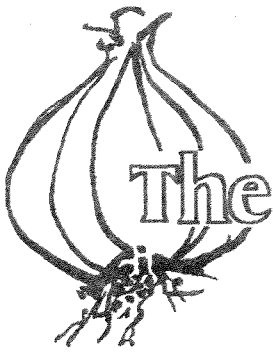


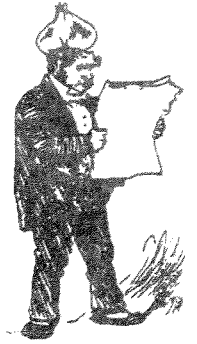
FILE



WINTER 1996

# The Garlic Press

THE REGULAR, AND NOT SO REGULAR,  
NEWSLETTER OF THE GARLIC SEED FOUNDATION



#26

## **ROUNDTABLE DISCUSSION WITH DR. PHIL SIMON**

FEBRUARY 16 • FRIDAY • 9 AM - NOON



JORDAN HALL • GENEVA EXPERIMENT STATION  
NORTH STREET • GENEVA, NEW YORK



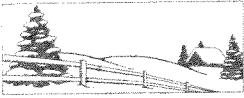
We are very fortunate for this occasion to meet informally with a leader in the field of varietal research and seed production (*Press #23*). Following Phil's presentation "Perspectives and Possibilities," there will be ample time for questions and discussion.

Phil, who works in Madison, Wisconsin, is a tremendous resource to our industry. Having him "East" is a great opportunity, and we encourage you to plan to attend.

### Directions

Exit 42 off I-90, Route 14 South to Geneva, Right on North Street (Follow "H" signs). Jordan Hall 1 mile west of Hospital. Watch for Garlic signs. Send SASE to GSF for map.

**Bring Garlic, Dish-To-Pass for Lunch and Table Service**  
(We'll provide beverage)



## Director's Notes

David Stern



### Holiday 1995

Yesterday I went to a maximum security New York State correctional facility to meet with inmates. I was asked to work with men who are HIV positive. Many of you know that I've worked with violent incarcerated men and women for years. This was different and touched a very different part of me. The focus was not so much behavior and choices, but the value of life and act(s) of living. All inmates are locked behind walls of stone and trapped behind self-constructed psychological walls to protect themselves. These men are incarcerated by a "syndrome" as well. A powerful and fatiguing afternoon ....

I speed home, put on my skis and within two hours I'm in the deep interior of a Northern hardwood forest: quiet, peaceful, clean, balanced, mature, and integrated. It is the opposite of a prison. I ski hard and fast, my lungs heaving and my exhale freezing iceballs to my mustache and winter beard. The three young dogs out in front on the trail are smelling the fresh snow for scent of rabbit or mouse. The old hound (Brandy Rose) follows on less steady legs. I stop several miles out to rest and eat the orange in my coat pocket, re wax my skis and let the dogs chew the snow packs from their paws.

My thoughts return to the prison and my mind's eye returns to each of their faces: Marcus, Tim, Jesus, Jonathan, Victor, Cho-Chin, Steve, Herbie, "Wild Man," B.T., B.C., F.O'C., and B.H. All colors, five nationalities, three languages, fathers to 20 children, total incarceration time between 160-500 years. None of them will ever see their "Out-Date" or go before the "Board." They're there for life. It is dark by the time I ski back to the barns. It is snowing again, on top of the 36" we have on the ground already!

Tomorrow is Christmas day, and after visiting neighbors for gifts and fancy coffee, I will return to the woods to shovel out the lean-to and firepit, build a fire, and try to find some "Peace on Earth." To those of us without children and/or family, who grew up in homes where the holidays remind us of alcohol and violence, and who abhor the commercialization and bastardization of the spirit and season, these are not always joyous times. So I'll roast some garlic, potatoes, garlic, onions, garlic, beets and some garlic in the coals, roast some meat for the dogs and me, and listen (as my friend Gary says) for the spirit of the wind as it races through the trees.

And ... think about this man born 2000 years ago. Not to offend anyone's personal beliefs about this guy, but I've got a different take: This man was radical! He was of the working class, he challenged the moral and

social codes, he was able to see through the labels and goodness in all persons, and when he became a threat to the economic structure and the ruling class, they assassinated him. Is this not a celebration for a radical, someone with eyes open enough to see that the status quo is a dangerous state of affairs? These are times of violence and hatred affecting each of us, lacking in respect for man, beast and this earth. We are rich in consumer goods and spiritually bankrupt. Happy Holidays.

### January 1996: Outhouses and Wood Piles

Ever hear the joke about shovelling the walk out to the toilet? Ain't no joke. Those of us fortunate enough to live with outdoor (or unheated) bathroom facilities hold winter to be that lovely special time. Several years ago they actually made a wall poster "Outhouses of the Finger Lakes." Only one photo was taken in winter — Rose Valley! We've had a lot of snow this year, record-setting, and that means two daily rituals, and the first involves using a shovel to gain access. And when you fail to close the door correctly, and the wind happens to blow from a certain direction, then you have to use the shovel *inside* the structure so that you can better enjoy the second ritual. Warm weather brings the comments about odors — not so in January! And no need for reading material (where we know many of you keep your issues of the *Press*) unless the roll of paper gets low! Water pipes don't freeze, either!

Stacks of firewood become a measurement of winter. You never really know how much you're going to need/use, so each fall you play this little calculation game, add a fudge figure, and cross your fingers. Once winter starts, then it's length and winds, the quality of firewood in dryness and species become new factors. I started the winter with a pile 36 feet long, 4 feet wide and 5 feet high. Thus far, I've used one-third of the wood, and if winter goes into March, it will be close.

I hope that you enjoy this issue. Dunk and I think it's one of the best ever — because so many of *you* contributed to its contents. Thanks to all. I hope to be seeing some of you in Toronto and Syracuse, and certainly in Geneva with Phil Simon. It's always a treat for me to meet you all in person.

I end my notes by sharing with you another symbolic act that occurred in my life this fall while driving home from a trip south in Pennsylvania, when, needing an opportunity to stop and stretch, I found a "Sally Anns" or Salvation Army Thrift Store. Junk to some, but more exciting than a Walmart to me. And what should I find among the racks of T-shirts? An original GSF beefty-T! Recycled, I headed home to complete my full circle, for only a dime.

## ALLIO-FILE

- 🍷 **CONGRATULATIONS** again (*Press* #15, Winter '92) to GSF member and Canadian Stinko, Frank Weibe, for his Blue Ribbon Garlic at the Royal Agricultural Fair in Toronto last November.
- 🍷 **CONDOLENCES** to Tom Garlick, who was not elected to a city council position in Geneva, NY. Folks said his campaign ....
- 🍷 Any **LAWYERS** out there who could donate some time to help us get our legal house in order?
- 🍷 **CORRECTION:** In *Press* #23 we announced the winner of the "Name that Herb" in 26 languages contest as Dan Webster in Philly, PA. Well, there were two others we failed to mention: Ms. Cynthia Haller in Bartlett, IL, and Ms. John Sushchuk in Sterling, MA, who not only made the match, but corrected an error! T-shirts are in the mail!
- 🍷 **COMING SOON:** Purple Mesh tube-netting for bagging loose bulbs/cloves or braids. Thanks to a donation by Dave Piedmont and Colonial Bag Company, we can provide this to members for about 200'/\$6 + S/H. More in upcoming *Press*.
- 🍷 **AS PROMISED** - Tony Sarmiento's 10 Great Secrets to Blue Ribbon Garlic: (10) start with good soil rich in organic matter and compost; (9) plant large cloves in a sunny spot by the end of October; (8) mulch with chopped leaves or grass clippings; (7) water regularly (one inch/week), except 3 weeks prior to harvest; (6) cut scapes; (5) dig carefully when a few leaves turn yellow; (4) cure in a dry, ventilated area away from direct sun; (3) choose your best bulbs; (2) clean skin, trim roots and braid; and (1) no competition - only 8 entries.
- 🍷 Garlic and **SEX:** The Talmud, an ancient Jewish book of law and tradition, advises couples to eat garlic on Friday night, the Sabbath, so that "they can get to know each other better." Can we have some volunteers experiment with this concept and report their conclusions?
- 🍷 **MANY THANKS** to all who contributed to this *Press*: Angella O'Callahan, Eric Block, Chet Cavallito, Laini Fondillier, LaVaughn, Doug Bowne, Paula Simmons Green, and any others we've forgotten to mention with Alice letters or recipes.
- 🍷 **NAME CHANGE:** So far, here's what has been suggested: Garlic Growers Anonymous, Garlic Syndicate, Garlic Union, Garlic Growers Union, Union of Garlic Growers, Garlic News, Garlic Growers Network, Garlic Society, Garlic Review, Garlic Aficionado, Garlic Growers Information Center, Garlink, Garlic Growers Association, World Garlic Association. Any of these stimulate your creative juices? Let's keep working on this —

