



THE GARLIC NEWS

Connecting the Canadian Garlic Network!

Issue 29 Fall 2011

A practical strategy for dealing with the nematode issue

The spread of the Bulb & Stem Nematode threatens the very survival of garlic as a horticultural crop in Canada. Growers and marketers of garlic have ignored this threat for nearly a decade and allowed it, or worse still, helped to spread it across the country via infested seed.

Without casting blame or trying to find scapegoats, what is needed is positive action by growers to bring this pest under control so that the emerging garlic industry can resume growth rather than succumbing to greater and more frequent crop failures caused by this microscopic eelworm.

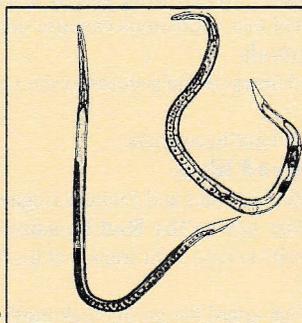
The Problem

Planting infested seed garlic has spread this nematode.

Why? There is no established standard of quality for garlic used as planting stock.

Many growers buy and plant anything and everything as long as it's cheap and offers a potential profit from the crop.

Second, there is no "magic bullet" or cure to eliminate the nematode from either infested fields or infested seed stock. There is no practical seed treatment, no 100 % effective soak to kill nematodes in the soil, no easy solutions and just partial answers.



Nematode, magnified

The Need

To bring the Bulb & Stem Nematode under control, the need is for all growers to adopt a long-term action plan, starting now, this year. The problem just will not go away.

The Approach

A realistic, two-part plan is the most practical approach. The first priority is to develop a supply of nematode-free planting stock and new, nematode-free growing plots. For nearly all growers, this involves growing from bulbils, a process that will take up to four or five years. Unless the grower has a ready field that has not been contaminated by movement of the nematode to it by machinery or other means, the plan also requires developing new fields from virgin soil, a process that will take few years to achieve. Realizing that very few growers will stop growing and selling garlic due to nematode infestation, they can at least, continue to do so in a responsible manner.

Sound garlic from nematode-infested fields is suitable for table use and considered safe for consumption. However, it is *totally unsuitable for planting* and selling it as seed will exacerbate the problem further. So, the second part of the plan is to grow and sell garlic for eating only, not for planting. Lacking clean seed, the grower plants infested garlic in the infested fields, using good practices to reduce nematodes both in the soil and in the seed garlic. This will enable him to stay in the garlic business while developing a clean operation. When selling the garlic, the grower is advised to give the buyers a warning, **IN WRITING**, that the garlic should not be planted due to the risk of nematode spread. It is *for table use only*.

Growing nematode-free planting stock

While theoretically possible to develop nematode free

garlic by the tissue culture technique, this is a complex procedure beyond the resources of most growers. The bulbil planting method used by many gardeners is easier. Nematodes do not go up the garlic plant far enough to enter the bulbils. (One exception – stem bulbils of softneck cultivars that occur next



Nematode damage to garlic

to the bulb could become infested and should not be used). Carefully harvesting the bulbils to avoid contact with either the soil or lower parts of the plant is necessary. The bulbils are then planted in sterilized soil, or garden pots buried in nematode – free garden soil and the process repeated for enough growing cycles to produce adequate-sized bulbs.

Other References

See page 18 of this issue for bulbil growing instructions used in the Bulbil Project at Beaver Pond Estates, a method that uses techniques that minimize possible contamination of the garlic during the growing process.

A listing of past nematode articles appears on page 6.



"No, dear. It's not us that bury our heads in the sand. That's a human habit!"

BUY LOCAL, BUY ORGANIC, BUY CANADIAN

IT MAKES HEALTHY BUSINESS SENSE

The Garlic News
 Connecting
The Canadian Garlic Network
 Issue 29 Fall 2011

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Back issues to complete your set are available.

Advertising inquiries welcome.

ABOUT THE GARLIC NEWS

The *Garlic News* is a non-profit membership newsletter produced in print copy. Started in 2004, it carries on from where its predecessors, the *Garlic Newsletter* and *The Voice of Garlic* left off. It is distributed by mail to members. The *Garlic News* uses a newspaper column layout and larger print size for easier reading. The wider margins and 8 1/2 x 11-size paper are enable growers to save copies in a standard 3-hole binder. Back issues are available both in single copy and 1-year sets.

EDITORIAL POLICY

The purpose of the *Garlic News* is to enable farmers and gardeners to grow better garlic and enjoy it more. Articles and contributions are welcome and will be published subject to space and suitability. Letters and articles may be edited for length and content. 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. B&W pictures preferred. Contents copyright © 2011 Paul Pospisil. No part of this publication may be reproduced or duplicated without the written permission.

Deadline for Winter 2011-12 Issue: Dec 6.

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A clove here and there 6
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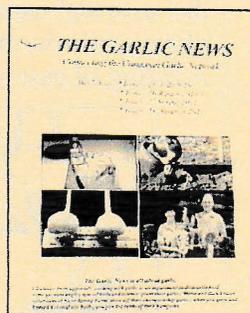
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Attachments: Advertising Application Form 2011-12

Enclosures: Christmas Gift Special, Bound back issues of the Garlic News

The 7th Year of the Garlic News is now available as a bound set



Why not order it as a fine Christmas gift for your special friend or family member? Years 1 to 6 are available as well.

Order all 7 years and we will pay the postage. Christmas Gift Special order form is attached at the back of this issue.



Notes from our garlic patch

The 8th year for the Garlic News

As is fitting for a dutiful wife and partner, Mary Lou asked me how long I was going to keep up with this growers' newsletter that keeps me at the computer into the wee hours for so many nights, pecking away with one arthritic finger. Well, I pondered. Maybe for 30 seconds, I did. A long ponder, ey? With nearly a 100 new members since last year at this time, and lots of support and kind words, it looks like there's still a growing interest in garlic. So, good folks, if you want it, we'll keep it going. There's just loads of garlic information to get out and I'm roughing out the articles for next year's spring and harvest issues already!



Thank you for your support

More of our members sent extra \$ to help with publication costs along with their membership renewals:

Colin Boswell
Lionel Lefebvre
Sheila Robb
Wanda Storto

Support such as this has helped to keep the membership price the same, \$15.00 per year, since we started this newsletter in September 2004. Thank you, friends, for your confidence in the Garlic News.



Articles and Recipes Index

Liz Tobola of OMA's Gourmet Garlic fame is updating my index of articles and recipes in past issues of the Garlic News. When it's done, I'll be able to send it out to members for use as a search tool. *Thank you, Liz!*



An interesting observation!

We generally save bulb sizes Medium Tube to Jumbo for our replanting in the Garlic Variety Trials. Well, last year, due to a poor crop and high demand, we let most of our "seed size" garlic go to customers and planted mainly tiny "cull" sizes (< 1.5" diameter) in our Seed Saver plots, expecting a poor return. What a surprise at harvest time! The cloves from these tiny culls produced huge, or at least respectable size bulbs in nearly all cultivars. You just can't second-guess what Mother Nature will do! See page 8 for the detailed observation report.



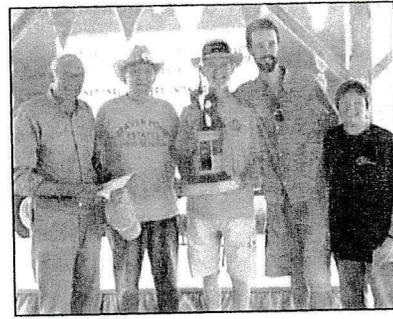
Annual Maberly Fair 2013 to feature Garlic

Our little country fair in Maberly has a theme every year. This year, it was "maple", next year it will be "scarecrows" and in 2013 it will be GARLIC. And why not, since we have been at the centre of promoting the growing of garlic for the past 20 years. So, mark your 2013 calendar for the last Saturday in August, before the Labour Day weekend. The Garlic News will sponsor the garlic competitions at this event. And, speaking of garlic competitions, if you want to organize one at your fair, farmers' market or other country event, I have lots of information and ideas for you. Just ask.

Editor.

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2011 Eastern Ontario Garlic Awards Winners



L to R: John McDougall, Lion: Paul Pospisil, Garlic Awards Director; David Hahn, Miguel Hahn, Forest Farm; Dianne Dowling, NFU.

Champion Garlic Growers 2011

Forest Farm, Godfrey, Ontario (David & Miguel Hahn)

Reserve Champion Garlic Grower 2011

Croydonview Farm, Roblin, Ontario (Carolyn Smith)

Runner up

Wayne Davey, New Liskeard, Ontario

Honourable Mention

Ted Lister, Trout Lake, Ontario



Individual Class Winners

Class 1 Best Specimen Garlic Bulb

1st: Wayne Davey, New Liskeard, Ontario
2nd: Forest Farm, Godfrey, Ontario
3rd: Croydonview Farm, Roblin, Ontario

Class 1A Best Display of 12 Garlic Bulbs

1st: Forest Farm, Godfrey, Ontario
2nd: Croydonview Farm, Roblin, Ontario
3rd: Wayne Davey, New Liskeard, Ontario

Class 2 Best Collection of Varieties

1st: Forest Farm, Godfrey, Ontario
2nd: Croydonview Farm, Roblin, Ontario

Class 3 Best Garlic Braid

1st: Croydonview Farm, Roblin, Ontario
2nd: Forest Farm, Godfrey, Ontario

The Awards were held at the 5th Annual Verona Lions Garlic Festival, Verona, Ontario, on September 3, 2011. Judging of exhibits was done by **Ann Babcock**, OHA judge.

