

THE GARLIC NEWS

Your Window to the Great, Glorious World of Garlic!

SUMMER 2005 ISSUE #4

A successful first year! Last summer when the Garlic Newsletter folded up, it didn't look very promising for a garlic growers' networking newsletter. Even with a lot of encouragement to go ahead, it was with some trepidation that Mary Lou and I embarked on starting one up from scratch. No subscribers, no mailing list, just about zero.

We cautiously decided to go for a trial run of one year. Now, that the first year is over, growers from across the nation are subscribing and sending messages of support. Our trepidation is gone and the future looks rosy, that's 'stinking rosy', for the future of the Garlic News. We intend to continue with publication as long as garlic fans want to read it.

A Big Thank You to all of you who have helped to promote the Garlic News and get the word out. We now have members from Newfoundland to Vancouver Island and from every province in Canada, with new members joining every week. We truly have a garlic lover's national network.

Looking ahead to the 2nd year. What it's all about. First and foremost, it is, and will be, a garlic lovers networking newsletter. Starting in September, the News will be better than ever. More grower news, more reports from garlic growers, a whole new selection of garlic recipes and lots of gems of information to help you grow better garlic and enjoy it more. We'll still keep it low-gloss and low-cost, emphasizing good information rather than pictures.

A new slogan! Starting with the Fall Issue, the words, "Connecting the Canadian garlic network" will replace "Your Window to the Great, Glorious World of Garlic" in the banner and all promotional material. These words more accurately describe what the Garlic News is all about, a forum for garlic fans to exchange views and keep abreast of happenings in the world of garlic in Canada. If we don't connect, let us know!

What about subscription renewals? We were just overwhelmed by the response for "Early Bird Renewals". Nearly 1/2 of our members responded. That's a great help coming into harvest season, a busy time with little left over for office or paperwork.

Not only was this a tremendous response, most of the cheques that arrived in the mail were for TWO YEARS! What an endorsement!! Now, if we can only live up to such a vote of confidence.

So, if you enjoy receiving the Garlic News and haven't already done so, send in your Renewal today.
Tell your friends and neighbours about it as well.
Better still; buy a gift subscription for your gardening friends. They'll love it. It will make a lasting birthday, Christmas or friendship gift.

Being a not-for profit newsletter and publishing at the lowest cost possible, we do not have a budget for sending out reminders. This is your reminder. If you don't renew, you won't get the Fall Issue. So, if you want the next issue, --- fill out and return the Renewal Form, now. We want to keep you in the garlic network. Thank you,

Mary Lou & Paul

IN THIS ISSUE, WE INTRODUCE TO YOU ---



Don Krock brought a book of his favourite recipes along with samples of his Old Krock pickles, wine and other delicacies. See page 11 for some of Old Krock's recipes.

Eastern Ontario Garlic Field day enjoys record turnout!

In its 6th year, the educational Field Day at the Beaver Pond Estates Garlic Variety Trials site drew over 50 growers from as far away as the Eastern Townships of Quebec, Burlington in southern Ontario and points in between. The program covered a wide range of research and marketing topics and was interspersed with grower debate on topical issues. A report on the Field Day will appear in the Fall issue of the Garlic News.



In a hot situation, you can't control the weather but you can keep your cool.

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Your Window to the World of Garlic Summer 2005 Issue # 4

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Advertising inquiries welcome.

ABOUT THE GARLIC NEWS

The Garlic News uses a newspaper column layout and larger print size for easier reading. The wider margins and 8 ½ x 11 size paper are to enable growers to save copies in a standard 3-hole binder. In keeping with our personal commitment to conservation and environmental protection, envelopes have been eliminated where possible.

Printed on recycled paper.

EDITORIAL POLICY

The Garlic News is a new publication. It carries on from where the Garlic Newsletter left off. Its purpose is to enable farmers and gardeners to grow better garlic and enjoy it more. Articles and contributions are welcome. They will be published subject to space and suitability. Letters and articles may be edited for length and content. The News is distributed in Canada by subscription.

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The Editor reserves the right to refuse advertising, subscriptions or material submitted for publication where, in his sole discretion, such inclusion would detract from the worth of the publication.

Articles should be no longer than 400 words. Pictures may be either colour or B&W.

Deadline for the Fall Issue is September 5.

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The Garlic Harvest

Leek Moth Report

White Gillespie of Tamarack Farm

Update from a grower's perspective. By Mike Gillespie of Tamarack Farm, one of the participating growers in the Leek Moth study.

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Enclosures: Subscription Renewal Form

RENEW YOUR SUBSCRIPTION NOW

For those 1-year subscribers who have not yet renewed subscriptions expire with this Summer Issue.

Being a non-profit publication, we cannot mail out hasteners. Don't delay, do it now

so your GARLIC NEWS will continue to arrive with no interruption.
YOUR RENEWAL FORM IS ENCLOSED

Using the Garlic News in Your Field or Garden

The GARLIC NEWS is a working textbook for growers and gardeners, useful in your field, garden or kitchen. Keep your garlic growing records along with the Garlic News and any other garlic articles together in the same binder. You'll have it all in one place, convenient for use indoors or out.

News From the Garlic Patch

A great vote of confidence. We were very heartened as renewals for the Garlic News arrived in response to the Early Bird Renewal form sent with the Spring Issue of the Garlic News. The first batch of envelopes were all for another TWO years! What a great vote of confidence. Since then, renewals have been steadily coming in and it looks like we're committed to at least another two years of publication. Thank you for this encouragement.

