UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 17, Number 7 June 15, 2006

CROP CONDITIONS

Each day of sunny weather boosts the crops, helps dry out soaked fields, and gives another chance to catch up. Last week, throughout New England, additional inches of rain worsened field conditions and delayed planting further. Since Sunday, sun returned and made it feel like June and made it possible to do what needs to be done in June. Heavy soils, whether near a flooded river or on a hillside, were saturated or had standing water. By contrast, light loamy or sandy fields were accessible. Trying to get into fields before they are dry can lead to deep ruts, compacted soil, bogged down equipment, and hot tempers (or a good story, depending on your point of view). Wherever possible, growers are cultivating to open up the soil, apply fertilizer, and get ahead of the weeds. Beetles are active: striped cucumber beetle, Colorado potato beetle, flea beetle (on eggplants and tomatoes as well Brassicas) are actively feeding and producing their offspring. Because of early warmth in May, there will be sources of early corn and other crops, but many growers will be waiting for crops that are late or had to be replanted. Major skips in planting dates will make regular harvests a challenge this season. We need a full weekend of sunny weather to boost farmstand and farmers market plants sales, while home gardeners are still in the mood to plant. Strawberry season is starting, along with first harvest of broccoli and continued picking of lettuce, bok choi, lettuce, salad greens, spinach, radishes, green onions. Asparagus is nearing the end of picking.

Early warnings from outside the region: Potato leafhopper has been observed in New Jersey potatoes, so it is on its way north. Downy mildew has been confirmed in southeast Michigan on slicing cucumber. That's pretty far north, but also pretty far west. The downy mildew forecast center <http://www.ces.ncsu.edu/depts/pp/cucurbit/> , which tracks outbreaks of this disease and issues downy mildew risk forecasts for the entire eastern US, states that the risk of downy mildew is LOW everywhere north of South Carolina and east of northwest Ohio. Phytophthora was observed in New Jersey peppers. Watch out for Colorado Potato Beetle egg hatch as hot weather arrives.

A FEW THOUGHTS ON WET FIELDS AND HERBICIDES

During this very wet spring, growers are faced with the potential for poor herbicide performance combined with a limited ability to cultivate. While rainfall after herbicide applications is usually welcome, excess rainfall can move the herbicide below the zone in which it is most effective, usually the top inch of soil. In some cases, movement of that herbicide will result in crop injury.

If a field needs to be replanted due to poor crop germination and a preemergence herbicide has already been applied, it would be best to work the soil, replant the field, and apply the herbicide again at half the rate. If the herbicide was applied pre-plant and incorporated, work the soil again but only to the depth that the herbicide was originally incorporated. If the soil needs to be worked more deeply, up to half the herbicide can be re-applied. Use extra caution in 2 cases. The first is when Curbit or Strategy is used on cucurbits. In this case, work the soil at least 6 inches before replanting. The second case is where Prowl was used on sweet corn. I suggest not reworking the soil prior to replanting. If you cannot replant the field in its existing condition, consider working the soil and leaving it fallow until you need it for a later planting, allowing time for the herbicide to break down.

If the field does not need to be replanted but has received excess rainfall, it is possible that herbicide performance will not be acceptable. In this case, be prepared to either cultivate or use a post-emergence herbicide if one is available.

--Rich Bonanno, University of Massachusetts Extension

SWEET CORN UPDATE

This week's sunshine and warmer weather has helped corn green up and make a jump in growth. Still, a lot of corn is smaller than usual for mid June. European corn borer flights declined this week, suggesting that the peak flight is past. Young borers showed up in more fields of early corn – none yet full grown, many just hatched. . Eggs are hatching out and the tiny borers are feeding within the whorl and in the developing tassel.

Scout any corn where tassels are beginning to poke up

It is easy to see the ECB caterpillars when you pull the whorl apart

out of the whorl. Look for feeding damage, frass, or the small black-headed larvae. If you pull out the tassle and its tightly-wrapped leaves, you may see tiny feeding holes. Borer caterpillars are usually in one of the layers of whorl leaves, or inside feeding on the young tassel. Photos show tiny borers at several stages and locations.