Paul Pospisil, founder of the Garlic Awards, donated the ribbons and certificates and presented the Woodman and Woodman 2 trophies to the Champion and Reserve. **Dianne Dowling**, President of Local 316 of the National Farmers Union (NFU) was on hand to present the \$100.00 prize to the Champions, David & Miguel Hahn. **Kim Perry** of Local Family Farms presented the \$50.00 prize to the Reserve Champion, Carolyn Smith.

Started in 1997 at the 1st garlic festival in Perth, Ontario, the Eastern Ontario Garlic Awards are the official competition for the best garlic produced in the region. The competition is open to all exhibitors, both home gardeners and commercial growers. The aim of the competition is to encourage growers to strive for excellence in the quality of garlic grown in the Eastern Ontario region as well as recognizing such excellence by public awards.

For 2012, there will be minor technical changes to the competition rules. These will be advised in the next issue.

Al's Garlic Ramblings: Fall is slipping into winter

By: Al Picketts

Fall is here and rapidly slipping into winter. The garlic is planted (I hope) and mulched (maybe). Now is the time to do some headwork and plan for next year's garlic crop. I'm not talking about the crop that's in the ground right now. Oh no. I'm talking about the crop that is to be planted in the fall of 2012. For some of us, the planning starts yesterday because we have to get the new garlic ground started. Maybe we have to plough the sod under or maybe just rototill it and hope the winter kills out most of the grasses. How much should I plant and how big will the new garlic ground have to be? What varieties should I plant? From where will I get my seed and what will be the price of that seed. Who will help me next year (and I mean 2013) with scaping, harvesting, cleaning, selling and planting? What will the weather be like? How will I build a new and improved dibber? Will the new compost mixture be better, as good as or worse than last year? What will be the price of garlic; up, down or unchanged? Oh sure, I know what you're thinking - "Al has finally slipped over the edge. Too bad." But wait. If you don't plan ahead (as if you could plan behind) then you're falling into the old axiom: *"If you fail to plan then you plan to fail."* And when can you scratch out a minute for planning in the spring when there is so much to do or in the summer when the weeds have to go and the scapes have to go and the garlic has to come in and the lawn needs mowing again and, and, and. So you do your planning for next year now since the big work is done and you can sit back, take a deep breath and plan out your line of attack for the new season. For some, planning for next year will be easy; *"I'll just plant the same as I did last year and the year before that and the same as my Pappy did and his Pappy before him"*. For others, it can pose a real challenge. I'm one of those others. There are many factors that must be weighed out and analyzed and the old crystal ball needs some extra polishing to make the future a bit more visible. Here are some of my biggest questions to ponder:

What will my health be like? Will I feel like planting 40,000 cloves by hand - my hand? Will I be able to afford that economy size bottle of Tylenol? Maybe I would be happier planting 10,000 cloves. Even though I have had some very wonderful people help me with harvesting and planting my garlic, especially when I was sick and couldn't do much, I can't and will not expect others to do my work for me.

What will the markets be like for me? Will I sell my entire crop at a fair price or will I have to give it away or, maybe, not sell it at all. Will I really drop off the edge from having to peel, dry and powder hundreds of pounds of beautiful, seed-quality garlic?

What plans will my wife have that could conflict with mine? Is she expecting me to go travelling to the far reaches of our beautiful country? Will she really do nasty things to me if I say that I can't go because I have to pick scapes for those two weeks?

Growing garlic shouldn't have to be so complicated for a tired old dog like me.

Garlic of the Year - "Li'l Auntie" from Ted Lister

This garlic was the most spectacular example of a hard neck in our trials. When I received the bulbs from Ted Lister, I called them "Lister's Rocambole" for lack of a name. Later, at Ted's request, I renamed it "**Li'l Auntie**" in honour of his great aunt. Cloves from the bulbs were planted in the Small-Plot Garlic Variety Trials and grown under the standard cultural conditions that we use, with no special attention. The first year crop results were amazing. It performed better than any other of the 155 garlic strains grown in the trials 2010-11 crop year and we are pleased to name it our "Garlic of the Year".

Description. Bulb is large and flattish, similar to the Purple Stripe, Czech Broadleaf. Bulb wrappers are slightly tinged with brown, clove covers a dark brown with striping. Planted bulbs averaged 12 cloves with one or two small inners. Plant is medium height, like a Rocambole, produces a scape of 1-1/2 turns and a bulbil capsule containing 4-9 bulbils. The distinctive feature is a very broad leaf, 1" wide at its mid point and a deep green colour.

Preliminary classification: Rocambole.

Strain name assigned: Li'l Auntie.

Planted: Oct 13, 2010: 36 cloves from three bulbs, total weight 226 grams.

Harvested: July 24, 2011: 41 bulbs (** doubled cloves produced two bulbs).

Harvested Sizes:

| Colossal | Super Jumbo | Extra Jumbo | Jumbo | Giant | Large Tube | Medium Tube |
|----------|-------------|-------------|-------|--------|------------|-------------|
| 3" dia | 2 1/2" | 2 1/4" | 2" | 1 7/8" | 1 3/4" | 1 5/8 |
| 3 | 12 | 13 | 5 | 4** | 2** | 2** |
| 7 % | 29 % | 32 % | 12 % | 10 % | 5 % | 5 % |

Total weight Harvested: 3082 grams.

Average harvested bulb weight: 75.2 grams.

Yield (harvested weight/planted weight) = 13.6: 1.

Origin and short history: "Li'l Auntie", a superb garlic with a long history in Canada. Ted Lister of Trout Lake, Ontario sent me three bulbs to try out in the trials. The garlic had been grown by his great aunt **Kalya Ostafichuk** for most of her life in Canada while living in the mining community of Timmins from 1930 until her passing. As was the Ukrainian custom, one or two bulbs of garlic were given to family and neighbours from the garden harvest so many people enjoyed her garlic during her lifetime. Ted grows about 140 bulbs of this garlic each year and has continued with the custom of giving a bulb or two to friends. I encouraged Ted to grow it for market - he said he might grow up to 300.

Meanwhile, Ted, from my first year harvest, bulbs have gone to two other Ukrainian Canadians, Vladimir Wynnchuk of Bruce Mines and Bill Maidansky of Cloyne. Vladimir intends to grow for the market so your Li'l Auntie Kalya's legacy will be appreciated by others and hopefully spread her name and garlic far and wide.

We get calls and letters

Wet spring, dry summer

Alan Parrotte of Mainesburg, Pennsylvania reported: We had a wet spring and dry summer. The garlic is a little smaller than usual here. I just dug all my Polish and am selling for \$0.75. My German is almost ready to dig and looks to be a nice size. I always look forward to reading the Garlic News. Thanks for the great newsletter. Alan.

Thoroughly enjoy reading Garlic News

Wanda Storto of Iroquois, Ontario, wrote: "Paul, I thoroughly enjoy reading the Garlic News and think it's a good idea to add a little extra to go towards mailing. I don't grow garlic now but help my daughter who took over this beautiful job. I am looking forward to when the garlic will be dug, braided, etc., this coming fall. Wanda."

Editor: Thank you, Wanda. Your daughter is very lucky to have you.

On bulbils and curing garlic

Cec Andrus of Boulter, Ontario, had two questions: "How long should you let bulbils to stay on the plant before harvesting?"

"I want to shorten my harvesting time. Do I have to hang them in bundles or can I stack them on tables to dry?"

Editor: The bulbils will mature about a week or two after you harvest the main crop. Watch for when the bulbil capsule splits open. The bulbils are ripe. Don't let them stay too long after that or the bulbils will scatter all over your garden. Cut them off and bring them into your drying room.

You can either hang or rack your garlic for curing. With the racking system, make sure you have good air flow to prevent mould. Buying one of those high capacity fans (like those used in cattle barns) is a good investment. Check the garlic daily for signs of mould.

Mouldy Questions

Thea Pratt of Montreal asked:

I had a question about my garlic. It is beautiful and huge and everything I had hoped. My husband, Tom and I built a drying shed to store it in and it has been curing for 2 weeks now but I've just noticed some tiny spots of a dark mould on some of them! Eeeek! I've peeled back two or three skins on a few to see if the mould goes deeper and it doesn't but I would imagine that it is only a question of time. We don't have anywhere else to cure it. I was planning on using almost all of it for planting stock but now I am not sure what to do. Do you have any suggestions at all?

Editor: Mould is the most serious problem during curing. It's caused by high humidity, especially at night. If you can't bring the garlic indoors, then close off the shed with tarpaulins, get some fans blowing air over the garlic and put in a small heater to raise the temperature by a degree or two. As soon as its dry, cut off the stems and bring the bulbs indoors where it's a bit less humid.