The 2005 Eastern Ontario Garlic Awards competitions will be hosted this year by the Seaway Valley Garlic Festival & North Dundas Agri-Tour being held at Connaught Acres, Chesterville, Ontario, Saturday and Sunday, September 10-11, 2005. For entry forms, contact Paul Pospisil at THE GARLIC NEWS.

Ken Willis, founder and organizer of the Seaway Garlic Festival has taken on a position in charge of the heritage gardens at Bellevue House in Kingston, Ontario. The house was the residence of Sir John A. MacDonald when he was the 1st Prime Minister of Canada. The gardens are being restored to grow herbs, vegetables and flowers of that period. Kenny & Linda will not be running the festival this year.

Debbie DeCooman of Connaught Acres near Chesterville is taking over running of the Seaway Garlic Festival so that this fine event continues. It will continue as a September event but at a new location. See flyer on page 12 of this issue. Debbie is an experienced event organizer, having been involved in running the Chesterville Farmers' Market events for Canadian Organic Growers.

Well done, Debbie!

Turmeric Challenges Garlic Supremacy. FromNutrition and Healing - Amanda Ross April 2005. Apparently, curcumin contains anti-inflammatory, antioxidant, and even anti-carcinogenic properties that rival foods such as berries, spinach, garlic, and sweet potatoes. According to scientists, curcumin can penetrate the blood-brain barrier more easily than many other potential Alzheimer's treatments. This is important because it can deliver the anti-inflammatory benefit where AD patients need it most -- the brain.

Death by Drowning. Christine Kosman reported a 90% crop loss attributed to heavy rains that left her garlic fields inundated with water for days on end. Along with the loss of many of her favourite strains, she has to rebuild her garlic business from scratch.

Good luck on getting growing again. Christine!

Organic Royals. At the royal wedding in April, it was stated that Canada's Governor General, Adrianne Clarkson and Prince Charles shared an interest in organic gardening. That's setting a royal example!

And the Garlic King, Ted Maczka replaced his trademark white van with black one. New bulb on top, too.

Good Harvest Anticipated. After a delayed spring in most areas of our region, in some cases two to three weeks later than usual, an abundance of spring rain and early summer heat spurred a very rapid growth, especially in weeds. The garlic grew rapidly in a catch up race. Scaping was almost on schedule, being late by only a few days. Excessive rain last fall caused some losses and low snow coveralong with severe cold resulted in considerable winterkill, but, despite all that, a good harvest is anticipated throughout the eastern region. Growers report strong plants with thick, heavy stems, usually a sign that bulbs will be large. Harvest being only a few short weeks away, we'll soon know.

What's wrong with those Scapes? At the Eastern Ontario Garlic Field Day, growers reported strange behaviour of the scapes on their garlic. The scapes didn't emerge straight up and form a curl the way they were supposed to but rather drooped in a lazy loop; many had folded spathes that emerged through the centre of the leaf, giving a folded look; and, the scapes were well below, rather than above the leaves. Also, plants were shorter than expected at when the scapes formed.

Could this have been caused by the late emergence of garlic this spring?

One can only hazard a guess. Garlic is the most misbehaved vegetable in the garden, setting its own rules of behaviour at the slightest provocation.

Scaping, what's it all about? Most growers know that you have to remove the scapes from hard neck garlic (and some soft neck types, too, Asiatic Artichoke for example) in order to allow the plant energy to go to bulb formation rather than to the top sets or bulbils.

So, OK, you ask. "Now, how do I go about this "scaping" and what do I do with them?"

The scape must be picked while it can be snapped off like asparagus and before it turns woody.

Remove when it's about 6-8"above where it comes out of the top leaves and has formed at least the first loop. In Rocambole types, it's worth waiting until it forms the second curl. Picked too early, the round stem continues to grow. Picked too late, not only does it get too woody to eat but also the plant energy is used up, giving smaller bulbs. With experience, you'll find the best time to do it. Don't cut the scape. With thumb and forefinger, grasp the round stem where it emerges, give it a quick snap and hook the curl over your free hand. When you've done 15-20, form them into a nice bunch, secure with a #10 rubber band and sell at \$2.00-\$3.00 per bunch or \$6.00-\$8.00 per lb.



"Garlic used as it should be used is the soul, the divine essence of cookery. The cook who can employ it successfully will be found to possess the delicacy of perception, the accuracy of judgement and the dexterity of hand which go to the formation of a great artist."

Mrs. W. G. Waters, the Cook's Decameron (1920)

Calls and Letters From Our Readers

Jim Eadie of Coe Hill, Ontario added a note to his Early Bird Renewal, saying; "Great Little publication!! Thank you."

Thank you, too, Jim. Kind words are encouraging. Editor.

From Guy Allaire of Montreal: "Most interesting material". Best regards, Guy.

Great job, you've got a winner! At the first Garlic Festival at Carp in 2000 I had the good fortune of meeting you after your very informative talk on garlic. You then showed several of us how to braid hard neck garlic. I still use your method today and my braids are our best sellers. I also sell by the pound. I am a small independent grower in the Haliburton Highlands. I began with just a few bulbs of Ted Maczka's F3 and my limited knowledge. Now thanks to valuable information from Ted and yourself I have steadily increased the volume to my present planting of 6,000 cloves. The year previously I planted approximately 5,800 and were able to sell over 4,000 bulbs in six weeks. My wife, Sheila, keeps a record of our customers from year to year and contacts them in late spring inquiring as to their order for that year's harvest. This works very well for us, as most of our sales are advance orders. These are filled; our seed is set aside and then our sign goes out the end of our driveway to sell the balance. Our sign was only out for two weeks last season before we sold out. We were very fortunate that we harvested a good crop and enjoyed brisk sales, all in all, an excellent season.