At 15% of plants infested (or more), spray. The best time to control ECB is as the green tassel pokes up out of the whorl. Borers are moving out of the tassel at that time, and easily reached by pesticides. Scout again 3-4 days after spraying. At high levels of infestation or where new eggs are still hatching, it often takes two sprays, 5-7 days apart to bring the population under control. Earlier spraying (at the whorl stage) does not give improved control compared to timing at tassel emergence.

Growers are especially concerned about protecting their

First instar European Corn Borer and feeding damage

early corn, started under plastic, that is costly and valuable. Corn that was planted under plastic and is entering silk stage now should be protected during silking, even if the tassel stage was not infested. We know that ECB eggs are still hatching, but eggs may not have hatched early enough to cause feeding in the whorl or tassel, but larvae may head straight for the ear. Use one or two sprays during silking, at weekly intervals. If plastic corn is just now showing tassels deep in the whorl, scout for ECB as described above.

"New to You" – As part a two-year project with the New England Vegetable and Berry Growers Association and with Extension programs in NH, CT and Maine, the UMass Vegetable Program is working with sweet corn growers to test safer, effective products that most growers have not tried in corn. These have been on the market for several years, have a good track record for effectiveness, and are safer for the user, for water and soil, and for beneficial insects. They do cost somewhat more per acre than the current conventional standard synthetic pyrethroids or carba-

European Corn Borer caterpillar on tassel

mates, which may be one reason that growers have shied away from them.

In various surveys conducted in New England, we find that the most commonly used insecticides in sweet corn are Lannate (methomyl, a cabamate) and Warrior (lambda-cyhalothrin, a pyrethroid). These are generally regarded as effective, are inexpensive, but they have some disadvantages: a heavy toll on the beneficial predators that keep aphids under control or attack caterpillar eggs; higher risk to ground water or surface water; more health risk for the applicator with more need for protective gear; more concern about drift to neighbors. It is also a risk for growers when pest control in a crop depends on just one kind of insecticide chemistry. Alternatives will help reduce the chances of resistance developing.

Pinholes from European Corn Borer on corn leaf

I I Now is a good time to test out one of the new biorational (reduced risk) products for ECB: spinosad (Spintor, Entrust) or indoxycarb (Avaunt) because both are excellent materials for controlling European corn borer. When I spoke at one of the NEVBGA winter meeting about sweet corn products recently, reviewed all the published pesticide trials in sweet corn from 1998 to 2004 to see how spinosad (Spintor or Entrust) compared with lambda-cyhalothrin. Consistently, over many trials, the control with was just as good. Last year, 34 growers in New England participated in the project. 100 acres were sprayed with Avauant and 80 with Spintor. Growers found that, when properly timed, both Avaunt and Spintor worked as well as Lannate or Warrior for control of European Corn Borer. For fall armyworm, Avaunt worked better than the other materials.

Spinosad is toxic to insects that contact leaf surfaces, or that ingest treated plant material. It is a microbial insecticide that is derived from a species of Actinomycetes bacteria; *Saccharopolyspora spinosa,* discovered in soil samples. It is a fermented product, much like the more familiar Bacillus thuringiensis materials we have become familiar with over the years, but lasts longer on the leaf surface B.t. It will provide a full week of protection for most pests on the label. The Restricted Entry Interval is 12 hours,and preharvest interval is one day. This insecticide has extremely low toxicity to mammals (LD5O oral and dermal> 5,000 mg/kg), birds, and many aquatic invertebrates, is moderately to slightly toxic to fish, but is highly toxic to marine mollusks (shellfish). In the environment, its solubility is low (above pH 5), tends to bind to soil particles/organic matter, does not persist in the soil, and ultimately breaks down to CO2 and H20, so it is unlikely to leach to groundwater. It is a general use product and in most states it does not require posting of pesticide warnings after applications. The dry formulation is allowed in certified organic production. Shelf life for either product should be at least two years, which is helpful since the product is sold in quantities that are greater than smaller farm operations would need in one year. The label gives a wide rate range for ECB in sweet corn (1.5 oz to 6 oz/A of Spintor, or 0.5 to 2 dry oz .A Entrust). Rates from 3-4 oz per acre liquid product have shown efficacy vs. ECB. Spinsosad can be somewhat toxic to beneficial insects. For example, Trichogramma wasps that land on treated surfaces or that emerge from treated egg masses may be intoxicated.