- 🍷 Why does garlic **TURN GREEN** in pickles? According to Ms. Leslie Norris of McCormick Spice Company, it's a reaction of an amino acid in the garlic to the acid in the vinegar. Okay to eat? Absolutely! Why some cloves (rarely uniform)? Don't know. We'll keep working on this ....
- 🍷 **CONTACT MEMBERS:** We continue to look for individuals to act as regional contacts. Please help.
- 🍷 **LAST CHANCE** for reprints: By *Press* #27, we shall no longer have them available except at festivals, tours, and meetings.
- 🍷 **PRESS COLLECTIONS:** Issues #21-26 will be bound for our fourth in the series of back issues. Available: *Press* #27.
- 🍷 **HOLIDAY CARD:** No, that wasn't original and the idea can be easily recycled when the garlic is modified to become a heart, Easter Egg, Globe, pumpkin or someone's age. And while I'm at it, thanks to those of you who sent cards and greetings. I truly appreciate your thoughtfulness, consideration, and warm kind sentiments.
- 🍷 **ORGANIC/COMMERCIAL:** Several members commented on the weed control articles in *Press* #25 in regard to the use of herbicides and the scale of production. Many of us at the "commercial" (vs. garden) level of production do not use chemicals, which require very diligent management skills. This is a personal choice of the options presented, not a required or exclusionary factor. There are commercial-scale organic operations, and gardeners using herbicides!
- 🍷 **NEXT ISSUE:** More festival reports, Garlic and Dog Farts, Leeches Love Garlic, The Garlic Hotline, Cover Crops, Mosquitoes, Crossword solution, and more ....

## GARLIC

KINGDOM: . . . . .	PLANT
DIVISION: . . . . .	Anthophyta
CLASS: . . . . .	Monocotyledones
SUPER ORDER: . . . . .	Liliiflorae
ORDER: . . . . .	Asparagales
FAMILY: . . . . .	Alliaceae
TRIBE: . . . . .	Aliae
GENUS: . . . . .	Allium
SPECIES: . . . . .	sativum
SUBSPECIES: . . . . .	?



## OUT OF MY HEAD

Bob Dunkel

### From Edison to Medicine: A Bulb is a Bulb ...

To survive we learn. Until technology became rampant, all that was outside of ourselves was simply Nature. This became that which we absorbed, intuited, and retained. Traditional medicine is the roots, stems, leaves, molds, fungi and the preparative abilities that extracted the essences of these forms, thereby demonstrating their viability in treating disease or enhancing health. Thousands of years passed on in oral tradition and in apprentice training, assured that some elements of this school of healing and earth mysteries would be perpetuated. Much has been forgotten.

The last few hundred years we remember more easily. The printing press, the development of photography, the major thrust of scientific methodology, all helped us forget but made it easier to find things out. I think of Edison and the incandescent element placed inside a partial vacuum—a light "bulb." I think of the bulbs from Tutankhamen I saw in Egypt. Finally, I remember the early days of working with garlic in using the freeze dryer and what the first batch of whole cloves looked like: it reminded me of a vitamin E capsule as all of the center was liquified but perfectly retained within an impermeable membrane—a time capsule, the garlic "bulb."

Looking at this issue of the *Garlic Press*, I see an article about the use of garlic as a natural warmer+, the wonderful story from Chester Cavallito on a search not for but to allicin, and the rest, the recipes, scientific and natural studies, funded or not, and know we are all part of the same thing. I do not look for a beginning; there is no end. What I feel is the overwhelming sense of history (or herstory) and the role we all play in this small part of it. I remember being in the eternal space that remains at the top of the pyramid at Giza, the view through the top of our tipi in Colorado, I think of tetrahedrons, circles and squares and the very tip of the clove of porcelain garlic that is all but complete and just slightly wrinkled. It is a wrinkle in time. In all things the encoding process necessitates one thing, and that is the inclusion of ourselves: for together we complete the pyramid, we become the warrior, the wisewomen and the medicine wheel, all lifting like smoke upwards through the tipi top, and we are the caretakers,

*The Garlic Press* is produced seasonally for and by members of the Garlic Seed Foundation. Membership in the GSF is \$10 per year and includes this newsletter and reduced rates at official functions. All submissions for *The Garlic Press* should be sent to the editor, and are published at the discretion of the editor and dependent on available space and the relevancy of each issue's theme. Please address all correspondence of newsletter value to Bob Dunkel, 2079 Washburn Rd., Stanley, NY 14561. (716) 526-5779 evenings, please.

**DEADLINE FOR NEXT ISSUE —  
MARCH 15, 1996**

guardians of the sacred clove and united in the bonding that becomes the bulb. We continue to grow alongside it and we take on its spirit in letting it pass through us. May this New Year be one to remember, to give thanks and praise for all creation, and may it bring peace and understanding to all of us. Eat Drink and Be Merry, for tomorrow we will still smell of eternity in the guise of garlic!

#### Let The Buyer Be Aware

Under the shifting sands of the Sahara  
Where once the north pole held firm  
There are the footprints of travellers.  
Though extant perhaps, they are there  
Emblazoned on the record of history.  
Caravans with garlic and spices are guided  
On the memory of the stars by day, and  
Magnetized by the pull of planetary forces  
They emerge, timeless upon the marketplace.  
Up the winding stairwell of wind worn clime  
Deep in the Himalaya, the pattern of DNA sighs  
Amidst the cycle of breath from the messengers  
Ascending and descending in search of and in return  
From another marketplace where old garlincs lie.  
The Hudson River Basin, the relic of the last shift  
Of polar fury, is the eastern door of the Iroquois  
And it opens upon the path of sunlight that leads  
To the water center of Gaia and into the heartland.  
Trucks and trains and barges trace the arteries  
That pump food furiously through to the small towns  
And too big cities searching for the tastes of old.  
This marketplace has no bare feet, no worn basketry  
But the hands that reach out to touch eternity  
Have the same lines that mark a crossing, lines  
That guide the stars memory, the geometry of space ...  
From the power points of the earth, that lie in ley lines  
Like telephone poles, there are pulses of light and  
breath that summon us all to market.  
We bring the garlic and ee bring the stories of old,  
The tales of time to spin as we wait for a message:  
The width of the palm separates and unites all  
cultures and times.  
The spiral of Fibonacci guides all life onward  
from leaf to bud, flower to seed.  
So when wind covers paths in snow and the sand  
blows  
When winter brings rest, close your eyes.  
Be guided then  
By the stars and sun to your marketplace and prepare  
For remember, the garlic that's sleeping  
will soon be there.

# RENEWALS

◆ THIS IS SERIOUS AND IMPORTANT BUSINESS — PLEASE TAKE A MINUTE TO READ ◆

The date or number on your mailing label is your renewal anniversary. **Please locate this number NOW.** If this is a *Green* date, it is the date (month/year) your membership expires. If it is a *Green* number, it is the issue of the *Press* your membership expired. All dates have expired. This is *Press* #26. If your number is below 26, your membership has expired. Your annual dues of \$10 allows you four (4) issues of the *Press*, about one calendar year. We plan for an issue each season, but remain irregular.

One-Third (1/3) of our memberships have expired. We haven't sent renewal notices but rely on *Press* labels and individual responsibility. Renewal notices (printing/postage/labor) will cost us hundreds of dollars. Please take it upon yourself to renew promptly. We hope that this is more of a bookkeeping oversight than lack of support. We work very hard to produce and create for each of you — things for your head, your heart, your stomach; skills for your hands and a smile to your face, and a stench to your breath. We don't ask much. Please continue your support and join in the labor.

We appreciate the good number of you who sent in your \$10 checks over the holidays. We check your expired date, calculate 4 issues, add on a couple more, and put the new, updated expiration number on your label. We've been known to goof — please contact us if we error, check doesn't clear, or desire to enter our new "Corporate" fee schedule and privileges thereof.

Should you desire to continue membership, pay up! Why not join for 8 issues for \$20? Or for 16 issues (and the year 2000) for \$40. Please do it now, thanks.

(B.D. and D.S.)

P.S. While you're at it ....