My main crop is Ted Maczka's F3 but we do plant a small quantity of Canadian Elephant Garlic for a few customers. Our regular customers are telling us that the F3 garlic is lasting from ten to twelve months when stored correctly and this is so with our own personal supply.

A favourite recipe for Garlic Lovers' Chicken is also enclosed. (Recipe published on page 11. Editor)
Thank you for the "Garlic News". Well done and full of valuable information. Great job, you've got a winner.
Charlie & Sheila Robb, Minden, Ontario

ps. About the middle of January take your favourite beverage out to your garlic patch, walk around the edge, listening carefully - if you hear them snoring - you know you did a good job of planting...

On April 21, Larry Burkam from Bridgewater, N.S. wrote: "I was away for part of the end of March, so I don't have exact dates, but I did have some emergence on F3 beginning in the last week of March or so. My Spanish Roja (Rocambole) is just coming up now, and I have a variety I just acquired this fall called 'Tibetan', which appears to be a Porcelain, which has yet to emerge. The fellow from whom I got it told me it is very late to emerge and mature. After a warm 23°c yesterday, we had some snow this morning! Gotta love Nova Scotia weather!"

A real disaster! The garlic I planted for 2004 was a real disaster. I had several varieties and they seemed to look good early in spring. Then the weather was very wet, cold and freezing, most varieties died and just disappeared. One short row of Music was all that survived. We replanted what we had and will try again. Our ground is pretty heavy clay loam. We received a lot of rain this past fall (2004), followed by heavy frost before any snow cover. I have my fingers crossed. Will advise next summer. Tom & Nancy Worthing, Thessalon, Ontario.

Editors note: For our readers, Thessalon is on the north shore of Lake Huron in climatic Zone 4b. The adverse weather in Spring 2004 was harder on garlic in some regions more than in others. We wish Tom & Nancy the best of luck in their 2004/2005 crop and look forward to a report of success.

Thank you! Just a quick note to say thanks you for all the support and encouragement you have given. Ken has accepted a job in Kingston, as period grounds specialist for the Bellevue House museum. He starts this week. We hope the garlic trials are going great this year. Our land didn't have much snow coverage and was very wet. We don't expect good things from our crop this year. Hopefully we will see you over the summer. Ken and Linda Willis

From Karen Poce in the north country of Chesley, Ont: Thought I would send along a recipe for the Garlic News, which we are enjoying reading while watching our garlic grow. Looks like a great crop so far, have hilled, mulched and fertilized. We'll be selling our scapes soon and I'm looking forward to braiding in August. ps. Have yet to see a leek moth in this area and refuse to believe that "it's just a matter of time".

Editor: Karen's recipe for Medicinal Garlic Soup will appear in the Fall Issue, closer to the flu and cold season.

Now, as to the leek moth: I will not pass on the flight instructions to these little beasties in the hopes that they never stray into your northern climes and merely bumble from field to field in warmer climates south.

James Ball of Montreal wrote: "Could I start my subscription with the Fall 2004 Issue?"
And again upon renewing, wrote: "I would be very interested in attending the Garlic Field Day".

Editor's reply: Yes, and yes again. Your name has been added to the Field Day invitation list.

Helen Skinner of Deep River, Ontario wrote: I am enjoying the Garlic News very much. We will be moving to Athens in July. Our soil won't be ready to plant garlic till next year but if I'm lucky, I'll try some this fall.

Editor's note: With any luck, your new place will have a field or garden that's been tilled up so you can plant. Good luck!

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Growing Garlic from Bulbils

By: Sonia Stairs and Henry Caron of Boundary Garlic, Midway, BC

Garlic Bulbils

Bulbils offer an alternative approach to growing garlic that avoids soil borne disease.

Bulbils form if a scape is allowed to mature. The scape is the stalk growing out of a hardneck bulb. Although it is sometimes referred to as a 'garlic flower' it is not really a flower. Like cloves from a bulb of garlic, bulbils propagate garlic vegetatively and the bulbs that grow from them are clones of the parent plant.

The bulbil capsule can contain from ten or less to a few hundred bulbils, depending on the variety and the conditions.

Bulbil Sizes Differ Greatly

Rocambole garlic produces some fifteen to thirty bulbils that are huge by comparison with the bulbils from Porcelains. Rocambole bulbils can be as large as the tip of your baby finger and are strongly coloured. Most Porcelain bulbils are pale and closer in size to a grain of rice, with more than a hundred bulbils to a capsule. If the bulbil capsules are left on the plant until after the usual harvest time for bulbs of that variety, even Porcelains produce some plumper bulbils with a blush of pink. Purple Stripe garlic produce bulbils, which are between Rocamboles and Porcelains in size and quantity. Purple Stripe bulbils vary a lot in size within a single capsule.

Pros and Cons of Propagating from Bulbils

The advantages of propagating from bulbils are two-fold. First, there are many more bulbils than cloves and so you can increase your planting stock faster. Secondly, since the bulbil capsule does not touch the earth you can avoid soil borne diseases and pests.

The downside is that it takes several years to grow full sized bulbs from bulbils and in the first year for Porcelains the plants are minute, almost requiring a magnifying glass to weed. Also, when the bulbils are left on the bulb to mature, the bulb will usually be considerably smaller.

Our Experience with Bulbils

With Rocamboles we find it takes about two years to produce a decent sized bulb from bulbils, longer to reach full size. Some people have the knack of producing rounds, or singles, from bulbils in the first year. When these large round cloves are planted they produce a full sized bulb in the second year. More usually the bulbils will produce small bulbs with small cloves the first year and the small cloves will in turn produce medium sized bulbs the second year.