Indoxycarb (Avaunt) is specifically for caterpillar pests, and is effective against the more difficult-to-control caterpillars such as armyworm. In tests with Trichogramma wasps (parasites of ECB egg masses), indoxycarb was less toxic than spinosad. Its primary means of killing insects is by ingestion, though it does also have contact toxicity. In corn it is only to be used from whorl to pretassel (prior to silking). Indoxycarb is highly toxic to bees that are exposed by contact with treated surfaces. In addition to not using Avaunt in silking corn, it should not be applied to flowering crops, or where flowering weeds or borders are populated with honeybees. It is moderately toxic to birds and mammals and highly toxic to aquatic organisms. Restricted entry interval is 12 hours in nearly all crops and preharvest interval is 3 days in sweet corn. However, REI is is listed as 14 days for hand harvested sweet corn, if exposed less than 24 hours after treatment.

A third product that is relatively new and is safer than pyrethroids is Intrepid (methofenozide), an insect growth regulator which kills insects by interfering with the molting process. It stops larval feeding within hours but takes several days to complete mortality.

If you would like more information, or would like to participate in this project, please call Ruth Hazzard at 413-545-3696 or Amanda Duphily at 413-577-3976.

June 15, 2006 European Corn Borer weekly trap counts:

Location	Z I	E II	Total ECB
S. Deerfield (Umass)	1	8	9
S. Deerfield	0	7	7
N. Hadley	65	1	66
Whately	78	16	94
Hadley (1)	1	11	12
Easthampton	20	7	27
Hadley (2)	1	8	9

--R.Hazzard. (sources include: R. Bonnano,2005 report on NEV &BGA project on Alternatives to Synthetic Pyrethroids for Control of Insect Pests in Corn), T. Jude Boucher,

University of Connecticut

DEALING WITH PHYTOPHTHORA BLIGHT: CHECKLIST OF CULTURAL AND CHEMICAL CONTROL MEASURES

No single strategy should be used to control Phytophthora Blight of cucurbits (cucumbers, squash, pumpkins) and solanaceous crops (tomato, pepper, eggplant). Prevention, a key management tool, involves avoiding moving the pathogen from infested fields into new fields, avoiding planting susceptible crops in fields with a history of disease outbreaks (as well as knowing the history of rented acreage), and reducing soil moisture by improving drainage, planting on raised beds, and avoiding low areas of fields. This article will focus on management: 1) cultural practices for Phytophthora Blight management and 2) chemical control strategies. Fortunately, several new products have been registered recently; unfortunately, success with these products requires an intensive fungicide program and adequate control under severe disease pressure or in the absence of appropriate cultural techniques may not be possible.

Cultural Management Strategies

Crop Rotation: No effective rotation period has been established, though University researchers currently recommend a rotation away from susceptible crops for at least three years. Two years has proven to be ineffective. Oospores, the survival and overwintering stage of the pathogen, can survive in the soil for up to ten years in the absence of a susceptible crop. Observations in the field indicate that once Phytophthora populations reach a certain level and a disease outbreak occurs, lengthy rotations to non-susceptible hosts offer little effectiveness against future disease.

Resistant varieties: Plant resistant varieties whenever possible. 'Emerald Isle', 'Paladin', 'Rainger', and 'Arda' are pepper varieties with moderate to high resistance. Pumpkins with hard, gourd-like rinds are reported to be less susceptible to Phytophthora than conventional cultivars. Examples are 'Lil' Ironsides', 'Apprentice', 'Iron man', Rockafellow', and 'Cannon Ball'. Varieties of cucumber differ in their susceptibility to the disease; active breeding programs are underway to identify cucumber germplasm with resistance and to develop cultivars with enhanced resistance.

Susceptible crops are not equally susceptible; it is possible to choose crops with lower levels of susceptibility where planting in infested fields is the only option. In cucurbits, summer squash, zucchini, and pumpkin were the most susceptible; other cucurbit crops experience fruit rot, but are largely free of leaf, stem, and crown rot. Peppers are less susceptible than cucurbit crops; in tomatoes and eggplant, infection is often confined to fruit and stems and plant death occurs only occasionally.