1. Get your complete zip + 4 postal code and send it along. That would save us \$75 each *Press* mailing.
2. Remember the GSF/*Press* when you move for change-of-address information. That would also save us time and money.

## GARFITTI

### FROM RESTAURANT WALLS OF LA VIELLE MAISON

- Garlic is the cynic's aphrodisiac!  
*Raiders of the lost garlic*  
*Cathryn Kahn, 8/20/84*
- Un repas sans l'ail . . .  
I'd rather die  
*D.L. '84*
- History repeats itself, as does garlic.  
*Anon.*
- The only thing better than garlic for dinner is getting married for lunch.  
*Steve and Kaye*
- We ate here on vacation in July.  
We ate so much garlic I thought we'd die.  
The friends were great, the food the same,  
I only have the garlic to blame.  
*Anon.*
- Sex and garlic, garlic and sex,  
If we keep this up, we'll both be wrecks.  
*J. the Fox and friend, 2/4/82*
- There once was a fine fellow  
Who found Truckee very mellow  
He came from Marin  
With a little chagrin  
And discovered garlic jello!  
*Anon.*
- Here's to life, love, & the pursuit of garlic.  
*F & B.*
- Garlic makes gourmands out of gourmets.  
*Gay & Frank, 5/25/80*
- If we had a garlic farmer for President, we'd have a much better stink in Congress.  
*Alan Tarel, 7/24/80*
- Garlic is hardcore.  
*Gertie & Karen*
- Eat your heat out Dracula!  
*MJH, 4/17/81*
- A clove a day keeps MacDonalds at bay!  
*Anon.*

# BULBHEADS BIOGRAPHIES

## Everyday Garlic Yields Its Secrets in an Albany Lab

Excerpt from "Health'," in *The Daily Star* (Oneonta, NY), 3/29/94, p. 11

In a laboratory with the smell of a deli, Eric Block explores the molecular makeup of an ancient folk remedy and culinary herb.

So intimately has he come to know his sulfurous subject, in 25 years of study, that he is regarded as an international authority on the bulb's complex chemistry.

"It's proved to be a rich area for research," Block, a professor at the State University of New York at Albany, said.

Block got interested in sulfur chemistry as a doctoral student 30 years ago in Nobel laureate E. J. Corey's lab at Harvard, where he studied the industrial solvent DMSO. That sulfur compound held promise as a treatment for arthritis until rat studies linked it to eye diseases.

"When I left Harvard and was setting up a laboratory in St. Louis around 1967, I was looking for an area of research that everyone else wasn't working on," Block said. So he followed a sulfurous path to onions and garlic.

His interest is analysis. He has concentrated on perfecting ways of extracting and identifying the hundreds of sulfur compounds in garlic, rather than on testing their medical effects.

Analytic methods used in the past gave misleading results, he said, because they used excessively high temperatures which altered the allium's chemistry. Allium is part of the lily family and includes, besides garlic and onions, chives, leeks and shallots.

Garlic contains thousands of chemical compounds, Block said. But researchers are interested mainly in the sulfur compounds, which account for the flavor and biologic effects.

In a curious chain of reactions, about 10 volatile sulfur compounds are formed when the garlic clove is cut, activating an enzyme encapsulated within the plant cells, Block said. Hundreds of other compounds are formed when the herb is mashed, minced, baked, boiled, fried or otherwise subjected to kitchen chemistry.

---

## Garlic Seasons a Crime Wave

Richard Slusser, *The Washington Times*

In Taiwan, times are getting tough, for garlic lovers in particular.

It seems the Chinese there consume about 45,000 tons of garlic a year in one form or another, and the local farmers just can't raise enough to keep everybody gustatorily satiated.

The garlic shortage got so bad last month, according to a Deutsche Agentur Presse report, that Wei Wu-chiang, "a watchman at the Hsinchu Container Depot, and his accomplice were caught Friday night as they were moving the garlic out of the depot, police said Sunday."

And the day before police nabbed Wei, they arrested a fisherman for smuggling 18 tons of the precious garlic to Taiwan from China. Mr. Wei had spent several days transferring the garlic from a dozen containers into two

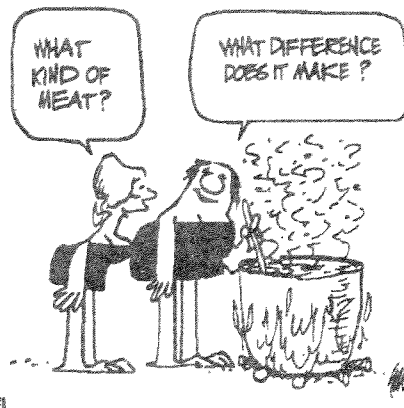
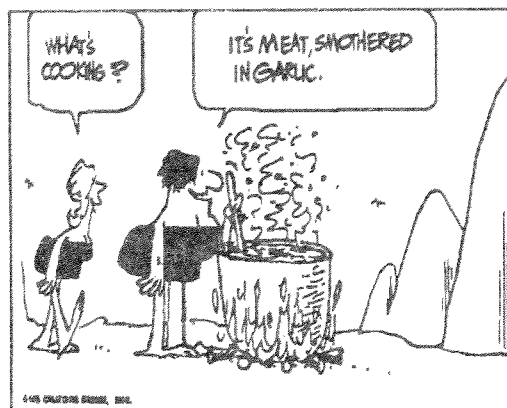
empty containers to prepare for Friday night's removal, the news agency reported.

Reserves were down to 14,000 tons, not nearly enough to last into November. And that included 4,000 tons Taiwan already had imported to deal with the shortage.

The Chinese, of course, aren't the only garlic lovers. As a medicine it is eaten by the clove or cloned into a pill. Raw, cooked or powdered, it is essential to many cuisines, although not necessarily with the lunch of an Eskimo—and northern Europeans would much rather have dill.

What's lamb without garlic? Or boulliabaisse? Mashed potatoes? Garlic soup wouldn't exist. Killing a vampire would be much more difficult. And on Taiwan, well, they turn to crime.

B.C.





# NOTES ON ECONOMIC WORKSHEET



"So, do you make any money growing this stinky stuff?"

"Well, I think so ...."

But do we really know? Here it is: our first attempt to help you answer that question.

First of all, be **honest!** You don't have to share this with your banker, and you can always change some numbers if need be. Give yourself an hourly wage. Even though you've saved your own seed to plant, what would it cost if you had to buy it? Try to calculate every cost, every input, every expense from start to finish. This won't be easy. Don't guess. Keep records.

Next Spring, keep track of the bunches of greens you sell, and scapes. Keep notes of the pounds harvested and sizes. Calculate value-added products and your own seed material for planting. Add it all up and see what you got! Look about right? Close? Not only will this give you an accurate account, it will enable you to look at your expenses. Where do you spend the most? Where are you least efficient? How could you do it better? Can you justify investing more land/seed or a new \$20,000 tractor? Use the numbers and play with the numbers.

If it gets too depressing, just throw it away and remember that you grow it 'cause you enjoy it and the stuff's good for you!

*We thank Doug Bowne (Wellspring Farm, Little Falls, NY) for his labors on this worksheet. (D.S.)*

## Virginia Garlic Festival

The fifth annual Virginia Garlic Festival was held at the Rebec Vineyard on the 14th and 15th of October from 10 to 5 each day. The Rebec Vineyard is located 5 miles north of Amherst, Virginia, on U.S. Highway 29 in beautiful rolling hill country right below the Blue Ridge Mountains. The date of the festival takes advantage of the lovely Fall colors. It rained Friday night, so we awoke to a damp Saturday. The threatening clouds held their rain until early afternoon, so there was a smaller but enthusiastic crowd and the rain did not appear to dampen the "spirits." The second day was clear, cool and breezy, putting a "nip" in the air as well as on the ground.

The festival was well attended both days, with people coming from all parts of Virginia, West Virginia and other middle Atlantic states. The brochure lists eleven garlic growers, thirteen food vendors, fifty-six craft vendors, and five wineries. Elephant garlic is featured more as it grows well in Virginia.

Special events were scheduled during the festival, including the Garlic Cook-Off, Garlic King and Garlic Queen contests. Also provided were special events and craft demonstrations concerning a wide range of items. Fine entertainment is ongoing both days. Parking was ample and surrounds the festival grounds, which allows attendees to enter from three sides. Booth space allocations are ample and walking space was excellent.