Kathy Karlstrom of Little Fort, BC wrote; Hello Paul, It's been a great garlic season here in BC. However, try as I might, I still struggle with the drying process? In past years, we have laid the harvested garlic on shelves to dry, usually with fans blowing on it. This sort of worked, but far from perfect. This year we decided to use your technique and hang it in bundles of 10. I thought this was going to work tremendously, only to discover mould beginning to happen after about a week? Could it have been the damp weather? or could it be that the stocks were bound so tight that the leaves could not draw the moisture up out of the bulb, sort of like a pinched straw? My loss to mould once again this season has been very disappointing. I hope to get drying figured out before next season, maybe a new drying facility is required?

Another question for you: where and under what conditions do you store your seed garlic until planting time? I've read to store it in the dark, at a temperature between 12 - 18' C. I've gotten quite paranoid about the whole mould issue.

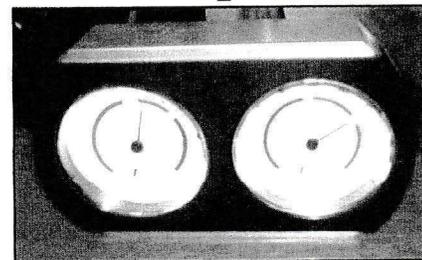
Editor: Hi Kathy. Mould is the most serious problem during curing. It's caused by high humidity, especially at night, and we've found that with climate change, its become much more difficult.

About 6 years ago, we had to abandon using the open drive shed (we just couldn't keep the damp night air out) and bring the garlic indoors into the closed porch and back room to cure.

If you can't bring the garlic indoors, then close off the shed tightly with tarpaulins at night and on wet or cloudy days get some fans blowing air over the garlic. Put in a small heater to raise the temperature by a degree or two. Buy one of those little humidity meters at Canadian Tire - they cost around \$10.00- but, they give you an indication of when its too damp.

It doesn't really matter which technique you use, racking or hanging, as both work, as long as the air is right. If the air is still too damp, you may have to buy a dehumidifier to put in your curing room. Costly in hydro but it saves your garlic from mould. As soon as the garlic is dry, cut off the stems and bring the bulbs indoors where it's a bit less humid.

Planting stock? First, we cure it well, then cut off the stems, place the bulbs in fruit baskets, and store them indoors until planting time. Cutting stems and roots: Stems at 1/2 " above the bulb, roots at 1/4 ". Make sure all the dirt is out of the roots - it harbours a lot of disease and holds moisture. Store out of direct sunlight, in a dry location, cool as possible. Our cold room still gets the high humidity in August so we can't use it until later in the fall.



A \$10.00 thermometer + humidity gadget that will warn you of potential problems with mould in your curing area.

(Letters continued on page 15)

A clove here and there

Dressed for the Fest



Liz Murphy sent this photo of her new organic cotton apron that she'll be test-marketing at the Toronto Garlic Festival on September 25th. She will also have shopping bags with the same Garlic Gourmet logo. At \$12.00 plus taxes & shipping, it's an organic bargain! If you miss her at the festival, see her Enviro-Threads ad in the Directory, page 11.

A short note, with plenty of faith

The Reverend Canon Borden Purcell of Athens, Ontario, sent just a short, handwritten note: "Got the cancer – out of hospital – had a great garlic crop – best ever".

Editor: And the 'best ever' to you, too, Reverend Purcell. You have our prayers. Our previous visits with you and Carter in your Stone Fence Lane retirement hideaway were always delightful and your garlic goodies delectable.

Garlic Prices

Susan Joiner of Limoges, Ontario:

We pulled our garlic last weekend and are drying it on our racks, as usual. Could I pick your brain in terms of pricing for this year. For the last 2-3 years, I have been asking \$10 per pound. Is this still the going price, or could we up it to say \$12.00 per lb? What is your opinion?

Editor: Hi Susan; You're probably on the low side but if you're selling outside the city, \$12.00 is reasonable. At Carp this weekend, going prices are \$4 or more per bulb for 3" and over, \$2.00 for 2" and even the tiny little 1 1/2" ones are fetching \$0.75 each! So, actually, they are likely in the \$15.00-\$16.00 per lb range. Perth is a bit lower because of the dominance of the big growers from SW Ontario with their cheap field garlic. Smaller areas get lower prices mainly because of fewer yuppies. Price again doesn't seem to be the criteria. Consumers are just happy to be able to buy local.

Carolyn Tipler of Oliver, BC:

Hi Paul: Could you tell me the average price per pound for garlic in your area? At farmers market with three other garlic growers - all organic - we have had no problem selling our garlic at \$10 per lb at market. However there are several local ads for garlic as low as \$4 per lb - just says, "Russian grown without sprays."

Editor: Pricing? Oh, my! If farmers only started to believe that their labour was worth more than 10 cents an hour!

In the Eastern Ontario region this year:

Low: \$6.00 per lb for commercial field grown garlic brought in from outside the area. High, for gourmet garlic: \$4.50 per bulb for colossal size, that's about \$20.00 per lb. Average: estimated at \$12.00-\$16.00 per lb.

Carolyn: Thank you again. I have less than 200 lbs left and am not in a rush as I know there will be people wanting it in Dec, Jan, Feb.

PDF Pro Trial

Listing of Past Articles on the Bulb & Stem Nematode

The Garlic News has been publishing regular articles on the Bulb & Stem Nematode for the benefit of growers since Margaret Land's article in the Fruit & Vegetable Magazine first exposed the spread of this pest from Ontario to PEI. As well, there has been considerable information published on growing garlic by the bulbil method, a sound practice. Here is a listing of nematode articles for reference:

Issue 5, Fall 2005: Michael Celetti, "Managing the Bulb & Stem Nematode Menace in Garlic."

Issue 8, Summer 2006: Paul Pospisil, *Garlic Field Day, start of trial to evaluate mustard as a green manure crop.*

Issue 9, Fall 2006: Jennifer Allen, "Extensive Garlic Damage in 2006."

Issue 10, Winter 2006-07: Marilyn Light, "The Challenge of Nematodes."

: Paul Pospisil, "Report P-02-NSGM 2006, Nematode Suppressing Green Manure."

Issue 13, Fall 2007: Paul Pospisil, "Summary Report of the 2nd year, Nematode Suppressing Green Manure Organic Trial."

: Tim Aubin, "Nematode Experience in Kenya."

Issue 14, Winter 2007-08: Becky Hughes, "Developing a Garlic Clean Seed Program for Ontario."

: Jennifer Allen, "Stem & Bulb Nematode Continues to Damage Garlic in 2007."

Issue 18, Winter 2008-09: Kristy Grigg, "Decaying Garlic."

Issue 19, Spring 2009: Michael Celetti, in "we get calls & letters."

: Kristy Grigg, "What happened to my garlic?"

: Paul Pospisil, "Nematode Suppressing Green Manure Trial, Update 2008."

Issue 21, Fall 2009: Jennifer Allen, "2009, the year of the Bulb & Stem Nematode in Garlic."

Issue 24, Summer 2010: "Cheap Garlic for Planting?" in "We get calls and letters."

Issue 25, Fall 2010: "Garlic Planting Stock, or seed garlic."

Issue 27, Spring 2011: "Garlic Research-Integrated Pest Management Update" on Workshop February 1, 2011.

Issue 27, Spring 2011: Reprint from U of Saskatchewan, "Stem & Bulb Nematodes in Garlic."

Issue 28, Summer 2011: Paul Pospisil, "Garlic Field Day."

Issue 28, Summer 2011: Sheila Robb, "The ABCs of Garlic."

Issue 28, Summer 2011: Letters, "Switching garlic varieties to avoid the nematode?"

(Note: the OMAFRA instruction on a survey on nematode spread came too late for the Summer 2011 Issue so the Garlic News distributed the instructions to growers both by mail and email. As well, grower samples were collected at our 2011 Garlic Field Day. To date, no summary of survey results have been received.)

If I have bulb and stem nematode in my garlic, what can I do to control it this fall?

Hot Water Seed Treatment

*Submitted by: Becky Hughes, New Liskeard
Research Station*

Hot water treatment has been used to *reduce and sometimes eliminate nematodes in garlic cloves* and many other bulbs such as daffodils and Easter lilies. These treatments have been worked out over time to kill the nematodes without killing the bulb. Growers should experiment with smaller lots to start as the exact temperature and time may vary with the cultivar and clove size. The window between killing the garlic cloves and killing the nematodes is very narrow. **WARNING** – *Accurate time and temperature controls are required to successfully heat treat garlic cloves! One to two degrees Fahrenheit can make a difference. Too high a temperature or too long an exposure may injure or kill the garlic tissue, while too low a temperature or too short an exposure may not kill the nematodes.*

There are usually four steps involved in hot water treatment of garlic cloves:

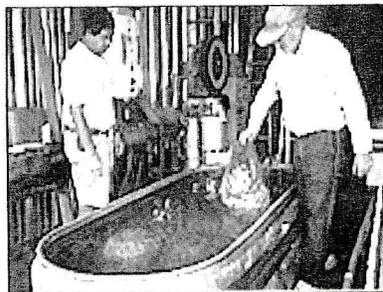
1. Pre-soak bath. Soak in water maintained at 100°F/38°C for 30-45 minutes. This activates the nematodes in the clove and makes them more susceptible to the heat treatment. It also pre-warms the cloves so that the temperature of the hot-water bath is easier to maintain.
2. Hot-water bath. Take the cloves immediately from the pre-soak and put them in a 120°F/49°C hot-water bath. Maintain this bath at 120°F/49°C for 20 minutes. The temperature of the hot-water bath will fall when the cloves are added. You need a system to quickly raise the temperature to 120°F/49°C without hot spots. Start timing when the temperature is stable at 120°F/49°C.