No-Till Cover Crops and Mulches: Phytophthora spreads within fields primarily with water; rain splashing from soil in the row or between rows to foliage and fruit causes new infections. Splash dispersal of inoculum can be reduced by straw mulch between rows or on bare soil with stubble from a cover crop. Inoculum can move rapidly on black polyethylene mulch and bare soil. Planting into a no-till cover crop can have a large impact on the development of Phytophthora Blight epidemics in pepper and pumpkins. Combining no-till cover crop production with moderately resistant varieties can reduce fungicide inputs, resulting in reduced production costs and delay the development of fungicide resistance in pathogen populations.

Irrigation Management: Both rainfall and irrigation have large impacts on the time of onset and severity of Phytophthora Blight epidemics. Disease incidence can be very high after heavy rainfall and frequent drip irrigation. Irrigation frequency, duration, and the mode of irrigation can all impact disease severity. Disease onset is earlier and severity higher with frequent irrigation. A less frequent irrigation schedule of 21 days versus 7 days resulted in less Phytophthora Blight without a reduction in yield. Alternate row irrigations where furrow irrigation is used can reduce disease incidence. Placement of drip irrigation emitters can have a large impact on disease severity; avoid drip irrigation close to plant stems and crowns. Subsurface (6 inches below ground) drip irrigation results in the most efficient control of the pathogen. Maintenance of an irrigation water source free of the pathogen is an important management strategy; do not irrigate from a pond that contains water drained from an infested field.

Improve Drainage during the growing season: If necessary, subsoil after heavy rainfall events. Sub-soiling along the edges of driveways may be a good idea as disease symptoms often appears first along the edges of driveways. Avoid standing water in your fields. Do not make compaction worse by driving on wet soil.

Monitoring and Sanitation: Scout fields for symptoms on a regular basis, especially after heavy rains. Pay special attention to areas of poor drainage. When symptoms are located in a small section of a field, disk the area in to clean it- up. Begin with a border of healthy appearing plants around the affected area. Do not discard cull fruit in or near the field, whether diseased or healthy. Harvest healthy fruit from infested fields promptly; especially before a rain forecast. Check fruit after harvest for developing symptoms; discard infected fruit before the fungus spreads further. Don't save seed from a field where Phytophthora Blight occurred. At the conclusion of the growing season, promptly till under all plant debris to reduce in-field spread and late season infection of plants and fruit not harvested.

Chemical Management

Fungicides can be a valuable tool in managing Phytophthora Blight; however, no materials tested to date in University trials have been so effective that they can be relied upon as the sole management tactic for this disease. Fungicide applications must be initiated before symptoms are observed or at planting and repeated at 7-10 day intervals, especially when conditions are favorable for disease development (warm, wet conditions).

Fumigants: The scarcity of uninfested fields has led some growers to soil fumigation as a control measure. Methyl bromide is favored due to its short plant-back interval and its effectiveness. Alternatives include Telone C35, Vapam HL, chloropicrin, and K-Pam. These materials are highly toxic and require specialized equipment and techniques to be applied safely and effectively.

In-furrow Treatments: Seed treatment with mefenoxam (Apron XL LS) or metalaxyl (Allegiance) protects cucurbit seedlings for up to 5 weeks after sowing seed. The new phosphorous acid fungicides (ProPhyt, Phostrol, Fosphite) are labeled for use as a drench treatment to transplants or as an in-furrow drench at planting.

Foliar/Fruit Treatments:

•copper sulfate Group M1 (Cuprofix Disperrs, Kocide): Tank mixes of copper sulfate with Acrobat or Tanos decreased vine infection and increased fruit number and yield in processing pumpkin. In summer squash, copper sulfate tank mixed with Ranman 400 SC & Previcur Flex, and with Tanos 50 DF, provided effective control.

•cymoxanil Group 27 (Curzate 60 DF): A locally systemic fungicide, Curzate is registered on potatoes and tomatoes, and for Downy Mildew control of cucurbits. It must be tank mixed with a protectant fungicide such as maneb or chlorothalonil.