For additional information contact:

Richard Hanson (Rebec Vineyards)  
Managing host  
1-804-946-5168

Virginia Garlic Festival Association  
Route 3, Box 185  
Amherst, VA 24521

Nancy Galden Gripp, President  
Ella Hanson, Treasurer

*[Note: Those of us who attended either the Bloomsburg, PA or Hudson Valley NY Garlic Festivals had the opportunity and joy of meeting Barbara and John Kling, farmers of the Elephants in Abingdon, VA, who submitted this report. Beautiful crop, delicious jelly, handsome braids, creative marketing, and very friendly and gracious folks with garlic on their breath! (D.S.)]*



## ASK ALICE

*Dear Alice, Can I plant garlic after potatoes, or will the fungi from the spuds adversely affect the stinking roses?*

Fred Schmelzer

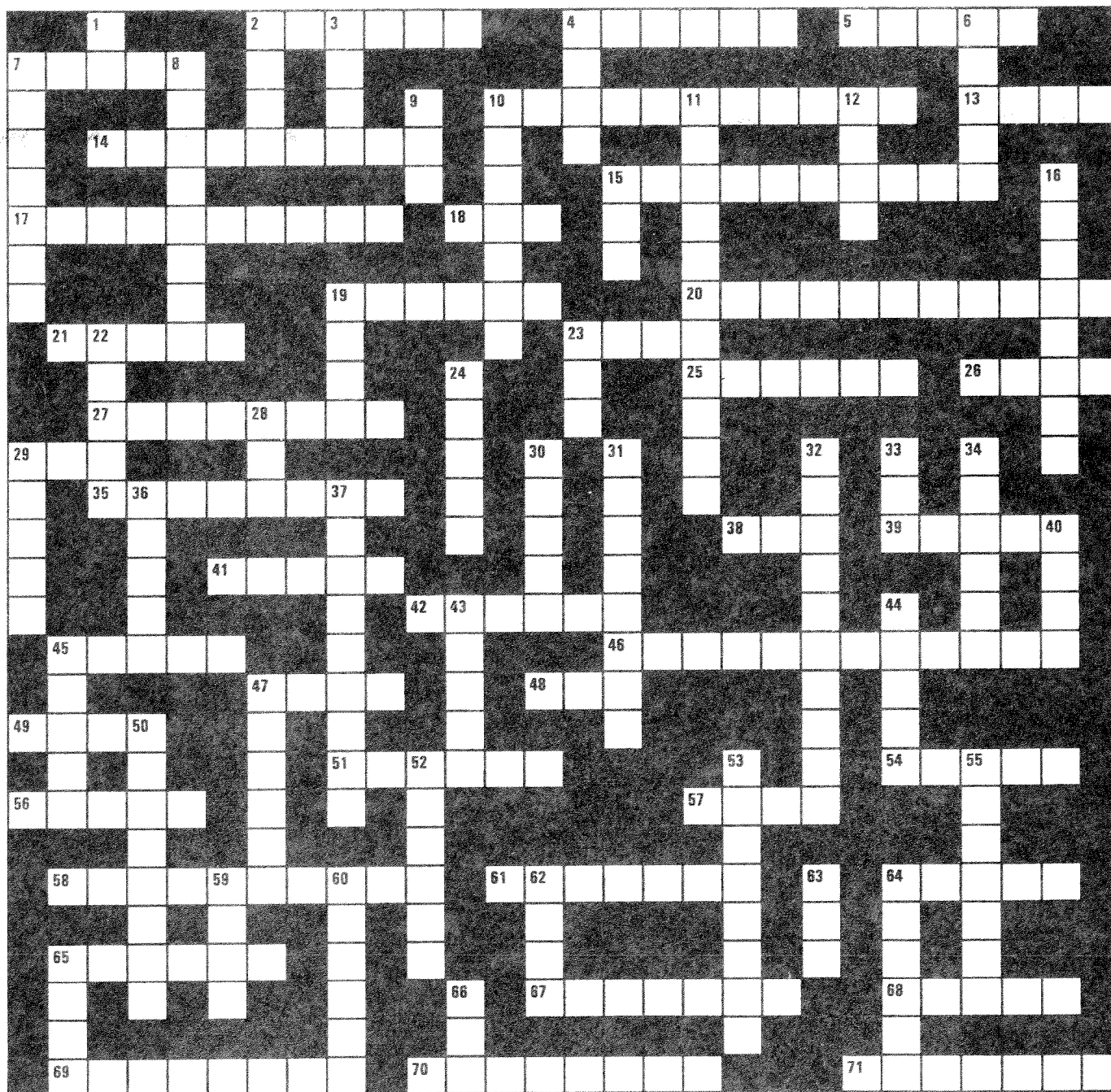
Alice replies ....

Fred, you're such a stinker! Your question indicates that you're really considering rotations that are great management. I called Ron Voss out at UC Davis in sunny California, who says garlic following potatoes is indeed a good option: the garlic will utilize any available nitrogen the potatoes did not use and there are no cross over pests or pathogens.

# CROSSWORD

When my friend LaVaughn said her computer could put games together, I immediately thought of the *Press* and issue #23 contained the first. I gave her a list of words, and presto (!) out came the puzzle. But this wasn't so easy — I had to create the graph and words, and the computer formatted the layout. I've never made one of these before, and to be truthful, never even completed an entire crossword. Once I started, it became an obsession, and I worked from 6 to 8 a.m. for 6 days straight. Finally, with my eyes about crossed, I had to admit I could match no more.

Then came the job of creating the across/down clues which became another challenge. Each word, in some general way, connects to garlic, and where it was easy to reference a *Press*, the issue is in parentheses following the clue. So, throw a log on the fire, grab a pencil and a hot drink, open up your head, and I hope you enjoy it. Let's make it another contest. Put your T-shirt size on your entry and write CROSSWORD on your envelope. Again, my thanks to LaVaughn! (D.S.)







# Crossword Clues

## Across

## Down

- |  |   |
|--|---|
| <p>2. Taste of the tongue</p> <p>4. small aerial secondary clove within spathe</p> <p>5. Religious text with garlic reference</p> <p>7. Seed maker (#23)</p> <p>10. Order out of order (#26)</p> <p>13. Connects head to body</p> <p>14. Never twice</p> <p>15. P. Essential for photosynthesis and respiration</p> <p>17. Lover of Alliums</p> <p>18. 30% of CA crop</p> <p>19. Early Allio guru in CA</p> <p>20. Fungi pathogen causing bluish green mold</p> <p>21. 6 cent garlic (#2)</p> <p>23. GSF Hometown in upstate NY</p> <p>25. Unsegmented elephants</p> <p>26. Solar panel</p> <p>27. Destructive microscopic wormlike animal</p> <p>29. Type of production system, usually raised</p> <p>35. Without scape</p> <p>38. ... as they say in French ... (#23)</p> <p>39. Death, taxes and _____</p> <p>41. Allium schoenoprasum</p> <p>42. Poetic editor</p> <p>45. Single ancestor</p> <p>46. Latin for elephant</p> <p>47. Best season to plant garlic</p> <p>48. Large yellow globe in the sky</p> <p>49. A feeling of strong personal attachment</p> <p>51. with scape</p> <p>54. GSF Director</p> <p>56. Optimum pH</p> <p>57. Onion in Latin</p> <p>58. Water removed/60% of CA crop</p> <p>61. Alliophobe bloodsucker</p> <p>64. Newly harvested/10% of CA crop</p> <p>65. Animal shit (#2)</p> <p>67. S, medicinal superstar</p> <p>68. 6,000 species of headless, eyeless, toothless, bisexual friends</p> <p>69. Close Allium relation, prone to multiplying</p> <p>70. To add water</p> <p>71. Containing carbon, or a natural method</p> | <p>1. Organic matter</p> <p>2. Alimentary remark</p> <p>3. Esperanto for garlic (#23)</p> <p>4. Congregation of cloves</p> <p>6. Origin of garlic breath</p> <p>7. 32 degrees, 65% R.H.</p> <p>8. Gas known as N</p> <p>9. An organization that STINKS!</p> <p>10. Magic bullet responsible for antibacterial and antimutagenen effects of garlic</p> <p>11. Daylength sensitivity</p> <p>12. Gathers and absorbs food and water in darkness</p> <p>15. _____ Reppert; garlic queen of Saugerties (#15, 18, 22, 25)</p> <p>16. Kyloic producer</p> <p>19. Our most important tool</p> <p>22. Second most important tools</p> <p>23. To decompose or decay</p> <p>24. Winter protection that holds in moisture and keeps weeds out</p> <p>28. 2,000 pounds</p> <p>29. 350 degrees for 45 minutes</p> <p>30. Sulphur chemist in Albany, NY</p> <p>31. Okanogan taxonomist</p> <p>32. 60 cent garlic</p> <p>33. Uncooked</p> <p>34. Spring delight of immature leaves</p> <p>36. Snakelike</p> <p>37. Discovered and named allicin (#26)</p> <p>40. Woody flower stalk or scape</p> <p>43. Mountains from which it came</p> <p>44. Hanging together</p> <p>45. Modified storage leaf</p> <p>47. Producer of foodstuffs</p> <p>50. Pachyderm</p> <p>52. Dried then ground</p> <p>53. Se, poisonous micronutrient related to S</p> <p>55. Acidic fermentation</p> <p>59. Earth/soil</p> <p>60. Winged insect pests</p> <p>62. Ancient symptoms antidote for this modern disease</p> <p>63. Without moisture</p> <p>64. Primary function is sexual reproduction!</p> <p>65. Field diagrams of varieties</p> <p>66. 80% N, 19% O, 1% other</p> |
|--|---|