The volume of water compared to the volume of the cloves is important. If there is too little water, the temperature will drop significantly when the cloves are added. Usually a ratio of 4-5 parts water to 1-part cloves is recommended.

3. Cool bath. Immediately submerge the cloves in a cool water bath for 10-20 minutes at 64-72°F/18-22°C. For very small lots running water can be used. Do not use ice water, as it is too cold.
4. Drying. Dry the cloves and plant within a week of treatment. Do not try to store treated cloves. *These baths while reducing the nematode population may increase decay due to fungi especially if the seed is not dried and planted shortly after treatment.*

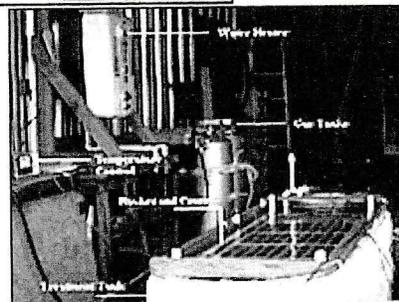
Things you will need:

1. Two baths with a heat supply and some type of circulation to reduce hot and cold spots –see the comments above on water volume
2. One cooling bath with some type of circulation
3. High-quality standardized thermometers preferably in Fahrenheit as it is more accurate (i.e. 120°F is actually 48.9°C)
4. A way to get the cloves in and out of the baths quickly
5. A way to dry the cloves after the cool-water bath (this can be a problem with larger volumes).



The following photos show an example of a hot-water treatment set up. Note that there is more than one tank involved.

*Photos courtesy of
Dr. Fred Crowe*



When checking information on the Internet, be aware that the temperatures and treatment times recommended for other bulbs are very different than that used for garlic.

An excellent article on hot water treatment of bulbs can be found at:

<http://nematology.ucdavis.edu/faculty/westerdahl/courses/204NEM/PHWT.htm>

As hot water treating garlic is tricky and risky, growers in a number of parts of the world including California rely instead on clean seed programs using limited generations.

Site Selection and Soil Testing

Before planting your hot-water treated seed, select the site carefully and get the soil tested for nematodes. Look for fields that have not grown garlic or any other alliums in the past 4 years. Even then soil testing for stem and bulb nematode should be done.

Soil samples can be sent to the University of Guelph, Laboratory Services, Agriculture and Food Lab (95 Stone Rd W, Guelph, ON N1H 8J7 phone 519-767-6299 fax 519-7667-6240) and tested for nematodes.

Submission forms and instructions for sampling soil for nematodes can be found at www.guelphlabservices.com or by calling the lab. The cost is \$45/sample. There is also an OMAFRA fact sheet “Sampling Soil and Roots for Plant Parasitic Nematodes” available from the OMAFRA website at <http://www.omafra.gov.on.ca/english/crops/facts/06-099.htm>.

The results from the lab will be a count of Ditylenchus species (spp.) as it is difficult to distinguish the stem and bulb nematode from other nematodes in the same genus. Most of the other Ditylenchus nematodes live in soil and feed on fungi. Their populations are usually very low. Select the site with the lowest Ditylenchus spp. counts. The economic threshold for stem and bulb nematode or Ditylenchus spp. is 100/kg of soil. Avoid using soils with counts above that level or implement a management strategy.

An interesting observation on growing garlic from undersize bulbs

Beaver Pond Estates Small-Plot Garlic Variety Trials: A Sampling of Proven Cultivars Grown in Seed Saver Quantity only

The usual size of bulbs used for planting the Small Plot Garlic Variety Trials are those of mid size, from Large Tube (1 3/4" dia.) to Jumbo (2" dia.) only occasionally using one size smaller (Medium Tube) or one size larger (Extra Jumbo). Previous trials had shown that bulbs of Small Tube (1 1/2" dia.) or smaller would not produce consistent results.

Last year, 2010, due to a poorer than usual crop, we had to use Small Tube or even mini size (< 1.5") to propagate our Seed Saver cultivars, expecting that the crop would yield smaller than usual bulbs.

During harvest 2011, it was observed that many of the tiny cloves produced large bulbs, especially in the Artichokes, Rocamboles and Purple Stripes. What a surprise. Mother Nature can prove you wrong! Porcelains (not shown) did not produce such a dramatic size increase as this Varietal Group is more sensitive to planting clove size.

The chart below is a small sampling of the more impressive crop results of Seed Savers grown from undersize bulbs.

Yield Ratio is Total Harvest Weight divided by Total Planted Weight

| Cultivar | October 2010 Planting | | | July 2011 Harvest | | | | Yield Ratio | Remarks |
|------------------------------|-----------------------|--------------|----------------------|--------------------|-----------------|---------------|----------------------|---------------|-------------------|
| | Bulb Size | Avg Clove Wt | Total Weight Planted | Range Bulb Size | Avg Bulb Size | Avg Bulb Dia. | Total Harvest Weight | | |
| ARTICHOKE STRAINS | | | | | | | | | |
| Lorz Italian | <1.5" | 2.3 gr | 14 gr | Med Tube -Ex Jumbo | Jumbo | 2.0" | 273 gr | 19.5:1 | |
| Philippino | <1.5" | 1.4 gr | 23 gr | Sm Tube - Ex Jumbo | Large Tube | 1.75" | 497 gr | 21.6:1 | Exceptional yield |
| PURPLE STRIPE STRAINS | | | | | | | | | |
| Red Rezan | <1.5" | 1.8 gr | 11 gr | Med Tube - Jumbo | Large Tube | 1.75" | 136 gr | 12.4:1 | |
| Robust | <1.5" | 3.5 gr | 28 gr | Med Tube - Jumbo | Giant | 1.88" | 318 gr | 11.4:1 | |
| Northern Siberian | <1.5" | 3.9 gr | 35 gr | Lg Tube -Ex Jumbo | Jumbo | 2.0" | 446 gr | 12.7:1 | |
| Brown Tempest | <1.5" | 3.3 gr | 20 gr | Med Tube - Jumbo | Giant | 1.88" | 242 gr | 12:1 | |
| ROCAMBOLE STRAINS | | | | | | | | | |
| Yugoslavian | <1.5" | 2.5 gr | 20 gr | Lg Tube - Jumbo | Giant | 1.88" | 269 gr | 13.5:1 | |
| Israeli | <1.5" | 3.3 gr | 13 Gr | Sm Tube - Ex Jumbo | Jumbo | 2.0" | 150 gr | 11.5:1 | |
| Frank Sowa | <1.5" | 2.5 gr | 15 gr | Sm Tube - Giant | Large Tube | 1.75" | 170 gr | 11.3:1 | |
| Spanish Antolini | <1.5" | 3.3 gr | 26 gr | Sm Tube - Giant | Giant | 1.88" | 261 gr | 10.0:1 | |
| German Red | <1.5" | 1.6 gr | 13 gr | Sm Tube Jumbo | Large Tube | 1.75" | 258 gr | 19.8:1 | |
| Korean Purple | <1.5" | 2.75 gr | 22 gr | Med Tube- Ex Jumbo | Giant | 1.88" | 330 gr | 15:1 | |
| Chuck | <1.5" | 3.0 gr | 24 gr | Lg Tube - Ex Jumbo | Ex Jumbo | 2.25" | 424 gr | 17.7:1 | Largest bulbs |

(The results are not easily explained. We will continue to use "seed size" bulbs in planting the trials, whenever possible.)

Around the Garlic Festivals in Canada

The first report came from **Jack Fraser**, volunteer at **Silver Spring Farm in Ottawa** who called at 6:30 pm on August 13, on his way home from an exhausting day. The volunteers at the farm had sold the last of their crop just 10 minutes ago. A one-acre crop gone, after only 4 days of selling at the farm, with just no more left till next year.

Carp Farmers' Market Garlic Festival, claimed to be the largest garlic festival in Canada

Jack Fraser visited Carp event at 09:30 Saturday and reported: "A steady stream of cars coming from the Trans-Canada, a fair crowd, many vendors from previous years".

Daughter Catherine of **Cheff Fields Farm**, a returning vendor, called it a "different" event this year. She had great sales of her fine garlic jellies and spreads, but had time to walk around on both days. She was a bit dismayed to see vendors selling poorly harvested garlic at \$1.00 a bulb. On the higher quality end, braids of huge bulbs sold at \$65.00.

Perth Garlic Festival

David Hahn of Forest Farm was unable to personally attend due to side effects of his cancer treatment. **Marion** and his son **Miguel** took their crop of award-winning garlic to offer in competition to the truckloads of out-of-region Music. David reported sales as good as the year before.

Jeff Greenberg, a new market gardener, chose to sell his garlic at the **Perth Farmers' Market** downtown and reported outstanding sales (*the inaugural garlic festival was held at the farmers' market but had to move to the larger venue at the Perth Fairgrounds in 1998 due to space requirements*).