•dimethomorph Group 15 (Acrobat WP, Forum 4.18 SC): This product is labeled for use on all cucurbit crops beginning when plants are 4-6 inches tall. The label specifies that it must be tank- mixed with another fungicide and applied no more than twice before alternating with another fungicide. Acrobat WP alternated with Phostrol 6.69 EC had significantly more marketable pumpkin fruit, the lowest percentage of fruit with Phytophthora rot, and the least foliage dieback in a trial of alternative products in 2005.

•famoxadone Group 11 & cymoxanil Group 27 (Tanos): Tanos must be tank-mixed with a copper fungicide and a fungicide containing maneb (contact fungicides). Consecutive applications are not allowed by the label. Vine and fruit infection were significantly reduced and fruit number and yield significantly increased by applications of Tanos plus Ranman in processing pumpkin.

•fenamidone Group 11 (Reason 500 SC): Reason tank mixed with Previcur Flex reduced disease incidence and final disease and significantly increased fruit number and yield in squash when applied as a foliar spray. Avoid alteration of Reason with other strobilurin (Group 11) fungicides.

•mancozeb Group M3 & zoxamide Group 22 (Gavel 75 DF): Gavel is not registered for use on pumpkin as it contains mancozeb. It is registered on potatoes, tomatoes, and cucurbits for downy mildew, Alternaria, and fruit and stem rots.

•phosphorous acid Group 33(ProPhyt, Phostrol, Fosphite): These fungicides are more effective than Aliette and have systemic activity by promoting the plant's natural defense system. They are registered for foliar treatments and as drench treatments. Drip applications under plastic of ProPhyt decreased both disease incidence and percent disease over non-treated controls and significantly increased fruit number in summer squash. Phosphorous acid products work best when used as a tank mix partner.

Not Registered in Massachusetts (yet):

•cyazomid Group 21 (Ranman 400 SC): This product is registered in New York on potatoes, tomatoes, and cucurbits and has limited systemic activity. The label requires that Ranman be tank mixed with a protectant fungicide as well as alternated with other labeled fungicides with a different mode of action (FRAC Group number).Use an organosilicone surfactant.

•propamocarb Group 28 (Previcur Flex): This product must be tanked mixed with a contact fungicide such as maneb or chlorothalonil; chlorothalonil is the preferred partner. A Reason & Previcur Flex tank mix had higher yield and greatest fruit numbers in a summer squash trial.

Resistance Management

Just as it is unwise to rely on one management tactic for Phytophthora Blight, it is equally imprudent to rely on a single fungicide or class of fungicides. Over-use of metalaxyl (Ridomil Gold) to manage the pathogen has resulted in fungus populations with high levels of resistance to this chemical. Many of the new products described above also have a high potential for resistance development because they have a single site of action within the fungus. Many MUST be tank mixed with a protectant or contact fungicide; all labels carry cautions against consecutive applications of one product or product from one chemical class (FRAC Group number). University efficacy trials are dominated by treatments that are tank mixes and/or rotations of two or more tank mixes. For example, a drench treatment of ProPhyt applied in-furrow or to transplants, followed by Acrobat & copper, alternated with Tanos & maneb & copper, or Ranman & copper, or ProPhyt, Fosphite, or Phostrol, alternated with Gavel.

The specific directions on the fungicide labels must be

adhered to; they are the law and supersede any recommendations wherever there is a conflict. No endorsement of any commercial product, trade, or brand name is intended.

Results of University trials can be viewed on-line with a subscription to the Plant Management Network (Fungicide & Nematicide Tests, Biological & Cultural Controls) www.plantmanagementnetwork.org.

--Bess Dicklow and R.L. Wick, Dept. of Plant Soil and Insect Science, University of Massachusetts

NEW VEGETABLE CROP INSECTICIDE/ MITICIDES/MOLLUSCIDES

Miticide/Insecticides for greenhouse and field crops:

Abba 0.15EC (abamectin): A selective insecticide/miticide for Colorado potato beetle on tomato and potato or mites and leafminers on cucurbits, tomatoes, peppers and celery. Also for leafminers on head lettuce. It has a 3 to 14 day-to-harvest (dh) restriction and a 12 hour re-entry interval (REI). Abba is in insecticide group #6 (avermectins) and was derived from a metabolite of a soil bacterium, Streptomyces avermitilis.