With Porcelains it takes at least three years to produce decent sized bulbs. At the end of the first growing season you harvest teardrops of varying sizes. When these are planted, the next harvest usually consists of small bulbs. When the cloves from these are planted you are on the way to decent sized bulbs in the third harvest. It may take a further year or more for the bulbs to reach their full potential in your garden.

We grew our favourite Porcelain, Leningrad, up from bulbils and it was worth the effort. Our Leningrad is very well adapted to our farm and we achieved a substantial seed stock for very little cash outlay. Since the Porcelains have fewer cloves on average than the other hard necks, it takes many years to build up a commercial seed stock using bulbs alone.

Because the Purple Stripe bulbils vary so dramatically in size the first year harvest also has a vast size range. We haven't grown Purple Stripes out to full size as the bulbs have so many even sized cloves that it does not seem worth the effort, unless there is a soil borne problem.

We are not sure whether bulbil is the correct term to use when a stressed bulb produces 'bulbils' in its stalk. In 2004 several of our Asiatics, Turbans and Artichokes, which had not yet acclimated to our farm before they were hit severely by the hard winter of 2003, produced these bulbils. We planted them in the fall of 2004 and mulched them and they are doing well this spring.

We have noticed that when severely stressed, the hard necks sometimes produced larger than normal bulbils.

Harvesting Bulbils

We cut the fully mature bulbils on long stalks before harvesting the bulbs so that there is no contact with dirt. Then we tie the stalks in bunches, hang them until well dried, snip the bulbil capsules off and store them in brown paper bags.

When and How to Plant

With the Leningrad we planted the bulbils and the first-year, teardrop-shaped bulbs in the spring and we have also planted Rocambole bulbils successfully in the spring. Last fall we planted small numbers of several varieties of bulbils and first-year bulbs under mulch. When we pulled the mulch back this spring they were all doing fine. The advantage of fall planting is that you don't have to be concerned about the bulbils drying out over winter if you do not have ideal storage conditions. On the other hand, you can lose them over winter in the ground.

Porcelain bulbils are so small that the first year we plant them close together in a bed of several rows so they are easier to weed. They are shallow rooted the first summer and so they need frequent watering. One missed watering on a hot day can stop the growth for that season. It is a good idea to harvest them before the tops have died down completely or else they are hard to find in the soil. The larger Rocambole bulbils can be spaced more like you would cloves.

If we were to do any large scale growing up from Porcelain bulbils again we would select the largest bulbils to begin with and discard the smallest plants from the first year harvest. The bulbils are plentiful and the weeding is tedious.

Bulbils by Request

We would be willing to grow bulbils on contract if we receive the requests before the scapes have been removed. See the Boundary Garlic ad for contact information. We have thirty or forty strains that we could collect bulbils from.

Leek Moth News

Update on the Ottawa Valley Leek Moth Project A Grower's Perspective

This report by Mike Gillespie, one of the three Ottawa Valley participating D. Mason's Leek Moth study was provided for information, as Mike was unable to attend Field Day 2005 personally.

Hi Paul:

Thanks for the invitation, Paul. And one of these seasons I will take you up on it. Unfortunately I have to pick up one of my boys from design school in Toronto that day. The leek moth trials continue here. They've been keeping close surveillance on the test patch and have sprayed once already. They are also experimenting with floating row covers over some of the garlic beds. I would say from the damage to my crop so far, it's going to be an extremely bad year for the moths. A large percentage of my crop has already been attacked, and this is only the first flight of the moths. I'm hoping they can come up with some recommendations for a good organic spray soon, before the moths spread farther west. It would be good, obviously, to stop them in their tracks right here.

I'll keep you up to date on what's happening. Sorry, again, I can't make your field day. Mike Gillespie

Hi Paul:

No problem with confidentiality. Here's a more succinct look at the moth problem:

With another bad leek moth infestation season shaping up, a joint federal-provincial test program moved into its second year at Tamarack Farm and at Jack Hinton's Hawkwood garlic farm this spring.

Vegetable crop specialists from two levels of government have been conducting organic insecticide trials, damage assessment and crop monitoring at the two farms. Asian leek moths were first reported in this region about 5 years ago. Research is also underway into the invasive moth's activities in Europe and control methods used there.

A colony of leek moths has also been established in federal research labs in Ottawa to experiment with biological controls (use of parasites to control the moths).

While test results from last year's trials look promising – although infestations were not as bad in 2004, perhaps because of late spring frosts - *the moths returned with a vengeance this spring*. Large sections of our main garlic patch have been damaged by the first flight of the moths, which began when daytime temperatures reached 9C.

Each moth lays hundreds of eggs on the young garlic plants. Larvae then bore into the top leaves, destroying them even before scaping begins. The cycle continues as the grubs turn to pupae and emerge as moths.

The next flight produces larvae timed to attack emerging garlic scapes.

Again, the grubs bore into the plants, this time targeting the scapes specifically and rendering them unsaleable. Just when you think the infestation is over, yet another flight arrives, attacking bulbs on the drying racks, or anything still left in the field.

At any point along the way, the moths will also seek out any other alliums in the vicinity - whether spring onions or chards - and, eventually, decimate them too.

The insecticide trials underway at Tamarack Farm use five or six different organic mixes of a BT nature, Dipel and Foray, for example, which are effective on Lepidoptera insects. The problem with sprays, of course, is that the moths, or larvae, have to consume the spray residue. The moths, it seems, don't dine when laying eggs and when the eggs hatch, the grubs bore into the plant to eat, ignoring the plant's exterior surfaces. There's also the question of immunity. What happens when these insects become resistant to the spray - as they surely will?