# Economic Worksheet

## EXPENSES

### LAND/SITE SELECTION

Loan Interest/rent ..... \_\_\_\_\_  
 Land Tax/year ..... \_\_\_\_\_  
 Travel to-from ..... \_\_\_\_\_  
 Other crops/uses ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
 TOTAL ..... \_\_\_\_\_

### GROUND PREPARATION

Soil Audit (pH/others) ..... \_\_\_\_\_  
 Lime (other amendments) ..... \_\_\_\_\_  
 Green manure (seed) ..... \_\_\_\_\_  
 Tillage for Planting ..... hrs × \$/hr ..... \_\_\_\_\_  
 Other machinery costs ..... \_\_\_\_\_  
 Weed control (herbicide) ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
 TOTAL ..... \_\_\_\_\_

### PLANTING STOCK

NOTE: Great variation in row spacing and number of planting cloves per pound of planting material

(example: 50 clove/#). 3" × 35" = #1160 or 6" × 24" = #880

\_\_\_\_\_ #s × \$ \_\_\_\_\_ /# = ..... \_\_\_\_\_

### PLANTING

Cracking and Grading ..... hr. × \$ \_\_\_\_\_ /hr. = ..... \_\_\_\_\_  
 Planting ..... hr. × \$ \_\_\_\_\_ /hr. = ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
 TOTAL ..... \_\_\_\_\_

### Mulching

Cost of Material ..... \_\_\_\_\_  
 Labor: Fall On ..... hr. × \$ \_\_\_\_\_ /hr. = ..... \_\_\_\_\_  
       Spring Off ..... hr. × \$ \_\_\_\_\_ /hr. = ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
 TOTAL ..... \_\_\_\_\_

### CULTURAL CONTROLS

Cultivation (machine) ..... hrs/wk × \$ \_\_\_\_\_ hr. × \_\_\_\_\_ wks = ..... \_\_\_\_\_  
 Handweeding ..... hrs/wk × \$ \_\_\_\_\_ hr. × \_\_\_\_\_ wks = ..... \_\_\_\_\_  
 Sidedressing/amendments application ..... (material/equipment/labor costs) total ..... \_\_\_\_\_  
 Herbicides ..... (material/equipment/labor costs) total ..... \_\_\_\_\_  
 Irrigation ..... (material/equipment/labor costs) total ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
 TOTAL ..... \_\_\_\_\_

[CONTINUED]

**EXPENSES (continued)**

**HARVEST/DRYING**

Handharvest greens ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Handharvest scapes ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Lifting/grading/bunching/hanging crop ..... people × ( \_\_\_\_ hr × \$ \_\_\_\_/hr × days = \_\_\_\_\_  
 Overhead on equipment and drying facilities ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
TOTAL \_\_\_\_\_

**TOPPING/GRADING/CLEANING**

Remove Stem/Roots ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Grade/clean ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Overhead on equipment and space ..... \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
TOTAL \_\_\_\_\_

**MARKETING**

Cost of boxes/bags/labels ..... \_\_\_\_\_  
 Packaging labor ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Promotional costs ..... \_\_\_\_\_  
 Telephone costs ..... \_\_\_\_\_  
 Delivery (mail or mileage) costs ..... \_\_\_\_\_  
 Clean/braid labor ..... hrs × \$ \_\_\_\_/hr = \_\_\_\_\_  
 Other costs ..... \_\_\_\_\_  
TOTAL \_\_\_\_\_

GRAND TOTAL EXPENSES

**FIELD/GROSS INCOME**

Greens ..... #/bunch × \$ \_\_\_\_ #/bunch ..... \_\_\_\_\_  
 Scapes ..... # × \$ \_\_\_\_/# ..... \_\_\_\_\_  
 Bulbs: Large (for seed/save) ..... # × \$ \_\_\_\_/# ..... \_\_\_\_\_  
           (for sale) ..... # × \$ \_\_\_\_/# ..... \_\_\_\_\_  
       Medium ..... # × \$ \_\_\_\_/# ..... \_\_\_\_\_  
       Small ..... # × \$ \_\_\_\_/# ..... \_\_\_\_\_  
 Culls (damage/disease) ..... \_\_\_\_\_  
 Braids (other value added products) ..... \_\_\_\_\_  
 Other income ..... \_\_\_\_\_

GRAND TOTAL INCOME

Gross Income	_____
Expenses	(-) _____
<b>NET INCOME</b>	=====



# Garlic: The Natural Wormer



The goal of the project was to prove the validity and effectiveness of using garlic as an alternative parasiticide in sheep and goats.

The project was started with 6 collaborators, including myself. (I had already been using the garlic for 3 years prior to the grant.) At the end of two years, only one person stayed with the program. She was impressed with the results and is now a garlic grower. The others gave it a try or two, but decided not to continue with it.

The process involved giving the collaborators enough garlic to worm their animals during lambing or kidding, during breeding season, and during the hot days of August when you're trying to finish off (weight gain) your lambs. They were given 2½ oz. of garlic per day for a 4-day period, beginning on the full moon. It is a belief that the full moon has a stimulating effect on the parasites living in the animal to become more active. Fecal samples were to be taken before and after treatments.

Feeding garlic at these three specific times coincides with stress times for the animals. As in animals or humans, a stressed organism is weaker and has a weaker immune system. Garlic is rich in selenium, a trace element that stimulates immunity factors in the body.

**Worming During Lambing or Kidding:** Dormant larvae are picked up in the fall and winter-over in the animals. The two weeks prior to freshening, the immune system breaks down and permits the parasites to develop. What I began doing, in conjunction with garlic feeding, was to feed echinacea 10 days prior to freshening time to help build the immune system. Then I put them on the "garlic program" for 3 full moons. I figured the fed garlic would pass through the milk. I also put chopped garlic into the creep feed for longer intervals of time to get the little ones used to the flavor and help them with any parasite problems. I also gave the lambs echinacea for 10 days and golden seal for 5 days prior to going out on pasture, to prevent coccidia. The animals leave the barn with a negative fecal count.

**August:** With the heat, full fleeces developing (higher body temperature), trying to finish off my lambs, and most important, the garlic harvest, I begin my second period of the garlic program. Over the past two years I've been heaping the garlic to them at this time. I feed it until they don't want it anymore. The goats go crazy at harvest time. With the garlic coming into their barn to be dried, they can't get enough of it. Tests are negative after this time also.

**Breeding Season (Fall):** Sheep and goats are fed garlic in September, October, and November. This also helps

with increasing the animals' body weight (flushing). Tests are negative in November. A neighbor of mine claims this is why my ewes have nothing but triplets and doubles. Hmm, this could be another project for me to study ... "Garlic, the fertility pill."

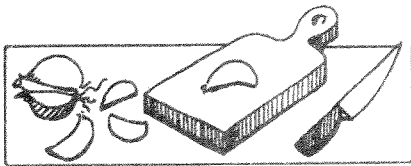
**Weak Points of the Garlic Program:** Late June to early July, over the years, is a hard time for my lambs, coming off mothers and going into pasture, and this is when I'm all out of garlic. I always have extremely high fecal counts and diarrhea in about 30% of my lamb crop. I bring the lambs in to be crutched (removing fleece from hindquarters for cleanliness) with the first case of diarrhea. (This also avoids fly strike.) I treat the lambs who are suffering the most, and then keep every one in the barn for 3 days and feed them wormwood. The ones who were heavily infested never seem to recover and thrive. I have been noting these lambs and not keeping them as replacement stock. I will now begin to cull ewes who produce lambs less resistant to parasites. Future plans are to invest research time into various herbs that I can give in the feed for the month of June.