Acramite 50WS (bifenazate): A selective miticide for use on cucurbit and fruiting vegetable crops. An important new tool to help control mites on eggplant. It has a quick knockdown and long residual period of activity (up to 28 days). Acramite is a member of insecticide group # 28 (carbazates) and has a 3 dh restriction and a 12 h REI. It can not be used on grape tomatoes (< 1 inch in diameter).

Floramite SC (bifenazate): A selective miticide for use on greenhouse tomato varieties greater than 1 inch in diameter when mature. A long-residual (28 days) nerve poison in insecticide group #28 (carbazates) with a 3 dh restriction and a 12 h REI.

Oberon 2SC (spiromesifen): A selective insecticide/miticide primarily for the egg and nymphal stages of mites and whiteflies on cucurbits, solanaceous crops, Brassica, leafy greens, potato and sweet potato. Another important new tool to help control mites on eggplant. Oberon is a member of insecticide group #23 (tetronic acid derivatives), and has a 7 dh restriction and 12 h REI.

Pylon (chlorfenspar): A selective miticide/insecticide that functions as both a contact and stomach poison for mites, thrips and various caterpillars on greenhouse solanaceous crops. It is a member of insecticide group #13 (pyrroles) and has a 0 dh restriction and a 12 h REI.

New broad-spectrum synthetic pyrethroids:

Decis 1.5 EC (deltamethrin): A restricted-use, broad-spectrum, synthetic pyrethroid (insecticide group 3A) registered for caterpillar and beetle pests on sweet corn, cucurbits, solanaceous, and many root crops. It is more toxic than most pyrethroids. Decis has an oral LD50 of 43 mg/kg and carries a Adanger@ skull and cross-bones warning on the label. It has a 1 to 3 dh restriction and a 12 h REI.

Fanfare 2EC (bifenthrin): Similar formulation to the insecticide >Capture.= A restricted-use, broad-spectrum synthetic pyrethroid (insecticide group 3A) registered for most major caterpillar and beetle pests on sweet corn, beans, Brassicas, cucurbits, solanaceous crops, head lettuce and spinach. Like Capture, use is prohibited on sweet corn in all coastal counties. Fanfare has a 40 dh restriction on spinach, but a 1 to 7 dh limit on other crops, and a 12 h REI.

Proaxis 0.5EC (gamma-cyhalothrin): A restricted-use, broad-spectrum, synthetic pyrethroid (insecticide group 3A) registered for most major caterpillar and beetle pests on sweet corn, beans, Brassicas, solanaceous crops, and lettuce. It is also registered for thrips and cutworms on onions. Gamma-cyhalothrin is a mirror isomer of lammbda-cyhalothrin, the active ingredient in >Warrior.= The gamma isomer is reported to be approximately twice as potent as the lambda isomer, therefor, Poaxis is formulated with half the amount of active ingredient and applied at similar rates per acre as Warrior. It has a 21 dh and a 14 dh restriction on dry beans and onions/garlic, respectively, and 1 to 7 dh restriction on other crops, with a 12 h REI.

Seed treatments:

Cruiser 5FS (thiamethoxam): A systemic seed treatment in the neonicotinoid class (insecticide group #4). It is registered for Colorado potato beetle, flea beetle, potato leafhopper and wireworms on potato; seedcorn maggots, flea beetles, white grubs, cutworms and wireworms on sweet corn; and aphids, Mexican bean beetles, potato leaf hoppers, seedcorn maggot and wireworms on bean and peas. Rates are based on row spacing. Do not use subsequent applications of neonicotinoids following seed treatments.

Gaucho 480F (imidacloprid): A systemic seed treatment in the neonicotinoid class (insecticide group #4). Treated seed must be purchased. It is registered for flea beetles, seedcorn maggots and wireworms on sweet corn, and for wireworm and aphids on beans. Do not use subsequent applications of neonicotinoids following seed treatments.