Researchers have also installed floating row covers over some sections of garlic in their quarter-acre test patch, but it's unclear how effective that has been. Considering the height of mature hard-neck garlic, the hooped covers would have to be substantial, almost four-feet high (an expensive proposition for most growers, I would guess).

Although the infestation is still only in the immediate Ottawa area, it would seem inevitable that these pests continue to spread west. Ideally, they would be stopped dead in their tracks right here in Ottawa. I suspect they'll have to bring in the heavy artillery to control these creatures, and parasites may be the only answer.

Mike Gillespie

Addendum: The leek moth has spread well beyond the Ottawa Valley. Both grower reports and previous monitoring programs indicated that it had spread eastward past Montreal, to the west past Pembroke and south, possibly as far as the Holland marshes north of Toronto.

The numerous stands of wild leeks throughout the region appear heavily infested as well, indicating that the leek moth feeds on native as well as cultivated alliums, providing another means of spread.



Leek Moth acknowledged by the U.S. Department of Agriculture. The USDA has issued a new Plant Protection and Quarantine (PPQ) program along with new pest reporting instructions on the leek moth. Although not admitting to its presence in the USA, the new program has the effect of giving warning to growers by providing instructions on detection and reporting.

Check out their website at

:http://www.aphis.usda.gov/ppq/ep/emerging_pests/leekmot h.html

The Garlic Harvest

Paul Pospisil, Master Gardener

I have seen many examples of a fine crop of garlic ruined by improper harvesting; garlic just pulled from the ground and piled on a wagon to bleach in the sun and rain; onion sacks of uncured garlic covered in mold, having been pulled, stems cut and bagged for market; garlic which has been banged around by mechanical harvesting, and in a state of decay within 6-8 weeks; garlic actually discoloured and burnt by excessive heat used to speed the curing process; dirty garlic with dried mud; and, the list of poor harvesting practices goes on and on.

Care and extra effort is essential at harvest time to protect garlic from damage; to clean and cure it properly and to present it attractively for market.

This takes careful, manual work. There are no shortcuts to doing a job well.

The reward for your hard work of growing garlic is earned at harvest time. Harvesting must be carried out carefully, by hand, in order to get top-quality bulbs that will store well over the winter.

The main harvest in our region occurs between mid July and August, depending on the Variety & Strain and the weather during the growing season. Preparations start a month ahead of the actual date that the bulbs are lifted. Work doesn't finish until two weeks later when the cured garlic is put away in storage.

Scape removal. Scapes on hard necks and some bolting soft necks must be removed to allow the energy to go to bulb formation. This takes several passes over about two weeks as not all scapes start to swell and grow quickly over the next month. Little special care is needed as the plant is transferring energy from the leaves to the bulbs. In the event of a very dry year, watering may be needed for the latter part of June. However, stop watering around the first of July to let the bulbs mature.

Garlic is ready to be dug between the first week of July through to mid August, depending on variety and strain.

When to Harvest. Exactly when to lift the bulbs is a little tricky. Too early will give undersize bulbs that don't store well, and a few days too late will result in bulbs lacking the protective wrappers around the cloves. I've found that you have only about 3-7 days in which to harvest successfully.

Watch the Greens. The green leaves start to die from the bottom up. When the bottom 3 or 4 leaves are dead and the top 5 or 6 are still green, its time to lift the bulbs. If you're not sure, dig a bulb or two and check. A mature bulb is fully swelled, well sized and has some partially decayed wrappers.

Pick a dry day for harvesting.

Handle Garlic Like Eggs. Garlic is very fragile and should not be bumped, bounced or dropped. Manual harvesting is recommended, as even the smallest bump will bruise the garlic, causing early decay and loss of quality. (See article, "Aide-Memoire: Mechanized Garlic Production, Issue 2, Winter 2004 for more on this topic).

Carefully lift the bulbs after loosening the soil with a

garden fork and take them, greens and all, for cleaning and curing. (If you use an undercutting tool, you can merely lift the garlic with little effort). Don't leave garlic in the hot sun but move it to a shady spot to avoid cooking.

<u>Cleaning.</u> In sandy loam soil, dirt can be gently brushed off. Clay soils tend to adhere to the bulbs and may need to be washed off with a gentle spray of fresh water. Trim roots to 1/4 " and carefully remove any dirt from the roots.

Curing. Garlic needs about 2 weeks to cure in order to prepare it for winter storage. Either hang it in bundles of 10-12 or place on wire mesh racks in an airy, ventilated drying shed. Your carport or barn works well for this purpose. Ensure a good airflow and protection from direct sunlight. In the event of high humidity, a little heat to raise the temperature a degree or two will help to prevent mould. Cured garlic is then trimmed to remove stalks, placed in trays or boxes with air holes and taken to storage. Use of onion bags for storing garlic is not recommended as the sharp stems from one bulb will gouge or cut the adjacent one, starting decay.

Storage. Best storage temperatures are low, 32-35 F, or high, at cool room temperature of 60-68 F, both at low humidity. Never store garlic in the refrigerator, as 40-50 F temperatures will start premature growth. I believe that garlic is best stored in braids, hanging in your kitchen where it is convenient to use. Extra braids go in your cold room or pantry. Different strains and varieties of garlic have different storage lives, varying from 6 months for 'pickling' garlic to as long as 11 or 12 months for some of the soft neck strains.

Garlic Braids. Garlic braids are a practical means of storing garlic. Braids can be simple bundles held together with string or more elaborate pigtail braids (used for soft neck garlic) or string braids (for hard neck garlic). They may be decorated with dried grasses or flowers and ribbon to serve the dual purpose of a kitchen decoration. If you wish to braid garlic, do this before the garlic is completely cured, while the stems are still pliable. The braided garlic is then left in the drying shed to finish curing. Avoid bruising garlic during braiding by working on a soft surface.

