer compound sulforaphane. End of discussion, big time!

What all this illustrates is the fairly new leap in knowledge about the compounds that plants contain and what these compounds might do for us when we consume them. Folks have undoubtedly known for many generations what plants were good for them, but discovering exactly why this is so is relatively new knowledge leaving much still to be learned.

Probably some people’s failure to access this knowledge is the big words used to describe it. “Phytochemicals” just means chemical compounds derived from a plant source. We do not like to think we eat “chemicals” either, but that is what the organic compounds that go to make our foods really are - chemicals, even if they are rather special ones.

Phytochemicals are just organic compounds from plants. What’s more, we eat them all the time. It is time to look at some obvious ones.

The Veggie Colour Wheel
This summer VanDusen Garden devoted a part of their display to colourful vegetables. This theme is often echoed in modern seed catalogues. Take carrots for instance: there are orange carrots in varying shades, but there are yellow carrots and red ones. There are also purple carrots and white ones. Look at tomatoes: not only are there red ones, there are orange, yellow, pink, white, blue and dark green ones.

<table>
<thead>
<tr>
<th>Colour</th>
<th>Phytochemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>is an obvious one, usually denoting the presence of carotene. Beta-carotene, alpha-carotene, and vitamin A are found in carrots.</td>
</tr>
<tr>
<td>Blue</td>
<td>powerful antioxidants called anthocyanins are the blue pigments found in blueberries, cranberries, raspberries, grapes and acai berries.</td>
</tr>
<tr>
<td>Black</td>
<td>fruits and vegetables that appear almost black like blackberries and black soya beans have extremely high concentrations of anthocyanins..</td>
</tr>
<tr>
<td>Brown</td>
<td>anthocyanins and phenols are the pigments responsible for brown and burgundy pigmentation in plants.</td>
</tr>
<tr>
<td>Green</td>
<td>green is due to the presence of chlorophyll, it also denotes the antioxidants lutein and zeaxanthin.</td>
</tr>
<tr>
<td>Purple</td>
<td>anthocyanins, phenols and reservatrol are the pigments that make some plants appear purple. Found in many foods from egg plants to red wine.</td>
</tr>
<tr>
<td>Pink</td>
<td>this pigmentation in plants is caused by anthocyanins, they that can also appear blue, red, or purple depending on pH.</td>
</tr>
<tr>
<td>Purple</td>
<td>anthocyanins, phenols and reservatrol are the pigments that make some plants appear purple. Found in many foods from eggplants to red wine.</td>
</tr>
</tbody>
</table>
• White: white colours in plants is sometimes due to the anthocyanin allicin. Example are eggplants, radish, cucumber, onion, potatoes.
• Yellow: carotenoids and flavonoids are antioxidants responsible for the yellow colour of lemons, yams, peppers and other fruits and vegetables.

But the colours that indicate phytochemicals are only a beginning. There are hundreds of them, some of them well-known, others barely known, likely many more organic compounds waiting to be discovered. Some of them arise from plants natural defences against pests; often foods have a bitter taste due to the protective substances present. Humans get past these tastes and the combination of a variety of phytochemicals in food offer many health advantages.

Several phytochemicals are anti-oxidants. Eating fruits and vegetables helps maintain a healthy heart, urinary tract, and memory function. It can also help prevent lung disease and the slow growth of cancer cells. Eating these foods helps maintain a healthy immune system and healthy eyes and it may slow the aging process. It is claimed eating fruits and vegetables rich in anthocyanins maintains heart, urinary tract, and memory functions, while helping to prevent lung disease. UK researchers believe eating lots of broccoli may slow down and even prevent osteoarthritis.

In the lab it was easy to demonstrate the potential of phytochemicals. However in studies of human populations the results are less sure. It appears that eating foods that are high in phytochemicals and eating them in great variety has many health benefits. Conversely taking supplements where the phytochemicals are very high may be ineffective and sometimes detrimental. Further, there are now so many studies of food, nutrients, and supplements that almost anything can be proved from them; good science is not easy to find.

Preparing for Fall

Providing a mulch

A few years ago farmers and gardeners thought of fall as a time to plough under spent crops and leave the ground bare for winter. Supposedly the bare ground was ready for spring when tillage and planting could begin again. Quite a simple method when chemical fertilizers were the norm.

This is not the best way to garden. The winter rain tends to leech remaining nutrients out of the soil. Weeds, several of which grow well in winter, can take over the bare soil and flourish. Considerable energy and time is wasted getting the ground ready for the first crops. If the ground is cleared of everything growing or that grew the previous year, the soil is impoverished.

A smarter, easier approach is to leave the spent crop to rot down and return its nutrients to the soil. However what we really want is to restore fertility as far as possible, to renew the soil, to have everything in readiness. Think of the crops that were taken from the soil in the past year. Whatever is taken needs to be replenished if we are to begin anew.

Perhaps the first consideration is protecting the soil from winter rain. It is as simple as providing a cover of some kind so soil does not get washed away in heavy downpours. Some kind of cover prevents nutrients from being washed out of the soil and running down the river.

One of the many mulches available is the answer. Possibly the best is a cover crop, such as fall rye, that will grow over winter and can then be turned in to break down into compost in early spring. Otherwise a layer of compost, or partially rotted compost will do, or a layer of mixed leaves and grass clippings. Failing this a black plastic mulch will do; weed seeds will not germinate in the dark, spent material on the soil surface will rot and their nutrients be absorbed into the soil, and in spring the soil will be marginally drier and warmer allowing for an early successful planting.

Make Soil Amendments

This is a good time of year think of soil amendments, whatever is on hand to restore the fertility of the soil. A layer of compost or manure can safely be added in fall or early winter. By planting time it will already be partially worked into the soil by the minute denizens of the soil, or earthworms if your garden has them.

The pH of BARAGA soil is notoriously acid. It requires a dressing of lime every three years to restore
its sweetness. Remember not to lime areas where you intend to plant potatoes and acid loving crops. Lime on the soil surface takes a bit of time to work into the soil, so an early application is a good idea.

**Saving Seeds**

Not every plant will set usable seeds, but many do. In particular heritage crops, as opposed to F2 hybrids, are worth saving. Good examples are heritage tomatoes such as Brandywine, Money Maker, Sungold - there are many others - that can readily be saved. Remove the pulp, dry for a few days, and store in a cool, dry place. Be sure to label. Not only can gardeners save money - seed packages can be $3 and more - but there is the satisfaction of preserving some of our genetic heritage.

**Planting Early Crops**

While the dark days of winter induce little plant growth, an early start can be made for several crops. Peas and fava beans, planted and established in fall, protected by a cloche from the elements, will have more than a good head start in spring. Garlic planted in fall will not grow convincingly above ground but will establish roots and be off to an early start. Kale planted in late summer will mark time but persist through winter and be headed to productivity as soon as the days lengthen and warm a little.

◆◆◆ The BARAGA mailing address is:
Burnaby and Region Allotment Gardens Assoc.
Box 209, 4974 Kingsway,
Burnaby, B.C. V5H 4M9
◆◆◆ To get Approval for the construction of greenhouses and sheds (or when making repairs) phone Abdul Majid (604-681-6058) or Don Hatch (604-433-8055)
◆◆◆ Contact phone number for plot rental or getting on the wait list is: 604-525-4497.
◆◆◆ You may also e-mail us at - support@baraga.ca

This newsletter was edited by David Tamblin (unsigned articles are written by him). Views expressed in this newsletter are not necessarily those of BARAGA