Pasture rotation is a must for good parasite control. Mowing the pasture after they move on to the next is a good practice, if such machinery is available.

**Economics of a Garlic Program:** At this point, it is a costly one, unless you grow the garlic yourself. I suggest that you grow topset garlic, which will give you a good source of garlic animal feed. The animals love those tiny bulbils (but not the immature scape). Growing garlic for yourself, 30 animals and 20-30 young stock will require you to plant 20-30 lbs. of garlic, depending on your soil fertility. This will require about 500-800 row feet.

Do I believe in garlic as a wormer and overall "keep-em-healthy" tonic? You bet! My adult sheep and goats haven't been treated with a parasiticide in over 4 years. I have a 200% lambing rate. The vet comes here to administer rabies vaccines only. But, there's still work to be done, always will be. I've ruled out worming with homeopathic treatments for the simple fact of having to chase the lambs 3 times per day for 3 to 4 days. This stresses them out too much, thus you're getting nowhere. The key to being a good shepherd is keeping your animals calm and well fed, and avoiding departures from the routine. The results will be a happy sheep and a happy shepherd.

[Note: In 1993 Laini was awarded a grant from Northeast SARE (Sustainable Agriculture Research and Education/USDA) for this study. For more information, please contact her: Laini Fondiller, Lazy Lady Farm, Westfield, VT, 05874. (D.S.)]



# Recipes

## (GARLIC) DEJON SHRIMP

From Leon & Elaine Warmuth, Eureka, CA

- 30 large shrimp
- ½ cup margarine
- 2 cloves crushed garlic (to taste, more or less)
- 2 tablespoons dejon mustard
- 1 tablespoon lemon juice

Peel shrimp (thaw if frozen)

Melt margarine, add mustard, crushed garlic and lemon juice. Mix till smooth and pour over shrimp.

Broil at 400°F till pink, 7 to 10 minutes. Makes great appetizer.

## GARLIC BONBONS

- 1 cup sherry
  - ½ cup sugar
  - ½ teaspoon vanilla
  - ½ teaspoon lemon juice
  - 2 cups garlic cloves, peeled.
- (Don't use extra large or extra small cloves)
- White chocolate for dipping  
(About ¼ pound. This is often found in groceries with large bulk food sections.)

Simmer garlic cloves in wine-sugar-vanilla mixture until tender. Remove, drain and cool, cloves not touching each other, on wax paper or plastic wrap.

Melt the dipping chocolate. It melts easily in microwave, on defrost (use glass dish).

Either spear individual cloves with a toothpick, or thread multiple cloves on thin bamboo skewers, spoon melted chocolate over the garlic cloves. Let cool for chocolate to harden. Eat same day if possible, as moisture in garlic will affect the chocolate coating.

This is a great party dish. Guests will be baffled when asked to identify the secret ingredient.

## PARISIAN PEAS

From Paula Simmons Green

- 1 package frozen peas, or fresh peas  
(quantity depends on person to be served)
- 1 onion (or more), chopped
- 6 large cloves garlic (or more), chopped
- 2 (or more) tomatoes, seeded and chopped
- parsley and/or chive garnish (or fresh mint)

Cook and drain peas. Saute onion and garlic until tender. Stir in chopped tomato. Cook gently until thickened. Stir in peas and reheat. Sprinkle with chopped parsley and/or chives. If you have fresh mint, this is even better.

## PINEAPPLE-GARLIC UPSIDE DOWN CAKE

From *The Joy of Cooking* by

Irma Rombauer & Marion Rombauer

*For such a silly-sounding cake, this is surprisingly good.*

- ¾ cup melted butter
- 1 cup packed light brown sugar
- 1 (20-ounce) can sliced pineapple, drained
- 10 garlic cloves, or more, peeled
- 1 (18½-ounce) package yellow cake mix

Preheat oven to 350°F. Spread butter over bottom of 13 by 9-inch baking dish. Sprinkle evenly with brown sugar. Arrange single layer of pineapple rings over sugar. In center of each ring, place 1 garlic clove. If desired, fit more garlic cloves between pineapple rings.

Prepare cake batter according to package directions. Pour batter into prepared pan. Bake 30 to 35 minutes, or until cake tester inserted near center comes out clean. Cool on rack 10 minutes. Loosen edges, then turn out onto serving platter. Serve warm or at room temperature. Serves 10.

*When selecting garlic look for large, hard heads whose paper clings tightly to the bulb. Avoid old heads with greens sprouting out of the top or hollow spots. Store garlic in a cool, dry place such as a potato or onion bin or in open air, never in the refrigerator where it will absorb moisture.*

## Garlic Nutrients

### Percentages

61.3%	moisture
6.2%	protein
0.2%	fat
30.8%	carbohydrate
1.5%	ash

**Energy:** 137 calories

### Minerals/100g

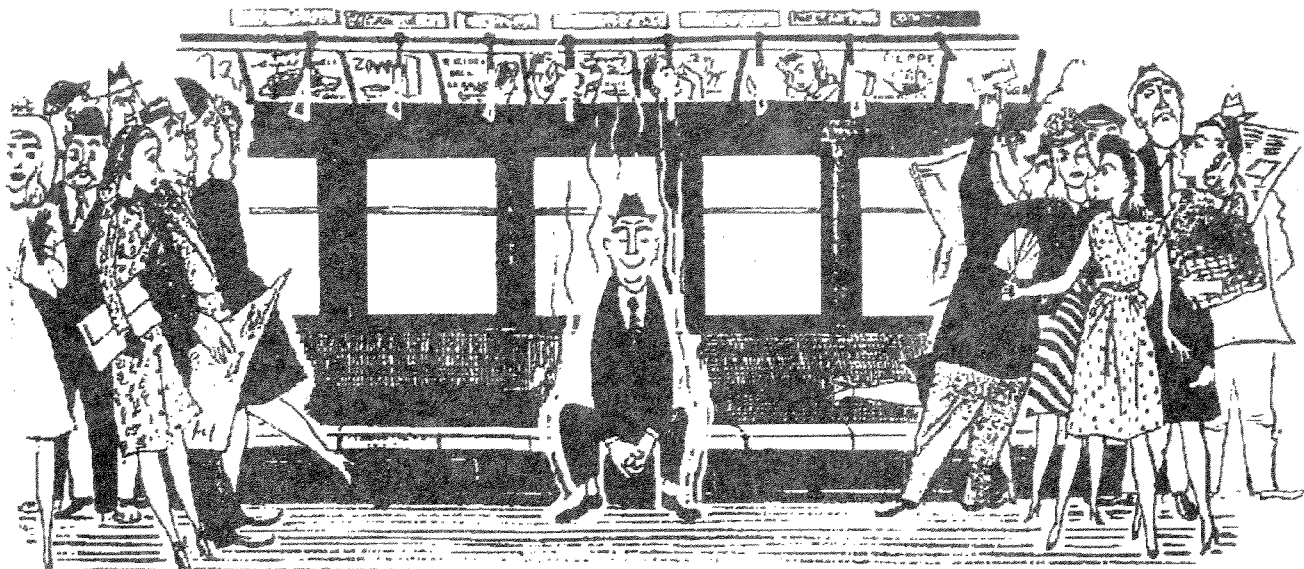
50-90 mg	Calcium
390-460 mg	Phosphorus
100-120 mg	Potassium
10-22 mg	Sodium
43-77 mg	Magnesium
0.5-1 mg	Aluminum
0.2-1 mg	Barium
2.8-3.9 mg	Iron

### Vitamins/100g

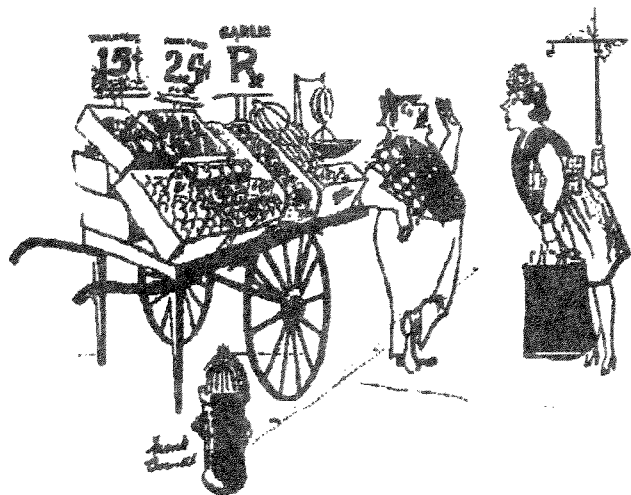
0.25 mg	Thiamin
0.08 mg	Riboflavin
0.5 mg	Nicotinic Acid
15 mg	Vitamin C

G.R. Fenwick, A.B. Hanley (1985) *CRC Critical Review in Food Science and Nutrition* 22(3&4) 199-377.