<u>Using Garlic</u>. Garlic is for eating, for flavour and for health. Even if you buy garlic for decoration, remember to eat it!

Fresh garlic has the best flavour. It gets stronger with age. Crush or finely slice garlic to bring out the health giving allicin compound before using. To reduce the sulphur odour, cook garlic and chew fresh parsley as a breath freshener.

A clove of garlic a day, on average, is a suitable amount to include in a healthy diet. This equates to about 45 garlic bulbs of Rocambole garlic or 4 braids worth per year. Garlic lovers or gourmands, of course, may wish to stock up on more!

The mutant that ate genetics

How a deformed plant that produced normal offspring changed the rules of inheritance

Peter Calamai, Staff Reporter, Toronto Star
"Reprinted with permission - Torstar Syndication Services"

Some of the most important scientific discoveries aren't announced with a loud "Eureka," the late Isaac Asimov once observed. Sometimes history is made to the words, "That's funny."

That's how researchers Susan Lolle and Bob Pruitt initially reacted when, working in their laboratory at Indiana's Purdue University, they discovered that mutated and deformed plants were able to produce normal offspring.

The seemingly impossible phenomenon suggested that the baby plants somehow inherited genes that neither of their parents possessed — sequences of DNA that probably originated with a grandparent and were squirrelled away in a hidden backup copy of the plant's correct genome. What the two scientists saw was a violation of the central tenet of genetics, the rules of inheritance first described in the 1860s by Gregor Mendel, an Austrian monk and plant scientist. But months of further investigation convinced the two researchers their eyes were not deceiving them. "When we realized what we were looking at, we couldn't believe it. It goes against everything I've learned about genetics," says Lolle. "There were an awful lot of times when Bob and I wondered, could we have made some terrible mistake?" Some mistake. Their discovery — that at least one kind of plant could somehow rewrite its own genetic code — wound up as the cover story of the March 24 issue of Nature, one of the most highly regarded journals for research findings. It also generated substantive coverage in newspapers such as the Washington Post and The New York Times and prompted New Scientist magazine to headline its article: "Mendel will be turning in his grave." All pretty impressive stuff for someone whose strength in Grades 9 through 11 at Agincourt high school was mathematics, not biology.

Although born in Denmark and now living in the U.S, Lolle is a Canadian who finished high school in Fenelon Falls, Ont., then took a bachelor of science degree at Queen's University in Kingston (where biology "grabbed her" in third year). After a PhD in molecular biology at McGill in Montreal, she left Canada in 1987 for post-doctoral research at Yale.

In the U.S., Lolle first got consistent research funding from the federal department of agriculture and then, since 1994, from the National Science Foundation. The result is that a university in Indiana gets to bask in reflected glory for what a Nature commentary called "a spectacular discovery." It's spectacular because Lolle and Pruitt have apparently discovered a previously unknown way in which the genome can heal itself. The genome is the complete genetic blueprint of an organism containing, in the case of both plants and humans, about 30,000 different genes consisting of sequences of DNA.

Organisms have two copies of every gene, one inherited from each parent. If only one is mutated, there's still a one-in-four chance of producing normal offspring. If both copies are mutated, then there's virtually no chance. Or so Mendelian inheritance decreed. But as with French verbs, there appears to be an exception to this rule that almost certainly applies throughout the plant kingdom.

"What's amazing is that this seems to imply that genetic information can be stored outside the usual places," says Lolle. "It's like there is a cache of genetic information that a plant can draw upon under certain circumstances." The nature and location of that cache is a matter of intense speculation and experimentation among dozens of researchers. One possibility, favoured by Lolle and Pruitt, is that a backup copy of the complete correct genome is stored in the form of RNA, the close chemical cousin to DNA. That RNA backup would help the organism's normal mechanisms repair mutated genes by providing a template of the correct gene for copying.

Since going to Yale almost two decades ago, Lolle has been trying to understand how cells on a plant's epidermis communicate among themselves to actually change the architecture of the plant's flower. This ability means plants can randomly alter the shape of their petals and other bits and wind up with something new, such as a more attractive glide path for bees. Successful pollination would then be more likely, conferring an evolutionary edge on that particular flower architecture.

But some plants develop a mutated form where this epidermal communication goes awry and the floral organs bunch together ("like our fingers sticking to one another," says Lolle). This makes pollen gathering much harder for bees and reduces the plant's chance of setting seeded. When scientists want to understand how something works, they often begin by studying where it doesn't work. That's why Lolle has spent years investigating the genetic pathways in these so-called "fusion mutants" in which a glitch in the signalling rearranges the floral architecture. She was using the workhorse of plant biologists, a mustard-like plant known commonly as mouse-ear cress and scientifically as Arabidopsis thaliana. Lolle and her collaborator, geneticist Pruitt, direct a research team that has identified many different mutant Arabidopsis.

"We called the first mutant `fiddlehead' because if you let it grow, the flower buds formed what looked like a fern fiddlehead. So then we decided to name similar mutants the `head' mutants, like `pothead' and `hothead,'" she says. While Lolle was probing the genetic pathways in hothead, serendipity struck.

With its floral mutation that restricts pollinators, the hothead mutant unusually produces seed by selffertilization.