Ted Maczka, the Fish Lake Garlic Man, attended the Perth event, likely for the last time due to failing health. He dropped in on his way home. His talk on Saturday was well attended but Sunday attendance was much lower and no one showed up for his talk. Garlic at the festival? Music, of course, brought in from the large farms in SW Ontario!

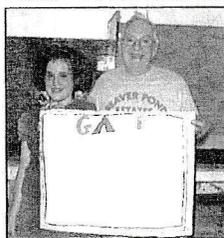
Editor: Divine intervention on the side of the home team! While both Perth and Carp stick doggedly to the much-too-early dates set during the price war of a decade ago, (a war that put the home folks at a distinct disadvantage in most years) Mother Nature intervened this year with an early harvest, enabling local growers to present high quality garlic in competition with the earlier harvested field crop garlic trucked in from SW Ontario. All reports indicate that the local product was superior.

5th Annual Verona Lions Festival

The Verona Garlic Festival was a smashing success with attendance nearly doubled over last year. The event features local garlic growers who are fast finding a wide customer base at the Verona market, being ideally positioned to serve Kingston and area. The big attraction, aside from local garlic of course, was the Eastern Ontario Garlic Awards (see page 3) where you'll see outstanding examples of garlic and garlic braids on display.

Chesterville Garlic Fest

This farmers' market special event continued as the successor to the **Seaway Garlic Festival** under **Debbie DeCooman's** determination to encourage a garlic market in this "cows and corn" region of Ontario.



Meaghan-Lina, a French-speaking youngster, researched and produced a garlic information poster, all in English, for the Garlic Fest. Well done!

2nd Annual Pender Harbour Garlic Festival

Neale Smith wrote; "Our 2nd annual Pender Harbour Garlic & Music Festival was a huge success! We had over 1700 paid adults show up and of course, loads of children, bringing the total to around 2000. We had about 50 vendors there and two full days of music and entertainment. The garlic was very good this year. As well as the horseback, hay wagon rides, & the bouncing castle, we had three Juno award winners play for us including Valdy, Penny Lang and Joel Fafard".

Laurie McConnell, Editor/Publisher, Bigpacific.com, wrote; "Hi, Paul. Thanks for the opportunity to comment. The festival almost doubled its success over last year, with a record number of vendors. Several Juno award-winning musicians played along with local favorites. Restaurants and food vendors made sure everyone ate extremely well - and didn't have to go without creature comforts like espresso, lattes, ice cream and garlic popcorn.



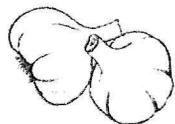
This event promises to mature into a regular part of the garlic lover's fair circuit every year, and the Lions Club puts all money raised to good work in the community. I'm looking forward to next year already! **Laurie**.
p.s. Neale, Niki and the Lions Club did an awesome job."

Newmarket Garlic Festival

Ted Maczka was there and said that the event was small but very successful, running only for the duration of the Saturday morning farmers' market.

HCGGA Garlic Fest

(Sheila Robb promised a report on 4th annual festival for the Winter Issue. I understand that it was bigger than ever.)



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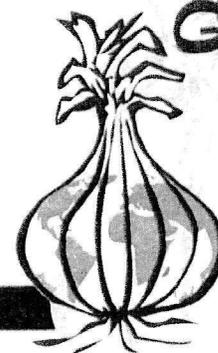
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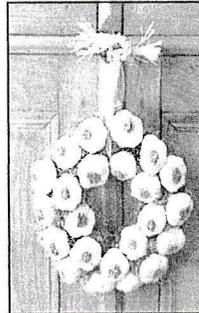
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Garlic recipes, tips & ideas

A new gourmet sensation! Garlic Mini Roasters

We've published a lot of tips and on what to do with those under-size garlic bulbs but this idea, from Dave Cornell of Ashton is a great one. Instead of roasting those huge bulbs, roast the little ones instead. I test marketed a few at the Chesterville Garlic Fest and was amazed to see customers sorting through the garlic on vendor's tables looking for the smallest bulbs! With a better than usual crop of garlic this year, small bulbs were at a premium.

What is a mini-roaster? Usually, a garlic bulb smaller than 1.5" in diameter, that is, size Small Tube or less. If they are of some of the superbly flavoured ones from the Creole, Silverskin or Mediterranean Varietal Groups, so much the better.



Using Mini – Roasters

Small garlic bulbs may be a bother to peel for restaurant chefs, but, like all small vegetables, they have a superior flavour to the larger ones. Think about baby carrots or baby potatoes and you get the idea.

Method:

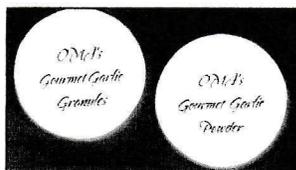
To roast them, clean off the loose wrappers, cut off the roots so the bulb will sit upright, cut a little bit off the tops, just enough to expose the flesh of the cloves, place in a garlic baking dish, drizzle with olive oil and heat in the microwave until the garlic is soft. Time varies with number and size of bulbs so experiment a bit to get it just right. Squeeze the flesh out of the cloves, spread it on a cracker or use to flavour mashed potatoes, dips and spreads. Add uncooked mini-roasters, prepared as for roasting to your poultry or meat roast. They add a fine garlic flavour.

Have your friends over for a mini-roaster garlic party.

Prepare 3 or 4 mini garlic bulbs per person. If you are entertaining on the patio, roast the garlic on the BBQ rather than the microwave, for ambience. Serve with crackers, a soft cheese spread, some raw vegetable crunchies, a bottle of chilled wine and you'll be the hit of the social circuit!



OMA's Gourmet Garlic Granules & Gourmet Garlic Powder



Liz Tobola sent me a shaker of both her Gourmet Garlic Granules and Powder. I have tried them in many recipes – soups, stir fries, fried potatoes and even to make a bruschetta. The Granules are my preference for flavour but need a while to soften. For no-salt recipes, both are excellent. If you'd like to try them, contact Liz by calling her, (403) 601-2611 or email <OMAsGarlic@platinum.ca> See Issue 19, page 3 for story on OMA's Gourmet Garlic.



Breakfast Egg Sandwich with OMA's Gourmet Garlic Granules

By: Liz Tobola

Ingredients:

One egg
Cheese, grated or sliced
Thinly sliced or chopped tomatoes
Fresh ground pepper to taste
OMA's Gourmet Garlic granules to taste
Crushed chilli peppers, or a dash of hot sauce to taste (There's enough salt in the cheese, but if you must...)
Two slices bread of your choosing

Method:

Heat a lightly greased 4" cast iron pan (or a smallish pan that you have in your kitchen). Whip egg with a splash of water and hot sauce and pour into the pan.
Spread or sprinkle tomatoes.
Spread or sprinkle cheese and spices.
Cover and heat till it's cooked.
While it's cooking, toast your bread.
When the egg is done put it on the toast, make your sandwich and eat it!
I can't eat two yolks plain. By adding the dash or two of hot sauce, for whatever reason, it cuts out the tummy ache I get from eating two yolks. Doesn't matter if it's two eggs or a double yoke egg, my tummy doesn't like it. One yoke is my limit.



Garlic Shrimp on Pita a la Garlic Guru

By: the Garlic Guru

WHEN IN
DOUBT
ADD MORE
GARLIC

Well, Mary Lou was out on a "Ladies Day" with daughter Catherine so I had unrestricted use of the kitchen for my garlic recipes. This one was scrumptious:

Ingredients:

(These are per person. Multiply by number of servings.)
6-8 large, peeled and deveined shrimp
1 bulb Rocambole garlic
2 large cloves Porcelain garlic
1 medium green tomato
2 tbsp extra virgin olive oil
1- 6" pita bread, split open
salt & pepper to taste

Method:

Prepare garlic and oil mixture first. Peel & crush Rocambole garlic in a garlic press, place in a bowl and cover with olive oil. Split large Porcelain cloves in half, and add. Season with salt & pepper. Let sit for 10 minutes. Slice green tomato into four thick slices and add. Add shrimp. Mix well to coat with garlic and oil. Heat skillet to high. Add shrimp, tomato & garlic mixture and fry, turning as needed until shrimp are starting to crisp on outside. Split pita bread, dish shrimp mixture on top and serve. The fried green tomatoes and Porcelain garlic are the side vegetables. This is a meal in itself! Enjoy.

Now, to see Mary Lou likes it as well as the garlicky shrimp we had at the Stinking Rose in San Francisco!

More garlic scape recipes and ideas

Recipes for Thanksgiving

Turkey Pie

By: Frances Legault

Just in time for that leftover Thanksgiving turkey.

Ingredients:

3 tbsp butter
5 cloves of garlic chopped fine
2 ribs of celery diced
2 carrots diced
½ cup of sliced mushroom
3 cups turkey meat diced
1 onion chopped fine
1 cup of corn niblets (frozen or canned)
2½ cup of turkey gravy
1 tbsp of Herbes de Provence
2½ cups of mashed potatoes, room temperature
1½ cups of turkey dressing (see next recipe)
¼ cup of milk
Fresh pepper, salt if desired
2 piecrusts, baked for 8 min.