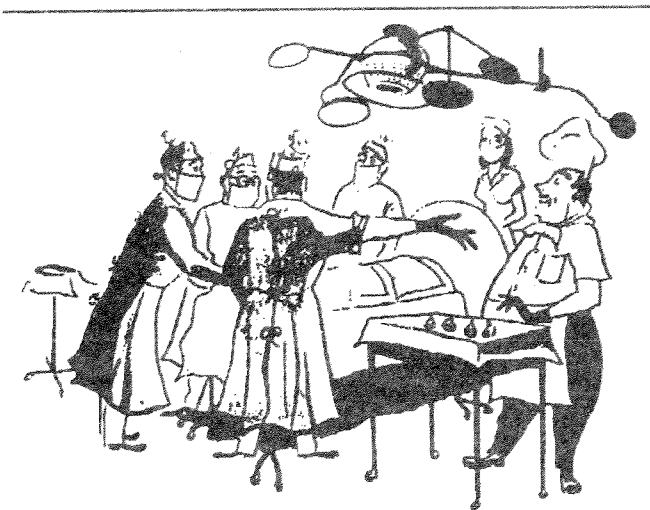
To avoid colds, avoid crowds. Garlic makes that a simple matter.



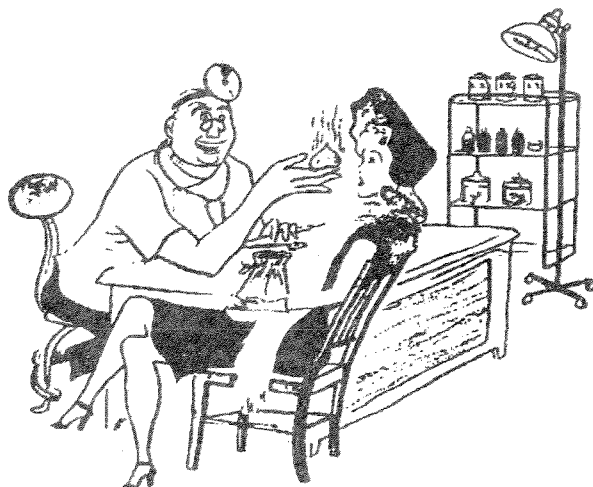
1947: They say what goes around, comes around, and we share these jokes that were published in late February, 1947 by King Features Inc. They were drawn by Frank Brandt and are similar to the ones we see today.

Our thanks to Eric Block for sharing them with us.

"Potatoes, tomatoes? Sure. But for garlic you need a prescription."



"Now we come to the crucial point—scalpal ... suture ... garlic!"



"If it's all the same, doctor, couldn't I just keep the disease?"

# The Discovery of Allicin in Garlic

by Chester J. Cavallito

The formation of allicin in garlic provides the principal component for that vegetable's flavor and antimicrobial properties. The discovery did not originate from a program specifically directed to the study of garlic, but as an offshoot of a search for new antibiotics during the early 1940s.

In 1942 I joined the Winthrop Chemical Company research laboratories (subsequently Sterling Winthrop Research Institute) in Rensselaer, N.Y., and was assigned to do research in the then emerging penicillin field. Small amounts of a brown, crude substance containing about 1% penicillin periodically were made available with which purification and chemical studies were to be carried out. There were periods when only a small amount was available for research use, so time could be spared for other pursuits.

During the 1940s, new antibiotic substances largely were sought from among molds and other microorganisms. I became interested in the possibility of finding antibiotic-like substances from plants. A microbiologist colleague, John Hays Bailey, shared my interest. During Spring and Summer evenings and weekends from 1942 to 1944, I collected wild plants from woods and meadows, as well as cultivated vegetables, prepared crude extracts of these, and submitted them to the microbiology lab for screening for antibiotic activity. A number of plants were observed to show some degree of activity, and from these a number of active ingredients were isolated and characterized. Among them was allicin from garlic. The isolation, determination of chemical structure and description of properties (including antibiotic-like) of allicin were described in the *Journal of the American Chemical Society* in 1944. This was exactly 100 years after the first published description of some organo-sulfur compounds obtained from garlic by the German chemist T. Wertheim. Why so long before identification of allicin?

The answer lies in the instability of allicin. In the pure state or in solution, the substance undergoes chemical transformations that yield sulfur compounds of the type described by Wertheim and, in 1892, by another German chemist, F. W. Semmler. We demonstrated that these altered substances did not account for garlic's antibiotic properties.

The "trick" to isolating allicin from an extract from crushed garlic consisted of co-distilling the compound together with water vapor at low pressures and temperatures and separating certain impurities by selective use of solvents. Upon isolation, it was necessary to conduct any analytical work and physical measurements promptly. Water solutions of allicin were stored frozen until needed. Earlier studies using steam distillation and harsher treatments had resulted in chemical breakdown of allicin.

We also showed that allicin is not present as such in garlic, but is generated by the interaction of a stable precursor with an enzyme when the cloves are cut or crushed. Interestingly, a dehydrated powdered prepara-

tion from garlic was available (Basic Vegetables Co., Vacaville, California) that contained intact precursor and enzyme, which upon addition of water led to formation of allicin.

Allicin and a number of its chemical relatives shortly thereafter were synthesized with collaboration of a colleague, L. D. Small.

My research priorities soon were shifted to other directions, and pursuits on garlic research were followed up by a number of notable scientists. Preliminary clinical studies with topical preparations containing allicin were explored, antifungal activities demonstrated, but due to odor, product development was discontinued at that time.

As a chemist, an exciting aspect of allicin was the novelty of its structure at the time of its discovery. The "thiosulfinate" structural moiety containing two linked sulfur atoms with an oxygen attached to one was previously unknown. This is a highly reactive chemical and biochemical structure.

In the intervening years to the present, advances in separation and structure identification technologies in the hands of research scientists have led to the discovery of a number of compounds in garlic related to allicin and to other novel substances derivable from garlic. Some of these may have biomedical potentials. Particularly noteworthy among these discoveries over the past 25 years have been the research contributions of Eric Block at SUNY Albany.

Although many reports have appeared describing medical impressions from studies with garlic preparations, label claims for medical virtues cannot be made in the U.S. Food and Drug regulations would require evidence of efficacy based on so-called "adequate and well controlled studies," which would require major commitments of money and research with uncertainty of success and of market exclusivity.

Perhaps, in countries having a limited medical armamentarium, a lesson might be taken from Soviet doctors who, during World War II, not having penicillin, used crushed garlic preparations to treat amputation wounds to prevent infections.

*[Note: Last March, Eric Block suggested that I contact Chester Cavallito, the discoverer of Allicin for a Press article. It took me 8 months to get to it, but what a great story! A young biomedical chemist, unable to acquire penicillin because of the war, walks out in the foothills of the Adirondack Mountains and collects 200 plants to screen for anti-microbial properties. He finds activity with garlic, which is inconsistent with current literature, and further investigates to isolate new substances (Allicin) and determine their properties. His findings were published in 1944, but his employer didn't continue the product development because of the smell! When asked why he named it Allicin, the response was, "It was close to Allium, and there was no other substance so named." Many thanks to Chet for the history cartoons and article, and Eric for the push. (D.S.)]*

## TRUE GARLIC SEED: How will it help growers?

By Angel M. O'Callaghan, 146 Grandview Court, Ithaca, NY 14850 (607-277-4268)

In the long history of domesticated garlic, there has never been a mention of this plant being reproduced by seeds. Apparently, it has been a sterile plant, propagated in the same way, for many thousands of years. The ancient Egyptians, the Mongols, the Romans, all grew the crop by first breaking open bulbs and planting cloves. They were as dependent on seed cloves as growers are now, whether in New York, Argentina, or Poland.

Interesting and exciting news for garlic producers is that scientists have recently been able to generate actual garlic seeds. Some commentators have pointed out that garlic's closest wild relative, *Allium longicuspis*, is not sterile. This has led them to believe that at least some garlic has been producing seed all along. Unfortunately, the evidence for this has been pretty slim.