(continued on next page)

Development Of Improved Strains From Bulbils At Beaver Pond Estates

Garlic is usually reproduced vegetatively by the planting of cloves from the bulb, which grows below ground. As well, many garlic types produce bulbils, tiny undivided bulbs which provide a secondary means of reproduction. The bulbils grow at the scape tip in hard neck varieties, and at various points along the stem in the soft necks. In the latter case, they occur sporadically, under conditions of stress. It is believed that bulbils serve two purposes; first, as a survival mechanism in the event of death of the underground bulb, and second, as a means of rejuvenation of the strain. Anecdotal evidence indicates that European immigrant gardeners followed the practice of rejuvenating their seed stock by planting bulbils to produce new seed garlic. Work carried out by Ted Maczka, the Fish Lake Garlic Man, showed that successive replanting of the progeny from the bulbils produces a strain superior to that produced from the cloves of the original mother plant. Maczka uses his "F 3" Porcelain as an example. Grown from bulbils, the strain was more robust and produced larger bulbs than those from the original mother plant.

Observation during the earlier trial years at Beaver Pond Estates tended to support these other suppositions.

A formal, long-term trial was started in fall 1999 to study the behaviour of garlic from bulbil planting.

The aim of this trial is to determine whether or not improved garlic strains can be developed by the bulbil propagation method.

Methodology: The development trial process covers successive and repetitive growing cycles. In Year 1, the first cycle, bulbils are planted in the fall and harvested the following summer as for regular garlic. The second cycle is started with rounds or bulbs from the harvest of the first, again planting in the fall. Bulbils are planted at 1" depth, rounds at 2" and cloves at 4". Successive cycles use the rounds or bulbs, whichever the strain produces, for replanting. In each cycle, the best samples are selected for planting, discarding any weak examples. A control sample of the same strain is grown, using cloves from the mother plant for later comparison with the bulbil-improved garlic. 6 bulbs of comparable size and weight of each are selected. Both sets of bulbs are separated into cloves and the 12 best cloves from each are selected for planting. Using the "matched pair" method, they are planted in parallel rows, one row for improved and one for control.

Comparison of Results: The improved strain is compared with garlic from the control sample. During the growing period, significant results - emergence, growth vigour, scape emergence, number of leaves, leaf and scape height and harvest date are recorded. Bulbs are harvested and compared.

The trial will continue each year, until definitive statements can be made based on the repetitive results.

The mutant that ate genetics (cont'd from page 8)

Lolle noticed that an abnormally high percentage of seed from the hothead — as many as one in 10 — produced new plants that weren't mutated.

The difference is easy to spot because the floral organs are fused together in the hothead but have separate flowers in the normal variety.

Other researchers now say they had noticed similar restoration phenomena in experiments with plant mutants but assumed the seeds were contaminated by being mixed with seed from ordinary plants. The possibility of such contamination was just one of the alternate explanations Lolle and Pruitt had to eliminate. They also ruled out the possibility that the gene spontaneously mutated back to its normal form or that the revision was limited to just the hothead gene or only to harmful mutations.

"We had to go back and redo experiments, backtracking to verify what we were finding," she says.

Those further experiments revealed that serendipity had once again been at work in scientific research. DNA sequences throughout the plant genome turned out to be affected by the restoration process, not just those that had mutated. But a mutation bumps up the rate of restoration so it's more visible. That's if the scientist has keen eyes and a pathologically curious bent of mind.

Unlike many university researchers, Lolle's work is very much hands-on. She's not a professor who has to teach but a scientist who spends most of her day at the lab bench. "The reason that I'm confident is that I was in the lab doing many of the experiments," she says. "I know my own error rate."

Lolle is currently behind a desk in Washington, D.C., halfway through a two-year stint as a program officer at the National Science Foundation, where she supervises grants to researchers like herself, some of who might even be trying to unravel the mutation-correction mechanism.

"We think we've found a way to do it, and I'm chomping at the bit," she says. "I want to get back to the lab."

Editor's Note: Garlic reproduces by cloning, not by seed. It is believed that the hundreds of strains of garlic were the result of mutations. Otherwise, what other explanation is there?

There are a number of researchers working around the world on trying to produce a true seed from garlic in order to give this plant the same possibility of improvement by cross-pollination and hybridization. I thought this article by Susan Lolle would be of interest in light of this other research work.

"The most political act we do on a daily basis is to eat, as our actions affect farms, landscapes and food businesses," Jules Pretty, University of Essex, UK

Marketing - - -

2005 GARLIC FESTIVALS ACROSS CANADA

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6th Annual South Cariboo Garlic Festival, Forest Grove, Aug 13-14 2005. Ph. Gail Szolosi, (250) 397-2540. ewww.kariboofarms.com mail szolos@bcinternet.net

The Hills Garlic Festival, Centennial Park, New Denver, B.C. Sun Sept 11, 2005. Ph. Liza Ireland, (250) 358-2303, e-mail liza@netidea.com

Saskatchewan

Annual Mountain Pride Garlic Festival, Community Hall, Foam Lake, Sask., Sat Sept 03. Ph. Evelyn Moore-Holowaty (306) 272-4439.e-mail reelmarine@sk.sympatico.ca See Ad this page.

Manitoba

Pembina Valley Honey Garlic & Maple Syrup Festival, Manitou fairgrounds, Sun Sep 10, 2005. Free admission. Vendor inquiries welcome. Diana Vodden e-mail samanddiana@goinet.ca

Ontario

6th Annual County Garlic Festival, Crystal Palace, Picton, Sat Aug 20, 2005. New vendors welcome. Ph. Christine Kosman, (613) 476-5943, email rosarugosa@sympatico.ca. Web page countygarlicfestival.ca. See ad this issue.

The 2005 Seaway Garlic Festival, Sept 10& 11, Connaught Acres, Chesterville, Ont. Hosting the 2005 Eastern Ontario Garlic Awards Competitions. New vendors welcome. Ph.