Method:

Preheat oven to 425 degrees
Melt 3 tbsp butter in skillet add garlic, celery, carrot, onion and mushrooms. Cook until softened, 8 minutes. Stir in turkey, corn, and gravy. Remove from heat, stir in Herbes de Provence. Fill the piecrusts. Mix mashed potatoes and dressing with milk. Spread the potato mixture over the pie. Drizzle 1 tbsp of melted butter over pie. Bake at 350 for 20 to 30 minutes. Makes 2 pies.

Turkey Dressing

By: Frances Legault

Ingredients:

2 tbsp of butter
1 cup of chopped onion
4 cloves of minced garlic

Sauté till onions are soft

Ingredients:

6 cups mashed potatoes
6 cups bread crumbs
2 tsp poultry seasoning
1/2 tsp. white pepper

Mix these 4 ingredients

Ingredients:

1/4-cup butter
3 cups hot chicken broth or turkey broth
Mix these till butter melts

Method:

Add all ingredients together and mix by hand. Stuff turkey, roast and use when done. Save extra for Pie.

Saffron Rice

By: Frances Legault

Ingredients:

1 cup basmati rice
2 cups chicken stock
1 tbsp butter
1 tbsp minced garlic
1 tbsp dried onion flakes
1/2 tsp. salt
1 pinch of crumbled saffron

Method:

Rinse the rice well, drain.
In a medium pot, add the rinsed rice and remaining ingredients, bring to a boil, cover and reduce heat
Simmer for 8 to 12 minutes until stock is absorbed and rice is tender. Fluff with fork and serve.

No Knead Dutch Oven Bread

This is a wonderful bread recipe. You can add garlic and have roasted garlic bread. Frances.

Ingredients:

1/4 tsp active dry yeast 1 1/2 cups warm water
3 cups all-purpose flour, plus more for dusting.
Cornmeal or wheat bran for dusting 1 1/2 tsp salt

Method:

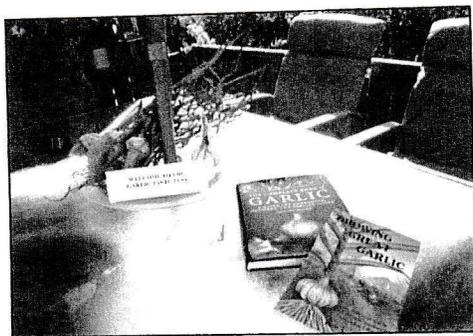
In a large bowl, dissolve yeast in water. Add the flour and salt, stirring until blended. The dough will be shaggy and sticky. Cover bowl with plastic wrap. Let the dough rest at least 8 hours, preferably 12 to 18, at room temperature. The dough is ready when its surface is dotted with bubbles. Lightly flour work surface and place dough on it. Sprinkle it with a little more flour and fold it over on itself once or twice. Cover loosely with plastic wrap. Let it rest 15 min. Using just enough flour to keep the dough from sticking to the work surface or to your fingers, gently shape it into a ball. Generously coat a clean dishtowel with flour, wheat bran or cornmeal. Put the seam side of the dough down on the towel and dust with more flour, bran or cornmeal. Cover with another towel and let rise for about 1 to 2 hours. When it's ready, the dough will have doubled in size and will not readily spring back when poked with a finger. At least 20 minutes before the dough is ready, heat oven to 450 F degrees. Put a 6-8 quart heavy covered pot (cast iron, enamel, Pyrex or ceramic) in the oven as it heats. When the dough is ready, carefully remove the pot from the oven and lift off the lid. Slide your hand under the towel and turn the dough over into the pot, seam side up. The dough will lose its shape a bit in the process, but that's OK. Give the pan a firm shake or two to help distribute the dough evenly. Cover and bake for 30 minutes. Remove the lid and bake another 15 to 20 minutes, until the loaf is beautifully browned. Remove the bread from the Dutch oven and let it cool on a rack for at least 1 hour before slicing.

What did the Persian Star say to the Red Russian?

(Answer at end of article)

By: Alex Oliver, Prairie Horticulture Certificate, Master Gardener

Do you want to try something different? Have a garlic tasting party at your home. Have a potluck afterwards. In Oliver's backyard in Camrose, Alberta on Saturday, September 10 at 11:30 AM, fourteen intrepid souls volunteered enthusiastically to be as objective as possible in a taste-test of five varieties of garlic. In alphabetical order they were Artichoke F4 Italian, Magical, Persian Star, Porcelain Majestic, and Red Russian.



The three main components of taste-testing garlic are aroma, heat, and flavour. Aroma is the smell of the garlic, completely different between raw and cooked. Heat is the sting or burn once the raw garlic has been chewed. The flavour is the sensation on the tongue once the heat has been removed by cooking.

As far as heat is concerned, **Ted Meredith** points out that the heat comes from the interaction of the enzyme alliinase with the sulfur compound alliin. This interaction occurs when the raw garlic is chewed, cut, chopped, or crushed. The interaction is usually very rapid.

Upon the advice of **Paul Pospisil**, the testing turned out to be a testing of the aroma and the heat of the five varieties. The third component, flavour, will be tested at a future date. It was felt that testing the heat of five varieties would dull the taste buds so that a judgment of the flavour would be compromised.

Preparation:

First, I chose varieties that I had available. Twenty minutes before the experiment started I used a razor knife to slice up 2 mm slices of each of the varieties for each of the participants. I washed the knife blade between each cut. Instructions were printed for each participant along with a chart to fill in the ratings. Each variety was on a covered plate and named. I felt that there was no need to give identification numbers for a blind test. Toothpicks were provided to pick up the pieces.

Participants were instructed to sample one slice at a time. First they would smell the sample and rate it as a 1 for most appealing to 5 for least appealing. Next, the participants chewed the piece and rated the burn or sting as a 1 for mild to a 5 for the hottest. They cleansed their palates between each sample by rinsing their mouths with water and chewing bread. Water, garlic, and bread were spat out – **not swallowed**.

Finally, they wrote their findings after each sample and

PDF Post-Test for further use.

Results:

Generally, the participants were quite surprised by the heat that several samples emitted. For most of them the stinging sensation on the tongue and mouth was a new experience. This makes sense because we most often taste garlic cooked either alone or with other foods; and this process removes the heat. As well, different foods will influence the taste of garlic as it cooks.

As far as aroma was concerned, the participants noted that all the varieties were rather pleasant with very little differentiation between the samples. See Charts.

The heat was a different story. Artichoke F4 Italian was the mildest and Red Russian was the hottest. See Charts. There was no direct correlation between aroma and heat. See Charts.

The four hottest varieties started out with a mild or nonexistent heat and then within seconds the burning sensation began.

Two participants indicated that after two samples their palates fatigued and they could not determine a heat value for the remaining samples.

The whole experiment took about one hour in duration.

Commentary:

All participants wanted to try a flavour test sometime in the future. All had a new appreciation for the varieties of heat. Several wanted to experiment with different varieties for cooking. More were interested in the medicinal value of garlic and wanted to read up on that subject. Several indicated an interest in growing their own garlic. Everyone enjoyed the whole experience.

Charts:

These results are a summary of the participants' findings.

AROMA CHART

| Garlic Variety | Aroma: 1 most appealing; 5 least |
|----------------------|----------------------------------|
| Persian Star | 1.38 |
| Porcelain Majestic | 1.6 |
| Artichoke F4 Italian | 1.8 |
| Red Russian | 2 |
| Magical | 2.13 |

HEAT CHART

| Garlic Variety | Heat: 1 mildest; 5 hottest |
|----------------------|----------------------------|
| Artichoke F4 Italian | 3.3 |
| Persian Star | 3.4 |
| Magical | 3.5 |
| Porcelain Majestic | 3.7 |
| Red Russian | 4.5 |

(Answer: By the way, the participants' collaborative answer to this article's title is, of course, "You're hot!")

BIBLIOGRAPHY:

Meredith, Ted Jordan, *The Complete Book of Garlic*. Timber Press Inc., Portland, OR, 2008, p. 304.
Pospisil, Paul, "A Draft Proposal for Conducting a Garlic Tasting," *The Garlic News*. Issue 18 Winter 2008 – 09, p. 14.

More calls and letters

Garlic fields flooded in Oliver, BC

Carolyn Tipler of Oliver, BC, sent photos showing a neighbour's flooded garlic fields.

"Hi Paul, finally have a minute to forward the pics I received from Sam (Loughheed). Sam's farm is situated north of Oliver but on the old flood plain, as is our bottomland. We are yet to meet in person but have exchanged info. I have been favourable surprised at how well our garlic has fared in the very moist ground, so told Sam to stay positive. I have lifted some of the Quebec Rustic which was the wettest, to sell at market as so many people were asking for fresh garlic."



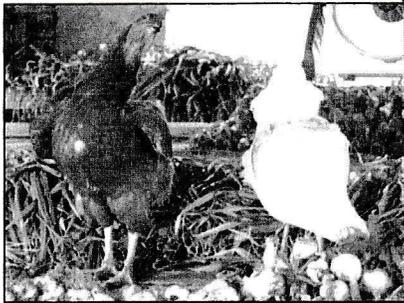
A good time to keep your mouth shut is when you're in deep water

Does the flooding affect garlic? CORRECTION.

