



DETECTING AND MANAGING BLOAT NEMATODE IN GARLIC



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Distribution of GBN



*There may be many more sites
that are still undetected*

2010: mostly post-harvest samples

- Growers detected problems during harvest or grading
- Poor storage ability, discoloration, missing wrapper leaves
- Increased incidence of soft rots and secondary organisms. Possibly related to increased *Fusarium* infection as well.



In-season damage caused by GBN

- ❑ Damage to basal plate, bulb and leaves—less damage to actual roots
- ❑ Bloating of stem and leaves if infection occurs early
- ❑ Early yellowing or browning of leaves



More examples of damage



Image: www.omafra.gov.on.ca

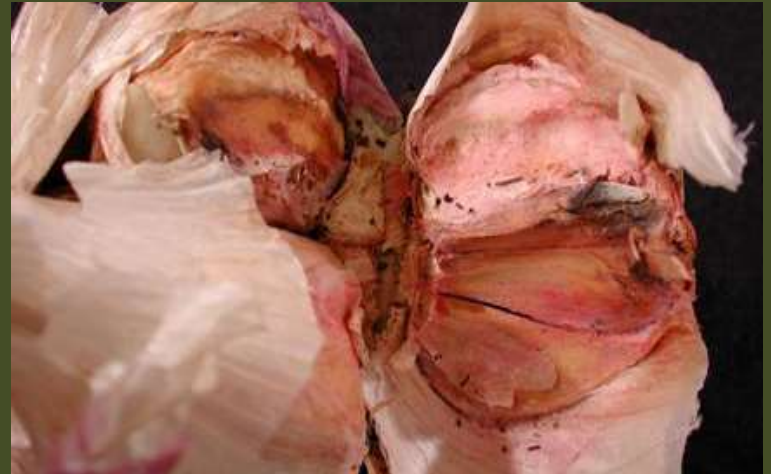
More damage



Image: George S. Abawi

Comparison to Fusarium spp.

- ❑ Multiple different species, causing basal rots and dry bulb rots
- ❑ Infected areas may have pink staining, and mycelia may be present
- ❑ Bulb rot begins as brown lesions that become sunken over time



Images: science.oregonstate.edu

Fusarium vs GBN

- GBN does not turn bulbs pink
- GBN does not feed on roots—roots are present or absent, but not damaged
- GBN deforms leaves if present early—fusarium does not
- GBN causes soft rots; fusarium is a dry rot
- GBN causes premature leaf browning
- Both damage the basal plate
- GBN may make garlic more susceptible to fusarium

IF IN DOUBT, HAVE IT TESTED!

How do you test your garlic?

- Currently farms that have not tested before can send a sample to
Dr. George Abawi:
630 West North Street
NYSAES
Dept of Plant Pathology
Geneva, NY 14456
- Send 10 suspicious looking (but still reasonably intact) heads of each variety/field that you want tested
- We are exploring a certification program-stay tuned!



Managing GBN

- Do not introduce GBN onto your farm!
 - Buy seed from reputable vendors
 - Have your seed sources tested
- If you have GBN create a rotation that does not include alliums or alternate hosts for 4 years
 - Celery
 - Parsley
 - Miner's lettuce
 - Hairy nightshade
 - Salsify

Possible control strategies

- Soil fumigation: Vapam and Telone-T17
- Bio-fumigation: examining mustards and sorghum-sudangrass this summer
- Low levels can explode to very damaging levels in one season—threshold is zero



Seed treatments are not 100%

- Chemical seed treatments are not labeled in NY
- Surface treatments are not 100% effective because nematodes move into the clove tissues
- Hot water treatments somewhat effective-but somewhat isn't good enough!

Future steps

- Working to get Vydate labeled
- Establish how widespread the problem really is
- Seed certification program
- Biofumigant work
- In-season identification

Questions?



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