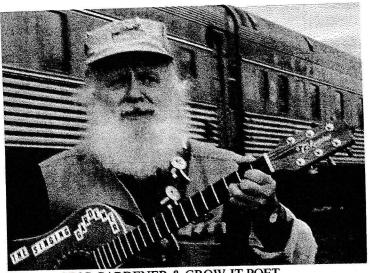
Debbie DeCooman, e-mail debbie@connaughtacres.ca. 613-448-3540.

Perth Garlic Festival, previously the Glorious Garlic Festival of Eastern Ontario, Aug 13-14, 2005. Presented by PerthOntario.com Ph. 1-877-268-BUDD (2833). No contact person provided.

5th Annual Garlic is Great Festival, Sat Aug 20, 2005. At the Newmarket Farmers' Market, Newmarket, Ont. Ph. Gary Johnson, (905) 726-3356, email cathgar@sympatico.ca. www.garlicisgreat.com

15th Annual Canadian Garlic Festival, Sun Aug 28 2005. A celebration of Ukrainian food at Ukrainian Seniors Centre, Sudbury. Ph. Mary Stefura or Mike Sharko, phone (705) 673-7404, email garfest@cyberbeach.net www.sudburytourism.ca

Many Farmers' Markets have special event garlic days for the benefit of their vendors. These are great market opportunities for eligible growers. Contact your local farmers' market to see if they have such an event planned in 2005.



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Marketing Challenge "The biggest challenge you face in marketing your garlic is how to overcome keeping it a secret from willing buyers in order that they may have a chance of buying it from you". The Garlic Guru

The Best Garlic Recipes And Ideas

Garlic Lovers Chicken

Recipe submitted by Sheila & Charlie Robb of Minden, Ont.

½ cup dry bread crumbs

1/3 cup grated Parmesan cheese 1/4 cup butter 2 tbsp parsley

½ tsp salt, optional 1/8 tsp pepper

paprika

6 boneless chicken breasts

2 cloves garlic, minced 2 tbsp lemon juice

1/4 cup milk

Put first 5 ingredients in a plastic bag. Dip chicken in milk then shake in the crumb mixture. Place in 13x9x3 pan. Combine melted butter, garlic and lemon juice. Drizzle over chicken, sprinkle with paprika. Bake uncovered at 350 deg. for about 30 minutes

Garlic Spread Using Garlic Greens

Here's another tasty idea from Mary Lou's Country Kitchen for the spring. Just when all the garlic bulbs from last year are turning a bit harsh to the taste, there are fresh, new garlic plants popping up in your garden. Just pull a few and use them in place of garlic in all your recipes for the fresh taste of garlic. This spread will convince you.

Ingredients:

8-10 young garlic greens

1-tablespoon

mayonnaise

1 teaspoon olive oil

salt (optional)

½ lb (250 gr.) cream cheese

Method:

Clean garlic greens by washing and removing roots and dead leaves. Chop into short lengths. Put in food processor with olive oil and blend. Add cream cheese and blend on low. Mixture is likely a bit too thick to spread easily so add the mayo and blend some more.

Serve on pita bread, crackers or use in place of butter on sandwiches. Zesty, with a good garlic bite! Refrigerate any that might be left over.

A Double Delight - Garlic Scapes and Asparagus

Prepare asparagus and scapes by trimming ends and seed pods. Bring a large pot of water to a boil. Add scapes and asparagus, blanch for 2-3 minutes. Drain and rinse with cold water.

Heat 1 tablespoon of extra virgin olive oil in a deep fry pan on medium heat, add blanched scapes and asparagus, toss to cover with oil and cook for 2 minutes.

Uncover and season with salt and pepper. Serve hot as a main course or side vegetable.



Here's a sampling of some of the recipes from Don Krock's recipe collection:

Garlic Feta Spread

This simple exquisite mixture is one of the most versatile creations ever.

Ingredients:

2 cloves garlic 200 grams firm feta cheese 1/4-cup mayonnaise freshly ground black pepper to taste

Method:

Mince garlic in food processor. Add feta cheese and process until cheese is a fine powder. Add mayonnaise and pepper. Blend well. The recipe can be altered to suit your taste buds by increasing or decreasing the amount of garlic. Serve it on crackers, celery, endive, raddichio, sandwiches, toast - just about anything. The addition of dill is a great taste companion and for special occasions add smoked salmon to the creation. Warning - it is addictive!

Pickled Garlic

A wonderful woman who wishes to only be identified as Audrey bought some garlic at the Herbfest near Almonte. Two weeks later Audrey presented me with a jar of picked garlic and the recipe. I have sampled many pickled garlic recipes but this one is to die for. Each clove is a treasured taste experience. The outcome is worth the labour of peeling. However, if anyone has short cut answers to peeling garlic please let me know!

Ingredients:

In one pot, combine the following: 2 cups peeled garlic cloves (about 8 - 10 bulbs) 1/4 cup sugar 1 cup vinegar 1 ½ tsp. salt. 1/2 tsp. mustard seed 1 bay leaf or whole cloves or pickling spices

Method:

Bring to boil, cook 1 minute. Place in covered jar and refrigerate 24 hours

"The rabble who had joined the people were overcome by greed, and the Sons of Israel began to wail again, 'Who will give us meat to eat?' They said, 'Think of the fish we used to eat free in Egypt, the cucumbers, melons, leeks, onions and garlic! Here we are, wasting away, stripped of everything: there is nothing but manna for us to look at." Christian Bible (Numbers 11: 4-6)

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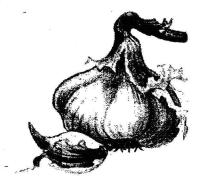
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