Ian Richardson of Mara BC called to correct the article, "A clove here and there" in Issue 28. He lost 3000 plants, not 35,000 as stated in the article, from plants sitting under floodwaters of the Schuswap river. Plants that were submerged 2 weeks, died, those that were under water for a week had hollow stems and a musty smell so they had to be destroyed. *Editor's note: Thanks for the correction, Ian.*

Cocks & Cat Guard the Garlic

Pictures courtesy of Carolyn Smith



"Well, Martha, I think that you should inspect very, very carefully! They could sneak in through that dry grass."

Winnie says;
"Just let them try to get by this alert cat. Let them try -- Ya-awn-nn. Now let me rest. I've got it under



PDF Pro Trial

Mesh Bags for Garlic

We've had queries from a number of growers including Jedediah Loeks, Jerome Charlebois, Stephen Rutherford, and others about those nice purple mesh bags that we use for packaging our seed garlic. The source for the mesh is:

Masternet of Mississauga

MasterNet Ltd., 690 Gana Court, Mississauga, ON Canada L5S 1P2.

Toll Free: 1-800-216-2536 Tel: 905-795-0005 Fax: 905-795-9293. They have a good website.

Editor: Nope, I don't get a kickback from them. In fact, they won't even take out a \$15.00 Directory listing in the Garlic News. That's the arrogance that comes from having a sure thing.

Leek Moth at the Toronto Garlic Festival

A.R. Stevenson of Ashburnham Farms wrote to ask: "At the recent Ontario Garlic Growers farm outing in Stratford, we talked about the Leek Moth. Since then, I have had the Feds up to the farm and they have confirmed that the Leek Moth is further west than they thought. I have volunteered to give a talk (at the Toronto Garlic Festival) on controlling it as we have been doing that and are organic. *Do you have experience with the Leek moth and are you Organic???* Have you ever written about it in your news letter and if so could you share that newsletter - would you want it given out at the Toronto festival at the leek moth session? Any advice for growers that you can give would also be appreciated and I would build it into our training session."

Editor: Hello A.R.

To your questions, yes to both.

A local grower first reported the leek moth to me at our Garlic Field Day here at our Trials site in May 2000. I then worked with the agricultural authorities to persuade them to take action and by 2003, we had the Ottawa Valley Leek Moth project funded and underway in both OMAFRA and Ag Canada.

Nearly every spring, summer and fall issue of the Garlic News has had something on the leek moth so handing them all out would not be very practical. I have attached some pages from the Spring 2010 issue that you are welcome to copy and distribute - they cover the essential aspects and most recent progress on the research into the leek moth problem.

Please note in my article, "Living with the leek moth", the reference to using Bt. Bt was used by Margaret Appleby during her trials BUT IS NOT APPROVED FOR USE. OMAFRA are intending to sponsor an application for spinosad (but not Bt) in both organic and conventional forms for Minor Use Registration. When I last checked, the organic version had not yet been submitted. You can check their website for latest status.

I would advise that you ask Margaret Appleby to speak. Between her and Peter Mason, there is a wide range of knowledge on the topic of the leek moth. Unless you know the topic thoroughly, growers will hit you with every aspect of life cycle, damage, prevention, control and which magic pill works the best with no effort on the growers' part! I've done many talks on the subject and the mind boggles at the questions.

Paul

Addendum: Mr. A.R. Stevenson is not a member of the Garlic News.

Still more calls and letters

Dibbles for planting garlic

Geoff Dyck wrote Bulbils

Jedediah Loeks, Cobden, Ontario, asked;

Hey Paul, I was also wondering if you had a recommend bed/marketing planting system. I have heard of a dibbler some people make with PVC pipe and 2x4s. I usually just mark straight rows and dig with my hands and plant. Thanks, Zach

Editor: Hi Zach. Dibblers? I have published several different ideas in past issues of the Garlic News. I'm attaching just one, the one that we use (page 7, Issue #1, Fall 2004). Why not join the Garlic News Canadian network? It has a wealth of information for growers and users of garlic and you will likely find answers to most of your questions in past issues. Form is attached.

Leek Moth in harvested garlic

Anne Janssen of Aylmer, Quebec asked;

Two years ago, I had the leek moth bore down into the garlic while it was hanging to dry. Because of that I didn't do any drying outside last year - I sold what I had to sell quite quickly and put the seed garlic onto bread trays in the basement where it is quite dry and I put a fan in the room. I have quite a bit more this year and not enough room in the basement. I also dislike using electricity like that so am trying to figure out what to do this year. I pulled my garlic yesterday so I am asking this quite late!

How are you and others protecting your garlic while it is drying? Are you still hanging it?

Editor: Hi Anne. The leek moth was a very serious problem last year, but doesn't seem to be as bad this year, due to a very cold April. The cold temperatures delayed the first flight, and as well, seemed to kill off a lot of them. In our own case, we inspected daily and killed nearly every larva from the first hatch. Thus, the second hatch was almost none-existent. A lot of extra work but it was well worth it. At scaping, only a dozen or so bored into the scape and we found them. At harvest time (we are now finished as of July 25), we did not find a single larva or cocoon so we brought them inside and hung them as normal. So far, no sign of a single moth flying in the curing room. Depending on how bad your infestation was at harvest time will determine if you bring in any moths that may be hiding in the leaves.

If you clean your garlic by peeling the outer leaves when you pull them out, that should remove a lot of the eggs or cocoons that may be there. Then, if you are really concerned, you can clip off the remaining leaves down to where they join the stem, removing any remaining eggs. However, do this last only as a last resort as you will lose the nutrient in the leaves during the curing. Finally, burn or deep bury any residue. Don't compost it.

Stem Bulbils

Carolyn Tipler, Oliver, BC asked; I have started harvest.

Today, it was Italian softneck which did not produce any scapes but of 600 lifted so far, there are about a dozen which have a swelling similar to a scape, some right above the bulb some about 2 to 3 inches up the stem. Could this have been caused by our high water - therefore too much water or is it a natural occurrence?

Editor: It's normal, Caroline. Softnecks in the northern regions produce either "stem bulbils" or sometimes bolt to topset bulbils. You can plant stem bulbils. The nuisance is that the stem below them is hard so you cannot use them to make a pigtail braid.

Bulbils in Manitoba

Geoff Dyck, Winnipeg Beach, Manitoba, wrote on July 11: Our bulbil experiment is going well, although they have started to dry off. Seems early to me, but we have had a dry spell. They are mulched in a raised bed. We watered them a while back, but now I don't see the point. Should I leave them or harvest them and fully dry them out? They are 3 times the size of the original bulbil.

Editor: Hello Geoff; Garlic from bulbils is usually ready for harvest before the main crop. You can harvest the bulbs, dry them and replant this fall or, if it's the first year, leave them in the ground to grow again. If left in the ground, they will start to grow after a bit of frost in the fall - they behave very much like clove-planted garlic in that respect. Once they start producing topsets, that indicates that you have a divided bulb, rather than a "round" underneath. In that case, it's better to harvest them, cure, divide into cloves and replant in the fall.

Bear's Garlic, *Allium ursinum*

I asked Colin Boswell of the Garlic Farm on the Isle of Wight about Bear's garlic, *allium ursinum*, the European equivalent of our wild leek, *allium tricoccum* as it does not appear to be cultivated for sale in Canada.

Colin replied: "Hi Paul. We sell *allium ursinum* on our website. Pleased to send some over to you if you really want it! The original thug plant. Regards, Colin Boswell, The Garlic Farm, Mersley Lane, Newchurch, Isle of Wight, PO36 0NR
Email: colin@thegarlicfarm.co.uk.
Just google the Garlic Farm and you'll find it.

Washing of Garlic

Kathy Karlstrom, Little Fort, BC asked; I have reviewed your procedures for cleaning and drying as described in last summer's Garlic News. Could you reassure me, that spraying clean the garlic before drying will not create a drying problem? Also, is it ok to remove the outer dirty skin layer from the bulb, when peeling off the outer leaves?

Editor: Spraying freshly harvested garlic does no harm as the wrappers and clove covers are impervious to water. (That said, do not spray after the garlic is dry because the wrappers are likely cracked and will let water in). Wash the dirt off, peel the decaying outer leaves (you'll notice that the leaf is actually the bulb wrapper so peel it right down to the roots), trim the roots down to 1/4", give another spray to wash the dirt out of the roots and hang to dry or, place on racks so air can get around them. Curing is the big problem. If you are drying in a shed, close doors at night to keep out the damp night air. Keep fans going to move air over the garlic. If it's really damp, use a heater along with the fans to bring the temperature up a couple of degrees.

What Is The Future of Organic Food?

By: Hugh Martin, Organic Crop Production
Program Lead/OMAFRA

Forecasting the future is always tricky, but usually looking at history can be an indicator.

Historical Trends In Organic Food

Thirty years ago, organic foods and farming were mainly an ideology for hippies and the back-to-nature types, as well as a few farmers who had not embraced the transition to farming with chemicals. Organic food customers were a very small group.

Twenty years ago, spurred on by several food safety scares in Europe and North America, there was a lot of press about organic food and farming. While demand increased, the supply of organic food was very low. Organic food sales in North America were less than \$1 billion per year.

Consumers wanting organic food went to the farm or to health food stores to buy this niche product. Sceptics said it was a fad that would soon disappear. The recession of the early-1990's reduced demand, but there continued to be more demand than supply. The organic food industry kept growing at 20% per year for the next 15 years.