Gaucho MZ (imidacloprid + mancozeb): A systemic seed treatment in the neonicotinoid class (insecticide group #4) premixed with a dithiocarbamate fungicide to help control Fusarium. With only 1.25% imidicloprid, it is registered to aid in the control of aphids, Colorado potato beetle, flea beetle, potato leaf hopper and wireworms on potatoes. Do not use subsequent applications of neonicotinoids following seed treatments.

Genesis 2F (imidacloprid): A systemic seed treatment in

the neonicotinoid class (insecticide group #4). With 21.4% imidacloprid, it is registered to control aphids, Colorado potato beetles, flea beetle, potato leafhopper and wireworms on potatoes. Do not use subsequent applications of neonicotinoids following seed treatments.

Insect growth regulators:

Rimon 0.83EC (novaluron): This insect growth regulator (insecticide group #15) disrupts the insect cuticle formation during molting. It should be used on immature insects only. Rimon is registered for Colorado potato beetle, European corn borer, cabbage looper, cutworms, and whiteflies on potatoes and sweet potatoes. It has a 14 dh restriction and a 12 h REI.

Talus (buprofezin): This insect growth regulator (insecticide group #16) disrupts the insect cuticle formation during molting. Mortality may take 3 to 7 days. It has a long residual period of activity (up to 28 days). Talus is registered for whiteflies, mealybugs and leafhoppers on greenhouse tomatoes. It has a 7 dh restriction and a 12 h REI.

Molluscicide:

Sluggo Snail & Slug Bait (iron phosphate): Iron phosphate disrupts feeding immediately (chemical group 9B) and produces mortality in 3 to 6 days. This is a low-risk material exempt from tolerances on food commodities and has a 0 h REI. It can be applied around any vegetable in the field or greenhouse. Apply in the evening when the soil is moist.

--Published in the May 2006 issue of Crop Talk, Volume 2 Number 1, edited by Jude Boucher, University of Connecticut Cooperative Extension System

REPORTS FROM THE FIELD:

A source of news for vegetable and berry growers

Every two weeks during the growing season, the Vermont Vegetable and Berry News, "Reports from the Field" is published by Vern Grubinger from University of Vermont Extension. The 'reports' are from growers who send in their comments on what's happening in their vegetable and fruit crops. Pithy and to the point, this is always good reading and lets you know what everyone else is dealing with. Growers are located from Northern Vermont to Rhode Island. Vern Grubinger also adds useful articles about pest, crop and disease management, marketing, and upcoming meetings. It is free as an email publication and you can subscribe by emailing vernon.grubinger@uvm.edu and requesting that your name be added to the list. It can also be found at: *http://www.uvm.edu/vtvegandberry*. Phone contact is (802) 257-7967 ext.13.

EVALUATION OF RESISTANCE OF CUCURBIT SPECIES TO PLECTOSPORIUM-TABACINUM

Plectosporium blight, caused by the fungus Plectosporium tabacinum, is a new destructive disease of cucurbits in New England. Seventy-six cultivars of several cucurbit species were evaluated for resistance to blight. The experiment was carried out on three week old plants. Plectosporium tabacinum spores were sprayed onto the seedlings and the seedlings were placed in a moist chamber for 48 hours to encourage disease development. There were four replications for each cultivar and the trial was repeated.

Winter squash, summer squash and pumpkins varied in resistance to Plectosporium. Cucumber cultivars included in this trial did not develop disease. We cannot say for certain that mature plants in the field will behave the same as the seedlings but the data between the two trials was consistent.

For specific cultivar ratings, see UMass Vegetable website under cucurbit crops and *Plectosporium.*

--S.L. Slinski and R.L. Wick, Dept. of Plant Soil and Insect Science, University of Massachusetts

Vegetable Notes, Ruth Hazzard, editor and Kate Reidel, Assistant Editor. Vegetable Notes is published weekly from May to September and at intervals during the off-season, and includes contributions from the faculty and staff of the UMass Extension Vegetable Program, other universities and USDA agencies, growers, and private IPM consultants. Authors of articles are noted; author and photographer is R. Hazzard if none is cited.