In the 1980s, Professor T. Etoh, a Japanese researcher, found a variety in Central Asia that occasionally formed seeds. Then in 1994, Dr. Phil Simon at the USDA in Wisconsin and his coworkers published a method to promote seed formation in garlic. Unfortunately, this method is not one that people will be able to use conveniently in the field. It requires a laboratory and painstaking attention to remove the scapes, remove the tiny bulbils from around the flowers in the scape, hand pollinate the flowers with pollen from other scapes, keep the temperature moderated, examine each of the pollination sites for seed, etc. Even with the advantages of laboratory facilities, viable seed occurs only rarely.

Because true garlic seed production is such an involved process, it's unlikely that there will be seed on sale by the pound anytime soon. In other words, growers will probably continue using the same expensive planting material they have used from time immemorial: seed cloves. Even if seed were on hand, most growers might prefer to use cloves anyway. A tiny seed does not yield the same burly plant that a clove will. It could be more like the situation of a potato grower, who uses cut tubers for planting material and leaves the seed work to the plant breeders.

So what use is this seed production for people who are growing garlic in the field? Although there will probably not be seeds available for planting, this development ultimately will benefit growers.

Anyone who grows or knows garlic is aware that it is hard to tell one type of topset from another—the different names given to varieties do not necessarily mean that they are distinct. Dissimilarity in bulb size, disease resistance, even the colors of clove wrappers, none of these is positive proof that one type is actually different from another. Growing conditions can have a huge influence in the appearance and yield. Will this variety perform better than one that is being grown now? It's not easy to tell just by looking at bulbs.

Because garlic has been reproduced asexually, genuine differences between types have arisen at random.

At this moment, the only tools accessible to a grower trying to get the best yield and the least amount of disease are selection of planting material and good agricultural practice. The consequence of using these tools has been not only good garlic, but good farmers, as well. This is a limited set of options, however. If varieties with higher resistance to certain pathogens could be developed, those careful agricultural practices would have even better results.

This is a possible scenario: Sometime in the future, using the methods that Dr. Simon has developed, a breeder will take pollen from one cultivar that has shown itself to be highly resistant to fungus and use it to fertilize the ovules of another cultivar that gives large yields wherever it's grown. The resulting seeds, when grown out, would presumably produce plants with high yield and little infection by fungus. Although the seeds of this new variety would not be for sale, the garlic itself would. Growers would be able to buy seed cloves of this improved variety, and produce a high-yielding, fungus-resistant crop in their own fields.

Another possible benefit of seed production would be elimination of viruses. Because all propagation of garlic has been, up to this point, asexual, viruses present in cloves have been transmitted from one generation to the next. Research indicates that virtually all garlic is heavily infected with viruses, which might be decreasing yields. Up to now, scientists have tried to eliminate viruses by taking tiny amounts of green leaf tissue from within the clove or topset bulbil and have grown out several generations of it in sterile agar culture. This is quite an enterprise!

Many viruses that can be found in cloves, however, are not seed-borne, i.e., they are not found in the true seed. When seed is planted and grown (assuming that the plant is not infected later by aphids, for example), the resulting garlic plants would not carry virus. This could be a major advantage to growers, who would then be able to buy cloves and use this uninfected planting material. Without viral infection, the yield of any variety would probably be considerably higher.

The same holds true for nematodes: they may be carried on cloves, and the processes for eliminating them are labor-intensive. They are not seed-borne, however, and true seed could be very important in decreasing their population and subsequent damage.










All of this is still somewhere in the future. The process has not gotten into mass production, and, for the moment, the amount of true seed is quite meager. As work continues, viable garlic seed, and resultant bulbs, will probably become more widespread.

When this happens, the garlic bulbs produced with true seed will no doubt command a higher price. With the potential advantages in production of new varieties and a decrease in the amount of virus infection, growers might find that it would be worth top dollar.



# GSF ORDER FORM



<b>GSFGARLIC BIBLIOGRAPHY</b> (180 Selections, 10 pgs.)	_____	X \$3.00 =	_____
<b>GSF/CORNELL REPORT #387</b> (Garlic, 10 pgs) (Comes with membership)	_____	X \$3.00 =	_____
<b>CANADIAN GARLIC REPORT</b> (Dr. Brammall, 6 pgs.)	_____	X \$2.00 =	_____
<b>GARDENING GARLIC IN THE NORTH COUNTRY</b> (Tim King, Long Prairie, MN, 4 pgs.)	_____	X \$2.00 =	_____
<b>WORLD GARLIC CONGRESS ABSTRACTS</b> (48 pgs.)	_____	X \$8.00 =	_____
<b>EARLY FACT SHEET &amp; SMALL BIBLIOGRAPHY</b> (10 pgs.)	_____	X \$3.00 =	_____
<b>ONIONS AND GARLIC</b> (Louis Van Deven, 114 pgs.)	_____	X \$6.00 =	_____
<b>ELEPHANT GARLIC GROWING GUIDE</b>	_____	X \$15.00 =	_____
<b>T-SHIRTS</b>	<b>S M L XL</b>		
"GARLIC PRESS"	   	_____	X \$10.00 = _____
"FOOD IS MEDICINE"	   	_____	X \$10.00 = _____
<b>GARLIC PRESS SETS</b>			
Set #1 (Issues #1-#8)		_____	X \$7.00 = _____
Set #2 (Issues #9-#14)		_____	X \$7.00 = _____
Set #3 (Issues #15-#20)		_____	X \$7.00 = _____
Any 2 Sets		_____	X \$12.00 = _____
All 3 Sets		_____	X \$18.00 = _____
<b>MEMBERSHIP IN GARLIC SEED FOUNDATION</b>	<b>Renewal</b>	<b>Zip +4</b>	<b>per</b>
(includes <b>GARLIC PRESS</b> subscription and #387)		_____	<b>year</b>
			X \$10.00 = _____
			<b>TOTAL</b>

Make Checks Payable to: **Garlic Seed Foundation, Rose Valley Farm, Rose, NY 14542-0149**

- \* Members - all prices include postage and New York State Sales Tax
- \* Non-members - please add 15% for shipping and handling
- \* PLEASE - U.S. FUNDS ONLY**

## Unusual Behavior: Could This Be You?

I enjoy scanning science abstracts, especially about garlic. Here's one that really gets wild from the University of Helsinki, Finland ... Titled: *Garlic: a sensory pleasure or a social nuisance?*

A total of 100 female and male shoppers in Helsinki were interviewed to evaluate beliefs, attitudes and norms concerning the consumption of garlic. In a subsequent postal questionnaire, the annoyance related to the smell of garlic, compared with other social odors, was also measured. The most frequent beliefs about garlic pertained to its good taste, unpleasant smell, and healthiness. Users and non-users showed distinctly different belief patterns. Sweat and alcohol were considered the most annoying social odors, and garlic and perfume/aftershave the least so. The Fishbein-Ajzen model, in which individual beliefs and their evaluations as well as subjective norms were used as predictors, explained 35-36% of the variation of the reported consumption and intention to use garlic. The predictive power of the model rose to 56-62% when past behavior was included as a third independent variable. Although the predictive power of attitudes was greater than that of subjective norms, the latter were also significant predictors. Thus, use of garlic is a somewhat unusual form of food-related behavior in that it is controlled by both attitudes and normative factors.

## Marketing Strategies

**GARDENERS**

**Plant Garlic in October!**

**3 Naturalized Garlic Cultivars for this area. NOFA Certified**

*White House Farm*

**607-843-8473.**

Check out this nice piece of "selling your crop," run in a weekly advertising circular (Pennysaver around here). Education and information, local, easy to read, nice presentation even without a graphic. (D.S.)



LABEL ORANGE? Zip + 4  
LABEL GREEN? Time to renew  
membership!

*Roundtable Discussion with Phil Simon  
Economic Worksheet  
Discover of Alliin  
Garlic the Natural Wormer  
Will True Garlic Seed Help Growers?*

GARLIC SEED FOUNDATION  
ROSE VALLEY FARM  
ROSE, NY 14542-0149

FIRST-CLASS MAIL  
ZIP + 4 PRESORT  
U.S. POSTAGE PAID  
Rose, NY  
PERMIT No. 7

## **GARLIC GATHERINGS**

### **NEW YORK STATE VEGETABLE CONFERENCE**

February 8 — 9 to 11 AM  
Sheraton Conference Center, Syracuse

Topics include research,  
production and marketing

Contact: Jean Warholic, NYSVGA, 607-539-7648

---

### **ONTARIO HORTICULTURAL CROPS CONFERENCE**

February 14 • Constellation Hotel • Toronto

Full Day of production, varieties,  
economics and the Ontario Garlic Growers

Association Contact: Jody Bodnar 519-426-7120