Ten years ago, there were organic food retail sales of \$7 billion per year. While it was still only 1% of the total food retail sales, large companies started to take notice. The larger food companies purchased many of the successful small organic food companies. Organic food sales continued to grow at 15-20% per year. By 2007, organic food sales in the United States were close to \$20 billion per year. Lack of availability was a barrier to faster growth. During the last decade, mainstream supermarkets started to sell organic brands and private label organic products. Core consumers still bought over 50% of the organic food sold, but mainstream shoppers were also attracted to it as it became more available.

Today's Consumers & Future Growth

In 2008 we had the recession. Sceptics thought that with reduced or uncertain incomes people would not buy higher priced organics. Organic foods experienced slower growth, but continued to grow 5% in 2009 and 8% in 2010. Over 60% of consumers now buy some organic products.

Consumers, who now refer to themselves as 'eaters', have many reasons for buying particular food products. Price continues to be a barrier, but some organic products have come down in price, and many are comparable to other premium brand products. Eaters are empowered to be able to choose the type of foods that they want to eat and feed their families. Some prefer to buy foods that are free from "something". There are many concerns about pesticides, antibiotics, hormones or GMO's in foods. Some see organic foods as being more environmentally friendly. Some eaters just want to experiment and buy a new product.

Sceptics have pointed out scientific studies that show there is no difference between organic and conventional foods. Supporters have other studies to show advantages to organic.

It is estimated that in 2010 there were \$29 billion of organic food sold in the USA and over \$2 billion in Canada. In Europe, sales of organic foods are over \$25 billion per year.

Current estimates are that organic food sales will grow at an average compound growth rate of 13% per year for the next 5 years. Sales will double within about 6 years. I see no reason to doubt these estimates.

Demand Exceeding Domestic Supply

In Ontario in 2009, we had 716 certified organic farms with 115,000 acres of organic crops that produced a farm gate value of over \$122 million. These numbers are all about 1% of the provincial totals. Compared to 10 years ago, we now have 50% more organic farms and twice as many organic acres, but retail food sales are 5 times what they were 10 years ago. 4% of all food and over 10% of all fruits and vegetables sold in the USA are now organic.

Organic foods have been around for several decades. They have weathered serious challenges from the economy and sceptics, and yet organic food sales have kept on growing. The issue is how we can meet the challenge of this extra growth in demand in Ontario. 75 - 85% of our organic food is currently imported, of which over 75% comes from the USA. Canadian eaters can either eat organic foods grown in Canada or from the USA and other countries.

This is an opportunity for Ontario agriculture to diversify markets. In most cases, organic production relies more on internal production skills and less on off-farm inputs. Challenges are great, but many organic farmers are very satisfied with the results.



Finding loopholes or obeying the spirit of the law?

In the Summer 2007 Issue of the Garlic News, we carried the COG story from Alberta on how a farmer can fool the public by claiming organic without meeting any requirements, under the title, "*Organic certification loophole makes scams possible.*"

Well, it would seem that the same scams are going on in Ontario as well, possibly with the acquiescence of COG. Recently, I contacted **Colin Lundy, the Growing Up Organic Farmer Outreach Coordinator** and observed: *I notice your use of the term "non-certified, organically grown vegetables---." Seems to me this is in violation of the organic regulation, a project that COG was active in getting passed into law. I understand growers avoiding paying organic certification fees but anything coming from COG should reflect the policy they helped to create."*

Colin replied: "This actually is not in violation of the Organic Product Regulations since (name deleted) is not selling across provincial or national boundaries. This will be the case until the Province of Ontario implements the regulation, which we are encouraging the province to do. At COG we encourage organic certification and provide the tools for farmers to become certified organic, but the reality is that, in COG Ottawa's region anyway, probably 80% of our members are not certified organic."

Editor: 80 % not certified? What a shame! There are loopholes in every law but it would seem that COG members would set the example by supporting the spirit of the organic regulation rather than finding loopholes to bypass it.

The Bulbil Project

Planting Instructions: One good method for growing from bulbils

Carefully remove the bulbil capsule from the package. Open it carefully so as not to lose the bulbils. Count and weigh them, then, place in a dry place until planting time. Use the record forms provided.

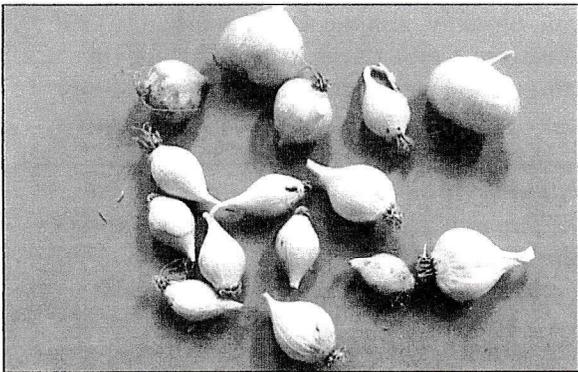
1st Year

Plant bulbils at the same time as you plant garlic (October, in our region).

Bulbils are planted 1" deep and about 2" apart. You may plant directly in the garden but you risk infecting the new garlic with soil-borne disease or nematodes. It's preferable to plant in containers or garden pots filled with sterilized soil or potting mix. These are then buried in the garden, slightly above the soil surface and high enough to prevent rain splashing the surrounding soil into the cups. The first year plants are very tiny and easy to lose among the weeds. I use the long, Tim Horton's coffee cups. The paper breaks down leaving a thin film of coating around the soil for ease of digging them.

10 bulbils of each strain is a good number for an experiment. For Porcelains, 4 or 5 bulbils per container are adequate. The larger Rocamboles, large Purple Stripes and stem bulbils should be kept at 2 or 3 per container. Mulch containers with straw before winter. The next spring, weed and water the plants as for garlic and use a foliar spray to fertilize. Harvest the plants the following summer about the same time as your garlic.

Clean and cure the tiny crop. Some will have grown "rounds" or small, undivided bulbs while others may form a divided bulb in the first year. Again, weigh and measure.



Rounds & small bulbs in 1st harvest from F40 bulbils

2nd Year

Select your best 10 cloves or rounds of each and plant in containers as before. Rounds and tiny cloves are planted 2" deep and further apart than bulbils. 1-litre containers are recommended for the 2nd year, again filled with sterilized soil. With this larger planting stock of rounds or small cloves, you will need to use more containers so as not to crowd the plants.

3rd and following years

By the 3rd or 4th harvest, you should be getting fairly good bulbs. Again, this depends on the variety and strain. The

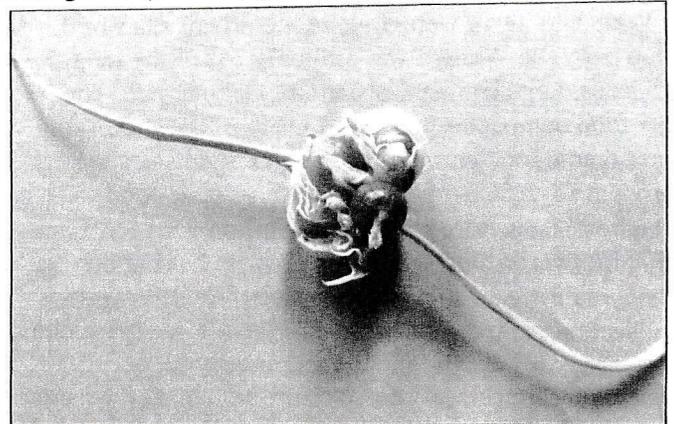
Purple Stripe, Czech Broadleaf sometimes produces a large, divided bulb the 1st year. Rocamboles generally take around 3 years. I've had Porcelains stubbornly refuse to grow anything but a small round for four successive years before finally agreeing to form a divided bulb.

Record Forms**

Keep good records. I've included three forms for your use in recording your experiments. Pages 1 and 2 are for your own use. Page 3 is the information I will need back from you each year. Photocopy added copies as you need them.

Return one copy of page 3 for each strain to me following harvest each summer. Keep a copy for your own records. If you decide on a different growing method, make notes of how you did it on the record forms. (Note: some growers choose to plant the bulbils directly in the ground and leave them for several years until a scape forms, indicating formation of a divided bulb and only then harvest them. If you do this, please report it as well).

Good luck with your bulbil planting experiments. They will start you on the way to learning more about this most fascinating of vegetables, garlic.



Fully ripened bulbils from the Rocambole, Russian Red

Saving your own bulbils

If you'd like to grow some from your own garlic, here are some pointers. To collect bulbils, do not remove the scape. Mark it and let it mature on the plant until after the harvest of the other bulbs. This takes an added week or two. Take care when harvesting the bulbil capsules to avoid having them contact either the soil or lower part of the garlic plant. You will likely forfeit the underground bulb. It will be much smaller, in any case. Follow the same instructions as above. Take care to avoid having the bulbil capsule come in contact with the soil or the lower part of the plant to avoid picking up soil-borne diseases or nematodes.

**Record forms not included here. Ask if you want them.

Send completed Record Forms, by mail or Email, to:
Paul Pospisil, Garlic Research,
Small-Plot Garlic Variety Trials,
3656 Bolingbroke Road, Maberly, Ont. KOH2B0
ph. 613-273-5683 Email: garlic@rideau.net